

SIGHT REDUCTION TABLES
FOR
SMALL BOAT NAVIGATION

Original work by Hewitt Schlereth

Complement booklet-1
by Jean Villemagne

LATITUDES 0° – 28° , Inclusive
Declinations from 30 to 90 degrees, Inclusive

"The days passed happily with me wherever my ship sailed."

- Joshua Slocum

Sailing Alone Around The World

INTRODUCTION

Sight Reduction Tables For Small Boat Navigation, my abridgment of HO 229's volumes I-IV, published in 1983, achieved its small size by limiting Declination range from 29° North to 29° South, and including just even-numbered LHAs. My book's final strictures were to only cover Latitudes from 58° North to 58° South, and to show them in even-numbered 2° rather than 1° steps.

Although my tables give HO 229's precomputed solutions for sun, moon, planets and 30 of the traditional 57 navigational stars, they do limit offshore sailors to a band of latitudes from one degree south of Cape Farewell to two degrees south of Cape Horn. Iceland and the Antarctic Peninsula are out.

Now, Jean Villemagne, a sailor and kindred spirit in Québec has followed my general approach to compress all six volumes of HO 229 into three much smaller PDF works. He has expanded the range of Latitudes to both Poles, and included all Declinations.

My 1983 book was put together with scissors and rubber cement, many years before such things as personal computers, word processors and PDF documents existed. Jean's books are, like our new age, made with algorithms and a computer.

Jean calls his works booklets, the first two being termed complements because they extend the declinations in my work to 90°.

Complement booklet-1 covers latitudes 0°-28° in even 2° steps. Complement booklet-2 does likewise for latitudes 30°-58°. Jean's third volume, titled Polar Latitudes Booklet, covers from 60° north and south to the Poles. Voilà, Iceland and Antarctica are in, and the 27 traditional navigation stars orphaned by me have a home, as do all the other stars in the sky.

In order to utilize the largest font for his booklets, Jean has left out the Z-Zn conversion rules printed on each page of 229's tables. He's also omitted an interpolation table. As he wrote me, "I was assuming that users are familiar with these two components and will have access to them from elsewhere."

Given our warming climate and seas, it may not be too many years before sailors are able to make high-latitude passages from the Pacific north to Europe, and from the Atlantic north to the Orient. Then Jean's Polar Latitudes Booklet will be a very welcome shipmate.

In any case, may your times at sea pass happily with you wherever you sail, and may Jean's books help you make them so.

Hewitt Schlereth
San Diego, California
February 12, 2019

AUTHOR'S COMMENTARY

I first came across Hewitt's work by pure accident. I was looking for a secondhand set of HO-229 tables edition when my internet request returned "Sight Reduction Tables For Small Boat Navigation."

At first I did not realize how much this book would answer a need I felt optimize onboard space for a planned circumnavigation. However, curiosity made me buy a copy of the original 1983 hardcover edition. Although its small size, general approach and simplicity met my basic requirement to save space, its use became mandatory overtime.

Nevertheless, the book had its limits. After using the tables for over a year, keeping in mind my circumnavigation project and desire to cover all regions on the globe, it became obvious that Hewitt's work was not sufficient.

I looked for ways to fill his missing latitudes and declinations with HO-249, but with no satisfactory results. For one thing, I needed a broader approach than the one provided by HO-249's tables for selected stars, which is too restrictive considering that our sailing is done below the clouds, not above. I therefore decided to add complement booklets to Hewitt's in order to achieve my goal of having a full-range HO-229 table in a compact size.

These complement booklets are in direct continuity with Hewitt's 1983 work and should be considered as a whole. In each PDF document, that booklet's pages are arranged to print in correct sequence on standard 8.5 X 11 paper, by a double-side capable printer. The Polar Latitudes booklet's pages can be printed as is and joined with a spiral binding. Use a clear hard plastic sheet as a cover. You can also use cardboard on which you can print the first page and have it plasticized.

Complement booklets 1 and 2 are also ready to be printed recto-verso at once. After that, the unprinted areas need to be cropped before binding. In both complement booklets SAME latitudes are justified left and CONTRARY latitudes are justified right. This is done to make sure that double-side printing will correctly overlap the tables on each side. The final booklet size should be 5¾ X 8 inches once cropping is complete with a hand paper trimmer. Each pocket booklet can be joined with a spiral binding. Again, use the sheet protection of your choice.

To encourage all who are keeping non-electronic sight reduction alive, I offer these tables freely as long as you don't take any direct or indirect monetary advantage from them in any way (numerical, physical support or else's).

To use any of these tables, you will also need a copy of HO-229 interpolation tables which are not provided in these pages. On Hewitt's suggestion, Zn to Z formulas are presented on the next page as a reminder. If you're not familiar with precomputed inspection sight reduction procedures, "Sight Reduction Tables for Small Boat Navigation" has a chapter on the subject, as do HO-229 and many popular and formal texts.

Jean Villemagne
Mascouche (Québec) Canada
February 20, 2019

Terms of Use

To encourage traditional celestial navigation and to keep non-electronic sight reduction alive, I offer these tables freely as long as you don't take any direct or indirect monetary advantage from them in any way (numerical, physical support or otherwise).

That said, any information provided by this HO-229 abridgment and the three other booklets is for general informational purposes only. All information is provided in good faith. I make no representation or warranty of any kind, express or implied, regarding the accuracy, adequacy, validity, reliability, availability or completeness of any information on this content.

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Azimutal formulas

For North Latitudes

L.H.A. less than 180° $Z_n = 360^\circ - Z$

L.H.A. greater than 180° $Z_n = Z$

For South Latitudes

L.H.A. less than 180° $Z_n = 180^\circ + Z$

L.H.A. greater than 180° $Z_n = 180^\circ - Z$

2°, 358° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	59 56.4	-59.9	3.5	61 56.1	-59.8	3.7	63 55.9	-59.8	3.9	65 55.6	-59.8	4.2	67 55.2	-59.7	4.6
31	58 56.5	-59.8	3.3	60 56.3	-59.8	3.5	62 56.1	-59.9	3.8	64 55.8	-59.8	4.0	66 55.5	-59.8	4.4
32	57 56.7	-59.9	3.2	59 56.5	-59.9	3.4	61 56.2	-59.8	3.6	63 56.0	-59.8	3.9	65 55.7	-59.8	4.2
33	56 56.8	-59.9	3.1	58 56.6	-59.9	3.3	60 56.4	-59.9	3.5	62 56.2	-59.9	3.7	64 55.9	-59.8	4.0
34	55 56.9	-59.9	3.0	57 56.7	-59.8	3.1	59 56.5	-59.8	3.3	61 56.3	-59.8	3.5	63 56.1	-59.8	3.8
35	54 57.0	-59.9	2.9	56 56.9	-59.9	3.0	58 56.7	-59.9	3.2	60 56.5	-59.9	3.4	62 56.3	-59.9	3.6
36	53 57.1	-59.9	2.8	55 57.0	-59.9	2.9	57 56.8	-59.9	3.0	59 56.6	-59.8	3.2	61 56.4	-59.8	3.4
37	52 57.2	-59.9	2.7	54 57.1	-59.9	2.8	56 56.9	-59.8	2.9	58 56.8	-59.9	3.1	60 56.6	-59.9	3.3
38	51 57.3	-59.9	2.6	53 57.2	-59.9	2.7	55 57.1	-59.9	2.8	57 56.9	-59.9	3.0	59 56.7	-59.8	3.1
39	50 57.4	-59.9	2.5	52 57.3	-59.9	2.6	54 57.2	-59.9	2.7	56 57.0	-59.9	2.9	58 56.9	-59.9	3.0
40	49 57.5	-59.9	2.4	51 57.4	-59.9	2.5	53 57.3	-59.9	2.6	55 57.1	-59.8	2.7	57 57.0	-59.9	2.9
41	48 57.6	-59.9	2.3	50 57.5	-59.9	2.4	52 57.4	-59.9	2.5	54 57.3	-59.9	2.6	56 57.1	-59.9	2.8
42	47 57.7	-59.9	2.2	49 57.6	-59.9	2.3	51 57.5	-59.9	2.4	53 57.4	-59.9	2.5	55 57.2	-59.8	2.7
43	46 57.8	-60.0	2.1	48 57.7	-59.9	2.2	50 57.6	-59.9	2.3	52 57.5	-59.9	2.4	54 57.4	-59.9	2.5
44	45 57.8	-59.9	2.1	47 57.7	-60.0	2.1	49 57.7	-60.0	2.2	51 57.6	-59.9	2.3	53 57.5	-59.9	2.4
45	44 57.9	-59.9	2.0	46 57.8	-59.9	2.1	48 57.7	-59.9	2.2	50 57.7	-59.9	2.2	52 57.6	-59.9	2.3
46	43 58.0	-60.0	1.9	45 57.9	-59.9	2.0	47 57.8	-59.9	2.1	49 57.8	-60.0	2.2	51 57.7	-59.9	2.3
47	42 58.0	-59.9	1.9	44 58.0	-59.9	1.9	46 57.9	-59.9	2.0	48 57.8	-59.9	2.1	50 57.8	-60.0	2.2
48	41 58.1	-59.9	1.8	43 58.1	-60.0	1.9	45 58.0	-59.9	1.9	47 57.9	-59.9	2.0	49 57.8	-59.9	2.1
49	40 58.2	-60.0	1.7	42 58.1	-59.9	1.8	44 58.1	-60.0	1.9	46 58.0	-59.9	1.9	48 57.9	-59.9	2.0
50	39 58.2	-59.9	1.7	41 58.2	-59.9	1.7	43 58.1	-59.9	1.8	45 58.1	-60.0	1.8	47 58.0	-59.9	1.9
51	38 58.3	-59.9	1.6	40 58.3	-60.0	1.7	42 58.2	-59.9	1.7	44 58.1	-59.9	1.8	46 58.1	-59.9	1.8
52	37 58.4	-60.0	1.6	39 58.3	-59.9	1.6	41 58.3	-60.0	1.7	43 58.2	-59.9	1.7	45 58.2	-60.0	1.8
53	36 58.4	-59.9	1.5	38 58.4	-60.0	1.5	40 58.3	-59.9	1.6	42 58.3	-59.9	1.6	44 58.2	-59.9	1.7
54	35 58.5	-60.0	1.5	37 58.4	-59.9	1.5	39 58.4	-59.9	1.5	41 58.4	-60.0	1.6	43 58.3	-59.9	1.6
55	34 58.5	-59.9	1.4	36 58.5	-59.9	1.4	38 58.5	-60.0	1.5	40 58.4	-59.9	1.5	42 58.4	-60.0	1.6
56	33 58.6	-60.0	1.3	35 58.6	-60.0	1.4	37 58.5	-59.9	1.4	39 58.5	-60.0	1.5	41 58.4	-59.9	1.5
57	32 58.6	-59.9	1.3	34 58.6	-59.9	1.3	36 58.6	-60.0	1.4	38 58.5	-59.9	1.4	40 58.5	-59.9	1.4
58	31 58.7	-60.0	1.2	33 58.7	-60.0	1.3	35 58.6	-59.9	1.3	37 58.6	-59.9	1.3	39 58.6	-60.0	1.4
59	30 58.7	-59.9	1.2	32 58.7	-59.9	1.2	34 58.7	-60.0	1.3	36 58.7	-60.0	1.3	38 58.6	-59.9	1.3
60	29 58.8	-60.0	1.2	31 58.8	-60.0	1.2	33 58.7	-59.9	1.2	35 58.7	-59.9	1.2	37 58.7	-60.0	1.3
61	28 58.8	-59.9	1.1	30 58.8	-59.9	1.1	32 58.8	-60.0	1.2	34 58.8	-60.0	1.2	36 58.7	-59.9	1.2
62	27 58.9	-60.0	1.1	29 58.9	-60.0	1.1	31 58.8	-59.9	1.1	33 58.8	-59.9	1.1	35 58.8	-59.9	1.2
63	26 58.9	-59.9	1.0	28 58.9	-59.9	1.0	30 58.9	-60.0	1.1	32 58.9	-60.0	1.1	34 58.9	-60.0	1.1
64	25 59.0	-60.0	1.0	27 59.0	-60.0	1.0	29 58.9	-59.9	1.0	31 58.9	-59.9	1.0	33 58.9	-59.9	1.1
65	24 59.0	-59.9	0.9	26 59.0	-59.9	0.9	28 59.0	-60.0	1.0	30 59.0	-60.0	1.0	32 59.0	-60.0	1.0
66	23 59.1	-60.0	0.9	25 59.1	-60.0	0.9	27 59.0	-59.9	0.9	29 59.0	-59.9	0.9	31 59.0	-59.9	1.0
67	22 59.1	-59.9	0.8	24 59.1	-60.0	0.9	26 59.1	-60.0	0.9	28 59.1	-60.0	0.9	30 59.1	-60.0	0.9
68	21 59.2	-60.0	0.8	23 59.1	-59.9	0.8	25 59.1	-59.9	0.8	27 59.1	-59.9	0.8	29 59.1	-59.9	0.9
69	20 59.2	-60.0	0.8	22 59.2	-60.0	0.8	24 59.2	-60.0	0.8	26 59.2	-60.0	0.8	28 59.2	-60.0	0.8
70	19 59.2	-59.9	0.7	21 59.2	-59.9	0.7	23 59.2	-59.9	0.7	25 59.2	-59.9	0.8	27 59.2	-60.0	0.8
71	18 59.3	-60.0	0.7	20 59.3	-60.0	0.7	22 59.3	-60.0	0.7	24 59.3	-60.0	0.7	26 59.2	-59.9	0.7
72	17 59.3	-59.9	0.6	19 59.3	-59.9	0.7	21 59.3	-60.0	0.7	23 59.3	-60.0	0.7	25 59.3	-60.0	0.7
73	16 59.4	-60.0	0.6	18 59.4	-60.0	0.6	20 59.3	-59.9	0.6	22 59.3	-59.9	0.6	24 59.3	-59.9	0.6
74	15 59.4	-60.0	0.6	17 59.4	-60.0	0.6	19 59.4	-60.0	0.6	21 59.4	-60.0	0.6	23 59.4	-60.0	0.6
75	14 59.4	-59.9	0.5	16 59.4	-59.9	0.5	18 59.4	-59.9	0.5	20 59.4	-59.9	0.6	22 59.4	-59.9	0.6
76	13 59.5	-60.0	0.5	15 59.5	-60.0	0.5	17 59.5	-60.0	0.5	19 59.5	-60.0	0.5	21 59.5	-60.0	0.5
77	12 59.5	-59.9	0.5	14 59.5	-59.9	0.5	16 59.5	-60.0	0.5	18 59.5	-60.0	0.5	20 59.5	-60.0	0.5
78	11 59.6	-60.0	0.4	13 59.6	-60.0	0.4	15 59.5	-59.9	0.4	17 59.5	-59.9	0.4	19 59.5	-59.9	0.4
79	10 59.6	-60.0	0.4	12 59.6	-60.0	0.4	14 59.6	-60.0	0.4	16 59.6	-60.0	0.4	18 59.6	-60.0	0.4
80	9 59.6	-59.9	0.4	11 59.6	-59.9	0.4	13 59.6	-59.9	0.4	15 59.6	-59.9	0.4	17 59.6	-59.9	0.4
81	8 59.7	-60.0	0.3	10 59.7	-60.0	0.3	12 59.7	-60.0	0.3	14 59.7	-60.0	0.3	16 59.7	-60.0	0.3
82	7 59.7	-60.0	0.3	9 59.7	-60.0	0.3	11 59.7	-60.0	0.3	13 59.7	-60.0	0.3	15 59.7	-60.0	0.3
83	6 59.7	-59.9	0.2	8 59.7	-59.9	0.2	10 59.7	-59.9	0.2	12 59.7	-59.9	0.3	14 59.7	-59.9	0.3
84	5 59.8	-60.0	0.2	7 59.8	-60.0	0.2	9 59.8	-60.0	0.2	11 59.8	-60.0	0.2	13 59.8	-60.0	0.2
85	4 59.8	-59.9	0.2	6 59.8	-59.9	0.2	8 59.8	-59.9	0.2	10 59.8	-59.9	0.2	12 59.8	-59.9	0.2
86	3 59.9	-60.0	0.1	5 59.9	-60.0	0.1	7 59.9	-60.0	0.1	9 59.9	-60.0	0.1	11 59.9	-60.0	0.1
87	2 59.9	-60.0	0.1	4 59.9	-60.0	0.1	6 59.9	-60.0	0.1	8 59.9	-60.0	0.1	10 59.9	-60.0	0.1
88	1 59.9	-59.9	0.1	3 59.9	-59.9	0.1	5 59.9	-59.9	0.1	7 59.9	-59.9	0.1	9 59.9	-59.9	0.1
89	1 00.0	-60.0	0.0	3 00.0	-60.0	0.0	5 00.0	-60.0	0.0	7 00.0	-60.0	0.0	9 00.0	-60.0	0.0
90	0 00.0	-60.0	0.0	2 00.0	-60.0	0.0	4 00.0	-60.0	0.0	6 00.0	-60.0	0.0	8 00.0	-60.0	0.0
	0°			2°			4°			6°			8°		

2°, 358° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 54.8	-59.7	5.0	71 54.3	-59.7	5.6	73 53.6	-59.5	6.3	75 52.8	-59.4	7.1	77 51.8	-59.4	8.3
31	68 55.1	-59.8	4.8	70 54.6	-59.7	5.2	72 54.1	-59.7	5.8	74 53.4	-59.6	6.6	76 52.4	-59.4	7.6
32	67 55.3	-59.7	4.5	69 54.9	-59.7	4.9	71 54.4	-59.6	5.5	73 53.8	-59.6	6.1	75 53.0	-59.4	7.0
33	66 55.6	-59.8	4.3	68 55.2	-59.7	4.7	70 54.8	-59.7	5.1	72 54.2	-59.6	5.7	74 53.6	-59.6	6.4
34	65 55.8	-59.8	4.1	67 55.5	-59.8	4.4	69 55.1	-59.7	4.8	71 54.6	-59.7	5.3	73 54.0	-59.6	6.0
35	64 56.0	-59.8	3.9	66 55.7	-59.8	4.2	68 55.4	-59.8	4.6	70 54.9	-59.7	5.0	72 54.4	-59.6	5.6
36	63 56.2	-59.8	3.7	65 55.9	-59.8	4.0	67 55.6	-59.7	4.3	69 55.2	-59.7	4.7	71 54.8	-59.7	5.2
37	62 56.4	-59.9	3.5	64 56.1	-59.8	3.8	66 55.9	-59.8	4.1	68 55.5	-59.7	4.4	70 55.1	-59.7	4.9
38	61 56.5	-59.8	3.4	63 56.3	-59.8	3.6	65 56.1	-59.8	3.9	67 55.8	-59.8	4.2	69 55.4	-59.7	4.6
39	60 56.7	-59.9	3.2	62 56.5	-59.8	3.4	64 56.3	-59.8	3.7	66 56.0	-59.8	4.0	68 55.7	-59.8	4.3
40	59 56.8	-59.8	3.1	61 56.7	-59.9	3.3	63 56.5	-59.9	3.5	65 56.2	-59.8	3.8	67 55.9	-59.7	4.1
41	58 57.0	-59.9	2.9	60 56.8	-59.8	3.1	62 56.6	-59.8	3.3	64 56.4	-59.8	3.6	66 56.2	-59.8	3.9
42	57 57.1	-59.9	2.8	59 57.0	-59.9	3.0	61 56.8	-59.9	3.2	63 56.6	-59.8	3.4	65 56.4	-59.8	3.6
43	56 57.2	-59.9	2.7	58 57.1	-59.9	2.8	60 56.9	-59.8	3.0	62 56.8	-59.9	3.2	64 56.6	-59.9	3.5
44	55 57.3	-59.8	2.6	57 57.2	-59.9	2.7	59 57.1	-59.9	2.9	61 56.9	-59.8	3.1	63 56.7	-59.8	3.3
45	54 57.5	-59.9	2.5	56 57.3	-59.8	2.6	58 57.2	-59.9	2.7	60 57.1	-59.9	2.9	62 56.9	-59.8	3.1
46	53 57.6	-59.9	2.4	55 57.5	-59.9	2.5	57 57.3	-59.8	2.6	59 57.2	-59.9	2.8	61 57.1	-59.9	3.0
47	52 57.7	-59.9	2.3	54 57.6	-59.9	2.4	56 57.5	-59.9	2.5	58 57.3	-59.8	2.6	60 57.2	-59.9	2.8
48	51 57.8	-59.9	2.2	53 57.7	-59.9	2.3	55 57.6	-59.9	2.4	57 57.5	-59.9	2.5	59 57.3	-59.8	2.7
49	50 57.9	-60.0	2.1	52 57.8	-59.9	2.2	54 57.7	-59.9	2.3	56 57.6	-59.9	2.4	58 57.5	-59.9	2.5
50	49 57.9	-59.9	2.0	51 57.9	-59.9	2.1	53 57.8	-59.9	2.2	55 57.7	-59.9	2.3	57 57.6	-59.9	2.4
51	48 58.0	-59.9	1.9	50 58.0	-60.0	2.0	52 57.9	-59.9	2.1	54 57.8	-59.9	2.2	56 57.7	-59.9	2.3
52	47 58.1	-59.9	1.8	49 58.0	-59.9	1.9	51 58.0	-59.9	2.0	53 57.9	-59.9	2.1	55 57.8	-59.9	2.2
53	46 58.2	-59.9	1.8	48 58.1	-59.9	1.8	50 58.1	-60.0	1.9	52 58.0	-59.9	2.0	54 57.9	-59.9	2.1
54	45 58.3	-60.0	1.7	47 58.2	-59.9	1.8	49 58.1	-59.9	1.8	51 58.1	-59.9	1.9	53 58.0	-59.9	2.0
55	44 58.3	-59.9	1.6	46 58.3	-59.9	1.7	48 58.2	-59.9	1.7	50 58.2	-60.0	1.8	52 58.1	-59.9	1.9
56	43 58.4	-59.9	1.6	45 58.4	-60.0	1.6	47 58.3	-59.9	1.7	49 58.2	-59.9	1.7	51 58.2	-59.9	1.8
57	42 58.5	-60.0	1.5	44 58.4	-59.9	1.5	46 58.4	-59.9	1.6	48 58.3	-59.9	1.7	50 58.3	-59.9	1.7
58	41 58.5	-59.9	1.4	43 58.5	-59.9	1.5	45 58.5	-60.0	1.5	47 58.4	-59.9	1.6	49 58.4	-60.0	1.6
59	40 58.6	-59.9	1.4	42 58.6	-60.0	1.4	44 58.5	-59.9	1.5	46 58.5	-59.9	1.5	48 58.4	-59.9	1.6
60	39 58.7	-60.0	1.3	41 58.6	-59.9	1.3	43 58.6	-59.9	1.4	45 58.6	-60.0	1.4	47 58.5	-59.9	1.5
61	38 58.7	-59.9	1.2	40 58.7	-60.0	1.3	42 58.7	-60.0	1.3	44 58.6	-59.9	1.4	46 58.6	-59.9	1.4
62	37 58.8	-60.0	1.2	39 58.7	-59.9	1.2	41 58.7	-59.9	1.3	43 58.7	-59.9	1.3	45 58.7	-60.0	1.4
63	36 58.8	-59.9	1.1	38 58.8	-59.9	1.2	40 58.8	-60.0	1.2	42 58.8	-60.0	1.2	44 58.7	-59.9	1.3
64	35 58.9	-60.0	1.1	37 58.9	-60.0	1.1	39 58.8	-59.9	1.1	41 58.8	-59.9	1.2	43 58.8	-60.0	1.2
65	34 58.9	-59.9	1.0	36 58.9	-59.9	1.1	38 58.9	-59.9	1.1	40 58.9	-60.0	1.1	42 58.8	-59.9	1.2
66	33 59.0	-60.0	1.0	35 59.0	-60.0	1.0	37 59.0	-60.0	1.0	39 58.9	-59.9	1.1	41 58.9	-59.9	1.1
67	32 59.0	-59.9	0.9	34 59.0	-59.9	1.0	36 59.0	-59.9	1.0	38 59.0	-60.0	1.0	40 59.0	-60.0	1.0
68	31 59.1	-60.0	0.9	33 59.1	-60.0	0.9	35 59.1	-60.0	0.9	37 59.0	-59.9	1.0	39 59.0	-59.9	1.0
69	30 59.1	-59.9	0.8	32 59.1	-59.9	0.9	34 59.1	-59.9	0.9	36 59.1	-60.0	0.9	38 59.1	-60.0	0.9
70	29 59.2	-60.0	0.8	31 59.2	-60.0	0.8	33 59.2	-60.0	0.8	35 59.1	-59.9	0.8	37 59.1	-59.9	0.9
71	28 59.2	-59.9	0.7	30 59.2	-59.9	0.8	32 59.2	-59.9	0.8	34 59.2	-60.0	0.8	36 59.2	-60.0	0.8
72	27 59.3	-60.0	0.7	29 59.3	-60.0	0.7	31 59.3	-60.0	0.7	33 59.2	-59.9	0.7	35 59.2	-59.9	0.8
73	26 59.3	-59.9	0.7	28 59.3	-59.9	0.7	30 59.3	-59.9	0.7	32 59.3	-60.0	0.7	34 59.3	-60.0	0.7
74	25 59.4	-60.0	0.6	27 59.4	-60.0	0.6	29 59.4	-60.0	0.6	31 59.3	-59.9	0.6	33 59.3	-59.9	0.7
75	24 59.4	-59.9	0.6	26 59.4	-60.0	0.6	28 59.4	-60.0	0.6	30 59.4	-60.0	0.6	32 59.4	-60.0	0.6
76	23 59.5	-60.0	0.5	25 59.4	-59.9	0.5	27 59.4	-59.9	0.5	29 59.4	-59.9	0.6	31 59.4	-59.9	0.6
77	22 59.5	-60.0	0.5	24 59.5	-60.0	0.5	26 59.5	-60.0	0.5	28 59.5	-60.0	0.5	30 59.5	-60.0	0.5
78	21 59.5	-59.9	0.4	23 59.5	-59.9	0.5	25 59.5	-59.9	0.5	27 59.5	-59.9	0.5	29 59.5	-59.9	0.5
79	20 59.6	-60.0	0.4	22 59.6	-60.0	0.4	24 59.6	-60.0	0.4	26 59.6	-60.0	0.4	28 59.6	-60.0	0.4
80	19 59.6	-59.9	0.4	21 59.6	-59.9	0.4	23 59.6	-59.9	0.4	25 59.6	-59.9	0.4	27 59.6	-59.9	0.4
81	18 59.7	-60.0	0.3	20 59.7	-60.0	0.3	22 59.7	-60.0	0.3	24 59.7	-60.0	0.3	26 59.7	-60.0	0.4
82	17 59.7	-60.0	0.3	19 59.7	-60.0	0.3	21 59.7	-60.0	0.3	23 59.7	-60.0	0.3	25 59.7	-60.0	0.3
83	16 59.7	-59.9	0.3	18 59.7	-59.9	0.3	20 59.7	-59.9	0.3	22 59.7	-59.9	0.3	24 59.7	-59.9	0.3
84	15 59.8	-60.0	0.2	17 59.8	-60.0	0.2	19 59.8	-60.0	0.2	21 59.8	-60.0	0.2	23 59.8	-60.0	0.2
85	14 59.8	-59.9	0.2	16 59.8	-59.9	0.2	18 59.8	-59.9	0.2	20 59.8	-59.9	0.2	22 59.8	-59.9	0.2
86	13 59.9	-60.0	0.1	15 59.9	-60.0	0.1	17 59.9	-60.0	0.1	19 59.9	-60.0	0.1	21 59.9	-60.0	0.2
87	12 59.9	-60.0	0.1	14 59.9	-60.0	0.1	16 59.9	-60.0	0.1	18 59.9	-60.0	0.1	20 59.9	-60.0	0.1
88	11 59.9	-59.9	0.1	13 59.9	-59.9	0.1	15 59.9	-59.9	0.1	17 59.9	-59.9	0.1	19 59.9	-59.9	0.1
89	11 00.0	-60.0	0.0	13 00.0	-60.0	0.0	15 00.0	-60.0	0.0	17 00.0	-60.0	0.0	19 00.0	-60.0	0.0
90	10 00.0	-60.0	0.0	12 00.0	-60.0	0.0	14 00.0	-60.0	0.0	16 00.0	-60.0	0.0	18 00.0	-60.0	0.0
	10°			12°			14°			16°			18°		

2°, 358° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	79 50.3	-59.1	9.9	81 48.1	-58.6	12.2	83 44.5	-57.7	16.1	85 37.7	-55.7	23.4	87 20.6	-48.7	40.7
31	78 51.2	-59.2	8.9	80 49.5	-58.9	10.8	82 46.8	-58.3	13.8	84 42.0	-57.0	18.9	86 31.9	-53.4	29.6
32	77 52.0	-59.3	8.1	79 50.6	-59.1	9.7	81 48.5	-58.7	12.0	83 45.0	-57.8	15.8	85 38.5	-55.8	22.9
33	76 52.7	-59.4	7.4	78 51.5	-59.2	8.7	80 49.8	-58.9	10.6	82 47.2	-58.3	13.5	84 42.7	-57.1	18.5
34	75 53.3	-59.5	6.8	77 52.3	-59.3	7.9	79 50.9	-59.1	9.4	81 48.9	-58.7	11.7	83 45.6	-57.9	15.4
35	74 53.8	-59.6	6.3	76 53.0	-59.5	7.2	78 51.8	-59.2	8.5	80 50.2	-58.9	10.3	82 47.7	-58.3	13.2
36	73 54.2	-59.6	5.8	75 53.5	-59.5	6.7	77 52.6	-59.4	7.7	79 51.3	-59.1	9.2	81 49.4	-58.8	11.4
37	72 54.6	-59.6	5.4	74 54.0	-59.5	6.1	76 53.2	-59.4	7.1	78 52.2	-59.3	8.3	80 50.6	-58.9	10.1
38	71 55.0	-59.7	5.1	73 54.5	-59.6	5.7	75 53.8	-59.5	6.5	77 52.9	-59.4	7.5	79 51.7	-59.2	9.0
39	70 55.3	-59.7	4.8	72 54.9	-59.7	5.3	74 54.3	-59.6	6.0	76 53.5	-59.4	6.9	78 52.5	-59.3	8.1
40	69 55.6	-59.7	4.5	71 55.2	-59.7	4.9	73 54.7	-59.6	5.5	75 54.1	-59.6	6.3	77 53.2	-59.4	7.3
41	68 55.9	-59.8	4.2	70 55.5	-59.7	4.6	72 55.1	-59.7	5.1	74 54.5	-59.6	5.8	76 53.8	-59.5	6.7
42	67 56.1	-59.8	4.0	69 55.8	-59.8	4.3	71 55.4	-59.7	4.8	73 54.9	-59.6	5.4	75 54.3	-59.5	6.1
43	66 56.3	-59.8	3.7	68 56.0	-59.7	4.1	70 55.7	-59.7	4.5	72 55.3	-59.7	5.0	74 54.8	-59.6	5.6
44	65 56.5	-59.8	3.5	67 56.3	-59.8	3.8	69 56.0	-59.8	4.2	71 55.6	-59.7	4.6	73 55.2	-59.7	5.2
45	64 56.7	-59.8	3.3	66 56.5	-59.8	3.6	68 56.2	-59.7	3.9	70 55.9	-59.7	4.3	72 55.5	-59.6	4.8
46	63 56.9	-59.9	3.2	65 56.7	-59.8	3.4	67 56.5	-59.8	3.7	69 56.2	-59.8	4.1	71 55.9	-59.8	4.5
47	62 57.0	-59.8	3.0	64 56.9	-59.9	3.2	66 56.7	-59.8	3.5	68 56.4	-59.8	3.8	70 56.1	-59.7	4.2
48	61 57.2	-59.9	2.8	63 57.0	-59.8	3.0	65 56.9	-59.9	3.3	67 56.6	-59.8	3.6	69 56.4	-59.8	3.9
49	60 57.3	-59.8	2.7	62 57.2	-59.9	2.9	64 57.0	-59.8	3.1	66 56.8	-59.8	3.4	68 56.6	-59.8	3.7
50	59 57.5	-59.9	2.6	61 57.3	-59.8	2.7	63 57.2	-59.8	2.9	65 57.0	-59.8	3.2	67 56.8	-59.8	3.4
51	58 57.6	-59.9	2.4	60 57.5	-59.9	2.6	62 57.4	-59.9	2.8	64 57.2	-59.8	3.0	66 57.0	-59.8	3.2
52	57 57.7	-59.9	2.3	59 57.6	-59.9	2.5	61 57.5	-59.9	2.6	63 57.4	-59.9	2.8	65 57.2	-59.8	3.0
53	56 57.8	-59.9	2.2	58 57.7	-59.9	2.3	60 57.6	-59.8	2.5	62 57.5	-59.9	2.6	64 57.4	-59.9	2.8
54	55 57.9	-59.9	2.1	57 57.8	-59.8	2.2	59 57.8	-59.9	2.3	61 57.6	-59.8	2.5	63 57.5	-59.8	2.7
55	54 58.0	-59.9	2.0	56 58.0	-59.9	2.1	58 57.9	-59.9	2.2	60 57.8	-59.9	2.4	62 57.7	-59.9	2.5
56	53 58.1	-59.9	1.9	55 58.1	-59.9	2.0	57 58.0	-59.9	2.1	59 57.9	-59.9	2.2	61 57.8	-59.9	2.4
57	52 58.2	-59.9	1.8	54 58.2	-59.9	1.9	56 58.1	-59.9	2.0	58 58.0	-59.9	2.1	60 57.9	-59.9	2.2
58	51 58.3	-59.9	1.7	53 58.3	-60.0	1.8	55 58.2	-59.9	1.9	57 58.1	-59.9	2.0	59 58.0	-59.8	2.1
59	50 58.4	-59.9	1.6	52 58.3	-59.9	1.7	54 58.3	-59.9	1.8	56 58.2	-59.9	1.9	58 58.2	-59.9	2.0
60	49 58.5	-60.0	1.6	51 58.4	-59.9	1.6	53 58.4	-59.9	1.7	55 58.3	-59.9	1.8	57 58.3	-59.9	1.9
61	48 58.5	-59.9	1.5	50 58.5	-59.9	1.5	52 58.5	-60.0	1.6	54 58.4	-59.9	1.7	56 58.4	-60.0	1.8
62	47 58.6	-59.9	1.4	49 58.6	-59.9	1.5	51 58.5	-59.9	1.5	53 58.5	-59.9	1.6	55 58.4	-59.9	1.7
63	46 58.7	-59.9	1.3	48 58.7	-60.0	1.4	50 58.6	-59.9	1.4	52 58.6	-59.9	1.5	54 58.5	-59.9	1.6
64	45 58.8	-60.0	1.3	47 58.7	-59.9	1.3	49 58.7	-59.9	1.4	51 58.7	-60.0	1.4	53 58.6	-59.9	1.5
65	44 58.8	-59.9	1.2	46 58.8	-59.9	1.2	48 58.8	-60.0	1.3	50 58.7	-59.9	1.3	52 58.7	-59.9	1.4
66	43 58.9	-60.0	1.1	45 58.9	-60.0	1.2	47 58.8	-59.9	1.2	49 58.8	-59.9	1.3	51 58.8	-59.9	1.3
67	42 58.9	-59.9	1.1	44 58.9	-59.9	1.1	46 58.9	-59.9	1.1	48 58.9	-60.0	1.2	50 58.9	-60.0	1.2
68	41 59.0	-59.9	1.0	43 59.0	-60.0	1.0	45 59.0	-60.0	1.1	47 58.9	-59.9	1.1	49 58.9	-59.9	1.2
69	40 59.1	-60.0	0.9	42 59.0	-59.9	1.0	44 59.0	-59.9	1.0	46 59.0	-59.9	1.1	48 59.0	-59.9	1.1
70	39 59.1	-59.9	0.9	41 59.1	-59.9	0.9	43 59.1	-60.0	1.0	45 59.1	-60.0	1.0	47 59.1	-60.0	1.0
71	38 59.2	-60.0	0.8	40 59.2	-60.0	0.9	42 59.1	-59.9	0.9	44 59.1	-59.9	0.9	46 59.1	-59.9	1.0
72	37 59.2	-59.9	0.8	39 59.2	-59.9	0.8	41 59.2	-59.9	0.8	43 59.2	-60.0	0.9	45 59.2	-60.0	0.9
73	36 59.3	-60.0	0.7	38 59.3	-60.0	0.8	40 59.3	-60.0	0.8	42 59.2	-59.9	0.8	44 59.2	-59.9	0.8
74	35 59.3	-59.9	0.7	37 59.3	-59.9	0.7	39 59.3	-59.9	0.7	41 59.3	-59.9	0.7	43 59.3	-60.0	0.8
75	34 59.4	-60.0	0.6	36 59.4	-60.0	0.6	38 59.4	-60.0	0.7	40 59.4	-60.0	0.7	42 59.3	-59.9	0.7
76	33 59.4	-59.9	0.6	35 59.4	-59.9	0.6	37 59.4	-59.9	0.6	39 59.4	-59.9	0.6	41 59.4	-60.0	0.7
77	32 59.5	-60.0	0.5	34 59.5	-60.0	0.5	36 59.5	-60.0	0.6	38 59.5	-60.0	0.6	40 59.4	-59.9	0.6
78	31 59.5	-59.9	0.5	33 59.5	-59.9	0.5	35 59.5	-59.9	0.5	37 59.5	-59.9	0.5	39 59.5	-60.0	0.5
79	30 59.6	-60.0	0.4	32 59.6	-60.0	0.5	34 59.6	-60.0	0.5	36 59.6	-60.0	0.5	38 59.5	-59.9	0.5
80	29 59.6	-60.0	0.4	31 59.6	-60.0	0.4	33 59.6	-60.0	0.4	35 59.6	-60.0	0.4	37 59.6	-60.0	0.4
81	28 59.6	-59.9	0.4	30 59.6	-59.9	0.4	32 59.6	-59.9	0.4	34 59.6	-59.9	0.4	36 59.6	-59.9	0.4
82	27 59.7	-60.0	0.3	29 59.7	-60.0	0.3	31 59.7	-60.0	0.3	33 59.7	-60.0	0.3	35 59.7	-60.0	0.3
83	26 59.7	-59.9	0.3	28 59.7	-59.9	0.3	30 59.7	-59.9	0.3	32 59.7	-59.9	0.3	34 59.7	-59.9	0.3
84	25 59.8	-60.0	0.2	27 59.8	-60.0	0.2	29 59.8	-60.0	0.2	31 59.8	-60.0	0.2	33 59.8	-60.0	0.3
85	24 59.8	-60.0	0.2	26 59.8	-60.0	0.2	28 59.8	-60.0	0.2	30 59.8	-60.0	0.2	32 59.8	-60.0	0.2
86	23 59.8	-59.9	0.2	25 59.8	-59.9	0.2	27 59.8	-59.9	0.2	29 59.8	-59.9	0.2	31 59.8	-59.9	0.2
87	22 59.9	-60.0	0.1	24 59.9	-60.0	0.1	26 59.9	-60.0	0.1	28 59.9	-60.0	0.1	30 59.9	-60.0	0.1
88	21 59.9	-59.9	0.1	23 59.9	-59.9	0.1	25 59.9	-59.9	0.1	27 59.9	-59.9	0.1	29 59.9	-59.9	0.1
89	21 00.0	-60.0	0.0	23 00.0	-60.0	0.0	25 00.0	-60.0	0.0	27 00.0	-60.0	0.0	29 00.0	-60.0	0.0
90	20 00.0	-60.0	0.0	22 00.0	-60.0	0.0	24 00.0	-60.0	0.0	26 00.0	-60.0	0.0	28 00.0	-60.0	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 2°, 358°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
39 57.8 -60.0 177.7			37 57.9 -60.0 177.8			35 58.0 -60.0 177.9			33 58.0 -59.9 177.9			31 58.1 -59.9 178.0			30
38 57.8 -59.9 177.8			36 57.9 -59.9 177.9			34 58.0 -60.0 177.9			32 58.1 -60.0 178.0			30 58.2 -60.0 178.0			31
37 57.9 -60.0 177.8			35 58.0 -60.0 177.9			33 58.0 -59.9 178.0			31 58.1 -59.9 178.0			29 58.2 -60.0 178.0			32
36 57.9 -59.9 177.9			34 58.0 -59.9 178.0			32 58.1 -60.0 178.0			30 58.2 -60.0 178.0			28 58.2 -59.9 178.1			33
35 58.0 -60.0 178.0			33 58.1 -60.0 178.0			31 58.1 -59.9 178.0			29 58.2 -60.0 178.1			27 58.3 -60.0 178.1			34
34 58.0 -59.9 178.0			32 58.1 -60.0 178.0			30 58.2 -60.0 178.1			28 58.2 -59.9 178.1			26 58.3 -60.0 178.2			35
33 58.1 -60.0 178.0			31 58.1 -59.9 178.1			29 58.2 -59.9 178.1			27 58.3 -60.0 178.2			25 58.3 -59.9 178.2			36
32 58.1 -59.9 178.1			30 58.2 -60.0 178.1			28 58.3 -60.0 178.2			26 58.3 -60.0 178.2			24 58.4 -60.0 178.2			37
31 58.2 -60.0 178.1			29 58.2 -59.9 178.2			27 58.3 -60.0 178.2			25 58.3 -59.9 178.2			23 58.4 -60.0 178.3			38
30 58.2 -59.9 178.2			28 58.3 -60.0 178.2			26 58.3 -59.9 178.3			24 58.4 -60.0 178.3			22 58.4 -59.9 178.3			39
29 58.3 -60.0 178.2			27 58.3 -59.9 178.3			25 58.4 -60.0 178.3			23 58.4 -59.9 178.3			21 58.5 -60.0 178.3			40
28 58.3 -60.0 178.3			26 58.4 -60.0 178.3			24 58.4 -60.0 178.3			22 58.5 -60.0 178.4			20 58.5 -60.0 178.4			41
27 58.3 -59.9 178.3			25 58.4 -60.0 178.3			23 58.4 -59.9 178.4			21 58.5 -60.0 178.4			19 58.5 -59.9 178.4			42
26 58.4 -60.0 178.4			24 58.4 -59.9 178.4			22 58.5 -60.0 178.4			20 58.5 -59.9 178.4			18 58.6 -60.0 178.5			43
25 58.4 -59.9 178.4			23 58.5 -60.0 178.4			21 58.5 -59.9 178.4			19 58.6 -60.0 178.5			17 58.6 -60.0 178.5			44
24 58.5 -60.0 178.4			22 58.5 -60.0 178.5			20 58.6 -60.0 178.5			18 58.6 -60.0 178.5			16 58.6 -59.9 178.5			45
23 58.5 -60.0 178.5			21 58.5 -59.9 178.5			19 58.6 -60.0 178.5			17 58.6 -59.9 178.5			15 58.7 -60.0 178.6			46
22 58.5 -59.9 178.5			20 58.6 -60.0 178.5			18 58.6 -59.9 178.6			16 58.7 -60.0 178.6			14 58.7 -60.0 178.6			47
21 58.6 -60.0 178.6			19 58.6 -59.9 178.6			17 58.7 -60.0 178.6			15 58.7 -60.0 178.6			13 58.7 -59.9 178.6			48
20 58.6 -59.9 178.6			18 58.7 -60.0 178.6			16 58.7 -60.0 178.6			14 58.7 -59.9 178.6			12 58.8 -60.0 178.7			49
19 58.7 -60.0 178.6			17 58.7 -59.9 178.7			15 58.8 -60.0 178.7			13 58.8 -60.0 178.7			11 58.8 -60.0 178.7			50
18 58.7 -60.0 178.7			16 58.7 -59.9 178.7			14 58.8 -60.0 178.7			12 58.8 -60.0 178.7			10 58.8 -60.0 178.7			51
17 58.7 -59.9 178.7			15 58.8 -60.0 178.7			13 58.8 -60.0 178.7			11 58.8 -60.0 178.7			9 58.8 -59.9 178.7			52
16 58.8 -60.0 178.7			14 58.8 -60.0 178.8			12 58.8 -59.9 178.8			10 58.8 -59.9 178.8			8 58.9 -60.0 178.8			53
15 58.8 -60.0 178.8			13 58.8 -59.9 178.8			11 58.9 -60.0 178.8			9 58.9 -60.0 178.8			7 58.9 -60.0 178.8			54
14 58.8 -59.9 178.8			12 58.9 -60.0 178.8			10 58.9 -60.0 178.8			8 58.9 -60.0 178.8			6 58.9 -59.9 178.8			55
13 58.9 -60.0 178.8			11 58.9 -60.0 178.9			9 58.9 -60.0 178.9			7 58.9 -59.9 178.9			5 59.0 -60.0 178.9			56
12 58.9 -60.0 178.9			10 58.9 -59.9 178.9			8 58.9 -59.9 178.9			6 59.0 -60.0 178.9			4 59.0 -60.0 178.9			57
11 58.9 -59.9 178.9			9 59.0 -60.0 178.9			7 59.0 -60.0 178.9			5 59.0 -60.0 178.9			3 59.0 -60.0 178.9			58
10 59.0 -60.0 179.0			8 59.0 -60.0 179.0			6 59.0 -60.0 179.0			4 59.0 -59.9 179.0			2 59.0 -59.9 179.0			59
9 59.0 -60.0 179.0			7 59.0 -59.9 179.0			5 59.0 -59.9 179.0			3 59.1 -60.0 179.0			1 59.1 -60.0 179.0			60
8 59.0 -59.9 179.0			6 59.1 -60.0 179.0			4 59.1 -60.0 179.0			2 59.1 -60.0 179.0			0 59.1 -60.0 179.0			61
7 59.1 -60.0 179.1			5 59.1 -60.0 179.1			3 59.1 -60.0 179.1			1 59.1 -60.0 179.1			0 00.9 +59.9 0.9			62
6 59.1 -60.0 179.1			4 59.1 -60.0 179.1			2 59.1 -59.9 179.1			0 59.1 -59.9 179.1			1 00.8 +60.0 0.9			63
5 59.1 -59.9 179.1			3 59.1 -59.9 179.1			1 59.2 -60.0 179.1			0 59.2 -60.0 179.2			2 00.8 +60.0 0.9			64
4 59.2 -60.0 179.2			2 59.2 -60.0 179.2			0 59.2 -60.0 179.2			0 00.8 +60.0 0.9			3 00.8 +60.0 0.8			65
3 59.2 -60.0 179.2			1 59.2 -60.0 179.2			0 00.8 +59.9 0.8			2 00.8 +59.9 0.8			4 00.8 +59.9 0.8			66
2 59.2 -59.9 179.2			0 00.7 +60.0 0.7			1 00.7 +60.0 0.8			3 00.7 +60.0 0.8			5 00.7 +60.0 0.8			67
1 59.3 -60.0 179.3			1 00.7 +60.0 0.7			2 00.7 +60.0 0.7			4 00.7 +60.0 0.8			6 00.7 +60.0 0.8			68
0 59.3 -60.0 179.3			0 00.7 +60.0 0.7			3 00.7 +60.0 0.7			5 00.7 +59.9 0.7			7 00.7 +59.9 0.7			69
0 00.7 +59.9 0.7			2 00.7 +59.9 0.7			4 00.7 +59.9 0.7			6 00.6 +60.0 0.7			8 00.6 +60.0 0.7			70
1 00.6 +60.0 0.7			3 00.6 +60.0 0.7			5 00.6 +60.0 0.7			7 00.6 +60.0 0.7			9 00.6 +60.0 0.7			71
2 00.6 +60.0 0.6			4 00.6 +60.0 0.6			6 00.6 +60.0 0.6			8 00.6 +60.0 0.6			10 00.6 +60.0 0.6			72
3 00.6 +59.9 0.6			5 00.6 +59.9 0.6			7 00.6 +59.9 0.6			9 00.6 +59.9 0.6			11 00.6 +59.9 0.6			73
4 00.5 +60.0 0.6			6 00.5 +60.0 0.6			8 00.5 +60.0 0.6			10 00.5 +60.0 0.6			12 00.5 +60.0 0.6			74
5 00.5 +60.0 0.5			7 00.5 +60.0 0.5			9 00.5 +60.0 0.5			11 00.5 +60.0 0.5			13 00.5 +60.0 0.5			75
6 00.5 +59.9 0.5			8 00.5 +59.9 0.5			10 00.5 +59.9 0.5			12 00.5 +59.9 0.5			14 00.5 +59.9 0.5			76
7 00.4 +60.0 0.5			9 00.4 +60.0 0.5			11 00.4 +60.0 0.5			13 00.4 +60.0 0.5			15 00.4 +60.0 0.5			77
8 00.4 +60.0 0.4			10 00.4 +60.0 0.4			12 00.4 +60.0 0.4			14 00.4 +60.0 0.4			16 00.4 +60.0 0.4			78
9 00.4 +59.9 0.4			11 00.4 +59.9 0.4			13 00.4 +59.9 0.4			15 00.4 +59.9 0.4			17 00.4 +59.9 0.4			79
10 00.3 +60.0 0.4			12 00.3 +60.0 0.4			14 00.3 +60.0 0.4			16 00.3 +60.0 0.4			18 00.3 +60.0 0.4			80
11 00.3 +60.0 0.3			13 00.3 +60.0 0.3			15 00.3 +60.0 0.3			17 00.3 +60.0 0.3			19 00.3 +60.0 0.3			81
12 00.3 +59.9 0.3			14 00.3 +59.9 0.3			16 00.3 +59.9 0.3			18 00.3 +59.9 0.3			20 00.3 +59.9 0.3			82
13 00.2 +60.0 0.3			15 00.2 +60.0 0.3			17 00.2 +60.0 0.3			19 00.2 +60.0 0.3			21 00.2 +60.0 0.3			83
14 00.2 +60.0 0.2			16 00.2 +60.0 0.2			18 00.2 +60.0 0.2			20 00.2 +60.0 0.2			22 00.2 +60.0 0.2			84
15 00.2 +59.9 0.2			17 00.2 +59.9 0.2			19 00.2 +59.9 0.2			21 00.2 +59.9 0.2			23 00.2 +59.9 0.2			85
16 00.1 +60.0 0.1			18 00.1 +60.0 0.1			20 00.1 +60.0 0.1			22 00.1 +60.0 0.2			24 00.1 +60.0 0.2			86
17 00.1 +60.0 0.1			19 00.1 +60.0 0.1			21 00.1 +60.0 0.1			23 00.1 +60.0 0.1			25 00.1 +60.0 0.1			87
18 00.1 +59.9 0.1			20 00.1 +59.9 0.1			22 00.1 +59.9 0.1			24 00.1 +59.9 0.1			26 00.1 +59.9 0.1			88
19 00.0 +60.0 0.0			21 00.0 +60.0 0.0			23 00.0 +60.0 0.0			25 00.0 +60.0 0.0			27 00.0 +60.0 0.0			89
20 00.0 +60.0 0.0			22 00.0 +60.0 0.0			24 00.0 +60.0 0.0			26 00.0 +60.0 0.0			28 00.0 +60.0 0.0			90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 178°, 182°

4°, 356° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	59 45.5	-59.4	6.9	61 44.6	-59.3	7.3	63 43.6	-59.3	7.8	65 42.4	-59.2	8.4	67 41.0	-59.1	9.2
31	58 46.1	-59.5	6.6	60 45.3	-59.4	7.0	62 44.3	-59.3	7.5	64 43.2	-59.2	8.0	66 41.9	-59.1	8.7
32	57 46.6	-59.5	6.4	59 45.9	-59.5	6.7	61 45.0	-59.4	7.2	63 44.0	-59.3	7.7	65 42.8	-59.2	8.3
33	56 47.1	-59.5	6.1	58 46.4	-59.5	6.5	60 45.6	-59.4	6.9	62 44.7	-59.3	7.3	64 43.6	-59.2	7.9
34	55 47.6	-59.5	5.9	57 46.9	-59.5	6.2	59 46.2	-59.4	6.6	61 45.4	-59.4	7.0	63 44.4	-59.3	7.5
35	54 48.1	-59.6	5.7	56 47.4	-59.5	6.0	58 46.8	-59.5	6.3	60 46.0	-59.4	6.7	62 45.1	-59.3	7.2
36	53 48.5	-59.6	5.5	55 47.9	-59.5	5.8	57 47.3	-59.5	6.1	59 46.6	-59.5	6.4	61 45.8	-59.4	6.9
37	52 48.9	-59.6	5.3	54 48.4	-59.6	5.5	56 47.8	-59.5	5.8	58 47.1	-59.4	6.2	60 46.4	-59.4	6.6
38	51 49.3	-59.6	5.1	53 48.8	-59.6	5.3	55 48.3	-59.6	5.6	57 47.7	-59.6	5.9	59 47.0	-59.5	6.3
39	50 49.7	-59.7	4.9	52 49.2	-59.6	5.1	54 48.7	-59.6	5.4	56 48.1	-59.5	5.7	58 47.5	-59.5	6.0
40	49 50.0	-59.6	4.8	51 49.6	-59.6	5.0	53 49.1	-59.6	5.2	55 48.6	-59.5	5.5	57 48.0	-59.5	5.8
41	48 50.4	-59.7	4.6	50 50.0	-59.7	4.8	52 49.5	-59.6	5.0	54 49.1	-59.6	5.2	56 48.5	-59.5	5.5
42	47 50.7	-59.7	4.4	49 50.3	-59.6	4.6	51 49.9	-59.6	4.8	53 49.5	-59.6	5.0	55 49.0	-59.6	5.3
43	46 51.0	-59.7	4.3	48 50.7	-59.7	4.4	50 50.3	-59.6	4.6	52 49.9	-59.6	4.8	54 49.4	-59.5	5.1
44	45 51.3	-59.7	4.1	47 51.0	-59.7	4.3	49 50.7	-59.7	4.5	51 50.3	-59.6	4.7	53 49.9	-59.6	4.9
45	44 51.6	-59.7	4.0	46 51.3	-59.7	4.1	48 51.0	-59.7	4.3	50 50.7	-59.7	4.5	52 50.3	-59.6	4.7
46	43 51.9	-59.7	3.9	45 51.6	-59.7	4.0	47 51.3	-59.6	4.1	49 51.0	-59.6	4.3	51 50.7	-59.7	4.5
47	42 52.2	-59.7	3.7	44 51.9	-59.7	3.8	46 51.7	-59.7	4.0	48 51.4	-59.7	4.1	50 51.0	-59.6	4.3
48	41 52.5	-59.8	3.6	43 52.2	-59.7	3.7	45 52.0	-59.7	3.8	47 51.7	-59.7	4.0	49 51.4	-59.7	4.2
49	40 52.7	-59.7	3.5	42 52.5	-59.7	3.6	44 52.3	-59.8	3.7	46 52.0	-59.7	3.8	48 51.7	-59.7	4.0
50	39 53.0	-59.8	3.3	41 52.8	-59.8	3.5	43 52.5	-59.7	3.6	45 52.3	-59.7	3.7	47 52.0	-59.6	3.8
51	38 53.2	-59.7	3.2	40 53.0	-59.7	3.3	42 52.8	-59.7	3.4	44 52.6	-59.7	3.6	46 52.4	-59.7	3.7
52	37 53.5	-59.8	3.1	39 53.3	-59.8	3.2	41 53.1	-59.8	3.3	43 52.9	-59.8	3.4	45 52.7	-59.8	3.5
53	36 53.7	-59.8	3.0	38 53.5	-59.7	3.1	40 53.3	-59.7	3.2	42 53.2	-59.8	3.3	44 52.9	-59.7	3.4
54	35 53.9	-59.8	2.9	37 53.8	-59.8	3.0	39 53.6	-59.8	3.1	41 53.4	-59.7	3.2	43 53.2	-59.7	3.3
55	34 54.1	-59.7	2.8	36 54.0	-59.8	2.9	38 53.8	-59.7	2.9	40 53.7	-59.8	3.0	42 53.5	-59.7	3.1
56	33 54.4	-59.8	2.7	35 54.2	-59.8	2.8	37 54.1	-59.8	2.8	39 53.9	-59.7	2.9	41 53.8	-59.8	3.0
57	32 54.6	-59.8	2.6	34 54.4	-59.8	2.7	36 54.3	-59.8	2.7	38 54.2	-59.8	2.8	40 54.0	-59.7	2.9
58	31 54.8	-59.8	2.5	33 54.7	-59.8	2.6	35 54.5	-59.7	2.6	37 54.4	-59.8	2.7	39 54.3	-59.8	2.8
59	30 55.0	-59.8	2.4	32 54.9	-59.8	2.5	34 54.8	-59.8	2.5	36 54.6	-59.7	2.6	38 54.5	-59.8	2.6
60	29 55.2	-59.8	2.3	31 55.1	-59.8	2.4	33 55.0	-59.8	2.4	35 54.9	-59.8	2.5	37 54.7	-59.7	2.5
61	28 55.4	-59.9	2.2	30 55.3	-59.8	2.3	32 55.2	-59.8	2.3	34 55.1	-59.8	2.4	36 55.0	-59.8	2.4
62	27 55.5	-59.8	2.1	29 55.5	-59.8	2.2	31 55.4	-59.8	2.2	33 55.3	-59.8	2.3	35 55.2	-59.8	2.3
63	26 55.7	-59.8	2.0	28 55.7	-59.9	2.1	30 55.6	-59.8	2.1	32 55.5	-59.8	2.2	34 55.4	-59.8	2.2
64	25 55.9	-59.8	1.9	27 55.8	-59.8	2.0	29 55.8	-59.8	2.0	31 55.7	-59.8	2.1	33 55.6	-59.8	2.1
65	24 56.1	-59.8	1.9	26 56.0	-59.8	1.9	28 56.0	-59.8	1.9	30 55.9	-59.8	2.0	32 55.8	-59.8	2.0
66	23 56.3	-59.9	1.8	25 56.2	-59.8	1.8	27 56.2	-59.9	1.8	29 56.1	-59.8	1.9	31 56.0	-59.8	1.9
67	22 56.4	-59.8	1.7	24 56.4	-59.8	1.7	26 56.3	-59.8	1.8	28 56.3	-59.8	1.8	30 56.2	-59.8	1.8
68	21 56.6	-59.8	1.6	23 56.6	-59.9	1.6	25 56.5	-59.8	1.7	27 56.5	-59.8	1.7	29 56.4	-59.8	1.7
69	20 56.8	-59.8	1.5	22 56.7	-59.8	1.6	24 56.7	-59.8	1.6	26 56.7	-59.9	1.6	28 56.6	-59.8	1.6
70	19 57.0	-59.9	1.5	21 56.9	-59.8	1.5	23 56.9	-59.9	1.5	25 56.8	-59.8	1.5	27 56.8	-59.8	1.5
71	18 57.1	-59.8	1.4	20 57.1	-59.9	1.4	22 57.0	-59.8	1.4	24 57.0	-59.8	1.4	26 57.0	-59.9	1.5
72	17 57.3	-59.9	1.3	19 57.2	-59.8	1.3	21 57.2	-59.8	1.3	23 57.2	-59.8	1.4	25 57.1	-59.8	1.4
73	16 57.4	-59.8	1.2	18 57.4	-59.8	1.2	20 57.4	-59.8	1.3	22 57.4	-59.9	1.3	24 57.3	-59.8	1.3
74	15 57.6	-59.8	1.1	17 57.6	-59.9	1.2	19 57.6	-59.9	1.2	21 57.5	-59.8	1.2	23 57.5	-59.8	1.2
75	14 57.8	-59.9	1.1	16 57.7	-59.8	1.1	18 57.7	-59.8	1.1	20 57.7	-59.8	1.1	22 57.7	-59.9	1.1
76	13 57.9	-59.8	1.0	15 57.9	-59.8	1.0	17 57.9	-59.9	1.0	19 57.9	-59.9	1.0	21 57.8	-59.8	1.0
77	12 58.1	-59.9	0.9	14 58.1	-59.9	0.9	16 58.0	-59.8	0.9	18 58.0	-59.8	1.0	20 58.0	-59.8	1.0
78	11 58.2	-59.8	0.8	13 58.2	-59.8	0.9	15 58.2	-59.9	0.9	17 58.2	-59.9	0.9	19 58.2	-59.9	0.9
79	10 58.4	-59.9	0.8	12 58.4	-59.9	0.8	14 58.3	-59.8	0.8	16 58.3	-59.8	0.8	18 58.3	-59.8	0.8
80	9 58.5	-59.8	0.7	11 58.5	-59.8	0.7	13 58.5	-59.8	0.7	15 58.5	-59.8	0.7	17 58.5	-59.9	0.7
81	8 58.7	-59.9	0.6	10 58.7	-59.9	0.6	12 58.7	-59.9	0.6	14 58.7	-59.9	0.6	16 58.6	-59.8	0.7
82	7 58.8	-59.8	0.6	9 58.8	-59.8	0.6	11 58.8	-59.8	0.6	13 58.8	-59.8	0.6	15 58.8	-59.8	0.6
83	6 59.0	-59.9	0.5	8 59.0	-59.9	0.5	10 59.0	-59.9	0.5	12 59.0	-59.9	0.5	14 59.0	-59.9	0.5
84	5 59.1	-59.8	0.4	7 59.1	-59.8	0.4	9 59.1	-59.8	0.4	11 59.1	-59.8	0.4	13 59.1	-59.8	0.4
85	4 59.3	-59.9	0.3	6 59.3	-59.9	0.4	8 59.3	-59.9	0.4	10 59.3	-59.9	0.4	12 59.3	-59.9	0.4
86	3 59.4	-59.8	0.3	5 59.4	-59.8	0.3	7 59.4	-59.8	0.3	9 59.4	-59.8	0.3	11 59.4	-59.8	0.3
87	2 59.6	-59.9	0.2	4 59.6	-59.9	0.2	6 59.6	-59.9	0.2	8 59.6	-59.9	0.2	10 59.6	-59.9	0.2
88	1 59.7	-59.8	0.1	3 59.7	-59.8	0.1	5 59.7	-59.8	0.1	7 59.7	-59.8	0.1	9 59.7	-59.8	0.1
89	0 59.9	-59.9	0.1	2 59.9	-59.9	0.1	4 59.9	-59.9	0.1	6 59.9	-59.9	0.1	8 59.9	-59.9	0.1
90	0 00.0	-59.9	0.0	2 00.0	-59.9	0.0	4 00.0	-59.9	0.0	6 00.0	-59.9	0.0	8 00.0	-59.9	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 4°, 356°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
59 45.5	-59.4	173.1	57 46.4	-59.5	173.5	55 47.1	-59.6	173.8	53 47.8	-59.6	174.1	51 48.4	-59.7	174.4	30
58 46.1	-59.5	173.4	56 46.9	-59.6	173.7	54 47.5	-59.5	174.0	52 48.2	-59.6	174.3	50 48.7	-59.6	174.6	31
57 46.6	-59.5	173.6	55 47.3	-59.5	174.0	53 48.0	-59.6	174.3	51 48.6	-59.7	174.5	49 49.1	-59.7	174.7	32
56 47.1	-59.5	173.9	54 47.8	-59.6	174.2	52 48.4	-59.6	174.4	50 48.9	-59.6	174.7	48 49.4	-59.7	174.9	33
55 47.6	-59.5	174.1	53 48.2	-59.6	174.4	51 48.8	-59.7	174.6	49 49.3	-59.7	174.9	47 49.7	-59.6	175.1	34
54 48.1	-59.6	174.3	52 48.6	-59.6	174.6	50 49.1	-59.6	174.8	48 49.6	-59.7	175.0	46 50.1	-59.7	175.2	35
53 48.5	-59.6	174.5	51 49.0	-59.6	174.8	49 49.5	-59.7	175.0	47 49.9	-59.6	175.2	45 50.4	-59.8	175.4	36
52 48.9	-59.6	174.7	50 49.4	-59.6	174.9	48 49.8	-59.6	175.1	46 50.3	-59.7	175.3	44 50.6	-59.7	175.5	37
51 49.3	-59.6	174.9	49 49.8	-59.7	175.1	47 50.2	-59.7	175.3	45 50.6	-59.7	175.5	43 50.9	-59.7	175.6	38
50 49.7	-59.7	175.1	48 50.1	-59.7	175.3	46 50.5	-59.7	175.5	44 50.9	-59.8	175.6	42 51.2	-59.7	175.8	39
49 50.0	-59.6	175.2	47 50.4	-59.6	175.4	45 50.8	-59.7	175.6	43 51.1	-59.7	175.8	41 51.5	-59.8	175.9	40
48 50.4	-59.7	175.4	46 50.8	-59.7	175.6	44 51.1	-59.7	175.7	42 51.4	-59.7	175.9	40 51.7	-59.7	176.0	41
47 50.7	-59.7	175.6	45 51.1	-59.7	175.7	43 51.4	-59.7	175.9	41 51.7	-59.8	176.0	39 52.0	-59.8	176.1	42
46 51.0	-59.7	175.7	44 51.4	-59.8	175.9	42 51.7	-59.8	176.0	40 51.9	-59.7	176.1	38 52.2	-59.8	176.2	43
45 51.3	-59.7	175.9	43 51.6	-59.7	176.0	41 51.9	-59.7	176.1	39 52.2	-59.8	176.3	37 52.4	-59.7	176.4	44
44 51.6	-59.7	176.0	42 51.9	-59.7	176.1	40 52.2	-59.8	176.3	38 52.4	-59.8	176.3	36 52.7	-59.8	176.5	45
43 51.9	-59.7	176.1	41 52.2	-59.8	176.3	39 52.4	-59.7	176.4	37 52.7	-59.8	176.5	35 52.9	-59.8	176.6	46
42 52.2	-59.7	176.3	40 52.4	-59.7	176.4	38 52.7	-59.8	176.5	36 52.9	-59.8	176.5	34 53.1	-59.8	176.7	47
41 52.5	-59.8	176.4	39 52.7	-59.8	176.5	37 52.9	-59.8	176.6	35 53.1	-59.8	176.7	33 53.3	-59.8	176.8	48
40 52.7	-59.7	176.5	38 52.9	-59.7	176.6	36 53.1	-59.7	176.7	34 53.3	-59.8	176.8	32 53.5	-59.8	176.9	49
39 53.0	-59.8	176.7	37 53.2	-59.8	176.7	35 53.4	-59.8	176.8	33 53.5	-59.8	176.9	31 53.7	-59.8	177.0	50
38 53.2	-59.7	176.8	36 53.4	-59.8	176.9	34 53.6	-59.8	176.9	32 53.8	-59.8	177.0	30 53.9	-59.8	177.1	51
37 53.5	-59.8	176.9	35 53.6	-59.7	177.0	33 53.8	-59.8	177.0	31 54.0	-59.8	177.1	29 54.1	-59.8	177.2	52
36 53.7	-59.8	177.0	34 53.9	-59.8	177.1	32 54.0	-59.8	177.1	30 54.2	-59.9	177.2	28 54.3	-59.8	177.3	53
35 53.9	-59.8	177.1	33 54.1	-59.8	177.2	31 54.2	-59.8	177.2	29 54.3	-59.8	177.3	27 54.5	-59.8	177.3	54
34 54.1	-59.7	177.2	32 54.3	-59.8	177.3	30 54.4	-59.8	177.3	28 54.5	-59.8	177.4	26 54.7	-59.8	177.4	55
33 54.4	-59.8	177.3	31 54.5	-59.8	177.4	29 54.6	-59.8	177.4	27 54.7	-59.8	177.5	25 54.8	-59.8	177.5	56
32 54.6	-59.8	177.4	30 54.7	-59.8	177.5	28 54.8	-59.8	177.5	26 54.9	-59.8	177.5	24 55.0	-59.8	177.6	57
31 54.8	-59.8	177.5	29 54.9	-59.8	177.6	27 55.0	-59.8	177.6	25 55.1	-59.8	177.6	23 55.2	-59.8	177.7	58
30 55.0	-59.8	177.6	28 55.1	-59.8	177.6	26 55.2	-59.8	177.7	24 55.3	-59.9	177.7	22 55.4	-59.9	177.8	59
29 55.2	-59.8	177.7	27 55.3	-59.9	177.7	25 55.4	-59.9	177.8	23 55.4	-59.8	177.8	21 55.5	-59.8	177.8	60
28 55.4	-59.9	177.8	26 55.4	-59.8	177.8	24 55.5	-59.8	177.9	22 55.6	-59.8	177.9	20 55.7	-59.8	177.9	61
27 55.5	-59.8	177.9	25 55.6	-59.8	177.9	23 55.7	-59.8	177.9	21 55.8	-59.8	178.0	19 55.9	-59.9	178.0	62
26 55.7	-59.8	178.0	24 55.8	-59.8	178.0	22 55.9	-59.8	178.0	20 56.0	-59.8	178.0	18 56.0	-59.8	178.1	63
25 55.9	-59.8	178.1	23 56.0	-59.8	178.1	21 56.1	-59.9	178.1	19 56.1	-59.8	178.1	17 56.2	-59.9	178.2	64
24 56.1	-59.8	178.1	22 56.2	-59.8	178.2	20 56.2	-59.8	178.2	18 56.3	-59.8	178.2	16 56.3	-59.8	178.2	65
23 56.3	-59.9	178.2	21 56.3	-59.8	178.2	19 56.4	-59.9	178.3	17 56.4	-59.8	178.3	15 56.5	-59.9	178.3	66
22 56.4	-59.8	178.3	20 56.5	-59.8	178.3	18 56.5	-59.8	178.3	16 56.6	-59.8	178.4	14 56.6	-59.8	178.4	67
21 56.6	-59.8	178.4	19 56.7	-59.9	178.4	17 56.7	-59.8	178.4	15 56.8	-59.8	178.4	13 56.8	-59.8	178.5	68
20 56.8	-59.8	178.5	18 56.8	-59.8	178.5	16 56.9	-59.9	178.5	14 56.9	-59.8	178.5	12 57.0	-59.9	178.5	69
19 57.0	-59.9	178.5	17 57.0	-59.8	178.6	15 57.0	-59.8	178.6	13 57.1	-59.9	178.6	11 57.1	-59.9	178.6	70
18 57.1	-59.8	178.6	16 57.2	-59.9	178.6	14 57.2	-59.9	178.7	12 57.2	-59.8	178.7	10 57.2	-59.8	178.7	71
17 57.3	-59.9	178.7	15 57.3	-59.8	178.7	13 57.3	-59.8	178.7	11 57.4	-59.9	178.7	9 57.4	-59.9	178.7	72
16 57.4	-59.8	178.8	14 57.5	-59.9	178.8	12 57.5	-59.9	178.8	10 57.5	-59.8	178.8	8 57.5	-59.8	178.8	73
15 57.6	-59.8	178.9	13 57.6	-59.8	178.9	11 57.6	-59.8	178.9	9 57.7	-59.9	178.9	7 57.7	-59.9	178.9	74
14 57.8	-59.9	178.9	12 57.8	-59.9	178.9	10 57.8	-59.9	178.9	8 57.8	-59.8	179.0	6 57.8	-59.8	179.0	75
13 57.9	-59.8	179.0	11 57.9	-59.8	179.0	9 57.9	-59.8	179.0	7 58.0	-59.9	179.0	5 58.0	-59.9	179.0	76
12 58.1	-59.9	179.1	10 58.1	-59.9	179.1	8 58.1	-59.9	179.1	6 58.1	-59.8	179.1	4 58.1	-59.8	179.1	77
11 58.2	-59.8	179.2	9 58.2	-59.8	179.2	7 58.2	-59.8	179.2	5 58.3	-59.9	179.2	3 58.3	-59.9	179.2	78
10 58.4	-59.9	179.2	8 58.4	-59.9	179.2	6 58.4	-59.9	179.2	4 58.4	-59.8	179.2	2 58.4	-59.8	179.2	79
9 58.5	-59.8	179.3	7 58.5	-59.8	179.3	5 58.5	-59.8	179.3	3 58.6	-59.9	179.3	1 58.6	-59.9	179.3	80
8 58.7	-59.9	179.4	6 58.7	-59.9	179.4	4 58.7	-59.9	179.4	2 58.7	-59.9	179.4	0 58.7	-59.9	179.4	81
7 58.8	-59.8	179.4	5 58.8	-59.8	179.4	3 58.8	-59.8	179.4	1 58.8	-59.8	179.4	0 01.2	+59.8	0.6	82
6 59.0	-59.9	179.5	4 59.0	-59.9	179.5	2 59.0	-59.9	179.5	0 59.0	-59.9	179.5	1 01.0	+59.9	0.5	83
5 59.1	-59.8	179.6	3 59.1	-59.8	179.6	1 59.1	-59.8	179.6	0 59.3	+59.8	0.4	2 00.9	+59.8	0.4	84
4 59.3	-59.9	179.7	2 59.3	-59.9	179.7	0 59.3	-59.9	179.7	1 00.7	+59.9	0.3	3 00.7	+59.9	0.3	85
3 59.4	-59.8	179.7	1 59.4	-59.8	179.7	0 00.6	+59.8	0.3	2 00.6	+59.8	0.3	4 00.6	+59.8	0.3	86
2 59.6	-59.9	179.8	0 59.6	-59.9	179.8	1 00.4	+59.9	0.2	3 00.4	+59.9	0.2	5 00.4	+59.9	0.2	87
1 59.7	-59.8	179.9	0 00.3	+59.8	0.1	2 00.3	+59.8	0.1	4 00.3	+59.8	0.1	6 00.3	+59.8	0.1	88
0 59.9	-59.9	179.9	1 00.1	+59.9	0.1	3 00.1	+59.9	0.1	5 00.1	+59.9	0.1	7 00.1	+59.9	0.1	89
0 00.0	+59.9	0.0	2 00.0	+59.9	0.0	4 00.0	+59.9	0.0	6 00.0	+59.9	0.0	8 00.0	+59.9	0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 176°, 184°

4°, 356° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 39.3	-58.9	10.0	71 37.3	-58.7	11.0	73 34.8	-58.4	12.3	75 31.7	-58.0	14.0	77 27.5	-57.3	16.2
31	68 40.4	-58.9	9.5	70 38.6	-58.7	10.4	72 36.4	-58.5	11.5	74 33.7	-58.2	13.0	76 30.2	-57.7	14.8
32	67 41.5	-59.1	9.0	69 39.9	-58.9	9.8	71 37.9	-58.6	10.8	73 35.5	-58.3	12.1	75 32.5	-58.0	13.7
33	66 42.4	-59.1	8.5	68 41.0	-59.0	9.3	70 39.3	-58.8	10.2	72 37.2	-58.6	11.3	74 34.5	-58.2	12.7
34	65 43.3	-59.2	8.1	67 42.0	-59.1	8.8	69 40.5	-58.9	9.6	71 38.6	-58.7	10.6	73 36.3	-58.4	11.8
35	64 44.1	-59.3	7.7	66 42.9	-59.1	8.3	68 41.6	-59.0	9.0	70 39.9	-58.8	9.9	72 37.9	-58.6	11.0
36	63 44.8	-59.2	7.3	65 43.8	-59.2	7.9	67 42.6	-59.1	8.6	69 41.1	-58.9	9.4	71 39.3	-58.7	10.3
37	62 45.6	-59.4	7.0	64 44.6	-59.3	7.5	66 43.5	-59.2	8.1	68 42.2	-59.0	8.8	70 40.6	-58.8	9.7
38	61 46.2	-59.4	6.7	63 45.3	-59.3	7.1	65 44.3	-59.2	7.7	67 43.2	-59.1	8.3	69 41.8	-59.0	9.1
39	60 46.8	-59.4	6.4	62 46.0	-59.3	6.8	64 45.1	-59.2	7.3	66 44.1	-59.2	7.9	68 42.8	-59.0	8.6
40	59 47.4	-59.4	6.1	61 46.7	-59.4	6.5	63 45.9	-59.4	6.9	65 44.9	-59.2	7.5	67 43.8	-59.1	8.1
41	58 48.0	-59.5	5.8	60 47.3	-59.4	6.2	62 46.5	-59.3	6.6	64 45.7	-59.3	7.1	66 44.7	-59.2	7.7
42	57 48.5	-59.5	5.6	59 47.9	-59.5	5.9	61 47.2	-59.4	6.3	63 46.4	-59.3	6.7	65 45.5	-59.2	7.3
43	56 49.0	-59.6	5.3	58 48.4	-59.5	5.7	60 47.8	-59.5	6.0	62 47.1	-59.4	6.4	64 46.3	-59.3	6.9
44	55 49.4	-59.5	5.1	57 48.9	-59.5	5.4	59 48.3	-59.4	5.7	61 47.7	-59.4	6.1	63 47.0	-59.4	6.5
45	54 49.9	-59.6	4.9	56 49.4	-59.6	5.2	58 48.9	-59.5	5.5	60 48.3	-59.5	5.8	62 47.6	-59.3	6.2
46	53 50.3	-59.6	4.7	55 49.8	-59.5	4.9	57 49.4	-59.6	5.2	59 48.8	-59.4	5.5	61 48.3	-59.5	5.9
47	52 50.7	-59.6	4.5	54 50.3	-59.6	4.7	56 49.8	-59.5	5.0	58 49.4	-59.5	5.3	60 48.8	-59.4	5.6
48	51 51.1	-59.7	4.3	53 50.7	-59.6	4.5	55 50.3	-59.6	4.8	57 49.9	-59.6	5.0	59 49.4	-59.5	5.3
49	50 51.4	-59.6	4.2	52 51.1	-59.6	4.3	54 50.7	-59.6	4.6	56 50.3	-59.5	4.8	58 49.9	-59.5	5.1
50	49 51.8	-59.7	4.0	51 51.5	-59.7	4.2	53 51.1	-59.6	4.4	55 50.8	-59.6	4.6	57 50.4	-59.6	4.8
51	48 52.1	-59.7	3.8	50 51.8	-59.6	4.0	52 51.5	-59.6	4.2	54 51.2	-59.6	4.4	56 50.8	-59.6	4.6
52	47 52.4	-59.7	3.7	49 52.2	-59.7	3.8	51 51.9	-59.7	4.0	53 51.6	-59.6	4.2	55 51.2	-59.5	4.4
53	46 52.7	-59.7	3.5	48 52.5	-59.7	3.7	50 52.2	-59.6	3.8	52 52.0	-59.7	4.0	54 51.7	-59.7	4.2
54	45 53.0	-59.7	3.4	47 52.8	-59.7	3.5	49 52.6	-59.7	3.6	51 52.3	-59.6	3.8	53 52.0	-59.6	4.0
55	44 53.3	-59.7	3.2	46 53.1	-59.7	3.4	48 52.9	-59.7	3.5	50 52.7	-59.7	3.6	52 52.4	-59.6	3.8
56	43 53.6	-59.7	3.1	45 53.4	-59.7	3.2	47 53.2	-59.7	3.3	49 53.0	-59.7	3.5	51 52.8	-59.7	3.6
57	42 53.9	-59.8	3.0	44 53.7	-59.7	3.1	46 53.5	-59.7	3.2	48 53.3	-59.7	3.3	50 53.1	-59.7	3.5
58	41 54.1	-59.7	2.8	43 54.0	-59.8	2.9	45 53.8	-59.7	3.0	47 53.6	-59.7	3.2	49 53.4	-59.6	3.3
59	40 54.4	-59.8	2.7	42 54.2	-59.7	2.8	44 54.1	-59.7	2.9	46 53.9	-59.7	3.0	48 53.8	-59.7	3.1
60	39 54.6	-59.7	2.6	41 54.5	-59.8	2.7	43 54.4	-59.8	2.8	45 54.2	-59.7	2.9	47 54.1	-59.8	3.0
61	38 54.9	-59.8	2.5	40 54.7	-59.7	2.6	42 54.6	-59.7	2.6	44 54.5	-59.7	2.7	46 54.3	-59.7	2.8
62	37 55.1	-59.8	2.4	39 55.0	-59.8	2.4	41 54.9	-59.8	2.5	43 54.8	-59.8	2.6	45 54.6	-59.7	2.7
63	36 55.3	-59.8	2.3	38 55.2	-59.8	2.3	40 55.1	-59.7	2.4	42 55.0	-59.7	2.5	44 54.9	-59.8	2.6
64	35 55.5	-59.8	2.2	37 55.4	-59.7	2.2	39 55.4	-59.8	2.3	41 55.3	-59.8	2.4	43 55.1	-59.7	2.4
65	34 55.7	-59.7	2.1	36 55.7	-59.8	2.1	38 55.6	-59.8	2.2	40 55.5	-59.8	2.2	42 55.4	-59.8	2.3
66	33 56.0	-59.8	2.0	35 55.9	-59.8	2.0	37 55.8	-59.8	2.1	39 55.7	-59.7	2.1	41 55.6	-59.7	2.2
67	32 56.2	-59.8	1.9	34 56.1	-59.8	1.9	36 56.0	-59.8	2.0	38 56.0	-59.8	2.0	40 55.9	-59.8	2.1
68	31 56.4	-59.8	1.8	33 56.3	-59.8	1.8	35 56.2	-59.8	1.8	37 56.2	-59.8	1.9	39 56.1	-59.8	2.0
69	30 56.6	-59.9	1.7	32 56.5	-59.8	1.7	34 56.4	-59.8	1.7	36 56.4	-59.8	1.8	38 56.3	-59.8	1.8
70	29 56.7	-59.8	1.6	31 56.7	-59.8	1.6	33 56.6	-59.8	1.6	35 56.6	-59.8	1.7	37 56.5	-59.7	1.7
71	28 56.9	-59.8	1.5	30 56.9	-59.8	1.5	32 56.8	-59.8	1.6	34 56.8	-59.8	1.6	36 56.8	-59.8	1.6
72	27 57.1	-59.8	1.4	29 57.1	-59.8	1.4	31 57.0	-59.8	1.5	33 57.0	-59.8	1.5	35 57.0	-59.8	1.5
73	26 57.3	-59.8	1.3	28 57.3	-59.9	1.3	30 57.2	-59.8	1.4	32 57.2	-59.8	1.4	34 57.2	-59.8	1.4
74	25 57.5	-59.9	1.2	27 57.4	-59.8	1.2	29 57.4	-59.8	1.3	31 57.4	-59.8	1.3	33 57.4	-59.9	1.3
75	24 57.6	-59.8	1.1	26 57.6	-59.8	1.2	28 57.6	-59.8	1.2	30 57.6	-59.8	1.2	32 57.5	-59.8	1.2
76	23 57.8	-59.8	1.1	25 57.8	-59.8	1.1	27 57.8	-59.9	1.1	29 57.8	-59.9	1.1	31 57.7	-59.8	1.1
77	22 58.0	-59.8	1.0	24 58.0	-59.9	1.0	26 57.9	-59.8	1.0	28 57.9	-59.8	1.0	30 57.9	-59.8	1.0
78	21 58.2	-59.9	0.9	23 58.1	-59.8	0.9	25 58.1	-59.8	0.9	27 58.1	-59.8	0.9	29 58.1	-59.8	1.0
79	20 58.3	-59.8	0.8	22 58.3	-59.8	0.8	24 58.3	-59.8	0.8	26 58.3	-59.9	0.9	28 58.3	-59.9	0.9
80	19 58.5	-59.9	0.7	21 58.5	-59.9	0.7	23 58.5	-59.9	0.8	25 58.4	-59.8	0.8	27 58.4	-59.8	0.8
81	18 58.6	-59.8	0.7	20 58.6	-59.8	0.7	22 58.6	-59.8	0.7	24 58.6	-59.8	0.7	26 58.6	-59.8	0.7
82	17 58.8	-59.9	0.6	19 58.8	-59.9	0.6	21 58.8	-59.9	0.6	23 58.8	-59.9	0.6	25 58.8	-59.9	0.6
83	16 58.9	-59.8	0.5	18 58.9	-59.8	0.5	20 58.9	-59.8	0.5	22 58.9	-59.8	0.5	24 58.9	-59.8	0.5
84	15 59.1	-59.8	0.4	17 59.1	-59.8	0.4	19 59.1	-59.8	0.4	21 59.1	-59.9	0.5	23 59.1	-59.9	0.5
85	14 59.3	-59.9	0.4	16 59.3	-59.9	0.4	18 59.3	-59.9	0.4	20 59.2	-59.8	0.4	22 59.2	-59.8	0.4
86	13 59.4	-59.8	0.3	15 59.4	-59.8	0.3	17 59.4	-59.8	0.3	19 59.4	-59.8	0.3	21 59.4	-59.8	0.3
87	12 59.6	-59.9	0.2	14 59.6	-59.9	0.2	16 59.6	-59.9	0.2	18 59.6	-59.9	0.2	20 59.6	-59.9	0.2
88	11 59.7	-59.8	0.1	13 59.7	-59.8	0.1	15 59.7	-59.8	0.1	17 59.7	-59.8	0.1	19 59.7	-59.8	0.1
89	10 59.9	-59.9	0.1	12 59.9	-59.9	0.1	14 59.9	-59.9	0.1	16 59.9	-59.9	0.1	18 59.9	-59.9	0.1
90	10 00.0	-59.9	0.0	12 00.0	-59.9	0.0	14 00.0	-59.9	0.0	16 00.0	-59.9	0.0	18 00.0	-59.9	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 4°, 356°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
49 48.9 -59.7 174.6	47 49.4 -59.7 174.8	45 49.9 -59.7 175.0	43 50.3 -59.7 175.2	41 50.7 -59.7 175.3	39 51.1 -59.7 175.3	37 51.5 -59.7 175.3	35 51.8 -59.7 175.3	33 52.0 -59.7 175.3	31 52.2 -59.7 175.3	29 52.4 -59.7 175.3	27 52.5 -59.7 175.3	25 52.6 -59.7 175.3	23 52.6 -59.7 175.3	21 52.6 -59.7 175.3	30
48 49.2 -59.6 174.8	46 49.7 -59.7 175.0	44 50.2 -59.8 175.2	42 50.6 -59.8 175.3	40 51.0 -59.8 175.4	38 51.4 -59.8 175.5	36 51.7 -59.8 175.6	34 52.0 -59.8 175.7	32 52.3 -59.8 175.8	30 52.6 -59.8 175.9	28 52.9 -59.8 176.0	26 53.2 -59.8 176.1	24 53.5 -59.8 176.2	22 53.8 -59.8 176.3	20 54.1 -59.8 176.4	31
47 49.6 -59.7 174.9	45 50.0 -59.7 175.1	43 50.4 -59.7 175.3	41 50.8 -59.7 175.4	39 51.2 -59.7 175.5	37 51.6 -59.7 175.6	35 51.9 -59.7 175.7	33 52.2 -59.7 175.8	31 52.5 -59.7 175.9	29 52.8 -59.7 176.0	27 53.1 -59.7 176.1	25 53.4 -59.7 176.2	23 53.7 -59.7 176.3	21 54.0 -59.7 176.4	19 54.3 -59.7 176.5	32
46 49.9 -59.7 175.1	44 50.3 -59.7 175.3	42 50.7 -59.8 175.4	40 51.1 -59.8 175.5	38 51.5 -59.8 175.6	36 51.8 -59.8 175.7	34 52.1 -59.8 175.8	32 52.4 -59.8 175.9	30 52.7 -59.8 176.0	28 53.0 -59.8 176.1	26 53.3 -59.8 176.2	24 53.6 -59.8 176.3	22 53.9 -59.8 176.4	20 54.2 -59.8 176.5	18 54.5 -59.8 176.6	33
45 50.2 -59.7 175.2	43 50.6 -59.8 175.4	41 51.0 -59.8 175.5	39 51.4 -59.8 175.6	37 51.7 -59.8 175.7	35 52.0 -59.8 175.8	33 52.3 -59.8 175.9	31 52.6 -59.8 176.0	29 52.9 -59.8 176.1	27 53.2 -59.8 176.2	25 53.5 -59.8 176.3	23 53.8 -59.8 176.4	21 54.1 -59.8 176.5	19 54.4 -59.8 176.6	17 54.7 -59.8 176.7	34
44 50.5 -59.8 175.4	42 50.8 -59.7 175.5	40 51.2 -59.8 175.6	38 51.6 -59.8 175.7	36 51.9 -59.8 175.8	34 52.2 -59.8 175.9	32 52.5 -59.8 176.0	30 52.8 -59.8 176.1	28 53.1 -59.8 176.2	26 53.4 -59.8 176.3	24 53.7 -59.8 176.4	22 54.0 -59.8 176.5	20 54.3 -59.8 176.6	18 54.6 -59.8 176.7	16 54.9 -59.8 176.8	35
43 50.7 -59.7 175.5	41 51.1 -59.8 175.7	39 51.5 -59.7 175.8	37 51.8 -59.7 175.9	35 52.1 -59.7 176.0	33 52.4 -59.7 176.1	31 52.7 -59.7 176.2	29 53.0 -59.7 176.3	27 53.3 -59.7 176.4	25 53.6 -59.7 176.5	23 53.9 -59.7 176.6	21 54.2 -59.7 176.7	19 54.5 -59.7 176.8	17 54.8 -59.7 176.9	15 55.1 -59.7 177.0	36
42 51.0 -59.7 175.6	40 51.3 -59.7 175.8	38 51.7 -59.8 175.9	36 52.0 -59.8 176.0	34 52.3 -59.8 176.1	32 52.6 -59.8 176.2	30 52.9 -59.8 176.3	28 53.2 -59.8 176.4	26 53.5 -59.8 176.5	24 53.8 -59.8 176.6	22 54.1 -59.8 176.7	20 54.4 -59.8 176.8	18 54.7 -59.8 176.9	16 55.0 -59.8 177.0	14 55.3 -59.8 177.1	37
41 51.3 -59.8 175.8	39 51.6 -59.8 175.9	37 51.9 -59.8 176.0	35 52.2 -59.8 176.1	33 52.5 -59.8 176.2	31 52.8 -59.8 176.3	29 53.1 -59.8 176.4	27 53.4 -59.8 176.5	25 53.7 -59.8 176.6	23 54.0 -59.8 176.7	21 54.3 -59.8 176.8	19 54.6 -59.8 176.9	17 54.9 -59.8 177.0	15 55.2 -59.8 177.1	13 55.5 -59.8 177.2	38
40 51.5 -59.7 175.9	38 51.8 -59.8 176.0	36 52.1 -59.8 176.1	34 52.4 -59.8 176.2	32 52.7 -59.8 176.3	30 53.0 -59.8 176.4	28 53.3 -59.8 176.5	26 53.6 -59.8 176.6	24 53.9 -59.8 176.7	22 54.2 -59.8 176.8	20 54.5 -59.8 176.9	18 54.8 -59.8 177.0	16 55.1 -59.8 177.1	14 55.4 -59.8 177.2	12 55.7 -59.8 177.3	39
39 51.8 -59.8 176.0	37 52.0 -59.7 176.1	35 52.3 -59.8 176.2	33 52.6 -59.8 176.3	31 52.9 -59.8 176.4	29 53.2 -59.8 176.5	27 53.5 -59.8 176.6	25 53.8 -59.8 176.7	23 54.1 -59.8 176.8	21 54.4 -59.8 176.9	19 54.7 -59.8 177.0	17 55.0 -59.8 177.1	15 55.3 -59.8 177.2	13 55.6 -59.8 177.3	11 55.9 -59.8 177.4	40
38 52.0 -59.8 176.1	36 52.3 -59.8 176.2	34 52.6 -59.8 176.3	32 52.9 -59.8 176.4	30 53.2 -59.8 176.5	28 53.5 -59.8 176.6	26 53.8 -59.8 176.7	24 54.1 -59.8 176.8	22 54.4 -59.8 176.9	20 54.7 -59.8 177.0	18 55.0 -59.8 177.1	16 55.3 -59.8 177.2	14 55.6 -59.8 177.3	12 55.9 -59.8 177.4	10 56.2 -59.8 177.5	41
37 52.2 -59.7 176.2	35 52.5 -59.8 176.3	33 52.8 -59.8 176.4	31 53.1 -59.8 176.5	29 53.4 -59.8 176.6	27 53.7 -59.8 176.7	25 54.0 -59.8 176.8	23 54.3 -59.8 176.9	21 54.6 -59.8 177.0	19 54.9 -59.8 177.1	17 55.2 -59.8 177.2	15 55.5 -59.8 177.3	13 55.8 -59.8 177.4	11 56.1 -59.8 177.5	9 56.4 -59.8 177.6	42
36 52.5 -59.8 176.3	34 52.7 -59.8 176.4	32 52.9 -59.8 176.5	30 53.2 -59.8 176.6	28 53.5 -59.8 176.7	26 53.8 -59.8 176.8	24 54.1 -59.8 176.9	22 54.4 -59.8 177.0	20 54.7 -59.8 177.1	18 55.0 -59.8 177.2	16 55.3 -59.8 177.3	14 55.6 -59.8 177.4	12 55.9 -59.8 177.5	10 56.2 -59.8 177.6	8 56.5 -59.8 177.7	43
35 52.7 -59.8 176.4	33 52.9 -59.8 176.5	31 53.1 -59.8 176.6	29 53.4 -59.8 176.7	27 53.7 -59.8 176.8	25 54.0 -59.8 176.9	23 54.3 -59.8 177.0	21 54.6 -59.8 177.1	19 54.9 -59.8 177.2	17 55.2 -59.8 177.3	15 55.5 -59.8 177.4	13 55.8 -59.8 177.5	11 56.1 -59.8 177.6	9 56.4 -59.8 177.7	7 56.7 -59.8 177.8	44
34 52.9 -59.8 176.6	32 53.1 -59.8 176.6	30 53.3 -59.8 176.7	28 53.6 -59.8 176.8	26 53.9 -59.8 176.9	24 54.2 -59.8 177.0	22 54.5 -59.8 177.1	20 54.8 -59.8 177.2	18 55.1 -59.8 177.3	16 55.4 -59.8 177.4	14 55.7 -59.8 177.5	12 56.0 -59.8 177.6	10 56.3 -59.8 177.7	8 56.6 -59.8 177.8	6 56.9 -59.8 177.9	45
33 53.1 -59.8 176.7	31 53.3 -59.8 176.7	29 53.5 -59.8 176.8	27 53.8 -59.8 176.9	25 54.1 -59.8 177.0	23 54.4 -59.8 177.1	21 54.7 -59.8 177.2	19 55.0 -59.8 177.3	17 55.3 -59.8 177.4	15 55.6 -59.8 177.5	13 55.9 -59.8 177.6	11 56.2 -59.8 177.7	9 56.5 -59.8 177.8	7 56.8 -59.8 177.9	5 57.1 -59.8 178.0	46
32 53.3 -59.8 176.8	30 53.5 -59.8 176.8	28 53.7 -59.8 176.9	26 54.0 -59.8 177.0	24 54.3 -59.8 177.1	22 54.6 -59.8 177.2	20 54.9 -59.8 177.3	18 55.2 -59.8 177.4	16 55.5 -59.8 177.5	14 55.8 -59.8 177.6	12 56.1 -59.8 177.7	10 56.4 -59.8 177.8	8 56.7 -59.8 177.9	6 57.0 -59.8 178.0	4 57.3 -59.8 178.1	47
31 53.5 -59.8 176.8	29 53.7 -59.8 176.9	27 53.8 -59.8 177.0	25 54.1 -59.8 177.1	23 54.4 -59.8 177.2	21 54.7 -59.8 177.3	19 55.0 -59.8 177.4	17 55.3 -59.8 177.5	15 55.6 -59.8 177.6	13 55.9 -59.8 177.7	11 56.2 -59.8 177.8	9 56.5 -59.8 177.9	7 56.8 -59.8 178.0	5 57.1 -59.8 178.1	3 57.4 -59.8 178.2	48
30 53.7 -59.8 176.9	28 53.9 -59.9 177.0	26 54.0 -59.8 177.1	24 54.3 -59.8 177.2	22 54.6 -59.8 177.3	20 54.9 -59.8 177.4	18 55.2 -59.8 177.5	16 55.5 -59.8 177.6	14 55.8 -59.8 177.7	12 56.1 -59.8 177.8	10 56.4 -59.8 177.9	8 56.7 -59.8 178.0	6 57.0 -59.8 178.1	4 57.3 -59.8 178.2	2 57.6 -59.8 178.3	49
29 53.9 -59.8 177.0	27 54.0 -59.8 177.1	25 54.2 -59.8 177.2	23 54.5 -59.8 177.3	21 54.8 -59.8 177.4	19 55.1 -59.8 177.5	17 55.4 -59.8 177.6	15 55.7 -59.8 177.7	13 56.0 -59.8 177.8	11 56.3 -59.8 177.9	9 56.6 -59.8 178.0	7 56.9 -59.8 178.1	5 57.2 -59.8 178.2	3 57.5 -59.8 178.3	1 57.8 -59.8 178.4	50
28 54.1 -59.8 177.1	26 54.2 -59.8 177.2	24 54.4 -59.8 177.3	22 54.7 -59.8 177.4	20 55.0 -59.8 177.5	18 55.3 -59.8 177.6	16 55.6 -59.8 177.7	14 55.9 -59.8 177.8	12 56.2 -59.8 177.9	10 56.5 -59.8 178.0	8 56.8 -59.8 178.1	6 57.1 -59.8 178.2	4 57.4 -59.8 178.3	2 57.7 -59.8 178.4	0 58.0 -59.8 178.5	51
27 54.3 -59.9 177.2	25 54.4 -59.8 177.3	23 54.6 -59.8 177.4	21 54.9 -59.8 177.5	19 55.2 -59.8 177.6	17 55.5 -59.8 177.7	15 55.8 -59.8 177.8	13 56.1 -59.8 177.9	11 56.4 -59.8 178.0	9 56.7 -59.8 178.1	7 57.0 -59.8 178.2	5 57.3 -59.8 178.3	3 57.6 -59.8 178.4	1 57.9 -59.8 178.5	0 58.2 -59.8 178.6	52
26 54.4 -59.8 177.3	24 54.6 -59.9 177.3	23 54.7 -59.8 177.4	21 54.9 -59.9 177.5	19 55.2 -59.9 177.6	17 55.5 -59.9 177.7	15 55.8 -59.9 177.8	13 56.1 -59.9 177.9	11 56.4 -59.9 178.0	9 56.7 -59.9 178.1	7 57.0 -59.9 178.2	5 57.3 -59.9 178.3	3 57.6 -59.9 178.4	1 57.9 -59.9 178.5	0 58.2 -59.9 178.6	53
25 54.6 -59.8 177.4	23 54.7 -59.8 177.4	21 54.9 -59.9 177.5	19 55.2 -59.9 177.6	17 55.5 -59.9 177.7	15 55.8 -59.9 177.8	13 56.1 -59.9 177.9	11 56.4 -59.9 178.0	9 56.7 -59.9 178.1	7 57.0 -59.9 178.2	5 57.3 -59.9 178.3	3 57.6 -59.9 178.4	1 57.9 -59.9 178.5	0 58.2 -59.9 178.6	0 58.5 -59.9 178.7	54
24 54.8 -59.8 177.5	22 54.9 -59.8 177.5	20 55.1 -59.9 177.6	18 55.4 -59.9 177.7	16 55.7 -59.9 177.8	14 56.0 -59.9 177.9	12 56.3 -59.9 178.0	10 56.6 -59.9 178.1	8 56.9 -59.9 178.2	6 57.2 -59.9 178.3	4 57.5 -59.9 178.4	2 57.8 -59.9 178.5	0 58.1 -59.9 178.6	0 58.4 -59.9 178.7	0 58.7 -59.9 178.8	55
23 55.0 -59.9 177.6	21 55.1 -59.9 177.6	19 55.3 -59.9 177.7	17 55.6 -59.9 177.8	15 55.9 -59.9 177.9	13 56.2 -59.9 178.0	11 56.5 -59.9 178.1	9 56.8 -59.9 178.2	7 57.1 -59.9 178.3	5 57.4 -59.9 178.4	3 57.7 -59.9 178.5	1 58.0 -59.9 178.6	0 58.3 -59.9 178.7	0 58.6 -59.9 178.8	0 58.9 -59.9 178.9	56
22 55.1 -59.8 177.6	20 55.2 -59.8 177.7	18 55.4 -59.9 177.8	16 55.7 -59.9 177.9	14 56.0 -59.9 178.0	12 56.3 -59.9 178.1	10 56.6 -59.9 178.2	8 56.9 -59.9 178.3	6 57.2 -59.9 178.4	4 57.5 -59.9 178.5	2 57.8 -59.9 178.6	0 58.1 -59.9 178.7	0 58.4 -59.9 178.8	0 58.7 -59.9 178.9	0 59.0 -59.9 179.0	57
21 55.3 -59.8 177.7	19 55.4 -59.9 177.8	17 55.6 -59.9 177.9	15 55.9 -59.9 178.0	13 56.2 -59.9 178.1	11 56.5 -59.9 178.2	9 56.8 -59.9 178.3	7 57.1 -59.9 178.4	5 57.4 -59.9 178.5	3 57.7 -59.9 178.6	1 58.0 -59.9 178.7	0 58.3 -59.9 178.8	0 58.6 -59.9 178.9	0 58.9 -59.9 179.0	0 59.2 -59.9 179.1	58
20 55.5 -59.9 177.8	18 55.5 -59.8 177.8	17 55.7 -59.9 177.9	15 56.0 -59.9 178.0	13 56.3 -59.9 178.1	11 56.6 -59.9 178.2	9 56.9 -59.9 178.3	7 57.2 -59.9 178.4	5 57.5 -59.9 178.5	3 57.8 -59.9 178.6	1 58.1 -59.9 178.7	0 58.4 -59.9 178.8	0 58.7 -59.9 178.9	0 59.0 -59.9 179.0	0 59.3 -59.9 179.1	59
19 55.6 -59.8 177.9	17 55.7 -59.9 177.9	16 55.8 -59.9 178.0	14 56.1 -59.9 178.1	12 56.4 -59.9 178.2	10 56.7 -59.9 178.3	8 57.0 -59.9 178.4	6 57.3 -59.9 178.5	4 57.6 -59.9 178.6	2 57.9 -59.9 178.7	0 58.2 -59.9 178.8	0 58.5 -59.9 178.9	0 58.8 -59.9 179.0	0 59.1 -59.9 179.1	0 59.4 -59.9 179.2	60
18 55.8 -59.9 178.0	16 55.8 -59.8 178.0	15 56.0 -59.9 178.1	13 56.3 -59.9 178.2	11 56.6 -59.9 178.3	9 56.9 -59.9 178.4	7 57.2 -59.9 178.5	5 57.5 -59.9 178.6	3 57.8 -59.9 178.7	1 58.1 -59.9 178.8	0 58.4 -59.9 178.9	0 58.7 -59.9 179.0	0 59.0 -59.9 179.1	0 59.3 -59.9 179.2	0 59.6 -59.9 179.3	61
17 55.9 -59.8 178.0	15 56.0 -59.8 178.0	14 56.2 -59.9 178.1	12 56.5 -59.9 178.2	10 56.8 -59.9 178.3	8 57.1 -59.9 178.4	6 57.4 -59.9 178.5	4 57.7 -59.9 178.6	2 58.0 -59.9 178.7	0 58.3 -59.9 178.8	0 58.6 -59.9 178.9	0 58.9 -59.9 179.0	0 59.2 -59.9 179.1	0 59.5 -59.9 179.2	0 59.8 -59.9 179.3	62
16 56.1 -59.9 178.1	14 56.2 -59.9 178.1	13 56.3 -59.9 178.2	11 56.6 -59.9 178.3	9 56.9 -59.9 178.4	7 57.2 -59.9 178.5	5 57.5 -59.9 178.6	3 57.8 -59.9 178.7	1 58.1 -59.9 178.8	0 58.4 -59.9 178.9	0 58.7 -59.9 179.0	0 59.0 -59.9 179.1	0 59.3 -59.9 179.2	0 59.6 -59.9 179.3	0 59.9 -59.9 179.4	63
15 56.2 -59.8 178.2	13 56.3 -59.9 178.2	12 56.4 -59.9													

4°, 356° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	79 21.9	-56.4	19.1	81 13.9	-54.9	23.3	83 01.4	-52.2	29.8	84 39.9	-46.5	40.5	85 58.2	-33.9	59.3
31	78 25.5	-56.9	17.3	80 19.0	-55.8	20.8	82 09.2	-53.8	26.0	83 53.4	-50.0	34.2	85 24.3	-41.7	48.3
32	77 28.6	-57.4	15.8	79 23.2	-56.5	18.7	81 15.4	-55.0	22.9	83 03.4	-52.4	29.3	84 42.6	-46.9	39.9
33	76 31.2	-57.8	14.5	78 26.7	-57.0	17.0	80 20.4	-55.9	20.4	82 11.0	-53.9	25.5	83 55.7	-50.2	33.6
34	75 33.4	-58.0	13.4	77 29.7	-57.5	15.5	79 24.5	-56.6	18.3	81 17.1	-55.2	22.4	83 05.5	-52.6	28.7
35	74 35.4	-58.2	12.4	76 32.2	-57.8	14.2	78 27.9	-57.1	16.6	80 21.9	-56.0	20.0	82 12.9	-54.1	25.0
36	73 37.2	-58.5	11.5	75 34.4	-58.1	13.1	77 30.8	-57.5	15.1	79 25.9	-56.7	17.9	81 18.8	-55.3	21.9
37	72 38.7	-58.6	10.8	74 36.3	-58.3	12.1	76 33.3	-57.9	13.9	78 29.2	-57.2	16.2	80 23.5	-56.2	19.5
38	71 40.1	-58.7	10.1	73 38.0	-58.4	11.2	75 35.4	-58.1	12.8	77 32.0	-57.6	14.8	79 27.3	-56.8	17.5
39	70 41.4	-58.9	9.4	72 39.6	-58.7	10.5	74 37.3	-58.3	11.8	76 34.4	-57.9	13.5	78 30.5	-57.3	15.8
40	69 42.5	-59.0	8.9	71 40.9	-58.8	9.8	73 39.0	-58.6	10.9	75 36.5	-58.2	12.4	77 33.2	-57.6	14.4
41	68 43.5	-59.0	8.3	70 42.1	-58.9	9.2	72 40.4	-58.6	10.2	74 38.3	-58.4	11.5	76 35.6	-58.0	13.1
42	67 44.5	-59.2	7.9	69 43.2	-59.0	8.6	71 41.8	-58.9	9.5	73 39.9	-58.6	10.6	75 37.6	-58.3	12.1
43	66 45.3	-59.2	7.4	68 44.2	-59.0	8.1	70 42.9	-58.9	8.9	72 41.3	-58.7	9.9	74 39.3	-58.4	11.1
44	65 46.1	-59.2	7.0	67 45.2	-59.2	7.6	69 44.0	-59.0	8.3	71 42.6	-58.8	9.2	73 40.9	-58.6	10.3
45	64 46.9	-59.3	6.6	66 46.0	-59.2	7.2	68 45.0	-59.1	7.8	70 43.8	-59.0	8.6	72 42.3	-58.8	9.6
46	63 47.6	-59.4	6.3	65 46.8	-59.3	6.8	67 45.9	-59.2	7.4	69 44.8	-59.0	8.0	71 43.5	-58.9	8.9
47	62 48.2	-59.4	6.0	64 47.5	-59.3	6.4	66 46.7	-59.2	6.9	68 45.8	-59.2	7.5	70 44.6	-59.0	8.3
48	61 48.8	-59.4	5.7	63 48.2	-59.4	6.1	65 47.5	-59.3	6.5	67 46.6	-59.2	7.1	69 45.6	-59.1	7.8
49	60 49.4	-59.5	5.4	62 48.8	-59.4	5.7	64 48.2	-59.4	6.2	66 47.4	-59.2	6.7	68 46.5	-59.1	7.3
50	59 49.9	-59.5	5.1	61 49.4	-59.5	5.4	63 48.8	-59.4	5.8	65 48.2	-59.4	6.3	67 47.4	-59.3	6.8
51	58 50.4	-59.5	4.9	60 49.9	-59.4	5.2	62 49.4	-59.4	5.5	64 48.8	-59.3	5.9	66 48.1	-59.3	6.4
52	57 50.9	-59.6	4.6	59 50.5	-59.6	4.9	61 50.0	-59.5	5.2	63 49.5	-59.5	5.6	65 48.8	-59.3	6.0
53	56 51.3	-59.6	4.4	58 50.9	-59.5	4.7	60 50.5	-59.5	4.9	62 50.1	-59.5	5.3	64 49.5	-59.4	5.7
54	55 51.7	-59.6	4.2	57 51.4	-59.6	4.4	59 51.0	-59.5	4.7	61 50.6	-59.5	5.0	63 50.1	-59.4	5.3
55	54 52.1	-59.6	4.0	56 51.8	-59.6	4.2	58 51.5	-59.6	4.4	60 51.1	-59.5	4.7	62 50.7	-59.5	5.0
56	53 52.5	-59.6	3.8	55 52.2	-59.6	4.0	57 51.9	-59.5	4.2	59 51.6	-59.5	4.5	61 51.2	-59.5	4.7
57	52 52.9	-59.7	3.6	54 52.6	-59.6	3.8	56 52.4	-59.6	4.0	58 52.1	-59.6	4.2	60 51.7	-59.5	4.5
58	51 53.2	-59.6	3.4	53 53.0	-59.6	3.6	55 52.8	-59.7	3.8	57 52.5	-59.6	4.0	59 52.2	-59.6	4.2
59	50 53.6	-59.7	3.3	52 53.4	-59.7	3.4	54 53.1	-59.6	3.6	56 52.9	-59.6	3.8	58 52.6	-59.6	4.0
60	49 53.9	-59.7	3.1	51 53.7	-59.7	3.2	53 53.5	-59.7	3.4	55 53.3	-59.7	3.6	57 53.0	-59.6	3.8
61	48 54.2	-59.7	2.9	50 54.0	-59.7	3.1	52 53.8	-59.6	3.2	54 53.6	-59.6	3.4	56 53.4	-59.6	3.5
62	47 54.5	-59.7	2.8	49 54.3	-59.7	2.9	51 54.2	-59.7	3.0	53 54.0	-59.7	3.2	55 53.8	-59.6	3.3
63	46 54.8	-59.8	2.7	48 54.6	-59.7	2.8	50 54.5	-59.7	2.9	52 54.3	-59.7	3.0	54 54.2	-59.7	3.2
64	45 55.0	-59.7	2.5	47 54.9	-59.7	2.6	49 54.8	-59.7	2.7	51 54.6	-59.7	2.8	53 54.5	-59.7	3.0
65	44 55.3	-59.7	2.4	46 55.2	-59.7	2.5	48 55.1	-59.7	2.6	50 54.9	-59.7	2.7	52 54.8	-59.7	2.8
66	43 55.6	-59.8	2.3	45 55.5	-59.8	2.3	47 55.4	-59.8	2.4	49 55.2	-59.7	2.5	51 55.1	-59.7	2.6
67	42 55.8	-59.8	2.1	44 55.7	-59.7	2.2	46 55.6	-59.7	2.3	48 55.5	-59.7	2.4	50 55.4	-59.7	2.5
68	41 56.0	-59.7	2.0	43 56.0	-59.8	2.1	45 55.9	-59.8	2.2	47 55.8	-59.8	2.2	49 55.7	-59.7	2.3
69	40 56.3	-59.8	1.9	42 56.2	-59.8	2.0	44 56.1	-59.7	2.0	46 56.0	-59.7	2.1	48 56.0	-59.8	2.2
70	39 56.5	-59.8	1.8	41 56.4	-59.7	1.8	43 56.4	-59.8	1.9	45 56.3	-59.8	2.0	47 56.2	-59.7	2.0
71	38 56.7	-59.8	1.7	40 56.7	-59.8	1.7	42 56.6	-59.8	1.8	44 56.5	-59.7	1.8	46 56.5	-59.8	1.9
72	37 56.9	-59.8	1.6	39 56.9	-59.8	1.6	41 56.8	-59.8	1.7	43 56.8	-59.8	1.7	45 56.7	-59.8	1.8
73	36 57.1	-59.8	1.5	38 57.1	-59.8	1.5	40 57.0	-59.8	1.5	42 57.0	-59.8	1.6	44 56.9	-59.7	1.7
74	35 57.3	-59.8	1.4	37 57.3	-59.8	1.4	39 57.2	-59.7	1.4	41 57.2	-59.8	1.5	43 57.2	-59.8	1.5
75	34 57.5	-59.8	1.3	36 57.5	-59.8	1.3	38 57.5	-59.8	1.3	40 57.4	-59.8	1.4	42 57.4	-59.8	1.4
76	33 57.7	-59.8	1.2	35 57.7	-59.8	1.2	37 57.7	-59.9	1.2	39 57.6	-59.8	1.3	41 57.6	-59.8	1.3
77	32 57.9	-59.8	1.1	34 57.9	-59.8	1.1	36 57.8	-59.8	1.1	38 57.8	-59.8	1.2	40 57.8	-59.8	1.2
78	31 58.1	-59.9	1.0	33 58.1	-59.9	1.0	35 58.0	-59.8	1.0	37 58.0	-59.8	1.1	39 58.0	-59.8	1.1
79	30 58.2	-59.8	0.9	32 58.2	-59.8	0.9	34 58.2	-59.8	0.9	36 58.2	-59.8	1.0	38 58.2	-59.8	1.0
80	29 58.4	-59.8	0.8	31 58.4	-59.8	0.8	33 58.4	-59.8	0.8	35 58.4	-59.8	0.9	37 58.4	-59.8	0.9
81	28 58.6	-59.8	0.7	30 58.6	-59.8	0.7	32 58.6	-59.9	0.7	34 58.6	-59.9	0.8	36 58.6	-59.9	0.8
82	27 58.8	-59.9	0.6	29 58.8	-59.9	0.6	31 58.7	-59.8	0.7	33 58.7	-59.8	0.7	35 58.7	-59.8	0.7
83	26 58.9	-59.8	0.5	28 58.9	-59.8	0.6	30 58.9	-59.8	0.6	32 58.9	-59.8	0.6	34 58.9	-59.8	0.6
84	25 59.1	-59.9	0.5	27 59.1	-59.9	0.5	29 59.1	-59.9	0.5	31 59.1	-59.9	0.5	33 59.1	-59.9	0.5
85	24 59.2	-59.8	0.4	26 59.2	-59.8	0.4	28 59.2	-59.8	0.4	30 59.2	-59.8	0.4	32 59.2	-59.8	0.4
86	23 59.4	-59.8	0.3	25 59.4	-59.8	0.3	27 59.4	-59.8	0.3	29 59.4	-59.9	0.3	31 59.4	-59.9	0.3
87	22 59.6	-59.9	0.2	24 59.6	-59.9	0.2	26 59.6	-59.9	0.2	28 59.5	-59.8	0.2	30 59.5	-59.8	0.2
88	21 59.7	-59.8	0.2	23 59.7	-59.8	0.2	25 59.7	-59.8	0.2	27 59.7	-59.8	0.2	29 59.7	-59.8	0.2
89	20 59.9	-59.9	0.1	22 59.9	-59.9	0.1	24 59.9	-59.9	0.1	26 59.9	-59.9	0.1	28 59.9	-59.9	0.1
90	20 00.0	-59.9	0.0	22 00.0	-59.9	0.0	24 00.0	-59.9	0.0	26 00.0	-59.9	0.0	28 00.0	-59.9	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 4°, 356°

20°			22°			24°			26°			28°			Dec.	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
39	51.1	-59.8	175.5	37	51.5	-59.8	175.6	35	51.8	-59.8	175.7	33	52.1	-59.8	175.8	30
38	51.3	-59.8	175.6	36	51.7	-59.8	175.7	34	52.0	-59.8	175.8	32	52.3	-59.8	175.9	31
37	51.5	-59.8	175.7	35	51.9	-59.8	175.8	33	52.2	-59.8	175.9	31	52.5	-59.8	176.0	32
36	51.7	-59.8	175.8	34	52.1	-59.8	175.9	32	52.4	-59.8	176.0	30	52.6	-59.8	176.1	33
35	51.9	-59.8	175.9	33	52.2	-59.8	176.0	31	52.5	-59.8	176.1	29	52.8	-59.8	176.2	34
34	52.1	-59.8	176.0	32	52.4	-59.8	176.1	30	52.7	-59.8	176.2	28	53.0	-59.8	176.3	35
33	52.3	-59.8	176.1	31	52.6	-59.8	176.2	29	52.9	-59.8	176.3	27	53.1	-59.8	176.4	36
32	52.5	-59.8	176.2	30	52.8	-59.8	176.3	28	53.0	-59.8	176.4	26	53.3	-59.8	176.5	37
31	52.7	-59.8	176.3	29	52.9	-59.8	176.4	27	53.2	-59.8	176.5	25	53.4	-59.8	176.6	38
30	52.9	-59.8	176.4	28	53.1	-59.8	176.5	26	53.3	-59.8	176.6	24	53.5	-59.8	176.7	39
29	53.0	-59.8	176.5	27	53.3	-59.8	176.6	25	53.5	-59.8	176.6	23	53.7	-59.8	176.8	40
28	53.2	-59.8	176.6	26	53.4	-59.8	176.6	24	53.6	-59.8	176.7	22	53.8	-59.8	176.9	41
27	53.4	-59.8	176.6	25	53.6	-59.8	176.7	23	53.8	-59.8	176.7	21	54.0	-59.8	177.0	42
26	53.5	-59.8	176.7	24	53.7	-59.8	176.8	22	53.9	-59.8	176.8	20	54.1	-59.8	177.0	43
25	53.7	-59.8	176.8	23	53.9	-59.8	176.9	21	54.1	-59.8	176.9	19	54.2	-59.8	177.1	44
24	53.9	-59.8	176.9	22	54.0	-59.8	177.0	20	54.2	-59.8	177.0	18	54.4	-59.8	177.1	45
23	54.0	-59.8	177.0	21	54.2	-59.8	177.0	19	54.3	-59.8	177.0	17	54.5	-59.8	177.1	46
22	54.2	-59.8	177.0	20	54.3	-59.8	177.1	18	54.5	-59.8	177.1	16	54.6	-59.8	177.2	47
21	54.3	-59.8	177.1	19	54.5	-59.8	177.2	17	54.6	-59.8	177.2	15	54.8	-59.8	177.3	48
20	54.5	-59.8	177.2	18	54.6	-59.8	177.2	16	54.8	-59.8	177.3	14	54.9	-59.8	177.3	49
19	54.6	-59.8	177.3	17	54.8	-59.8	177.3	15	54.9	-59.8	177.3	13	55.0	-59.8	177.4	50
18	54.8	-59.8	177.3	16	54.9	-59.8	177.4	14	55.0	-59.8	177.4	12	55.1	-59.8	177.4	51
17	54.9	-59.8	177.4	15	55.0	-59.8	177.4	13	55.1	-59.8	177.5	11	55.2	-59.8	177.5	52
16	55.0	-59.8	177.5	14	55.2	-59.8	177.5	12	55.3	-59.8	177.5	10	55.4	-59.8	177.6	53
15	55.2	-59.8	177.6	13	55.3	-59.8	177.6	11	55.4	-59.8	177.6	9	55.5	-59.8	177.7	54
14	55.3	-59.8	177.6	12	55.4	-59.8	177.6	10	55.5	-59.8	177.7	8	55.6	-59.8	177.7	55
13	55.5	-59.8	177.7	11	55.6	-59.8	177.7	9	55.7	-59.8	177.7	7	55.8	-59.8	177.8	56
12	55.6	-59.8	177.8	10	55.7	-59.8	177.8	8	55.8	-59.8	177.8	6	55.9	-59.8	177.8	57
11	55.7	-59.8	177.8	9	55.8	-59.8	177.8	7	55.9	-59.8	177.9	5	56.0	-59.8	177.9	58
10	55.9	-59.8	177.9	8	56.0	-59.8	177.9	6	56.0	-59.8	177.9	4	56.1	-59.8	177.9	59
9	56.0	-59.8	178.0	7	56.1	-59.8	178.0	5	56.2	-59.8	178.0	3	56.2	-59.8	178.0	60
8	56.1	-59.8	178.0	6	56.2	-59.8	178.0	4	56.3	-59.8	178.1	2	56.3	-59.8	178.1	61
7	56.3	-59.8	178.1	5	56.3	-59.8	178.1	3	56.4	-59.8	178.1	1	56.5	-59.8	178.1	62
6	56.4	-59.8	178.2	4	56.5	-59.8	178.2	2	56.5	-59.8	178.2	0	56.6	-59.8	178.2	63
5	56.5	-59.8	178.2	3	56.6	-59.8	178.2	1	56.6	-59.8	178.2	0	56.7	-59.8	178.3	64
4	56.7	-59.8	178.3	2	56.7	-59.8	178.3	0	56.8	-59.8	178.3	0	56.8	-59.8	178.3	65
3	56.8	-59.8	178.4	1	56.8	-59.8	178.4	0	56.9	-59.8	178.4	0	56.9	-59.8	178.4	66
2	56.9	-59.8	178.4	0	57.0	-59.8	178.4	0	57.0	-59.8	178.4	0	57.0	-59.8	178.4	67
1	57.1	-59.8	178.5	0	57.2	-59.8	178.6	0	57.2	-59.8	178.6	0	57.2	-59.8	178.6	68
0	57.2	-59.8	178.6	0	57.2	-59.8	178.6	0	57.2	-59.8	178.6	0	57.2	-59.8	178.6	69
0	02.7	+59.9	1.4	2	02.7	+59.9	1.4	4	02.6	+59.9	1.4	6	02.6	+59.9	1.4	70
1	02.6	+59.8	1.3	3	02.5	+59.9	1.3	5	02.5	+59.9	1.3	7	02.5	+59.8	1.3	71
2	02.4	+59.9	1.2	4	02.4	+59.9	1.2	6	02.4	+59.9	1.2	8	02.3	+59.9	1.2	72
3	02.3	+59.9	1.2	5	02.3	+59.9	1.2	7	02.3	+59.8	1.2	9	02.2	+59.9	1.2	73
4	02.2	+59.8	1.1	6	02.2	+59.8	1.1	8	02.1	+59.9	1.1	10	02.1	+59.9	1.1	74
5	02.0	+59.9	1.0	7	02.0	+59.9	1.0	9	02.0	+59.9	1.0	11	02.0	+59.9	1.1	75
6	01.9	+59.9	1.0	8	01.9	+59.9	1.0	10	01.9	+59.9	1.0	12	01.9	+59.8	1.0	76
7	01.8	+59.9	0.9	9	01.8	+59.8	0.9	11	01.8	+59.8	0.9	13	01.7	+59.9	0.9	77
8	01.7	+59.8	0.8	10	01.6	+59.9	0.8	12	01.6	+59.9	0.8	14	01.6	+59.9	0.9	78
9	01.5	+59.9	0.8	11	01.5	+59.9	0.8	13	01.5	+59.9	0.8	15	01.5	+59.9	0.8	79
10	01.4	+59.9	0.7	12	01.4	+59.8	0.7	14	01.4	+59.8	0.7	16	01.4	+59.8	0.7	80
11	01.3	+59.8	0.6	13	01.2	+59.9	0.6	15	01.2	+59.9	0.6	17	01.2	+59.9	0.7	81
12	01.1	+59.9	0.6	14	01.1	+59.9	0.6	16	01.1	+59.9	0.6	18	01.1	+59.9	0.6	82
13	01.0	+59.8	0.5	15	01.0	+59.8	0.5	17	01.0	+59.8	0.5	19	01.0	+59.8	0.5	83
14	00.8	+59.9	0.4	16	00.8	+59.9	0.4	18	00.8	+59.9	0.4	20	00.8	+59.9	0.5	84
15	00.7	+59.9	0.4	17	00.7	+59.9	0.4	19	00.7	+59.9	0.4	21	00.7	+59.9	0.4	85
16	00.6	+59.8	0.3	18	00.6	+59.8	0.3	20	00.6	+59.8	0.3	22	00.6	+59.8	0.3	86
17	00.4	+59.9	0.2	19	00.4	+59.9	0.2	21	00.4	+59.9	0.2	23	00.4	+59.9	0.2	87
18	00.3	+59.8	0.1	20	00.3	+59.8	0.1	22	00.3	+59.8	0.2	24	00.3	+59.8	0.2	88
19	00.1	+59.9	0.1	21	00.1	+59.9	0.1	23	00.1	+59.9	0.1	25	00.1	+59.9	0.1	89
20	00.0	+59.9	0.0	22	00.0	+59.9	0.0	24	00.0	+59.9	0.0	26	00.0	+59.9	0.0	90
20°			22°			24°			26°			28°				

LATITUDE SAME NAME

L.H.A. 176°, 184°

6°, 354° L.H.A.

LATITUDE SAME NAME

Dec. °	0°			2°			4°			6°			8°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	59 27.6	-58.7	10.3	61 25.6	-58.6	10.9	63 23.3	-58.4	11.7	65 20.6	-58.1	12.5	67 17.5	-57.9	13.6
31	58 28.9	-58.8	9.9	60 27.0	-58.7	10.5	62 24.9	-58.5	11.2	64 22.5	-58.3	12.0	66 19.6	-58.0	12.9
32	57 30.1	-58.9	9.5	59 28.3	-58.7	10.1	61 26.4	-58.6	10.7	63 24.2	-58.5	11.4	65 21.6	-58.2	12.3
33	56 31.2	-59.0	9.1	58 29.6	-58.8	9.7	60 27.8	-58.7	10.2	62 25.7	-58.5	10.9	64 23.4	-58.3	11.7
34	55 32.2	-58.9	8.8	57 30.8	-58.9	9.3	59 29.1	-58.8	9.8	61 27.2	-58.6	10.4	63 25.1	-58.4	11.2
35	54 33.3	-59.1	8.5	56 31.9	-59.0	8.9	58 30.3	-58.8	9.4	60 28.6	-58.7	10.0	62 26.7	-58.6	10.7
36	53 34.2	-59.1	8.2	55 32.9	-59.0	8.6	57 31.5	-58.9	9.1	59 29.9	-58.7	9.6	61 28.1	-58.6	10.2
37	52 35.1	-59.1	7.9	54 33.9	-59.0	8.3	56 32.6	-58.9	8.7	58 31.2	-58.9	9.2	60 29.5	-58.7	9.8
38	51 36.0	-59.2	7.6	53 34.9	-59.1	8.0	55 33.7	-59.0	8.4	57 32.3	-58.9	8.8	59 30.8	-58.8	9.3
39	50 36.8	-59.2	7.4	52 35.8	-59.1	7.7	54 34.7	-59.1	8.1	56 33.4	-58.9	8.5	58 32.0	-58.8	9.0
40	49 37.6	-59.2	7.1	51 36.7	-59.2	7.4	53 35.6	-59.1	7.8	55 34.5	-59.0	8.1	57 33.2	-58.9	8.6
41	48 38.4	-59.2	6.9	50 37.5	-59.2	7.1	52 36.5	-59.1	7.5	54 35.5	-59.1	7.8	56 34.3	-59.0	8.2
42	47 39.2	-59.3	6.6	49 38.3	-59.2	6.9	51 37.4	-59.1	7.2	53 36.4	-59.1	7.5	55 35.3	-59.0	7.9
43	46 39.9	-59.3	6.4	48 39.1	-59.3	6.6	50 38.3	-59.2	6.9	52 37.3	-59.1	7.2	54 36.3	-59.0	7.6
44	45 40.6	-59.4	6.2	47 39.8	-59.3	6.4	49 39.1	-59.3	6.7	51 38.2	-59.2	7.0	53 37.3	-59.1	7.3
45	44 41.2	-59.3	6.0	46 40.5	-59.3	6.2	48 39.8	-59.2	6.4	50 39.0	-59.2	6.7	52 38.2	-59.2	7.0
46	43 41.9	-59.4	5.8	45 41.2	-59.3	6.0	47 40.6	-59.3	6.2	49 39.8	-59.2	6.4	51 39.0	-59.1	6.7
47	42 42.5	-59.4	5.6	44 41.9	-59.4	5.8	46 41.3	-59.3	6.0	48 40.6	-59.3	6.2	50 39.9	-59.2	6.5
48	41 43.1	-59.4	5.4	43 42.5	-59.3	5.6	45 42.0	-59.4	5.7	47 41.3	-59.3	6.0	49 40.7	-59.3	6.2
49	40 43.7	-59.5	5.2	42 43.2	-59.4	5.4	44 42.6	-59.3	5.5	46 42.0	-59.3	5.7	48 41.4	-59.3	6.0
50	39 44.2	-59.4	5.0	41 43.8	-59.5	5.2	43 43.3	-59.4	5.3	45 42.7	-59.3	5.5	47 42.1	-59.3	5.7
51	38 44.8	-59.5	4.8	40 44.3	-59.4	5.0	42 43.9	-59.4	5.1	44 43.4	-59.4	5.3	46 42.8	-59.3	5.5
52	37 45.3	-59.5	4.7	39 44.9	-59.4	4.8	41 44.5	-59.5	4.9	43 44.0	-59.4	5.1	45 43.5	-59.3	5.3
53	36 45.8	-59.5	4.5	38 45.5	-59.5	4.6	40 45.0	-59.4	4.8	42 44.6	-59.4	4.9	44 44.2	-59.4	5.1
54	35 46.3	-59.5	4.3	37 46.0	-59.5	4.5	39 45.6	-59.4	4.6	41 45.2	-59.4	4.7	43 44.8	-59.4	4.9
55	34 46.8	-59.5	4.2	36 46.5	-59.5	4.3	38 46.2	-59.5	4.4	40 45.8	-59.4	4.5	42 45.4	-59.4	4.7
56	33 47.3	-59.5	4.0	35 47.0	-59.5	4.1	37 46.7	-59.5	4.2	39 46.4	-59.5	4.4	41 46.0	-59.4	4.5
57	32 47.8	-59.6	3.9	34 47.5	-59.5	4.0	36 47.2	-59.5	4.1	38 46.9	-59.5	4.2	40 46.6	-59.5	4.3
58	31 48.2	-59.5	3.7	33 48.0	-59.5	3.8	35 47.7	-59.5	3.9	37 47.4	-59.5	4.0	39 47.1	-59.4	4.1
59	30 48.7	-59.6	3.6	32 48.5	-59.6	3.7	34 48.2	-59.5	3.8	36 47.9	-59.5	3.9	38 47.7	-59.5	4.0
60	29 49.1	-59.5	3.5	31 48.9	-59.5	3.5	33 48.7	-59.5	3.6	35 48.4	-59.5	3.7	37 48.2	-59.5	3.8
61	28 49.6	-59.6	3.3	30 49.4	-59.6	3.4	32 49.2	-59.6	3.5	34 48.9	-59.5	3.5	36 48.7	-59.5	3.6
62	27 50.0	-59.6	3.2	29 49.8	-59.6	3.2	31 49.6	-59.5	3.3	33 49.4	-59.5	3.4	35 49.2	-59.5	3.5
63	26 50.4	-59.6	3.0	28 50.2	-59.5	3.1	30 50.1	-59.6	3.2	32 49.9	-59.6	3.2	34 49.7	-59.6	3.3
64	25 50.8	-59.6	2.9	27 50.7	-59.6	3.0	29 50.5	-59.6	3.0	31 50.3	-59.5	3.1	33 50.1	-59.5	3.2
65	24 51.2	-59.6	2.8	26 51.1	-59.6	2.8	28 50.9	-59.5	2.9	30 50.8	-59.6	2.9	32 50.6	-59.5	3.0
66	23 51.6	-59.6	2.7	25 51.5	-59.6	2.7	27 51.4	-59.6	2.8	29 51.2	-59.6	2.8	31 51.1	-59.6	2.9
67	22 52.0	-59.6	2.5	24 51.9	-59.6	2.6	26 51.8	-59.6	2.6	28 51.6	-59.5	2.7	30 51.5	-59.6	2.7
68	21 52.4	-59.6	2.4	23 52.3	-59.6	2.5	25 52.2	-59.6	2.5	27 52.1	-59.6	2.5	29 51.9	-59.5	2.6
69	20 52.8	-59.7	2.3	22 52.7	-59.6	2.3	24 52.6	-59.6	2.4	26 52.5	-59.6	2.4	28 52.4	-59.6	2.5
70	19 53.1	-59.6	2.2	21 53.1	-59.7	2.2	23 53.0	-59.6	2.2	25 52.9	-59.6	2.3	27 52.8	-59.6	2.3
71	18 53.5	-59.6	2.1	20 53.4	-59.6	2.1	22 53.4	-59.7	2.1	24 53.3	-59.6	2.1	26 53.2	-59.6	2.2
72	17 53.9	-59.7	1.9	19 53.8	-59.6	2.0	21 53.7	-59.6	2.0	23 53.7	-59.6	2.0	25 53.6	-59.6	2.1
73	16 54.2	-59.6	1.8	18 54.2	-59.7	1.9	20 54.1	-59.6	1.9	22 54.1	-59.7	1.9	24 54.0	-59.6	1.9
74	15 54.6	-59.6	1.7	17 54.5	-59.6	1.7	19 54.5	-59.6	1.8	21 54.4	-59.6	1.8	23 54.4	-59.6	1.8
75	14 55.0	-59.7	1.6	16 54.9	-59.6	1.6	18 54.9	-59.7	1.6	20 54.8	-59.6	1.7	22 54.8	-59.7	1.7
76	13 55.3	-59.6	1.5	15 55.3	-59.7	1.5	17 55.2	-59.6	1.5	19 55.2	-59.7	1.5	21 55.1	-59.6	1.6
77	12 55.7	-59.7	1.4	14 55.6	-59.6	1.4	16 55.6	-59.7	1.4	18 55.5	-59.6	1.4	20 55.5	-59.6	1.4
78	11 56.0	-59.7	1.3	13 56.0	-59.7	1.3	15 55.9	-59.6	1.3	17 55.9	-59.6	1.3	19 55.9	-59.7	1.3
79	10 56.3	-59.6	1.2	12 56.3	-59.6	1.2	14 56.3	-59.7	1.2	16 56.3	-59.7	1.2	18 56.2	-59.6	1.2
80	9 56.7	-59.7	1.1	11 56.7	-59.7	1.1	13 56.6	-59.6	1.1	15 56.6	-59.6	1.1	17 56.6	-59.7	1.1
81	8 57.0	-59.6	0.9	10 57.0	-59.7	1.0	12 57.0	-59.7	1.0	14 57.0	-59.7	1.0	16 56.9	-59.6	1.0
82	7 57.4	-59.7	0.8	9 57.3	-59.6	0.8	11 57.3	-59.6	0.9	13 57.3	-59.6	0.9	15 57.3	-59.7	0.9
83	6 57.7	-59.7	0.7	8 57.7	-59.7	0.7	10 57.7	-59.7	0.7	12 57.7	-59.7	0.7	14 57.6	-59.6	0.8
84	5 58.0	-59.6	0.6	7 58.0	-59.7	0.6	9 58.0	-59.7	0.6	11 58.0	-59.7	0.6	13 58.0	-59.7	0.6
85	4 58.4	-59.7	0.5	6 58.3	-59.6	0.5	8 58.3	-59.6	0.5	10 58.3	-59.6	0.5	12 58.3	-59.6	0.5
86	3 58.7	-59.7	0.4	5 58.7	-59.7	0.4	7 58.7	-59.7	0.4	9 58.7	-59.7	0.4	11 58.7	-59.7	0.4
87	2 59.0	-59.7	0.3	4 59.0	-59.7	0.3	6 59.0	-59.7	0.3	8 59.0	-59.7	0.3	10 59.0	-59.7	0.3
88	1 59.3	-59.6	0.2	3 59.3	-59.6	0.2	5 59.3	-59.6	0.2	7 59.3	-59.6	0.2	9 59.3	-59.6	0.2
89	0 59.7	-59.7	0.1	2 59.7	-59.7	0.1	4 59.7	-59.7	0.1	6 59.7	-59.7	0.1	8 59.7	-59.7	0.1
90	0 00.0	-59.7	0.0	2 00.0	-59.7	0.0	4 00.0	-59.7	0.0	6 00.0	-59.7	0.0	8 00.0	-59.7	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 6°, 354°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
59 27.6	-58.7	169.7	57 29.5	-58.9	170.3	55 31.1	-59.0	170.8	53 32.6	-59.1	171.2	51 33.9	-59.2	171.6	30
58 28.9	-58.8	170.1	56 30.6	-59.0	170.7	54 32.1	-59.1	171.1	52 33.5	-59.2	171.5	50 34.7	-59.2	171.9	31
57 30.1	-58.9	170.5	55 31.6	-59.0	171.0	53 33.0	-59.0	171.4	51 34.3	-59.1	171.8	49 35.5	-59.2	172.1	32
56 31.2	-59.0	170.9	54 32.6	-59.0	171.3	52 34.0	-59.2	171.7	50 35.2	-59.3	172.1	48 36.3	-59.3	172.4	33
55 32.2	-58.9	171.2	53 33.6	-59.1	171.6	51 34.8	-59.1	172.0	49 35.9	-59.2	172.3	47 37.0	-59.3	172.6	34
54 33.3	-59.1	171.5	52 34.5	-59.1	171.9	50 35.7	-59.2	172.2	48 36.7	-59.3	172.6	46 37.7	-59.3	172.8	35
53 34.2	-59.1	171.8	51 35.4	-59.2	172.2	49 36.5	-59.3	172.5	47 37.4	-59.3	172.8	45 38.4	-59.4	173.1	36
52 35.1	-59.1	172.1	50 36.2	-59.2	172.4	48 37.2	-59.2	172.7	46 38.1	-59.3	173.0	44 39.0	-59.4	173.3	37
51 36.0	-59.2	172.4	49 37.0	-59.2	172.7	47 38.0	-59.3	173.0	45 38.8	-59.3	173.2	43 39.6	-59.4	173.5	38
50 36.8	-59.2	172.6	48 37.8	-59.3	172.9	46 38.7	-59.4	173.2	44 39.5	-59.4	173.4	42 40.2	-59.4	173.7	39
49 37.6	-59.2	172.9	47 38.5	-59.3	173.2	45 39.3	-59.3	173.4	43 40.1	-59.4	173.6	41 40.8	-59.4	173.8	40
48 38.4	-59.2	173.1	46 39.2	-59.3	173.4	44 40.0	-59.4	173.6	42 40.7	-59.4	173.8	40 41.4	-59.5	174.0	41
47 39.2	-59.3	173.4	45 39.9	-59.3	173.6	43 40.6	-59.3	173.8	41 41.3	-59.4	174.0	39 41.9	-59.4	174.2	42
46 39.9	-59.3	173.6	44 40.6	-59.4	173.8	42 41.3	-59.4	174.0	40 41.9	-59.4	174.2	38 42.5	-59.5	174.4	43
45 40.6	-59.4	173.8	43 41.2	-59.4	174.0	41 41.9	-59.5	174.2	39 42.5	-59.5	174.4	37 43.0	-59.5	174.5	44
44 41.2	-59.3	174.0	42 41.8	-59.4	174.2	40 42.4	-59.4	174.4	38 43.0	-59.4	174.6	36 43.5	-59.5	174.7	45
43 41.9	-59.4	174.2	41 42.4	-59.4	174.4	39 43.0	-59.5	174.6	37 43.5	-59.5	174.7	35 44.0	-59.5	174.9	46
42 42.5	-59.4	174.4	40 43.0	-59.4	174.6	38 43.5	-59.4	174.8	36 44.0	-59.5	174.9	34 44.5	-59.5	175.0	47
41 43.1	-59.4	174.6	39 43.6	-59.5	174.8	37 44.1	-59.5	174.9	35 44.5	-59.5	175.1	33 45.0	-59.6	175.2	48
40 43.7	-59.5	174.8	38 44.1	-59.4	175.0	36 44.6	-59.5	175.1	34 45.0	-59.5	175.2	32 45.4	-59.5	175.3	49
39 44.2	-59.5	175.0	37 44.7	-59.5	175.1	35 45.1	-59.5	175.3	33 45.5	-59.5	175.3	31 45.9	-59.6	175.5	50
38 44.8	-59.5	175.2	36 45.2	-59.5	175.3	34 45.6	-59.5	175.4	32 46.0	-59.6	175.5	30 46.3	-59.5	175.6	51
37 45.3	-59.5	175.3	35 45.7	-59.5	175.5	33 46.1	-59.6	175.6	31 46.4	-59.6	175.6	29 46.8	-59.6	175.7	52
36 45.8	-59.5	175.5	34 46.2	-59.5	175.6	32 46.5	-59.5	175.7	30 46.9	-59.6	175.8	28 47.2	-59.6	175.9	53
35 46.3	-59.5	175.7	33 46.7	-59.6	175.8	31 47.0	-59.6	175.9	29 47.3	-59.6	175.9	27 47.6	-59.6	176.0	54
34 46.8	-59.5	175.8	32 47.1	-59.5	175.9	30 47.4	-59.5	176.0	28 47.7	-59.6	176.1	26 48.0	-59.6	176.1	55
33 47.3	-59.5	176.0	31 47.6	-59.5	176.1	29 47.9	-59.6	176.1	27 48.1	-59.5	176.2	25 48.4	-59.6	176.3	56
32 47.8	-59.6	176.1	30 48.1	-59.6	176.2	28 48.3	-59.6	176.3	26 48.6	-59.6	176.3	24 48.8	-59.6	176.4	57
31 48.2	-59.5	176.3	29 48.5	-59.6	176.3	27 48.7	-59.6	176.4	25 49.0	-59.6	176.5	23 49.2	-59.6	176.5	58
30 48.7	-59.6	176.4	28 48.9	-59.5	176.5	26 49.1	-59.5	176.5	24 49.4	-59.6	176.6	22 49.6	-59.7	176.7	59
29 49.1	-59.5	176.5	27 49.4	-59.6	176.6	25 49.6	-59.6	176.7	23 49.8	-59.7	176.7	21 49.9	-59.6	176.8	60
28 49.6	-59.6	176.7	26 49.8	-59.6	176.7	24 50.0	-59.6	176.8	22 50.1	-59.6	176.8	20 50.3	-59.6	176.9	61
27 50.0	-59.6	176.8	25 50.2	-59.6	176.9	23 50.4	-59.7	176.9	21 50.5	-59.6	177.0	19 50.7	-59.7	177.0	62
26 50.4	-59.6	177.0	24 50.6	-59.6	177.0	22 50.7	-59.6	177.0	20 50.9	-59.6	177.1	18 51.0	-59.6	177.1	63
25 50.8	-59.6	177.1	23 51.0	-59.6	177.1	21 51.1	-59.6	177.2	19 51.3	-59.7	177.2	17 51.4	-59.6	177.2	64
24 51.2	-59.6	177.2	22 51.4	-59.7	177.3	20 51.5	-59.6	177.3	18 51.6	-59.6	177.3	16 51.8	-59.7	177.4	65
23 51.6	-59.6	177.3	21 51.7	-59.6	177.4	19 51.9	-59.7	177.4	17 52.0	-59.6	177.4	15 52.1	-59.6	177.5	66
22 52.0	-59.6	177.5	20 52.1	-59.6	177.5	18 52.2	-59.6	177.5	16 52.4	-59.7	177.6	14 52.5	-59.7	177.6	67
21 52.4	-59.6	177.6	19 52.5	-59.6	177.6	17 52.6	-59.6	177.6	15 52.7	-59.6	177.6	13 52.8	-59.7	177.7	68
20 52.8	-59.7	177.7	18 52.9	-59.7	177.7	16 53.0	-59.7	177.8	14 53.1	-59.7	177.8	12 53.1	-59.6	177.8	69
19 53.1	-59.6	177.8	17 53.2	-59.6	177.8	15 53.3	-59.6	177.9	13 53.4	-59.7	177.9	11 53.5	-59.7	177.9	70
18 53.5	-59.6	177.9	16 53.6	-59.6	178.0	14 53.7	-59.7	178.0	12 53.7	-59.6	178.0	10 53.8	-59.7	178.0	71
17 53.9	-59.7	178.1	15 54.0	-59.7	178.1	13 54.0	-59.6	178.1	11 54.1	-59.7	178.1	9 54.1	-59.6	178.1	72
16 54.2	-59.6	178.2	14 54.3	-59.6	178.2	12 54.4	-59.7	178.2	10 54.4	-59.6	178.2	8 54.5	-59.7	178.2	73
15 54.6	-59.6	178.3	13 54.7	-59.7	178.3	11 54.7	-59.7	178.3	9 54.8	-59.7	178.3	7 54.8	-59.7	178.3	74
14 55.0	-59.7	178.4	12 55.0	-59.7	178.4	10 55.0	-59.6	178.4	8 55.1	-59.7	178.4	6 55.1	-59.6	178.4	75
13 55.3	-59.6	178.5	11 55.3	-59.6	178.5	9 55.4	-59.7	178.5	7 55.4	-59.6	178.5	5 55.5	-59.7	178.5	76
12 55.7	-59.7	178.6	10 55.7	-59.7	178.6	8 55.7	-59.6	178.6	6 55.8	-59.7	178.6	4 55.8	-59.7	178.6	77
11 56.0	-59.7	178.7	9 56.0	-59.6	178.7	7 56.1	-59.7	178.7	5 56.1	-59.7	178.7	3 56.1	-59.7	178.8	78
10 56.3	-59.6	178.8	8 56.4	-59.7	178.8	6 56.4	-59.7	178.8	4 56.4	-59.7	178.9	2 56.4	-59.6	178.9	79
9 56.7	-59.7	178.9	7 56.7	-59.7	178.9	5 56.7	-59.6	179.0	3 56.7	-59.6	179.0	1 56.8	-59.7	179.0	80
8 57.0	-59.6	179.1	6 57.0	-59.6	179.1	4 57.1	-59.7	179.1	2 57.1	-59.7	179.1	0 57.1	-59.7	179.1	81
7 57.4	-59.7	179.2	5 57.4	-59.7	179.2	3 57.4	-59.7	179.2	1 57.4	-59.7	179.2	0 02.6	+59.7	0.8	82
6 57.7	-59.7	179.3	4 57.7	-59.7	179.3	2 57.7	-59.7	179.3	0 57.7	-59.7	179.3	1 02.3	+59.7	0.7	83
5 58.0	-59.6	179.4	3 58.0	-59.6	179.4	1 58.0	-59.6	179.4	0 58.4	-59.7	179.5	2 02.0	+59.6	0.6	84
4 58.4	-59.7	179.5	2 58.4	-59.7	179.5	0 58.4	-59.7	179.5	1 01.6	+59.7	0.5	3 01.6	+59.7	0.5	85
3 58.7	-59.7	179.6	1 58.7	-59.7	179.6	0 01.3	+59.7	0.4	2 01.3	+59.7	0.4	4 01.3	+59.7	0.4	86
2 59.0	-59.7	179.7	0 59.0	-59.7	179.7	1 01.0	+59.7	0.3	3 01.0	+59.7	0.3	5 01.0	+59.7	0.3	87
1 59.3	-59.6	179.8	0 00.7	+59.6	0.2	2 00.7	+59.6	0.2	4 00.7	+59.6	0.2	6 00.7	+59.6	0.2	88
0 59.7	-59.7	179.9	1 00.3	+59.7	0.1	3 00.3	+59.7	0.1	5 00.3	+59.7	0.1	7 00.3	+59.7	0.1	89
0 00.0	+59.7	0.0	2 00.0	+59.7	0.0	4 00.0	+59.7	0.0	6 00.0	+59.7	0.0	8 00.0	+59.7	0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 174°, 186°

6°, 354° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 13.9	-57.5	14.8	71 09.5	-57.0	16.3	73 04.2	-56.5	18.1	74 57.5	-55.6	20.4	76 48.9	-54.4	23.4
31	68 16.4	-57.8	14.0	70 12.5	-57.4	15.3	72 07.7	-56.8	17.0	74 01.9	-56.1	19.0	75 54.5	-55.1	21.6
32	67 18.6	-57.9	13.3	69 15.1	-57.5	14.5	71 10.9	-57.1	16.0	73 05.8	-56.5	17.8	74 59.4	-55.7	20.0
33	66 20.7	-58.0	12.6	68 17.6	-57.8	13.7	70 13.8	-57.3	15.0	72 09.3	-56.9	16.6	74 03.7	-56.2	18.6
34	65 22.7	-58.3	12.0	67 19.8	-57.9	13.0	69 16.5	-57.6	14.2	71 12.4	-57.1	15.6	73 07.5	-56.5	17.4
35	64 24.4	-58.3	11.4	66 21.9	-58.1	12.3	68 18.9	-57.8	13.4	70 15.3	-57.4	14.7	72 11.0	-56.9	16.3
36	63 26.1	-58.4	10.9	65 23.8	-58.2	11.7	67 21.1	-58.0	12.7	69 17.9	-57.6	13.8	71 14.1	-57.3	15.2
37	62 27.7	-58.6	10.4	64 25.6	-58.4	11.2	66 23.1	-58.1	12.0	68 20.3	-57.9	13.1	70 16.8	-57.4	14.3
38	61 29.1	-58.6	9.9	63 27.2	-58.5	10.6	65 25.0	-58.3	11.4	67 22.4	-58.0	12.4	69 19.4	-57.7	13.5
39	60 30.5	-58.7	9.5	62 28.7	-58.5	10.1	64 26.7	-58.3	10.9	66 24.4	-58.1	11.7	68 21.7	-57.9	12.7
40	59 31.8	-58.8	9.1	61 30.2	-58.7	9.7	63 28.4	-58.5	10.3	65 26.3	-58.3	11.1	67 23.8	-58.0	12.0
41	58 33.0	-58.9	8.7	60 31.5	-58.7	9.2	62 29.9	-58.6	9.8	64 28.0	-58.4	10.5	66 25.8	-58.2	11.4
42	57 34.1	-58.9	8.3	59 32.8	-58.8	8.8	61 31.3	-58.7	9.4	63 29.6	-58.5	10.0	65 27.6	-58.3	10.8
43	56 35.2	-58.9	8.0	58 34.0	-58.9	8.4	60 32.6	-58.7	8.9	62 31.1	-58.6	9.5	64 29.3	-58.4	10.2
44	55 36.3	-59.1	7.6	57 35.1	-58.9	8.1	59 33.9	-58.8	8.5	61 32.5	-58.7	9.1	63 30.9	-58.6	9.7
45	54 37.2	-59.0	7.3	56 36.2	-59.0	7.7	58 35.1	-58.9	8.2	60 33.8	-58.8	8.6	62 32.3	-58.6	9.2
46	53 38.2	-59.1	7.0	55 37.2	-59.0	7.4	57 36.2	-59.0	7.8	59 35.0	-58.8	8.2	61 33.7	-58.7	8.8
47	52 39.1	-59.2	6.7	54 38.2	-59.1	7.1	56 37.2	-59.0	7.4	58 36.2	-58.9	7.9	60 35.0	-58.8	8.3
48	51 39.9	-59.2	6.5	53 39.1	-59.1	6.8	55 38.2	-59.0	7.1	57 37.3	-59.0	7.5	59 36.2	-58.9	7.9
49	50 40.7	-59.2	6.2	52 40.0	-59.2	6.5	54 39.2	-59.1	6.8	56 38.3	-59.0	7.2	58 37.3	-58.9	7.6
50	49 41.5	-59.2	6.0	51 40.8	-59.2	6.2	53 40.1	-59.1	6.5	55 39.3	-59.1	6.8	57 38.4	-59.0	7.2
51	48 42.3	-59.3	5.7	50 41.6	-59.2	6.0	52 41.0	-59.2	6.2	54 40.2	-59.1	6.5	56 39.4	-59.0	6.9
52	47 43.0	-59.3	5.5	49 42.4	-59.3	5.7	51 41.8	-59.2	6.0	53 41.1	-59.1	6.2	55 40.4	-59.1	6.6
53	46 43.7	-59.4	5.3	48 43.1	-59.2	5.5	50 42.6	-59.3	5.7	52 42.0	-59.2	6.0	54 41.3	-59.1	6.2
54	45 44.3	-59.3	5.1	47 43.9	-59.4	5.2	49 43.3	-59.2	5.5	51 42.8	-59.3	5.7	53 42.2	-59.2	6.0
55	44 45.0	-59.4	4.8	46 44.5	-59.3	5.0	48 44.1	-59.3	5.2	50 43.5	-59.2	5.4	52 43.0	-59.2	5.7
56	43 45.6	-59.4	4.6	45 45.2	-59.4	4.8	47 44.8	-59.4	5.0	49 44.3	-59.3	5.2	51 43.8	-59.3	5.4
57	42 46.2	-59.4	4.4	44 45.8	-59.3	4.6	46 45.4	-59.3	4.8	48 45.0	-59.3	5.0	50 44.5	-59.2	5.2
58	41 46.8	-59.4	4.3	43 46.5	-59.4	4.4	45 46.1	-59.4	4.6	47 45.7	-59.3	4.7	49 45.3	-59.3	4.9
59	40 47.4	-59.5	4.1	42 47.1	-59.5	4.2	44 46.7	-59.4	4.3	46 46.4	-59.4	4.5	48 46.0	-59.4	4.7
60	39 47.9	-59.5	3.9	41 47.6	-59.4	4.0	43 47.3	-59.4	4.2	45 47.0	-59.4	4.3	47 46.6	-59.3	4.5
61	38 48.4	-59.4	3.7	40 48.2	-59.5	3.8	42 47.9	-59.4	4.0	44 47.6	-59.4	4.1	46 47.3	-59.4	4.2
62	37 49.0	-59.5	3.6	39 48.7	-59.4	3.7	41 48.5	-59.5	3.8	43 48.2	-59.4	3.9	45 47.9	-59.4	4.0
63	36 49.5	-59.5	3.4	38 49.3	-59.5	3.5	40 49.0	-59.4	3.6	42 48.8	-59.5	3.7	44 48.5	-59.4	3.8
64	35 50.0	-59.6	3.2	37 49.8	-59.5	3.3	39 49.6	-59.5	3.4	41 49.3	-59.4	3.5	43 49.1	-59.4	3.6
65	34 50.4	-59.5	3.1	36 50.3	-59.6	3.2	38 50.1	-59.5	3.3	40 49.9	-59.5	3.3	42 49.7	-59.5	3.5
66	33 50.9	-59.5	2.9	35 50.7	-59.5	3.0	37 50.6	-59.5	3.1	39 50.4	-59.5	3.2	41 50.2	-59.5	3.3
67	32 51.4	-59.6	2.8	34 51.2	-59.5	2.9	36 51.1	-59.6	2.9	38 50.9	-59.5	3.0	40 50.7	-59.4	3.1
68	31 51.8	-59.5	2.6	33 51.7	-59.6	2.7	35 51.5	-59.5	2.8	37 51.4	-59.5	2.8	39 51.3	-59.6	2.9
69	30 52.3	-59.6	2.5	32 52.1	-59.5	2.6	34 52.0	-59.5	2.6	36 51.9	-59.5	2.7	38 51.7	-59.5	2.8
70	29 52.7	-59.6	2.4	31 52.6	-59.6	2.4	33 52.5	-59.6	2.5	35 52.4	-59.6	2.5	37 52.2	-59.5	2.6
71	28 53.1	-59.6	2.2	30 53.0	-59.6	2.3	32 52.9	-59.6	2.3	34 52.8	-59.5	2.4	36 52.7	-59.5	2.4
72	27 53.5	-59.6	2.1	29 53.4	-59.6	2.1	31 53.3	-59.5	2.2	33 53.3	-59.6	2.2	35 53.2	-59.6	2.3
73	26 53.9	-59.6	2.0	28 53.8	-59.5	2.0	30 53.8	-59.6	2.0	32 53.7	-59.6	2.1	34 53.6	-59.6	2.1
74	25 54.3	-59.6	1.8	27 54.3	-59.6	1.9	29 54.2	-59.6	1.9	31 54.1	-59.6	1.9	33 54.0	-59.5	2.0
75	24 54.7	-59.6	1.7	26 54.7	-59.7	1.7	28 54.6	-59.6	1.8	30 54.5	-59.6	1.8	32 54.5	-59.6	1.8
76	23 55.1	-59.6	1.6	25 55.0	-59.6	1.6	27 55.0	-59.6	1.6	29 54.9	-59.6	1.7	31 54.9	-59.6	1.7
77	22 55.5	-59.7	1.5	24 55.4	-59.6	1.5	26 55.4	-59.6	1.5	28 55.3	-59.6	1.5	30 55.3	-59.6	1.6
78	21 55.8	-59.6	1.3	23 55.8	-59.6	1.4	25 55.8	-59.6	1.4	27 55.7	-59.6	1.4	29 55.7	-59.6	1.4
79	20 56.2	-59.6	1.2	22 56.2	-59.6	1.2	24 56.2	-59.7	1.3	26 56.1	-59.6	1.3	28 56.1	-59.6	1.3
80	19 56.6	-59.7	1.1	21 56.6	-59.7	1.1	23 56.5	-59.6	1.1	25 56.5	-59.6	1.2	27 56.5	-59.6	1.2
81	18 56.9	-59.6	1.0	20 56.9	-59.6	1.0	22 56.9	-59.6	1.0	24 56.9	-59.7	1.0	26 56.9	-59.7	1.1
82	17 57.3	-59.7	0.9	19 57.3	-59.7	0.9	21 57.3	-59.7	0.9	23 57.2	-59.6	0.9	25 57.2	-59.6	0.9
83	16 57.6	-59.6	0.8	18 57.6	-59.6	0.8	20 57.6	-59.6	0.8	22 57.6	-59.6	0.8	24 57.6	-59.6	0.8
84	15 58.0	-59.7	0.7	17 58.0	-59.7	0.7	19 58.0	-59.7	0.7	21 58.0	-59.7	0.7	23 58.0	-59.7	0.7
85	14 58.3	-59.6	0.5	16 58.3	-59.6	0.5	18 58.3	-59.6	0.6	20 58.3	-59.6	0.6	22 58.3	-59.6	0.6
86	13 58.7	-59.7	0.4	15 58.7	-59.7	0.4	17 58.7	-59.7	0.4	19 58.7	-59.7	0.4	21 58.7	-59.7	0.5
87	12 59.0	-59.7	0.3	14 59.0	-59.7	0.3	16 59.0	-59.7	0.3	18 59.0	-59.7	0.3	20 59.0	-59.7	0.3
88	11 59.3	-59.6	0.2	13 59.3	-59.6	0.2	15 59.3	-59.6	0.2	17 59.3	-59.6	0.2	19 59.3	-59.6	0.2
89	10 59.7	-59.7	0.1	12 59.7	-59.7	0.1	14 59.7	-59.7	0.1	16 59.7	-59.7	0.1	18 59.7	-59.7	0.1
90	10 00.0	-59.7	0.0	12 00.0	-59.7	0.0	14 00.0	-59.7	0.0	16 00.0	-59.7	0.0	18 00.0	-59.7	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 6°, 354°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
49 35.1	-59.2	172.0	47 36.2	-59.3	172.3	45 37.3	-59.4	172.6	43 38.3	-59.5	172.8	41 39.2	-59.5	173.0	30
48 35.9	-59.3	172.2	46 36.9	-59.3	172.5	44 37.9	-59.4	172.8	42 38.8	-59.4	173.0	40 39.7	-59.5	173.2	31
47 36.6	-59.3	172.4	45 37.6	-59.4	172.7	43 38.5	-59.4	173.0	41 39.4	-59.5	173.2	39 40.2	-59.5	173.4	32
46 37.3	-59.4	172.7	44 38.2	-59.4	172.9	42 39.1	-59.4	173.2	40 39.9	-59.4	173.4	38 40.7	-59.5	173.6	33
45 37.9	-59.3	172.9	43 38.8	-59.4	173.1	41 39.7	-59.5	173.3	39 40.5	-59.5	173.5	37 41.2	-59.5	173.7	34
44 38.6	-59.4	173.1	42 39.4	-59.4	173.3	40 40.2	-59.5	173.5	38 41.0	-59.5	173.7	36 41.7	-59.6	173.9	35
43 39.2	-59.4	173.3	41 40.0	-59.4	173.5	39 40.7	-59.4	173.7	37 41.5	-59.6	173.9	35 42.1	-59.5	174.0	36
42 39.8	-59.4	173.5	40 40.6	-59.5	173.7	38 41.3	-59.5	173.9	36 41.9	-59.5	174.0	34 42.6	-59.6	174.2	37
41 40.4	-59.5	173.7	39 41.1	-59.5	173.9	37 41.8	-59.5	174.0	35 42.4	-59.5	174.2	33 43.0	-59.6	174.3	38
40 40.9	-59.4	173.9	38 41.6	-59.5	174.0	36 42.3	-59.6	174.2	34 42.9	-59.6	174.3	32 43.4	-59.6	174.5	39
39 41.5	-59.5	174.0	37 42.1	-59.5	174.2	35 42.7	-59.5	174.3	33 43.3	-59.6	174.5	31 43.8	-59.6	174.6	40
38 42.0	-59.5	174.2	36 42.6	-59.5	174.4	34 43.2	-59.6	174.5	32 43.7	-59.5	174.6	30 44.3	-59.6	174.7	41
37 42.5	-59.5	174.4	35 43.1	-59.5	174.5	33 43.6	-59.5	174.6	31 44.2	-59.6	174.8	29 44.7	-59.7	174.9	42
36 43.0	-59.5	174.5	34 43.6	-59.6	174.7	32 44.1	-59.6	174.8	30 44.6	-59.6	174.9	28 45.0	-59.6	175.0	43
35 43.5	-59.5	174.7	33 44.0	-59.5	174.8	31 44.5	-59.6	174.9	29 45.0	-59.6	175.0	27 45.4	-59.6	175.1	44
34 44.0	-59.5	174.8	32 44.5	-59.6	175.0	30 44.9	-59.5	175.1	28 45.4	-59.6	175.2	26 45.8	-59.6	175.3	45
33 44.5	-59.6	175.0	31 44.9	-59.5	175.1	29 45.4	-59.6	175.2	27 45.8	-59.6	175.3	25 46.2	-59.7	175.4	46
32 44.9	-59.5	175.1	30 45.4	-59.6	175.2	28 45.8	-59.6	175.3	26 46.2	-59.7	175.4	24 46.5	-59.6	175.5	47
31 45.4	-59.6	175.3	29 45.8	-59.6	175.4	27 46.2	-59.6	175.5	25 46.5	-59.6	175.5	23 46.9	-59.7	175.6	48
30 45.8	-59.5	175.4	28 46.2	-59.6	175.5	26 46.6	-59.7	175.6	24 46.9	-59.6	175.7	22 47.2	-59.6	175.7	49
29 46.3	-59.6	175.6	27 46.6	-59.6	175.6	25 46.9	-59.6	175.7	23 47.3	-59.7	175.8	21 47.6	-59.7	175.9	50
28 46.7	-59.6	175.7	26 47.0	-59.6	175.8	24 47.3	-59.6	175.8	22 47.6	-59.6	175.9	20 47.9	-59.6	176.0	51
27 47.1	-59.6	175.8	25 47.4	-59.6	175.9	23 47.7	-59.6	176.0	21 48.0	-59.7	176.0	19 48.3	-59.7	176.1	52
26 47.5	-59.6	176.0	24 47.8	-59.6	176.0	22 48.1	-59.7	176.1	20 48.3	-59.6	176.1	18 48.6	-59.7	176.2	53
25 47.9	-59.6	176.1	23 48.2	-59.7	176.1	21 48.4	-59.6	176.2	19 48.7	-59.7	176.3	17 48.9	-59.6	176.3	54
24 48.3	-59.6	176.2	22 48.5	-59.6	176.3	20 48.8	-59.7	176.3	18 49.0	-59.6	176.4	16 49.3	-59.7	176.4	55
23 48.7	-59.7	176.3	21 48.9	-59.6	176.4	19 49.1	-59.6	176.4	17 49.4	-59.7	176.5	15 49.6	-59.7	176.5	56
22 49.0	-59.6	176.5	20 49.3	-59.7	176.5	18 49.5	-59.7	176.6	16 49.7	-59.7	176.6	14 49.9	-59.7	176.6	57
21 49.4	-59.6	176.6	19 49.6	-59.6	176.6	17 49.8	-59.6	176.7	15 50.0	-59.6	176.7	13 50.2	-59.7	176.7	58
20 49.8	-59.7	176.7	18 50.0	-59.7	176.7	16 50.2	-59.7	176.8	14 50.4	-59.7	176.8	12 50.5	-59.7	176.8	59
19 50.1	-59.6	176.8	17 50.3	-59.6	176.9	15 50.5	-59.7	176.9	13 50.7	-59.7	176.9	11 50.8	-59.6	176.9	60
18 50.5	-59.7	176.9	16 50.7	-59.7	177.0	14 50.8	-59.6	177.0	12 51.0	-59.7	177.0	10 51.2	-59.7	177.0	61
17 50.8	-59.6	177.0	15 51.0	-59.7	177.1	13 51.2	-59.7	177.1	11 51.3	-59.7	177.1	9 51.5	-59.7	177.1	62
16 51.2	-59.7	177.2	14 51.3	-59.6	177.2	12 51.5	-59.7	177.2	10 51.6	-59.7	177.2	8 51.8	-59.7	177.2	63
15 51.5	-59.6	177.3	13 51.7	-59.7	177.3	11 51.8	-59.7	177.3	9 51.9	-59.6	177.3	7 52.1	-59.7	177.3	64
14 51.9	-59.7	177.4	12 52.0	-59.7	177.4	10 52.1	-59.6	177.4	8 52.3	-59.7	177.4	6 52.4	-59.7	177.4	65
13 52.2	-59.6	177.5	11 52.3	-59.6	177.5	9 52.5	-59.7	177.5	7 52.6	-59.7	177.5	5 52.7	-59.7	177.6	66
12 52.6	-59.7	177.6	10 52.7	-59.7	177.6	8 52.8	-59.7	177.6	6 52.9	-59.7	177.6	4 53.0	-59.7	177.7	67
11 52.9	-59.7	177.7	9 53.0	-59.7	177.7	7 53.1	-59.7	177.7	5 53.2	-59.7	177.7	3 53.3	-59.7	177.8	68
10 53.2	-59.6	177.8	8 53.3	-59.7	177.8	6 53.4	-59.7	177.8	4 53.5	-59.7	177.8	2 53.6	-59.7	177.9	69
9 53.6	-59.7	177.9	7 53.6	-59.6	177.9	5 53.7	-59.7	177.9	3 53.8	-59.7	177.9	1 53.9	-59.7	178.0	70
8 53.9	-59.7	178.0	6 54.0	-59.7	178.0	4 54.0	-59.7	178.0	2 54.1	-59.7	178.0	0 54.2	-59.7	178.0	71
7 54.2	-59.7	178.1	5 54.3	-59.7	178.1	3 54.3	-59.6	178.1	1 54.4	-59.7	178.1	0 05.5	+59.7	1.9	72
6 54.5	-59.6	178.2	4 54.6	-59.7	178.2	2 54.7	-59.7	178.2	0 54.7	-59.7	178.2	1 05.2	+59.7	1.8	73
5 54.9	-59.7	178.3	3 54.9	-59.7	178.3	1 55.0	-59.7	178.3	0 05.0	+59.7	1.7	2 04.9	+59.7	1.7	74
4 55.2	-59.7	178.4	2 55.2	-59.7	178.4	0 55.3	-59.7	178.4	1 04.7	+59.7	1.6	3 04.6	+59.7	1.6	75
3 55.5	-59.7	178.5	1 55.5	-59.6	178.6	0 04.4	+59.7	1.4	2 04.4	+59.7	1.4	4 04.3	+59.7	1.5	76
2 55.8	-59.7	178.7	0 55.9	-59.7	178.7	1 04.1	+59.7	1.3	3 04.1	+59.7	1.3	5 04.0	+59.7	1.4	77
1 56.1	-59.6	178.8	0 03.8	+59.7	1.2	2 03.8	+59.7	1.2	4 03.8	+59.7	1.2	6 03.7	+59.7	1.3	78
0 56.5	-59.7	178.9	1 03.5	+59.7	1.1	3 03.5	+59.7	1.1	5 03.5	+59.7	1.1	7 03.4	+59.7	1.2	79
0 03.2	+59.7	1.0	2 03.2	+59.7	1.0	4 03.2	+59.7	1.0	6 03.2	+59.7	1.0	8 03.1	+59.7	1.1	80
1 02.9	+59.7	0.9	3 02.9	+59.7	0.9	5 02.9	+59.7	0.9	7 02.9	+59.6	0.9	9 02.8	+59.7	0.9	81
2 02.6	+59.7	0.8	4 02.6	+59.7	0.8	6 02.6	+59.6	0.8	8 02.5	+59.7	0.8	10 02.5	+59.7	0.8	82
3 02.3	+59.6	0.7	5 02.3	+59.6	0.7	7 02.2	+59.7	0.7	9 02.2	+59.7	0.7	11 02.2	+59.7	0.7	83
4 01.9	+59.7	0.6	6 01.9	+59.7	0.6	8 01.9	+59.7	0.6	10 01.9	+59.7	0.6	12 01.9	+59.7	0.6	84
5 01.6	+59.7	0.5	7 01.6	+59.7	0.5	9 01.6	+59.7	0.5	11 01.6	+59.7	0.5	13 01.6	+59.7	0.5	85
6 01.3	+59.7	0.4	8 01.3	+59.7	0.4	10 01.3	+59.7	0.4	12 01.3	+59.7	0.4	14 01.3	+59.7	0.4	86
7 01.0	+59.7	0.3	9 01.0	+59.7	0.3	11 01.0	+59.7	0.3	13 01.0	+59.7	0.3	15 01.0	+59.7	0.3	87
8 00.7	+59.6	0.2	10 00.7	+59.6	0.2	12 00.7	+59.6	0.2	14 00.7	+59.6	0.2	16 00.7	+59.6	0.2	88
9 00.3	+59.7	0.1	11 00.3	+59.7	0.1	13 00.3	+59.7	0.1	15 00.3	+59.7	0.1	17 00.3	+59.7	0.1	89
10 00.0	+59.7	0.0	12 00.0	+59.7	0.0	14 00.0	+59.7	0.0	16 00.0	+59.7	0.0	18 00.0	+59.7	0.0	90
10°			12°			14°			16°			18°			

LATITUDE SAME NAME

L.H.A. 174°, 186°

6°, 354° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	78 37.4	-52.7	27.3	80 21.4	-49.9	32.7	81 58.0	-45.4	40.4	83 21.8	-37.6	51.6	84 23.1	-24.4	67.7
31	77 44.7	-53.6	25.0	79 31.5	-51.5	29.5	81 12.6	-48.0	35.9	82 44.2	-42.3	45.1	83 58.7	-32.0	58.7
32	76 51.1	-54.5	22.9	78 40.0	-52.8	26.8	80 24.6	-50.1	32.1	82 01.9	-45.6	39.8	83 26.7	-38.1	50.9
33	75 56.6	-55.2	21.2	77 47.2	-53.8	24.5	79 34.5	-51.7	29.0	81 16.3	-48.4	35.3	82 48.6	-42.5	44.5
34	75 01.4	-55.8	19.6	76 53.4	-54.6	22.5	78 42.8	-53.0	26.3	80 27.9	-50.3	31.5	82 06.1	-46.0	39.1
35	74 05.6	-56.2	18.2	75 58.8	-55.3	20.7	77 49.8	-53.9	24.0	79 37.6	-51.9	28.4	81 20.1	-48.7	34.6
36	73 09.4	-56.7	17.0	75 03.5	-55.9	19.1	76 55.9	-54.8	22.0	78 45.7	-53.1	25.7	80 31.4	-50.5	30.9
37	72 12.7	-57.0	15.9	74 07.6	-56.3	17.8	76 01.1	-55.4	20.2	77 52.6	-54.2	23.4	79 40.9	-52.2	27.8
38	71 15.7	-57.2	14.9	73 11.3	-56.7	16.5	75 05.7	-56.0	18.7	76 58.4	-54.9	21.4	78 48.7	-53.3	25.1
39	70 18.5	-57.5	14.0	72 14.6	-57.1	15.4	74 09.7	-56.4	17.3	76 03.5	-55.5	19.7	77 55.4	-54.3	22.8
40	69 21.0	-57.8	13.1	71 17.5	-57.3	14.5	73 13.3	-56.8	16.1	75 08.0	-56.1	18.2	77 01.1	-55.1	20.9
41	68 23.2	-57.9	12.4	70 20.2	-57.6	13.6	72 16.5	-57.1	15.0	74 11.9	-56.5	16.8	76 06.0	-55.6	19.2
42	67 25.3	-58.1	11.7	69 22.6	-57.8	12.7	71 19.4	-57.4	14.0	73 15.4	-56.9	15.6	75 10.4	-56.2	17.7
43	66 27.2	-58.2	11.0	68 24.8	-57.9	12.0	70 22.0	-57.7	13.2	72 18.5	-57.2	14.6	74 14.2	-56.7	16.3
44	65 29.0	-58.3	10.4	67 26.9	-58.2	11.3	69 24.3	-57.8	12.3	71 21.3	-57.5	13.6	73 17.5	-57.0	15.2
45	64 30.7	-58.5	9.9	66 28.7	-58.2	10.7	68 26.5	-58.0	11.6	70 23.8	-57.7	12.7	72 20.5	-57.3	14.1
46	63 32.2	-58.6	9.4	65 30.5	-58.4	10.1	67 28.5	-58.2	10.9	69 26.1	-57.9	11.9	71 23.2	-57.5	13.1
47	62 33.6	-58.7	8.9	64 32.1	-58.5	9.5	66 30.3	-58.3	10.3	68 28.2	-58.1	11.2	70 25.7	-57.8	12.3
48	61 34.9	-58.7	8.5	63 33.6	-58.7	9.0	65 32.0	-58.5	9.7	67 30.1	-58.2	10.5	69 27.9	-58.0	11.5
49	60 36.2	-58.8	8.0	62 34.9	-58.7	8.6	64 33.5	-58.5	9.2	66 31.9	-58.4	9.9	68 29.9	-58.1	10.8
50	59 37.4	-58.9	7.6	61 36.2	-58.7	8.1	63 35.0	-58.7	8.7	65 33.5	-58.5	9.3	67 31.8	-58.3	10.1
51	58 38.5	-59.0	7.3	60 37.5	-58.9	7.7	62 36.3	-58.7	8.2	64 35.0	-58.6	8.8	66 33.5	-58.5	9.5
52	57 39.5	-59.0	6.9	59 38.6	-58.9	7.3	61 37.6	-58.8	7.8	63 36.4	-58.7	8.3	65 35.0	-58.5	9.0
53	56 40.5	-59.0	6.6	58 39.7	-59.0	6.9	60 38.8	-58.9	7.4	62 37.7	-58.8	7.9	64 36.5	-58.6	8.4
54	55 41.5	-59.1	6.3	57 40.7	-59.0	6.6	59 39.9	-59.0	7.0	61 38.9	-58.8	7.4	63 37.9	-58.8	8.0
55	54 42.4	-59.2	6.0	56 41.7	-59.1	6.3	58 40.9	-59.0	6.6	60 40.1	-58.9	7.0	62 39.1	-58.8	7.5
56	53 43.2	-59.2	5.7	55 42.6	-59.1	6.0	57 41.9	-59.0	6.3	59 41.2	-59.0	6.7	61 40.3	-58.9	7.1
57	52 44.0	-59.2	5.4	54 43.5	-59.2	5.7	56 42.9	-59.1	6.0	58 42.2	-59.1	6.3	60 41.4	-58.9	6.7
58	51 44.8	-59.2	5.1	53 44.3	-59.2	5.4	55 43.8	-59.2	5.6	57 43.1	-59.0	6.0	59 42.5	-59.1	6.3
59	50 45.6	-59.3	4.9	52 45.1	-59.2	5.1	54 44.6	-59.2	5.4	56 44.1	-59.2	5.6	58 43.4	-59.0	6.0
60	49 46.3	-59.3	4.6	51 45.9	-59.3	4.8	53 45.4	-59.2	5.1	55 44.9	-59.2	5.3	57 44.4	-59.2	5.6
61	48 47.0	-59.4	4.4	50 46.6	-59.3	4.6	52 46.2	-59.3	4.8	54 45.7	-59.2	5.0	56 45.2	-59.1	5.3
62	47 47.6	-59.4	4.2	49 47.3	-59.4	4.4	51 46.9	-59.3	4.5	53 46.5	-59.2	4.8	55 46.1	-59.2	5.0
63	46 48.2	-59.3	4.0	48 47.9	-59.3	4.1	50 47.6	-59.3	4.3	52 47.3	-59.3	4.5	54 46.9	-59.3	4.7
64	45 48.9	-59.5	3.8	47 48.6	-59.4	3.9	49 48.3	-59.4	4.1	51 48.0	-59.3	4.2	53 47.6	-59.3	4.4
65	44 49.4	-59.4	3.6	46 49.2	-59.4	3.7	48 48.9	-59.3	3.8	50 48.7	-59.4	4.0	52 48.3	-59.3	4.2
66	43 50.0	-59.4	3.4	45 49.8	-59.4	3.5	47 49.6	-59.4	3.6	49 49.3	-59.4	3.8	51 49.0	-59.3	3.9
67	42 50.6	-59.5	3.2	44 50.4	-59.5	3.3	46 50.2	-59.5	3.4	48 49.9	-59.4	3.6	50 49.7	-59.4	3.7
68	41 51.1	-59.5	3.0	43 50.9	-59.4	3.1	45 50.7	-59.4	3.2	47 50.5	-59.4	3.3	49 50.3	-59.4	3.5
69	40 51.6	-59.5	2.8	42 51.5	-59.5	2.9	44 51.3	-59.5	3.0	46 51.1	-59.4	3.1	48 50.9	-59.4	3.3
70	39 52.1	-59.5	2.7	41 52.0	-59.5	2.8	43 51.8	-59.5	2.8	45 51.7	-59.5	2.9	47 51.5	-59.4	3.1
71	38 52.6	-59.5	2.5	40 52.5	-59.5	2.6	42 52.3	-59.4	2.7	44 52.2	-59.5	2.8	46 52.1	-59.5	2.9
72	37 53.1	-59.6	2.3	39 53.0	-59.6	2.4	41 52.9	-59.6	2.5	43 52.7	-59.5	2.6	45 52.6	-59.5	2.7
73	36 53.5	-59.5	2.2	38 53.4	-59.5	2.3	40 53.3	-59.5	2.3	42 53.2	-59.5	2.4	44 53.1	-59.5	2.5
74	35 54.0	-59.6	2.0	37 53.9	-59.6	2.1	39 53.8	-59.5	2.2	41 53.7	-59.5	2.2	43 53.6	-59.5	2.3
75	34 54.4	-59.6	1.9	36 54.3	-59.5	1.9	38 54.3	-59.6	2.0	40 54.2	-59.5	2.1	42 54.1	-59.5	2.1
76	33 54.8	-59.5	1.7	35 54.8	-59.6	1.8	37 54.7	-59.5	1.8	39 54.7	-59.6	1.9	41 54.6	-59.6	1.9
77	32 55.3	-59.6	1.6	34 55.2	-59.6	1.6	36 55.2	-59.6	1.7	38 55.1	-59.6	1.7	40 55.0	-59.5	1.8
78	31 55.7	-59.6	1.5	33 55.6	-59.6	1.5	35 55.6	-59.6	1.5	37 55.5	-59.5	1.6	39 55.5	-59.6	1.6
79	30 56.1	-59.6	1.3	32 56.0	-59.6	1.4	34 56.0	-59.6	1.4	36 56.0	-59.6	1.4	38 55.9	-59.6	1.5
80	29 56.5	-59.7	1.2	31 56.4	-59.6	1.2	33 56.4	-59.6	1.3	35 56.4	-59.6	1.3	37 56.3	-59.6	1.3
81	28 56.8	-59.6	1.1	30 56.8	-59.6	1.1	32 56.8	-59.6	1.1	34 56.8	-59.6	1.1	36 56.7	-59.6	1.2
82	27 57.2	-59.6	0.9	29 57.2	-59.6	1.0	31 57.2	-59.6	1.0	33 57.2	-59.7	1.0	35 57.1	-59.6	1.0
83	26 57.6	-59.7	0.8	28 57.6	-59.7	0.8	30 57.6	-59.7	0.9	32 57.5	-59.6	0.9	34 57.5	-59.6	0.9
84	25 57.9	-59.6	0.7	27 57.9	-59.6	0.7	29 57.9	-59.6	0.7	31 57.9	-59.6	0.7	33 57.9	-59.6	0.8
85	24 58.3	-59.7	0.6	26 58.3	-59.7	0.6	28 58.3	-59.7	0.6	30 58.3	-59.7	0.6	32 58.3	-59.7	0.6
86	23 58.6	-59.6	0.5	25 58.6	-59.6	0.5	27 58.6	-59.6	0.5	29 58.6	-59.6	0.5	31 58.6	-59.6	0.5
87	22 59.0	-59.7	0.3	24 59.0	-59.7	0.3	26 59.0	-59.7	0.4	28 59.0	-59.7	0.4	30 59.0	-59.7	0.4
88	21 59.3	-59.6	0.2	23 59.3	-59.6	0.2	25 59.3	-59.6	0.2	27 59.3	-59.6	0.2	29 59.3	-59.6	0.2
89	20 59.7	-59.7	0.1	22 59.7	-59.7	0.1	24 59.7	-59.7	0.1	26 59.7	-59.7	0.1	28 59.7	-59.7	0.1
90	20 00.0	-59.7	0.0	22 00.0	-59.7	0.0	24 00.0	-59.7	0.0	26 00.0	-59.7	0.0	28 00.0	-59.7	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 6°, 354°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
39 40.0 -59.5 173.2	37 40.9 -59.6 173.4	35 41.6 -59.6 173.6	33 42.3 -59.6 173.8	31 43.0 -59.7 174.0	30 43.6 -59.7 174.3	32 42.7 -59.6 173.9	30 43.4 -59.7 174.0	28 44.1 -59.7 174.1	28 44.1 -59.7 174.1	28 44.1 -59.7 174.1	28 44.1 -59.7 174.1	28 44.1 -59.7 174.1	28 44.1 -59.7 174.1	28 44.1 -59.7 174.1	30
38 40.5 -59.5 173.4	36 41.3 -59.6 173.6	34 42.0 -59.6 173.7	32 42.7 -59.6 173.9	30 43.4 -59.7 174.0	29 43.9 -59.6 174.4	31 43.1 -59.6 174.0	29 43.7 -59.6 174.1	27 44.5 -59.7 174.5	27 44.5 -59.7 174.5	27 44.5 -59.7 174.5	27 44.5 -59.7 174.5	27 44.5 -59.7 174.5	27 44.5 -59.7 174.5	27 44.5 -59.7 174.5	31
37 41.0 -59.5 173.6	35 41.7 -59.5 173.7	33 42.4 -59.6 173.9	31 43.1 -59.6 174.0	30 43.8 -59.7 174.3	28 44.3 -59.6 174.5	30 43.5 -59.7 174.1	29 43.7 -59.6 174.1	26 44.8 -59.6 174.6	26 44.8 -59.6 174.6	26 44.8 -59.6 174.6	26 44.8 -59.6 174.6	26 44.8 -59.6 174.6	26 44.8 -59.6 174.6	26 44.8 -59.6 174.6	32
36 41.5 -59.6 173.7	34 42.2 -59.6 173.9	32 42.8 -59.6 174.0	30 43.5 -59.7 174.1	29 44.1 -59.6 174.4	27 44.7 -59.7 174.7	30 43.2 -59.6 174.2	29 43.9 -59.6 174.4	25 45.2 -59.7 174.8	25 45.2 -59.7 174.8	25 45.2 -59.7 174.8	25 45.2 -59.7 174.8	25 45.2 -59.7 174.8	25 45.2 -59.7 174.8	25 45.2 -59.7 174.8	33
35 41.9 -59.6 173.9	33 42.6 -59.6 174.0	31 43.2 -59.6 174.2	29 43.8 -59.7 174.3	28 44.5 -59.6 174.7	26 45.0 -59.6 174.8	31 43.2 -59.6 174.2	30 43.6 -59.7 174.3	24 45.5 -59.7 174.9	24 45.5 -59.7 174.9	24 45.5 -59.7 174.9	24 45.5 -59.7 174.9	24 45.5 -59.7 174.9	24 45.5 -59.7 174.9	24 45.5 -59.7 174.9	34
34 42.3 -59.5 174.0	32 43.0 -59.6 174.2	30 43.6 -59.7 174.3	28 44.2 -59.7 174.4	27 44.9 -59.7 174.8	25 45.4 -59.7 174.9	30 43.3 -59.6 174.2	29 43.9 -59.6 174.4	23 46.0 -59.7 175.1	23 46.0 -59.7 175.1	23 46.0 -59.7 175.1	23 46.0 -59.7 175.1	23 46.0 -59.7 175.1	23 46.0 -59.7 175.1	23 46.0 -59.7 175.1	35
33 42.8 -59.6 174.2	31 43.4 -59.6 174.3	29 43.9 -59.6 174.4	27 44.5 -59.7 174.5	26 45.2 -59.7 174.8	24 45.9 -59.6 175.2	31 43.4 -59.6 174.3	30 43.8 -59.7 174.4	22 46.1 -59.7 175.1	22 46.1 -59.7 175.1	22 46.1 -59.7 175.1	22 46.1 -59.7 175.1	22 46.1 -59.7 175.1	22 46.1 -59.7 175.1	22 46.1 -59.7 175.1	36
32 43.2 -59.6 174.3	30 43.8 -59.7 174.4	28 44.3 -59.6 174.5	26 44.8 -59.6 174.6	25 45.5 -59.7 174.9	24 46.3 -59.6 175.2	30 43.5 -59.7 174.1	29 44.1 -59.6 174.4	21 46.4 -59.7 175.2	21 46.4 -59.7 175.2	21 46.4 -59.7 175.2	21 46.4 -59.7 175.2	21 46.4 -59.7 175.2	21 46.4 -59.7 175.2	21 46.4 -59.7 175.2	37
31 43.6 -59.6 174.4	29 44.1 -59.6 174.6	27 44.7 -59.7 174.7	25 45.2 -59.7 174.8	24 45.9 -59.6 175.2	22 46.3 -59.6 175.2	30 43.2 -59.6 174.2	29 43.9 -59.6 174.4	20 46.7 -59.6 175.3	20 46.7 -59.6 175.3	20 46.7 -59.6 175.3	20 46.7 -59.6 175.3	20 46.7 -59.6 175.3	20 46.7 -59.6 175.3	20 46.7 -59.6 175.3	38
30 44.0 -59.6 174.6	28 44.5 -59.6 174.7	26 45.0 -59.6 174.8	24 45.5 -59.7 174.9	23 46.3 -59.7 175.3	21 46.7 -59.7 175.4	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	19 47.1 -59.8 175.4	19 47.1 -59.8 175.4	19 47.1 -59.8 175.4	19 47.1 -59.8 175.4	19 47.1 -59.8 175.4	19 47.1 -59.8 175.4	19 47.1 -59.8 175.4	39
29 44.4 -59.7 174.7	27 44.9 -59.7 174.8	25 45.4 -59.7 174.9	23 46.0 -59.7 175.0	22 46.6 -59.7 175.3	20 47.0 -59.7 175.5	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	18 47.6 -59.7 175.5	18 47.6 -59.7 175.5	18 47.6 -59.7 175.5	18 47.6 -59.7 175.5	18 47.6 -59.7 175.5	18 47.6 -59.7 175.5	18 47.6 -59.7 175.5	40
28 44.7 -59.6 174.8	26 45.2 -59.6 174.9	24 45.7 -59.7 175.0	22 46.1 -59.7 175.1	21 46.8 -59.7 175.4	20 47.3 -59.7 175.6	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	17 47.6 -59.7 175.6	17 47.6 -59.7 175.6	17 47.6 -59.7 175.6	17 47.6 -59.7 175.6	17 47.6 -59.7 175.6	17 47.6 -59.7 175.6	17 47.6 -59.7 175.6	41
27 45.1 -59.6 175.0	25 45.6 -59.7 175.1	23 46.0 -59.7 175.1	21 46.4 -59.7 175.2	20 47.0 -59.7 175.5	19 47.7 -59.7 175.7	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	16 47.9 -59.7 175.7	16 47.9 -59.7 175.7	16 47.9 -59.7 175.7	16 47.9 -59.7 175.7	16 47.9 -59.7 175.7	16 47.9 -59.7 175.7	16 47.9 -59.7 175.7	42
26 45.5 -59.6 175.1	24 45.9 -59.6 175.2	22 46.3 -59.6 175.2	20 46.7 -59.6 175.3	19 47.4 -59.7 175.5	18 48.1 -59.7 175.8	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	15 48.2 -59.7 175.8	15 48.2 -59.7 175.8	15 48.2 -59.7 175.8	15 48.2 -59.7 175.8	15 48.2 -59.7 175.8	15 48.2 -59.7 175.8	15 48.2 -59.7 175.8	43
25 45.9 -59.7 175.2	23 46.3 -59.7 175.3	21 46.7 -59.7 175.4	19 47.1 -59.8 175.4	18 47.8 -59.7 175.8	17 48.5 -59.7 176.0	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	14 48.5 -59.7 175.9	14 48.5 -59.7 175.9	14 48.5 -59.7 175.9	14 48.5 -59.7 175.9	14 48.5 -59.7 175.9	14 48.5 -59.7 175.9	14 48.5 -59.7 175.9	44
24 46.2 -59.6 175.3	22 46.6 -59.7 175.4	20 47.0 -59.7 175.5	18 47.4 -59.7 175.5	17 48.1 -59.7 175.9	16 48.8 -59.7 176.1	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	13 48.8 -59.7 175.9	13 48.8 -59.7 175.9	13 48.8 -59.7 175.9	13 48.8 -59.7 175.9	13 48.8 -59.7 175.9	13 48.8 -59.7 175.9	13 48.8 -59.7 175.9	45
23 46.6 -59.7 175.4	21 46.9 -59.6 175.5	19 47.3 -59.7 175.6	17 47.6 -59.7 175.6	16 48.2 -59.7 175.9	15 48.8 -59.7 176.0	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	12 49.1 -59.8 176.0	12 49.1 -59.8 176.0	12 49.1 -59.8 176.0	12 49.1 -59.8 176.0	12 49.1 -59.8 176.0	12 49.1 -59.8 176.0	12 49.1 -59.8 176.0	46
22 46.9 -59.7 175.6	20 47.3 -59.7 175.6	18 47.6 -59.7 175.7	16 47.9 -59.7 175.7	15 48.5 -59.7 176.0	14 48.8 -59.7 176.1	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	11 49.3 -59.7 176.2	11 49.3 -59.7 176.2	11 49.3 -59.7 176.2	11 49.3 -59.7 176.2	11 49.3 -59.7 176.2	11 49.3 -59.7 176.2	11 49.3 -59.7 176.2	47
21 47.2 -59.6 175.7	19 47.6 -59.7 175.7	17 47.9 -59.7 175.8	15 48.2 -59.7 175.8	14 48.8 -59.7 176.0	13 49.1 -59.7 176.2	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	10 49.6 -59.7 176.3	10 49.6 -59.7 176.3	10 49.6 -59.7 176.3	10 49.6 -59.7 176.3	10 49.6 -59.7 176.3	10 49.6 -59.7 176.3	10 49.6 -59.7 176.3	48
20 47.6 -59.7 175.8	18 47.9 -59.7 175.8	16 48.2 -59.7 175.9	14 48.5 -59.7 175.9	13 49.1 -59.7 176.2	12 49.4 -59.7 176.3	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	9 49.9 -59.7 176.3	9 49.9 -59.7 176.3	9 49.9 -59.7 176.3	9 49.9 -59.7 176.3	9 49.9 -59.7 176.3	9 49.9 -59.7 176.3	9 49.9 -59.7 176.3	49
19 47.9 -59.7 175.9	17 48.2 -59.7 176.0	15 48.5 -59.7 176.0	13 48.8 -59.7 176.0	12 49.4 -59.7 176.3	11 49.7 -59.7 176.4	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	8 49.9 -59.8 176.3	8 49.9 -59.8 176.3	8 49.9 -59.8 176.3	8 49.9 -59.8 176.3	8 49.9 -59.8 176.3	8 49.9 -59.8 176.3	8 49.9 -59.8 176.3	50
18 48.2 -59.6 176.0	16 48.5 -59.7 176.1	14 48.8 -59.7 176.1	12 49.1 -59.7 176.2	11 49.7 -59.7 176.4	10 50.0 -59.8 176.5	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	7 50.1 -59.8 176.4	7 50.1 -59.8 176.4	7 50.1 -59.8 176.4	7 50.1 -59.8 176.4	7 50.1 -59.8 176.4	7 50.1 -59.8 176.4	7 50.1 -59.8 176.4	51
17 48.6 -59.7 176.1	15 48.8 -59.7 176.2	13 49.1 -59.7 176.2	11 49.4 -59.7 176.3	10 50.0 -59.8 176.5	9 50.2 -59.7 176.6	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	6 50.4 -59.7 176.5	6 50.4 -59.7 176.5	6 50.4 -59.7 176.5	6 50.4 -59.7 176.5	6 50.4 -59.7 176.5	6 50.4 -59.7 176.5	6 50.4 -59.7 176.5	52
16 48.9 -59.7 176.2	14 49.1 -59.7 176.3	12 49.4 -59.7 176.3	10 49.6 -59.7 176.3	9 50.2 -59.7 176.6	8 50.5 -59.7 176.7	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	5 50.7 -59.8 176.6	5 50.7 -59.8 176.6	5 50.7 -59.8 176.6	5 50.7 -59.8 176.6	5 50.7 -59.8 176.6	5 50.7 -59.8 176.6	5 50.7 -59.8 176.6	53
15 49.2 -59.7 176.3	13 49.4 -59.7 176.4	11 49.7 -59.7 176.4	9 49.9 -59.7 176.4	8 50.5 -59.7 176.7	7 50.8 -59.7 176.8	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	4 50.9 -59.7 176.7	4 50.9 -59.7 176.7	4 50.9 -59.7 176.7	4 50.9 -59.7 176.7	4 50.9 -59.7 176.7	4 50.9 -59.7 176.7	4 50.9 -59.7 176.7	54
14 49.5 -59.7 176.4	12 49.6 -59.7 176.5	10 50.0 -59.8 176.5	8 50.2 -59.7 176.5	7 50.8 -59.7 176.8	6 51.1 -59.7 176.9	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	3 51.2 -59.8 176.8	3 51.2 -59.8 176.8	3 51.2 -59.8 176.8	3 51.2 -59.8 176.8	3 51.2 -59.8 176.8	3 51.2 -59.8 176.8	3 51.2 -59.8 176.8	55
13 49.8 -59.7 176.5	11 50.0 -59.7 176.6	9 50.2 -59.7 176.6	7 50.5 -59.7 176.7	6 51.1 -59.7 176.9	5 51.4 -59.8 177.0	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	2 51.4 -59.7 176.9	2 51.4 -59.7 176.9	2 51.4 -59.7 176.9	2 51.4 -59.7 176.9	2 51.4 -59.7 176.9	2 51.4 -59.7 176.9	2 51.4 -59.7 176.9	56
12 50.1 -59.7 176.7	10 50.3 -59.7 176.7	8 50.5 -59.7 176.7	6 50.8 -59.7 176.8	5 51.4 -59.8 177.0	4 51.7 -59.7 177.0	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	1 51.7 -59.8 177.0	1 51.7 -59.8 177.0	1 51.7 -59.8 177.0	1 51.7 -59.8 177.0	1 51.7 -59.8 177.0	1 51.7 -59.8 177.0	1 51.7 -59.8 177.0	57
11 50.4 -59.7 176.8	9 50.6 -59.7 176.8	7 50.8 -59.7 176.8	5 51.1 -59.7 176.9	4 51.7 -59.7 177.0	3 52.0 -59.7 177.1	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	0 51.9 -59.7 177.1	0 51.9 -59.7 177.1	0 51.9 -59.7 177.1	0 51.9 -59.7 177.1	0 51.9 -59.7 177.1	0 51.9 -59.7 177.1	0 51.9 -59.7 177.1	58
10 50.7 -59.7 176.9	8 50.9 -59.7 176.9	6 51.1 -59.7 176.9	4 51.4 -59.7 177.0	3 52.0 -59.7 177.1	2 52.2 -59.7 177.3	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	0 52.3 -59.7 177.3	0 52.3 -59.7 177.3	0 52.3 -59.7 177.3	0 52.3 -59.7 177.3	0 52.3 -59.7 177.3	0 52.3 -59.7 177.3	0 52.3 -59.7 177.3	59
9 51.0 -59.7 177.0	7 51.2 -59.7 177.0	5 51.4 -59.7 177.0	3 51.7 -59.7 177.1	2 52.2 -59.7 177.3	1 52.5 -59.8 177.4	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	0 52.7 -59.7 177.5	0 52.7 -59.7 177.5	0 52.7 -59.7 177.5	0 52.7 -59.7 177.5	0 52.7 -59.7 177.5	0 52.7 -59.7 177.5	0 52.7 -59.7 177.5	60
8 51.3 -59.7 177.1	6 51.5 -59.7 177.1	4 51.6 -59.7 177.1	2 51.9 -59.7 177.2	1 52.5 -59.8 177.4	0 52.7 -59.7 177.5	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	0 07.4 +59.8 2.6	0 07.4 +59.8 2.6	0 07.4 +59.8 2.6	0 07.4 +59.8 2.6	0 07.4 +59.8 2.6	0 07.4 +59.8 2.6	0 07.4 +59.8 2.6	61
7 51.6 -59.7 177.2	5 51.8 -59.8 177.2	3 51.9 -59.7 177.2	1 52.2 -59.7 177.3	0 52.7 -59.7 177.5	0 07.0 +59.7 2.4	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	1 07.2 +59.7 2.5	1 07.2 +59.7 2.5	1 07.2 +59.7 2.5	1 07.2 +59.7 2.5	1 07.2 +59.7 2.5	1 07.2 +59.7 2.5	1 07.2 +59.7 2.5	62
6 51.9 -59.7 177.3	4 52.0 -59.7 177.3	2 52.2 -59.7 177.3	1 52.5 -59.8 177.4	0 52.7 -59.7 177.5	0 06.7 +59.7 2.3	30 43.6 -59.7 174.3	29 44.3 -59.6 174.5	2 06.9 +59.7 2.4	2 06.9 +59.7 2.4	2 06.9 +59.7 2.4	2 06.9 +59.7 2.4	2 06.9 +59.7 2.4	2 06.9 +59.7 2.4	2 06.9 +59.7 2.4	63
5 52.2 -59.7 177.4	3 52.3 -59.7 177.4	1 52.5 -59.8 177.4	0 52.7 -59.7 177.5	0 07.0 +59.7 2.4	0 06.5 +59.8 2.2	30									

8°, 352° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	59 02.9	-57.9	13.6	60 59.3	-57.5	14.4	62 55.3	-57.2	15.4	64 50.7	-56.8	16.5	66 45.4	-56.4	17.8
31	58 05.0	-57.9	13.0	60 01.8	-57.7	13.8	61 58.1	-57.4	14.7	63 53.9	-57.1	15.7	65 49.0	-56.6	16.9
32	57 07.1	-58.0	12.6	59 04.1	-57.8	13.3	61 00.7	-57.6	14.1	62 56.8	-57.2	15.0	64 52.4	-56.9	16.1
33	56 09.1	-58.2	12.1	58 06.3	-58.0	12.8	60 03.1	-57.7	13.5	61 59.6	-57.4	14.4	63 55.5	-57.0	15.4
34	55 10.9	-58.2	11.7	57 08.3	-58.0	12.3	59 05.4	-57.8	13.0	61 02.2	-57.6	13.8	62 58.5	-57.3	14.7
35	54 12.7	-58.3	11.2	56 10.3	-58.2	11.8	58 07.6	-58.0	12.5	60 04.6	-57.7	13.2	62 01.2	-57.4	14.1
36	53 14.4	-58.4	10.8	55 12.1	-58.2	11.4	57 09.6	-58.0	12.0	59 06.9	-57.9	12.7	61 03.8	-57.6	13.5
37	52 16.0	-58.5	10.5	54 13.9	-58.3	11.0	56 11.6	-58.2	11.5	58 09.0	-57.9	12.2	60 06.2	-57.7	12.9
38	51 17.5	-58.5	10.1	53 15.6	-58.4	10.6	55 13.4	-58.2	11.1	57 11.1	-58.1	11.7	59 08.5	-57.9	12.3
39	50 19.0	-58.6	9.8	52 17.2	-58.5	10.2	54 15.2	-58.3	10.7	56 13.0	-58.1	11.2	58 10.6	-58.0	11.8
40	49 20.4	-58.6	9.4	51 18.7	-58.5	9.8	53 16.9	-58.4	10.3	55 14.9	-58.3	10.8	57 12.6	-58.0	11.4
41	48 21.8	-58.7	9.1	50 20.2	-58.6	9.5	52 18.5	-58.5	9.9	54 16.6	-58.3	10.4	56 14.6	-58.2	10.9
42	47 23.1	-58.8	8.8	49 21.6	-58.6	9.1	51 20.0	-58.5	9.5	53 18.3	-58.4	10.0	55 16.4	-58.3	10.5
43	46 24.3	-58.8	8.5	48 23.0	-58.7	8.8	50 21.5	-58.6	9.2	52 19.9	-58.5	9.6	54 18.1	-58.3	10.0
44	45 25.5	-58.8	8.2	47 24.3	-58.8	8.5	49 22.9	-58.7	8.8	51 21.4	-58.5	9.2	53 19.8	-58.4	9.7
45	44 26.7	-58.9	7.9	46 25.5	-58.8	8.2	48 24.2	-58.7	8.5	50 22.9	-58.6	8.9	52 21.4	-58.5	9.3
46	43 27.8	-58.9	7.7	45 26.7	-58.8	7.9	47 25.5	-58.7	8.2	49 24.3	-58.7	8.5	51 22.9	-58.6	8.9
47	42 28.9	-58.9	7.4	44 27.9	-58.9	7.6	46 26.8	-58.8	7.9	48 25.6	-58.7	8.2	50 24.3	-58.6	8.6
48	41 30.0	-59.0	7.1	43 29.0	-58.9	7.4	45 28.0	-58.8	7.6	47 26.9	-58.7	7.9	49 25.7	-58.6	8.2
49	40 31.0	-59.0	6.9	42 30.1	-58.9	7.1	44 29.2	-58.9	7.4	46 28.2	-58.8	7.6	48 27.1	-58.8	7.9
50	39 32.0	-59.0	6.7	41 31.2	-59.0	6.9	43 30.3	-58.9	7.1	45 29.4	-58.9	7.3	47 28.3	-58.7	7.6
51	38 33.0	-59.1	6.4	40 32.2	-59.0	6.6	42 31.4	-59.0	6.8	44 30.5	-58.9	7.1	46 29.6	-58.8	7.3
52	37 33.9	-59.0	6.2	39 33.2	-59.0	6.4	41 32.4	-58.9	6.6	43 31.6	-58.9	6.8	45 30.8	-58.9	7.0
53	36 34.9	-59.1	6.0	38 34.2	-59.1	6.1	40 33.5	-59.0	6.3	42 32.7	-58.9	6.5	44 31.9	-58.9	6.7
54	35 35.8	-59.2	5.8	37 35.1	-59.1	5.9	39 34.5	-59.1	6.1	41 33.8	-59.0	6.3	43 33.0	-58.9	6.5
55	34 36.6	-59.1	5.6	36 36.0	-59.1	5.7	38 35.4	-59.0	5.9	40 34.8	-59.0	6.0	42 34.1	-58.9	6.2
56	33 37.5	-59.2	5.4	35 36.9	-59.1	5.5	37 36.4	-59.1	5.6	39 35.8	-59.1	5.8	41 35.2	-59.0	6.0
57	32 38.3	-59.2	5.2	34 37.8	-59.1	5.3	36 37.3	-59.1	5.4	38 36.7	-59.0	5.6	40 36.2	-59.1	5.7
58	31 39.1	-59.2	5.0	33 38.7	-59.2	5.1	35 38.2	-59.1	5.2	37 37.7	-59.1	5.3	39 37.1	-59.0	5.5
59	30 39.9	-59.2	4.8	32 39.5	-59.2	4.9	34 39.1	-59.2	5.0	36 38.6	-59.1	5.1	38 38.1	-59.1	5.3
60	29 40.7	-59.2	4.6	31 40.3	-59.2	4.7	33 39.9	-59.2	4.8	35 39.5	-59.2	4.9	37 39.0	-59.1	5.0
61	28 41.5	-59.3	4.4	30 41.1	-59.2	4.5	32 40.7	-59.1	4.6	34 40.3	-59.1	4.7	36 39.9	-59.1	4.8
62	27 42.2	-59.2	4.2	29 41.9	-59.2	4.3	31 41.6	-59.2	4.4	33 41.2	-59.2	4.5	35 40.8	-59.1	4.6
63	26 43.0	-59.3	4.1	28 42.7	-59.3	4.1	30 42.4	-59.3	4.2	32 42.0	-59.2	4.3	34 41.7	-59.2	4.4
64	25 43.7	-59.3	3.9	27 43.4	-59.2	4.0	29 43.1	-59.2	4.0	31 42.8	-59.2	4.1	33 42.5	-59.2	4.2
65	24 44.4	-59.3	3.7	26 44.2	-59.3	3.8	28 43.9	-59.3	3.8	30 43.6	-59.2	3.9	32 43.3	-59.2	4.0
66	23 45.1	-59.3	3.5	25 44.9	-59.3	3.6	27 44.6	-59.2	3.7	29 44.4	-59.2	3.7	31 44.1	-59.2	3.8
67	22 45.8	-59.3	3.4	24 45.6	-59.3	3.4	26 45.4	-59.3	3.5	28 45.2	-59.3	3.6	30 44.9	-59.2	3.6
68	21 46.5	-59.3	3.2	23 46.3	-59.3	3.3	25 46.1	-59.3	3.3	27 45.9	-59.3	3.4	29 45.7	-59.3	3.4
69	20 47.2	-59.4	3.1	22 47.0	-59.3	3.1	24 46.8	-59.3	3.1	26 46.6	-59.2	3.2	28 46.4	-59.2	3.3
70	19 47.8	-59.3	2.9	21 47.7	-59.4	2.9	23 47.5	-59.3	3.0	25 47.4	-59.3	3.0	27 47.2	-59.3	3.1
71	18 48.5	-59.4	2.7	20 48.3	-59.3	2.8	22 48.2	-59.3	2.8	24 48.1	-59.3	2.9	26 47.9	-59.3	2.9
72	17 49.1	-59.3	2.6	19 49.0	-59.3	2.6	21 48.9	-59.3	2.7	23 48.8	-59.4	2.7	25 48.6	-59.3	2.7
73	16 49.8	-59.4	2.4	18 49.7	-59.4	2.5	20 49.6	-59.4	2.5	22 49.4	-59.3	2.5	24 49.3	-59.3	2.6
74	15 50.4	-59.4	2.3	17 50.3	-59.3	2.3	19 50.2	-59.3	2.3	21 50.1	-59.3	2.4	23 50.0	-59.3	2.4
75	14 51.0	-59.3	2.1	16 51.0	-59.4	2.2	18 50.9	-59.4	2.2	20 50.8	-59.4	2.2	22 50.7	-59.3	2.2
76	13 51.7	-59.4	2.0	15 51.6	-59.4	2.0	17 51.5	-59.3	2.0	19 51.4	-59.3	2.1	21 51.4	-59.4	2.1
77	12 52.3	-59.4	1.8	14 52.2	-59.4	1.9	16 52.2	-59.4	1.9	18 52.1	-59.4	1.9	20 52.0	-59.3	1.9
78	11 52.9	-59.4	1.7	13 52.8	-59.3	1.7	15 52.8	-59.4	1.7	17 52.7	-59.3	1.7	19 52.7	-59.4	1.8
79	10 53.5	-59.4	1.5	12 53.5	-59.4	1.6	14 53.4	-59.4	1.6	16 53.4	-59.4	1.6	18 53.3	-59.3	1.6
80	9 54.1	-59.4	1.4	11 54.1	-59.4	1.4	13 54.0	-59.4	1.4	15 54.0	-59.4	1.4	17 54.0	-59.4	1.5
81	8 54.7	-59.4	1.3	10 54.7	-59.4	1.3	12 54.6	-59.3	1.3	14 54.6	-59.4	1.3	16 54.6	-59.4	1.3
82	7 55.3	-59.4	1.1	9 55.3	-59.4	1.1	11 55.3	-59.4	1.1	13 55.2	-59.4	1.1	15 55.2	-59.4	1.2
83	6 55.9	-59.4	1.0	8 55.9	-59.4	1.0	10 55.9	-59.4	1.0	12 55.8	-59.4	1.0	14 55.8	-59.4	1.0
84	5 56.5	-59.4	0.8	7 56.5	-59.4	0.8	9 56.5	-59.4	0.8	11 56.4	-59.4	0.9	13 56.4	-59.4	0.9
85	4 57.1	-59.4	0.7	6 57.1	-59.4	0.7	8 57.1	-59.5	0.7	10 57.0	-59.4	0.7	12 57.0	-59.4	0.7
86	3 57.7	-59.5	0.6	5 57.7	-59.5	0.6	7 57.6	-59.4	0.6	9 57.6	-59.4	0.6	11 57.6	-59.4	0.6
87	2 58.2	-59.4	0.4	4 58.2	-59.4	0.4	6 58.2	-59.4	0.4	8 58.2	-59.4	0.4	10 58.2	-59.4	0.4
88	1 58.8	-59.4	0.3	3 58.8	-59.4	0.3	5 58.8	-59.4	0.3	7 58.8	-59.4	0.3	9 58.8	-59.4	0.3
89	0 59.4	-59.4	0.1	2 59.4	-59.4	0.1	4 59.4	-59.4	0.1	6 59.4	-59.4	0.1	8 59.4	-59.4	0.1
90	0 00.0	-59.4	0.0	2 00.0	-59.4	0.0	4 00.0	-59.4	0.0	6 00.0	-59.4	0.0	8 00.0	-59.4	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 8°, 352°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
59 02.9	-57.9	166.4	57 06.0	-58.0	167.2	55 08.9	-58.3	167.8	53 11.4	-58.4	168.4	51 13.8	-58.6	168.9	30
58 05.0	-57.9	167.0	56 08.0	-58.2	167.6	54 10.6	-58.3	168.2	52 13.0	-58.4	168.8	50 15.2	-58.6	169.2	31
57 07.1	-58.0	167.4	55 09.8	-58.2	168.1	53 12.3	-58.4	168.6	51 14.6	-58.6	169.1	49 16.6	-58.7	169.6	32
56 09.1	-58.2	167.9	54 11.6	-58.3	168.5	52 13.9	-58.5	169.0	50 16.0	-58.6	169.5	48 17.9	-58.7	169.9	33
55 10.9	-58.2	168.3	53 13.3	-58.4	168.9	51 15.4	-58.5	169.4	49 17.4	-58.7	169.8	47 19.2	-58.7	170.2	34
54 12.7	-58.3	168.8	52 14.9	-58.5	169.3	50 16.9	-58.6	169.7	48 18.7	-58.7	170.1	46 20.5	-58.9	170.5	35
53 14.4	-58.4	169.2	51 16.4	-58.5	169.6	49 18.3	-58.7	170.1	47 20.0	-58.7	170.4	45 21.6	-58.8	170.8	36
52 16.0	-58.5	169.5	50 17.9	-58.6	170.0	48 19.6	-58.7	170.4	46 21.3	-58.8	170.7	44 22.8	-58.9	171.1	37
51 17.5	-58.5	169.9	49 19.3	-58.6	170.3	47 20.9	-58.7	170.7	45 22.5	-58.9	171.0	43 23.9	-58.9	171.3	38
50 19.0	-58.6	170.2	48 20.7	-58.7	170.6	46 22.2	-58.8	171.0	44 23.6	-58.9	171.3	42 25.0	-59.0	171.6	39
49 20.4	-58.6	170.6	47 22.0	-58.8	170.9	45 23.4	-58.8	171.3	43 24.7	-58.9	171.6	41 26.0	-59.0	171.8	40
48 21.8	-58.7	170.9	46 23.2	-58.8	171.2	44 24.6	-58.9	171.5	42 25.8	-58.9	171.8	40 27.0	-59.0	172.1	41
47 23.1	-58.8	171.2	45 24.4	-58.8	171.5	43 25.7	-58.9	171.8	41 26.9	-59.0	172.1	39 28.0	-59.1	172.3	42
46 24.3	-58.8	171.5	44 25.6	-58.9	171.8	42 26.8	-59.0	172.1	40 27.9	-59.0	172.3	38 28.9	-59.0	172.5	43
45 25.5	-58.8	171.8	43 26.7	-58.9	172.1	41 27.8	-58.9	172.3	39 28.9	-59.1	172.5	37 29.9	-59.1	172.8	44
44 26.7	-58.9	172.1	42 27.8	-58.9	172.3	40 28.9	-59.1	172.6	38 30.8	-59.1	172.8	36 30.8	-59.2	173.0	45
43 27.8	-58.9	172.3	41 28.9	-59.0	172.6	39 29.8	-59.0	172.8	37 30.8	-59.1	173.0	35 31.6	-59.1	173.2	46
42 28.9	-58.9	172.6	40 29.9	-59.0	172.8	38 30.8	-59.0	173.0	36 31.7	-59.1	173.2	34 32.5	-59.2	173.4	47
41 30.0	-59.0	172.9	39 30.9	-59.0	173.1	37 31.8	-59.1	173.3	35 32.6	-59.2	173.4	33 33.3	-59.2	173.6	48
40 31.0	-59.0	173.1	38 31.9	-59.1	173.3	36 32.7	-59.1	173.5	34 33.4	-59.1	173.6	32 34.1	-59.2	173.8	49
39 32.0	-59.0	173.3	37 32.8	-59.1	173.5	35 33.6	-59.2	173.7	33 34.3	-59.2	173.8	31 34.9	-59.2	174.0	50
38 33.0	-59.1	173.6	36 33.7	-59.1	173.7	34 34.4	-59.1	173.9	32 35.1	-59.2	174.0	30 35.7	-59.2	174.2	51
37 33.9	-59.0	173.8	35 34.6	-59.1	174.0	33 35.3	-59.2	174.1	31 35.9	-59.2	174.2	29 36.5	-59.3	174.3	52
36 34.9	-59.1	174.0	34 35.5	-59.2	174.2	32 36.1	-59.2	174.3	30 36.7	-59.2	174.4	28 37.2	-59.2	174.5	53
35 35.8	-59.2	174.2	33 36.3	-59.1	174.4	31 36.9	-59.2	174.5	29 37.5	-59.3	174.6	27 38.0	-59.3	174.7	54
34 36.6	-59.1	174.4	32 37.2	-59.2	174.6	30 37.7	-59.2	174.7	28 38.2	-59.2	174.8	26 38.7	-59.3	174.9	55
33 37.5	-59.2	174.6	31 38.0	-59.2	174.8	29 38.5	-59.2	174.9	27 39.0	-59.3	175.0	25 39.4	-59.3	175.0	56
32 38.3	-59.2	174.8	30 38.8	-59.2	174.9	28 39.3	-59.3	175.0	26 39.7	-59.3	175.1	24 40.1	-59.3	175.2	57
31 39.1	-59.2	175.0	29 39.6	-59.3	175.1	27 40.0	-59.3	175.2	25 40.4	-59.3	175.3	23 40.8	-59.3	175.4	58
30 39.9	-59.2	175.2	28 40.3	-59.2	175.3	26 40.7	-59.2	175.4	24 41.1	-59.3	175.5	22 41.5	-59.3	175.5	59
29 40.7	-59.2	175.4	27 41.1	-59.3	175.5	25 41.5	-59.3	175.6	23 41.8	-59.3	175.6	21 42.2	-59.4	175.7	60
28 41.5	-59.3	175.6	26 41.8	-59.2	175.7	24 42.2	-59.3	175.7	22 42.5	-59.3	175.8	20 42.8	-59.3	175.9	61
27 42.2	-59.2	175.8	25 42.6	-59.3	175.8	23 42.9	-59.3	175.9	21 43.2	-59.4	176.0	19 43.5	-59.4	176.0	62
26 43.0	-59.3	175.9	24 43.3	-59.3	176.0	22 43.6	-59.4	176.1	20 43.8	-59.4	176.1	18 44.1	-59.4	176.2	63
25 43.7	-59.3	176.1	23 44.0	-59.3	176.2	21 44.2	-59.3	176.2	19 44.5	-59.4	176.3	17 44.7	-59.3	176.3	64
24 44.4	-59.3	176.3	22 44.7	-59.4	176.3	20 44.9	-59.3	176.4	18 45.1	-59.3	176.4	16 45.4	-59.4	176.5	65
23 45.1	-59.3	176.5	21 45.3	-59.3	176.5	19 45.6	-59.4	176.6	17 45.8	-59.4	176.6	15 46.0	-59.4	176.6	66
22 45.8	-59.3	176.6	20 46.0	-59.3	176.7	18 46.2	-59.3	176.7	16 46.4	-59.4	176.7	14 46.6	-59.4	176.8	67
21 46.5	-59.3	176.8	19 46.7	-59.4	176.8	17 46.9	-59.4	176.9	15 47.2	-59.4	176.9	13 47.2	-59.4	176.9	68
20 47.2	-59.4	176.9	18 47.3	-59.3	177.0	16 47.5	-59.4	177.0	14 47.7	-59.4	177.0	12 47.8	-59.4	177.1	69
19 47.8	-59.3	177.1	17 48.0	-59.4	177.1	15 48.1	-59.3	177.2	13 48.3	-59.4	177.2	11 48.4	-59.4	177.2	70
18 48.5	-59.4	177.3	16 48.6	-59.3	177.3	14 48.8	-59.4	177.3	12 48.9	-59.4	177.3	10 49.0	-59.4	177.4	71
17 49.1	-59.3	177.4	15 49.3	-59.4	177.4	13 49.4	-59.4	177.5	11 49.5	-59.4	177.5	9 49.6	-59.4	177.5	72
16 49.8	-59.4	177.6	14 49.9	-59.4	177.6	12 50.0	-59.4	177.6	10 50.1	-59.4	177.6	8 50.2	-59.4	177.6	73
15 50.4	-59.4	177.7	13 50.5	-59.4	177.7	11 50.6	-59.4	177.8	9 50.7	-59.4	177.8	7 50.8	-59.4	177.8	74
14 51.0	-59.3	177.9	12 51.1	-59.4	177.9	10 51.2	-59.4	177.9	8 51.3	-59.4	177.9	6 51.4	-59.5	177.9	75
13 51.7	-59.4	178.0	11 51.7	-59.4	178.0	9 51.8	-59.4	178.0	7 51.9	-59.4	178.1	5 51.9	-59.4	178.1	76
12 52.3	-59.4	178.2	10 52.3	-59.4	178.2	8 52.4	-59.4	178.2	6 52.5	-59.5	178.2	4 52.5	-59.4	178.2	77
11 52.9	-59.4	178.3	9 52.9	-59.4	178.3	7 53.0	-59.4	178.3	5 53.0	-59.4	178.3	3 53.1	-59.4	178.3	78
10 53.5	-59.4	178.5	8 53.5	-59.4	178.5	6 53.6	-59.4	178.5	4 53.6	-59.4	178.5	2 53.7	-59.5	178.5	79
9 54.1	-59.4	178.6	7 54.1	-59.4	178.6	5 54.2	-59.4	178.6	3 54.2	-59.4	178.6	1 54.2	-59.4	178.6	80
8 54.7	-59.4	178.7	6 54.7	-59.4	178.7	4 54.8	-59.5	178.7	2 54.8	-59.4	178.8	0 54.8	-59.4	178.8	81
7 55.3	-59.4	178.9	5 55.3	-59.4	178.9	3 55.3	-59.4	178.9	1 55.4	-59.5	178.9	0 04.6	+59.4	1.1	82
6 55.9	-59.4	179.0	4 55.9	-59.4	179.0	2 55.9	-59.4	179.0	0 55.9	-59.4	179.0	1 04.0	+59.5	1.0	83
5 56.5	-59.4	179.2	3 56.5	-59.4	179.2	1 56.5	-59.4	179.2	0 03.5	+59.4	0.8	2 03.5	+59.4	0.8	84
4 57.1	-59.4	179.3	2 57.1	-59.4	179.3	0 57.1	-59.4	179.3	1 02.9	+59.4	0.7	3 02.9	+59.4	0.7	85
3 57.7	-59.5	179.4	1 57.7	-59.5	179.4	0 02.3	+59.4	0.6	2 02.3	+59.4	0.6	4 02.3	+59.4	0.6	86
2 58.2	-59.4	179.6	0 58.2	-59.4	179.6	1 01.7	+59.5	0.4	3 01.7	+59.5	0.4	5 01.7	+59.5	0.4	87
1 58.8	-59.4	179.7	0 01.2	+59.4	0.3	2 01.2	+59.4	0.3	4 01.2	+59.4	0.3	6 01.2	+59.4	0.3	88
0 59.4	-59.4	179.9	1 00.6	+59.4	0.1	3 00.6	+59.4	0.1	5 00.6	+59.4	0.1	7 00.6	+59.4	0.1	89
0 00.0	+59.4	0.0	2 00.0	+59.4	0.0	4 00.0	+59.4	0.0	6 00.0	+59.4	0.0	8 00.0	+59.4	0.0	90

LATITUDE SAME NAME

L.H.A. 172°, 188°

8°, 352° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	68 39.2	-55.8	19.3	70 31.8	-55.0	21.2	72 22.8	-54.0	23.5	74 11.7	-52.7	26.3	75 57.7	-50.9	29.8
31	67 43.4	-56.1	18.3	69 36.8	-55.5	20.0	71 28.8	-54.6	22.1	73 19.0	-53.4	24.6	75 06.8	-51.9	27.7
32	66 47.3	-56.4	17.4	68 41.3	-55.8	19.0	70 34.2	-55.1	20.8	72 25.6	-54.1	23.0	74 14.9	-52.8	25.8
33	65 50.9	-56.6	16.6	67 45.5	-56.1	18.0	69 39.1	-55.5	19.6	71 31.5	-54.7	21.6	73 22.1	-53.6	24.1
34	64 54.3	-56.9	15.8	66 49.4	-56.5	17.0	68 43.6	-55.8	18.5	70 36.8	-55.1	20.3	72 28.5	-54.2	22.5
35	63 57.4	-57.1	15.0	65 52.9	-56.7	16.2	67 47.8	-56.2	17.6	69 41.7	-55.6	19.2	71 34.3	-54.7	21.1
36	63 00.3	-57.3	14.4	64 56.2	-56.9	15.4	66 51.6	-56.5	16.6	68 46.1	-55.9	18.1	70 39.6	-55.2	19.9
37	62 03.0	-57.5	13.7	63 59.3	-57.1	14.7	65 55.1	-56.8	15.8	67 50.2	-56.3	17.1	69 44.4	-55.7	18.7
38	61 05.5	-57.6	13.1	63 02.2	-57.4	14.0	64 58.3	-56.9	15.0	66 53.9	-56.5	16.2	68 48.7	-56.0	17.7
39	60 07.9	-57.8	12.5	62 04.8	-57.4	13.4	64 01.4	-57.2	14.3	65 57.4	-56.8	15.4	67 52.7	-56.3	16.7
40	59 10.1	-57.8	12.0	61 07.4	-57.7	12.8	63 04.2	-57.4	13.6	65 00.6	-57.0	14.6	66 56.4	-56.6	15.8
41	58 12.3	-58.0	11.5	60 09.7	-57.8	12.2	62 06.8	-57.5	13.0	64 03.6	-57.3	13.9	65 59.8	-56.9	15.0
42	57 14.3	-58.1	11.0	59 11.9	-57.9	11.7	61 09.3	-57.7	12.4	63 06.3	-57.4	13.2	65 02.9	-57.1	14.2
43	56 16.2	-58.2	10.6	58 14.0	-58.0	11.1	60 11.6	-57.8	11.8	62 08.9	-57.5	12.6	64 05.8	-57.2	13.5
44	55 18.0	-58.3	10.1	57 16.0	-58.1	10.7	59 13.8	-57.9	11.3	61 11.4	-57.7	12.0	63 08.6	-57.5	12.8
45	54 19.7	-58.3	9.7	56 17.9	-58.2	10.2	58 15.9	-58.0	10.8	60 13.7	-57.9	11.4	62 11.1	-57.6	12.2
46	53 21.4	-58.5	9.3	55 19.7	-58.3	9.8	57 17.9	-58.2	10.3	59 15.8	-58.0	10.9	61 13.5	-57.7	11.6
47	52 22.9	-58.5	8.9	54 21.4	-58.4	9.4	56 19.7	-58.2	9.9	58 17.8	-58.0	10.4	60 15.8	-57.9	11.0
48	51 24.4	-58.5	8.6	53 23.0	-58.4	9.0	55 21.5	-58.3	9.4	57 19.8	-58.2	9.9	59 17.9	-58.0	10.5
49	50 25.9	-58.7	8.2	52 24.6	-58.6	8.6	54 23.2	-58.5	9.0	56 21.6	-58.3	9.5	58 19.9	-58.2	10.0
50	49 27.2	-58.6	7.9	51 26.0	-58.5	8.3	53 24.7	-58.4	8.6	55 23.3	-58.3	9.1	57 21.7	-58.2	9.5
51	48 28.6	-58.8	7.6	50 27.5	-58.7	7.9	52 26.3	-58.6	8.3	54 25.0	-58.5	8.7	56 23.5	-58.3	9.1
52	47 29.8	-58.7	7.3	49 28.8	-58.7	7.6	51 27.7	-58.6	7.9	53 26.5	-58.5	8.3	55 25.2	-58.4	8.7
53	46 31.1	-58.9	7.0	48 30.1	-58.7	7.3	50 29.1	-58.6	7.6	52 28.0	-58.5	7.9	54 26.8	-58.4	8.3
54	45 32.2	-58.8	6.7	47 31.4	-58.8	7.0	49 30.5	-58.7	7.2	51 29.5	-58.7	7.5	53 28.4	-58.6	7.9
55	44 33.4	-58.9	6.4	46 32.6	-58.8	6.7	48 31.8	-58.8	6.9	50 30.8	-58.6	7.2	52 29.8	-58.5	7.5
56	43 34.5	-59.0	6.2	45 33.8	-58.9	6.4	47 33.0	-58.8	6.6	49 32.2	-58.8	6.9	51 31.3	-58.7	7.2
57	42 35.5	-58.9	5.9	44 34.9	-58.9	6.1	46 34.2	-58.9	6.3	48 33.4	-58.8	6.6	50 32.6	-58.7	6.9
58	41 36.6	-59.0	5.7	43 36.0	-59.0	5.8	45 35.3	-58.9	6.0	47 34.6	-58.8	6.3	49 33.9	-58.8	6.5
59	40 37.6	-59.0	5.4	42 37.0	-59.0	5.6	44 36.4	-58.9	5.8	46 35.8	-58.9	6.0	48 35.1	-58.8	6.2
60	39 38.6	-59.1	5.2	41 38.0	-59.0	5.3	43 37.5	-59.0	5.5	45 36.9	-58.9	5.7	47 36.3	-58.8	5.9
61	38 39.5	-59.1	5.0	40 39.0	-59.0	5.1	42 38.5	-59.0	5.3	44 38.0	-58.9	5.4	46 37.5	-58.9	5.6
62	37 40.4	-59.1	4.7	39 40.0	-59.1	4.9	41 39.5	-59.0	5.0	43 39.1	-59.0	5.2	45 38.6	-59.0	5.4
63	36 41.3	-59.1	4.5	38 40.9	-59.1	4.6	40 40.5	-59.0	4.8	42 40.1	-59.0	4.9	44 39.6	-58.9	5.1
64	35 42.2	-59.2	4.3	37 41.8	-59.1	4.4	39 41.5	-59.1	4.5	41 41.1	-59.1	4.7	43 40.7	-59.0	4.8
65	34 43.0	-59.1	4.1	36 42.7	-59.1	4.2	38 42.4	-59.1	4.3	40 42.0	-59.0	4.4	42 41.7	-59.1	4.6
66	33 43.9	-59.2	3.9	35 43.6	-59.2	4.0	37 43.3	-59.2	4.1	39 43.0	-59.1	4.2	41 42.6	-59.0	4.3
67	32 44.7	-59.2	3.7	34 44.4	-59.2	3.8	36 44.1	-59.1	3.9	38 43.9	-59.2	4.0	40 43.6	-59.1	4.1
68	31 45.5	-59.3	3.5	33 45.2	-59.2	3.6	35 45.0	-59.2	3.7	37 44.7	-59.1	3.8	39 44.5	-59.1	3.9
69	30 46.2	-59.2	3.3	32 46.0	-59.2	3.4	34 45.8	-59.2	3.5	36 45.6	-59.2	3.6	38 45.4	-59.2	3.7
70	29 47.0	-59.3	3.1	31 46.8	-59.2	3.2	33 46.6	-59.2	3.3	35 46.4	-59.2	3.4	37 46.2	-59.2	3.5
71	28 47.7	-59.2	3.0	30 47.6	-59.3	3.0	32 47.4	-59.2	3.1	34 47.2	-59.2	3.2	36 47.0	-59.1	3.2
72	27 48.5	-59.3	2.8	29 48.3	-59.2	2.8	31 48.2	-59.3	2.9	33 48.0	-59.2	3.0	35 47.9	-59.2	3.0
73	26 49.2	-59.3	2.6	28 49.1	-59.3	2.7	30 48.9	-59.2	2.7	32 48.8	-59.2	2.8	34 48.7	-59.3	2.8
74	25 49.9	-59.3	2.4	27 49.8	-59.3	2.5	29 49.7	-59.3	2.5	31 49.6	-59.3	2.6	33 49.4	-59.2	2.6
75	24 50.6	-59.3	2.3	26 50.5	-59.3	2.3	28 50.4	-59.3	2.4	30 50.3	-59.3	2.4	32 50.2	-59.3	2.5
76	23 51.3	-59.3	2.1	25 51.2	-59.3	2.1	27 51.1	-59.3	2.2	29 51.0	-59.3	2.2	31 50.9	-59.2	2.3
77	22 52.0	-59.4	1.9	24 51.9	-59.3	2.0	26 51.8	-59.3	2.0	28 51.7	-59.3	2.0	30 51.7	-59.3	2.1
78	21 52.6	-59.3	1.8	23 52.6	-59.4	1.8	25 52.5	-59.3	1.8	27 52.4	-59.3	1.9	29 52.4	-59.3	1.9
79	20 53.3	-59.4	1.6	22 53.2	-59.3	1.7	24 53.2	-59.4	1.7	26 53.1	-59.3	1.7	28 53.1	-59.4	1.7
80	19 53.9	-59.3	1.5	21 53.9	-59.4	1.5	23 53.8	-59.3	1.5	25 53.8	-59.3	1.5	27 53.7	-59.3	1.6
81	18 54.6	-59.4	1.3	20 54.5	-59.3	1.3	22 54.5	-59.4	1.4	24 54.5	-59.4	1.4	26 54.4	-59.3	1.4
82	17 55.2	-59.4	1.2	19 55.2	-59.4	1.2	21 55.1	-59.3	1.2	23 55.1	-59.4	1.2	25 55.1	-59.4	1.2
83	16 55.8	-59.4	1.0	18 55.8	-59.4	1.0	20 55.8	-59.4	1.0	22 55.7	-59.3	1.1	24 55.7	-59.3	1.1
84	15 56.4	-59.4	0.9	17 56.4	-59.4	0.9	19 56.4	-59.4	0.9	21 56.4	-59.4	0.9	23 56.4	-59.4	0.9
85	14 57.0	-59.4	0.7	16 57.0	-59.4	0.7	18 57.0	-59.4	0.7	20 57.0	-59.4	0.7	22 57.0	-59.4	0.8
86	13 57.6	-59.4	0.6	15 57.6	-59.4	0.6	17 57.6	-59.4	0.6	19 57.6	-59.4	0.6	21 57.6	-59.4	0.6
87	12 58.2	-59.4	0.4	14 58.2	-59.4	0.4	16 58.2	-59.4	0.4	18 58.2	-59.4	0.4	20 58.2	-59.4	0.4
88	11 58.8	-59.4	0.3	13 58.8	-59.4	0.3	15 58.8	-59.4	0.3	17 58.8	-59.4	0.3	19 58.8	-59.4	0.3
89	10 59.4	-59.4	0.1	12 59.4	-59.4	0.1	14 59.4	-59.4	0.1	16 59.4	-59.4	0.1	18 59.4	-59.4	0.1
90	10 00.0	-59.4	0.0	12 00.0	-59.4	0.0	14 00.0	-59.4	0.0	16 00.0	-59.4	0.0	18 00.0	-59.4	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 8°, 352°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
49	15.9	-58.6	169.4	47	17.9	-58.8	169.8	45	19.8	-58.9	170.1	43	21.5	-59.0	170.5	41	23.1	-59.1	170.8	30
48	17.3	-58.8	169.7	46	19.1	-58.8	170.1	44	20.9	-59.0	170.4	42	22.5	-59.0	170.7	40	24.0	-59.1	171.0	31
47	18.5	-58.8	170.0	45	20.3	-58.9	170.3	43	21.9	-58.9	170.7	41	23.5	-59.1	170.9	39	24.9	-59.1	171.2	32
46	19.7	-58.8	170.3	44	21.4	-58.9	170.6	42	23.0	-59.0	170.9	40	24.4	-59.1	171.2	38	25.8	-59.1	171.4	33
45	20.9	-58.9	170.6	43	22.5	-59.0	170.9	41	24.0	-59.1	171.2	39	25.3	-59.1	171.4	37	26.7	-59.2	171.6	34
44	22.0	-58.9	170.8	42	23.5	-59.0	171.1	40	24.9	-59.0	171.4	38	26.2	-59.1	171.6	36	27.5	-59.2	171.9	35
43	23.1	-58.9	171.1	41	24.5	-59.0	171.4	39	25.9	-59.1	171.6	37	27.1	-59.1	171.8	35	28.3	-59.2	172.1	36
42	24.2	-59.0	171.3	40	25.5	-59.0	171.6	38	26.8	-59.1	171.8	36	28.0	-59.2	172.1	34	29.1	-59.3	172.3	37
41	25.2	-59.0	171.6	39	26.5	-59.1	171.8	37	27.7	-59.2	172.1	35	28.8	-59.2	172.3	33	29.8	-59.2	172.4	38
40	26.2	-59.0	171.8	38	27.4	-59.1	172.1	36	28.5	-59.1	172.3	34	29.6	-59.2	172.5	32	30.6	-59.3	172.6	39
39	27.2	-59.1	172.1	37	28.3	-59.1	172.3	35	29.4	-59.2	172.5	33	30.4	-59.3	172.7	31	31.3	-59.2	172.8	40
38	28.1	-59.1	172.3	36	29.2	-59.2	172.5	34	30.2	-59.2	172.7	32	31.1	-59.2	172.8	30	32.1	-59.3	173.0	41
37	29.0	-59.1	172.5	35	30.0	-59.1	172.7	33	31.0	-59.2	172.9	31	31.9	-59.3	173.0	29	32.8	-59.3	173.2	42
36	29.9	-59.1	172.7	34	30.9	-59.2	172.9	32	31.8	-59.3	173.1	30	32.6	-59.3	173.2	28	33.5	-59.4	173.3	43
35	30.8	-59.2	172.9	33	31.7	-59.2	173.1	31	32.5	-59.2	173.3	29	33.3	-59.2	173.4	27	34.1	-59.3	173.5	44
34	31.6	-59.1	173.1	32	32.5	-59.2	173.3	30	33.3	-59.3	173.4	28	34.1	-59.4	173.6	26	34.8	-59.3	173.7	45
33	32.5	-59.2	173.3	31	33.3	-59.3	173.5	29	34.0	-59.3	173.6	27	34.7	-59.3	173.7	25	35.5	-59.4	173.8	46
32	33.3	-59.2	173.5	30	34.0	-59.2	173.7	28	34.7	-59.3	173.8	26	35.4	-59.3	173.9	24	36.1	-59.4	174.0	47
31	34.1	-59.3	173.7	29	34.8	-59.3	173.9	27	35.4	-59.3	174.0	25	36.1	-59.3	174.1	23	36.7	-59.3	174.2	48
30	34.8	-59.2	173.9	28	35.5	-59.3	174.0	26	36.1	-59.3	174.1	24	36.8	-59.4	174.2	22	37.4	-59.4	174.3	49
29	35.6	-59.3	174.1	27	36.2	-59.3	174.2	25	36.8	-59.3	174.3	23	37.4	-59.4	174.4	21	38.0	-59.4	174.5	50
28	36.3	-59.2	174.3	26	36.9	-59.3	174.4	24	37.5	-59.3	174.5	22	38.0	-59.3	174.6	20	38.6	-59.4	174.6	51
27	37.1	-59.3	174.5	25	37.6	-59.3	174.5	23	38.2	-59.4	174.6	21	38.7	-59.4	174.7	19	39.2	-59.4	174.8	52
26	37.8	-59.3	174.6	24	38.3	-59.3	174.7	22	38.8	-59.4	174.8	20	39.3	-59.4	174.9	18	39.8	-59.4	174.9	53
25	38.5	-59.3	174.8	23	39.0	-59.4	174.9	21	39.4	-59.3	175.0	19	39.9	-59.4	175.0	17	40.4	-59.5	175.1	54
24	39.2	-59.3	175.0	22	39.6	-59.3	175.0	20	40.1	-59.4	175.1	18	40.5	-59.4	175.2	16	40.9	-59.4	175.2	55
23	39.9	-59.4	175.1	21	40.3	-59.4	175.2	19	40.7	-59.4	175.3	17	41.1	-59.4	175.3	15	41.5	-59.4	175.4	56
22	40.5	-59.3	175.3	20	40.9	-59.3	175.4	18	41.3	-59.4	175.4	16	41.7	-59.4	175.5	14	42.1	-59.5	175.5	57
21	41.2	-59.4	175.4	19	41.6	-59.4	175.5	17	41.9	-59.4	175.6	15	42.3	-59.4	175.6	13	42.6	-59.4	175.6	58
20	41.8	-59.3	175.6	18	42.2	-59.4	175.7	16	42.5	-59.4	175.7	14	42.9	-59.5	175.7	12	43.2	-59.5	175.8	59
19	42.5	-59.4	175.8	17	42.8	-59.4	175.8	15	43.1	-59.4	175.9	13	43.4	-59.4	175.9	11	43.7	-59.4	175.9	60
18	43.1	-59.4	175.9	16	43.4	-59.4	176.0	14	43.7	-59.4	176.0	12	44.0	-59.4	176.0	10	44.3	-59.5	176.1	61
17	43.7	-59.3	176.1	15	44.0	-59.4	176.1	13	44.3	-59.4	176.1	11	44.6	-59.5	176.2	9	44.8	-59.4	176.2	62
16	44.4	-59.4	176.2	14	44.6	-59.4	176.3	12	44.9	-59.4	176.3	10	45.1	-59.4	176.3	8	45.4	-59.5	176.3	63
15	45.0	-59.4	176.4	13	45.2	-59.4	176.4	11	45.5	-59.5	176.4	9	45.7	-59.5	176.5	7	45.9	-59.4	176.5	64
14	45.6	-59.4	176.5	12	45.8	-59.4	176.5	10	46.0	-59.4	176.6	8	46.2	-59.4	176.6	6	46.5	-59.5	176.6	65
13	46.2	-59.4	176.7	11	46.4	-59.4	176.7	9	46.6	-59.4	176.7	7	46.8	-59.5	176.7	5	47.0	-59.5	176.7	66
12	46.8	-59.4	176.8	10	47.0	-59.4	176.8	8	47.2	-59.5	176.8	6	47.3	-59.4	176.9	4	47.5	-59.4	176.9	67
11	47.4	-59.4	176.9	9	47.6	-59.5	177.0	7	47.7	-59.4	177.0	5	47.9	-59.5	177.0	3	48.1	-59.5	177.0	68
10	48.0	-59.4	177.1	8	48.1	-59.4	177.1	6	48.3	-59.5	177.1	4	48.4	-59.4	177.1	2	48.6	-59.5	177.1	69
9	48.6	-59.5	177.2	7	48.7	-59.4	177.2	5	48.8	-59.4	177.3	3	49.0	-59.5	177.3	1	49.1	-59.5	177.3	70
8	49.1	-59.4	177.4	6	49.3	-59.5	177.4	4	49.4	-59.5	177.4	2	49.5	-59.4	177.4	0	49.6	-59.4	177.4	71
7	49.7	-59.4	177.5	5	49.8	-59.4	177.5	3	49.9	-59.4	177.5	1	50.1	-59.5	177.5	0	09.8	+59.5	2.5	72
6	50.3	-59.4	177.7	4	50.4	-59.4	177.7	2	50.5	-59.5	177.7	0	50.6	-59.5	177.7	1	09.3	+59.5	2.3	73
5	50.9	-59.5	177.8	3	51.0	-59.5	177.8	1	51.0	-59.4	177.8	0	51.6	-59.5	177.9	2	08.8	+59.4	2.2	74
4	51.4	-59.4	177.9	2	51.5	-59.4	177.9	0	51.6	-59.5	177.9	0	08.9	+59.4	2.2	1	08.3	+59.5	2.1	75
3	52.0	-59.4	178.1	1	52.1	-59.5	178.1	0	07.9	+59.4	1.9	2	07.8	+59.4	1.9	4	07.7	+59.5	1.9	76
2	52.6	-59.5	178.2	0	52.6	-59.4	178.2	1	07.3	+59.5	1.8	3	07.2	+59.5	1.8	5	07.2	+59.5	1.8	77
1	53.1	-59.4	178.3	0	06.8	+59.4	1.7	2	06.8	+59.4	1.7	4	06.7	+59.5	1.7	6	06.7	+59.4	1.7	78
0	53.7	-59.4	178.5	1	06.2	+59.5	1.5	3	06.2	+59.5	1.5	5	06.2	+59.4	1.5	7	06.1	+59.5	1.5	79
0	05.7	+59.5	1.4	2	05.7	+59.4	1.4	4	05.7	+59.4	1.4	6	05.6	+59.5	1.4	8	05.6	+59.4	1.4	80
1	05.2	+59.4	1.2	3	05.1	+59.5	1.2	5	05.1	+59.4	1.3	7	05.1	+59.4	1.3	9	05.0	+59.5	1.3	81
2	04.6	+59.4	1.1	4	04.6	+59.4	1.1	6	04.5	+59.5	1.1	8	04.5	+59.5	1.1	10	04.5	+59.5	1.1	82
3	04.0	+59.5	1.0	5	04.0	+59.4	1.0	7	04.0	+59.4	1.0	9	04.0	+59.4	1.0	11	04.0	+59.4	1.0	83
4	03.5	+59.4	0.8	6	03.4	+59.5	0.8	8	03.4	+59.5	0.8	10	03.4	+59.5	0.8	12	03.4	+59.4	0.9	84
5	02.9	+59.4	0.7	7	02.9	+59.4	0.7	9	02.9	+59.4	0.7	11	02.9	+59.4	0.7	13	02.8	+59.5	0.7	85
6	02.3	+59.4	0.6	8	02.3	+59.4	0.6	10	02.3	+59.4	0.6	12	02.3	+59.4	0.6	14	02.3	+59.4	0.6	86
7	01.7	+59.5	0.4	9	01.7	+59.5	0.4	11	01.7	+59.5	0.4	13	01.7	+59.5	0.4	15	01.7	+59.5	0.4	87
8	01.2	+59.4	0.3	10	01.2	+59.4	0.3	12	01.2	+59.4	0.3	14	01.2	+59.4	0.3	16	01.2	+59.4	0.3	88
9	00.6	+59.4	0.1	11	00.6	+59.4	0.1	13	00.6	+59.4	0.1	15	00.6	+59.4	0.1	17	00.6	+59.4	0.1	89
10	00.0	+59.4	0.0	12	00.0	+59.4	0.0	14	00.0	+59.4	0.0	16	00.0	+59.4	0.0	18	00.0	+59.4	0.0	90

LATITUDE SAME NAME

L.H.A. 172°, 188°

8°, 352° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	77 39.5	-48.3	34.3	79 15.1	-44.6	40.3	80 41.3	-39.0	48.1	81 53.2	-30.6	58.6	82 43.5	-18.2	72.1
31	76 51.2	-49.8	31.6	78 30.5	-46.7	36.8	80 02.3	-42.2	43.6	81 22.6	-35.3	52.7	82 25.3	-25.1	64.8
32	76 01.4	-51.1	29.3	77 43.8	-48.5	33.7	79 20.1	-44.8	39.6	80 47.3	-39.3	47.5	82 00.2	-30.8	58.0
33	75 10.3	-52.0	27.1	76 55.3	-50.0	31.1	78 35.3	-47.0	36.2	80 08.0	-42.5	42.9	81 29.4	-35.7	52.1
34	74 18.3	-53.0	25.2	76 05.3	-51.2	28.7	77 48.3	-48.7	33.1	79 25.5	-45.1	39.0	80 53.7	-39.7	46.8
35	73 25.3	-53.6	23.6	75 14.1	-52.2	26.6	76 59.6	-50.2	30.4	78 40.4	-47.3	35.5	80 14.0	-42.8	42.2
36	72 31.7	-54.3	22.0	74 21.9	-53.1	24.7	76 09.4	-51.4	28.1	77 53.1	-48.9	32.4	79 31.2	-45.5	38.2
37	71 37.4	-54.9	20.6	73 28.8	-53.8	23.0	75 18.0	-52.4	26.0	77 04.2	-50.5	29.8	78 45.7	-47.5	34.8
38	70 42.5	-55.3	19.4	72 35.0	-54.5	21.5	74 25.6	-53.2	24.1	76 13.7	-51.6	27.4	77 58.2	-49.3	31.7
39	69 47.2	-55.7	18.2	71 40.5	-54.9	20.1	73 32.4	-54.0	22.4	75 22.1	-52.6	25.4	77 08.9	-50.7	29.1
40	68 51.5	-56.1	17.2	70 45.6	-55.5	18.9	72 38.4	-54.5	20.9	74 29.5	-53.4	23.5	76 18.2	-51.8	26.8
41	67 55.4	-56.4	16.2	69 50.1	-55.8	17.7	71 43.9	-55.1	19.6	73 36.1	-54.1	21.8	75 26.4	-52.8	24.7
42	66 59.0	-56.7	15.3	68 54.3	-56.2	16.7	70 48.8	-55.6	18.3	72 42.0	-54.7	20.4	74 33.6	-53.6	22.9
43	66 02.3	-56.9	14.5	67 58.1	-56.4	15.7	69 53.2	-55.9	17.2	71 47.3	-55.2	19.0	73 40.0	-54.3	21.2
44	65 05.4	-57.2	13.7	67 01.7	-56.8	14.9	68 57.3	-56.3	16.2	70 52.1	-55.7	17.8	72 45.7	-54.9	19.7
45	64 08.2	-57.3	13.0	66 04.9	-57.0	14.0	68 01.0	-56.6	15.2	69 56.4	-56.1	16.7	71 50.8	-55.3	18.4
46	63 10.9	-57.5	12.4	65 07.9	-57.2	13.3	67 04.4	-56.8	14.4	69 00.3	-56.3	15.7	70 55.5	-55.8	17.2
47	62 13.4	-57.7	11.8	64 10.7	-57.4	12.6	66 07.6	-57.1	13.6	68 04.0	-56.7	14.7	69 59.7	-56.2	16.1
48	61 15.7	-57.8	11.2	63 13.3	-57.6	11.9	65 10.5	-57.3	12.8	67 07.3	-56.9	13.9	69 03.5	-56.5	15.1
49	60 17.9	-57.9	10.6	62 15.7	-57.7	11.3	64 13.2	-57.4	12.1	66 10.4	-57.2	13.1	68 07.0	-56.8	14.2
50	59 20.0	-58.1	10.1	61 18.0	-57.9	10.7	63 15.8	-57.7	11.5	65 13.2	-57.4	12.3	67 10.2	-57.0	13.3
51	58 21.9	-58.1	9.6	60 20.1	-57.9	10.2	62 18.1	-57.8	10.9	64 15.8	-57.5	11.6	66 13.2	-57.3	12.5
52	57 23.8	-58.3	9.1	59 22.2	-58.1	9.7	61 20.3	-57.9	10.3	63 18.3	-57.7	11.0	65 15.9	-57.4	11.8
53	56 25.5	-58.3	8.7	58 24.1	-58.2	9.2	60 22.4	-58.0	9.8	62 20.6	-57.9	10.4	64 18.5	-57.7	11.1
54	55 27.2	-58.4	8.3	57 25.9	-58.3	8.7	59 24.4	-58.2	9.2	61 22.7	-58.0	9.8	63 20.8	-57.7	10.5
55	54 28.8	-58.5	7.9	56 27.6	-58.4	8.3	58 26.2	-58.2	8.8	60 24.7	-58.1	9.3	62 23.1	-58.0	9.9
56	53 30.3	-58.6	7.5	55 29.2	-58.5	7.9	57 28.0	-58.4	8.3	59 26.6	-58.2	8.8	61 25.1	-58.0	9.4
57	52 31.7	-58.6	7.2	54 30.7	-58.5	7.5	56 29.6	-58.4	7.9	58 28.4	-58.3	8.3	60 27.1	-58.2	8.8
58	51 33.1	-58.7	6.8	53 32.2	-58.6	7.1	55 31.2	-58.5	7.5	57 30.1	-58.4	7.9	59 28.9	-58.2	8.4
59	50 34.4	-58.8	6.5	52 33.6	-58.7	6.8	54 32.7	-58.6	7.1	56 31.7	-58.4	7.5	58 30.7	-58.4	7.9
60	49 35.6	-58.7	6.2	51 34.9	-58.7	6.4	53 34.1	-58.6	6.7	55 33.3	-58.6	7.1	57 32.3	-58.4	7.4
61	48 36.9	-58.9	5.9	50 36.2	-58.8	6.1	52 35.5	-58.7	6.4	54 34.7	-58.6	6.7	56 33.9	-58.6	7.0
62	47 38.0	-58.9	5.6	49 37.4	-58.8	5.8	51 36.8	-58.8	6.0	53 36.1	-58.7	6.3	55 35.3	-58.6	6.6
63	46 39.1	-58.9	5.3	48 38.6	-58.9	5.5	50 38.0	-58.8	5.7	52 37.4	-58.7	6.0	54 36.7	-58.6	6.3
64	45 40.2	-58.9	5.0	47 39.7	-58.9	5.2	49 39.2	-58.8	5.4	51 38.7	-58.8	5.6	53 38.1	-58.8	5.9
65	44 41.3	-59.0	4.7	46 40.8	-58.9	4.9	48 40.4	-58.9	5.1	50 39.9	-58.9	5.3	52 39.3	-58.7	5.6
66	43 42.3	-59.1	4.5	45 41.9	-59.0	4.6	47 41.5	-59.0	4.8	49 41.0	-58.9	5.0	51 40.6	-58.9	5.2
67	42 43.2	-59.0	4.2	44 42.9	-59.0	4.4	46 42.5	-58.9	4.5	48 42.1	-58.9	4.7	50 41.7	-58.9	4.9
68	41 44.2	-59.1	4.0	43 43.9	-59.1	4.1	45 43.6	-59.1	4.3	47 43.2	-59.0	4.4	49 42.8	-58.9	4.6
69	40 45.1	-59.1	3.8	42 44.8	-59.0	3.9	44 44.5	-59.0	4.0	46 44.2	-59.0	4.2	48 43.9	-59.0	4.3
70	39 46.0	-59.2	3.6	41 45.8	-59.2	3.7	43 45.5	-59.1	3.8	45 45.2	-59.0	3.9	47 44.9	-59.0	4.1
71	38 46.8	-59.1	3.3	40 46.6	-59.1	3.4	42 46.4	-59.1	3.5	44 46.2	-59.1	3.7	46 45.9	-59.0	3.8
72	37 47.7	-59.2	3.1	39 47.5	-59.2	3.2	41 47.3	-59.1	3.3	43 47.1	-59.1	3.4	45 46.9	-59.1	3.5
73	36 48.5	-59.2	2.9	38 48.3	-59.1	3.0	40 48.2	-59.2	3.1	42 48.0	-59.1	3.2	44 47.8	-59.1	3.3
74	35 49.3	-59.2	2.7	37 49.2	-59.2	2.8	39 49.0	-59.2	2.9	41 48.9	-59.2	3.0	43 48.7	-59.1	3.0
75	34 50.1	-59.3	2.5	36 50.0	-59.3	2.6	38 49.8	-59.2	2.7	40 49.7	-59.2	2.7	42 49.6	-59.2	2.8
76	33 50.8	-59.2	2.3	35 50.7	-59.2	2.4	37 50.6	-59.2	2.4	39 50.5	-59.2	2.5	41 50.4	-59.2	2.6
77	32 51.6	-59.3	2.1	34 51.5	-59.3	2.2	36 51.4	-59.2	2.2	38 51.3	-59.2	2.3	40 51.2	-59.2	2.4
78	31 52.3	-59.3	2.0	33 52.2	-59.3	2.0	35 52.2	-59.3	2.0	37 52.1	-59.3	2.1	39 52.0	-59.2	2.2
79	30 53.0	-59.3	1.8	32 52.9	-59.2	1.8	34 52.9	-59.3	1.9	36 52.8	-59.2	1.9	38 52.8	-59.3	2.0
80	29 53.7	-59.3	1.6	31 53.7	-59.4	1.6	33 53.6	-59.3	1.7	35 53.6	-59.3	1.7	37 53.5	-59.3	1.8
81	28 54.4	-59.4	1.4	30 54.3	-59.3	1.5	32 54.3	-59.3	1.5	34 54.3	-59.3	1.5	36 54.2	-59.3	1.6
82	27 55.0	-59.3	1.3	29 55.0	-59.3	1.3	31 55.0	-59.3	1.3	33 55.0	-59.4	1.3	35 54.9	-59.3	1.4
83	26 55.7	-59.4	1.1	28 55.7	-59.4	1.1	30 55.7	-59.4	1.1	32 55.6	-59.3	1.2	34 55.6	-59.3	1.2
84	25 56.3	-59.3	0.9	27 56.3	-59.3	0.9	29 56.3	-59.3	1.0	31 56.3	-59.4	1.0	33 56.3	-59.4	1.0
85	24 57.0	-59.4	0.8	26 57.0	-59.4	0.8	28 57.0	-59.4	0.8	30 56.9	-59.3	0.8	32 56.9	-59.3	0.8
86	23 57.6	-59.4	0.6	25 57.6	-59.4	0.6	27 57.6	-59.4	0.6	29 57.6	-59.4	0.6	31 57.6	-59.4	0.7
87	22 58.2	-59.4	0.5	24 58.2	-59.4	0.5	26 58.2	-59.4	0.5	28 58.2	-59.4	0.5	30 58.2	-59.4	0.5
88	21 58.8	-59.4	0.3	23 58.8	-59.4	0.3	25 58.8	-59.4	0.3	27 58.8	-59.4	0.3	29 58.8	-59.4	0.3
89	20 59.4	-59.4	0.1	22 59.4	-59.4	0.2	24 59.4	-59.4	0.2	26 59.4	-59.4	0.2	28 59.4	-59.4	0.2
90	20 00.0	-59.4	0.0	22 00.0	-59.4	0.0	24 00.0	-59.4	0.0	26 00.0	-59.4	0.0	28 00.0	-59.4	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 8°, 352°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
39 24.6 -59.1 171.0	37 26.0 -59.2 171.3	35 27.4 -59.3 171.5	33 28.7 -59.3 171.7	31 29.9 -59.4 171.9	30 30.9 -59.4 172.0	32 29.5 -59.3 172.0	30 30.7 -59.4 172.2	28 31.7 -59.4 172.4	31 29.9 -59.4 171.9	30 30.5 -59.4 172.0	30 31.1 -59.4 172.2	28 31.7 -59.4 172.4	27 32.3 -59.4 172.5	30	
38 25.5 -59.2 171.2	36 26.8 -59.2 171.5	34 28.1 -59.3 171.7	32 29.8 -59.3 171.9	30 30.9 -59.4 172.0	29 31.5 -59.3 172.2	31 30.2 -59.3 172.2	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	31	
37 26.3 -59.2 171.5	35 27.6 -59.3 171.7	33 28.8 -59.3 171.9	31 30.2 -59.3 172.0	29 31.5 -59.3 172.2	28 32.2 -59.4 172.7	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	31 30.0 -59.3 172.0	29 31.1 -59.4 172.2	27 32.5 -59.4 172.7	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	32	
36 27.1 -59.2 171.7	34 28.3 -59.2 171.9	32 29.5 -59.3 172.0	30 30.7 -59.4 172.2	28 31.7 -59.4 172.4	27 32.8 -59.4 172.9	31 30.2 -59.3 172.2	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	30 30.7 -59.4 172.2	28 31.7 -59.4 172.4	26 33.1 -59.4 172.9	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	33	
35 27.9 -59.2 171.9	33 29.1 -59.3 172.0	31 30.2 -59.3 172.2	29 31.5 -59.3 172.6	27 32.8 -59.4 172.9	26 33.4 -59.4 173.1	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	34	
34 28.7 -59.3 172.1	32 29.8 -59.3 172.2	30 30.9 -59.4 172.4	28 32.2 -59.4 172.7	26 33.4 -59.4 173.1	25 34.0 -59.4 173.2	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	35	
33 29.4 -59.3 172.2	31 30.5 -59.3 172.4	29 31.5 -59.3 172.6	27 32.8 -59.4 172.9	25 34.0 -59.4 173.2	24 34.6 -59.4 173.4	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	36	
32 30.1 -59.2 172.4	30 31.2 -59.4 172.6	28 32.2 -59.4 172.7	26 33.4 -59.4 173.1	24 34.6 -59.4 173.4	23 35.2 -59.4 173.5	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	37	
31 30.9 -59.3 172.6	29 31.8 -59.3 172.8	27 32.8 -59.4 172.9	25 34.0 -59.4 173.2	23 35.2 -59.4 173.5	22 35.8 -59.5 173.7	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	38	
30 31.6 -59.3 172.8	28 32.5 -59.4 172.9	26 33.4 -59.4 173.1	24 34.6 -59.4 173.4	22 35.8 -59.5 173.7	21 36.3 -59.4 173.8	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	39	
29 32.3 -59.4 173.0	27 33.1 -59.3 173.1	25 34.0 -59.4 173.2	23 35.2 -59.4 173.5	21 36.3 -59.4 173.8	20 36.9 -59.5 174.0	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	40	
28 32.9 -59.3 173.1	26 33.8 -59.4 173.3	24 34.6 -59.4 173.4	22 35.4 -59.4 173.6	20 36.9 -59.5 174.0	19 37.4 -59.4 174.1	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	41	
27 33.6 -59.4 173.3	25 34.4 -59.4 173.4	23 35.2 -59.4 173.5	21 36.3 -59.4 173.8	19 37.4 -59.4 174.1	18 38.0 -59.5 174.3	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	42	
26 34.2 -59.3 173.5	24 35.0 -59.4 173.6	22 35.8 -59.5 173.7	20 36.5 -59.5 173.8	18 38.0 -59.5 174.3	17 38.5 -59.4 174.4	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	43	
25 34.9 -59.4 173.6	23 35.6 -59.4 173.7	21 36.3 -59.4 173.8	19 37.0 -59.5 173.9	17 38.5 -59.4 174.4	16 39.1 -59.5 174.5	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	44	
24 35.5 -59.4 173.8	22 36.2 -59.4 173.9	20 36.9 -59.5 174.0	18 37.7 -59.5 174.0	16 39.1 -59.5 174.5	15 39.6 -59.5 174.7	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	45	
23 36.1 -59.4 173.9	21 36.8 -59.4 174.0	19 37.4 -59.4 174.1	17 38.1 -59.5 174.2	15 39.6 -59.5 174.7	14 40.1 -59.5 174.8	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	46	
22 36.7 -59.4 174.1	20 37.4 -59.5 174.2	18 38.0 -59.5 174.3	16 38.5 -59.5 174.3	14 40.1 -59.5 174.8	13 40.6 -59.5 174.9	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	47	
21 37.3 -59.4 174.3	19 37.9 -59.4 174.3	17 38.5 -59.4 174.4	15 39.1 -59.5 174.5	13 40.6 -59.5 174.9	12 41.1 -59.5 175.0	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	48	
20 37.9 -59.4 174.4	18 38.5 -59.4 174.5	16 39.1 -59.5 174.5	14 40.2 -59.5 175.0	12 41.1 -59.5 175.0	11 41.6 -59.5 175.1	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	49	
19 38.5 -59.4 174.5	17 39.1 -59.5 174.6	15 39.6 -59.5 174.7	13 41.2 -59.4 175.2	11 41.6 -59.5 175.1	10 42.2 -59.5 175.3	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	50	
18 39.1 -59.4 174.7	16 39.6 -59.5 174.8	14 40.1 -59.5 174.8	12 41.8 -59.5 175.3	10 42.2 -59.5 175.3	9 42.7 -59.5 175.5	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	51	
17 39.7 -59.5 174.8	15 40.1 -59.4 174.9	13 40.6 -59.5 174.9	11 42.3 -59.5 175.4	9 42.7 -59.5 175.5	8 43.2 -59.5 175.6	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	52	
16 40.2 -59.4 175.0	14 40.7 -59.5 175.0	12 41.1 -59.5 175.1	10 42.8 -59.5 175.6	8 43.2 -59.5 175.6	7 43.7 -59.6 175.7	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	53	
15 40.8 -59.5 175.1	13 41.2 -59.4 175.2	11 41.6 -59.5 175.2	9 43.3 -59.5 175.7	7 43.7 -59.6 175.7	6 44.1 -59.5 175.9	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	54	
14 41.3 -59.4 175.3	12 41.8 -59.5 175.3	10 42.2 -59.5 175.3	8 43.8 -59.5 175.8	6 44.1 -59.5 175.9	5 44.6 -59.5 176.0	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	55	
13 41.9 -59.5 175.4	11 42.3 -59.5 175.4	9 42.7 -59.5 175.5	7 44.3 -59.4 176.0	5 44.6 -59.5 176.0	4 45.1 -59.5 176.1	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	56	
12 42.4 -59.4 175.5	10 42.8 -59.5 175.6	8 43.2 -59.5 175.6	6 44.9 -59.5 176.1	4 45.1 -59.5 176.1	3 45.6 -59.5 176.2	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	57	
11 43.0 -59.5 175.7	9 43.3 -59.5 175.7	7 43.7 -59.6 175.7	5 45.4 -59.5 176.0	3 45.6 -59.5 176.2	2 46.1 -59.5 176.4	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	58	
10 43.5 -59.5 175.8	8 43.8 -59.5 175.8	6 44.1 -59.5 175.9	4 45.9 -59.5 176.4	2 46.1 -59.5 176.4	1 46.6 -59.5 176.5	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	59	
9 44.0 -59.4 176.0	7 44.3 -59.4 176.0	5 44.6 -59.5 176.0	3 46.4 -59.5 176.5	1 46.6 -59.5 176.5	0 47.1 -59.5 176.6	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	60	
8 44.6 -59.5 176.1	6 44.9 -59.5 176.1	4 45.1 -59.5 176.1	2 46.9 -59.5 176.6	0 47.1 -59.5 176.6	0 12.4 +59.5 3.2	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	61	
7 45.1 -59.5 176.2	5 45.4 -59.5 176.2	3 45.6 -59.5 176.2	1 47.4 -59.5 176.8	0 47.9 -59.5 176.9	1 11.9 +59.6 3.1	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	62	
6 45.6 -59.5 176.4	4 45.9 -59.5 176.4	2 46.1 -59.5 176.4	0 11.6 +59.5 3.0	1 11.1 +59.5 2.9	2 11.5 +59.5 3.0	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	63	
5 46.1 -59.4 176.5	3 46.4 -59.5 176.5	1 46.6 -59.5 176.5	1 11.1 +59.5 2.9	0 11.6 +59.5 3.0	3 11.0 +59.5 2.9	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	64	
4 46.7 -59.5 176.6	2 46.9 -59.5 176.6	0 47.1 -59.5 176.6	2 10.6 +59.5 2.7	0 11.6 +59.5 3.0	4 10.5 +59.5 2.7	30 30.9 -59.4 172.4	28 31.9 -59.4 172.5	26 32.9 -59.4 172.7	29 31.3 -59.4 172.4	27 32.3 -59.4 172.5	25 33.5 -59.5 172.8	24 34.0 -59.4 173.0	23 34.6 -59.5 173.1	65	
3 47.2 -59.5 176.7	1 47.4 -59.5 176.8	0 47.9 -59.5 176.9	3 10.1 +59.5 2.6	2 10.6 +59.5 2.7	5 10.0 +59.5 2.6	30 3									

10°, 350° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	58 31.5	-56.7	16.7	60 26.1	-56.3	17.7	62 20.0	-55.8	18.9	64 13.1	-55.2	20.2	66 05.2	-54.6	21.8
31	57 34.8	-56.8	16.1	59 29.8	-56.4	17.1	61 24.2	-56.0	18.1	63 17.9	-55.6	19.3	65 10.6	-54.9	20.8
32	56 38.0	-57.0	15.5	58 33.4	-56.7	16.4	60 28.2	-56.3	17.4	62 22.3	-55.8	18.5	64 15.7	-55.3	19.8
33	55 41.0	-57.2	15.0	57 36.7	-56.9	15.8	59 31.9	-56.5	16.7	61 26.5	-56.0	17.7	63 20.4	-55.5	18.9
34	54 43.8	-57.3	14.4	56 39.8	-57.0	15.2	58 35.4	-56.7	16.0	60 30.5	-56.3	17.0	62 24.9	-55.9	18.1
35	53 46.5	-57.4	13.9	55 42.8	-57.1	14.6	57 38.7	-56.8	15.4	59 34.2	-56.5	16.3	61 29.0	-56.1	17.3
36	52 49.1	-57.5	13.4	54 45.7	-57.3	14.1	56 41.9	-57.0	14.8	58 37.7	-56.7	15.7	60 32.9	-56.3	16.6
37	51 51.6	-57.6	13.0	53 48.4	-57.4	13.6	55 44.9	-57.2	14.3	57 41.0	-56.9	15.0	59 36.6	-56.5	15.9
38	50 54.0	-57.8	12.5	52 51.0	-57.6	13.1	54 47.7	-57.3	13.7	56 44.1	-57.0	14.4	58 40.1	-56.7	15.3
39	49 56.2	-57.8	12.1	51 53.4	-57.6	12.6	53 50.4	-57.4	13.2	55 47.1	-57.2	13.9	57 43.4	-56.9	14.6
40	48 58.4	-57.9	11.7	50 55.8	-57.7	12.2	52 53.0	-57.5	12.7	54 49.9	-57.3	13.4	56 46.5	-57.1	14.1
41	48 00.5	-58.0	11.3	49 58.1	-57.8	11.8	51 55.5	-57.7	12.3	53 52.6	-57.4	12.8	55 49.4	-57.1	13.5
42	47 02.5	-58.0	10.9	49 00.3	-57.9	11.3	50 57.8	-57.7	11.8	52 55.2	-57.6	12.4	54 52.3	-57.4	13.0
43	46 04.5	-58.2	10.5	48 02.4	-58.0	10.9	50 00.1	-57.8	11.4	51 57.6	-57.6	11.9	53 54.9	-57.4	12.5
44	45 06.3	-58.1	10.2	47 04.4	-58.1	10.6	49 02.3	-57.9	11.0	51 00.0	-57.8	11.4	52 57.5	-57.6	12.0
45	44 08.2	-58.3	9.9	46 06.3	-58.1	10.2	48 04.4	-58.0	10.6	50 02.2	-57.8	11.0	51 59.9	-57.6	11.5
46	43 09.9	-58.3	9.5	45 08.2	-58.2	9.8	47 06.4	-58.1	10.2	49 04.4	-57.9	10.6	51 02.3	-57.8	11.1
47	42 11.6	-58.3	9.2	44 10.0	-58.2	9.5	46 08.3	-58.1	9.8	48 06.5	-58.0	10.2	50 04.5	-57.8	10.6
48	41 13.3	-58.4	8.9	43 11.8	-58.3	9.2	45 10.2	-58.2	9.5	47 08.5	-58.1	9.8	49 06.7	-58.0	10.2
49	40 14.9	-58.5	8.6	42 13.4	-58.4	8.8	44 12.0	-58.3	9.1	46 10.4	-58.1	9.5	48 08.7	-58.0	9.8
50	39 16.4	-58.5	8.3	41 15.1	-58.4	8.5	43 13.7	-58.3	8.8	45 12.3	-58.2	9.1	47 10.7	-58.1	9.5
51	38 17.9	-58.5	8.0	40 16.7	-58.4	8.2	42 15.4	-58.3	8.5	44 14.1	-58.3	8.8	46 12.6	-58.1	9.1
52	37 19.4	-58.6	7.7	39 18.3	-58.5	7.9	41 17.1	-58.4	8.2	43 15.8	-58.3	8.4	45 14.5	-58.2	8.7
53	36 20.8	-58.6	7.5	38 19.8	-58.6	7.7	40 18.7	-58.5	7.9	42 17.5	-58.4	8.1	44 16.3	-58.3	8.4
54	35 22.2	-58.6	7.2	37 21.2	-58.5	7.4	39 20.2	-58.5	7.6	41 19.1	-58.4	7.8	43 18.0	-58.3	8.1
55	34 23.6	-58.7	6.9	36 22.7	-58.6	7.1	38 21.7	-58.5	7.3	40 20.7	-58.4	7.5	42 19.7	-58.4	7.7
56	33 24.9	-58.7	6.7	35 24.1	-58.7	6.8	37 23.2	-58.6	7.0	39 22.3	-58.5	7.2	41 21.3	-58.4	7.4
57	32 26.2	-58.7	6.4	34 25.4	-58.7	6.6	36 24.6	-58.6	6.7	38 23.8	-58.6	6.9	40 22.9	-58.5	7.1
58	31 27.5	-58.8	6.2	33 26.7	-58.7	6.3	35 26.0	-58.6	6.5	37 25.2	-58.6	6.7	39 24.4	-58.5	6.8
59	30 28.8	-58.8	6.0	32 28.0	-58.7	6.1	34 27.4	-58.7	6.2	36 26.6	-58.6	6.4	38 25.9	-58.6	6.6
60	29 29.9	-58.8	5.7	31 29.3	-58.7	5.8	33 28.7	-58.7	6.0	35 28.0	-58.6	6.1	37 27.3	-58.6	6.3
61	28 31.1	-58.8	5.5	30 30.6	-58.8	5.6	32 30.0	-58.8	5.7	34 29.4	-58.7	5.9	36 28.7	-58.6	6.0
62	27 32.3	-58.9	5.3	29 31.8	-58.8	5.4	31 31.2	-58.7	5.5	33 30.7	-58.7	5.6	35 30.1	-58.7	5.7
63	26 33.4	-58.8	5.1	28 33.0	-58.9	5.1	30 32.5	-58.8	5.3	32 32.0	-58.8	5.4	34 31.4	-58.7	5.5
64	25 34.6	-58.9	4.8	27 34.1	-58.8	4.9	29 33.7	-58.8	5.0	31 33.2	-58.8	5.1	33 32.7	-58.7	5.2
65	24 35.7	-58.9	4.6	26 35.3	-58.9	4.7	28 34.9	-58.9	4.8	30 34.4	-58.7	4.9	32 34.0	-58.7	5.0
66	23 36.8	-58.9	4.4	25 36.4	-58.9	4.5	27 36.0	-58.8	4.6	29 35.7	-58.9	4.7	31 35.3	-58.8	4.8
67	22 37.9	-59.0	4.2	24 37.5	-58.9	4.3	26 37.2	-58.9	4.4	28 36.8	-58.8	4.4	30 36.5	-58.8	4.5
68	21 38.9	-58.9	4.0	23 38.6	-58.9	4.1	25 38.3	-58.9	4.1	27 38.0	-58.9	4.2	29 37.7	-58.9	4.3
69	20 40.0	-59.0	3.8	22 39.7	-58.9	3.9	24 39.4	-58.9	3.9	26 39.1	-58.8	4.0	28 38.8	-58.8	4.1
70	19 41.0	-59.0	3.6	21 40.8	-58.9	3.7	23 40.5	-58.9	3.7	25 40.3	-58.9	3.8	27 40.0	-58.9	3.8
71	18 42.0	-59.0	3.4	20 41.8	-58.9	3.5	22 41.6	-58.9	3.5	24 41.4	-58.9	3.6	26 41.1	-58.9	3.6
72	17 43.0	-59.0	3.2	19 42.9	-59.0	3.3	21 42.7	-59.0	3.3	23 42.5	-59.0	3.4	25 42.2	-58.9	3.4
73	16 44.0	-59.0	3.0	18 43.9	-59.0	3.1	20 43.7	-59.0	3.1	22 43.5	-58.9	3.2	24 43.3	-58.9	3.2
74	15 45.0	-59.0	2.9	17 44.9	-59.0	2.9	19 44.7	-59.0	2.9	21 44.6	-59.0	3.0	23 44.4	-58.9	3.0
75	14 46.0	-59.0	2.7	16 45.9	-59.0	2.7	18 45.7	-58.9	2.7	20 45.6	-59.0	2.8	22 45.5	-59.0	2.8
76	13 47.0	-59.1	2.5	15 46.9	-59.0	2.5	17 46.8	-59.0	2.5	19 46.6	-58.9	2.6	21 46.5	-59.0	2.6
77	12 47.9	-59.0	2.3	14 47.9	-59.1	2.3	16 47.8	-59.1	2.3	18 47.7	-59.0	2.4	20 47.5	-58.9	2.4
78	11 48.9	-59.0	2.1	13 48.8	-59.0	2.1	15 48.7	-59.0	2.2	17 48.7	-59.1	2.2	19 48.6	-59.0	2.2
79	10 49.9	-59.1	1.9	12 49.8	-59.1	1.9	14 49.7	-59.0	2.0	16 49.6	-59.0	2.0	18 49.6	-59.0	2.0
80	9 50.8	-59.1	1.8	11 50.7	-59.0	1.8	13 50.7	-59.1	1.8	15 50.6	-59.0	1.8	17 50.6	-59.1	1.8
81	8 51.7	-59.0	1.6	10 51.7	-59.1	1.6	12 51.6	-59.0	1.6	14 51.6	-59.0	1.6	16 51.5	-59.0	1.6
82	7 52.7	-59.1	1.4	9 52.6	-59.0	1.4	11 52.6	-59.1	1.4	13 52.6	-59.1	1.4	15 52.5	-59.0	1.4
83	6 53.6	-59.1	1.2	8 53.6	-59.1	1.2	10 53.5	-59.0	1.2	12 53.5	-59.0	1.2	14 53.5	-59.1	1.3
84	5 54.5	-59.1	1.0	7 54.5	-59.1	1.1	9 54.5	-59.1	1.1	11 54.5	-59.1	1.1	13 54.4	-59.0	1.1
85	4 55.4	-59.1	0.9	6 55.4	-59.1	0.9	8 55.4	-59.1	0.9	10 55.4	-59.1	0.9	12 55.4	-59.1	0.9
86	3 56.3	-59.0	0.7	5 56.3	-59.0	0.7	7 56.3	-59.0	0.7	9 56.3	-59.1	0.7	11 56.3	-59.1	0.7
87	2 57.3	-59.1	0.5	4 57.3	-59.1	0.5	6 57.3	-59.1	0.5	8 57.2	-59.0	0.5	10 57.2	-59.0	0.5
88	1 58.2	-59.1	0.3	3 58.2	-59.1	0.3	5 58.2	-59.1	0.3	7 58.2	-59.1	0.4	9 58.2	-59.1	0.4
89	0 59.1	-59.1	0.2	2 59.1	-59.1	0.2	4 59.1	-59.1	0.2	6 59.1	-59.1	0.2	8 59.1	-59.1	0.2
90	0 00.0	-59.1	0.0	2 00.0	-59.1	0.0	4 00.0	-59.1	0.0	6 00.0	-59.1	0.0	8 00.0	-59.1	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 10°, 350°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
58	31.5	-56.7 163.3	56	36.3	-57.0 164.1	54	40.7	-57.3 164.9	52	44.6	-57.6 165.6	50	48.2	-57.8 166.2	30
57	34.8	-56.8 163.9	55	39.3	-57.2 164.7	53	43.4	-57.5 165.4	51	47.0	-57.6 166.1	49	50.4	-57.8 166.7	31
56	38.0	-57.0 164.5	54	42.1	-57.3 165.2	52	45.9	-57.5 165.9	50	49.4	-57.8 166.5	48	52.6	-58.0 167.1	32
55	41.0	-57.2 165.0	53	44.8	-57.4 165.7	51	48.4	-57.7 166.4	49	51.6	-57.8 166.9	47	54.6	-58.0 167.5	33
54	43.8	-57.3 165.6	52	47.4	-57.5 166.2	50	50.7	-57.7 166.8	48	53.8	-58.0 167.4	46	56.6	-58.1 167.8	34
53	46.5	-57.4 166.1	51	49.9	-57.6 166.7	49	53.0	-57.8 167.2	47	55.8	-58.0 167.7	45	58.5	-58.2 168.2	35
52	49.1	-57.5 166.6	50	52.3	-57.8 167.1	48	55.2	-58.0 167.7	46	57.8	-58.1 168.1	44	60.3	-58.2 168.5	36
51	51.6	-57.6 167.0	49	54.5	-57.8 167.6	47	57.2	-58.0 168.0	45	59.7	-58.1 168.5	43	62.1	-58.3 168.9	37
50	54.0	-57.8 167.5	48	56.7	-57.9 168.0	46	59.2	-58.0 168.4	44	61.6	-58.2 168.8	42	63.8	-58.4 169.2	38
49	56.2	-57.8 167.9	47	58.8	-58.0 168.4	45	61.2	-58.2 168.8	43	63.4	-58.3 169.2	41	65.4	-58.4 169.5	39
48	58.4	-57.9 168.3	46	60.8	-58.1 168.7	44	63.0	-58.2 169.1	42	65.0	-58.3 169.5	40	67.0	-58.5 169.8	40
48	00.5	-58.0 168.7	45	62.7	-58.1 169.1	43	64.8	-58.2 169.5	41	66.8	-58.4 169.8	39	68.6	-58.5 170.1	41
47	02.5	-58.0 169.1	44	64.6	-58.2 169.5	42	66.6	-58.3 169.8	40	68.6	-58.4 170.1	38	70.1	-58.5 170.4	42
46	04.5	-58.2 169.5	43	66.4	-58.2 169.8	41	68.3	-58.4 170.1	39	70.1	-58.5 170.4	37	71.6	-58.6 170.7	43
45	06.3	-58.1 169.8	42	68.2	-58.3 170.1	40	70.1	-58.4 170.4	38	71.6	-58.5 170.7	36	73.0	-58.6 171.0	44
44	08.2	-58.3 170.1	41	70.0	-58.4 170.5	39	71.6	-58.5 170.8	37	73.0	-58.5 171.0	35	74.4	-58.6 171.2	45
43	09.9	-58.3 170.5	40	71.5	-58.4 170.8	38	73.0	-58.5 171.0	36	74.4	-58.5 171.3	34	75.8	-58.7 171.5	46
42	11.6	-58.3 170.8	39	73.0	-58.4 171.1	37	74.4	-58.5 171.3	35	75.8	-58.6 171.6	33	77.1	-58.7 171.8	47
41	13.3	-58.4 171.1	38	74.4	-58.5 171.4	36	75.8	-58.6 171.6	34	77.1	-58.6 171.8	32	78.5	-58.7 172.0	48
40	14.9	-58.5 171.4	37	75.8	-58.6 171.7	35	77.1	-58.6 171.9	33	78.5	-58.7 172.1	31	79.9	-58.8 172.3	49
39	16.4	-58.5 171.7	36	77.1	-58.5 171.9	34	78.5	-58.7 172.1	32	79.9	-58.7 172.3	30	81.3	-58.8 172.5	50
38	17.9	-58.5 172.0	35	78.5	-58.7 172.2	33	79.9	-58.6 172.4	31	81.3	-58.8 172.6	29	82.7	-58.9 172.7	51
37	19.4	-58.6 172.3	34	79.9	-58.6 172.5	32	81.3	-58.7 172.6	30	82.7	-58.8 172.8	28	84.1	-58.9 173.0	52
36	20.8	-58.6 172.5	33	81.3	-58.7 172.7	31	82.7	-58.7 172.9	29	84.1	-58.8 173.0	27	85.5	-58.8 173.2	53
35	22.2	-58.6 172.8	32	82.7	-58.7 173.0	30	84.1	-58.8 173.1	28	85.5	-58.8 173.3	26	86.9	-58.9 173.4	54
34	23.6	-58.7 173.1	31	84.1	-58.7 173.2	29	85.5	-58.7 173.4	27	86.9	-58.8 173.5	25	88.3	-58.9 173.6	55
33	24.9	-58.7 173.3	30	85.5	-58.8 173.5	28	86.9	-58.9 173.6	26	88.3	-58.9 173.7	24	89.7	-58.9 173.8	56
32	26.2	-58.7 173.6	29	86.9	-58.8 173.7	27	88.3	-58.8 173.8	25	89.7	-58.9 173.9	23	91.1	-58.9 174.0	57
31	27.5	-58.8 173.8	28	88.3	-58.9 173.9	26	89.7	-58.8 174.0	24	91.1	-58.9 174.1	22	92.5	-58.9 174.2	58
30	28.7	-58.8 174.0	27	89.7	-58.8 174.2	25	91.1	-58.9 174.3	23	92.5	-58.9 174.4	21	93.9	-58.9 174.4	59
29	29.9	-58.8 174.3	26	91.1	-58.8 174.4	24	92.5	-58.9 174.5	22	93.9	-58.9 174.6	20	95.3	-58.9 174.6	60
28	31.1	-58.8 174.5	25	92.5	-58.9 174.6	23	93.9	-58.9 174.7	21	95.3	-58.9 174.8	19	96.7	-58.9 174.8	61
27	32.3	-58.9 174.7	24	93.9	-58.9 174.8	22	95.3	-58.9 174.9	20	96.7	-58.9 175.0	18	98.1	-58.9 175.0	62
26	33.4	-58.8 174.9	23	95.3	-58.9 175.0	21	96.7	-58.9 175.1	19	98.1	-58.9 175.2	17	99.5	-58.9 175.2	63
25	34.6	-58.9 175.2	22	96.7	-58.9 175.2	20	98.1	-58.9 175.3	18	99.5	-58.9 175.4	16	100.9	-58.9 175.4	64
24	35.7	-58.9 175.4	21	98.1	-58.9 175.4	19	99.5	-58.9 175.5	17	100.9	-58.9 175.5	15	102.3	-58.9 175.6	65
23	36.8	-58.9 175.6	20	99.5	-58.9 175.6	18	100.9	-58.9 175.7	16	102.3	-58.9 175.7	14	103.7	-58.9 175.8	66
22	37.9	-59.0 175.8	19	100.9	-58.9 175.8	17	102.3	-58.9 175.9	15	103.7	-58.9 175.9	13	105.1	-58.9 176.0	67
21	38.9	-58.9 176.0	18	102.3	-58.9 176.0	16	103.7	-58.9 176.1	14	105.1	-58.9 176.1	12	106.5	-58.9 176.2	68
20	40.0	-59.0 176.2	17	103.7	-58.9 176.2	15	105.1	-58.9 176.3	13	106.5	-58.9 176.3	11	107.9	-58.9 176.3	69
19	41.0	-59.0 176.4	16	105.1	-58.9 176.4	14	106.5	-58.9 176.5	12	107.9	-58.9 176.5	10	109.3	-58.9 176.5	70
18	42.0	-59.0 176.6	15	106.5	-58.9 176.6	13	108.3	-58.9 176.6	11	109.3	-58.9 176.6	9	110.7	-58.9 176.7	71
17	43.0	-59.0 176.8	14	108.3	-58.9 176.8	12	109.3	-58.9 176.8	10	110.7	-58.9 176.8	8	112.1	-58.9 176.9	72
16	44.0	-59.0 177.0	13	109.3	-58.9 177.0	11	110.7	-58.9 177.0	9	112.1	-58.9 177.0	7	113.5	-58.9 177.1	73
15	45.0	-59.0 177.1	12	110.7	-58.9 177.2	10	112.1	-58.9 177.2	8	113.5	-58.9 177.2	6	114.9	-58.9 177.2	74
14	46.0	-59.0 177.3	11	112.1	-58.9 177.4	9	113.5	-58.9 177.4	7	114.9	-58.9 177.4	5	116.3	-58.9 177.4	75
13	47.0	-59.1 177.5	10	113.5	-58.9 177.5	8	114.9	-58.9 177.6	6	116.3	-58.9 177.6	4	117.7	-58.9 177.6	76
12	47.9	-59.0 177.7	9	114.9	-58.9 177.7	7	116.3	-58.9 177.7	5	117.7	-58.9 177.7	3	119.1	-58.9 177.7	77
11	48.9	-59.0 177.9	8	116.3	-58.9 177.9	6	117.7	-58.9 177.9	4	119.1	-58.9 177.9	2	120.5	-58.9 177.9	78
10	49.9	-59.1 178.1	7	117.7	-58.9 178.1	5	119.1	-58.9 178.1	3	120.5	-58.9 178.1	1	121.9	-58.9 178.1	79
9	50.8	-59.1 178.2	6	119.1	-58.9 178.3	4	120.5	-58.9 178.3	2	121.9	-58.9 178.3	0	123.3	-58.9 178.3	80
8	51.7	-59.0 178.4	5	120.5	-58.9 178.4	3	121.9	-58.9 178.4	1	123.3	-58.9 178.4	0	124.7	-58.9 178.4	81
7	52.7	-59.1 178.6	4	121.9	-58.9 178.6	2	123.3	-58.9 178.6	0	124.7	-58.9 178.6	0	126.1	-58.9 178.6	82
6	53.6	-59.1 178.8	3	123.3	-58.9 178.8	2	124.7	-58.9 178.8	0	126.1	-58.9 178.8	0	127.5	-58.9 178.8	83
5	54.5	-59.1 179.0	2	124.7	-58.9 179.0	1	126.1	-58.9 179.0	0	127.5	-58.9 179.0	0	128.9	-58.9 179.0	84
4	55.4	-59.1 179.1	1	126.1	-58.9 179.1	0	127.5	-58.9 179.1	0	128.9	-58.9 179.1	0	130.3	-58.9 179.1	85
3	56.3	-59.0 179.3	0	127.5	-58.9 179.3	0	128.9	-58.9 179.3	0	130.3	-58.9 179.3	0	131.7	-58.9 179.3	86
2	57.3	-59.1 179.5	0	128.9	-58.9 179.5	0	130.3	-58.9 179.5	0	131.7	-58.9 179.5	0	133.1	-58.9 179.5	87
1	58.2	-59.1 179.7	0	130.3	-58.9 179.7	0	131.7	-58.9 179.7	0	133.1	-58.9 179.7	0	134.5	-58.9 179.7	88
0	59.1	-59.1 179.8	0	131.7	-58.9 179.8	0	133.1	-58.9 179.8	0	134.5	-58.9 179.8	0	135.9	-58.9 179.8	89
0	00.0	+59.1 180.0	2	00.0	+59.1 180.0	4	00.0	+59.1 180.0	6	00.0	+59.1 180.0	8	00.0	+59.1 180.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 170°, 190°

10°, 350° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	67 55.9	-53.7	23.6	69 45.0	-52.6	25.8	71 31.9	-51.3	28.3	73 15.9	-49.4	31.5	74 56.1	-47.0	35.4
31	67 02.2	-54.1	22.4	68 52.4	-53.3	24.4	70 40.6	-52.0	26.7	72 26.5	-50.5	29.6	74 09.1	-48.5	33.0
32	66 08.1	-54.6	21.3	67 59.1	-53.7	23.1	69 48.6	-52.7	25.3	71 36.0	-51.3	27.8	73 20.6	-49.6	30.9
33	65 13.5	-55.0	20.3	67 05.4	-54.2	22.0	68 55.9	-53.3	23.9	70 44.7	-52.1	26.2	72 31.0	-50.6	29.0
34	64 18.5	-55.3	19.4	66 11.2	-54.6	20.9	68 02.6	-53.8	22.6	69 52.6	-52.8	24.7	71 40.4	-51.4	27.2
35	63 23.2	-55.6	18.5	65 16.6	-55.1	19.9	67 08.8	-54.3	21.5	68 59.8	-53.4	23.4	70 49.0	-52.3	25.7
36	62 27.6	-55.9	17.7	64 21.5	-55.3	18.9	66 14.5	-54.7	20.4	68 06.4	-53.9	22.1	69 56.7	-52.9	24.2
37	61 31.7	-56.1	16.9	63 26.2	-55.7	18.1	65 19.8	-55.0	19.4	67 12.5	-54.4	21.0	69 03.8	-53.5	22.8
38	60 35.6	-56.3	16.2	62 30.5	-55.9	17.2	64 24.8	-55.4	18.5	66 18.1	-54.8	19.9	68 10.3	-54.0	21.6
39	59 39.3	-56.6	15.5	61 34.6	-56.1	16.5	63 29.4	-55.7	17.6	65 23.3	-55.1	18.9	67 16.3	-54.4	20.4
40	58 42.7	-56.7	14.8	60 38.5	-56.4	15.7	62 33.7	-56.0	16.8	64 28.2	-55.5	18.0	66 21.9	-54.9	19.4
41	57 46.0	-57.0	14.2	59 42.1	-56.6	15.1	61 37.7	-56.2	16.0	63 32.7	-55.8	17.1	65 27.0	-55.2	18.4
42	56 49.0	-57.0	13.6	58 45.5	-56.8	14.4	60 41.5	-56.5	15.3	62 36.9	-56.0	16.3	64 31.8	-55.6	17.5
43	55 52.0	-57.2	13.1	57 48.7	-57.0	13.8	59 45.0	-56.6	14.6	61 40.9	-56.3	15.5	63 36.2	-55.8	16.6
44	54 54.8	-57.4	12.6	56 51.7	-57.1	13.2	58 48.4	-56.8	14.0	60 44.6	-56.5	14.8	62 40.4	-56.1	15.8
45	53 57.4	-57.5	12.0	55 54.6	-57.2	12.7	57 51.6	-57.0	13.3	59 48.1	-56.7	14.1	61 44.3	-56.4	15.0
46	52 59.9	-57.5	11.6	54 57.4	-57.4	12.1	56 54.6	-57.2	12.8	58 51.4	-56.8	13.5	60 47.9	-56.5	14.3
47	52 02.4	-57.7	11.1	54 00.0	-57.5	11.6	55 57.4	-57.3	12.2	57 54.6	-57.1	12.9	59 51.4	-56.8	13.6
48	51 04.7	-57.8	10.7	53 02.5	-57.6	11.1	55 00.1	-57.4	11.7	56 57.5	-57.2	12.3	58 54.6	-56.9	13.0
49	50 06.9	-57.9	10.2	52 04.9	-57.7	10.7	54 02.7	-57.5	11.2	56 00.3	-57.3	11.8	57 57.7	-57.1	12.4
50	49 09.0	-57.9	9.8	51 07.2	-57.8	10.2	53 05.2	-57.7	10.7	55 03.0	-57.5	11.2	57 00.6	-57.3	11.8
51	48 11.1	-58.1	9.4	50 09.4	-57.9	9.8	52 07.5	-57.7	10.3	54 05.5	-57.5	10.7	56 03.3	-57.4	11.3
52	47 13.0	-58.1	9.1	49 11.5	-58.0	9.4	51 09.8	-57.8	9.8	53 08.0	-57.7	10.3	55 05.9	-57.5	10.8
53	46 14.9	-58.1	8.7	48 13.5	-58.1	9.0	50 12.0	-58.0	9.4	52 10.3	-57.8	9.8	54 08.4	-57.6	10.3
54	45 16.8	-58.3	8.3	47 15.4	-58.1	8.6	49 14.0	-58.0	9.0	51 12.5	-57.9	9.4	53 10.8	-57.7	9.8
55	44 18.5	-58.3	8.0	46 17.3	-58.2	8.3	48 16.0	-58.1	8.6	50 14.6	-58.0	9.0	52 13.1	-57.8	9.4
56	43 20.2	-58.3	7.7	45 19.1	-58.2	7.9	47 17.9	-58.1	8.2	49 16.6	-58.0	8.6	51 15.3	-58.0	8.9
57	42 21.9	-58.4	7.4	44 20.9	-58.3	7.6	46 19.8	-58.2	7.9	48 18.6	-58.1	8.2	50 17.3	-58.0	8.5
58	41 23.5	-58.4	7.0	43 22.6	-58.4	7.3	45 21.6	-58.3	7.5	47 20.5	-58.2	7.8	49 19.3	-58.0	8.1
59	40 25.1	-58.5	6.7	42 24.2	-58.4	7.0	44 23.3	-58.4	7.2	46 22.3	-58.2	7.4	48 21.3	-58.2	7.7
60	39 26.6	-58.6	6.5	41 25.8	-58.5	6.6	43 24.9	-58.3	6.9	45 24.1	-58.4	7.1	47 23.1	-58.2	7.4
61	38 28.0	-58.5	6.2	40 27.3	-58.5	6.4	42 26.6	-58.5	6.6	44 25.7	-58.3	6.8	46 24.9	-58.3	7.0
62	37 29.5	-58.6	5.9	39 28.8	-58.5	6.1	41 28.1	-58.5	6.2	43 27.4	-58.4	6.4	45 26.6	-58.3	6.7
63	36 30.9	-58.7	5.6	38 30.3	-58.6	5.8	40 29.6	-58.5	6.0	42 29.0	-58.5	6.1	44 28.3	-58.4	6.3
64	35 32.2	-58.7	5.4	37 31.7	-58.7	5.5	39 31.1	-58.6	5.7	41 30.5	-58.5	5.8	43 29.9	-58.5	6.0
65	34 33.5	-58.7	5.1	36 33.0	-58.6	5.2	38 32.5	-58.6	5.4	40 32.0	-58.6	5.5	42 31.4	-58.5	5.7
66	33 34.8	-58.7	4.9	35 34.4	-58.7	5.0	37 33.9	-58.6	5.1	39 33.4	-58.6	5.3	41 32.9	-58.5	5.4
67	32 36.1	-58.8	4.6	34 35.7	-58.7	4.7	36 35.3	-58.7	4.8	38 34.8	-58.6	5.0	40 34.4	-58.6	5.1
68	31 37.3	-58.8	4.4	33 37.0	-58.8	4.5	35 36.6	-58.7	4.6	37 36.2	-58.7	4.7	39 35.8	-58.6	4.8
69	30 38.5	-58.8	4.1	32 38.2	-58.8	4.2	34 37.9	-58.8	4.3	36 37.5	-58.7	4.4	38 37.2	-58.7	4.6
70	29 39.7	-58.8	3.9	31 39.4	-58.8	4.0	33 39.1	-58.7	4.1	35 38.8	-58.7	4.2	37 38.5	-58.7	4.3
71	28 40.9	-58.9	3.7	30 40.6	-58.8	3.8	32 40.4	-58.8	3.9	34 40.1	-58.8	3.9	36 39.8	-58.7	4.0
72	27 42.0	-58.9	3.5	29 41.8	-58.9	3.5	31 41.6	-58.9	3.6	33 41.3	-58.8	3.7	35 41.1	-58.8	3.8
73	26 43.1	-58.9	3.3	28 42.9	-58.8	3.3	30 42.7	-58.8	3.4	32 42.5	-58.8	3.5	34 42.3	-58.8	3.5
74	25 44.2	-58.9	3.0	27 44.1	-58.9	3.1	29 43.9	-58.9	3.2	31 43.7	-58.8	3.2	33 43.5	-58.8	3.3
75	24 45.3	-58.9	2.8	26 45.2	-58.9	2.9	28 45.0	-58.9	2.9	30 44.9	-58.9	3.0	32 44.7	-58.9	3.1
76	23 46.4	-59.0	2.6	25 46.3	-59.0	2.7	27 46.1	-58.9	2.7	29 46.0	-58.9	2.8	31 45.8	-58.8	2.8
77	22 47.4	-58.9	2.4	24 47.3	-58.9	2.5	26 47.2	-58.9	2.5	28 47.1	-58.9	2.6	30 47.0	-58.9	2.6
78	21 48.5	-59.0	2.2	23 48.4	-59.0	2.3	25 48.3	-59.0	2.3	27 48.2	-58.9	2.3	29 48.1	-58.9	2.4
79	20 49.5	-59.0	2.0	22 49.4	-59.0	2.1	24 49.3	-58.9	2.1	26 49.3	-59.0	2.1	28 49.2	-59.0	2.2
80	19 50.5	-59.0	1.8	21 50.4	-59.0	1.9	23 50.4	-59.0	1.9	25 50.3	-59.0	1.9	27 50.2	-58.9	2.0
81	18 51.5	-59.0	1.6	20 51.4	-59.0	1.7	22 51.4	-59.0	1.7	24 51.3	-58.9	1.7	26 51.3	-59.0	1.7
82	17 52.5	-59.1	1.5	19 52.4	-59.0	1.5	21 52.4	-59.0	1.5	23 52.4	-59.0	1.5	25 52.3	-59.0	1.5
83	16 53.4	-59.0	1.3	18 53.4	-59.0	1.3	20 53.4	-59.0	1.3	22 53.4	-59.1	1.3	24 53.3	-59.0	1.3
84	15 54.4	-59.0	1.1	17 54.4	-59.1	1.1	19 54.4	-59.1	1.1	21 54.3	-59.0	1.1	23 54.3	-59.0	1.1
85	14 55.4	-59.1	0.9	16 55.3	-59.0	0.9	18 55.3	-59.0	0.9	20 55.3	-59.0	0.9	22 55.3	-59.0	0.9
86	13 56.3	-59.1	0.7	15 56.3	-59.1	0.7	17 56.3	-59.1	0.7	19 56.3	-59.1	0.7	21 56.3	-59.1	0.7
87	12 57.2	-59.0	0.5	14 57.2	-59.0	0.5	16 57.2	-59.0	0.5	18 57.2	-59.0	0.6	20 57.2	-59.0	0.6
88	11 58.2	-59.1	0.4	13 58.2	-59.1	0.4	15 58.2	-59.1	0.4	17 58.2	-59.1	0.4	19 58.2	-59.1	0.4
89	10 59.1	-59.1	0.2	12 59.1	-59.1	0.2	14 59.1	-59.1	0.2	16 59.1	-59.1	0.2	18 59.1	-59.1	0.2
90	10 00.0	-59.1	0.0	12 00.0	-59.1	0.0	14 00.0	-59.1	0.0	16 00.0	-59.1	0.0	18 00.0	-59.1	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 10°, 350°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
48 51.5	-58.0	166.8	46 54.6	-58.2	167.3	44 57.4	-58.3	167.7	43 00.1	-58.5	168.1	41 02.5	-58.5	168.5	30
47 53.5	-58.0	167.2	45 56.4	-58.2	167.6	43 59.1	-58.4	168.1	42 01.6	-58.5	168.4	40 04.0	-58.6	168.8	31
46 55.5	-58.1	167.5	44 58.2	-58.3	168.0	43 00.7	-58.4	168.4	41 03.1	-58.5	168.7	39 05.4	-58.7	169.1	32
45 57.4	-58.2	167.9	43 59.9	-58.3	168.3	42 02.3	-58.4	168.7	40 04.6	-58.6	169.0	38 06.7	-58.7	169.3	33
44 59.2	-58.3	168.3	43 01.6	-58.4	168.6	41 03.9	-58.5	169.0	39 06.0	-58.6	169.3	37 08.0	-58.7	169.6	34
44 00.9	-58.3	168.6	42 03.2	-58.4	169.0	40 05.4	-58.6	169.3	38 07.4	-58.6	169.6	36 09.3	-58.7	169.9	35
43 02.6	-58.3	168.9	41 04.8	-58.5	169.3	39 06.8	-58.6	169.6	37 08.8	-58.7	169.8	35 10.6	-58.8	170.1	36
42 04.3	-58.5	169.2	40 06.3	-58.5	169.6	38 08.2	-58.6	169.8	36 10.1	-58.8	170.1	34 11.8	-58.8	170.3	37
41 05.8	-58.4	169.5	39 07.8	-58.6	169.8	37 09.6	-58.7	170.1	35 11.3	-58.7	170.4	33 13.0	-58.8	170.6	38
40 07.4	-58.5	169.8	38 09.2	-58.6	170.1	36 10.9	-58.6	170.4	34 12.6	-58.8	170.6	32 14.2	-58.9	170.8	39
39 08.9	-58.6	170.1	37 10.6	-58.6	170.4	35 12.3	-58.8	170.6	33 13.8	-58.8	170.8	31 15.3	-58.9	171.0	40
38 10.3	-58.5	170.4	36 12.0	-58.7	170.7	34 13.5	-58.7	170.9	32 15.0	-58.8	171.1	30 16.4	-58.9	171.3	41
37 11.8	-58.7	170.7	35 13.3	-58.7	170.9	33 14.8	-58.8	171.1	31 16.2	-58.9	171.3	29 17.5	-58.9	171.5	42
36 13.1	-58.6	170.9	34 14.6	-58.7	171.2	32 16.0	-58.8	171.4	30 17.3	-58.9	171.5	28 18.6	-58.9	171.7	43
35 14.5	-58.7	171.2	33 15.9	-58.8	171.4	31 17.2	-58.9	171.6	29 18.4	-58.9	171.8	27 19.7	-59.0	171.9	44
34 15.8	-58.7	171.5	32 17.1	-58.8	171.6	30 18.3	-58.8	171.8	28 19.5	-58.8	172.0	26 20.7	-59.0	172.1	45
33 17.1	-58.8	171.7	31 18.3	-58.8	171.9	29 19.5	-58.9	172.0	27 20.6	-58.9	172.2	25 21.7	-59.0	172.3	46
32 18.3	-58.7	171.9	30 19.5	-58.8	172.1	28 20.6	-58.9	172.3	26 21.7	-59.0	172.4	24 22.7	-59.0	172.5	47
31 19.6	-58.8	172.2	29 20.7	-58.9	172.3	27 21.7	-58.9	172.5	25 22.7	-59.0	172.6	23 23.7	-59.0	172.7	48
30 20.8	-58.9	172.4	28 21.8	-58.9	172.6	26 22.8	-58.9	172.7	24 23.7	-58.9	172.8	22 24.7	-59.1	172.9	49
29 21.9	-58.8	172.6	27 22.9	-58.9	172.8	25 23.9	-59.0	172.9	23 24.8	-59.1	173.0	21 25.6	-59.1	173.1	50
28 23.1	-58.9	172.9	26 24.0	-58.9	173.0	24 24.9	-59.0	173.1	22 25.7	-59.0	173.2	20 26.6	-59.1	173.3	51
27 24.2	-58.9	173.1	25 25.1	-58.9	173.2	23 25.9	-59.0	173.3	21 26.7	-59.0	173.4	19 27.5	-59.1	173.5	52
26 25.3	-58.9	173.3	24 26.2	-59.0	173.4	22 26.9	-59.0	173.5	20 27.7	-59.1	173.6	18 28.4	-59.1	173.7	53
25 26.4	-58.9	173.5	23 27.2	-59.0	173.6	21 27.9	-59.0	173.7	19 28.6	-59.0	173.8	17 29.3	-59.1	173.9	54
24 27.5	-58.9	173.7	22 28.2	-59.0	173.8	20 28.9	-59.0	173.9	18 29.5	-59.1	174.0	16 30.2	-59.1	174.0	55
23 28.6	-59.0	173.9	21 29.2	-59.0	174.0	19 29.9	-59.0	174.1	17 30.5	-59.1	174.2	15 31.1	-59.1	174.2	56
22 29.6	-58.9	174.1	20 30.2	-59.0	174.2	18 30.9	-59.1	174.3	16 31.4	-59.0	174.3	14 32.0	-59.1	174.4	57
21 30.7	-59.0	174.3	19 31.2	-59.0	174.4	17 31.8	-59.1	174.5	15 32.4	-59.1	174.5	13 32.9	-59.1	174.6	58
20 31.7	-59.0	174.5	18 32.2	-59.0	174.6	16 32.7	-59.0	174.6	14 33.3	-59.1	174.7	12 33.8	-59.2	174.7	59
19 32.7	-59.0	174.7	17 33.2	-59.1	174.8	15 33.7	-59.1	174.8	13 34.2	-59.2	174.9	11 34.6	-59.1	174.9	60
18 33.7	-59.1	174.9	16 34.1	-59.0	175.0	14 34.6	-59.1	175.0	12 35.0	-59.1	175.1	10 35.5	-59.2	175.1	61
17 34.6	-59.0	175.1	15 35.1	-59.1	175.1	13 35.5	-59.1	175.2	11 35.9	-59.1	175.2	9 36.3	-59.1	175.3	62
16 35.6	-59.0	175.3	14 36.0	-59.1	175.3	12 36.4	-59.1	175.4	10 36.8	-59.1	175.4	8 37.2	-59.2	175.4	63
15 36.6	-59.1	175.5	13 36.9	-59.0	175.5	11 37.3	-59.1	175.5	9 37.7	-59.2	175.6	7 38.0	-59.1	175.6	64
14 37.5	-59.0	175.7	12 37.9	-59.1	175.7	10 38.2	-59.1	175.7	8 38.5	-59.1	175.7	6 38.9	-59.2	175.8	65
13 38.5	-59.1	175.8	11 38.8	-59.1	175.9	9 39.1	-59.1	175.9	7 39.4	-59.2	175.9	5 39.7	-59.2	175.9	66
12 39.4	-59.1	176.0	10 39.7	-59.1	176.0	8 40.0	-59.2	176.1	6 40.2	-59.1	176.1	4 40.5	-59.1	176.1	67
11 40.3	-59.1	176.2	9 40.6	-59.1	176.2	7 40.8	-59.1	176.2	5 41.1	-59.2	176.3	3 41.4	-59.2	176.3	68
10 41.2	-59.1	176.4	8 41.5	-59.1	176.4	6 41.7	-59.1	176.4	4 41.9	-59.1	176.4	2 42.2	-59.2	176.4	69
9 42.1	-59.0	176.5	7 42.4	-59.2	176.6	5 42.6	-59.2	176.6	3 42.8	-59.2	176.6	1 43.0	-59.2	176.6	70
8 43.1	-59.1	176.7	6 43.2	-59.1	176.7	4 43.4	-59.1	176.7	2 43.6	-59.1	176.8	0 43.8	-59.1	176.8	71
7 44.0	-59.1	176.9	5 44.1	-59.1	176.9	3 44.3	-59.1	176.9	1 44.5	-59.2	176.9	0 15.3	+59.2	3.1	72
6 44.9	-59.2	177.1	4 45.0	-59.1	177.1	2 45.2	-59.2	177.1	0 45.3	-59.1	177.1	1 14.5	+59.2	2.9	73
5 45.7	-59.1	177.2	3 45.9	-59.1	177.3	1 46.0	-59.1	177.3	0 46.9	-59.2	177.4	2 13.7	+59.2	2.7	74
4 46.6	-59.1	177.4	2 46.8	-59.2	177.4	0 46.9	-59.2	177.4	0 13.8	+59.2	2.7	1 13.0	+59.2	2.6	75
3 47.5	-59.1	177.6	1 47.6	-59.1	177.6	0 12.3	+59.1	2.4	2 12.2	+59.1	2.4	4 12.0	+59.2	2.4	76
2 48.4	-59.1	177.8	0 48.5	-59.1	177.8	1 11.4	+59.1	2.2	3 11.3	+59.2	2.2	5 11.2	+59.2	2.2	77
1 49.3	-59.1	177.9	0 10.6	+59.1	2.1	2 10.5	+59.2	2.1	4 10.5	+59.1	2.1	6 10.4	+59.2	2.1	78
0 50.2	-59.1	178.1	1 09.7	+59.2	1.9	3 09.7	+59.1	1.9	5 09.6	+59.2	1.9	7 09.6	+59.1	1.9	79
0 08.9	+59.1	1.7	2 08.9	+59.1	1.7	4 08.8	+59.2	1.7	6 08.8	+59.1	1.7	8 08.7	+59.2	1.7	80
1 08.0	+59.2	1.6	3 08.0	+59.1	1.6	5 08.0	+59.1	1.6	7 07.9	+59.2	1.6	9 07.9	+59.1	1.6	81
2 07.2	+59.1	1.4	4 07.1	+59.2	1.4	6 07.1	+59.1	1.4	8 07.1	+59.1	1.4	10 07.0	+59.2	1.4	82
3 06.3	+59.1	1.2	5 06.3	+59.1	1.2	7 06.2	+59.1	1.2	9 06.2	+59.1	1.2	11 06.2	+59.1	1.2	83
4 05.4	+59.1	1.0	6 05.4	+59.1	1.0	8 05.3	+59.2	1.1	10 05.3	+59.2	1.1	12 05.3	+59.1	1.1	84
5 04.5	+59.1	0.9	7 04.5	+59.1	0.9	9 04.5	+59.1	0.9	11 04.5	+59.1	0.9	13 04.4	+59.2	0.9	85
6 03.6	+59.1	0.7	8 03.6	+59.1	0.7	10 03.6	+59.1	0.7	12 03.6	+59.1	0.7	14 03.6	+59.1	0.7	86
7 02.7	+59.1	0.5	9 02.7	+59.1	0.5	11 02.7	+59.1	0.5	13 02.7	+59.1	0.5	15 02.7	+59.1	0.5	87
8 01.8	+59.1	0.4	10 01.8	+59.1	0.4	12 01.8	+59.1	0.4	14 01.8	+59.1	0.4	16 01.8	+59.1	0.4	88
9 00.9	+59.1	0.2	11 00.9	+59.1	0.2	13 00.9	+59.1	0.2	15 00.9	+59.1	0.2	17 00.9	+59.1	0.2	89
10 00.0	+59.1	0.0	12 00.0	+59.1	0.0	14 00.0	+59.1	0.0	16 00.0	+59.1	0.0	18 00.0	+59.1	0.0	90

LATITUDE SAME NAME

L.H.A. 170°, 190°

10°, 350° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	76 31.1	-43.9	•40.2	77 58.7	-39.5	•46.2	79 16.0	-33.4	•53.8	80 18.7	-25.0	•63.3	81 01.9	-14.0	•74.7
31	75 47.2	-45.7	37.3	77 19.2	-41.9	•42.7	78 42.6	-36.8	•49.5	79 53.7	-29.6	•58.0	80 47.9	-19.9	•68.6
32	75 01.5	-47.2	34.7	76 37.3	-44.1	•39.5	78 05.8	-39.7	•45.6	79 24.1	-33.6	•53.2	80 28.0	-25.3	•62.8
33	74 14.3	-48.6	32.4	75 53.2	-45.9	36.7	77 26.1	-42.3	•42.0	78 50.5	-37.1	•48.8	80 02.7	-29.9	•57.4
34	73 25.7	-49.8	30.3	75 07.3	-47.5	34.1	76 43.8	-44.3	38.8	78 13.4	-40.1	•44.9	79 32.8	-34.0	•52.5
35	72 35.9	-50.8	28.4	74 19.8	-48.8	31.8	75 59.5	-46.2	36.0	77 33.3	-42.6	•41.3	78 58.8	-37.5	•48.1
36	71 45.1	-51.6	26.7	73 31.0	-50.0	29.7	75 13.3	-47.7	33.4	76 50.7	-44.6	38.1	78 21.3	-40.4	•44.1
37	70 53.5	-52.4	25.1	72 41.0	-50.9	27.8	74 25.6	-49.1	31.1	76 06.1	-46.5	35.3	77 40.9	-42.9	•40.5
38	70 01.1	-53.0	23.6	71 50.1	-51.8	26.0	73 36.5	-50.1	29.0	75 19.6	-48.0	32.7	76 58.0	-45.0	37.4
39	69 08.1	-53.6	22.3	70 58.3	-52.5	24.5	72 46.4	-51.1	27.1	74 31.6	-49.2	30.4	76 13.0	-46.8	34.5
40	68 14.5	-54.1	21.0	70 05.8	-53.2	23.0	71 55.3	-52.0	25.4	73 42.4	-50.4	28.3	75 26.2	-48.2	31.9
41	67 20.4	-54.6	19.9	69 12.6	-53.7	21.7	71 03.3	-52.7	23.8	72 52.0	-51.4	26.4	74 38.0	-49.6	29.6
42	66 25.8	-54.9	18.8	68 18.9	-54.3	20.4	70 10.6	-53.3	22.4	72 00.6	-52.1	24.7	73 48.4	-50.6	27.6
43	65 30.9	-55.4	17.8	67 24.6	-54.7	19.3	69 17.3	-53.9	21.0	71 08.5	-52.9	23.1	72 57.8	-51.6	25.7
44	64 35.5	-55.6	16.9	66 29.9	-55.1	18.3	68 23.4	-54.4	19.8	70 15.6	-53.5	21.7	72 06.2	-52.4	24.0
45	63 39.9	-56.0	16.1	65 34.8	-55.4	17.3	67 29.0	-54.8	18.7	69 22.1	-54.1	20.4	71 13.8	-53.1	22.4
46	62 43.9	-56.1	15.3	64 39.4	-55.7	16.4	66 34.2	-55.2	17.7	68 28.0	-54.5	19.2	70 20.7	-53.7	21.0
47	61 47.8	-56.5	14.5	63 43.7	-56.1	15.5	65 39.0	-55.6	16.7	67 33.5	-55.0	18.1	69 27.0	-54.2	19.7
48	60 51.3	-56.6	13.8	62 47.6	-56.2	14.7	64 43.4	-55.8	15.8	66 38.5	-55.3	17.0	68 32.8	-54.7	18.5
49	59 54.7	-56.8	13.1	61 51.4	-56.5	14.0	63 47.6	-56.2	14.9	65 43.2	-55.7	16.1	67 38.1	-55.1	17.4
50	58 57.9	-57.0	12.5	60 54.9	-56.8	13.3	62 51.4	-56.3	14.2	64 47.5	-55.9	15.2	66 43.0	-55.5	16.4
51	58 00.9	-57.2	11.9	59 58.1	-56.9	12.6	61 55.1	-56.6	13.4	63 51.6	-56.3	14.4	65 47.5	-55.8	15.5
52	57 03.7	-57.3	11.3	59 01.2	-57.0	12.0	60 58.5	-56.8	12.7	62 55.3	-56.5	13.6	64 51.7	-56.1	14.6
53	56 06.4	-57.4	10.8	58 04.2	-57.3	11.4	60 01.7	-57.0	12.1	61 58.8	-56.7	12.9	63 55.6	-56.3	13.8
54	55 09.0	-57.6	10.3	57 06.9	-57.3	10.8	59 04.7	-57.2	11.5	61 02.1	-56.9	12.2	62 59.3	-56.6	13.0
55	54 11.4	-57.7	9.8	56 09.6	-57.5	10.3	58 07.5	-57.3	10.9	60 05.2	-57.0	11.5	62 02.7	-56.8	12.3
56	53 13.7	-57.7	9.3	55 12.1	-57.7	9.8	57 10.2	-57.4	10.3	59 08.2	-57.3	10.9	61 05.9	-57.0	11.6
57	52 16.0	-57.9	8.9	54 14.4	-57.7	9.3	56 12.8	-57.6	9.8	58 10.9	-57.3	10.3	60 08.9	-57.2	11.0
58	51 18.1	-58.0	8.5	53 16.7	-57.8	8.9	55 15.2	-57.7	9.3	57 13.6	-57.6	9.8	59 11.7	-57.3	10.4
59	50 20.1	-58.0	8.1	52 18.9	-57.9	8.4	54 17.5	-57.8	8.8	56 16.0	-57.6	9.3	58 14.4	-57.5	9.8
60	49 22.1	-58.2	7.7	51 21.0	-58.1	8.0	53 19.7	-57.9	8.4	55 18.4	-57.8	8.8	57 16.9	-57.6	9.2
61	48 23.9	-58.1	7.3	50 22.9	-58.1	7.6	52 21.8	-57.9	7.9	54 20.6	-57.8	8.3	56 19.3	-57.7	8.7
62	47 25.8	-58.3	6.9	49 24.8	-58.1	7.2	51 23.9	-58.1	7.5	53 22.8	-58.0	7.9	55 21.6	-57.8	8.2
63	46 27.5	-58.3	6.6	48 26.7	-58.3	6.8	50 25.8	-58.2	7.1	52 24.8	-58.0	7.4	54 23.8	-58.0	7.8
64	45 29.2	-58.4	6.2	47 28.4	-58.3	6.5	49 27.6	-58.2	6.7	51 26.8	-58.1	7.0	53 25.8	-58.0	7.3
65	44 30.8	-58.4	5.9	46 30.1	-58.3	6.1	48 29.4	-58.3	6.4	50 28.7	-58.3	6.6	52 27.8	-58.1	6.9
66	43 32.4	-58.5	5.6	45 31.8	-58.5	5.8	47 31.1	-58.3	6.0	49 30.4	-58.2	6.2	51 29.7	-58.2	6.5
67	42 33.9	-58.6	5.3	44 33.3	-58.4	5.5	46 32.8	-58.4	5.7	48 32.2	-58.4	5.9	50 31.5	-58.3	6.1
68	41 35.3	-58.5	5.0	43 34.9	-58.6	5.2	45 34.4	-58.5	5.3	47 33.8	-58.4	5.5	49 33.2	-58.3	5.8
69	40 36.8	-58.7	4.7	42 36.3	-58.5	4.9	44 35.9	-58.5	5.0	46 35.4	-58.4	5.2	48 34.9	-58.4	5.4
70	39 38.1	-58.6	4.4	41 37.8	-58.6	4.6	43 37.4	-58.6	4.7	45 37.0	-58.5	4.9	47 36.5	-58.4	5.1
71	38 39.5	-58.7	4.2	40 39.2	-58.7	4.3	42 38.8	-58.6	4.4	44 38.5	-58.6	4.6	46 38.1	-58.6	4.7
72	37 40.8	-58.7	3.9	39 40.5	-58.7	4.0	41 40.2	-58.6	4.1	43 39.9	-58.6	4.3	45 39.5	-58.5	4.4
73	36 42.1	-58.8	3.6	38 41.8	-58.7	3.7	40 41.6	-58.7	3.8	42 41.3	-58.7	4.0	44 41.0	-58.6	4.1
74	35 43.3	-58.8	3.4	37 43.1	-58.8	3.5	39 42.9	-58.8	3.6	41 42.6	-58.7	3.7	43 42.4	-58.7	3.8
75	34 44.5	-58.8	3.1	36 44.3	-58.8	3.2	38 44.1	-58.7	3.3	40 43.9	-58.7	3.4	42 43.7	-58.7	3.5
76	33 45.7	-58.8	2.9	35 45.5	-58.8	3.0	37 45.4	-58.8	3.0	39 45.2	-58.8	3.1	41 45.0	-58.7	3.2
77	32 46.9	-58.9	2.7	34 46.7	-58.8	2.7	36 46.6	-58.8	2.8	38 46.4	-58.8	2.9	40 46.3	-58.8	3.0
78	31 48.0	-58.9	2.4	33 47.9	-58.9	2.5	35 47.8	-58.9	2.6	37 47.6	-58.8	2.6	39 47.5	-58.8	2.7
79	30 49.1	-58.9	2.2	32 49.0	-58.9	2.3	34 48.9	-58.9	2.3	36 48.8	-58.9	2.4	38 48.7	-58.9	2.4
80	29 50.2	-59.0	2.0	31 50.1	-58.9	2.0	33 50.0	-58.9	2.1	35 49.9	-58.9	2.1	37 49.8	-58.8	2.2
81	28 51.2	-58.9	1.8	30 51.2	-59.0	1.8	32 51.1	-58.9	1.9	34 51.0	-58.9	1.9	36 51.0	-58.9	1.9
82	27 52.3	-59.0	1.6	29 52.2	-58.9	1.6	31 52.2	-59.0	1.6	33 52.1	-58.9	1.7	35 52.1	-59.0	1.7
83	26 53.3	-59.0	1.4	28 53.3	-59.0	1.4	30 53.2	-59.0	1.4	32 53.2	-59.0	1.4	34 53.1	-58.9	1.5
84	25 54.3	-59.0	1.2	27 54.3	-59.0	1.2	29 54.2	-59.0	1.2	31 54.2	-59.0	1.2	33 54.2	-59.0	1.3
85	24 55.3	-59.0	1.0	26 55.3	-59.1	1.0	28 55.2	-59.0	1.0	30 55.2	-59.0	1.0	32 55.2	-59.0	1.0
86	23 56.3	-59.1	0.8	25 56.2	-59.0	0.8	27 56.2	-59.0	0.8	29 56.2	-59.0	0.8	31 56.2	-59.0	0.8
87	22 57.2	-59.0	0.6	24 57.2	-59.0	0.6	26 57.2	-59.1	0.6	28 57.2	-59.1	0.6	30 57.2	-59.1	0.6
88	21 58.2	-59.1	0.4	23 58.2	-59.1	0.4	25 58.1	-59.0	0.4	27 58.1	-59.0	0.4	29 58.1	-59.0	0.4
89	20 59.1	-59.1	0.2	22 59.1	-59.1	0.2	24 59.1	-59.1	0.2	26 59.1	-59.1	0.2	28 59.1	-59.1	0.2
90	20 00.0	-59.1	0.0	22 00.0	-59.1	0.0	24 00.0	-59.1	0.0	26 00.0	-59.1	0.0	28 00.0	-59.1	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 10°, 350°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
39	04.9	-58.7	168.8	37	07.1	-58.8	169.1	35	09.2	-58.9	169.4	33	11.2	-59.0	169.6	31	13.1	-59.0	169.9	30
38	06.2	-58.7	169.1	36	08.3	-58.8	169.4	34	10.3	-58.9	169.6	32	12.2	-58.9	169.9	30	14.1	-59.1	170.1	31
37	07.5	-58.8	169.4	35	09.5	-58.8	169.6	33	11.4	-58.9	169.9	31	13.3	-59.0	170.1	29	15.0	-59.1	170.3	32
36	08.7	-58.7	169.6	34	10.7	-58.9	169.9	32	12.5	-58.9	170.1	30	14.3	-59.1	170.3	28	15.9	-59.1	170.5	33
35	10.0	-58.8	169.9	33	11.8	-58.9	170.1	31	13.6	-59.0	170.3	29	15.2	-59.0	170.5	27	16.8	-59.1	170.7	34
34	11.2	-58.9	170.1	32	12.9	-58.9	170.3	30	14.6	-59.0	170.5	28	16.2	-59.1	170.7	26	17.7	-59.1	170.9	35
33	12.3	-58.8	170.3	31	14.0	-58.9	170.5	29	15.6	-59.0	170.7	27	17.1	-59.0	170.9	25	18.6	-59.1	171.1	36
32	13.5	-58.9	170.6	30	15.1	-59.0	170.8	28	16.6	-59.0	170.9	26	18.1	-59.1	171.1	24	19.5	-59.2	171.2	37
31	14.6	-58.9	170.8	29	16.1	-59.0	171.0	27	17.6	-59.1	171.1	25	19.0	-59.1	171.3	23	20.3	-59.1	171.4	38
30	15.7	-59.0	171.0	28	17.1	-59.0	171.2	26	18.5	-59.0	171.3	24	19.9	-59.2	171.5	22	21.2	-59.2	171.6	39
29	16.7	-58.9	171.2	27	18.1	-59.0	171.4	25	19.5	-59.1	171.5	23	20.7	-59.1	171.7	21	22.0	-59.2	171.8	40
28	17.8	-59.0	171.4	26	19.1	-59.0	171.6	24	20.4	-59.1	171.7	22	21.6	-59.1	171.9	20	22.8	-59.2	172.0	41
27	18.8	-59.0	171.6	25	20.1	-59.1	171.8	23	21.3	-59.1	171.9	21	22.5	-59.2	172.0	19	23.6	-59.2	172.1	42
26	19.8	-59.0	171.9	24	21.0	-59.0	172.0	22	22.2	-59.1	172.1	20	23.3	-59.2	172.2	18	24.4	-59.2	172.3	43
25	20.8	-59.0	172.1	23	22.0	-59.1	172.2	21	23.1	-59.2	172.3	19	24.1	-59.1	172.4	17	25.2	-59.2	172.5	44
24	21.8	-59.0	172.3	22	22.9	-59.1	172.4	20	23.9	-59.1	172.5	18	25.0	-59.2	172.6	16	26.0	-59.2	172.6	45
23	22.8	-59.1	172.4	21	23.8	-59.1	172.6	19	24.8	-59.2	172.7	17	25.8	-59.2	172.7	15	26.7	-59.2	172.8	46
22	23.7	-59.0	172.6	20	24.7	-59.1	172.7	18	25.6	-59.1	172.8	16	26.6	-59.2	172.9	14	27.5	-59.3	173.0	47
21	24.7	-59.1	172.8	19	25.6	-59.1	172.9	17	26.5	-59.2	173.0	15	27.4	-59.2	173.1	13	28.2	-59.2	173.1	48
20	25.6	-59.1	173.0	18	26.5	-59.2	173.1	16	27.3	-59.2	173.2	14	28.2	-59.3	173.2	12	29.0	-59.3	173.3	49
19	26.5	-59.1	173.2	17	27.3	-59.1	173.3	15	28.1	-59.1	173.3	13	28.9	-59.2	173.4	11	29.7	-59.2	173.5	50
18	27.4	-59.1	173.4	16	28.2	-59.2	173.5	14	29.0	-59.2	173.5	12	29.7	-59.2	173.6	10	30.5	-59.3	173.6	51
17	28.3	-59.1	173.6	15	29.0	-59.1	173.6	13	29.8	-59.2	173.7	11	30.5	-59.3	173.7	9	31.2	-59.3	173.8	52
16	29.2	-59.2	173.7	14	29.9	-59.2	173.8	12	30.6	-59.2	173.9	10	31.2	-59.2	173.9	8	31.9	-59.3	173.9	53
15	30.0	-59.1	173.9	13	30.7	-59.2	174.0	11	31.4	-59.3	174.0	9	32.0	-59.2	174.1	7	32.6	-59.2	174.1	54
14	30.9	-59.2	174.1	12	31.5	-59.2	174.1	10	32.1	-59.2	174.2	8	32.8	-59.2	174.2	6	33.4	-59.3	174.2	55
13	31.7	-59.1	174.3	11	32.3	-59.1	174.3	9	32.9	-59.2	174.3	7	33.5	-59.2	174.4	5	34.1	-59.3	174.4	56
12	32.6	-59.2	174.4	10	33.2	-59.2	174.5	8	33.7	-59.2	174.5	6	34.3	-59.3	174.5	4	34.8	-59.3	174.6	57
11	33.4	-59.1	174.6	9	34.0	-59.2	174.6	7	34.5	-59.2	174.7	5	35.0	-59.3	174.7	3	35.5	-59.3	174.7	58
10	34.3	-59.2	174.8	8	34.8	-59.2	174.8	6	35.3	-59.3	174.8	4	35.7	-59.2	174.9	2	36.2	-59.3	174.9	59
9	35.1	-59.2	174.9	7	35.6	-59.2	175.0	5	36.0	-59.2	175.0	3	36.5	-59.3	175.0	1	36.9	-59.3	175.0	60
8	35.9	-59.2	175.1	6	36.4	-59.3	175.1	4	36.8	-59.2	175.2	2	37.2	-59.2	175.2	0	37.6	-59.2	175.2	61
7	36.7	-59.1	175.3	5	37.1	-59.2	175.3	3	37.6	-59.3	175.3	1	38.0	-59.3	175.3	0	38.0	-59.3	175.3	62
6	37.6	-59.2	175.4	4	37.9	-59.2	175.5	2	38.3	-59.2	175.5	0	38.7	-59.3	175.5	0	38.7	-59.3	175.5	63
5	38.4	-59.2	175.6	3	38.7	-59.2	175.6	1	39.1	-59.3	175.6	0	39.5	-59.2	175.8	0	39.5	-59.2	175.8	64
4	39.2	-59.2	175.8	2	39.5	-59.2	175.8	0	39.8	-59.2	175.8	0	40.2	-59.2	176.1	0	40.2	-59.2	176.1	65
3	40.0	-59.2	175.9	1	40.3	-59.2	175.9	0	40.4	-59.2	176.1	0	40.8	-59.2	176.4	0	40.8	-59.2	176.4	66
2	40.8	-59.2	176.1	0	41.1	-59.2	176.1	0	41.4	-59.2	176.4	0	41.8	-59.2	176.7	0	41.8	-59.2	176.7	67
1	41.6	-59.2	176.3	0	41.6	-59.2	176.3	0	41.9	-59.2	176.6	0	42.3	-59.2	176.9	0	42.3	-59.2	176.9	68
0	42.4	-59.2	176.4	0	42.4	-59.2	176.4	0	42.7	-59.2	176.7	0	43.1	-59.2	177.0	0	43.1	-59.2	177.0	69
0	16.8	+59.2	3.4	2	16.6	+59.2	3.4	4	16.4	+59.2	3.4	6	16.1	+59.3	3.4	8	15.9	+59.3	3.4	70
1	16.0	+59.2	3.2	3	15.8	+59.2	3.2	5	15.6	+59.2	3.3	7	15.4	+59.3	3.3	9	15.2	+59.3	3.3	71
2	15.2	+59.2	3.1	4	15.0	+59.2	3.1	6	14.8	+59.3	3.1	8	14.7	+59.2	3.1	10	14.5	+59.2	3.1	72
3	14.4	+59.2	2.9	5	14.2	+59.2	2.9	7	14.1	+59.2	2.9	9	13.9	+59.2	2.9	11	13.7	+59.3	3.0	73
4	13.6	+59.2	2.8	6	13.4	+59.2	2.8	8	13.3	+59.2	2.8	10	13.1	+59.3	2.8	12	13.0	+59.3	2.8	74
5	12.8	+59.1	2.6	7	12.6	+59.2	2.6	9	12.5	+59.2	2.6	11	12.4	+59.2	2.6	13	12.3	+59.2	2.6	75
6	11.9	+59.2	2.4	8	11.8	+59.2	2.4	10	11.7	+59.2	2.4	12	11.6	+59.2	2.5	14	11.5	+59.2	2.5	76
7	11.1	+59.2	2.3	9	11.0	+59.2	2.3	11	10.9	+59.2	2.3	13	10.8	+59.3	2.3	15	10.7	+59.3	2.3	77
8	10.3	+59.2	2.1	10	10.2	+59.2	2.1	12	10.1	+59.2	2.1	14	10.1	+59.2	2.1	16	10.0	+59.2	2.2	78
9	09.5	+59.2	1.9	11	09.4	+59.2	1.9	13	09.3	+59.2	1.9	15	09.3	+59.2	2.0	17	09.2	+59.2	2.0	79
10	08.7	+59.1	1.8	12	08.6	+59.2	1.8	14	08.5	+59.2	1.8	16	08.5	+59.2	1.8	18	08.4	+59.2	1.8	80
11	07.8	+59.2	1.6	13	07.8	+59.1	1.6	15	07.7	+59.2	1.6	17	07.7	+59.2	1.6	19	07.6	+59.2	1.6	81
12	07.0	+59.1	1.4	14	06.9	+59.2	1.4	16	06.9	+59.2	1.4	18	06.9	+59.2	1.5	20	06.8	+59.2	1.5	82
13	06.1	+59.2	1.2	15	06.1	+59.2	1.3	17	06.1	+59.1	1.3	19	06.1	+59.1	1.3	21	06.0	+59.2	1.3	83
14	05.3	+59.1	1.1	16	05.3	+59.1	1.1	18	05.2	+59.2	1.1	20	05.2	+59.2	1.1	22	05.2	+59.2	1.1	84
15	04.4	+59.2	0.9	17	04.4	+59.2	0.9	19	04.4	+59.1	0.9	21	04.4	+59.1	0.9	23	04.4	+59.1	0.9	85
16	03.6	+59.1	0.7	18	03.6	+59.1	0.7	20	03.5	+59.2	0.7	22	03.5	+59.2	0.7	24	03.5	+59.2	0.8	86
17	02.7	+59.1	0.5	19	02.7	+59.1	0.6	21	02.7	+59.1	0.6	23	02.7	+59.1	0.6	25	02.7	+59.1	0.6	87
18	01.8	+59.1	0.4	20	01.8	+59.1	0.4	22	01.8	+59.1	0.4	24	01.8	+59.1	0.4	26	01.8	+59.1	0.4	88
19	00.9	+59.1	0.2	21	00.9	+59.1	0.2	23	00.9	+59.1	0.2	25	00.9	+59.1	0.2	27	00.9	+59.1	0.2	89
20	00.0	+59.1	0.0	22	00.0	+59.1	0.0	24	00.0	+59.1	0.0	26	00.0	+59.1	0.0	28	00.0	+59.1	0.0	90
20°			22°			24°			26°			28°								

LATITUDE SAME NAME

L.H.A. 170°, 190°

12°, 348° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	57 53.9	-55.4	19.8	59 46.4	-54.8	21.0	61 37.9	-54.1	22.3	63 28.4	-53.4	23.8	65 17.5	-52.5	25.5
31	56 58.5	-55.6	19.1	58 51.6	-55.1	20.2	60 43.8	-54.5	21.4	62 35.0	-53.8	22.8	64 25.0	-53.0	24.4
32	56 02.9	-55.7	18.4	57 56.5	-55.4	19.4	59 49.3	-54.8	20.5	61 41.2	-54.2	21.8	63 32.0	-53.4	23.3
33	55 07.2	-56.0	17.8	57 01.1	-55.5	18.7	58 54.5	-55.1	19.7	60 47.0	-54.5	20.9	62 38.6	-53.9	22.3
34	54 11.2	-56.2	17.1	56 05.6	-55.8	18.0	57 59.4	-55.4	19.0	59 52.5	-54.8	20.1	61 44.7	-54.2	21.4
35	53 15.0	-56.4	16.5	55 09.8	-56.0	17.3	57 04.0	-55.5	18.3	58 57.7	-55.1	19.3	60 50.5	-54.5	20.5
36	52 18.6	-56.5	16.0	54 13.8	-56.2	16.7	56 08.5	-55.8	17.6	58 02.6	-55.4	18.5	59 56.0	-54.9	19.6
37	51 22.1	-56.6	15.4	53 17.6	-56.3	16.1	55 12.7	-56.0	16.9	57 07.2	-55.6	17.8	59 01.1	-55.1	18.8
38	50 25.5	-56.8	14.9	52 21.3	-56.5	15.6	54 16.7	-56.2	16.3	56 11.6	-55.8	17.1	58 06.0	-55.4	18.1
39	49 28.7	-56.9	14.4	51 24.8	-56.7	15.0	53 20.5	-56.3	15.7	55 15.8	-56.0	16.5	57 10.6	-55.6	17.3
40	48 31.8	-57.0	13.9	50 28.1	-56.7	14.5	52 24.2	-56.5	15.1	54 19.8	-56.2	15.9	56 15.0	-55.8	16.7
41	47 34.8	-57.1	13.5	49 31.4	-56.9	14.0	51 27.7	-56.7	14.6	53 23.6	-56.3	15.3	55 19.2	-56.1	16.0
42	46 37.7	-57.3	13.0	48 34.5	-57.1	13.5	50 31.0	-56.8	14.1	52 27.3	-56.6	14.7	54 23.1	-56.2	15.4
43	45 40.4	-57.3	12.6	47 37.4	-57.1	13.0	49 34.2	-56.9	13.6	51 30.7	-56.6	14.1	53 26.9	-56.4	14.8
44	44 43.1	-57.4	12.2	46 40.3	-57.2	12.6	48 37.3	-57.0	13.1	50 34.1	-56.8	13.6	52 30.5	-56.5	14.2
45	43 45.7	-57.5	11.7	45 43.1	-57.4	12.2	47 40.3	-57.2	12.6	49 37.3	-56.9	13.1	51 34.0	-56.7	13.7
46	42 48.2	-57.6	11.4	44 45.7	-57.4	11.7	46 43.1	-57.2	12.2	48 40.4	-57.1	12.6	50 37.3	-56.8	13.2
47	41 50.6	-57.7	11.0	43 48.3	-57.5	11.3	45 45.9	-57.3	11.7	47 43.3	-57.1	12.2	49 40.5	-56.9	12.7
48	40 52.9	-57.7	10.6	42 50.8	-57.5	10.9	44 48.6	-57.4	11.3	46 46.2	-57.3	11.7	48 43.6	-57.1	12.2
49	39 55.2	-57.8	10.2	41 53.3	-57.7	10.6	43 51.2	-57.6	10.9	45 48.9	-57.3	11.3	47 46.5	-57.2	11.7
50	38 57.4	-57.8	9.9	40 55.6	-57.7	10.2	42 53.6	-57.5	10.5	44 51.6	-57.5	10.9	46 49.3	-57.2	11.3
51	37 59.6	-57.9	9.6	39 57.9	-57.8	9.8	41 56.1	-57.7	10.1	43 54.1	-57.5	10.5	45 52.1	-57.4	10.8
52	37 01.7	-58.0	9.2	39 00.1	-57.8	9.5	40 58.4	-57.7	9.8	42 56.6	-57.6	10.1	44 54.7	-57.4	10.4
53	36 03.7	-58.0	8.9	38 02.3	-58.0	9.1	40 00.7	-57.8	9.4	41 59.0	-57.6	9.7	43 57.3	-57.6	10.0
54	35 05.7	-58.0	8.6	37 04.3	-57.9	8.8	39 02.9	-57.9	9.1	41 01.4	-57.8	9.3	42 59.7	-57.6	9.6
55	34 07.7	-58.1	8.3	36 06.4	-58.0	8.5	38 05.0	-57.9	8.7	40 03.6	-57.8	9.0	42 02.1	-57.7	9.2
56	33 09.6	-58.2	8.0	35 08.4	-58.1	8.2	37 07.1	-57.9	8.4	39 05.8	-57.8	8.6	41 04.4	-57.7	8.9
57	32 11.4	-58.1	7.7	34 10.3	-58.1	7.9	36 09.2	-58.0	8.1	38 08.0	-58.0	8.3	40 06.7	-57.8	8.5
58	31 13.3	-58.3	7.4	33 12.2	-58.1	7.6	35 11.2	-58.1	7.7	37 10.0	-57.9	7.9	39 08.9	-57.9	8.2
59	30 15.0	-58.2	7.1	32 14.1	-58.2	7.3	34 13.1	-58.1	7.4	36 12.1	-58.1	7.6	38 11.0	-58.0	7.8
60	29 16.8	-58.3	6.8	31 15.9	-58.2	7.0	33 15.0	-58.1	7.1	35 14.0	-58.0	7.3	37 13.0	-57.9	7.5
61	28 18.5	-58.3	6.6	30 17.7	-58.3	6.7	32 16.9	-58.2	6.8	34 16.0	-58.1	7.0	36 15.1	-58.1	7.2
62	27 20.2	-58.4	6.3	29 19.4	-58.2	6.4	31 18.7	-58.3	6.6	33 17.9	-58.2	6.7	35 17.0	-58.1	6.9
63	26 21.8	-58.3	6.0	28 21.2	-58.4	6.2	30 20.4	-58.2	6.3	32 19.7	-58.2	6.4	34 18.9	-58.1	6.6
64	25 23.5	-58.4	5.8	27 22.8	-58.3	5.9	29 22.2	-58.3	6.0	31 21.5	-58.2	6.1	33 20.8	-58.2	6.3
65	24 25.1	-58.5	5.5	26 24.5	-58.4	5.6	28 23.9	-58.3	5.7	30 23.3	-58.3	5.8	32 22.6	-58.2	6.0
66	23 26.6	-58.4	5.3	25 26.1	-58.4	5.4	27 25.6	-58.4	5.5	29 25.0	-58.3	5.6	31 24.4	-58.2	5.7
67	22 28.2	-58.5	5.0	24 27.7	-58.4	5.1	26 27.2	-58.4	5.2	28 26.7	-58.3	5.3	30 26.2	-58.3	5.4
68	21 29.7	-58.5	4.8	23 29.3	-58.5	4.9	25 28.8	-58.4	4.9	27 28.4	-58.4	5.0	29 27.9	-58.3	5.1
69	20 31.2	-58.5	4.6	22 30.8	-58.4	4.6	24 30.4	-58.4	4.7	26 30.0	-58.4	4.8	28 29.6	-58.4	4.9
70	19 32.7	-58.5	4.3	21 32.4	-58.5	4.4	23 32.0	-58.5	4.4	25 31.6	-58.4	4.5	27 31.2	-58.3	4.6
71	18 34.2	-58.6	4.1	20 33.9	-58.6	4.1	22 33.5	-58.4	4.2	24 33.2	-58.4	4.3	26 32.9	-58.4	4.3
72	17 35.6	-58.5	3.9	19 35.3	-58.5	3.9	21 35.1	-58.5	4.0	23 34.8	-58.5	4.0	25 34.5	-58.5	4.1
73	16 37.1	-58.6	3.6	18 36.8	-58.5	3.7	20 36.6	-58.6	3.7	22 36.3	-58.5	3.8	24 36.0	-58.4	3.8
74	15 38.5	-58.6	3.4	17 38.3	-58.6	3.4	19 38.0	-58.5	3.5	21 37.8	-58.5	3.5	23 37.6	-58.5	3.6
75	14 39.9	-58.6	3.2	16 39.7	-58.6	3.2	18 39.5	-58.5	3.3	20 39.3	-58.5	3.3	22 39.1	-58.5	3.3
76	13 41.3	-58.6	3.0	15 41.1	-58.6	3.0	17 41.0	-58.6	3.0	19 40.8	-58.6	3.1	21 40.6	-58.5	3.1
77	12 42.7	-58.7	2.7	14 42.5	-58.6	2.8	16 42.4	-58.6	2.8	18 42.2	-58.5	2.8	20 42.1	-58.5	2.9
78	11 44.0	-58.6	2.5	13 43.9	-58.6	2.6	15 43.8	-58.6	2.6	17 43.7	-58.6	2.6	19 43.6	-58.6	2.6
79	10 45.4	-58.6	2.3	12 45.3	-58.6	2.3	14 45.2	-58.6	2.4	16 45.1	-58.6	2.4	18 45.0	-58.6	2.4
80	9 46.8	-58.7	2.1	11 46.7	-58.7	2.1	13 46.6	-58.6	2.1	15 46.5	-58.6	2.2	17 46.4	-58.6	2.2
81	8 48.1	-58.7	1.9	10 48.0	-58.6	1.9	12 48.0	-58.7	1.9	14 47.9	-58.6	1.9	16 47.8	-58.6	1.9
82	7 49.4	-58.6	1.7	9 49.4	-58.7	1.7	11 49.3	-58.6	1.7	13 49.3	-58.6	1.7	15 49.2	-58.6	1.7
83	6 50.8	-58.7	1.5	8 50.7	-58.6	1.5	10 50.7	-58.7	1.5	12 50.7	-58.7	1.5	14 50.6	-58.6	1.5
84	5 52.1	-58.7	1.3	7 52.1	-58.7	1.3	9 52.0	-58.6	1.3	11 52.0	-58.6	1.3	13 52.0	-58.7	1.3
85	4 53.4	-58.7	1.0	6 53.4	-58.7	1.0	8 53.4	-58.7	1.1	10 53.4	-58.7	1.1	12 53.3	-58.6	1.1
86	3 54.7	-58.6	0.8	5 54.7	-58.6	0.8	7 54.7	-58.7	0.8	9 54.7	-58.7	0.8	11 54.7	-58.7	0.8
87	2 56.1	-58.7	0.6	4 56.1	-58.7	0.6	6 56.0	-58.6	0.6	8 56.0	-58.6	0.6	10 56.0	-58.6	0.6
88	1 57.4	-58.7	0.4	3 57.4	-58.7	0.4	5 57.4	-58.7	0.4	7 57.4	-58.7	0.4	9 57.4	-58.7	0.4
89	0 58.7	-58.7	0.2	2 58.7	-58.7	0.2	4 58.7	-58.7	0.2	6 58.7	-58.7	0.2	8 58.7	-58.7	0.2
90	0 00.0	-58.7	0.0	2 00.0	-58.7	0.0	4 00.0	-58.7	0.0	6 00.0	-58.7	0.0	8 00.0	-58.7	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 12°, 348°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
57	53.9	-55.4 160.2	56	00.6	-55.8 161.2	54	06.7	-56.2 162.1	52	12.2	-56.5 162.9	50	17.3	-56.9 163.6	30
56	58.5	-55.6 160.9	55	04.8	-56.0 161.9	53	10.5	-56.4 162.7	51	15.7	-56.7 163.5	49	20.4	-56.9 164.1	31
56	02.9	-55.7 161.6	54	08.8	-56.2 162.5	52	14.1	-56.5 163.3	50	19.0	-56.9 164.0	48	23.5	-57.1 164.6	32
55	07.2	-56.0 162.2	53	12.6	-56.4 163.1	51	17.6	-56.7 163.8	49	22.1	-56.9 164.5	47	26.4	-57.2 165.1	33
54	11.2	-56.2 162.9	52	16.2	-56.5 163.6	50	20.9	-56.8 164.3	48	25.2	-57.1 164.9	46	29.2	-57.4 165.5	34
53	15.0	-56.4 163.5	51	19.7	-56.6 164.2	49	24.1	-56.9 164.8	47	28.1	-57.2 165.4	45	31.8	-57.3 165.9	35
52	18.6	-56.5 164.0	50	23.1	-56.8 164.7	48	27.2	-57.1 165.3	46	30.9	-57.2 165.9	44	34.5	-57.5 166.3	36
51	22.1	-56.6 164.6	49	26.3	-56.9 165.2	47	30.1	-57.1 165.8	45	33.7	-57.4 166.3	43	37.0	-57.6 166.7	37
50	25.5	-56.8 165.1	48	29.4	-57.1 165.7	46	33.0	-57.3 166.2	44	36.3	-57.5 166.7	42	39.4	-57.6 167.1	38
49	28.7	-56.9 165.6	47	32.3	-57.1 166.2	45	35.7	-57.3 166.6	43	38.8	-57.5 167.1	41	41.8	-57.7 167.5	39
48	31.8	-57.0 166.1	46	35.2	-57.2 166.6	44	38.4	-57.5 167.1	42	41.3	-57.6 167.5	40	44.1	-57.8 167.9	40
47	34.8	-57.1 166.5	45	38.0	-57.4 167.0	43	40.9	-57.5 167.5	41	43.7	-57.7 167.9	39	46.3	-57.8 168.2	41
46	37.7	-57.3 167.0	44	40.6	-57.4 167.5	42	43.4	-57.6 167.9	40	46.0	-57.8 168.2	38	48.5	-57.9 168.6	42
45	40.4	-57.3 167.4	43	43.2	-57.5 167.9	41	45.8	-57.7 168.2	39	48.2	-57.8 168.6	37	50.6	-58.0 168.9	43
44	43.1	-57.4 167.8	42	45.7	-57.6 168.2	40	48.1	-57.7 168.6	38	50.4	-57.8 168.9	36	52.6	-58.0 169.2	44
43	45.7	-57.5 168.3	41	48.1	-57.7 168.6	39	50.4	-57.8 169.0	37	52.6	-57.8 169.3	35	54.6	-58.1 169.5	45
42	48.2	-57.6 168.6	40	50.4	-57.7 169.0	38	52.6	-57.9 169.3	36	54.6	-58.0 169.6	34	56.5	-58.1 169.9	46
41	50.6	-57.7 169.0	39	52.7	-57.8 169.4	37	54.7	-57.9 169.6	35	56.6	-58.0 169.9	33	58.4	-58.1 170.2	47
40	52.9	-57.7 169.4	38	54.9	-57.8 169.7	36	56.8	-58.0 170.0	34	58.6	-58.1 170.2	33	00.3	-58.2 170.5	48
39	55.2	-57.8 169.8	37	57.1	-57.9 170.0	35	58.8	-58.0 170.3	34	00.5	-58.1 170.5	32	02.1	-58.2 170.7	49
38	57.4	-57.8 170.1	36	59.2	-58.0 170.4	35	00.8	-58.0 170.6	33	02.4	-58.2 170.8	31	03.9	-58.3 171.0	50
37	59.6	-57.9 170.4	36	01.2	-58.0 170.7	34	02.8	-58.2 170.9	32	04.2	-58.2 171.1	30	05.6	-58.3 171.3	51
37	01.7	-58.0 170.8	35	03.2	-58.1 171.0	33	04.6	-58.1 171.2	31	06.0	-58.2 171.4	29	07.3	-58.3 171.6	52
36	03.7	-58.0 171.1	34	05.1	-58.1 171.3	32	06.5	-58.2 171.5	30	07.8	-58.3 171.7	28	09.0	-58.3 171.8	53
35	05.7	-58.0 171.4	33	07.0	-58.1 171.6	31	08.3	-58.2 171.8	29	09.5	-58.3 172.0	27	10.7	-58.4 172.1	54
34	07.7	-58.1 171.7	32	08.9	-58.2 171.9	30	10.1	-58.3 172.1	28	11.2	-58.3 172.2	26	12.3	-58.4 172.2	55
33	09.6	-58.2 172.0	31	10.7	-58.2 172.2	29	11.8	-58.3 172.3	27	12.9	-58.4 172.5	25	13.9	-58.5 172.6	56
32	11.4	-58.1 172.3	30	12.5	-58.3 172.5	28	13.5	-58.3 172.6	26	14.5	-58.4 172.7	24	15.4	-58.4 172.9	57
31	13.3	-58.3 172.6	29	14.2	-58.3 172.7	27	15.2	-58.4 172.9	25	16.1	-58.4 173.0	23	17.0	-58.5 173.1	58
30	15.0	-58.2 172.9	28	15.9	-58.3 173.0	26	16.8	-58.4 173.1	24	17.7	-58.5 173.3	22	18.5	-58.5 173.4	59
29	16.8	-58.3 173.2	27	17.6	-58.3 173.3	25	18.4	-58.4 173.4	23	19.2	-58.5 173.5	21	20.0	-58.5 173.6	60
28	18.5	-58.3 173.4	26	19.3	-58.4 173.5	24	20.0	-58.4 173.6	22	20.7	-58.4 173.7	20	21.5	-58.6 173.8	61
27	20.2	-58.4 173.7	25	20.9	-58.4 173.8	23	21.6	-58.5 173.9	21	22.3	-58.6 174.0	19	22.9	-58.6 174.1	62
26	21.8	-58.3 174.0	24	22.5	-58.4 174.1	22	23.1	-58.5 174.1	20	23.7	-58.5 174.2	18	24.3	-58.5 174.3	63
25	23.5	-58.4 174.2	23	24.1	-58.5 174.3	21	24.6	-58.5 174.4	19	25.2	-58.5 174.5	17	25.8	-58.6 174.5	64
24	25.1	-58.5 174.5	22	25.6	-58.5 174.5	20	26.1	-58.5 174.6	18	26.7	-58.5 174.7	16	27.2	-58.6 174.7	65
23	26.6	-58.4 174.7	21	27.1	-58.5 174.8	19	27.6	-58.5 174.9	17	28.1	-58.6 174.9	15	28.6	-58.7 175.0	66
22	28.2	-58.5 175.0	20	28.6	-58.5 175.0	18	29.1	-58.6 175.1	16	29.5	-58.6 175.1	14	29.9	-58.6 175.2	67
21	29.7	-58.5 175.2	19	30.1	-58.5 175.3	17	30.5	-58.5 175.3	15	30.9	-58.6 175.4	13	31.3	-58.6 175.4	68
20	31.2	-58.5 175.4	18	31.6	-58.6 175.5	16	32.0	-58.6 175.5	14	32.3	-58.6 175.6	12	32.7	-58.7 175.6	69
19	32.7	-58.5 175.7	17	33.0	-58.5 175.7	15	33.4	-58.6 175.8	13	33.7	-58.6 175.8	11	34.0	-58.7 175.8	70
18	34.2	-58.6 175.9	16	34.5	-58.6 176.0	14	34.8	-58.6 176.0	12	35.1	-58.7 176.0	10	35.3	-58.6 176.1	71
17	35.6	-58.5 176.1	15	35.9	-58.6 176.2	13	36.2	-58.7 176.2	11	36.4	-58.6 176.2	9	36.7	-58.7 176.3	72
16	37.1	-58.6 176.4	14	37.3	-58.6 176.4	12	37.5	-58.6 176.4	10	37.8	-58.7 176.5	8	38.0	-58.7 176.5	73
15	38.5	-58.6 176.6	13	38.7	-58.6 176.6	11	38.9	-58.6 176.6	9	39.1	-58.7 176.7	7	39.3	-58.7 176.7	74
14	39.9	-58.6 176.8	12	40.1	-58.7 176.8	10	40.3	-58.7 176.9	8	40.4	-58.6 176.9	6	40.6	-58.7 176.9	75
13	41.3	-58.6 177.0	11	41.4	-58.6 177.1	9	41.6	-58.7 177.1	7	41.8	-58.7 177.1	5	41.9	-58.7 177.1	76
12	42.7	-58.7 177.3	10	42.8	-58.6 177.3	8	42.9	-58.6 177.3	6	43.1	-58.7 177.3	4	43.2	-58.7 177.3	77
11	44.0	-58.6 177.5	9	44.2	-58.7 177.5	7	44.3	-58.7 177.5	5	44.4	-58.7 177.5	3	44.5	-58.7 177.5	78
10	45.4	-58.6 177.7	8	45.5	-58.7 177.7	6	45.6	-58.7 177.7	4	45.7	-58.7 177.7	2	45.8	-58.7 177.7	79
9	46.8	-58.7 177.9	7	46.8	-58.6 177.9	5	46.9	-58.7 177.9	3	47.0	-58.7 177.9	1	47.1	-58.7 177.9	80
8	48.1	-58.7 178.1	6	48.2	-58.7 178.1	4	48.2	-58.7 178.1	2	48.3	-58.7 178.1	0	48.4	-58.8 178.1	81
7	49.4	-58.6 178.3	5	49.5	-58.7 178.3	3	49.5	-58.6 178.3	1	49.6	-58.7 178.3	0	10.4	+58.7 1.7	82
6	50.8	-58.7 178.5	4	50.8	-58.7 178.5	2	50.9	-58.7 178.5	0	50.9	-58.7 178.5	0	09.1	+58.7 1.5	83
5	52.1	-58.7 178.7	3	52.1	-58.7 178.8	1	52.2	-58.7 178.8	0	07.8	+58.7 1.2	0	07.8	+58.7 1.2	84
4	53.4	-58.7 179.0	2	53.4	-58.6 179.0	0	53.5	-58.7 179.0	1	06.5	+58.7 1.0	3	06.5	+58.7 1.0	85
3	54.7	-58.6 179.2	1	54.8	-58.7 179.2	0	05.2	+58.7 0.8	2	05.2	+58.7 0.8	4	05.2	+58.7 0.8	86
2	56.1	-58.7 179.4	0	56.1	-58.7 179.4	1	03.9	+58.7 0.6	3	03.9	+58.7 0.6	5	03.9	+58.7 0.6	87
1	57.4	-58.7 179.6	0	02.6	+58.7 0.4	2	02.6	+58.7 0.4	4	02.6	+58.7 0.4	6	02.6	+58.7 0.4	88
0	58.7	-58.7 179.8	1	01.3	+58.7 0.2	3	01.3	+58.7 0.2	5	01.3	+58.7 0.2	7	01.3	+58.7 0.2	89
0	00.0	+58.7 0.0	2	00.0	+58.7 0.0	4	00.0	+58.7 0.0	6	00.0	+58.7 0.0	8	00.0	+58.7 0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 168°, 192°

12°, 348° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	67 04.9	-51.4	27.5	68 50.1	-50.0	29.9	70 32.7	-48.3	32.7	72 11.7	-46.1	36.1	73 46.2	-43.2	40.1
31	66 13.5	-52.0	26.2	68 00.1	-50.7	28.4	69 44.4	-49.2	31.0	71 25.6	-47.3	34.0	73 03.0	-44.9	37.7
32	65 21.5	-52.5	25.0	67 09.4	-51.5	27.0	68 55.2	-50.1	29.4	70 38.3	-48.4	32.1	72 18.1	-46.2	35.4
33	64 29.0	-53.1	23.9	66 17.9	-52.0	25.7	68 05.1	-50.9	27.9	69 49.9	-49.3	30.4	71 31.9	-47.5	33.4
34	63 35.9	-53.4	22.8	65 25.9	-52.6	24.5	67 14.2	-51.5	26.5	69 00.6	-50.2	28.8	70 44.4	-48.5	31.5
35	62 42.5	-53.9	21.8	64 33.3	-53.1	23.4	66 22.7	-52.1	25.2	68 10.4	-51.0	27.3	69 55.9	-49.5	29.8
36	61 48.6	-54.3	20.9	63 40.2	-53.5	22.3	65 30.6	-52.7	23.9	67 19.4	-51.6	25.9	69 06.4	-50.4	28.1
37	60 54.3	-54.5	20.0	62 46.7	-54.0	21.3	64 37.9	-53.2	22.8	66 27.8	-52.2	24.6	68 16.0	-51.1	26.6
38	59 59.8	-54.9	19.1	61 52.7	-54.3	20.3	63 44.7	-53.6	21.7	65 35.6	-52.8	23.4	67 24.9	-51.7	25.3
39	59 04.9	-55.2	18.3	60 58.4	-54.6	19.5	62 51.1	-54.0	20.7	64 42.8	-53.3	22.2	66 33.2	-52.4	24.0
40	58 09.7	-55.4	17.6	60 03.8	-55.0	18.6	61 57.1	-54.4	19.8	63 49.5	-53.7	21.2	65 40.8	-52.9	22.8
41	57 14.3	-55.7	16.9	59 08.8	-55.2	17.8	61 02.7	-54.7	18.9	62 55.8	-54.1	20.2	64 47.9	-53.3	21.6
42	56 18.6	-55.8	16.2	58 13.6	-55.4	17.1	60 08.0	-55.0	18.1	62 01.7	-54.4	19.2	63 54.6	-53.8	20.6
43	55 22.8	-56.1	15.5	57 18.2	-55.7	16.3	59 13.0	-55.2	17.3	61 07.3	-54.8	18.4	63 00.8	-54.2	19.6
44	54 26.7	-56.2	14.9	56 22.5	-56.0	15.7	58 17.8	-55.6	16.5	60 12.5	-55.1	17.5	62 06.6	-54.6	18.6
45	53 30.5	-56.5	14.3	55 26.5	-56.1	15.0	57 22.2	-55.7	15.8	59 17.4	-55.3	16.7	61 12.0	-54.8	17.8
46	52 34.0	-56.5	13.7	54 30.4	-56.2	14.4	56 26.5	-56.0	15.1	58 22.1	-55.6	16.0	60 17.2	-55.2	16.9
47	51 37.5	-56.7	13.2	53 34.2	-56.5	13.8	55 30.5	-56.1	14.5	57 26.5	-55.8	15.3	59 22.0	-55.4	16.2
48	50 40.8	-56.9	12.7	52 37.7	-56.6	13.2	54 34.4	-56.4	13.9	56 30.7	-56.1	14.6	58 26.6	-55.7	15.4
49	49 43.9	-57.0	12.2	51 41.1	-56.8	12.7	53 38.0	-56.5	13.3	55 34.6	-56.2	14.0	57 30.9	-55.9	14.7
50	48 46.9	-57.0	11.7	50 44.3	-56.8	12.2	52 41.5	-56.6	12.7	54 38.4	-56.4	13.4	56 35.0	-56.1	14.0
51	47 49.9	-57.2	11.2	49 47.5	-57.0	11.7	51 44.9	-56.8	12.2	53 42.0	-56.5	12.8	55 38.9	-56.3	13.4
52	46 52.7	-57.3	10.8	48 50.5	-57.2	11.2	50 48.1	-57.0	11.7	52 45.5	-56.7	12.2	54 42.6	-56.4	12.8
53	45 55.4	-57.4	10.4	47 53.3	-57.2	10.8	49 51.1	-57.0	11.2	51 48.8	-56.9	11.7	53 46.2	-56.7	12.2
54	44 58.0	-57.5	9.9	46 56.1	-57.3	10.3	48 54.1	-57.2	10.7	50 51.9	-57.0	11.2	52 49.5	-56.7	11.7
55	44 00.5	-57.6	9.5	45 58.8	-57.4	9.9	47 56.9	-57.2	10.3	49 54.9	-57.1	10.7	51 52.8	-56.9	11.1
56	43 02.9	-57.6	9.2	45 01.4	-57.5	9.5	46 59.7	-57.4	9.8	48 57.8	-57.2	10.2	50 55.9	-57.1	10.6
57	42 05.3	-57.7	8.8	44 03.9	-57.6	9.1	46 02.3	-57.4	9.4	48 00.6	-57.3	9.7	49 58.8	-57.1	10.1
58	41 07.6	-57.8	8.4	43 06.3	-57.7	8.7	45 04.9	-57.6	9.0	47 03.3	-57.4	9.3	49 01.7	-57.3	9.7
59	40 09.8	-57.8	8.1	42 08.6	-57.7	8.3	44 07.3	-57.6	8.6	46 05.9	-57.5	8.9	48 04.4	-57.3	9.2
60	39 12.0	-57.9	7.7	41 10.9	-57.8	7.9	43 09.7	-57.7	8.2	45 08.4	-57.6	8.5	47 07.1	-57.5	8.8
61	38 14.1	-58.0	7.4	40 13.1	-57.9	7.6	42 12.0	-57.8	7.8	44 10.8	-57.6	8.1	46 09.6	-57.5	8.4
62	37 16.1	-58.0	7.0	39 15.2	-57.9	7.2	41 14.2	-57.8	7.5	43 13.2	-57.8	7.7	45 12.1	-57.7	8.0
63	36 18.1	-58.0	6.7	38 17.3	-58.0	6.9	40 16.4	-57.9	7.1	42 15.4	-57.8	7.3	44 14.4	-57.7	7.6
64	35 20.1	-58.1	6.4	37 19.3	-58.0	6.6	39 18.5	-58.0	6.8	41 17.6	-57.8	7.0	43 16.7	-57.8	7.2
65	34 22.0	-58.2	6.1	36 21.3	-58.1	6.3	38 20.5	-58.0	6.4	40 19.8	-58.0	6.6	42 18.9	-57.8	6.8
66	33 23.8	-58.2	5.8	35 23.2	-58.1	6.0	37 22.5	-58.0	6.1	39 21.8	-58.0	6.3	41 21.1	-57.9	6.5
67	32 25.6	-58.2	5.5	34 25.1	-58.2	5.7	36 24.5	-58.1	5.8	38 23.8	-58.0	5.9	40 23.2	-58.0	6.1
68	31 27.4	-58.2	5.2	33 26.9	-58.2	5.4	35 26.4	-58.2	5.5	37 25.8	-58.1	5.6	39 25.2	-58.0	5.8
69	30 29.2	-58.3	5.0	32 28.7	-58.3	5.1	34 28.2	-58.2	5.2	36 27.7	-58.1	5.3	38 27.2	-58.1	5.5
70	29 30.9	-58.4	4.7	31 30.4	-58.2	4.8	33 30.0	-58.2	4.9	35 29.6	-58.2	5.0	37 29.1	-58.1	5.1
71	28 32.5	-58.3	4.4	30 32.2	-58.4	4.5	32 31.8	-58.3	4.6	34 31.4	-58.2	4.7	36 31.0	-58.2	4.8
72	27 34.2	-58.4	4.2	29 33.8	-58.3	4.2	31 33.5	-58.3	4.3	33 33.2	-58.3	4.4	35 32.8	-58.2	4.5
73	26 35.8	-58.5	3.9	28 35.5	-58.4	4.0	30 35.2	-58.4	4.0	32 34.9	-58.3	4.1	34 34.6	-58.3	4.2
74	25 37.3	-58.4	3.6	27 37.1	-58.4	3.7	29 36.8	-58.3	3.8	31 36.6	-58.4	3.9	33 36.3	-58.3	3.9
75	24 38.9	-58.5	3.4	26 38.7	-58.5	3.5	28 38.5	-58.4	3.5	30 38.2	-58.3	3.6	32 38.0	-58.3	3.7
76	23 40.4	-58.5	3.1	25 40.2	-58.4	3.2	27 40.1	-58.5	3.3	29 39.9	-58.4	3.3	31 39.7	-58.4	3.4
77	22 41.9	-58.5	2.9	24 41.8	-58.5	3.0	26 41.6	-58.4	3.0	28 41.5	-58.5	3.1	30 41.3	-58.4	3.1
78	21 43.4	-58.5	2.7	23 43.3	-58.5	2.7	25 43.2	-58.5	2.8	27 43.0	-58.4	2.8	29 42.9	-58.5	2.9
79	20 44.9	-58.6	2.4	22 44.8	-58.6	2.5	24 44.7	-58.5	2.5	26 44.6	-58.5	2.5	28 44.4	-58.4	2.6
80	19 46.3	-58.5	2.2	21 46.2	-58.5	2.2	23 46.2	-58.6	2.3	25 46.1	-58.6	2.3	27 46.0	-58.5	2.3
81	18 47.8	-58.6	2.0	20 47.7	-58.6	2.0	22 47.6	-58.5	2.0	24 47.5	-58.5	2.1	26 47.5	-58.6	2.1
82	17 49.2	-58.6	1.7	19 49.1	-58.6	1.8	21 49.1	-58.6	1.8	23 49.0	-58.6	1.8	25 48.9	-58.5	1.8
83	16 50.6	-58.6	1.5	18 50.5	-58.6	1.5	20 50.5	-58.6	1.6	22 50.4	-58.5	1.6	24 50.4	-58.6	1.6
84	15 52.0	-58.7	1.3	17 51.9	-58.6	1.3	19 51.9	-58.6	1.3	21 51.9	-58.6	1.3	23 51.8	-58.6	1.4
85	14 53.3	-58.6	1.1	16 53.3	-58.6	1.1	18 53.3	-58.6	1.1	20 53.3	-58.7	1.1	22 53.2	-58.6	1.1
86	13 54.7	-58.7	0.9	15 54.7	-58.7	0.9	17 54.7	-58.7	0.9	19 54.6	-58.6	0.9	21 54.6	-58.6	0.9
87	12 56.0	-58.6	0.6	14 56.0	-58.6	0.6	16 56.0	-58.6	0.7	18 56.0	-58.6	0.7	20 56.0	-58.7	0.7
88	11 57.4	-58.7	0.4	13 57.4	-58.7	0.4	15 57.4	-58.7	0.4	17 57.4	-58.7	0.4	19 57.3	-58.6	0.4
89	10 58.7	-58.7	0.2	12 58.7	-58.7	0.2	14 58.7	-58.7	0.2	16 58.7	-58.7	0.2	18 58.7	-58.7	0.2
90	10 00.0	-58.7	0.0	12 00.0	-58.7	0.0	14 00.0	-58.7	0.0	16 00.0	-58.7	0.0	18 00.0	-58.7	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 12°, 348°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
48	22.0	-57.2 164.3	46	26.3	-57.4 164.9	44	30.3	-57.6 165.4	42	34.1	-57.8 165.8	40	37.6	-57.9 166.3	30
47	24.8	-57.2 164.7	45	28.9	-57.4 165.3	43	32.7	-57.6 165.8	41	36.3	-57.8 166.2	39	39.7	-58.1 166.6	31
46	27.6	-57.3 165.2	44	31.5	-57.6 165.7	42	35.1	-57.8 166.1	40	38.5	-58.0 166.6	38	41.6	-58.0 166.9	32
45	30.3	-57.5 165.6	43	33.9	-57.6 166.1	41	37.3	-57.8 166.5	39	40.5	-57.9 166.9	37	43.6	-58.1 167.3	33
44	32.8	-57.5 166.0	42	36.3	-57.7 166.5	40	39.5	-57.8 166.9	38	42.6	-58.1 167.2	36	45.5	-58.2 167.6	34
43	35.3	-57.6 166.4	41	38.6	-57.8 166.8	39	41.7	-58.0 167.2	37	44.5	-58.0 167.6	35	47.3	-58.2 167.9	35
42	37.7	-57.6 166.8	40	40.8	-57.8 167.2	38	43.7	-58.0 167.5	36	46.5	-58.2 167.9	34	49.1	-58.3 168.2	36
41	40.1	-57.8 167.2	39	43.0	-57.9 167.5	37	45.7	-58.0 167.9	35	48.3	-58.1 168.2	33	50.8	-58.3 168.5	37
40	42.3	-57.8 167.5	38	45.1	-58.0 167.9	36	47.7	-58.1 168.2	34	50.2	-58.2 168.5	32	52.5	-58.3 168.8	38
39	44.5	-57.8 167.9	37	47.1	-58.0 168.2	35	49.6	-58.1 168.5	33	52.0	-58.3 168.8	31	54.2	-58.4 169.0	39
38	46.7	-58.0 168.2	36	49.1	-58.0 168.5	34	51.5	-58.2 168.8	32	53.7	-58.3 169.1	30	55.8	-58.4 169.3	40
37	48.7	-57.9 168.5	35	51.1	-58.1 168.8	33	53.3	-58.2 169.1	31	55.4	-58.3 169.3	29	57.4	-58.4 169.6	41
36	50.8	-58.1 168.9	34	53.0	-58.2 169.1	32	55.1	-58.3 169.4	30	57.1	-58.4 169.6	28	59.0	-58.5 169.8	42
35	52.7	-58.0 169.2	33	54.8	-58.2 169.4	31	56.8	-58.3 169.7	29	58.7	-58.4 169.9	28	00.5	-58.5 170.1	43
34	54.7	-58.2 169.5	32	56.6	-58.2 169.7	30	58.5	-58.3 170.0	29	00.3	-58.4 170.2	27	02.0	-58.5 170.3	44
33	56.5	-58.1 169.8	31	58.4	-58.3 170.0	30	00.2	-58.4 170.2	28	01.9	-58.4 170.2	26	03.5	-58.5 170.6	45
32	58.4	-58.2 170.1	31	00.1	-58.3 170.3	29	01.8	-58.4 170.5	27	03.4	-58.5 170.7	25	05.0	-58.6 170.8	46
32	00.2	-58.3 170.4	30	01.8	-58.3 170.6	28	03.4	-58.4 170.8	26	04.9	-58.5 170.9	24	06.4	-58.6 171.1	47
31	01.9	-58.2 170.7	29	03.5	-58.4 170.8	27	05.0	-58.5 171.0	25	06.4	-58.5 171.2	23	07.8	-58.6 171.3	48
30	03.7	-58.4 170.9	28	05.1	-58.4 171.1	26	06.5	-58.4 171.3	24	07.9	-58.5 171.4	22	09.2	-58.6 171.5	49
29	05.3	-58.3 171.2	27	06.7	-58.4 171.4	25	08.1	-58.5 171.5	23	09.4	-58.5 171.6	21	10.6	-58.6 171.8	50
28	07.0	-58.4 171.5	26	08.3	-58.5 171.6	24	09.6	-58.6 171.8	22	10.8	-58.6 171.9	20	12.0	-58.7 172.0	51
27	08.6	-58.4 171.7	25	09.8	-58.4 171.9	23	11.0	-58.5 172.0	21	12.2	-58.6 172.1	19	13.3	-58.7 172.2	52
26	10.2	-58.4 172.0	24	11.4	-58.5 172.1	22	12.5	-58.6 172.2	20	13.6	-58.7 172.3	18	14.6	-58.7 172.4	53
25	11.8	-58.5 172.2	23	12.9	-58.6 172.4	21	13.9	-58.6 172.5	19	14.9	-58.6 172.6	17	15.9	-58.7 172.6	54
24	13.3	-58.5 172.5	22	14.3	-58.5 172.6	20	15.3	-58.6 172.7	18	16.3	-58.7 172.8	16	17.2	-58.7 172.9	55
23	14.8	-58.5 172.7	21	15.8	-58.6 172.8	19	16.7	-58.6 172.9	17	17.6	-58.7 173.0	15	18.5	-58.7 173.1	56
22	16.3	-58.5 173.0	20	17.2	-58.5 173.1	18	18.1	-58.6 173.2	16	18.9	-58.6 173.2	14	19.8	-58.8 173.3	57
21	17.8	-58.5 173.2	19	18.7	-58.6 173.3	17	19.5	-58.7 173.4	15	20.3	-58.7 173.4	13	21.0	-58.7 173.5	58
20	19.3	-58.6 173.4	18	20.1	-58.7 173.5	16	20.8	-58.7 173.6	14	21.6	-58.8 173.7	12	22.3	-58.8 173.7	59
19	20.7	-58.6 173.7	17	21.4	-58.6 173.7	15	22.1	-58.6 173.8	13	22.8	-58.7 173.9	11	23.5	-58.8 173.9	60
18	22.1	-58.6 173.9	16	22.8	-58.6 174.0	14	23.5	-58.7 174.0	12	24.1	-58.7 174.1	10	24.7	-58.7 174.1	61
17	23.5	-58.6 174.1	15	24.2	-58.7 174.2	13	24.8	-58.7 174.2	11	25.4	-58.8 174.3	9	26.0	-58.8 174.3	62
16	24.9	-58.6 174.4	14	25.5	-58.7 174.4	12	26.1	-58.7 174.5	10	26.6	-58.7 174.5	8	27.2	-58.8 174.5	63
15	26.3	-58.6 174.6	13	26.8	-58.6 174.6	11	27.4	-58.8 174.7	9	27.9	-58.8 174.7	7	28.4	-58.8 174.7	64
14	27.7	-58.7 174.8	12	28.2	-58.7 174.8	10	28.6	-58.7 174.9	8	29.1	-58.7 174.9	6	29.6	-58.8 174.9	65
13	29.0	-58.6 175.0	11	29.5	-58.7 175.0	9	29.9	-58.7 175.1	7	30.4	-58.8 175.1	5	30.8	-58.8 175.1	66
12	30.4	-58.7 175.2	10	30.8	-58.7 175.3	8	31.2	-58.8 175.3	6	31.6	-58.8 175.3	4	32.0	-58.8 175.3	67
11	31.7	-58.7 175.4	9	32.1	-58.7 175.5	7	32.4	-58.7 175.5	5	32.8	-58.8 175.5	3	33.2	-58.8 175.5	68
10	33.0	-58.7 175.7	8	33.4	-58.8 175.7	6	33.7	-58.8 175.7	4	34.0	-58.8 175.7	2	34.4	-58.8 175.7	69
9	34.3	-58.7 175.9	7	34.6	-58.7 175.9	5	34.9	-58.7 175.9	3	35.2	-58.7 175.9	1	35.6	-58.9 175.9	70
8	35.6	-58.7 176.1	6	35.9	-58.7 176.1	4	36.2	-58.8 176.1	2	36.5	-58.8 176.1	0	36.7	-58.8 176.1	71
7	36.9	-58.7 176.3	5	37.2	-58.8 176.3	3	37.4	-58.7 176.3	1	37.7	-58.8 176.3	0	22.1	+58.8 3.7	72
6	38.2	-58.7 176.5	4	38.4	-58.7 176.5	2	38.7	-58.8 176.5	0	38.9	-58.8 176.5	0	20.9	+58.8 3.5	73
5	39.5	-58.7 176.7	3	39.7	-58.7 176.7	1	39.9	-58.8 176.7	0	41.1	-58.7 176.9	0	19.7	+58.8 3.3	74
4	40.8	-58.7 176.9	2	41.0	-58.8 176.9	0	41.1	-58.7 176.9	0	19.9	+58.8 3.3	0	18.7	+58.8 3.1	75
3	42.1	-58.8 177.1	1	42.2	-58.7 177.1	0	17.6	+58.8 2.9	2	17.5	+58.8 2.9	4	17.3	+58.8 2.9	76
2	43.3	-58.7 177.3	0	43.5	-58.8 177.3	0	15.3	+58.7 2.5	1	16.4	+58.8 2.7	3	16.3	+58.8 2.7	77
1	44.6	-58.7 177.5	0	14.0	+58.8 2.3	2	15.2	+58.7 2.5	2	15.2	+58.7 2.5	4	15.1	+58.7 2.5	78
0	45.9	-58.7 177.7	1	12.8	+58.7 2.1	3	13.9	+58.8 2.3	5	13.8	+58.8 2.3	6	14.9	+58.8 2.5	79
0	12.8	+58.8 2.1	2	11.5	+58.8 1.9	4	12.7	+58.7 2.1	6	12.6	+58.8 2.1	8	12.5	+58.8 2.1	80
1	11.6	+58.7 1.9	3	10.3	+58.7 1.7	5	11.4	+58.8 1.9	7	11.4	+58.8 1.9	9	11.3	+58.8 1.9	81
2	10.3	+58.7 1.7	4	9.0	+58.7 1.5	6	10.2	+58.8 1.7	8	10.2	+58.7 1.7	10	10.1	+58.8 1.7	82
3	09.0	+58.8 1.5	5	07.7	+58.8 1.3	7	09.0	+58.7 1.5	9	08.9	+58.8 1.5	11	08.9	+58.7 1.5	83
4	07.8	+58.7 1.2	6	06.5	+58.7 1.0	8	07.7	+58.7 1.3	10	07.7	+58.7 1.3	12	07.6	+58.8 1.3	84
5	06.5	+58.7 1.0	7	05.2	+58.7 0.8	9	06.4	+58.8 1.1	11	06.4	+58.8 1.1	13	06.4	+58.7 1.1	85
6	05.2	+58.7 0.8	8	03.9	+58.7 0.6	10	05.2	+58.7 0.8	12	05.2	+58.7 0.8	14	05.1	+58.8 0.9	86
7	03.9	+58.7 0.6	9	02.6	+58.7 0.4	11	03.9	+58.7 0.6	13	03.9	+58.7 0.6	15	03.9	+58.7 0.6	87
8	02.6	+58.7 0.4	10	01.3	+58.7 0.2	12	02.6	+58.7 0.4	14	02.6	+58.7 0.4	16	02.6	+58.7 0.4	88
9	01.3	+58.7 0.2	11	00.0	+58.7 0.0	13	01.3	+58.7 0.2	15	01.3	+58.7 0.2	17	01.3	+58.7 0.2	89
10	00.0	+58.7 0.0	12	00.0	+58.7 0.0	14	00.0	+58.7 0.0	16	00.0	+58.7 0.0	18	00.0	+58.7 0.0	90
10°			12°			14°			16°			18°			

LATITUDE SAME NAME

L.H.A. 168°, 192°

12°, 348° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	75 14.7	-39.6	45.0	76 35.2	-34.8	50.9	77 45.0	-28.6	58.1	78 40.9	-20.6	66.6	79 19.3	-10.9	76.3
31	74 35.1	-41.7	42.1	76 00.4	-37.5	47.5	77 16.4	-32.0	54.0	78 20.3	-24.9	61.8	79 08.4	-16.0	71.1
32	73 53.4	-43.4	39.5	75 22.9	-39.9	44.3	76 44.4	-35.1	50.2	77 55.4	-28.9	57.4	78 52.4	-20.9	66.0
33	73 10.0	-45.1	37.0	74 43.0	-41.9	41.4	76 09.3	-37.8	46.8	77 26.5	-32.4	53.3	78 31.5	-25.2	61.2
34	72 24.9	-46.4	34.8	74 01.1	-43.7	38.8	75 31.5	-40.1	43.6	76 54.1	-35.4	49.5	78 06.3	-29.2	56.7
35	71 38.5	-47.6	32.7	73 17.4	-45.3	36.3	74 51.4	-42.2	40.7	76 18.7	-38.1	46.0	77 37.1	-32.7	52.6
36	70 50.9	-48.8	30.8	72 32.1	-46.6	34.1	74 09.2	-43.9	38.0	75 40.6	-40.4	42.8	77 04.4	-35.7	48.8
37	70 02.1	-49.6	29.1	71 45.5	-47.9	32.0	73 25.3	-45.6	35.6	75 00.2	-42.5	39.9	76 28.7	-38.5	45.2
38	69 12.5	-50.5	27.5	70 57.6	-48.9	30.1	72 39.7	-46.9	33.4	74 17.7	-44.2	37.2	75 50.2	-40.8	42.0
39	68 22.0	-51.3	26.0	70 08.7	-49.8	28.4	71 52.8	-48.0	31.3	73 33.5	-45.8	34.8	75 09.4	-42.8	39.1
40	67 30.7	-51.9	24.6	69 18.9	-50.7	26.8	71 04.8	-49.2	29.4	72 47.7	-47.2	32.6	74 26.6	-44.6	36.4
41	66 38.8	-52.4	23.3	68 28.2	-51.4	25.3	70 15.6	-50.0	27.7	72 00.5	-48.3	30.5	73 42.0	-46.1	34.0
42	65 46.4	-53.1	22.1	67 36.8	-52.1	23.9	69 25.6	-50.9	26.1	71 12.2	-49.4	28.7	72 55.9	-47.4	31.8
43	64 53.3	-53.5	21.0	66 44.7	-52.6	22.7	68 34.7	-51.6	24.6	70 22.8	-50.3	26.9	72 08.5	-48.7	29.7
44	63 59.8	-53.9	19.9	65 52.1	-53.2	21.5	67 43.1	-52.2	23.2	69 32.5	-51.1	25.3	71 19.8	-49.6	27.9
45	63 05.9	-54.3	19.0	64 58.9	-53.6	20.3	66 50.9	-52.8	22.0	68 41.4	-51.8	23.9	70 30.2	-50.5	26.1
46	62 11.6	-54.6	18.0	64 05.3	-54.0	19.3	65 58.1	-53.4	20.8	67 49.6	-52.4	22.5	69 39.7	-51.4	24.6
47	61 17.0	-55.0	17.2	63 11.3	-54.5	18.3	65 04.7	-53.7	19.7	66 57.2	-53.0	21.2	68 48.3	-52.0	23.1
48	60 22.0	-55.3	16.3	62 16.8	-54.7	17.4	64 11.0	-54.2	18.6	66 04.2	-53.5	20.1	67 56.3	-52.6	21.7
49	59 26.7	-55.5	15.6	61 22.1	-55.1	16.5	63 16.8	-54.6	17.7	65 10.7	-53.9	19.0	67 03.7	-53.2	20.5
50	58 31.2	-55.7	14.8	60 27.0	-55.4	15.7	62 22.2	-54.9	16.7	64 16.8	-54.4	17.9	66 10.5	-53.7	19.3
51	57 35.5	-56.0	14.1	59 31.6	-55.6	15.0	61 27.3	-55.2	15.9	63 22.4	-54.7	17.0	65 16.8	-54.1	18.2
52	56 39.5	-56.2	13.5	58 36.0	-55.9	14.2	60 32.1	-55.5	15.1	62 27.7	-55.0	16.1	64 22.7	-54.5	17.2
53	55 43.3	-56.4	12.8	57 40.1	-56.0	13.5	59 36.6	-55.7	14.3	61 32.7	-55.4	15.2	63 28.2	-54.9	16.3
54	54 46.9	-56.5	12.2	56 44.1	-56.3	12.9	58 40.9	-56.0	13.6	60 37.3	-55.6	14.4	62 33.3	-55.2	15.4
55	53 50.4	-56.7	11.7	55 47.8	-56.4	12.2	57 44.9	-56.1	12.9	59 41.7	-55.8	13.7	61 38.1	-55.5	14.5
56	52 53.7	-56.8	11.1	54 51.4	-56.7	11.7	56 48.8	-56.4	12.3	58 45.9	-56.1	13.0	60 42.6	-55.7	13.7
57	51 56.9	-57.0	10.6	53 54.7	-56.7	11.1	55 52.4	-56.6	11.6	57 49.8	-56.3	12.3	59 46.9	-56.0	13.0
58	50 59.9	-57.1	10.1	52 58.0	-56.9	10.5	54 55.8	-56.7	11.1	56 53.5	-56.5	11.6	58 50.9	-56.2	12.3
59	50 02.8	-57.2	9.6	52 01.1	-57.1	10.0	53 59.1	-56.8	10.5	55 57.0	-56.6	11.0	57 54.7	-56.4	11.6
60	49 05.6	-57.3	9.1	51 04.0	-57.2	9.5	53 02.3	-57.0	10.0	55 00.4	-56.8	10.4	56 58.3	-56.6	11.0
61	48 08.3	-57.4	8.7	50 06.8	-57.2	9.0	52 05.3	-57.1	9.4	54 03.6	-57.0	9.9	56 01.7	-56.7	10.4
62	47 10.9	-57.6	8.3	49 09.6	-57.4	8.6	51 08.2	-57.3	8.9	53 06.6	-57.0	9.4	55 05.0	-56.9	9.8
63	46 13.3	-57.6	7.8	48 12.2	-57.5	8.1	50 10.9	-57.3	8.5	52 09.6	-57.3	8.9	54 08.1	-57.1	9.3
64	45 15.7	-57.6	7.4	47 14.7	-57.6	7.7	49 13.6	-57.5	8.0	51 12.3	-57.3	8.4	53 11.0	-57.2	8.7
65	44 18.1	-57.8	7.1	46 17.1	-57.6	7.3	48 16.1	-57.5	7.6	50 15.0	-57.4	7.9	52 13.8	-57.3	8.2
66	43 20.3	-57.8	6.7	45 19.5	-57.8	6.9	47 18.6	-57.7	7.2	49 17.6	-57.5	7.5	51 16.5	-57.4	7.8
67	42 22.5	-57.9	6.3	44 21.7	-57.8	6.5	46 20.9	-57.7	6.8	48 20.1	-57.7	7.0	50 19.1	-57.5	7.3
68	41 24.6	-58.0	6.0	43 23.9	-57.9	6.2	45 23.2	-57.8	6.4	47 22.4	-57.7	6.6	49 21.6	-57.6	6.9
69	40 26.6	-58.0	5.6	42 26.0	-57.9	5.8	44 25.4	-57.9	6.0	46 24.7	-57.8	6.2	48 24.0	-57.7	6.4
70	39 28.6	-58.1	5.3	41 28.1	-58.0	5.4	43 27.5	-57.9	5.6	45 26.9	-57.8	5.8	47 26.3	-57.8	6.0
71	38 30.5	-58.1	5.0	40 30.1	-58.1	5.1	42 29.6	-58.0	5.3	44 29.1	-58.0	5.4	46 28.5	-57.9	5.6
72	37 32.4	-58.2	4.6	39 32.0	-58.1	4.8	41 31.6	-58.1	4.9	43 31.1	-58.0	5.1	45 30.6	-57.9	5.3
73	36 34.2	-58.2	4.3	38 33.9	-58.2	4.5	40 33.5	-58.1	4.6	42 33.1	-58.1	4.7	44 32.7	-58.0	4.9
74	35 36.0	-58.3	4.0	37 35.7	-58.2	4.1	39 35.4	-58.2	4.3	41 35.0	-58.1	4.4	43 34.7	-58.1	4.5
75	34 37.7	-58.3	3.7	36 37.5	-58.3	3.8	38 37.2	-58.2	3.9	40 36.9	-58.2	4.1	42 36.6	-58.1	4.2
76	33 39.4	-58.3	3.5	35 39.2	-58.3	3.5	37 39.0	-58.3	3.6	39 38.7	-58.2	3.7	41 38.5	-58.2	3.9
77	32 41.1	-58.4	3.2	34 40.9	-58.3	3.3	36 40.7	-58.3	3.3	38 40.5	-58.3	3.4	40 40.3	-58.3	3.5
78	31 42.7	-58.4	2.9	33 42.6	-58.4	3.0	35 42.4	-58.4	3.1	37 42.2	-58.3	3.1	39 42.0	-58.3	3.2
79	30 44.3	-58.4	2.6	32 44.2	-58.4	2.7	34 44.0	-58.4	2.8	36 43.9	-58.4	2.8	38 43.7	-58.3	2.9
80	29 45.9	-58.5	2.4	31 45.8	-58.5	2.4	33 45.6	-58.4	2.5	35 45.5	-58.4	2.5	37 45.4	-58.4	2.6
81	28 47.4	-58.5	2.1	30 47.3	-58.5	2.2	32 47.2	-58.5	2.2	34 47.1	-58.4	2.3	36 47.0	-58.4	2.3
82	27 48.9	-58.5	1.9	29 48.8	-58.5	1.9	31 48.7	-58.4	2.0	33 48.7	-58.5	2.0	35 48.6	-58.5	2.0
83	26 50.4	-58.6	1.6	28 50.3	-58.5	1.7	30 50.3	-58.6	1.7	32 50.2	-58.5	1.7	34 50.1	-58.5	1.8
84	25 51.8	-58.6	1.4	27 51.8	-58.6	1.4	29 51.7	-58.5	1.4	31 51.7	-58.6	1.5	33 51.6	-58.5	1.5
85	24 53.2	-58.6	1.1	26 53.2	-58.6	1.2	28 53.2	-58.6	1.2	30 53.1	-58.5	1.2	32 53.1	-58.6	1.2
86	23 54.6	-58.6	0.9	25 54.6	-58.6	0.9	27 54.6	-58.6	0.9	29 54.6	-58.6	1.0	31 54.5	-58.5	1.0
87	22 56.0	-58.7	0.7	24 56.0	-58.7	0.7	26 56.0	-58.7	0.7	28 56.0	-58.7	0.7	30 56.0	-58.7	0.7
88	21 57.3	-58.6	0.4	23 57.3	-58.6	0.5	25 57.3	-58.6	0.5	27 57.3	-58.6	0.5	29 57.3	-58.6	0.5
89	20 58.7	-58.7	0.2	22 58.7	-58.7	0.2	24 58.7	-58.7	0.2	26 58.7	-58.7	0.2	28 58.7	-58.7	0.2
90	20 00.0	-58.7	0.0	22 00.0	-58.7	0.0	24 00.0	-58.7	0.0	26 00.0	-58.7	0.0	28 00.0	-58.7	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 12°, 348°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
38 40.9	-58.1	166.7	36 44.1	-58.3	167.0	34 47.1	-58.4	167.3	32 49.9	-58.5	167.6	30 52.7	-58.7	167.9	30
37 42.8	-58.1	167.0	35 45.8	-58.3	167.3	33 48.7	-58.4	167.6	31 51.4	-58.5	167.9	29 54.0	-58.6	168.1	31
36 44.7	-58.2	167.3	34 47.5	-58.3	167.6	32 50.3	-58.5	167.9	30 52.9	-58.6	168.1	28 55.4	-58.7	168.4	32
35 46.5	-58.3	167.6	33 49.2	-58.4	167.9	31 51.8	-58.5	168.2	29 54.3	-58.6	168.4	27 56.7	-58.7	168.6	33
34 48.2	-58.3	167.9	32 50.8	-58.4	168.2	30 53.3	-58.5	168.4	28 55.7	-58.6	168.6	26 58.0	-58.7	168.8	34
33 49.9	-58.3	168.2	31 52.4	-58.5	168.4	29 54.8	-58.6	168.7	27 57.1	-58.7	168.9	25 59.3	-58.8	169.1	35
32 51.6	-58.4	168.4	30 53.9	-58.4	168.7	28 56.2	-58.6	168.9	26 58.4	-58.7	169.1	25 00.5	-58.7	169.3	36
31 53.2	-58.4	168.7	29 55.5	-58.5	169.0	27 57.6	-58.6	169.2	25 59.7	-58.7	169.4	24 01.8	-58.8	169.5	37
30 54.8	-58.5	169.0	28 57.0	-58.6	169.2	26 59.0	-58.6	169.4	25 01.0	-58.7	169.6	23 03.0	-58.8	169.7	38
29 56.3	-58.4	169.3	27 58.4	-58.6	169.5	26 00.4	-58.7	169.6	24 02.3	-58.7	169.8	22 04.2	-58.8	170.0	39
28 57.9	-58.5	169.5	26 59.8	-58.5	169.7	25 01.7	-58.6	169.9	23 03.6	-58.8	170.0	21 05.4	-58.9	170.2	40
27 59.4	-58.5	169.8	26 01.3	-58.7	169.9	24 03.1	-58.7	170.1	22 04.8	-58.7	170.3	20 06.5	-58.8	170.4	41
27 00.9	-58.6	170.0	25 02.6	-58.6	170.2	23 04.4	-58.7	170.3	21 06.1	-58.8	170.5	19 07.7	-58.9	170.6	42
26 02.3	-58.6	170.3	24 04.0	-58.7	170.4	22 05.7	-58.8	170.6	20 07.3	-58.8	170.7	18 08.8	-58.9	170.8	43
25 03.7	-58.6	170.5	23 05.3	-58.6	170.6	21 06.9	-58.7	170.8	19 08.5	-58.9	170.9	17 09.9	-58.8	171.0	44
24 05.1	-58.6	170.7	22 06.7	-58.7	170.9	20 08.2	-58.8	171.0	18 09.6	-58.8	171.1	16 11.1	-58.9	171.2	45
23 06.5	-58.6	171.0	21 08.0	-58.7	171.1	19 09.4	-58.8	171.2	17 10.8	-58.9	171.3	15 12.2	-58.9	171.4	46
22 07.9	-58.7	171.2	20 09.3	-58.8	171.3	18 10.6	-58.8	171.4	16 11.9	-58.8	171.5	14 13.3	-59.0	171.6	47
21 09.2	-58.7	171.4	19 10.5	-58.7	171.5	17 11.8	-58.8	171.6	15 13.1	-58.9	171.7	13 14.3	-58.9	171.8	48
20 10.5	-58.7	171.6	18 11.8	-58.8	171.7	16 13.0	-58.8	171.8	14 14.2	-58.9	171.9	12 15.4	-58.9	172.0	49
19 11.8	-58.7	171.9	17 13.0	-58.7	172.0	15 14.2	-58.8	172.0	13 15.3	-58.8	172.1	11 16.5	-59.0	172.2	50
18 13.1	-58.7	172.1	16 14.3	-58.8	172.2	14 15.4	-58.9	172.2	12 16.5	-58.9	172.3	10 17.5	-58.9	172.4	51
17 14.4	-58.7	172.3	15 15.5	-58.8	172.4	13 16.5	-58.8	172.4	11 17.6	-58.9	172.5	9 18.6	-59.0	172.5	52
16 15.7	-58.8	172.5	14 16.7	-58.8	172.6	12 17.7	-58.9	172.6	10 18.7	-59.0	172.7	8 19.6	-58.9	172.7	53
15 16.9	-58.8	172.7	13 17.9	-58.8	172.8	11 18.8	-58.9	172.8	9 19.7	-58.9	172.9	7 20.7	-59.0	172.9	54
14 18.1	-58.7	172.9	12 19.1	-58.9	173.0	10 19.9	-58.8	173.0	8 20.8	-58.8	173.1	6 21.7	-59.0	173.1	55
13 19.4	-58.8	173.1	11 20.2	-58.8	173.2	9 21.1	-58.9	173.2	7 21.9	-58.9	173.3	5 22.7	-58.9	173.3	56
12 20.6	-58.8	173.3	10 21.4	-58.8	173.4	8 22.2	-58.9	173.4	6 23.0	-59.0	173.5	4 23.8	-59.0	173.5	57
11 21.8	-58.8	173.5	9 22.6	-58.9	173.6	7 23.3	-58.9	173.6	5 24.0	-58.9	173.6	3 24.8	-59.0	173.7	58
10 23.0	-58.8	173.8	8 23.7	-58.8	173.8	6 24.4	-58.9	173.8	4 25.1	-58.9	173.8	2 25.8	-59.0	173.8	59
9 24.2	-58.8	174.0	7 24.9	-58.9	174.0	5 25.5	-58.9	174.0	3 26.2	-59.0	174.0	1 26.8	-59.0	174.0	60
8 25.4	-58.8	174.2	6 26.0	-58.9	174.2	4 26.6	-58.9	174.2	2 27.2	-58.9	174.2	0 27.8	-58.9	174.2	61
7 26.6	-58.9	174.4	5 27.1	-58.8	174.4	3 27.7	-58.9	174.4	1 28.3	-59.0	174.4	0 31.1	+59.0	5.6	62
6 27.7	-58.8	174.5	4 28.3	-58.9	174.6	2 28.8	-58.9	174.6	0 29.3	-58.9	174.6	1 30.1	+59.0	5.4	63
5 28.9	-58.8	174.7	3 29.4	-58.9	174.8	1 29.9	-58.9	174.8	0 29.6	+58.9	5.2	2 29.1	+59.0	5.2	64
4 30.1	-58.9	174.9	2 30.5	-58.8	175.0	0 31.0	-58.9	175.0	1 28.5	+59.0	5.0	3 28.1	+59.0	5.1	65
3 31.2	-58.8	175.1	1 31.7	-58.9	175.1	0 27.9	+58.9	4.9	2 27.5	+58.9	4.9	4 27.1	+58.9	4.9	66
1 33.5	-58.8	175.5	0 32.8	-58.9	175.3	1 26.8	+58.9	4.7	3 26.4	+59.0	4.7	5 26.0	+59.0	4.7	67
0 34.7	-58.8	175.7	0 26.1	+58.9	4.5	2 25.7	+58.9	4.5	4 25.4	+58.9	4.5	6 25.0	+59.0	4.5	68
			1 25.0	+58.8	4.3	3 24.6	+58.9	4.3	5 24.3	+58.9	4.3	7 24.0	+58.9	4.3	69
			2 23.8	+58.9	4.1	4 23.5	+58.9	4.1	6 23.2	+59.0	4.1	8 22.9	+59.0	4.1	70
			3 22.7	+58.9	3.9	5 22.4	+58.9	3.9	7 22.2	+58.9	3.9	9 21.9	+58.9	3.9	71
			4 21.6	+58.8	3.7	6 21.3	+58.9	3.7	8 21.1	+58.9	3.7	10 20.8	+59.0	3.7	72
			5 20.4	+58.9	3.5	7 20.2	+58.9	3.5	9 20.0	+58.9	3.5	11 19.8	+58.9	3.6	73
			6 19.3	+58.9	3.3	8 19.1	+58.9	3.3	10 18.9	+58.9	3.3	12 18.7	+58.9	3.4	74
			7 18.2	+58.8	3.1	9 18.0	+58.9	3.1	11 17.8	+58.9	3.1	13 17.6	+58.9	3.2	75
			8 17.2	+58.8	2.9	10 16.9	+58.8	2.9	12 16.7	+58.9	3.0	14 16.5	+59.0	3.0	76
			9 16.0	+58.8	2.7	11 15.7	+58.9	2.7	13 15.6	+58.9	2.8	15 15.5	+58.9	2.8	77
			10 14.8	+58.8	2.5	12 14.6	+58.8	2.5	14 14.5	+58.8	2.6	16 14.4	+58.8	2.6	78
			9 13.6	+58.9	2.3	13 13.4	+58.9	2.3	15 13.3	+58.9	2.4	17 13.2	+58.9	2.4	79
			10 12.5	+58.8	2.1	14 12.3	+58.8	2.1	16 12.2	+58.9	2.2	18 12.1	+58.9	2.2	80
			11 11.3	+58.7	1.9	15 11.1	+58.8	1.9	17 11.1	+58.8	2.0	19 11.0	+58.8	2.0	81
			12 10.0	+58.8	1.7	16 09.9	+58.8	1.7	18 09.9	+58.8	1.7	20 09.8	+58.9	1.8	82
			13 08.8	+58.8	1.5	17 08.7	+58.8	1.5	19 08.7	+58.8	1.5	21 08.7	+58.8	1.6	83
			14 07.6	+58.8	1.3	18 07.5	+58.8	1.3	20 07.5	+58.8	1.3	22 07.5	+58.8	1.3	84
			15 06.4	+58.7	1.1	19 06.3	+58.8	1.1	21 06.3	+58.8	1.1	23 06.3	+58.8	1.1	85
			16 05.1	+58.8	0.9	20 05.1	+58.7	0.9	22 05.1	+58.7	0.9	24 05.1	+58.7	0.9	86
			17 03.9	+58.7	0.7	21 03.8	+58.8	0.7	23 03.8	+58.8	0.7	25 03.8	+58.8	0.7	87
			18 02.6	+58.7	0.4	22 02.6	+58.7	0.4	24 02.6	+58.7	0.5	26 02.6	+58.7	0.5	88
			19 01.3	+58.7	0.2	23 01.3	+58.7	0.2	25 01.3	+58.7	0.2	27 01.3	+58.7	0.2	89
			20 00.0	+58.7	0.0	24 00.0	+58.7	0.0	26 00.0	+58.7	0.0	28 00.0	+58.7	0.0	90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 168°, 192°

14°, 346° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	57 10.3	-53.8	22.7	59 00.5	-53.2	24.0	60 49.5	-52.4	25.5	62 37.1	-51.4	27.1	64 23.0	-50.2	29.0
31	56 16.5	-54.2	21.9	58 07.3	-53.5	23.1	59 57.1	-52.8	24.5	61 45.7	-51.9	26.0	63 32.8	-50.9	27.7
32	55 22.3	-54.4	21.2	57 13.8	-53.8	22.3	59 04.3	-53.1	23.5	60 53.8	-52.4	24.9	62 41.9	-51.5	26.6
33	54 27.9	-54.7	20.4	56 20.0	-54.2	21.5	58 11.2	-53.5	22.6	60 01.4	-52.8	24.0	61 50.4	-51.9	25.5
34	53 33.2	-54.9	19.7	55 25.8	-54.4	20.7	57 17.7	-53.9	21.8	59 08.6	-53.2	23.0	60 58.5	-52.4	24.4
35	52 38.3	-55.1	19.1	54 31.4	-54.7	20.0	56 23.8	-54.1	21.0	58 15.4	-53.5	22.1	60 06.1	-52.8	23.4
36	51 43.2	-55.4	18.4	53 36.7	-54.9	19.3	55 29.7	-54.4	20.2	57 21.9	-53.8	21.3	59 13.3	-53.2	22.5
37	50 47.8	-55.5	17.8	52 41.8	-55.1	18.6	54 35.3	-54.7	19.5	56 28.1	-54.2	20.5	58 20.1	-53.6	21.6
38	49 52.3	-55.7	17.2	51 46.7	-55.3	17.9	53 40.6	-54.9	18.8	55 33.9	-54.4	19.7	57 26.5	-53.9	20.7
39	48 56.6	-55.9	16.6	50 51.4	-55.5	17.3	52 45.7	-55.1	18.1	54 39.5	-54.7	19.0	56 32.6	-54.2	19.9
40	48 00.7	-56.0	16.1	49 55.9	-55.7	16.7	51 50.6	-55.4	17.5	53 44.8	-54.9	18.3	55 38.4	-54.4	19.2
41	47 04.7	-56.1	15.6	49 00.2	-55.9	16.2	50 55.2	-55.5	16.8	52 49.9	-55.2	17.6	54 44.0	-54.7	18.4
42	46 08.6	-56.3	15.0	48 04.3	-56.0	15.6	49 59.7	-55.7	16.2	51 54.7	-55.3	16.9	53 49.3	-55.0	17.7
43	45 12.3	-56.4	14.5	47 08.3	-56.2	15.1	49 04.0	-55.9	15.7	50 59.4	-55.6	16.3	52 54.3	-55.2	17.1
44	44 15.9	-56.6	14.1	46 12.1	-56.2	14.6	48 08.1	-56.0	15.1	50 03.8	-55.7	15.7	51 59.1	-55.3	16.4
45	43 19.3	-56.6	13.6	45 15.9	-56.4	14.1	47 12.1	-56.1	14.6	49 08.1	-55.9	15.2	51 03.8	-55.6	15.8
46	42 22.7	-56.7	13.1	44 19.5	-56.6	13.6	46 16.0	-56.3	14.1	48 12.2	-56.0	14.6	50 08.2	-55.7	15.2
47	41 26.0	-56.9	12.7	43 22.9	-56.6	13.1	45 19.7	-56.4	13.6	47 16.2	-56.2	14.1	49 12.5	-55.9	14.6
48	40 29.1	-56.9	12.3	42 26.3	-56.7	12.7	44 23.3	-56.6	13.1	46 20.0	-56.3	13.6	48 16.6	-56.1	14.1
49	39 32.2	-57.0	11.9	41 29.6	-56.9	12.2	43 26.7	-56.6	12.6	45 23.7	-56.4	13.1	47 20.5	-56.2	13.5
50	38 35.2	-57.1	11.5	40 32.7	-56.9	11.8	42 30.1	-56.7	12.2	44 27.3	-56.5	12.6	46 24.3	-56.3	13.0
51	37 38.1	-57.2	11.1	39 35.8	-57.0	11.4	41 33.4	-56.9	11.7	43 30.8	-56.7	12.1	45 28.0	-56.5	12.5
52	36 40.9	-57.2	10.7	38 38.8	-57.1	11.0	40 36.5	-56.9	11.3	42 34.1	-56.7	11.7	44 31.5	-56.5	12.1
53	35 43.7	-57.3	10.3	37 41.7	-57.2	10.6	39 39.6	-57.0	10.9	41 37.4	-56.9	11.2	43 35.0	-56.7	11.6
54	34 46.4	-57.4	10.0	36 44.5	-57.2	10.2	38 42.6	-57.1	10.5	40 40.5	-56.9	10.8	42 38.3	-56.8	11.1
55	33 49.0	-57.4	9.6	35 47.3	-57.3	9.8	37 45.5	-57.2	10.1	39 43.6	-57.1	10.4	41 41.5	-56.9	10.7
56	32 51.6	-57.5	9.3	34 50.0	-57.4	9.5	36 48.3	-57.3	9.7	38 46.5	-57.1	10.0	40 44.6	-56.9	10.3
57	31 54.1	-57.5	8.9	33 52.6	-57.4	9.1	35 51.0	-57.3	9.4	37 49.4	-57.2	9.6	39 47.7	-57.1	9.9
58	30 56.6	-57.6	8.6	32 55.2	-57.5	8.8	34 53.7	-57.3	9.0	36 52.2	-57.2	9.2	38 50.6	-57.1	9.5
59	29 59.0	-57.7	8.3	31 57.7	-57.5	8.4	33 56.4	-57.5	8.6	35 55.0	-57.4	8.9	37 53.5	-57.2	9.1
60	29 01.3	-57.7	8.0	31 00.2	-57.6	8.1	32 58.9	-57.5	8.3	34 57.6	-57.3	8.5	36 56.3	-57.3	8.7
61	28 03.6	-57.7	7.6	30 02.6	-57.7	7.8	32 01.4	-57.5	8.0	34 00.3	-57.5	8.1	35 59.0	-57.3	8.3
62	27 05.9	-57.7	7.3	29 04.9	-57.7	7.5	31 03.9	-57.6	7.6	33 02.8	-57.5	7.8	35 01.7	-57.4	8.0
63	26 08.2	-57.8	7.0	28 07.2	-57.7	7.2	30 06.3	-57.6	7.3	32 05.3	-57.6	7.4	34 04.3	-57.5	7.6
64	25 10.4	-57.9	6.7	27 09.5	-57.7	6.8	29 08.7	-57.7	7.0	31 07.7	-57.6	7.1	33 06.8	-57.5	7.3
65	24 12.5	-57.8	6.4	26 11.8	-57.8	6.5	28 11.0	-57.8	6.7	30 10.1	-57.6	6.8	32 09.3	-57.6	6.9
66	23 14.7	-57.9	6.1	25 14.0	-57.9	6.2	27 13.2	-57.7	6.4	29 12.5	-57.7	6.5	31 11.7	-57.6	6.6
67	22 16.8	-58.0	5.9	24 16.1	-57.8	6.0	26 15.5	-57.8	6.1	28 14.8	-57.7	6.2	30 14.1	-57.7	6.3
68	21 18.8	-57.9	5.6	23 18.3	-57.9	5.7	25 17.7	-57.9	5.8	27 17.1	-57.8	5.9	29 16.4	-57.7	6.0
69	20 20.9	-58.0	5.3	22 20.4	-58.0	5.4	24 19.8	-57.8	5.5	26 19.3	-57.8	5.6	28 18.7	-57.8	5.7
70	19 22.9	-58.0	5.0	21 22.4	-57.9	5.1	23 22.0	-57.9	5.2	25 21.5	-57.9	5.3	27 20.9	-57.7	5.3
71	18 24.9	-58.0	4.8	20 24.5	-58.0	4.8	22 24.1	-58.0	4.9	24 23.6	-57.9	5.0	26 23.2	-57.9	5.0
72	17 26.9	-58.1	4.5	19 26.5	-58.0	4.5	21 26.1	-57.9	4.6	23 25.7	-57.9	4.7	25 25.3	-57.9	4.7
73	16 28.8	-58.0	4.2	18 28.5	-58.0	4.3	20 28.2	-58.0	4.3	22 27.8	-57.9	4.4	24 27.4	-57.9	4.5
74	15 30.8	-58.1	4.0	17 30.5	-58.1	4.0	19 30.2	-58.0	4.1	21 29.9	-58.0	4.1	23 29.5	-57.9	4.2
75	14 32.7	-58.1	3.7	16 32.4	-58.1	3.7	18 32.2	-58.1	3.8	20 31.9	-58.0	3.8	22 31.6	-57.9	3.9
76	13 34.6	-58.2	3.5	15 34.3	-58.0	3.5	17 34.1	-58.0	3.5	19 33.9	-58.0	3.6	21 33.7	-58.0	3.6
77	12 36.4	-58.1	3.2	14 36.3	-58.2	3.2	16 36.1	-58.1	3.3	18 35.9	-58.1	3.3	20 35.7	-58.0	3.3
78	11 38.3	-58.1	2.9	13 38.1	-58.1	3.0	15 38.0	-58.1	3.0	17 37.8	-58.0	3.0	19 37.7	-58.1	3.1
79	10 40.2	-58.2	2.7	12 40.0	-58.1	2.7	14 39.9	-58.1	2.7	16 39.8	-58.1	2.8	18 39.6	-58.0	2.8
80	9 42.0	-58.2	2.4	11 41.9	-58.2	2.5	13 41.8	-58.1	2.5	15 41.7	-58.1	2.5	17 41.6	-58.1	2.5
81	8 43.8	-58.1	2.2	10 43.7	-58.1	2.2	12 43.7	-58.2	2.2	14 43.6	-58.2	2.2	16 43.5	-58.1	2.3
82	7 45.7	-58.2	1.9	9 45.6	-58.2	2.0	11 45.5	-58.1	2.0	13 45.4	-58.1	2.0	15 45.4	-58.2	2.0
83	6 47.5	-58.2	1.7	8 47.4	-58.2	1.7	10 47.4	-58.2	1.7	12 47.3	-58.1	1.7	14 47.2	-58.1	1.7
84	5 49.3	-58.2	1.5	7 49.2	-58.2	1.5	9 49.2	-58.2	1.5	11 49.2	-58.2	1.5	13 49.1	-58.1	1.5
85	4 51.1	-58.2	1.2	6 51.0	-58.2	1.2	8 51.0	-58.2	1.2	10 51.0	-58.2	1.2	12 51.0	-58.2	1.2
86	3 52.9	-58.3	1.0	5 52.8	-58.2	1.0	7 52.8	-58.2	1.0	9 52.8	-58.2	1.0	11 52.8	-58.2	1.0
87	2 54.6	-58.2	0.7	4 54.6	-58.2	0.7	6 54.6	-58.2	0.7	8 54.6	-58.2	0.7	10 54.6	-58.2	0.7
88	1 56.4	-58.2	0.5	3 56.4	-58.2	0.5	5 56.4	-58.2	0.5	7 56.4	-58.2	0.5	9 56.4	-58.2	0.5
89	0 58.2	-58.2	0.2	2 58.2	-58.2	0.2	4 58.2	-58.2	0.2	6 58.2	-58.2	0.2	8 58.2	-58.2	0.2
90	0 00.0	-58.2	0.0	2 00.0	-58.2	0.0	4 00.0	-58.2	0.0	6 00.0	-58.2	0.0	8 00.0	-58.2	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 14°, 346°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
57	10.3	-53.8	157.3	55	19.2	-54.5	158.4	53	27.2	-54.9	159.4	51	34.6	-55.5	160.3	49	41.3	-55.8	161.1	30
56	16.5	-54.2	158.1	54	24.7	-54.7	159.1	52	32.3	-55.2	160.1	50	39.1	-55.6	160.9	48	45.5	-56.0	161.7	31
55	22.3	-54.4	158.8	53	30.0	-54.9	159.8	51	37.1	-55.4	160.7	49	43.5	-55.7	161.5	47	49.5	-56.1	162.2	32
54	27.9	-54.7	159.6	52	35.1	-55.2	160.5	50	41.7	-55.6	161.3	48	47.8	-56.0	162.1	46	53.4	-56.3	162.7	33
53	33.2	-54.9	160.3	51	39.9	-55.3	161.1	49	46.1	-55.7	161.9	47	51.8	-56.0	162.6	45	57.1	-56.4	163.2	34
52	38.3	-55.1	160.9	50	44.6	-55.5	161.7	48	50.4	-55.9	162.5	46	55.8	-56.3	163.1	44	60.7	-56.5	163.7	35
51	43.2	-55.4	161.6	49	49.1	-55.8	162.3	47	54.5	-56.1	163.0	45	59.5	-56.3	163.6	44	64.2	-56.6	164.2	36
50	47.8	-55.5	162.2	48	53.3	-55.8	162.9	46	58.4	-56.1	163.6	45	63.2	-56.5	164.1	43	67.6	-56.7	164.6	37
49	52.3	-55.7	162.8	47	57.5	-56.1	163.5	46	62.3	-56.4	164.1	44	66.7	-56.6	164.6	42	71.9	-56.8	165.1	38
48	56.6	-55.9	163.4	47	61.4	-56.1	164.0	45	65.9	-56.4	164.6	43	70.1	-56.7	165.1	41	76.0	-57.0	165.5	39
48	00.7	-56.0	163.9	46	65.3	-56.3	164.5	44	69.5	-56.6	165.0	42	73.4	-56.8	165.5	40	81.7	-57.0	165.9	40
47	04.7	-56.1	164.4	45	69.0	-56.5	165.0	43	72.9	-56.6	165.5	41	76.6	-56.9	165.9	39	86.0	-57.1	166.3	41
46	08.6	-56.3	165.0	44	72.5	-56.5	165.5	42	76.3	-56.8	165.9	40	79.7	-56.9	166.4	38	89.9	-57.1	166.7	42
45	12.3	-56.4	165.5	43	76.0	-56.6	165.9	41	79.5	-56.9	166.4	39	82.8	-57.1	166.8	37	92.9	-57.3	167.1	43
44	15.9	-56.6	165.9	42	79.4	-56.8	166.4	40	82.6	-56.9	166.8	38	85.7	-57.1	167.2	36	95.8	-57.3	167.5	44
43	19.3	-56.6	166.4	41	82.6	-56.8	166.8	39	85.7	-57.1	167.2	37	88.6	-57.2	167.6	35	98.7	-57.4	167.9	45
42	22.7	-56.7	166.9	40	85.8	-57.0	167.2	38	88.6	-57.1	167.6	36	91.4	-57.3	167.9	34	101.5	-57.4	168.2	46
41	26.0	-56.9	167.3	39	88.8	-57.0	167.7	37	91.5	-57.2	168.0	35	94.1	-57.4	168.3	33	104.5	-57.5	168.6	47
40	29.1	-56.9	167.7	38	91.8	-57.1	168.1	36	94.3	-57.2	168.4	34	96.7	-57.4	168.7	32	107.4	-57.5	168.9	48
39	32.2	-57.0	168.1	37	94.7	-57.2	168.4	35	97.1	-57.4	168.7	33	99.3	-57.4	169.0	31	110.2	-57.6	169.2	49
38	35.2	-57.1	168.5	36	97.5	-57.2	168.8	34	99.7	-57.4	169.1	32	101.6	-57.6	169.3	30	112.9	-57.6	169.6	50
37	38.1	-57.2	168.9	35	100.3	-57.3	169.2	33	102.3	-57.4	169.5	31	104.3	-57.5	169.7	29	115.5	-57.7	169.9	51
36	40.9	-57.2	169.3	34	103.0	-57.4	169.6	32	104.9	-57.5	169.8	30	106.6	-57.7	170.0	28	118.0	-57.7	170.2	52
35	43.7	-57.3	169.7	33	105.6	-57.5	169.9	31	107.4	-57.6	170.1	29	108.1	-57.6	170.3	27	120.4	-57.8	170.5	53
34	46.4	-57.4	170.0	32	108.1	-57.4	170.3	30	109.8	-57.6	170.5	28	110.5	-57.8	170.7	26	122.8	-57.8	170.8	54
33	49.0	-57.4	170.4	31	110.7	-57.6	170.6	29	112.2	-57.6	170.8	27	112.8	-57.7	171.0	25	125.1	-57.8	171.1	55
32	51.6	-57.5	170.7	30	113.1	-57.6	170.9	28	114.6	-57.7	171.1	26	115.0	-57.8	171.3	24	127.4	-57.9	171.4	56
31	54.1	-57.5	171.1	29	115.5	-57.6	171.3	27	116.9	-57.8	171.4	25	117.2	-57.8	171.5	23	129.6	-57.9	171.7	57
30	56.6	-57.6	171.4	28	117.9	-57.7	171.6	26	119.1	-57.7	171.7	24	119.4	-57.9	171.9	22	131.8	-58.0	172.0	58
29	59.0	-57.7	171.7	28	120.2	-57.7	171.9	26	121.4	-57.8	172.0	24	121.5	-57.9	172.2	22	134.0	-58.0	172.3	59
29	01.3	-57.7	172.0	27	122.5	-57.8	172.2	25	123.6	-57.9	172.3	23	123.6	-57.9	172.4	21	136.1	-58.0	172.6	60
28	03.6	-57.7	172.4	26	124.7	-57.8	172.5	24	125.7	-57.9	172.6	22	125.7	-58.0	172.7	20	138.2	-58.0	172.8	61
27	05.9	-57.7	172.7	25	126.9	-57.8	172.8	23	127.8	-57.9	172.9	21	127.8	-58.0	173.0	19	140.3	-58.0	173.1	62
26	08.2	-57.8	173.0	24	129.1	-57.9	173.1	22	129.9	-57.9	173.2	20	129.9	-58.0	173.3	18	142.4	-58.1	173.4	63
25	10.4	-57.9	173.3	23	131.2	-57.9	173.4	21	132.0	-58.0	173.5	19	132.0	-58.0	173.6	17	144.5	-58.1	173.6	64
24	12.5	-57.8	173.6	22	133.3	-58.0	173.7	20	134.0	-58.0	173.7	18	134.0	-58.0	173.8	16	146.6	-58.1	173.9	65
23	14.7	-57.9	173.9	21	135.3	-57.9	173.9	19	136.0	-58.0	174.0	17	136.0	-58.1	174.1	15	148.7	-58.1	174.1	66
22	16.8	-58.0	174.1	20	137.4	-58.0	174.2	18	138.0	-58.0	174.3	16	138.0	-58.1	174.3	14	150.8	-58.2	174.4	67
21	18.8	-57.9	174.4	19	139.4	-58.0	174.5	17	140.0	-58.1	174.6	15	140.0	-58.1	174.6	13	152.9	-58.1	174.7	68
20	20.9	-58.0	174.7	18	141.4	-58.0	174.8	16	141.9	-58.1	174.8	14	141.9	-58.2	174.9	12	155.0	-58.2	174.9	69
19	22.9	-58.0	175.0	17	143.4	-58.1	175.0	15	143.8	-58.1	175.1	13	143.8	-58.1	175.1	11	157.1	-58.2	175.2	70
18	24.9	-58.0	175.2	16	145.3	-58.1	175.3	14	145.7	-58.1	175.3	12	145.7	-58.2	175.4	10	159.2	-58.2	175.4	71
17	26.9	-58.1	175.5	15	147.2	-58.1	175.6	13	147.6	-58.1	175.6	11	147.6	-58.1	175.6	9	161.3	-58.2	175.7	72
16	28.8	-58.0	175.8	14	149.1	-58.1	175.8	12	149.5	-58.2	175.8	10	149.5	-58.2	175.9	8	163.4	-58.2	175.9	73
15	30.8	-58.1	176.0	13	151.0	-58.1	176.1	11	151.3	-58.1	176.1	9	151.3	-58.2	176.1	7	165.5	-58.3	176.1	74
14	32.7	-58.1	176.3	12	152.9	-58.1	176.3	10	153.2	-58.2	176.3	8	153.2	-58.2	176.4	6	167.6	-58.2	176.4	75
13	34.6	-58.2	176.5	11	154.8	-58.2	176.6	9	155.0	-58.2	176.6	7	155.0	-58.2	176.6	5	169.7	-58.2	176.6	76
12	36.4	-58.1	176.8	10	156.6	-58.1	176.8	8	156.8	-58.2	176.8	6	156.8	-58.2	176.9	4	171.8	-58.3	176.9	77
11	38.3	-58.1	177.1	9	158.5	-58.2	177.1	7	158.6	-58.2	177.1	5	158.6	-58.2	177.1	3	173.9	-58.2	177.1	78
10	40.2	-58.2	177.3	8	160.3	-58.2	177.3	6	160.4	-58.2	177.3	4	160.4	-58.3	177.3	2	176.0	-58.3	177.4	79
9	42.0	-58.2	177.6	7	162.1	-58.2	177.6	5	162.2	-58.2	177.6	3	162.2	-58.2	177.6	1	178.1	-58.2	177.6	80
8	43.8	-58.1	177.8	6	163.9	-58.2	177.8	4	164.0	-58.2	177.8	2	164.0	-58.2	177.8	0	180.2	-58.3	177.8	81
7	45.7	-58.2	178.1	5	165.7	-58.2	178.1	3	165.8	-58.2	178.1	1	165.8	-58.3	178.1	0	182.3	+58.2	1.9	82
6	47.5	-58.2	178.3	4	167.5	-58.2	178.3	2	167.6	-58.3	178.3	0	167.6	-58.2	178.3	0	184.4	+58.3	1.7	83
5	49.3	-58.2	178.5	3	169.3	-58.2	178.5	1	169.3	-58.2	178.5	0	169.3	-58.3	178.5	0	186.5	+58.2	1.5	84
4	51.1	-58.2	178.8	2	171.1	-58.2	178.8	0	171.1	-58.2	178.8	0	171.1	+58.3	1.4	0	188.6	+58.3	1.2	85
3	52.9	-58.3	179.0	1	172.9	-58.2	179.0	0	172.9	+58.2	1.0	2	172.9	+58.2	1.0	4	190.7	+58.2	1.0	86
2	54.6	-58.2	179.3	0	174.7	-58.3	179.3	1	174.7	+58.3	0.7	3	174.7	+58.3	0.7	5	192.8	+58.2	0.7	87
1	56.4	-58.2	179.5	0	176.5	+58.2	0.5	2	176.5	+58.2	0.5	4	176.5	+58.2	0.5	6	194.9	+58.3	0.5	88
0	58.2	-58.2	179.8	1	178.3	+58.2	0.2	3	178.3	+58.2	0.2	5	178.3	+58.2	0.2	7	197.0	+58.2	0.2	89
0	00.0	+58.2	0.0	2	180.1	+58.2	0.0	4	180.1	+58.2	0.0	6	180.1	+58.2	0.0	8	199.1	+58.2	0.0	90
0°			2°			4°			6°			8°								

LATITUDE SAME NAME

L.H.A. 166°, 194°

14°, 346° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	66 06.9	-48.9	31.2	67 48.2	-47.2	33.7	69 26.4	-45.3	36.6	71 00.5	-42.7	40.1	72 29.6	-39.6	44.1
31	65 18.0	-49.7	29.8	67 01.0	-48.2	32.1	68 41.1	-46.3	34.8	70 17.8	-44.1	38.0	71 50.0	-41.3	41.7
32	64 28.3	-50.3	28.4	66 12.8	-49.0	30.6	67 54.8	-47.4	33.1	69 33.7	-45.4	36.0	71 08.7	-42.9	39.4
33	63 38.0	-50.9	27.2	65 23.8	-49.7	29.2	67 07.4	-48.2	31.5	68 48.3	-46.5	34.1	70 25.8	-44.3	37.3
34	62 47.1	-51.5	26.0	64 34.1	-50.4	27.8	66 19.2	-49.1	30.0	68 01.8	-47.4	32.4	69 41.5	-45.5	35.3
35	61 55.6	-52.0	24.9	63 43.7	-51.0	26.6	65 30.1	-49.8	28.5	67 14.4	-48.4	30.8	68 56.0	-46.6	33.5
36	61 03.6	-52.4	23.9	62 52.7	-51.6	25.4	64 40.3	-50.5	27.2	66 26.0	-49.2	29.3	68 09.4	-47.7	31.7
37	60 11.2	-52.9	22.9	62 01.1	-52.0	24.3	63 49.8	-51.1	26.0	65 36.8	-50.0	27.9	67 21.7	-48.5	30.1
38	59 18.3	-53.3	21.9	61 09.1	-52.5	23.3	62 58.7	-51.6	24.8	64 46.8	-50.6	26.6	66 33.2	-49.3	28.6
39	58 25.0	-53.6	21.0	60 16.6	-53.0	22.3	62 07.1	-52.2	23.7	63 56.2	-51.2	25.3	65 43.9	-50.1	27.2
40	57 31.4	-53.9	20.2	59 23.6	-53.3	21.3	61 14.9	-52.6	22.7	63 05.0	-51.7	24.2	64 53.8	-50.7	25.9
41	56 37.5	-54.2	19.4	58 30.3	-53.6	20.5	60 22.3	-53.0	21.7	62 13.3	-52.2	23.1	64 03.1	-51.4	24.7
42	55 43.3	-54.5	18.6	57 36.7	-54.0	19.6	59 29.3	-53.4	20.7	61 21.1	-52.7	22.0	63 11.7	-51.8	23.5
43	54 48.8	-54.8	17.9	56 42.7	-54.3	18.8	58 35.9	-53.7	19.9	60 28.4	-53.1	21.0	62 19.9	-52.4	22.4
44	53 54.0	-55.0	17.2	55 48.4	-54.5	18.0	57 42.2	-54.1	19.0	59 35.3	-53.5	20.1	61 27.5	-52.8	21.4
45	52 59.0	-55.2	16.5	54 53.9	-54.9	17.3	56 48.1	-54.3	18.2	58 41.8	-53.8	19.2	60 34.7	-53.2	20.4
46	52 03.8	-55.4	15.9	53 59.0	-55.0	16.6	55 53.8	-54.6	17.4	57 48.0	-54.2	18.4	59 41.5	-53.6	19.5
47	51 08.4	-55.6	15.2	53 04.0	-55.2	15.9	54 59.2	-54.9	16.7	56 53.8	-54.4	17.6	58 47.9	-53.9	18.6
48	50 12.8	-55.7	14.7	52 08.8	-55.5	15.3	54 04.3	-55.1	16.0	55 59.4	-54.7	16.8	57 54.0	-54.2	17.7
49	49 17.1	-56.0	14.1	51 13.3	-55.7	14.7	53 09.2	-55.3	15.3	55 04.7	-54.9	16.1	56 59.8	-54.6	16.9
50	48 21.1	-56.1	13.5	50 17.6	-55.8	14.1	52 13.9	-55.5	14.7	54 09.8	-55.2	15.4	56 05.2	-54.7	16.2
51	47 25.0	-56.2	13.0	49 21.8	-55.9	13.5	51 18.4	-55.7	14.1	53 14.6	-55.4	14.7	55 10.5	-55.1	15.5
52	46 28.8	-56.4	12.5	48 25.9	-56.2	13.0	50 22.7	-55.9	13.5	52 19.2	-55.6	14.1	54 15.4	-55.2	14.8
53	45 32.4	-56.4	12.0	47 29.7	-56.2	12.4	49 26.8	-56.0	12.9	51 23.6	-55.7	13.5	53 20.2	-55.5	14.1
54	44 36.0	-56.6	11.5	46 33.5	-56.4	11.9	48 30.8	-56.2	12.4	50 27.9	-56.0	12.9	52 24.7	-55.7	13.5
55	43 39.4	-56.7	11.1	45 37.1	-56.6	11.4	47 34.6	-56.3	11.9	49 31.9	-56.1	12.3	51 29.0	-55.8	12.9
56	42 42.7	-56.9	10.6	44 40.5	-56.6	11.0	46 38.3	-56.5	11.4	48 35.8	-56.2	11.8	50 33.2	-56.0	12.3
57	41 45.8	-56.9	10.2	43 43.9	-56.7	10.5	45 41.8	-56.5	10.9	47 39.6	-56.4	11.3	49 37.2	-56.2	11.7
58	40 48.9	-56.9	9.8	42 47.2	-56.9	10.1	44 45.3	-56.7	10.4	46 43.2	-56.5	10.8	48 41.0	-56.3	11.2
59	39 52.0	-57.1	9.3	41 50.3	-56.9	9.6	43 48.6	-56.8	9.9	45 46.7	-56.6	10.3	47 44.7	-56.4	10.7
60	38 54.9	-57.2	8.9	40 53.4	-57.1	9.2	42 51.8	-56.9	9.5	44 50.1	-56.8	9.8	46 48.3	-56.6	10.2
61	37 57.7	-57.2	8.6	39 56.3	-57.1	8.8	41 54.9	-57.0	9.1	43 53.3	-56.8	9.4	45 51.7	-56.7	9.7
62	37 00.5	-57.3	8.2	38 59.2	-57.2	8.4	40 57.9	-57.1	8.7	42 56.5	-56.9	8.9	44 55.0	-56.8	9.2
63	36 03.2	-57.4	7.8	38 02.0	-57.2	8.0	40 00.8	-57.1	8.2	41 59.6	-57.1	8.5	43 58.2	-56.9	8.8
64	35 05.8	-57.4	7.4	37 04.8	-57.4	7.6	39 03.7	-57.2	7.9	41 02.5	-57.1	8.1	43 01.3	-57.0	8.3
65	34 08.4	-57.5	7.1	36 07.4	-57.4	7.3	38 06.5	-57.4	7.5	40 05.4	-57.2	7.7	42 04.3	-57.1	7.9
66	33 10.9	-57.5	6.8	35 10.0	-57.4	6.9	37 09.1	-57.3	7.1	39 08.2	-57.3	7.3	41 07.2	-57.2	7.5
67	32 13.4	-57.6	6.4	34 12.6	-57.5	6.6	36 11.8	-57.5	6.7	38 10.9	-57.3	6.9	40 10.0	-57.2	7.1
68	31 15.8	-57.7	6.1	33 15.1	-57.6	6.2	35 14.3	-57.5	6.4	37 13.6	-57.4	6.5	39 12.8	-57.4	6.7
69	30 18.1	-57.7	5.8	32 17.5	-57.6	5.9	34 16.8	-57.5	6.0	36 16.2	-57.5	6.2	38 15.4	-57.4	6.3
70	29 20.4	-57.7	5.4	31 19.9	-57.7	5.6	33 19.3	-57.6	5.7	35 18.7	-57.6	5.8	37 18.0	-57.4	6.0
71	28 22.7	-57.8	5.1	30 22.2	-57.7	5.2	32 21.7	-57.7	5.4	34 21.1	-57.6	5.5	36 20.6	-57.6	5.6
72	27 24.9	-57.8	4.8	29 24.5	-57.8	4.9	31 24.0	-57.7	5.0	33 23.5	-57.6	5.1	35 23.0	-57.5	5.3
73	26 27.1	-57.9	4.5	28 26.7	-57.8	4.6	30 26.3	-57.8	4.7	32 25.9	-57.7	4.8	34 25.5	-57.7	4.9
74	25 29.2	-57.9	4.2	27 28.9	-57.9	4.3	29 28.5	-57.8	4.4	31 28.2	-57.8	4.5	33 27.8	-57.7	4.6
75	24 31.3	-57.9	3.9	26 31.0	-57.8	4.0	28 30.7	-57.8	4.1	30 30.4	-57.8	4.2	32 30.1	-57.7	4.3
76	23 33.4	-57.9	3.7	25 33.2	-58.0	3.7	27 32.9	-57.9	3.8	29 32.6	-57.8	3.9	31 32.4	-57.8	3.9
77	22 35.5	-58.0	3.4	24 35.2	-57.9	3.4	26 35.0	-57.9	3.5	28 34.8	-57.9	3.6	30 34.6	-57.9	3.6
78	21 37.5	-58.0	3.1	23 37.3	-58.0	3.1	25 37.1	-57.9	3.2	27 36.9	-57.9	3.3	29 36.7	-57.9	3.3
79	20 39.5	-58.1	2.8	22 39.3	-58.0	2.9	24 39.2	-58.0	2.9	26 39.0	-57.9	3.0	28 38.8	-57.9	3.0
80	19 41.4	-58.0	2.6	21 41.3	-58.0	2.6	23 41.2	-58.0	2.6	25 41.1	-58.0	2.7	27 40.9	-57.9	2.7
81	18 43.4	-58.1	2.3	20 43.3	-58.1	2.3	22 43.2	-58.1	2.4	24 43.1	-58.0	2.4	26 43.0	-58.0	2.4
82	17 45.3	-58.1	2.0	19 45.2	-58.1	2.1	21 45.1	-58.0	2.1	23 45.1	-58.1	2.1	25 45.0	-58.0	2.1
83	16 47.2	-58.1	1.8	18 47.1	-58.1	1.8	20 47.1	-58.1	1.8	22 47.0	-58.1	1.8	24 47.0	-58.1	1.9
84	15 49.1	-58.2	1.5	17 49.0	-58.1	1.5	19 49.0	-58.1	1.5	21 48.9	-58.1	1.6	23 48.9	-58.1	1.6
85	14 50.9	-58.1	1.2	16 50.9	-58.1	1.3	18 50.9	-58.2	1.3	20 50.8	-58.1	1.3	22 50.8	-58.1	1.3
86	13 52.8	-58.2	1.0	15 52.8	-58.2	1.0	17 52.7	-58.1	1.0	19 52.7	-58.1	1.0	21 52.7	-58.1	1.0
87	12 54.6	-58.2	0.7	14 54.6	-58.2	0.8	16 54.6	-58.2	0.8	18 54.6	-58.2	0.8	20 54.6	-58.2	0.8
88	11 56.4	-58.2	0.5	13 56.4	-58.2	0.5	15 56.4	-58.2	0.5	17 56.4	-58.2	0.5	19 56.4	-58.2	0.5
89	10 58.2	-58.2	0.2	12 58.2	-58.2	0.2	14 58.2	-58.2	0.3	16 58.2	-58.2	0.3	18 58.2	-58.2	0.3
90	10 00.0	-58.2	0.0	12 00.0	-58.2	0.0	14 00.0	-58.2	0.0	16 00.0	-58.2	0.0	18 00.0	-58.2	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 14°, 346°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
47	47.5	-56.2	161.8	45	53.3	-56.5	162.5	43	58.7	-56.8	163.1	42	03.7	-57.0	163.6	40	08.4	-57.2	164.1	30
46	51.3	-56.3	162.3	44	56.8	-56.6	163.0	43	01.9	-56.9	163.5	41	06.7	-57.1	164.0	39	11.2	-57.4	164.5	31
45	55.0	-56.4	162.8	44	00.2	-56.7	163.4	42	05.0	-56.9	164.0	40	09.6	-57.2	164.4	38	13.8	-57.4	164.9	32
44	58.6	-56.5	163.3	43	03.5	-56.8	163.9	41	08.1	-57.1	164.4	39	12.4	-57.3	164.8	37	16.4	-57.4	165.2	33
44	02.1	-56.7	163.8	42	06.7	-56.9	164.3	40	11.0	-57.1	164.8	38	15.1	-57.3	165.2	36	19.0	-57.6	165.6	34
43	05.4	-56.8	164.3	41	09.8	-57.0	164.7	39	13.9	-57.3	165.2	37	17.8	-57.5	165.6	35	21.4	-57.6	165.9	35
42	08.6	-56.8	164.7	40	12.8	-57.1	165.1	38	16.6	-57.2	165.6	36	20.3	-57.4	165.9	34	23.8	-57.6	166.3	36
41	11.8	-57.0	165.1	39	15.7	-57.2	165.6	37	19.4	-57.4	165.9	35	22.9	-57.6	166.3	33	26.2	-57.7	166.6	37
40	14.8	-57.0	165.5	38	18.5	-57.2	165.9	36	22.0	-57.4	166.3	34	25.3	-57.6	166.6	32	28.5	-57.8	166.9	38
39	17.8	-57.2	165.9	37	21.3	-57.4	166.3	35	24.6	-57.5	166.7	33	27.7	-57.6	167.0	31	30.7	-57.7	167.3	39
38	20.6	-57.2	166.3	36	23.9	-57.3	166.7	34	27.1	-57.6	167.0	32	30.1	-57.7	167.3	30	33.0	-57.9	167.6	40
37	23.4	-57.2	166.7	35	26.6	-57.5	167.0	33	29.5	-57.6	167.4	31	32.4	-57.8	167.6	29	35.1	-57.9	167.9	41
36	26.2	-57.4	167.1	34	29.1	-57.5	167.4	32	31.9	-57.6	167.7	30	34.6	-57.8	167.9	28	37.2	-57.9	168.2	42
35	28.8	-57.4	167.5	33	31.6	-57.6	167.7	31	34.3	-57.7	168.0	29	36.8	-57.8	168.3	27	39.3	-58.0	168.5	43
34	31.4	-57.5	167.8	32	34.0	-57.6	168.1	30	36.6	-57.8	168.3	28	39.0	-57.9	168.6	26	41.3	-57.9	168.8	44
33	33.9	-57.5	168.2	31	36.4	-57.6	168.4	29	38.8	-57.8	168.6	27	41.1	-57.9	168.9	25	43.4	-58.1	169.1	45
32	36.4	-57.6	168.5	30	38.8	-57.7	168.7	28	41.0	-57.8	169.0	26	43.2	-57.9	169.2	24	45.3	-58.0	169.3	46
31	38.8	-57.6	168.8	29	41.1	-57.8	169.1	27	43.2	-57.9	169.3	25	45.3	-58.0	169.4	23	47.3	-58.1	169.6	47
30	41.2	-57.7	169.2	28	43.3	-57.8	169.4	26	45.3	-57.9	169.6	24	47.3	-58.0	169.7	22	49.2	-58.1	169.9	48
29	43.5	-57.7	169.5	27	45.5	-57.8	169.7	25	47.4	-57.9	169.8	23	49.3	-58.1	170.0	21	51.1	-58.2	170.2	49
28	45.8	-57.7	169.8	26	47.7	-57.9	170.0	24	49.5	-58.0	170.1	22	51.2	-58.0	170.3	20	52.9	-58.1	170.4	50
27	48.1	-57.8	170.1	25	49.8	-57.9	170.3	23	51.5	-58.0	170.4	21	53.2	-58.1	170.6	19	54.8	-58.2	170.7	51
26	50.3	-57.9	170.4	24	51.9	-57.9	170.6	22	53.5	-58.0	170.7	20	55.1	-58.2	170.8	18	56.6	-58.2	170.9	52
25	52.4	-57.9	170.7	23	54.0	-58.0	170.8	21	55.5	-58.1	171.0	19	56.9	-58.1	171.1	17	58.4	-58.3	171.2	53
24	54.5	-57.9	171.0	22	56.0	-58.0	171.1	20	57.4	-58.1	171.2	18	58.8	-58.2	171.4	17	00.1	-58.2	171.4	54
23	56.6	-57.9	171.3	21	58.0	-58.0	171.4	19	59.3	-58.1	171.5	17	00.6	-58.2	171.6	16	01.9	-58.3	171.7	55
22	58.7	-58.0	171.6	20	00.0	-58.1	171.7	19	01.2	-58.1	171.8	17	02.4	-58.2	171.9	15	03.6	-58.2	171.9	56
21	02.7	-58.0	172.1	20	01.9	-58.1	171.9	18	03.1	-58.2	172.0	16	04.2	-58.2	172.1	14	05.4	-58.3	172.2	57
20	04.7	-58.1	172.4	19	03.8	-58.1	172.2	17	04.9	-58.1	172.3	15	06.0	-58.2	172.4	13	07.1	-58.3	172.4	58
19	06.6	-58.0	172.6	18	05.7	-58.1	172.5	16	06.8	-58.2	172.5	14	07.8	-58.3	172.6	12	08.8	-58.4	172.7	59
18	08.6	-58.1	172.9	17	07.6	-58.2	172.7	15	08.6	-58.2	172.8	13	09.5	-58.3	172.9	11	10.4	-58.3	172.9	60
17	10.5	-58.1	173.2	16	09.5	-58.2	173.0	14	10.4	-58.3	173.1	12	11.2	-58.2	173.1	10	12.1	-58.3	173.2	61
16	12.4	-58.2	173.4	15	11.3	-58.2	173.2	13	12.1	-58.2	173.3	11	13.0	-58.3	173.4	9	13.8	-58.4	173.4	62
15	14.2	-58.1	173.7	14	13.1	-58.2	173.5	12	13.9	-58.2	173.5	10	14.7	-58.3	173.6	8	15.4	-58.4	173.6	63
14	16.1	-58.2	173.9	13	14.9	-58.2	173.7	11	15.7	-58.3	173.8	9	16.4	-58.4	173.8	7	17.0	-58.3	173.9	64
13	17.9	-58.2	174.2	12	16.7	-58.2	174.0	10	17.4	-58.3	174.0	8	18.0	-58.3	174.1	6	18.7	-58.4	174.1	65
12	19.7	-58.2	174.4	11	18.5	-58.2	174.2	9	19.1	-58.3	174.3	7	19.7	-58.3	174.3	5	20.3	-58.4	174.3	66
11	21.5	-58.2	174.7	10	20.3	-58.3	174.5	8	20.8	-58.3	174.5	6	21.4	-58.4	174.5	4	21.9	-58.4	174.6	67
10	23.3	-58.2	174.9	9	22.0	-58.2	174.7	7	22.5	-58.3	174.8	5	23.0	-58.3	174.8	3	23.5	-58.3	174.8	68
9	25.1	-58.2	175.2	8	23.8	-58.3	175.0	6	24.2	-58.3	175.0	4	24.7	-58.3	175.0	2	25.2	-58.4	175.0	69
8	26.9	-58.3	175.4	7	25.5	-58.2	175.2	5	25.9	-58.3	175.2	3	26.4	-58.4	175.2	1	26.8	-58.4	175.3	70
7	28.6	-58.2	175.7	6	27.3	-58.3	175.5	4	27.6	-58.3	175.5	2	28.0	-58.3	175.5	0	28.4	-58.4	175.5	71
6	30.4	-58.3	175.9	5	29.0	-58.3	175.7	3	29.3	-58.3	175.7	1	29.7	-58.4	175.7	0	30.0	+58.4	4.3	72
5	32.1	-58.2	176.2	4	30.7	-58.3	175.9	2	31.0	-58.3	175.9	0	31.3	-58.4	175.9	1	28.4	+58.4	4.1	73
4	33.9	-58.3	176.4	3	32.4	-58.3	176.2	1	32.7	-58.3	176.2	0	34.4	-58.4	176.4	2	26.8	+58.4	3.8	74
3	35.6	-58.2	176.6	2	34.1	-58.3	176.4	0	34.4	-58.4	176.4	1	25.4	+58.4	3.6	3	25.2	+58.4	3.6	75
2	37.4	-58.3	176.9	1	35.8	-58.3	176.6	0	24.0	+58.3	3.4	2	23.8	+58.3	3.4	4	23.6	+58.3	3.4	76
1	39.1	-58.3	177.1	0	37.5	-58.3	176.9	1	22.3	+58.3	3.1	3	22.1	+58.4	3.1	5	21.9	+58.4	3.1	77
0	40.8	-58.3	177.4	0	20.8	+58.3	2.9	2	20.6	+58.3	2.9	4	20.5	+58.3	2.9	6	20.3	+58.4	2.9	78
0	17.5	+58.2	2.4	1	19.1	+58.3	2.6	3	18.9	+58.4	2.7	5	18.8	+58.3	2.7	7	18.7	+58.3	2.7	79
1	15.7	+58.3	2.2	2	17.4	+58.2	2.4	4	17.3	+58.3	2.4	6	17.1	+58.4	2.4	8	17.0	+58.4	2.4	80
2	14.0	+58.3	1.9	3	15.6	+58.3	2.2	5	15.6	+58.3	2.2	7	15.5	+58.3	2.2	9	15.4	+58.3	2.2	81
3	12.3	+58.2	1.7	4	13.9	+58.3	1.9	6	13.9	+58.3	1.9	8	13.8	+58.3	1.9	10	13.7	+58.4	2.0	82
4	10.5	+58.3	1.5	5	12.2	+58.3	1.7	7	12.2	+58.3	1.7	9	12.1	+58.3	1.7	11	12.1	+58.3	1.7	83
5	08.8	+58.3	1.2	6	10.5	+58.3	1.5	8	10.5	+58.2	1.5	10	10.4	+58.3	1.5	12	10.4	+58.3	1.5	84
6	07.1	+58.2	1.0	7	08.8	+58.2	1.2	9	08.7	+58.3	1.2	11	08.7	+58.3	1.2	13	08.7	+58.3	1.2	85
7	05.3	+58.2	0.7	8	07.0	+58.3	1.0	10	07.0	+58.3	1.0	12	07.0	+58.3	1.0	14	07.0	+58.3	1.0	86
8	03.5	+58.3	0.5	9	05.3	+58.2	0.7	11	05.3	+58.2	0.7	13	05.3	+58.2	0.7	15	05.3	+58.2	0.8	87
9	01.8	+58.2	0.2	10	03.5	+58.3	0.5	12	03.5	+58.3	0.5	14	03.5	+58.3	0.5	16	03.5	+58.3	0.5	88
10	00.0	+58.2	0.0	11	01.8	+58.2	0.2	13	01.8	+58.2	0.2	15	01.8	+58.2	0.3	17	01.8	+58.2	0.3	89
				12	00.0	+58.2	0.0	14	00.0	+58.2	0.0	16	00.0	+58.2	0.0	18	00.0	+58.2	0.0	90

LATITUDE SAME NAME

L.H.A. 166°, 194°

14°, 346° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	73 52.2	-35.7	48.9	75 06.5	-30.7	54.6	76 10.4	-24.6	61.2	77 01.1	-17.1	68.9	77 36.1	-8.4	77.4
31	73 16.5	-37.8	46.1	74 35.8	-33.4	51.3	75 45.8	-28.0	57.5	76 44.0	-21.2	64.6	77 27.7	-13.0	72.8
32	72 38.7	-39.8	43.5	74 02.4	-35.9	48.3	75 17.8	-30.9	53.9	76 22.8	-24.8	60.6	77 14.7	-17.3	68.3
33	71 58.9	-41.5	41.0	73 26.5	-38.1	45.4	74 46.9	-33.7	50.6	75 58.0	-28.2	56.8	76 57.4	-21.4	64.0
34	71 17.4	-43.1	38.7	72 48.4	-40.0	42.7	74 13.2	-36.2	47.5	75 29.8	-31.2	53.2	76 36.0	-25.0	59.9
35	70 34.3	-44.4	36.6	72 08.4	-41.7	40.3	73 37.0	-38.3	44.6	74 58.6	-34.0	49.9	76 11.0	-28.5	56.1
36	69 49.9	-45.7	34.6	71 26.7	-43.4	38.0	72 58.7	-40.3	42.0	74 24.6	-36.5	46.7	75 42.5	-31.6	52.4
37	69 04.2	-46.9	32.7	70 43.3	-44.6	35.8	72 18.4	-42.0	39.5	73 48.1	-38.6	43.8	75 10.9	-34.3	49.1
38	68 17.3	-47.8	31.0	69 58.7	-46.0	33.8	71 36.4	-43.6	37.2	73 09.5	-40.6	41.1	74 36.6	-36.8	45.9
39	67 29.5	-48.7	29.4	69 12.7	-47.0	32.0	70 52.8	-44.9	35.0	72 28.9	-42.3	38.7	73 59.8	-39.0	43.0
40	66 40.8	-49.5	27.9	68 25.7	-48.0	30.3	70 07.9	-46.2	33.0	71 46.6	-43.9	36.3	73 20.8	-40.9	40.3
41	65 51.3	-50.2	26.5	67 37.7	-48.9	28.7	69 21.7	-47.3	31.2	71 02.7	-45.2	34.2	72 39.9	-42.7	37.8
42	65 01.1	-50.9	25.2	66 48.8	-49.7	27.2	68 34.4	-48.2	29.5	70 17.5	-46.5	32.2	71 57.2	-44.2	35.5
43	64 10.2	-51.5	24.0	65 59.1	-50.4	25.8	67 46.2	-49.1	27.9	69 31.0	-47.5	30.4	71 13.0	-45.5	33.3
44	63 18.2	-52.0	22.8	65 08.7	-51.1	24.5	66 57.1	-49.9	26.4	68 43.5	-48.5	28.7	70 27.5	-46.8	31.3
45	62 26.7	-52.5	21.7	64 17.6	-51.6	23.2	66 07.2	-50.6	25.0	67 55.0	-49.3	27.1	69 40.7	-47.8	29.5
46	61 34.2	-52.9	20.7	63 26.0	-52.2	22.1	65 16.6	-51.3	23.7	67 05.7	-50.2	25.6	68 52.9	-48.8	27.8
47	60 41.3	-53.3	19.7	62 33.8	-52.6	21.0	64 25.3	-51.8	22.5	66 15.5	-50.8	24.2	68 04.1	-49.6	26.2
48	59 48.0	-53.7	18.8	61 41.2	-53.1	20.0	63 33.5	-52.3	21.3	65 24.7	-51.5	22.9	67 14.5	-50.4	24.7
49	58 54.3	-54.1	17.9	60 48.1	-53.5	19.0	62 41.2	-52.9	20.2	64 33.2	-52.0	21.7	66 24.1	-51.1	23.4
50	58 00.2	-54.3	17.1	59 54.6	-53.8	18.1	61 48.3	-53.2	19.2	63 41.2	-52.5	20.5	65 33.0	-51.7	22.1
51	57 05.9	-54.6	16.3	59 00.8	-54.2	17.2	60 55.1	-53.6	18.3	62 48.7	-53.0	19.5	64 41.3	-52.2	20.9
52	56 11.3	-54.9	15.5	58 06.6	-54.4	16.4	60 01.5	-54.0	17.3	61 55.7	-53.4	18.5	63 49.1	-52.8	19.7
53	55 16.4	-55.2	14.8	57 12.2	-54.8	15.6	59 07.5	-54.3	16.5	61 02.3	-53.8	17.5	62 56.3	-53.1	18.7
54	54 21.2	-55.3	14.1	56 17.4	-55.0	14.8	58 13.2	-54.6	15.7	60 08.5	-54.2	16.6	62 03.2	-53.6	17.7
55	53 25.9	-55.6	13.5	55 22.4	-55.2	14.1	57 18.6	-54.9	14.9	59 14.3	-54.4	15.7	61 09.6	-54.0	16.7
56	52 30.3	-55.7	12.8	54 27.2	-55.5	13.5	56 23.7	-55.1	14.1	58 19.9	-54.8	14.9	60 15.6	-54.3	15.8
57	51 34.6	-56.0	12.2	53 31.7	-55.7	12.8	55 28.6	-55.4	13.4	57 25.1	-55.0	14.2	59 21.3	-54.7	15.0
58	50 38.6	-56.1	11.7	52 36.0	-55.8	12.2	54 33.2	-55.6	12.8	56 30.1	-55.3	13.4	58 26.6	-54.9	14.2
59	49 42.5	-56.2	11.1	51 40.2	-56.0	11.6	53 37.6	-55.7	12.1	55 34.8	-55.5	12.7	57 31.7	-55.2	13.4
60	48 46.3	-56.4	10.6	50 44.2	-56.2	11.0	52 41.9	-56.0	11.5	54 39.3	-55.7	12.1	56 36.5	-55.4	12.7
61	47 49.9	-56.5	10.1	49 48.0	-56.3	10.5	51 45.9	-56.1	10.9	53 43.6	-55.9	11.4	55 41.1	-55.6	12.0
62	46 53.4	-56.7	9.6	48 51.7	-56.5	9.9	50 49.8	-56.3	10.4	52 47.7	-56.0	10.8	54 45.5	-55.8	11.4
63	45 56.7	-56.7	9.1	47 55.2	-56.6	9.4	49 53.5	-56.4	9.8	51 51.7	-56.3	10.2	53 49.7	-56.1	10.7
64	45 00.0	-56.9	8.6	46 58.6	-56.7	8.9	48 57.1	-56.6	9.3	50 55.4	-56.4	9.7	52 53.6	-56.2	10.1
65	44 03.1	-57.0	8.2	46 01.9	-56.9	8.5	48 00.5	-56.7	8.8	49 59.0	-56.5	9.1	51 57.4	-56.3	9.5
66	43 06.1	-57.0	7.7	45 05.0	-56.9	8.0	47 03.8	-56.8	8.3	49 02.5	-56.7	8.6	51 01.1	-56.5	9.0
67	42 09.1	-57.2	7.3	44 08.1	-57.1	7.6	46 07.0	-56.9	7.8	48 05.8	-56.8	8.1	50 04.6	-56.7	8.5
68	41 11.9	-57.2	6.9	43 11.0	-57.1	7.1	45 10.1	-57.1	7.4	47 09.0	-56.9	7.7	49 07.9	-56.8	8.0
69	40 14.7	-57.3	6.5	42 13.9	-57.2	6.7	44 13.0	-57.1	6.9	46 12.1	-57.0	7.2	48 11.1	-56.8	7.5
70	39 17.4	-57.4	6.1	41 16.7	-57.3	6.3	43 15.9	-57.2	6.5	45 15.1	-57.1	6.7	47 14.3	-57.1	7.0
71	38 20.0	-57.5	5.8	40 19.4	-57.4	5.9	42 18.7	-57.3	6.1	44 18.0	-57.2	6.3	46 17.2	-57.1	6.5
72	37 22.5	-57.5	5.4	39 22.0	-57.5	5.5	41 21.4	-57.4	5.7	43 20.8	-57.3	5.9	45 20.1	-57.2	6.1
73	36 25.0	-57.6	5.0	38 24.5	-57.5	5.2	40 24.0	-57.4	5.3	42 23.5	-57.4	5.5	44 22.9	-57.3	5.7
74	35 27.4	-57.6	4.7	37 27.0	-57.6	4.8	39 26.6	-57.6	5.0	41 26.1	-57.5	5.1	43 25.6	-57.4	5.3
75	34 29.8	-57.7	4.4	36 29.4	-57.6	4.5	38 29.0	-57.5	4.6	40 28.6	-57.5	4.7	42 28.2	-57.4	4.9
76	33 32.1	-57.8	4.0	35 31.8	-57.7	4.1	37 31.5	-57.7	4.2	39 31.1	-57.6	4.4	41 30.8	-57.6	4.5
77	32 34.3	-57.8	3.7	34 34.1	-57.8	3.8	36 33.8	-57.7	3.9	38 33.5	-57.6	4.0	40 33.2	-57.6	4.1
78	31 36.5	-57.8	3.4	33 36.3	-57.8	3.5	35 36.1	-57.8	3.5	37 35.9	-57.8	3.6	39 35.6	-57.7	3.7
79	30 38.7	-57.9	3.1	32 38.5	-57.9	3.1	34 38.3	-57.8	3.2	36 38.1	-57.8	3.3	38 37.9	-57.7	3.4
80	29 40.8	-57.9	2.8	31 40.6	-57.9	2.8	33 40.5	-57.9	2.9	35 40.3	-57.8	3.0	37 40.2	-57.8	3.0
81	28 42.9	-58.0	2.5	30 42.7	-57.9	2.5	32 42.6	-57.9	2.6	34 42.5	-57.9	2.6	36 42.4	-57.9	2.7
82	27 44.9	-58.0	2.2	29 44.8	-58.0	2.2	31 44.7	-57.9	2.3	33 44.6	-57.9	2.3	35 44.5	-57.9	2.4
83	26 46.9	-58.1	1.9	28 46.8	-58.0	1.9	30 46.8	-58.0	2.0	32 46.7	-58.0	2.0	34 46.6	-58.0	2.1
84	25 48.8	-58.0	1.6	27 48.8	-58.1	1.6	29 48.8	-58.1	1.7	31 48.7	-58.0	1.7	33 48.6	-58.0	1.7
85	24 50.8	-58.1	1.3	26 50.7	-58.0	1.4	28 50.7	-58.1	1.4	30 50.7	-58.1	1.4	32 50.6	-58.0	1.4
86	23 52.7	-58.2	1.1	25 52.7	-58.2	1.1	27 52.6	-58.1	1.1	29 52.6	-58.1	1.1	31 52.6	-58.1	1.1
87	22 54.5	-58.1	0.8	24 54.5	-58.1	0.8	26 54.5	-58.1	0.8	28 54.5	-58.1	0.8	30 54.5	-58.1	0.8
88	21 56.4	-58.2	0.5	23 56.4	-58.2	0.5	25 56.4	-58.2	0.5	27 56.4	-58.2	0.5	29 56.4	-58.2	0.6
89	20 58.2	-58.2	0.3	22 58.2	-58.2	0.3	24 58.2	-58.2	0.3	26 58.2	-58.2	0.3	28 58.2	-58.2	0.3
90	20 00.0	-58.2	0.0	22 00.0	-58.2	0.0	24 00.0	-58.2	0.0	26 00.0	-58.2	0.0	28 00.0	-58.2	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 14°, 346°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
38	12.9	-57.5	164.5	36	17.1	-57.6	164.9	34	21.2	-57.9	165.3	32	25.0	-58.0	165.6	30	28.7	-58.2	165.9	30
37	15.4	-57.5	164.9	35	19.5	-57.7	165.3	33	23.3	-57.9	165.6	31	27.0	-58.0	165.9	29	30.5	-58.2	166.2	31
36	17.9	-57.6	165.3	34	21.8	-57.8	165.6	32	25.4	-57.9	165.9	30	29.0	-58.1	166.2	28	32.3	-58.2	166.5	32
35	20.3	-57.6	165.6	33	24.0	-57.8	165.9	31	27.5	-58.0	166.2	29	30.9	-58.1	166.5	27	34.1	-58.2	166.8	33
34	22.7	-57.7	165.9	32	26.2	-57.9	166.3	30	29.5	-58.0	166.5	28	32.8	-58.2	166.8	26	35.9	-58.3	167.0	34
33	25.0	-57.8	166.3	31	28.3	-57.9	166.6	29	31.5	-58.0	166.8	27	34.6	-58.2	167.1	25	37.6	-58.3	167.3	35
32	27.2	-57.8	166.6	30	30.4	-58.0	166.9	28	33.5	-58.1	167.1	26	36.4	-58.2	167.4	24	39.3	-58.3	167.6	36
31	29.4	-57.9	166.9	29	32.4	-57.9	167.2	27	35.4	-58.1	167.4	25	38.2	-58.2	167.6	23	41.0	-58.4	167.8	37
30	31.5	-57.9	167.2	28	34.5	-58.1	167.5	26	37.3	-58.2	167.7	24	40.0	-58.3	167.9	22	42.6	-58.4	168.1	38
29	33.6	-57.9	167.5	27	36.4	-58.0	167.8	25	39.1	-58.2	168.0	23	41.7	-58.3	168.2	21	44.2	-58.4	168.3	39
28	35.7	-58.0	167.8	26	38.4	-58.1	168.0	24	40.9	-58.2	168.2	22	43.4	-58.3	168.4	20	45.8	-58.4	168.6	40
27	37.7	-58.0	168.1	25	40.3	-58.2	168.3	23	42.7	-58.2	168.5	21	45.1	-58.4	168.7	19	47.4	-58.4	168.8	41
26	39.7	-58.0	168.4	24	42.1	-58.1	168.6	22	44.5	-58.3	168.8	20	46.7	-58.3	168.9	18	49.0	-58.5	169.1	42
25	41.7	-58.1	168.7	23	44.0	-58.2	168.9	21	46.2	-58.3	169.0	19	48.4	-58.4	169.2	17	50.5	-58.5	169.3	43
24	43.6	-58.1	169.0	22	45.8	-58.2	169.1	20	47.9	-58.3	169.3	18	50.0	-58.4	169.4	16	52.0	-58.5	169.5	44
23	45.5	-58.1	169.2	21	47.6	-58.2	169.4	19	49.6	-58.3	169.5	17	51.6	-58.4	169.6	15	53.5	-58.5	169.6	45
22	47.4	-58.2	169.5	20	49.4	-58.3	169.6	18	51.3	-58.4	169.8	16	53.2	-58.5	169.9	14	55.0	-58.5	170.0	46
21	49.2	-58.2	169.8	19	51.1	-58.3	169.9	17	52.9	-58.3	170.0	15	54.7	-58.4	170.1	13	56.5	-58.5	170.2	47
20	51.0	-58.2	170.0	18	52.8	-58.3	170.1	16	54.6	-58.4	170.3	14	56.3	-58.5	170.4	12	58.0	-58.6	170.4	48
19	52.8	-58.2	170.3	17	54.5	-58.3	170.4	15	56.2	-58.4	170.5	13	57.8	-58.5	170.6	11	59.4	-58.5	170.7	49
18	54.6	-58.3	170.5	16	56.2	-58.3	170.6	14	57.8	-58.4	170.7	12	59.3	-58.5	170.8	10	60.9	-58.6	170.9	50
17	56.3	-58.2	170.8	15	57.9	-58.4	170.9	13	59.4	-58.5	171.0	12	60.8	-58.5	171.0	10	62.3	-58.6	171.1	51
16	58.1	-58.3	171.0	14	59.5	-58.4	171.1	13	60.9	-58.4	171.2	11	62.3	-58.5	171.3	9	63.7	-58.6	171.3	52
15	59.8	-58.3	171.3	14	61.1	-58.3	171.4	12	62.5	-58.5	171.4	10	63.8	-58.5	171.5	8	65.1	-58.6	171.5	53
14	61.5	-58.4	171.5	13	62.8	-58.4	171.6	11	64.0	-58.4	171.7	9	65.3	-58.5	171.7	7	66.5	-58.6	171.8	54
13	63.2	-58.3	171.8	12	64.4	-58.4	171.8	10	65.6	-58.5	171.9	8	66.8	-58.5	171.9	6	67.9	-58.6	172.0	55
12	64.9	-58.3	172.0	11	66.0	-58.5	172.1	9	67.1	-58.5	172.1	7	68.2	-58.5	172.2	5	69.3	-58.6	172.2	56
11	66.6	-58.4	172.3	10	67.5	-58.4	172.3	8	68.6	-58.5	172.4	6	69.7	-58.6	172.4	4	70.7	-58.6	172.4	57
10	68.3	-58.4	172.5	9	69.1	-58.4	172.5	7	70.1	-58.5	172.6	5	71.1	-58.5	172.6	3	72.1	-58.6	172.6	58
9	70.0	-58.4	172.7	8	70.7	-58.5	172.8	6	71.6	-58.5	172.8	4	72.6	-58.6	172.8	2	73.5	-58.6	172.8	59
8	71.7	-58.4	173.0	7	72.2	-58.5	173.0	5	73.1	-58.5	173.0	3	74.0	-58.5	173.0	1	74.9	-58.6	173.1	60
7	73.4	-58.4	173.2	6	73.8	-58.5	173.2	4	74.6	-58.5	173.2	2	75.5	-58.6	173.3	0	75.8	-58.6	173.3	61
6	75.1	-58.4	173.4	5	75.3	-58.4	173.5	3	76.1	-58.5	173.5	1	76.9	-58.6	173.5	0	77.1	-58.6	173.5	62
5	76.8	-58.4	173.7	4	76.9	-58.5	173.7	2	77.6	-58.5	173.7	0	78.3	-58.5	173.7	0	78.3	-58.5	173.7	63
4	78.5	-58.4	174.0	3	78.4	-58.5	173.9	1	79.1	-58.5	173.9	0	79.8	-58.5	173.9	0	79.8	-58.5	173.9	64
3	80.2	-58.4	174.3	2	79.9	-58.4	174.1	0	80.6	-58.5	174.1	0	81.3	-58.5	174.1	0	81.3	-58.5	174.1	65
2	81.9	-58.4	174.6	1	81.5	-58.5	174.4	0	82.3	-58.5	174.4	0	83.0	-58.5	174.4	0	83.0	-58.5	174.4	66
1	83.6	-58.4	174.8	0	83.5	-58.4	174.4	0	84.0	-58.5	174.4	0	84.6	-58.5	174.4	0	84.6	-58.5	174.4	67
0	85.2	-58.4	175.0	0	85.5	-58.4	174.6	0	86.0	-58.5	174.6	0	86.6	-58.5	174.6	0	86.6	-58.5	174.6	68
0	87.0	-58.4	175.0	0	87.5	-58.4	175.0	0	88.0	-58.5	175.0	0	88.6	-58.5	175.0	0	88.6	-58.5	175.0	69
0	88.5	-58.4	175.0	0	89.0	-58.4	175.0	0	89.5	-58.5	175.0	0	90.0	-58.5	175.0	0	90.0	-58.5	175.0	70
0	90.0	-58.4	175.0	0	90.5	-58.4	175.0	0	91.0	-58.5	175.0	0	91.5	-58.5	175.0	0	91.5	-58.5	175.0	71
0	91.5	-58.4	175.0	0	92.0	-58.4	175.0	0	92.5	-58.5	175.0	0	93.0	-58.5	175.0	0	93.0	-58.5	175.0	72
0	93.0	-58.4	175.0	0	93.5	-58.4	175.0	0	94.0	-58.5	175.0	0	94.5	-58.5	175.0	0	94.5	-58.5	175.0	73
0	94.5	-58.4	175.0	0	95.0	-58.4	175.0	0	95.5	-58.5	175.0	0	96.0	-58.5	175.0	0	96.0	-58.5	175.0	74
0	96.0	-58.4	175.0	0	96.5	-58.4	175.0	0	97.0	-58.5	175.0	0	97.5	-58.5	175.0	0	97.5	-58.5	175.0	75
0	97.5	-58.4	175.0	0	98.0	-58.4	175.0	0	98.5	-58.5	175.0	0	99.0	-58.5	175.0	0	99.0	-58.5	175.0	76
0	99.0	-58.4	175.0	0	99.5	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	77
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	78
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	79
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	80
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	81
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	82
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	83
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	84
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	85
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	86
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	87
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	88
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	89
0	100.0	-58.4	175.0	0	100.0	-58.4	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	0	100.0	-58.5	175.0	90

LATITUDE SAME NAME

L.H.A. 166°, 194°

16°, 344° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	56 21.2	-52.2	25.5	58 08.9	-51.4	26.9	59 55.2	-50.4	28.4	61 39.9	-49.3	30.2	63 22.5	-47.9	32.2
31	55 29.0	-52.6	24.6	57 17.5	-51.8	25.9	59 04.8	-51.0	27.4	60 50.6	-49.9	29.0	62 34.6	-48.7	30.9
32	54 36.4	-52.9	23.8	56 25.7	-52.2	25.0	58 13.8	-51.3	26.4	60 00.7	-50.5	27.9	61 45.9	-49.3	29.6
33	53 43.5	-53.3	23.0	55 33.5	-52.6	24.1	57 22.5	-51.9	25.4	59 10.2	-50.9	26.8	60 56.6	-49.9	28.4
34	52 50.2	-53.5	22.2	54 40.9	-52.9	23.3	56 30.6	-52.2	24.5	58 19.3	-51.4	25.8	60 06.7	-50.5	27.3
35	51 56.7	-53.8	21.5	53 48.0	-53.2	22.5	55 38.4	-52.5	23.6	57 27.9	-51.8	24.8	59 16.2	-51.0	26.2
36	51 02.9	-54.0	20.8	52 54.8	-53.6	21.7	54 45.9	-53.0	22.7	56 36.1	-52.3	23.9	58 25.2	-51.4	25.2
37	50 08.9	-54.3	20.1	52 01.2	-53.7	21.0	53 52.9	-53.2	21.9	55 43.8	-52.6	23.0	57 33.8	-51.9	24.2
38	49 14.6	-54.5	19.4	51 07.5	-54.1	20.2	52 59.7	-53.5	21.2	54 51.2	-52.9	22.2	56 41.9	-52.2	23.3
39	48 20.1	-54.7	18.8	50 13.4	-54.2	19.6	52 06.2	-53.8	20.4	53 58.3	-53.2	21.4	55 49.7	-52.6	22.4
40	47 25.4	-54.9	18.2	49 19.2	-54.5	18.9	51 12.4	-54.0	19.7	53 05.1	-53.5	20.6	54 57.1	-53.0	21.6
41	46 30.5	-55.1	17.6	48 24.7	-54.7	18.3	50 18.4	-54.3	19.0	52 11.6	-53.8	19.8	54 04.1	-53.3	20.8
42	45 35.4	-55.2	17.0	47 30.0	-54.9	17.6	49 24.1	-54.5	18.3	51 17.8	-54.1	19.1	53 10.8	-53.5	20.0
43	44 40.2	-55.4	16.5	46 35.1	-55.1	17.1	48 29.6	-54.7	17.7	50 23.7	-54.3	18.4	52 17.3	-53.8	19.2
44	43 44.8	-55.5	15.9	45 40.0	-55.2	16.5	47 34.9	-54.8	17.1	49 29.4	-54.5	17.8	51 23.5	-54.1	18.5
45	42 49.3	-55.7	15.4	44 44.8	-55.4	15.9	46 40.1	-55.1	16.5	48 34.9	-54.7	17.1	50 29.4	-54.3	17.8
46	41 53.6	-55.8	14.9	43 49.4	-55.5	15.4	45 45.0	-55.2	15.9	47 40.2	-54.9	16.5	49 35.1	-54.6	17.2
47	40 57.8	-55.9	14.4	42 53.9	-55.6	14.9	44 49.8	-55.4	15.4	46 45.3	-55.1	15.9	48 40.5	-54.7	16.5
48	40 01.9	-56.0	13.9	41 58.3	-55.8	14.4	43 54.4	-55.5	14.8	45 50.2	-55.2	15.4	47 45.8	-54.9	15.9
49	39 05.9	-56.2	13.5	41 02.5	-56.0	13.9	42 58.9	-55.7	14.3	44 55.0	-55.4	14.8	46 50.9	-55.1	15.3
50	38 09.7	-56.2	13.0	40 06.5	-56.0	13.4	42 03.2	-55.8	13.8	43 59.6	-55.5	14.3	45 55.8	-55.3	14.8
51	37 13.5	-56.4	12.6	39 10.5	-56.1	12.9	41 07.4	-55.9	13.3	43 04.1	-55.7	13.7	45 00.5	-55.4	14.2
52	36 17.1	-56.4	12.2	38 14.4	-56.3	12.5	40 11.5	-56.1	12.8	42 08.4	-55.8	13.2	44 05.1	-55.6	13.7
53	35 20.7	-56.5	11.7	37 18.1	-56.3	12.0	39 15.4	-56.1	12.4	41 12.6	-56.0	12.7	43 09.5	-55.7	13.1
54	34 24.2	-56.6	11.3	36 21.8	-56.4	11.6	38 19.3	-56.3	11.9	40 16.6	-56.0	12.3	42 13.8	-55.8	12.6
55	33 27.6	-56.7	10.9	35 25.4	-56.5	11.2	37 23.0	-56.3	11.5	39 20.6	-56.2	11.8	41 18.0	-56.0	12.1
56	32 30.9	-56.7	10.5	34 28.9	-56.6	10.8	36 26.7	-56.4	11.0	38 24.4	-56.2	11.3	40 22.0	-56.1	11.7
57	31 34.2	-56.8	10.1	33 32.3	-56.7	10.4	35 30.3	-56.5	10.6	37 28.2	-56.4	10.9	39 25.9	-56.1	11.2
58	30 37.4	-56.9	9.8	32 35.6	-56.7	10.0	34 33.8	-56.6	10.2	36 31.8	-56.4	10.5	38 29.8	-56.3	10.8
59	29 40.5	-56.9	9.4	31 38.9	-56.8	9.6	33 37.2	-56.7	9.8	35 35.4	-56.6	10.1	37 33.5	-56.4	10.3
60	28 43.6	-57.0	9.0	30 42.1	-56.9	9.2	32 40.5	-56.8	9.4	34 38.8	-56.6	9.6	36 37.1	-56.5	9.9
61	27 46.6	-57.0	8.7	29 45.2	-56.9	8.9	31 43.7	-56.8	9.0	33 42.2	-56.7	9.2	35 40.6	-56.5	9.5
62	26 49.6	-57.1	8.3	28 48.3	-57.0	8.5	30 46.9	-56.8	8.7	32 45.5	-56.7	8.9	34 44.1	-56.7	9.1
63	25 52.5	-57.2	8.0	27 51.3	-57.0	8.1	29 50.1	-57.0	8.3	31 48.8	-56.8	8.5	33 47.4	-56.7	8.7
64	24 55.3	-57.1	7.7	26 54.3	-57.1	7.8	28 53.1	-57.0	7.9	30 52.0	-56.9	8.1	32 50.7	-56.7	8.3
65	23 58.2	-57.3	7.3	25 57.2	-57.2	7.4	27 56.1	-57.0	7.6	29 55.1	-57.0	7.7	31 54.0	-56.9	7.9
66	23 00.9	-57.2	7.0	25 00.0	-57.2	7.1	26 59.1	-57.1	7.2	28 58.1	-57.0	7.4	30 57.1	-56.9	7.5
67	22 03.7	-57.3	6.7	24 02.8	-57.2	6.8	26 02.0	-57.2	6.9	28 01.1	-57.1	7.0	30 00.2	-57.0	7.1
68	21 06.4	-57.4	6.4	23 05.6	-57.3	6.4	25 04.8	-57.1	6.5	27 04.0	-57.1	6.7	29 03.2	-57.0	6.8
69	20 09.0	-57.3	6.0	22 08.3	-57.3	6.1	24 07.7	-57.3	6.2	26 06.9	-57.1	6.3	28 06.2	-57.1	6.4
70	19 11.7	-57.5	5.7	21 11.0	-57.3	5.8	23 10.4	-57.3	5.9	25 09.8	-57.2	6.0	27 09.1	-57.1	6.1
71	18 14.2	-57.4	5.4	20 13.7	-57.4	5.5	22 13.1	-57.3	5.6	24 12.6	-57.3	5.6	26 12.0	-57.2	5.7
72	17 16.8	-57.4	5.1	19 16.3	-57.4	5.2	21 15.8	-57.3	5.2	23 15.3	-57.3	5.3	25 14.8	-57.2	5.4
73	16 19.4	-57.5	4.8	18 18.9	-57.4	4.9	20 18.5	-57.4	4.9	22 18.0	-57.3	5.0	24 17.6	-57.3	5.1
74	15 21.9	-57.5	4.5	17 21.5	-57.5	4.6	19 21.1	-57.4	4.6	21 20.7	-57.3	4.7	23 20.3	-57.3	4.7
75	14 24.4	-57.6	4.2	16 24.0	-57.4	4.3	18 23.7	-57.4	4.3	20 23.4	-57.4	4.4	22 23.0	-57.3	4.4
76	13 26.8	-57.5	3.9	15 26.6	-57.6	4.0	17 26.3	-57.5	4.0	19 26.0	-57.5	4.1	21 25.7	-57.4	4.1
77	12 29.3	-57.6	3.6	14 29.0	-57.5	3.7	16 28.8	-57.5	3.7	18 28.5	-57.4	3.7	20 28.3	-57.4	3.8
78	11 31.7	-57.6	3.4	13 31.5	-57.5	3.4	15 31.3	-57.5	3.4	17 31.1	-57.5	3.4	19 30.9	-57.5	3.5
79	10 34.1	-57.6	3.1	12 34.0	-57.6	3.1	14 33.8	-57.6	3.1	16 33.6	-57.5	3.1	18 33.4	-57.5	3.2
80	9 36.5	-57.6	2.8	11 36.4	-57.6	2.8	13 36.2	-57.5	2.8	15 36.1	-57.5	2.8	17 35.9	-57.5	2.9
81	8 38.9	-57.6	2.5	10 38.8	-57.6	2.5	12 38.7	-57.6	2.5	14 38.6	-57.6	2.6	16 38.4	-57.5	2.6
82	7 41.3	-57.6	2.2	9 41.2	-57.6	2.2	11 41.1	-57.6	2.2	13 41.0	-57.6	2.3	15 40.9	-57.5	2.3
83	6 43.7	-57.7	1.9	8 43.6	-57.6	1.9	10 43.5	-57.6	2.0	12 43.4	-57.5	2.0	14 43.4	-57.6	2.0
84	5 46.0	-57.6	1.7	7 46.0	-57.7	1.7	9 45.9	-57.6	1.7	11 45.9	-57.7	1.7	13 45.8	-57.6	1.7
85	4 48.4	-57.7	1.4	6 48.3	-57.6	1.4	8 48.3	-57.7	1.4	10 48.2	-57.6	1.4	12 48.2	-57.6	1.4
86	3 50.7	-57.7	1.1	5 50.7	-57.7	1.1	7 50.6	-57.6	1.1	9 50.6	-57.6	1.1	11 50.6	-57.6	1.1
87	2 53.0	-57.7	0.8	4 53.0	-57.7	0.8	6 53.0	-57.7	0.8	8 53.0	-57.7	0.8	10 53.0	-57.7	0.8
88	1 55.3	-57.6	0.6	3 55.3	-57.6	0.6	5 55.3	-57.6	0.6	7 55.3	-57.6	0.6	9 55.3	-57.6	0.6
89	0 57.7	-57.7	0.3	2 57.7	-57.7	0.3	4 57.7	-57.7	0.3	6 57.7	-57.7	0.3	8 57.7	-57.7	0.3
90	0 00.0	-57.7	0.0	2 00.0	-57.7	0.0	4 00.0	-57.7	0.0	6 00.0	-57.7	0.0	8 00.0	-57.7	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 16°, 344°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
56	21.2	-52.2 154.5	54	32.4	-53.0 155.7	52	42.6	-53.7 156.8	50	51.9	-54.2 157.8	49	00.4	-54.6 158.7	30
55	29.0	-52.6 155.4	53	39.4	-53.2 156.5	51	48.9	-53.8 157.5	49	57.7	-54.4 158.5	48	05.8	-54.9 159.3	31
54	36.4	-52.9 156.2	52	46.2	-53.6 157.3	50	55.1	-54.1 158.2	49	03.3	-54.6 159.1	47	10.9	-55.0 159.9	32
53	43.5	-53.3 157.0	51	52.6	-53.8 158.0	50	01.0	-54.4 158.9	48	08.7	-54.8 159.7	46	15.9	-55.2 160.5	33
52	50.2	-53.5 157.8	50	58.8	-54.1 158.7	49	06.6	-54.5 159.6	47	13.9	-55.0 160.3	45	20.7	-55.4 161.0	34
51	56.7	-53.8 158.5	50	04.7	-54.3 159.4	48	12.1	-54.8 160.2	46	18.9	-55.1 160.9	44	25.3	-55.5 161.6	35
51	02.9	-54.0 159.2	49	10.4	-54.5 160.1	47	17.3	-54.9 160.8	45	23.8	-55.4 161.5	43	29.8	-55.7 162.1	36
50	08.9	-54.3 159.9	48	15.9	-54.7 160.7	46	22.4	-55.1 161.4	44	28.4	-55.4 162.0	42	34.1	-55.8 162.6	37
49	14.6	-54.5 160.6	47	21.2	-55.0 161.3	45	27.3	-55.3 162.0	43	33.0	-55.6 162.6	41	38.3	-55.9 163.1	38
48	20.1	-54.7 161.2	46	26.2	-55.0 161.9	44	32.0	-55.4 162.5	42	37.4	-55.8 163.1	40	42.4	-56.0 163.6	39
47	25.4	-54.9 161.8	45	31.2	-55.3 162.5	43	36.6	-55.6 163.0	41	41.6	-55.9 163.9	39	46.4	-56.2 164.1	40
46	30.5	-55.1 162.4	44	35.9	-55.4 163.0	42	41.0	-55.7 163.6	40	45.7	-56.0 164.1	38	50.2	-56.2 164.5	41
45	35.4	-55.2 163.0	43	40.5	-55.5 163.5	41	45.3	-55.9 164.1	39	49.7	-56.1 164.5	37	54.0	-56.4 165.0	42
44	40.2	-55.4 163.5	42	45.0	-55.7 164.1	40	49.4	-55.9 164.6	38	53.6	-56.2 165.0	36	57.6	-56.4 165.4	43
43	44.8	-55.5 164.1	41	49.3	-55.8 164.6	39	53.5	-56.1 165.0	37	57.4	-56.3 165.4	36	01.2	-56.5 165.8	44
42	49.3	-55.7 164.6	40	53.5	-56.0 165.1	38	57.4	-56.2 165.5	37	01.1	-56.4 165.9	35	04.7	-56.6 166.2	45
41	53.6	-55.8 165.1	39	57.5	-56.0 165.5	38	01.2	-56.2 165.9	36	04.7	-56.5 166.3	34	08.1	-56.7 166.6	46
40	57.8	-55.9 165.6	39	01.5	-56.2 166.0	37	05.0	-56.4 166.4	35	08.2	-56.5 166.6	33	11.4	-56.8 167.0	47
40	01.9	-56.0 166.1	38	05.3	-56.2 166.4	36	08.6	-56.5 166.8	34	11.7	-56.7 167.1	32	14.6	-56.8 167.4	48
39	05.9	-56.2 166.5	37	09.1	-56.4 166.9	35	12.1	-56.5 167.2	33	15.0	-56.7 167.5	31	17.8	-56.9 167.8	49
38	09.7	-56.3 167.0	36	12.7	-56.4 167.3	34	15.6	-56.6 167.6	32	18.3	-56.8 167.9	30	20.9	-56.9 168.2	50
37	13.5	-56.4 167.4	35	16.3	-56.5 167.7	33	19.0	-56.7 168.0	31	21.5	-56.8 168.3	29	24.0	-57.0 168.5	51
36	17.1	-56.4 167.8	34	19.8	-56.6 168.1	32	22.3	-56.8 168.4	30	24.7	-57.0 168.7	28	27.0	-57.1 168.9	52
35	20.7	-56.5 168.3	33	23.2	-56.7 168.5	31	25.5	-56.8 168.8	29	27.7	-56.9 169.0	27	29.9	-57.1 169.2	53
34	24.2	-56.6 168.7	32	26.5	-56.8 168.9	30	28.7	-56.9 169.2	28	30.8	-57.1 169.4	26	32.8	-57.2 169.6	54
33	27.6	-56.7 169.1	31	29.7	-56.8 169.3	29	31.8	-57.0 169.5	27	33.7	-57.1 169.7	25	35.6	-57.2 169.9	55
32	30.9	-56.7 169.5	30	32.9	-56.9 169.7	28	34.8	-57.0 169.9	26	36.6	-57.1 170.1	24	38.4	-57.2 170.2	56
31	34.2	-56.8 169.9	29	36.0	-56.9 170.1	27	37.8	-57.1 170.2	25	39.5	-57.2 170.4	23	41.2	-57.3 170.6	57
30	37.4	-56.9 170.2	28	39.1	-57.0 170.4	26	40.7	-57.1 170.6	24	42.3	-57.2 170.7	22	43.9	-57.4 170.9	58
29	40.5	-56.9 170.6	27	42.1	-57.0 170.8	25	43.6	-57.1 170.9	23	45.1	-57.3 171.1	21	46.5	-57.3 171.2	59
28	43.6	-57.0 171.0	26	45.1	-57.1 171.1	24	46.5	-57.2 171.3	22	47.8	-57.3 171.4	20	49.2	-57.4 171.5	60
27	46.6	-57.0 171.3	25	48.0	-57.2 171.5	23	49.3	-57.3 171.6	21	50.5	-57.3 171.7	19	51.8	-57.5 171.8	61
26	49.6	-57.1 171.7	24	50.8	-57.2 171.8	22	52.0	-57.3 171.9	20	53.2	-57.4 172.0	18	54.3	-57.4 172.1	62
25	52.5	-57.2 172.0	23	53.6	-57.2 172.1	21	54.7	-57.3 172.2	19	55.8	-57.4 172.4	17	56.9	-57.5 172.4	63
24	55.3	-57.1 172.3	22	56.4	-57.3 172.5	20	57.4	-57.3 172.6	18	58.4	-57.4 172.7	16	59.4	-57.5 172.7	64
23	58.2	-57.3 172.7	21	59.1	-57.3 172.8	20	00.1	-57.4 172.9	18	00.1	-57.4 173.0	16	01.9	-57.6 173.0	65
23	00.9	-57.2 173.0	21	01.8	-57.3 173.1	19	02.7	-57.5 173.2	17	03.5	-57.5 173.3	15	04.3	-57.5 173.3	66
22	03.7	-57.3 173.3	20	04.5	-57.4 173.4	18	05.2	-57.4 173.5	16	06.0	-57.5 173.6	14	06.8	-57.6 173.6	67
21	06.4	-57.4 173.6	19	07.1	-57.4 173.7	17	07.8	-57.5 173.8	15	08.5	-57.5 173.9	13	09.2	-57.6 173.9	68
20	09.0	-57.3 174.0	18	09.7	-57.5 174.0	16	10.3	-57.5 174.1	14	11.0	-57.6 174.2	12	11.6	-57.6 174.2	69
19	11.7	-57.5 174.3	17	12.2	-57.4 174.3	15	12.8	-57.5 174.4	13	13.4	-57.6 174.4	11	14.0	-57.7 174.5	70
18	14.2	-57.4 174.6	16	14.8	-57.5 174.6	14	15.3	-57.5 174.7	12	15.8	-57.6 174.7	10	16.3	-57.6 174.8	71
17	16.8	-57.4 174.9	15	17.3	-57.5 174.9	13	17.8	-57.6 175.0	11	18.2	-57.6 175.0	9	18.7	-57.7 175.0	72
16	19.4	-57.5 175.2	14	19.8	-57.6 175.2	12	20.2	-57.6 175.3	10	20.6	-57.6 175.3	8	21.0	-57.7 175.3	73
15	21.9	-57.5 175.5	13	22.2	-57.5 175.5	11	22.6	-57.6 175.6	9	23.0	-57.7 175.6	7	23.3	-57.7 175.6	74
14	24.4	-57.6 175.8	12	24.7	-57.6 175.8	10	25.0	-57.6 175.8	8	25.3	-57.6 175.9	6	25.6	-57.7 175.9	75
13	26.8	-57.5 176.1	11	27.1	-57.6 176.1	9	27.4	-57.6 176.1	7	27.7	-57.7 176.1	5	27.9	-57.7 176.2	76
12	29.3	-57.6 176.4	10	29.5	-57.6 176.4	8	29.8	-57.7 176.4	6	30.0	-57.7 176.4	4	30.2	-57.7 176.4	77
11	31.7	-57.6 176.6	9	31.9	-57.6 176.7	7	32.1	-57.6 176.7	5	32.3	-57.7 176.7	3	32.5	-57.7 176.7	78
10	34.1	-57.6 176.9	8	34.3	-57.6 177.0	6	34.5	-57.7 177.0	4	34.6	-57.6 177.0	2	34.8	-57.7 177.0	79
9	36.5	-57.6 177.2	7	36.7	-57.7 177.2	5	36.8	-57.7 177.2	3	37.0	-57.7 177.3	1	37.1	-57.7 177.3	80
8	38.9	-57.6 177.5	6	39.0	-57.6 177.5	4	39.1	-57.6 177.5	2	39.3	-57.7 177.5	0	39.4	-57.8 177.5	81
7	41.3	-57.6 177.8	5	41.4	-57.7 177.8	3	41.5	-57.7 177.8	1	41.6	-57.7 177.8	0	18.4	+57.7 2.2	82
6	43.7	-57.7 178.1	4	43.7	-57.6 178.1	2	43.8	-57.7 178.1	0	43.9	-57.7 178.1	2	13.8	+57.7 1.7	83
5	46.0	-57.6 178.3	3	46.1	-57.7 178.3	1	46.1	-57.7 178.3	0	13.8	+57.7 1.7	2	13.8	+57.7 1.7	84
4	48.4	-57.7 178.6	2	48.4	-57.7 178.6	0	48.4	-57.7 178.6	1	11.5	+57.7 1.4	3	11.5	+57.7 1.4	85
3	50.7	-57.7 178.9	1	50.7	-57.7 178.9	0	09.3	+57.7 1.1	2	09.2	+57.7 1.1	4	09.2	+57.7 1.1	86
2	53.0	-57.7 179.2	0	53.0	-57.6 179.2	1	07.0	+57.6 0.8	3	06.9	+57.7 0.8	5	06.9	+57.7 0.8	87
1	55.3	-57.6 179.4	0	04.6	+57.7 0.6	2	04.6	+57.7 0.6	4	04.6	+57.7 0.6	6	04.6	+57.7 0.6	88
0	57.7	-57.7 179.7	1	02.3	+57.7 0.3	3	02.3	+57.7 0.3	5	02.3	+57.7 0.3	7	02.3	+57.7 0.3	89
0	00.0	+57.7 0.0	2	00.0	+57.7 0.0	4	00.0	+57.7 0.0	6	00.0	+57.7 0.0	8	00.0	+57.7 0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 164°, 196°

16°, 344° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	65 02.8	-46.4	34.5	66 40.2	-44.5	37.1	68 14.1	-42.2	40.1	69 43.6	-39.5	43.5	71 07.7	-36.2	47.6
31	64 16.4	-47.2	33.0	65 55.7	-45.5	35.4	67 31.9	-43.5	38.2	69 04.1	-41.0	41.4	70 31.5	-37.9	45.1
32	63 29.2	-48.0	31.6	65 10.2	-46.4	33.8	66 48.4	-44.6	36.4	68 23.1	-42.3	39.4	69 53.6	-39.6	42.8
33	62 41.2	-48.7	30.3	64 23.8	-47.3	32.3	66 03.8	-45.6	34.7	67 40.8	-43.6	37.5	69 14.0	-41.2	40.7
34	61 52.5	-49.4	29.0	63 36.5	-48.1	30.9	65 18.2	-46.6	33.2	66 57.2	-44.7	35.7	68 32.8	-42.5	38.7
35	61 03.1	-50.0	27.8	62 48.4	-48.8	29.6	64 31.6	-47.4	31.7	66 12.5	-45.8	34.0	67 50.3	-43.7	36.8
36	60 13.1	-50.5	26.7	61 59.6	-49.5	28.4	63 44.2	-48.1	30.3	65 26.7	-46.6	32.5	67 06.6	-44.9	35.0
37	59 22.6	-51.0	25.6	61 10.1	-50.0	27.2	62 56.1	-48.9	28.9	64 40.1	-47.6	31.0	66 21.7	-45.9	33.3
38	58 31.6	-51.5	24.6	60 20.1	-50.6	26.0	62 07.2	-49.6	27.7	63 52.5	-48.3	29.6	65 35.8	-46.8	31.7
39	57 40.1	-51.9	23.6	59 29.5	-51.1	25.0	61 17.6	-50.1	26.5	63 04.2	-49.0	28.2	64 49.0	-47.7	30.2
40	56 48.2	-52.3	22.7	58 38.4	-51.5	23.9	60 27.5	-50.6	25.4	62 15.2	-49.6	27.0	64 01.3	-48.4	28.8
41	55 55.9	-52.6	21.8	57 46.9	-52.0	23.0	59 36.9	-51.2	24.3	61 25.6	-50.2	25.8	63 12.9	-49.2	27.5
42	55 03.3	-53.0	21.0	56 54.9	-52.3	22.0	58 45.7	-51.6	23.3	60 35.4	-50.8	24.7	62 23.7	-49.8	26.2
43	54 10.3	-53.3	20.1	56 02.6	-52.8	21.2	57 54.1	-52.1	22.3	59 44.6	-51.3	23.6	61 33.9	-50.3	25.0
44	53 17.0	-53.6	19.4	55 09.8	-53.0	20.3	57 02.0	-52.4	21.4	58 53.3	-51.7	22.6	60 43.6	-50.9	23.9
45	52 23.4	-53.9	18.6	54 16.8	-53.4	19.5	56 09.6	-52.8	20.5	58 01.6	-52.2	21.6	59 52.7	-51.4	22.9
46	51 29.5	-54.1	17.9	53 23.4	-53.6	18.7	55 16.8	-53.2	19.6	57 09.4	-52.5	20.7	59 01.3	-51.9	21.8
47	50 35.4	-54.4	17.2	52 29.8	-54.0	18.0	54 23.6	-53.4	18.8	56 16.9	-52.9	19.8	58 09.4	-52.3	20.9
48	49 41.0	-54.6	16.6	51 35.8	-54.1	17.3	53 30.2	-53.8	18.1	55 24.0	-53.3	19.0	57 17.1	-52.6	20.0
49	48 46.4	-54.7	15.9	50 41.7	-54.5	16.6	52 36.4	-54.0	17.3	54 30.7	-53.5	18.1	56 24.5	-53.0	19.1
50	47 51.7	-55.0	15.3	49 47.2	-54.6	15.9	51 42.4	-54.2	16.6	53 37.2	-53.8	17.4	55 31.5	-53.4	18.2
51	46 56.7	-55.1	14.7	48 52.6	-54.8	15.3	50 48.2	-54.5	15.9	52 43.4	-54.1	16.6	54 38.1	-53.6	17.4
52	46 01.6	-55.3	14.1	47 57.8	-55.0	14.7	49 53.7	-54.7	15.3	51 49.3	-54.3	15.9	53 44.5	-53.9	16.7
53	45 06.3	-55.5	13.6	47 02.8	-55.2	14.1	48 59.0	-54.9	14.6	50 55.0	-54.6	15.3	52 50.6	-54.2	15.9
54	44 10.8	-55.6	13.1	46 07.6	-55.4	13.5	48 04.1	-55.0	14.0	50 00.4	-54.7	14.6	51 56.4	-54.4	15.2
55	43 15.2	-55.7	12.5	45 12.2	-55.5	13.0	47 09.1	-55.3	13.4	49 05.7	-55.0	14.0	51 02.0	-54.7	14.6
56	42 19.5	-55.9	12.0	44 16.7	-55.6	12.4	46 13.8	-55.4	12.9	48 10.7	-55.2	13.4	50 07.3	-54.9	13.9
57	41 23.6	-56.0	11.5	43 21.1	-55.8	11.9	45 18.4	-55.6	12.3	47 15.5	-55.3	12.8	49 12.4	-55.0	13.3
58	40 27.6	-56.1	11.1	42 25.3	-55.9	11.4	44 22.8	-55.7	11.8	46 20.2	-55.5	12.2	48 17.4	-55.2	12.7
59	39 31.5	-56.2	10.6	41 29.4	-56.1	10.9	43 27.1	-55.8	11.3	45 24.7	-55.6	11.7	47 22.2	-55.4	12.1
60	38 35.3	-56.3	10.2	40 33.3	-56.1	10.5	42 31.3	-56.0	10.8	44 29.1	-55.8	11.1	46 26.8	-55.6	11.5
61	37 39.0	-56.5	9.7	39 37.2	-56.3	10.0	41 35.3	-56.1	10.3	43 33.3	-55.9	10.6	45 31.2	-55.7	11.0
62	36 42.5	-56.5	9.3	38 40.9	-56.3	9.5	40 39.2	-56.2	9.8	42 37.4	-56.0	10.1	44 35.5	-55.9	10.5
63	35 46.0	-56.5	8.9	37 44.6	-56.5	9.1	39 43.0	-56.3	9.4	41 41.4	-56.2	9.6	43 39.6	-56.0	10.0
64	34 49.5	-56.7	8.5	36 48.1	-56.5	8.7	38 46.7	-56.4	8.9	40 45.2	-56.3	9.2	42 43.6	-56.1	9.5
65	33 52.8	-56.7	8.1	35 51.6	-56.6	8.3	37 50.3	-56.5	8.5	39 48.9	-56.3	8.7	41 47.5	-56.2	9.0
66	32 56.1	-56.9	7.7	34 55.0	-56.7	7.9	36 53.8	-56.6	8.1	38 52.6	-56.5	8.3	40 51.3	-56.3	8.5
67	31 59.2	-56.8	7.3	33 58.3	-56.8	7.5	35 57.2	-56.7	7.6	37 56.1	-56.5	7.8	39 55.0	-56.5	8.1
68	31 02.4	-57.0	6.9	33 01.5	-56.9	7.1	35 00.5	-56.7	7.2	36 59.6	-56.7	7.4	38 58.5	-56.5	7.6
69	30 05.4	-57.0	6.6	32 04.6	-56.9	6.7	34 03.8	-56.8	6.8	36 02.9	-56.7	7.0	38 02.0	-56.6	7.2
70	29 08.4	-57.0	6.2	31 07.7	-57.0	6.3	33 07.0	-56.9	6.5	35 06.2	-56.8	6.6	37 05.4	-56.7	6.8
71	28 11.4	-57.1	5.8	30 10.7	-57.0	6.0	32 10.1	-57.0	6.1	34 09.4	-56.9	6.2	36 08.7	-56.8	6.4
72	27 14.3	-57.2	5.5	29 13.7	-57.1	5.6	31 13.1	-57.0	5.7	33 12.5	-56.9	5.8	35 11.9	-56.9	6.0
73	26 17.1	-57.2	5.2	28 16.6	-57.1	5.3	30 16.1	-57.1	5.4	32 15.6	-57.1	5.5	34 15.0	-56.9	5.6
74	25 19.9	-57.3	4.8	27 19.5	-57.2	4.9	29 19.0	-57.1	5.0	31 18.5	-57.0	5.1	33 18.1	-57.0	5.2
75	24 22.6	-57.3	4.5	26 22.3	-57.3	4.6	28 21.9	-57.2	4.7	30 21.5	-57.2	4.7	32 21.1	-57.1	4.8
76	23 25.3	-57.3	4.2	25 25.0	-57.3	4.2	27 24.7	-57.2	4.3	29 24.3	-57.1	4.4	31 24.0	-57.1	4.5
77	22 28.0	-57.4	3.8	24 27.7	-57.3	3.9	26 27.5	-57.3	4.0	28 27.2	-57.3	4.0	30 26.9	-57.2	4.1
78	21 30.6	-57.4	3.5	23 30.4	-57.4	3.6	25 30.2	-57.4	3.6	27 29.9	-57.3	3.7	29 29.7	-57.3	3.8
79	20 33.2	-57.4	3.2	22 33.0	-57.4	3.3	24 32.8	-57.3	3.3	26 32.6	-57.3	3.4	28 32.4	-57.3	3.4
80	19 35.8	-57.5	2.9	21 35.6	-57.4	3.0	23 35.5	-57.4	3.0	25 35.3	-57.4	3.0	27 35.1	-57.3	3.1
81	18 38.3	-57.5	2.6	20 38.2	-57.5	2.6	22 38.1	-57.5	2.7	24 37.9	-57.4	2.7	26 37.8	-57.4	2.8
82	17 40.8	-57.5	2.3	19 40.7	-57.5	2.3	21 40.6	-57.5	2.4	23 40.5	-57.4	2.4	25 40.4	-57.4	2.4
83	16 43.3	-57.6	2.0	18 43.2	-57.5	2.0	20 43.1	-57.5	2.1	22 43.1	-57.5	2.1	24 43.0	-57.5	2.1
84	15 45.7	-57.5	1.7	17 45.7	-57.6	1.7	19 45.6	-57.5	1.8	21 45.6	-57.5	1.8	23 45.5	-57.5	1.8
85	14 48.2	-57.6	1.4	16 48.1	-57.5	1.4	18 48.1	-57.6	1.5	20 48.1	-57.6	1.5	22 48.0	-57.5	1.5
86	13 50.6	-57.6	1.1	15 50.6	-57.7	1.1	17 50.5	-57.6	1.2	19 50.5	-57.6	1.2	21 50.5	-57.6	1.2
87	12 53.0	-57.7	0.8	14 52.9	-57.6	0.9	16 52.9	-57.6	0.9	18 52.9	-57.6	0.9	20 52.9	-57.6	0.9
88	11 55.3	-57.6	0.6	13 55.3	-57.6	0.6	15 55.3	-57.6	0.6	17 55.3	-57.6	0.6	19 55.3	-57.6	0.6
89	10 57.7	-57.7	0.3	12 57.7	-57.7	0.3	14 57.7	-57.7	0.3	16 57.7	-57.7	0.3	18 57.7	-57.7	0.3
90	10 00.0	-57.7	0.0	12 00.0	-57.7	0.0	14 00.0	-57.7	0.0	16 00.0	-57.7	0.0	18 00.0	-57.7	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 16°, 344°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
47	08.3	-55.1	159.5	45	15.7	-55.5	160.2	43	22.6	-55.9	160.8	41	29.0	-56.1	161.4	39	35.1	-56.5	162.0	30
46	13.2	-55.2	160.0	44	20.2	-55.6	160.7	42	26.7	-56.0	161.3	40	32.9	-56.3	161.9	38	38.6	-56.5	162.4	31
45	18.0	-55.5	160.6	43	24.6	-55.8	161.2	41	30.7	-56.1	161.8	39	36.6	-56.4	162.3	37	42.1	-56.7	162.8	32
44	22.5	-55.5	161.1	42	28.8	-55.9	161.7	40	34.6	-56.2	162.3	38	40.2	-56.5	162.8	36	45.4	-56.7	163.2	33
43	27.0	-55.8	161.7	41	32.9	-56.1	162.2	39	38.4	-56.3	162.7	37	43.7	-56.6	163.2	35	48.7	-56.8	163.6	34
42	31.2	-55.8	162.2	40	36.8	-56.1	162.7	38	42.1	-56.4	163.2	36	47.1	-56.6	163.6	34	51.9	-56.9	164.0	35
41	35.4	-56.0	162.7	39	40.7	-56.3	163.2	37	45.7	-56.5	163.6	35	50.5	-56.8	164.0	33	55.0	-57.0	164.4	36
40	39.4	-56.1	163.1	38	44.4	-56.3	163.6	36	49.2	-56.6	164.0	34	53.7	-56.8	164.4	32	58.0	-57.0	164.8	37
39	43.3	-56.2	163.6	37	48.1	-56.5	164.0	35	52.6	-56.7	164.5	33	56.9	-56.9	164.8	32	01.0	-57.1	165.2	38
38	47.1	-56.2	164.0	36	51.6	-56.5	164.5	34	55.9	-56.7	164.9	33	00.0	-57.0	165.2	31	03.9	-57.2	165.5	39
37	50.9	-56.4	164.5	35	55.1	-56.6	164.9	33	59.2	-56.9	165.2	32	03.0	-57.0	165.6	30	06.7	-57.2	165.9	40
36	54.5	-56.5	164.9	34	58.5	-56.7	165.3	33	02.3	-56.9	165.6	31	06.0	-57.1	165.9	29	09.5	-57.2	166.2	41
35	58.0	-56.6	165.3	34	01.8	-56.8	165.7	32	05.4	-56.9	166.0	30	08.9	-57.1	166.3	28	12.3	-57.3	166.6	42
35	01.4	-56.6	165.7	33	05.0	-56.8	166.1	31	08.5	-57.1	166.4	29	11.8	-57.2	166.6	27	15.0	-57.4	166.9	43
34	04.8	-56.8	166.1	32	08.2	-56.9	166.5	30	11.4	-57.0	166.7	28	14.6	-57.3	167.0	26	17.6	-57.4	167.2	44
33	08.0	-56.7	166.5	31	11.3	-57.0	166.8	29	14.4	-57.2	167.1	27	17.3	-57.3	167.3	25	20.2	-57.4	167.5	45
32	11.3	-56.9	166.9	30	14.3	-57.0	167.2	28	17.2	-57.2	167.4	26	20.0	-57.3	167.7	24	22.8	-57.5	167.9	46
31	14.4	-56.9	167.3	29	17.3	-57.1	167.6	27	20.0	-57.2	167.8	25	22.7	-57.4	168.0	23	25.3	-57.6	168.2	47
30	17.5	-57.0	167.7	28	20.2	-57.2	167.9	26	22.8	-57.3	168.1	24	25.3	-57.4	168.3	22	27.8	-57.6	168.5	48
29	20.5	-57.1	168.0	27	23.0	-57.2	168.2	25	25.5	-57.3	168.4	23	27.9	-57.5	168.6	21	30.2	-57.6	168.8	49
28	23.4	-57.1	168.4	26	25.8	-57.2	168.6	24	28.2	-57.4	168.8	22	30.4	-57.4	168.9	20	32.6	-57.6	169.1	50
27	26.3	-57.1	168.7	25	28.6	-57.3	168.9	23	30.8	-57.4	169.1	21	32.9	-57.5	169.3	19	35.0	-57.6	169.4	51
26	29.2	-57.2	169.1	24	31.3	-57.3	169.3	22	33.4	-57.5	169.4	20	35.4	-57.6	169.6	18	37.4	-57.7	169.7	52
25	32.0	-57.3	169.4	23	34.0	-57.4	169.6	21	35.9	-57.4	169.7	19	37.8	-57.5	169.9	17	39.7	-57.7	170.0	53
24	34.7	-57.2	169.7	22	36.6	-57.4	169.9	20	38.5	-57.5	170.0	18	40.3	-57.7	170.2	16	42.0	-57.7	170.3	54
23	37.5	-57.4	170.1	21	39.2	-57.4	170.2	19	41.0	-57.6	170.3	17	42.6	-57.3	170.3	15	44.3	-57.8	170.5	55
22	40.1	-57.3	170.4	20	41.8	-57.5	170.5	18	43.4	-57.6	170.6	16	45.0	-57.7	170.7	14	46.5	-57.7	170.8	56
21	42.8	-57.4	170.7	19	44.3	-57.5	170.8	17	45.8	-57.6	170.9	15	47.3	-57.7	171.0	13	48.8	-57.8	171.1	57
20	45.4	-57.5	171.0	18	46.8	-57.5	171.1	16	48.2	-57.6	171.2	14	49.6	-57.7	171.3	12	51.0	-57.8	171.4	58
19	47.9	-57.4	171.3	17	49.3	-57.6	171.4	15	50.6	-57.6	171.5	13	51.9	-57.7	171.6	11	53.2	-57.8	171.7	59
18	50.5	-57.5	171.6	16	51.7	-57.5	171.7	14	53.0	-57.7	171.8	12	54.2	-57.8	171.9	10	55.4	-57.8	171.9	60
17	53.0	-57.5	171.9	15	54.2	-57.7	172.0	13	55.3	-57.7	172.1	11	56.4	-57.7	172.1	9	57.6	-57.9	172.2	61
16	55.5	-57.6	172.2	14	56.5	-57.6	172.3	12	57.6	-57.7	172.4	10	58.7	-57.8	172.4	8	59.7	-57.8	172.5	62
15	57.9	-57.6	172.5	13	58.9	-57.6	172.6	11	59.9	-57.7	172.6	10	00.9	-57.8	172.7	8	01.9	-57.9	172.7	63
15	00.3	-57.6	172.8	13	01.3	-57.7	172.9	11	02.2	-57.7	172.9	9	03.1	-57.8	173.0	7	04.0	-57.9	173.0	64
14	02.7	-57.6	173.1	12	03.6	-57.7	173.2	10	04.5	-57.8	173.2	8	05.3	-57.8	173.2	6	06.1	-57.9	173.3	65
13	05.1	-57.6	173.4	11	05.9	-57.7	173.4	9	06.7	-57.8	173.5	7	07.5	-57.9	173.5	5	08.2	-57.8	173.5	66
12	07.5	-57.7	173.7	10	08.2	-57.7	173.7	8	08.9	-57.7	173.8	6	09.6	-57.8	173.8	4	10.4	-57.9	173.8	67
11	09.8	-57.6	174.0	9	10.5	-57.7	174.0	7	11.2	-57.8	174.0	5	11.8	-57.8	174.0	3	12.5	-57.9	174.1	68
10	12.2	-57.7	174.2	8	12.8	-57.8	174.3	6	13.4	-57.8	174.3	4	14.0	-57.9	174.3	2	14.6	-57.9	174.3	69
9	14.5	-57.7	174.5	7	15.0	-57.7	174.5	5	15.6	-57.8	174.6	3	16.1	-57.8	174.6	1	16.7	-57.9	174.6	70
8	16.8	-57.7	174.8	6	17.3	-57.8	174.8	4	17.8	-57.8	174.8	2	18.3	-57.9	174.8	0	18.8	-57.9	174.9	71
7	19.1	-57.7	175.1	5	19.5	-57.7	175.1	3	20.0	-57.8	175.1	1	20.4	-57.8	175.1	0	39.1	+57.9	4.9	72
6	21.4	-57.7	175.3	4	21.8	-57.8	175.4	2	22.2	-57.8	175.4	0	22.6	-57.9	175.4	1	37.0	+57.9	4.6	73
5	23.7	-57.8	175.6	3	24.0	-57.8	175.6	1	24.4	-57.8	175.6	0	26.6	-57.9	175.9	2	34.9	+57.9	4.4	74
4	25.9	-57.7	175.9	2	26.2	-57.7	175.9	0	26.6	-57.9	175.9	0	35.3	+57.8	4.4	1	33.1	+57.9	4.1	75
3	28.2	-57.7	176.2	1	28.5	-57.8	176.2	0	31.3	+57.8	3.8	2	31.0	+57.8	3.8	3	32.8	+57.9	3.6	76
2	30.5	-57.8	176.4	0	30.7	-57.8	176.4	1	29.1	+57.8	3.6	3	28.8	+57.9	3.6	5	28.6	+57.9	3.6	77
1	32.7	-57.7	176.7	0	27.1	+57.8	3.3	2	26.9	+57.8	3.3	4	26.7	+57.8	3.3	6	26.5	+57.9	3.3	78
0	35.0	-57.8	177.0	1	24.9	+57.7	3.0	3	24.7	+57.8	3.0	5	24.5	+57.9	3.0	7	24.4	+57.8	3.0	79
0	22.8	+57.7	2.7	2	22.6	+57.8	2.7	4	22.5	+57.8	2.8	6	22.4	+57.8	2.8	8	22.2	+57.9	2.8	80
1	20.5	+57.8	2.5	3	20.4	+57.8	2.5	5	20.3	+57.8	2.5	7	20.2	+57.8	2.5	9	20.1	+57.8	2.5	81
2	18.3	+57.7	2.2	4	18.2	+57.7	2.2	6	18.1	+57.8	2.2	8	18.0	+57.8	2.2	10	17.9	+57.8	2.2	82
3	16.0	+57.7	1.9	5	15.9	+57.8	1.9	7	15.9	+57.7	1.9	9	15.8	+57.8	2.0	11	15.7	+57.8	2.0	83
4	13.7	+57.8	1.7	6	13.7	+57.7	1.7	8	13.6	+57.8	1.7	10	13.6	+57.8	1.7	12	13.5	+57.8	1.7	84
5	11.5	+57.7	1.4	7	11.4	+57.8	1.4	9	11.4	+57.8	1.4	11	11.4	+57.7	1.4	13	11.3	+57.8	1.4	85
6	09.2	+57.7	1.1	8	09.2	+57.7	1.1	10	09.2	+57.7	1.1	12	09.1	+57.8	1.1	14	09.1	+57.8	1.1	86
7	06.9	+57.7	0.8	9	06.9	+57.7	0.8	11	06.9	+57.7	0.8	13	06.9	+57.7	0.8	15	06.9	+57.7	0.9	87
8	04.6	+57.7	0.6	10	04.6	+57.7	0.6	12	04.6	+57.7	0.6	14	04.6	+57.7	0.6	16	04.6	+57.7	0.6	88
9	02.3	+57.7	0.3	11	02.3	+57.7	0.3	13	02.3	+57.7	0.3	15	02.3	+57.7	0.3	17	02.3	+57.7	0.3	89
10	00.0	+57.7	0.0	12	00.0	+57.7	0.0	14	00.0	+57.7	0.0	16	00.0	+57.7	0.0	18	00.0	+57.7	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 164°, 196°

16°, 344° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	72 25.0	-32.0	52.2	73 34.2	-27.2	57.6	74 33.1	-21.2	63.7	75 19.9	-14.2	70.5	75 52.6	-6.5	78.0
31	71 53.0	-34.3	49.4	73 07.0	-29.8	54.4	74 11.9	-24.4	60.2	75 05.7	-18.0	66.7	75 46.1	-10.5	74.0
32	71 18.7	-36.3	46.8	72 37.2	-32.2	51.5	73 47.5	-27.3	56.9	74 47.7	-21.4	63.0	75 35.6	-14.3	70.0
33	70 42.4	-38.1	44.4	72 05.0	-34.5	48.7	73 20.2	-30.0	53.7	74 26.3	-24.5	59.5	75 21.3	-18.1	66.1
34	70 04.3	-39.8	42.1	71 30.5	-36.5	46.1	72 50.2	-32.5	50.7	74 01.8	-27.6	56.2	75 03.2	-21.6	62.4
35	69 24.5	-41.4	39.9	70 54.0	-38.4	43.6	72 17.7	-34.7	47.9	73 34.2	-30.3	53.0	74 41.6	-24.8	58.8
36	68 43.1	-42.7	37.9	70 15.6	-40.0	41.3	71 43.0	-36.8	45.3	73 03.9	-32.7	50.0	74 16.8	-27.8	55.4
37	68 00.4	-43.9	36.0	69 35.6	-41.6	39.1	71 06.2	-38.6	42.8	72 31.2	-35.0	47.1	73 49.0	-30.6	52.2
38	67 16.5	-45.0	34.2	68 54.0	-42.9	37.1	70 27.6	-40.3	40.5	71 56.2	-37.1	44.5	73 18.4	-33.1	49.1
39	66 31.5	-46.1	32.5	68 11.1	-44.1	35.2	69 47.3	-41.8	38.3	71 19.1	-38.9	42.0	72 45.3	-35.4	46.3
40	65 45.4	-47.0	30.9	67 27.0	-45.3	33.4	69 05.5	-43.2	36.3	70 40.2	-40.6	39.6	72 09.9	-37.4	43.6
41	64 58.4	-47.9	29.5	66 41.7	-46.3	31.7	68 22.3	-44.4	34.4	69 59.6	-42.2	37.4	71 32.5	-39.3	41.1
42	64 10.5	-48.6	28.0	65 55.4	-47.2	30.1	67 37.9	-45.5	32.6	69 17.4	-43.4	35.4	70 53.2	-40.9	38.7
43	63 21.9	-49.3	26.7	65 08.2	-48.1	28.6	66 52.4	-46.6	30.9	68 34.0	-44.7	33.5	70 12.3	-42.4	36.5
44	62 32.6	-49.9	25.5	64 20.1	-48.8	27.2	66 05.8	-47.4	29.3	67 49.3	-45.8	31.7	69 29.9	-43.8	34.5
45	61 42.7	-50.6	24.3	63 31.3	-49.5	25.9	65 18.4	-48.3	27.8	67 03.5	-46.8	30.0	68 46.1	-45.1	32.6
46	60 52.1	-51.0	23.2	62 41.8	-50.1	24.7	64 30.1	-49.0	26.4	66 16.7	-47.7	28.4	68 01.0	-46.1	30.8
47	60 01.1	-51.6	22.1	61 51.7	-50.7	23.5	63 41.1	-49.7	25.1	65 29.0	-48.6	26.9	67 14.9	-47.1	29.1
48	59 09.5	-52.0	21.1	61 01.0	-51.2	22.4	62 51.4	-50.4	23.8	64 40.4	-49.3	25.5	66 27.8	-48.0	27.5
49	58 17.5	-52.4	20.1	60 09.8	-51.7	21.3	62 01.0	-50.9	22.7	63 51.1	-49.9	24.2	65 39.8	-48.8	26.0
50	57 25.1	-52.8	19.2	59 18.1	-52.2	20.3	61 10.1	-51.4	21.6	63 01.2	-50.6	23.0	64 51.0	-49.5	24.6
51	56 32.3	-53.1	18.3	58 25.9	-52.6	19.4	60 18.7	-51.9	20.5	62 10.6	-51.1	21.8	64 01.5	-50.2	23.3
52	55 39.2	-53.5	17.5	57 33.3	-52.9	18.4	59 26.8	-52.3	19.5	61 19.5	-51.6	20.7	63 11.3	-50.9	22.1
53	54 45.7	-53.7	16.7	56 40.4	-53.3	17.6	58 34.5	-52.7	18.6	60 27.9	-52.1	19.7	62 20.4	-51.3	20.9
54	53 52.0	-54.1	15.9	55 47.1	-53.6	16.7	57 41.8	-53.1	17.6	59 35.8	-52.5	18.7	61 29.1	-51.9	19.8
55	52 57.9	-54.3	15.2	54 53.5	-53.9	16.0	56 48.7	-53.5	16.8	58 43.3	-53.0	17.7	60 37.2	-52.3	18.8
56	52 03.6	-54.5	14.5	53 59.6	-54.1	15.2	55 55.2	-53.7	16.0	57 50.3	-53.2	16.8	59 44.9	-52.7	17.8
57	51 09.1	-54.8	13.8	53 05.5	-54.5	14.5	55 01.5	-54.1	15.2	56 57.1	-53.7	16.0	58 52.2	-53.2	16.9
58	50 14.3	-54.9	13.2	52 11.0	-54.6	13.8	54 07.4	-54.3	14.4	56 03.4	-53.9	15.2	57 59.0	-53.4	16.0
59	49 19.4	-55.2	12.6	51 16.4	-54.9	13.1	53 13.1	-54.5	13.7	55 09.5	-54.2	14.4	57 05.6	-53.8	15.1
60	48 24.2	-55.3	12.0	50 21.5	-55.1	12.5	52 18.6	-54.8	13.0	54 15.3	-54.4	13.6	56 11.8	-54.1	14.3
61	47 28.9	-55.5	11.4	49 26.4	-55.2	11.9	51 23.8	-55.0	12.4	53 20.9	-54.7	12.9	55 17.7	-54.4	13.6
62	46 33.4	-55.7	10.8	48 31.2	-55.5	11.3	50 28.8	-55.2	11.7	52 26.2	-55.0	12.3	54 23.3	-54.6	12.8
63	45 37.7	-55.8	10.3	47 35.7	-55.6	10.7	49 33.6	-55.4	11.1	51 31.2	-55.1	11.6	53 28.7	-54.9	12.1
64	44 41.9	-55.9	9.8	46 40.1	-55.7	10.1	48 38.2	-55.6	10.5	50 36.1	-55.4	11.0	52 33.8	-55.1	11.5
65	43 46.0	-56.1	9.3	45 44.4	-55.9	9.6	47 42.6	-55.7	10.0	49 40.7	-55.5	10.4	51 38.7	-55.3	10.8
66	42 49.9	-56.2	8.8	44 48.5	-56.1	9.1	46 46.9	-55.9	9.4	48 45.2	-55.7	9.8	50 43.4	-55.5	10.2
67	41 53.7	-56.3	8.3	43 52.4	-56.1	8.6	45 51.0	-56.0	8.9	47 49.5	-55.8	9.2	49 47.9	-55.6	9.6
68	40 57.4	-56.4	7.9	42 56.3	-56.3	8.1	44 55.0	-56.1	8.4	46 53.7	-56.0	8.7	48 52.3	-55.9	9.0
69	40 01.0	-56.5	7.4	42 00.0	-56.4	7.6	43 58.9	-56.3	7.9	45 57.7	-56.1	8.2	47 56.4	-55.9	8.5
70	39 04.5	-56.6	7.0	41 03.6	-56.5	7.2	43 02.6	-56.4	7.4	45 01.6	-56.3	7.7	47 00.5	-56.2	7.9
71	38 07.9	-56.7	6.6	40 07.1	-56.6	6.7	42 06.2	-56.5	6.9	44 05.3	-56.4	7.2	46 04.3	-56.2	7.4
72	37 11.2	-56.8	6.1	39 10.5	-56.7	6.3	41 09.7	-56.6	6.5	43 08.9	-56.4	6.7	45 08.1	-56.4	6.9
73	36 14.4	-56.8	5.7	38 13.8	-56.8	5.9	40 13.1	-56.6	6.1	42 12.5	-56.6	6.2	44 11.7	-56.5	6.5
74	35 17.6	-57.0	5.3	37 17.0	-56.8	5.5	39 16.5	-56.8	5.6	41 15.9	-56.7	5.8	43 15.2	-56.6	6.0
75	34 20.6	-57.0	5.0	36 20.2	-57.0	5.1	38 19.7	-56.9	5.2	40 19.2	-56.8	5.4	42 18.6	-56.7	5.5
76	33 23.6	-57.1	4.6	35 23.2	-57.0	4.7	37 22.8	-56.9	4.8	39 22.4	-56.9	4.9	41 21.9	-56.8	5.1
77	32 26.5	-57.1	4.2	34 26.2	-57.1	4.3	36 25.9	-57.1	4.4	38 25.5	-57.0	4.5	40 25.1	-56.9	4.7
78	31 29.4	-57.2	3.9	33 29.1	-57.1	3.9	35 28.8	-57.1	4.0	37 28.5	-57.0	4.1	39 28.2	-57.0	4.3
79	30 32.2	-57.2	3.5	32 32.0	-57.2	3.6	34 31.7	-57.1	3.7	36 31.5	-57.1	3.8	38 31.2	-57.0	3.9
80	29 35.0	-57.3	3.2	31 34.8	-57.3	3.2	33 34.6	-57.2	3.3	35 34.4	-57.2	3.4	37 34.2	-57.2	3.5
81	28 37.7	-57.4	2.8	30 37.5	-57.3	2.9	32 37.4	-57.3	2.9	34 37.2	-57.3	3.0	36 37.0	-57.2	3.1
82	27 40.3	-57.4	2.5	29 40.2	-57.4	2.5	31 40.1	-57.4	2.6	33 39.9	-57.3	2.6	35 39.8	-57.3	2.7
83	26 42.9	-57.4	2.2	28 42.8	-57.4	2.2	30 42.7	-57.4	2.2	32 42.6	-57.3	2.3	34 42.5	-57.3	2.3
84	25 45.5	-57.5	1.8	27 45.4	-57.5	1.9	29 45.3	-57.4	1.9	31 45.3	-57.5	1.9	33 45.2	-57.4	2.0
85	24 48.0	-57.5	1.5	26 47.9	-57.5	1.5	28 47.9	-57.5	1.6	30 47.8	-57.4	1.6	32 47.8	-57.5	1.6
86	23 50.5	-57.6	1.2	25 50.4	-57.5	1.2	27 50.4	-57.5	1.2	29 50.4	-57.6	1.3	31 50.3	-57.5	1.3
87	22 52.9	-57.6	0.9	24 52.9	-57.6	0.9	26 52.9	-57.6	0.9	28 52.8	-57.5	0.9	30 52.8	-57.5	1.0
88	21 55.3	-57.6	0.6	23 55.3	-57.6	0.6	25 55.3	-57.6	0.6	27 55.3	-57.6	0.6	29 55.3	-57.6	0.6
89	20 57.7	-57.7	0.3	22 57.7	-57.7	0.3	24 57.7	-57.7	0.3	26 57.7	-57.7	0.3	28 57.7	-57.7	0.3
90	20 00.0	-57.7	0.0	22 00.0	-57.7	0.0	24 00.0	-57.7	0.0	26 00.0	-57.7	0.0	28 00.0	-57.7	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 16°, 344°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
37	40.9	-56.8	162.4	35	46.3	-57.0	162.9	33	51.5	-57.2	163.3	31	56.4	-57.4	163.7	30	01.2	-57.6	164.0	30
36	44.1	-56.8	162.9	34	49.3	-57.0	163.3	32	54.3	-57.3	163.7	30	59.0	-57.4	164.0	29	03.6	-57.7	164.3	31
35	47.3	-56.9	163.3	33	52.3	-57.2	163.6	31	57.0	-57.3	164.0	30	01.6	-57.6	164.3	28	05.9	-57.7	164.6	32
34	50.4	-57.0	163.6	32	55.1	-57.1	164.0	30	59.7	-57.4	164.4	29	04.0	-57.5	164.7	27	08.2	-57.7	164.9	33
33	53.4	-57.0	164.0	31	58.0	-57.3	164.4	30	02.3	-57.4	164.7	28	06.5	-57.6	165.0	26	10.5	-57.8	165.2	34
32	56.4	-57.1	164.4	31	00.7	-57.3	164.7	29	04.9	-57.5	165.0	27	08.9	-57.7	165.3	25	12.7	-57.8	165.5	35
31	59.3	-57.2	164.8	30	03.4	-57.3	165.1	28	07.4	-57.5	165.4	26	11.2	-57.7	165.6	24	14.9	-57.8	165.8	36
31	02.1	-57.2	165.1	29	06.1	-57.4	165.4	27	09.9	-57.6	165.7	25	13.5	-57.7	165.9	23	17.1	-57.9	166.1	37
30	04.9	-57.3	165.5	28	08.7	-57.5	165.7	26	12.3	-57.6	166.0	24	15.8	-57.7	166.2	22	19.2	-57.9	166.4	38
29	07.6	-57.3	165.8	27	11.2	-57.5	166.1	25	14.7	-57.7	166.3	23	18.1	-57.8	166.5	21	21.3	-57.9	166.7	39
28	10.3	-57.4	166.1	26	13.7	-57.5	166.4	24	17.0	-57.6	166.6	22	20.3	-57.9	166.8	20	23.4	-58.0	167.0	40
27	12.9	-57.4	166.5	25	16.2	-57.6	166.7	23	19.4	-57.8	166.9	21	22.4	-57.8	167.1	19	25.4	-57.9	167.3	41
26	15.5	-57.5	166.8	24	18.6	-57.6	167.0	22	21.6	-57.7	167.2	20	24.6	-57.9	167.4	18	27.5	-58.1	167.5	42
25	18.0	-57.5	167.1	23	21.0	-57.6	167.3	21	23.9	-57.8	167.5	19	26.7	-57.9	167.7	17	29.4	-58.0	167.8	43
24	20.5	-57.5	167.4	22	23.4	-57.7	167.6	20	26.1	-57.8	167.8	18	28.8	-57.9	167.9	16	31.4	-58.0	168.1	44
23	23.0	-57.6	167.7	21	25.7	-57.7	167.9	19	28.3	-57.8	168.1	17	30.9	-58.0	168.2	15	33.4	-58.1	168.3	45
22	25.4	-57.6	168.0	20	28.0	-57.8	168.2	18	30.5	-57.9	168.4	16	32.9	-57.9	168.5	14	35.3	-58.1	168.6	46
21	27.8	-57.6	168.3	19	30.2	-57.7	168.5	17	32.6	-57.9	168.6	15	35.0	-58.0	168.7	13	37.6	-58.1	168.8	47
20	30.2	-57.7	168.6	18	32.5	-57.8	168.8	16	34.7	-57.9	168.9	14	37.0	-58.0	169.0	12	39.1	-58.1	169.1	48
19	32.5	-57.7	168.9	17	34.7	-57.8	169.1	15	36.8	-57.9	169.2	13	39.0	-58.1	169.3	11	41.0	-58.1	169.4	49
18	34.8	-57.8	169.2	16	36.9	-57.9	169.3	14	38.9	-57.9	169.4	12	40.9	-58.0	169.5	10	42.9	-58.1	169.6	50
17	37.0	-57.7	169.5	15	39.0	-57.8	169.6	13	41.0	-58.0	169.7	11	42.9	-58.1	169.8	9	44.8	-58.2	169.9	51
16	39.3	-57.8	169.8	14	41.2	-57.9	169.9	12	43.0	-58.0	170.0	10	44.8	-58.0	170.1	8	46.6	-58.1	170.1	52
15	41.5	-57.8	170.1	13	43.3	-57.9	170.2	11	45.0	-57.9	170.2	9	46.8	-58.1	170.3	7	48.5	-58.2	170.4	53
14	43.7	-57.8	170.4	12	45.4	-57.9	170.4	10	47.1	-58.0	170.5	8	48.7	-58.1	170.6	6	50.3	-58.2	170.6	54
13	45.9	-57.8	170.6	11	47.5	-57.9	170.7	9	49.1	-58.1	170.8	7	50.6	-58.1	170.8	5	52.1	-58.2	170.9	55
12	48.1	-57.9	170.9	10	49.6	-58.0	171.0	8	51.0	-58.0	171.0	6	52.5	-58.1	171.1	4	53.9	-58.1	171.1	56
11	50.2	-57.9	171.2	9	51.6	-57.9	171.2	7	53.0	-58.0	171.3	5	54.4	-58.1	171.3	3	55.8	-58.2	171.3	57
10	52.3	-57.8	171.4	8	53.7	-58.0	171.5	6	55.0	-58.1	171.5	4	56.3	-58.1	171.6	2	57.6	-58.2	171.6	58
9	54.5	-57.9	171.7	7	55.7	-58.0	171.8	5	56.9	-58.0	171.8	3	58.2	-58.2	171.8	1	59.4	-58.2	171.8	59
8	56.6	-57.9	172.0	6	57.7	-58.0	172.0	4	58.9	-58.1	172.0	3	00.0	-58.1	172.1	0	01.2	-58.2	172.1	60
7	58.7	-58.0	172.2	5	59.7	-57.9	172.3	4	00.8	-58.0	172.3	2	01.9	-58.1	172.3	0	03.0	-58.2	172.3	61
6	00.7	-57.9	172.5	5	01.8	-58.0	172.5	3	02.8	-58.1	172.6	1	03.8	-58.1	172.6	0	05.7	-58.2	172.8	62
6	02.8	-57.9	172.8	4	03.8	-58.0	172.8	2	04.7	-58.1	172.8	0	05.7	-58.2	172.8	0	07.6	-58.2	173.0	63
5	04.9	-58.0	173.0	3	05.8	-58.0	173.0	1	06.6	-58.0	173.1	0	08.6	-58.1	173.3	0	10.5	-58.2	173.5	64
4	06.9	-57.9	173.3	2	07.8	-58.0	173.3	0	08.6	-58.1	173.3	0	10.5	-58.2	173.5	0	12.4	-58.2	173.7	65
3	09.0	-57.9	173.6	1	09.8	-58.0	173.6	0	11.8	-58.1	173.8	0	13.7	-58.1	174.1	0	15.6	-58.2	174.3	66
2	11.1	-58.0	173.8	0	11.8	-58.1	173.8	0	13.7	-58.1	174.1	0	15.6	-58.2	174.3	0	17.5	-58.2	174.5	67
1	13.1	-57.9	174.1	0	13.7	-58.1	174.1	0	15.6	-58.2	174.3	0	17.5	-58.2	174.5	0	19.4	-58.2	174.7	68
0	15.2	-58.0	174.3	0	15.6	-58.2	174.3	0	17.5	-58.2	174.5	0	19.4	-58.2	174.7	0	21.3	-58.2	174.9	69
0	42.8	+58.0	5.4	2	42.3	+58.0	5.4	4	41.7	+58.1	5.4	6	41.2	+58.1	5.4	8	40.6	+58.2	5.5	70
1	40.8	+57.9	5.2	3	40.3	+58.0	5.2	5	39.8	+58.0	5.2	7	39.3	+58.1	5.2	9	38.8	+58.1	5.2	71
2	38.7	+57.9	4.9	4	38.3	+58.0	4.9	6	37.8	+58.1	4.9	8	37.4	+58.1	4.9	10	36.9	+58.2	5.0	72
3	36.6	+58.0	4.6	5	36.3	+57.9	4.6	7	35.9	+58.0	4.7	9	35.5	+58.0	4.7	11	35.1	+58.1	4.7	73
4	34.6	+57.9	4.4	6	34.2	+58.0	4.4	8	33.9	+58.0	4.4	10	33.5	+58.1	4.4	12	33.2	+58.1	4.5	74
5	32.5	+58.0	4.1	7	32.2	+58.0	4.1	9	31.9	+58.0	4.1	11	31.6	+58.0	4.2	13	31.3	+58.0	4.2	75
6	30.5	+57.9	3.8	8	30.2	+57.9	3.9	10	29.9	+58.0	3.9	12	29.6	+58.1	3.9	14	29.3	+58.1	3.9	76
7	28.4	+57.9	3.6	9	28.1	+58.0	3.6	11	27.9	+58.0	3.6	13	27.7	+58.0	3.7	15	27.4	+58.1	3.7	77
8	26.3	+57.9	3.3	10	26.1	+57.9	3.3	12	25.9	+57.9	3.4	14	25.7	+58.0	3.4	16	25.5	+58.0	3.4	78
9	24.2	+57.9	3.1	11	24.0	+57.9	3.1	13	23.8	+58.0	3.1	15	23.7	+57.9	3.1	17	23.5	+58.0	3.2	79
10	22.1	+57.9	2.8	12	21.9	+57.9	2.8	14	21.8	+57.9	2.8	16	21.6	+58.0	2.9	18	21.5	+58.0	2.9	80
11	20.0	+57.8	2.5	13	19.8	+57.9	2.5	15	19.7	+57.9	2.6	17	19.6	+57.9	2.6	19	19.5	+57.9	2.6	81
12	17.8	+57.9	2.3	14	17.7	+57.9	2.3	16	17.6	+57.9	2.3	18	17.5	+57.9	2.3	20	17.4	+58.0	2.3	82
13	15.7	+57.8	2.0	15	15.6	+57.8	2.0	17	15.5	+57.9	2.0	19	15.4	+57.9	2.0	21	15.4	+57.9	2.1	83
14	13.5	+57.8	1.7	16	13.4	+57.9	1.7	18	13.4	+57.8	1.7	20	13.3	+57.9	1.8	22	13.3	+57.8	1.8	84
15	11.3	+57.8	1.4	17	11.3	+57.8	1.4	19	11.2	+57.8	1.5	21	11.2	+57.8	1.5	23	11.1	+57.9	1.5	85
16	09.1	+57.8	1.1	18	09.1	+57.7	1.2	20	09.0	+57.8	1.2	22	09.0	+57.8	1.2	24	09.0	+57.8	1.2	86
17	06.9	+57.7	0.9	19	06.8	+57.8	0.9	21	06.8	+57.8	0.9	23	06.8	+57.8	0.9	25	06.8	+57.8	0.9	87
18	04.6	+57.7	0.6	20	04.6	+57.7	0.6	22	04.6	+57.7	0.6	24	04.6	+57.7	0.6	26	04.6	+57.7	0.6	88
19	02.3	+57.7	0.3	21	02.3	+57.7	0.3	23	02.3	+57.7	0.3	25	02.3	+57.7	0.3	27	02.3	+57.7	0.3	89
20	00.0	+57.7	0.0	22	00.0	+57.7	0.0	24	00.0	+57.7	0.0	26	00.0	+57.7	0.0	28	00.0	+57.7	0.0	90
20°			22°			24°			26°			28°								

LATITUDE SAME NAME

L.H.A. 164°, 196°

18°, 342° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	55 27.0	-50.5	28.2	57 12.1	-49.5	29.6	58 55.6	-48.4	31.2	60 37.2	-47.1	33.1	62 16.6	-45.6	35.1
31	54 36.5	-50.9	27.2	56 22.6	-50.1	28.6	58 07.2	-49.0	30.1	59 50.1	-47.8	31.8	61 31.0	-46.4	33.7
32	53 45.6	-51.4	26.3	55 32.5	-50.5	27.6	57 18.2	-49.5	29.0	59 02.3	-48.4	30.6	60 44.6	-47.1	32.4
33	52 54.2	-51.7	25.4	54 42.0	-50.9	26.6	56 28.7	-50.1	28.0	58 13.9	-49.0	29.5	59 57.5	-47.8	31.2
34	52 02.5	-52.0	24.6	53 51.1	-51.3	25.7	55 38.6	-50.4	27.0	57 24.9	-49.5	28.4	59 09.7	-48.5	30.0
35	51 10.5	-52.4	23.8	52 59.8	-51.7	24.9	54 48.2	-50.9	26.1	56 35.4	-50.1	27.4	58 21.2	-49.0	28.8
36	50 18.1	-52.6	23.0	52 08.1	-52.0	24.0	53 57.3	-51.3	25.1	55 45.3	-50.4	26.4	57 32.2	-49.5	27.8
37	49 25.5	-53.0	22.3	51 16.1	-52.3	23.2	53 06.0	-51.7	24.3	54 54.9	-51.0	25.4	56 42.7	-50.1	26.7
38	48 32.5	-53.2	21.6	50 23.8	-52.7	22.5	52 14.3	-52.0	23.4	54 03.9	-51.3	24.5	55 52.6	-50.5	25.7
39	47 39.3	-53.4	20.9	49 31.1	-52.9	21.7	51 22.3	-52.3	22.6	53 12.6	-51.6	23.6	55 02.1	-50.9	24.8
40	46 45.9	-53.7	20.2	48 38.2	-53.1	21.0	50 30.0	-52.7	21.8	52 21.0	-52.1	22.8	54 11.2	-51.4	23.9
41	45 52.2	-53.8	19.6	47 45.1	-53.5	20.3	49 37.3	-52.9	21.1	51 28.9	-52.3	22.0	53 19.8	-51.7	23.0
42	44 58.4	-54.1	18.9	46 51.6	-53.6	19.6	48 44.4	-53.2	20.4	50 36.6	-52.6	21.2	52 28.1	-52.0	22.1
43	44 04.3	-54.3	18.3	45 58.0	-53.9	19.0	47 51.2	-53.4	19.7	49 44.0	-53.0	20.5	51 36.1	-52.4	21.3
44	43 10.0	-54.4	17.7	45 04.1	-54.0	18.3	46 57.8	-53.6	19.0	48 51.0	-53.1	19.7	50 43.7	-52.7	20.6
45	42 15.6	-54.6	17.2	44 10.1	-54.3	17.7	46 04.2	-53.9	18.4	47 57.9	-53.5	19.0	49 51.0	-52.9	19.8
46	41 21.0	-54.7	16.6	43 15.8	-54.4	17.1	45 10.3	-54.0	17.7	47 04.4	-53.6	18.4	48 58.1	-53.2	19.1
47	40 26.3	-55.0	16.1	42 21.4	-54.6	16.6	44 16.3	-54.3	17.1	46 10.8	-53.9	17.7	48 04.9	-53.5	18.4
48	39 31.3	-55.0	15.5	41 26.8	-54.7	16.0	43 22.0	-54.4	16.5	45 16.9	-54.1	17.1	47 11.4	-53.7	17.7
49	38 36.3	-55.2	15.0	40 32.1	-54.9	15.5	42 27.6	-54.6	16.0	44 22.8	-54.2	16.5	46 17.7	-53.9	17.1
50	37 41.1	-55.3	14.5	39 37.2	-55.1	14.9	41 33.0	-54.7	15.4	43 28.6	-54.5	15.9	45 23.8	-54.1	16.4
51	36 45.8	-55.4	14.0	38 42.1	-55.1	14.4	40 38.3	-54.9	14.8	42 34.1	-54.6	15.3	44 29.7	-54.3	15.8
52	35 50.4	-55.5	13.6	37 47.0	-55.3	13.9	39 43.4	-55.1	14.3	41 39.5	-54.7	14.8	43 35.4	-54.4	15.2
53	34 54.9	-55.6	13.1	36 51.7	-55.4	13.4	38 48.3	-55.2	13.8	40 44.8	-55.0	14.2	42 41.0	-54.7	14.7
54	33 59.3	-55.8	12.7	35 56.3	-55.5	13.0	37 53.1	-55.2	13.3	39 49.8	-55.0	13.7	41 46.3	-54.8	14.1
55	33 03.5	-55.8	12.2	35 00.8	-55.7	12.5	36 57.9	-55.5	12.8	38 54.8	-55.2	13.2	40 51.5	-54.9	13.6
56	32 07.7	-55.9	11.8	34 05.1	-55.7	12.0	36 02.4	-55.5	12.3	37 59.6	-55.3	12.7	39 56.6	-55.1	13.0
57	31 11.8	-56.0	11.3	33 09.4	-55.8	11.6	35 06.9	-55.6	11.9	37 04.3	-55.4	12.2	39 01.5	-55.2	12.5
58	30 15.8	-56.0	10.9	32 13.6	-55.9	11.2	34 11.3	-55.7	11.4	36 08.9	-55.6	11.7	38 06.3	-55.3	12.0
59	29 19.8	-56.2	10.5	31 17.7	-56.0	10.7	33 15.6	-55.9	11.0	35 13.3	-55.6	11.2	37 11.0	-55.5	11.5
60	28 23.6	-56.2	10.1	30 21.7	-56.0	10.3	32 19.7	-55.9	10.5	34 17.7	-55.8	10.8	36 15.5	-55.6	11.0
61	27 27.4	-56.3	9.7	29 25.7	-56.2	9.9	31 23.8	-56.0	10.1	33 21.9	-55.8	10.3	35 19.9	-55.6	10.6
62	26 31.1	-56.3	9.3	28 29.5	-56.2	9.5	30 27.8	-56.0	9.7	32 26.1	-55.9	9.9	34 24.3	-55.8	10.1
63	25 34.8	-56.4	8.9	27 33.3	-56.3	9.1	29 31.8	-56.2	9.3	31 30.2	-56.0	9.5	33 28.5	-55.9	9.7
64	24 38.4	-56.5	8.6	26 37.0	-56.3	8.7	28 35.6	-56.2	8.9	30 34.2	-56.1	9.1	32 32.6	-55.9	9.2
65	23 41.9	-56.5	8.2	25 40.7	-56.4	8.3	27 39.4	-56.3	8.5	29 38.1	-56.2	8.6	31 36.7	-56.0	8.8
66	22 45.4	-56.5	7.8	24 44.3	-56.4	8.0	26 43.1	-56.3	8.1	28 41.9	-56.2	8.2	30 40.7	-56.2	8.4
67	21 48.9	-56.6	7.5	23 47.9	-56.6	7.6	25 46.8	-56.4	7.7	27 45.7	-56.3	7.8	29 44.5	-56.1	8.0
68	20 52.3	-56.7	7.1	22 51.3	-56.5	7.2	24 50.4	-56.5	7.3	26 49.4	-56.4	7.5	28 48.4	-56.3	7.6
69	19 55.6	-56.6	6.8	21 54.8	-56.6	6.9	23 53.9	-56.5	7.0	25 53.0	-56.4	7.1	27 52.1	-56.3	7.2
70	18 59.0	-56.8	6.4	20 58.2	-56.7	6.5	22 57.4	-56.6	6.6	24 56.6	-56.5	6.7	26 55.8	-56.4	6.8
71	18 02.2	-56.7	6.1	20 01.5	-56.6	6.1	22 00.8	-56.6	6.2	24 00.1	-56.5	6.3	25 59.4	-56.5	6.4
72	17 05.5	-56.8	5.7	19 04.9	-56.8	5.8	21 04.2	-56.6	5.9	23 03.6	-56.6	6.0	25 02.9	-56.5	6.1
73	16 08.7	-56.9	5.4	18 08.1	-56.7	5.5	20 07.6	-56.7	5.5	22 07.0	-56.6	5.6	24 06.4	-56.5	5.7
74	15 11.8	-56.8	5.1	17 11.4	-56.8	5.1	19 10.9	-56.7	5.2	21 10.4	-56.7	5.2	23 09.9	-56.6	5.3
75	14 15.0	-56.9	4.7	16 14.6	-56.8	4.8	18 14.2	-56.8	4.8	20 13.7	-56.7	4.9	22 13.3	-56.7	5.0
76	13 18.1	-56.9	4.4	15 17.8	-56.9	4.4	17 17.4	-56.8	4.5	19 17.0	-56.7	4.5	21 16.6	-56.7	4.6
77	12 21.2	-56.9	4.1	14 20.9	-56.9	4.1	16 20.6	-56.8	4.2	18 20.3	-56.8	4.2	20 19.9	-56.7	4.3
78	11 24.3	-57.0	3.8	13 24.0	-56.9	3.8	15 23.8	-56.9	3.8	17 23.5	-56.8	3.9	19 23.2	-56.8	3.9
79	10 27.3	-56.9	3.4	12 27.1	-56.9	3.5	14 26.9	-56.9	3.5	16 26.7	-56.9	3.5	18 26.4	-56.8	3.6
80	9 30.4	-57.0	3.1	11 30.2	-57.0	3.1	13 30.0	-56.9	3.2	15 29.8	-56.9	3.2	17 29.6	-56.8	3.2
81	8 33.4	-57.0	2.8	10 33.2	-56.9	2.8	12 33.1	-57.0	2.8	14 32.9	-56.9	2.9	16 32.8	-56.9	2.9
82	7 36.4	-57.1	2.5	9 36.3	-57.0	2.5	11 36.1	-56.9	2.5	13 36.0	-56.9	2.5	15 35.9	-56.9	2.6
83	6 39.3	-57.0	2.2	8 39.3	-57.0	2.2	10 39.2	-57.0	2.2	12 39.1	-57.0	2.2	14 39.0	-56.9	2.2
84	5 42.3	-57.0	1.9	7 42.3	-57.1	1.9	9 42.2	-57.0	1.9	11 42.1	-57.0	1.9	13 42.1	-57.0	1.9
85	4 45.3	-57.1	1.5	6 45.2	-57.0	1.6	8 45.2	-57.0	1.6	10 45.1	-56.9	1.6	12 45.1	-57.0	1.6
86	3 48.2	-57.0	1.2	5 48.2	-57.0	1.2	7 48.2	-57.0	1.2	9 48.2	-57.1	1.3	11 48.1	-57.0	1.3
87	2 51.2	-57.1	0.9	4 51.2	-57.1	0.9	6 51.2	-57.1	0.9	8 51.1	-57.0	0.9	10 51.1	-57.0	0.9
88	1 54.1	-57.0	0.6	3 54.1	-57.0	0.6	5 54.1	-57.0	0.6	7 54.1	-57.0	0.6	9 54.1	-57.0	0.6
89	0 57.1	-57.1	0.3	2 57.1	-57.1	0.3	4 57.1	-57.1	0.3	6 57.1	-57.1	0.3	8 57.1	-57.1	0.3
90	0 00.0	-57.1	0.0	2 00.0	-57.1	0.0	4 00.0	-57.1	0.0	6 00.0	-57.1	0.0	8 00.0	-57.1	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 18°, 342°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
55	27.0	-50.5	151.8	53	40.6	-51.4	153.1	51	53.0	-52.2	154.3	50	04.4	-52.8	155.4	48	14.9	-53.4	156.3	30
54	36.5	-50.9	152.8	52	49.2	-51.7	154.0	51	00.8	-52.4	155.1	49	11.6	-53.1	156.1	47	21.5	-53.7	157.0	31
53	45.6	-51.4	153.7	51	57.5	-52.1	154.8	50	08.4	-52.8	155.9	48	18.5	-53.4	156.8	46	27.8	-53.8	157.6	32
52	54.2	-51.7	154.6	51	05.4	-52.4	155.6	49	15.6	-53.0	156.6	47	25.1	-53.5	157.5	45	34.0	-54.1	158.3	33
52	02.5	-52.0	155.4	50	13.0	-52.7	156.4	48	22.6	-53.2	157.3	46	31.6	-53.8	158.1	44	39.9	-54.2	158.9	34
51	10.5	-52.4	156.2	49	20.3	-53.0	157.1	47	29.4	-53.5	158.0	45	37.8	-54.0	158.8	43	45.7	-54.5	159.5	35
50	18.1	-52.6	157.0	48	27.3	-53.2	157.9	46	35.9	-53.8	158.7	44	43.8	-54.2	159.4	42	51.2	-54.6	160.1	36
49	25.5	-53.0	157.7	47	34.1	-53.5	158.5	45	42.1	-53.9	159.3	43	49.6	-54.4	160.0	41	56.6	-54.7	160.6	37
48	32.5	-53.2	158.4	46	40.6	-53.7	159.2	44	48.2	-54.2	159.9	42	55.2	-54.5	160.6	41	01.9	-55.0	161.2	38
47	39.3	-53.4	159.1	45	46.9	-53.9	159.9	43	54.0	-54.3	160.5	42	00.7	-54.7	161.1	40	06.9	-55.0	161.7	39
46	45.9	-53.7	159.8	44	53.0	-54.1	160.5	42	59.7	-54.5	161.1	41	06.0	-54.9	161.7	39	11.9	-55.2	162.2	40
45	52.2	-53.8	160.4	43	58.9	-54.2	161.1	42	05.2	-54.6	161.7	40	11.1	-55.0	162.2	38	16.7	-55.3	162.7	41
44	58.4	-54.1	161.1	43	04.7	-54.5	161.7	41	10.6	-54.8	162.2	39	16.1	-55.1	162.7	37	21.4	-55.5	163.2	42
44	04.3	-54.3	161.7	42	10.2	-54.6	162.2	40	15.8	-55.0	162.8	38	21.0	-55.3	163.3	36	25.9	-55.5	163.7	43
43	10.0	-54.4	162.3	41	15.6	-54.8	162.8	39	20.8	-55.1	163.3	37	25.7	-55.4	163.7	35	30.4	-55.7	164.2	44
42	15.6	-54.6	162.8	40	20.8	-54.9	163.3	38	25.7	-55.2	163.8	36	30.3	-55.5	164.2	34	34.7	-55.7	164.6	45
41	21.0	-54.7	163.4	39	25.9	-55.1	163.9	37	30.5	-55.4	164.3	35	34.8	-55.6	164.7	33	39.0	-55.8	165.1	46
40	26.3	-55.0	163.9	38	30.8	-55.2	164.4	36	35.1	-55.4	164.8	34	39.2	-55.7	165.2	32	43.2	-56.0	165.5	47
39	31.3	-55.0	164.5	37	35.6	-55.3	164.9	35	39.7	-55.6	165.3	33	43.5	-55.8	165.6	31	47.2	-56.0	165.9	48
38	36.3	-55.2	165.0	36	40.3	-55.4	165.4	34	44.1	-55.7	165.7	32	47.7	-55.9	166.0	30	51.2	-56.1	166.3	49
37	41.1	-55.3	165.5	35	44.9	-55.6	165.8	33	48.4	-55.7	166.2	31	51.8	-55.9	166.5	29	55.1	-56.2	166.8	50
36	45.8	-55.4	166.0	34	49.3	-55.6	166.3	32	52.7	-55.9	166.6	30	55.9	-56.1	166.9	28	58.9	-56.2	167.2	51
35	50.4	-55.5	166.4	33	53.7	-55.7	166.8	31	56.8	-55.9	167.0	29	59.8	-56.1	167.3	28	02.7	-56.3	167.6	52
34	54.9	-55.6	166.9	32	58.0	-55.9	167.2	31	00.9	-56.1	167.5	29	03.7	-56.2	167.7	27	06.4	-56.4	167.9	53
33	59.3	-55.8	167.3	32	02.1	-55.9	167.6	30	04.8	-56.1	167.9	28	07.5	-56.3	168.1	26	10.0	-56.4	168.3	54
33	03.5	-55.8	167.8	31	06.2	-56.0	168.1	29	08.7	-56.1	168.3	27	11.2	-56.3	168.5	25	13.6	-56.5	168.7	55
32	07.7	-55.9	168.2	30	10.2	-56.1	168.5	28	12.6	-56.3	168.7	26	14.9	-56.4	168.9	24	17.1	-56.6	169.1	56
31	11.8	-56.0	168.7	29	14.1	-56.1	168.9	27	16.3	-56.3	169.1	25	18.5	-56.5	169.3	23	20.5	-56.6	169.4	57
30	15.8	-56.0	169.1	28	18.0	-56.3	169.3	26	20.0	-56.3	169.5	24	22.0	-56.5	169.6	22	23.9	-56.6	169.8	58
29	19.8	-56.2	169.5	27	21.7	-56.2	169.7	25	23.7	-56.5	169.9	23	25.5	-56.6	170.0	21	27.3	-56.7	170.2	59
28	23.6	-56.2	169.9	26	25.5	-56.4	170.1	24	27.2	-56.5	170.2	22	28.9	-56.6	170.4	20	30.6	-56.7	170.5	60
27	27.4	-56.3	170.3	25	29.1	-56.4	170.4	23	30.7	-56.5	170.6	21	32.3	-56.6	170.7	19	33.9	-56.8	170.9	61
26	31.1	-56.3	170.7	24	32.7	-56.5	170.8	22	34.2	-56.6	171.0	20	35.7	-56.7	171.1	18	37.1	-56.8	171.2	62
25	34.8	-56.4	171.1	23	36.2	-56.5	171.2	21	37.6	-56.6	171.3	19	39.0	-56.7	171.4	17	40.3	-56.8	171.5	63
24	38.4	-56.5	171.4	22	39.7	-56.5	171.6	20	41.0	-56.7	171.7	18	42.3	-56.8	171.8	16	43.5	-56.9	171.9	64
23	41.9	-56.5	171.8	21	43.2	-56.7	171.9	19	44.3	-56.7	172.0	17	45.5	-56.8	172.1	15	46.6	-56.9	172.2	65
22	45.4	-56.5	172.2	20	46.5	-56.6	172.3	18	47.6	-56.7	172.4	16	48.7	-56.9	172.5	14	49.7	-56.9	172.5	66
21	48.9	-56.6	172.5	19	49.9	-56.7	172.6	17	50.9	-56.8	172.7	15	51.8	-56.8	172.8	13	52.8	-57.0	172.9	67
20	52.3	-56.7	172.9	18	53.2	-56.7	173.0	16	54.1	-56.8	173.1	14	55.0	-56.9	173.1	12	55.8	-57.0	173.2	68
19	55.6	-56.6	173.2	17	56.5	-56.8	173.3	15	57.3	-56.9	173.4	13	58.1	-57.0	173.4	11	58.8	-57.0	173.5	69
18	59.0	-56.8	173.6	16	59.7	-56.8	173.7	15	00.4	-56.9	173.7	13	01.1	-56.9	173.8	11	01.8	-57.0	173.8	70
18	02.2	-56.7	173.9	16	02.9	-56.8	174.0	14	03.5	-56.9	174.0	12	04.2	-57.0	174.1	10	04.8	-57.0	174.1	71
17	05.5	-56.8	174.3	15	06.1	-56.9	174.3	13	06.6	-56.9	174.4	11	07.2	-57.0	174.4	9	07.8	-57.1	174.4	72
16	08.7	-56.9	174.6	14	09.2	-56.9	174.7	12	09.7	-56.9	174.7	10	10.2	-57.0	174.7	8	10.7	-57.0	174.8	73
15	11.8	-56.8	174.9	13	12.3	-56.9	175.0	11	12.8	-57.0	175.0	9	13.2	-57.0	175.0	7	13.7	-57.1	175.1	74
14	15.0	-56.9	175.3	12	15.4	-56.9	175.3	10	15.8	-57.0	175.3	8	16.2	-57.0	175.4	6	16.6	-57.1	175.4	75
13	18.1	-56.9	175.6	11	18.5	-57.0	175.6	9	18.8	-57.0	175.7	7	19.2	-57.1	175.7	5	19.5	-57.1	175.7	76
12	21.2	-56.9	175.9	10	21.5	-57.0	175.9	8	21.8	-57.0	176.0	6	22.1	-57.1	176.0	4	22.4	-57.1	176.0	77
11	24.3	-57.0	176.2	9	24.5	-57.0	176.3	7	24.8	-57.0	176.3	5	25.0	-57.0	176.3	3	25.3	-57.1	176.3	78
10	27.3	-56.9	176.6	8	27.5	-57.0	176.6	6	27.8	-57.1	176.6	4	28.0	-57.1	176.6	2	28.2	-57.1	176.6	79
9	30.4	-57.0	176.9	7	30.5	-57.0	176.9	5	30.7	-57.0	176.9	3	30.9	-57.1	176.9	1	31.1	-57.2	176.9	80
8	33.4	-57.0	177.2	6	33.5	-57.0	177.2	4	33.7	-57.1	177.2	2	33.8	-57.1	177.2	0	33.9	-57.1	177.2	81
7	36.4	-57.1	177.5	5	36.5	-57.1	177.5	3	36.6	-57.1	177.5	1	36.7	-57.1	177.5	0	23.2	+57.1	2.5	82
6	39.3	-57.0	177.8	4	39.4	-57.0	177.8	2	39.5	-57.1	177.8	0	39.6	-57.1	177.8	1	20.3	+57.1	2.2	83
5	42.3	-57.0	178.1	3	42.4	-57.1	178.1	1	42.4	-57.0	178.1	0	17.5	+57.1	1.9	2	17.4	+57.1	1.9	84
4	45.3	-57.1	178.5	2	45.3	-57.0	178.5	0	45.4	-57.1	178.5	1	14.6	+57.1	1.5	3	14.5	+57.2	1.5	85
3	48.2	-57.0	178.8	1	48.3	-57.1	178.8	0	11.7	+57.1	1.2	2	11.7	+57.1	1.2	4	11.7	+57.1	1.2	86
2	51.2	-57.1	179.1	0	51.2	-57.1	179.1	1	08.8	+57.1	0.9	3	08.8	+57.1	0.9	5	08.8	+57.0	0.9	87
1	54.1	-57.0	179.4	0	05.9	+57.0	0.6	2	05.9	+57.0	0.6	4	05.9	+57.0	0.6	6	05.8	+57.1	0.6	88
0	57.1	-57.1	179.7	1	02.9	+57.1	0.3	3	02.9	+57.1	0.3	5	02.9	+57.1	0.3	7	02.9	+57.1	0.3	89
0	00.0	+57.1	0.0	2	00.0	+57.1	0.0	4	00.0	+57.1	0.0	6	00.0	+57.1	0.0	8	00.0	+57.1	0.0	90
0°			2°			4°			6°			8°								

LATITUDE SAME NAME

L.H.A. 162°, 198°

18°, 342° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	63 53.4	-43.8	37.5	65 27.0	-41.8	40.1	66 56.7	-39.3	43.1	68 21.9	-36.4	46.5	69 41.5	-32.9	50.4
31	63 09.6	-44.8	35.9	64 45.2	-42.9	38.4	66 17.4	-40.6	41.2	67 45.5	-37.9	44.4	69 08.6	-34.8	48.1
32	62 24.8	-45.7	34.5	64 02.3	-43.9	36.8	65 36.8	-41.8	39.4	67 07.6	-39.4	42.4	68 33.8	-36.5	45.8
33	61 39.1	-46.4	33.1	63 18.4	-44.8	35.2	64 55.0	-43.0	37.7	66 28.2	-40.8	40.5	67 57.3	-38.1	43.7
34	60 52.7	-47.2	31.8	62 33.6	-45.7	33.8	64 12.0	-44.0	36.1	65 47.4	-41.9	38.7	67 19.2	-39.6	41.6
35	60 05.5	-47.9	30.5	61 47.9	-46.5	32.4	63 28.0	-44.9	34.5	65 05.5	-43.1	36.9	66 39.6	-40.8	39.7
36	59 17.6	-48.4	29.3	61 01.4	-47.3	31.1	62 43.1	-45.8	33.1	64 22.4	-44.1	35.3	65 58.8	-42.2	37.9
37	58 29.2	-49.1	28.2	60 14.1	-47.9	29.8	61 57.3	-46.6	31.7	63 38.3	-45.1	33.8	65 16.6	-43.2	36.2
38	57 40.1	-49.6	27.1	59 26.2	-48.5	28.6	61 10.7	-47.4	30.3	62 53.2	-45.9	32.3	64 33.4	-44.3	34.5
39	56 50.5	-50.1	26.0	58 37.7	-49.2	27.5	60 23.3	-48.0	29.1	62 07.3	-46.7	30.9	63 49.1	-45.2	33.0
40	56 00.4	-50.6	25.0	57 48.5	-49.6	26.4	59 35.3	-48.6	27.9	61 20.6	-47.5	29.6	63 03.9	-46.0	31.5
41	55 09.8	-50.9	24.1	56 58.9	-50.2	25.3	58 46.7	-49.2	26.7	60 33.1	-48.1	28.3	62 17.9	-46.9	30.1
42	54 18.9	-51.4	23.2	56 08.7	-50.6	24.3	57 57.5	-49.8	25.6	59 45.0	-48.8	27.1	61 31.0	-47.6	28.8
43	53 27.5	-51.8	22.3	55 18.1	-51.1	23.4	57 07.7	-50.3	24.6	58 56.2	-49.3	26.0	60 43.4	-48.3	27.5
44	52 35.7	-52.1	21.5	54 27.0	-51.4	22.5	56 17.4	-50.7	23.6	58 06.9	-49.9	24.9	59 55.1	-48.9	26.3
45	51 43.6	-52.4	20.7	53 35.6	-51.9	21.6	55 26.7	-51.1	22.7	57 17.0	-50.4	23.8	59 06.2	-49.5	25.2
46	50 51.2	-52.7	19.9	52 43.7	-52.1	20.8	54 35.6	-51.5	21.7	56 26.6	-50.8	22.9	58 16.7	-50.0	24.1
47	49 58.5	-53.0	19.1	51 51.6	-52.5	20.0	53 44.1	-51.9	20.9	55 35.8	-51.2	21.9	57 26.7	-50.5	23.1
48	49 05.5	-53.3	18.4	50 59.1	-52.8	19.2	52 52.2	-52.3	20.0	54 44.6	-51.7	21.0	56 36.2	-51.0	22.1
49	48 12.2	-53.5	17.7	50 06.3	-53.0	18.4	51 59.9	-52.5	19.2	53 52.9	-52.0	20.1	55 45.2	-51.3	21.1
50	47 18.7	-53.7	17.0	49 13.3	-53.3	17.7	51 07.4	-52.9	18.4	53 00.9	-52.3	19.3	54 53.9	-51.8	20.2
51	46 25.0	-53.9	16.4	48 20.0	-53.6	17.0	50 14.5	-53.1	17.7	52 08.6	-52.7	18.5	54 02.1	-52.1	19.3
52	45 31.1	-54.2	15.8	47 26.4	-53.8	16.3	49 21.4	-53.4	17.0	51 15.9	-52.9	17.7	53 10.0	-52.5	18.5
53	44 36.9	-54.3	15.1	46 32.6	-54.0	15.7	48 28.0	-53.7	16.3	50 23.0	-53.3	17.0	52 17.5	-52.7	17.7
54	43 42.6	-54.5	14.6	45 38.6	-54.2	15.1	47 34.3	-53.8	15.6	49 29.7	-53.4	16.2	51 24.8	-53.1	16.9
55	42 48.1	-54.7	14.0	44 44.4	-54.4	14.4	46 40.5	-54.1	15.0	48 36.3	-53.8	15.5	50 31.7	-53.3	16.2
56	41 53.4	-54.8	13.4	43 50.0	-54.5	13.9	45 46.4	-54.3	14.3	47 42.5	-53.9	14.9	49 38.4	-53.6	15.5
57	40 58.6	-55.0	12.9	42 55.5	-54.8	13.3	44 52.1	-54.4	13.7	46 48.6	-54.2	14.2	48 44.8	-53.9	14.8
58	40 03.6	-55.1	12.4	42 00.7	-54.9	12.7	43 57.7	-54.6	13.1	45 54.4	-54.3	13.6	47 50.9	-54.0	14.1
59	39 08.5	-55.3	11.8	41 05.8	-55.0	12.2	43 03.1	-54.8	12.6	45 00.1	-54.6	13.0	46 56.9	-54.3	13.5
60	38 13.2	-55.4	11.3	40 10.8	-55.2	11.7	42 08.3	-55.0	12.0	44 05.5	-54.7	12.4	46 02.6	-54.4	12.9
61	37 17.8	-55.4	10.9	39 15.6	-55.3	11.2	41 13.3	-55.1	11.5	43 10.8	-54.9	11.9	45 08.2	-54.7	12.3
62	36 22.4	-55.7	10.4	38 20.3	-55.4	10.7	40 18.2	-55.2	11.0	42 15.9	-55.0	11.3	44 13.5	-54.8	11.7
63	35 26.7	-55.7	9.9	37 24.9	-55.5	10.2	39 23.0	-55.4	10.5	41 20.9	-55.2	10.8	43 18.7	-54.9	11.1
64	34 31.0	-55.8	9.5	36 29.4	-55.7	9.7	38 27.6	-55.5	10.0	40 25.7	-55.3	10.3	42 23.8	-55.1	10.6
65	33 35.2	-55.9	9.0	35 33.7	-55.7	9.2	37 32.1	-55.6	9.5	39 30.4	-55.4	9.7	41 28.7	-55.3	10.0
66	32 39.3	-55.9	8.6	34 38.0	-55.9	8.8	36 36.5	-55.7	9.0	38 35.0	-55.6	9.3	40 33.4	-55.4	9.5
67	31 43.4	-56.1	8.2	33 42.1	-55.9	8.3	35 40.8	-55.8	8.5	37 39.4	-55.6	8.8	39 38.0	-55.5	9.0
68	30 47.3	-56.2	7.7	32 46.2	-56.1	7.9	34 45.0	-55.9	8.1	36 43.8	-55.8	8.3	38 42.5	-55.7	8.5
69	29 51.1	-56.2	7.3	31 50.1	-56.1	7.5	33 49.1	-56.0	7.7	35 48.0	-55.9	7.8	37 46.8	-55.7	8.1
70	28 54.9	-56.3	6.9	30 54.0	-56.2	7.1	32 53.1	-56.1	7.2	34 52.1	-56.0	7.4	36 51.1	-55.9	7.6
71	27 58.6	-56.3	6.5	29 57.8	-56.2	6.7	31 57.0	-56.2	6.8	33 56.1	-56.0	7.0	35 55.2	-55.9	7.1
72	27 02.3	-56.5	6.2	29 01.6	-56.4	6.3	31 00.8	-56.2	6.4	33 00.1	-56.2	6.5	34 59.3	-56.1	6.7
73	26 05.8	-56.4	5.8	28 05.2	-56.4	5.9	30 04.6	-56.3	6.0	32 03.9	-56.2	6.1	34 03.2	-56.1	6.3
74	25 09.4	-56.6	5.4	27 08.8	-56.4	5.5	29 08.3	-56.4	5.6	31 07.7	-56.3	5.7	33 07.1	-56.3	5.8
75	24 12.8	-56.6	5.0	26 12.4	-56.6	5.1	28 11.9	-56.5	5.2	30 11.4	-56.4	5.3	32 10.8	-56.3	5.4
76	23 16.2	-56.6	4.7	25 15.8	-56.5	4.7	27 15.4	-56.5	4.8	29 15.0	-56.5	4.9	31 14.5	-56.3	5.0
77	22 19.6	-56.7	4.3	24 19.3	-56.7	4.4	26 18.9	-56.6	4.4	28 18.5	-56.5	4.5	30 18.2	-56.5	4.6
78	21 22.9	-56.7	4.0	23 22.6	-56.6	4.0	25 22.3	-56.6	4.1	27 22.0	-56.5	4.1	29 21.7	-56.5	4.2
79	20 26.2	-56.8	3.6	22 26.0	-56.8	3.7	24 25.7	-56.7	3.7	26 25.5	-56.7	3.8	28 25.2	-56.6	3.8
80	19 29.4	-56.8	3.3	21 29.2	-56.7	3.3	23 29.0	-56.7	3.4	25 28.8	-56.7	3.4	27 28.6	-56.6	3.5
81	18 32.6	-56.8	2.9	20 32.5	-56.8	3.0	22 32.3	-56.8	3.0	24 32.1	-56.7	3.0	26 32.0	-56.7	3.1
82	17 35.8	-56.9	2.6	19 35.7	-56.9	2.6	21 35.5	-56.8	2.7	23 35.4	-56.8	2.7	25 35.3	-56.8	2.7
83	16 38.9	-56.9	2.3	18 38.8	-56.9	2.3	20 38.7	-56.8	2.3	22 38.6	-56.8	2.3	24 38.5	-56.8	2.4
84	15 42.0	-56.9	1.9	17 41.9	-56.9	1.9	19 41.9	-56.9	2.0	21 41.8	-56.9	2.0	23 41.7	-56.8	2.0
85	14 45.1	-57.0	1.6	16 45.0	-56.9	1.6	18 45.0	-57.0	1.6	20 44.9	-56.9	1.7	22 44.9	-56.9	1.7
86	13 48.1	-57.0	1.3	15 48.1	-57.0	1.3	17 48.0	-56.9	1.3	19 48.0	-56.9	1.3	21 48.0	-57.0	1.3
87	12 51.1	-57.0	1.0	14 51.1	-57.0	1.0	16 51.1	-57.0	1.0	18 51.1	-57.0	1.0	20 51.0	-56.9	1.0
88	11 54.1	-57.0	0.6	13 54.1	-57.0	0.6	15 54.1	-57.0	0.6	17 54.1	-57.1	0.6	19 54.1	-57.1	0.7
89	10 57.1	-57.1	0.3	12 57.1	-57.1	0.3	14 57.1	-57.1	0.3	16 57.0	-57.0	0.3	18 57.0	-57.0	0.3
90	10 00.0	-57.1	0.0	12 00.0	-57.1	0.0	14 00.0	-57.1	0.0	16 00.0	-57.1	0.0	18 00.0	-57.1	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 18°, 342°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
46	24.6	-53.9	157.2	44	33.7	-54.4	157.9	42	42.2	-54.8	158.6	40	50.2	-55.2	159.3	38	57.8	-55.6	159.9	30
45	30.7	-54.1	157.8	43	39.3	-54.6	158.5	41	47.4	-55.0	159.2	39	55.0	-55.4	159.8	38	02.2	-55.7	160.3	31
44	36.6	-54.4	158.4	42	44.7	-54.7	159.1	40	52.4	-55.2	159.7	38	59.6	-55.5	160.3	37	06.5	-55.9	160.8	32
43	42.2	-54.5	159.0	41	50.0	-55.0	159.6	39	57.2	-55.3	160.2	38	04.1	-55.6	160.8	36	10.6	-55.9	161.3	33
42	47.7	-54.7	159.6	40	55.0	-55.0	160.2	39	01.9	-55.4	160.7	37	08.5	-55.8	161.3	35	14.7	-56.0	161.7	34
41	53.0	-54.8	160.1	40	00.0	-55.2	160.7	38	06.5	-55.5	161.2	36	12.7	-55.8	161.7	34	18.7	-56.2	162.2	35
40	58.2	-55.0	160.7	39	04.8	-55.4	161.2	37	11.0	-55.6	161.7	35	16.9	-55.9	162.2	33	22.5	-56.2	162.6	36
40	03.2	-55.1	161.2	38	09.4	-55.4	161.7	36	15.4	-55.8	162.2	34	21.0	-56.1	162.6	32	26.3	-56.2	163.0	37
39	08.1	-55.3	161.7	37	14.0	-55.6	162.2	35	19.6	-55.8	162.6	33	24.9	-56.1	163.0	31	30.1	-56.4	163.4	38
38	12.8	-55.3	162.2	36	18.4	-55.6	162.7	34	23.8	-56.0	163.1	32	28.8	-56.2	163.5	30	33.7	-56.4	163.8	39
37	17.5	-55.5	162.7	35	22.8	-55.8	163.1	33	27.8	-56.0	163.5	31	32.6	-56.2	163.9	29	37.3	-56.5	164.2	40
36	22.0	-55.6	163.2	34	27.0	-55.9	163.6	32	31.8	-56.1	163.9	30	36.4	-56.4	164.3	28	40.8	-56.6	164.6	41
35	26.4	-55.7	163.6	33	31.1	-55.9	164.0	31	35.7	-56.2	164.4	29	40.0	-56.4	164.7	27	44.2	-56.6	165.0	42
34	30.7	-55.8	164.1	32	35.2	-56.1	164.4	30	39.5	-56.3	164.8	28	43.6	-56.5	165.1	26	47.6	-56.7	165.3	43
33	34.9	-55.9	164.5	31	39.1	-56.1	164.9	29	43.2	-56.4	165.2	27	47.1	-56.5	165.4	25	50.9	-56.7	165.7	44
32	39.0	-56.0	165.0	30	43.0	-56.2	165.3	28	46.8	-56.4	165.6	26	50.6	-56.6	165.8	24	54.2	-56.8	166.1	45
31	43.0	-56.1	165.4	29	46.8	-56.3	165.7	27	50.4	-56.4	166.0	25	54.0	-56.7	166.2	23	57.4	-56.9	166.4	46
30	46.9	-56.2	165.8	28	50.5	-56.4	166.1	26	54.0	-56.6	166.3	24	57.3	-56.7	166.6	22	60.5	-56.9	166.8	47
29	50.7	-56.2	166.2	27	54.1	-56.4	166.5	25	57.4	-56.6	166.7	24	00.6	-56.8	166.9	22	03.6	-56.9	167.1	48
28	54.5	-56.3	166.6	26	57.7	-56.4	166.9	25	00.8	-56.6	167.1	23	03.8	-56.8	167.3	21	06.7	-56.9	167.4	49
27	58.2	-56.3	167.0	26	01.3	-56.6	167.2	24	04.2	-56.7	167.4	22	07.0	-56.8	167.6	20	09.8	-57.0	167.8	50
27	01.9	-56.4	167.4	25	04.7	-56.6	167.6	23	07.5	-56.8	167.8	21	10.2	-56.9	168.0	19	12.8	-57.1	168.1	51
26	05.5	-56.5	167.8	24	08.1	-56.6	168.0	22	10.7	-56.8	168.1	20	13.3	-57.0	168.3	18	15.7	-57.1	168.4	52
25	09.0	-56.6	168.1	23	11.5	-56.7	168.3	21	13.9	-56.8	168.5	19	16.3	-56.9	168.6	17	18.6	-57.1	168.8	53
24	12.4	-56.5	168.5	22	14.8	-56.7	168.7	20	17.1	-56.9	168.8	18	19.4	-57.0	169.0	16	21.5	-57.1	169.1	54
23	15.9	-56.7	168.9	21	18.1	-56.8	169.0	19	20.2	-56.9	169.2	17	22.4	-57.1	169.3	15	24.4	-57.1	169.4	55
22	19.2	-56.7	169.2	20	21.3	-56.8	169.4	18	23.3	-56.9	169.5	16	25.3	-57.1	169.6	14	27.3	-57.2	169.7	56
21	22.5	-56.7	169.6	19	24.5	-56.9	169.7	17	26.4	-57.0	169.8	15	28.2	-57.0	169.9	13	30.1	-57.2	170.0	57
20	25.8	-56.8	169.9	18	27.6	-56.9	170.1	16	29.4	-57.0	170.2	14	31.2	-57.2	170.3	12	32.9	-57.3	170.3	58
19	29.0	-56.8	170.3	17	30.7	-56.9	170.4	15	32.4	-57.0	170.5	13	34.0	-57.1	170.6	11	35.6	-57.2	170.6	59
18	32.2	-56.8	170.6	16	33.8	-56.9	170.7	14	35.4	-57.1	170.8	12	36.9	-57.2	170.9	10	38.4	-57.3	171.0	60
17	35.4	-56.9	171.0	15	36.9	-57.0	171.1	13	38.3	-57.1	171.1	11	39.7	-57.1	171.2	9	41.1	-57.2	171.3	61
16	38.5	-56.9	171.3	14	39.9	-57.0	171.4	12	41.2	-57.1	171.4	10	42.6	-57.2	171.5	8	43.9	-57.3	171.6	62
15	41.6	-56.9	171.6	13	42.9	-57.1	171.7	11	44.1	-57.1	171.8	9	45.4	-57.3	171.8	7	46.6	-57.3	171.9	63
14	44.7	-57.0	171.9	12	45.8	-57.0	172.0	10	47.0	-57.2	172.1	8	48.1	-57.2	172.1	6	49.3	-57.4	172.2	64
13	47.7	-57.0	172.3	11	48.8	-57.1	172.3	9	49.8	-57.1	172.4	7	50.9	-57.2	172.4	5	51.9	-57.3	172.5	65
12	50.7	-57.0	172.6	10	51.7	-57.1	172.6	8	52.7	-57.2	172.7	6	53.7	-57.3	172.7	4	54.6	-57.3	172.8	66
11	53.7	-57.0	172.9	9	54.6	-57.1	173.0	7	55.5	-57.2	173.0	5	56.4	-57.3	173.0	3	57.3	-57.4	173.0	67
10	56.7	-57.1	173.3	8	57.5	-57.1	173.3	6	58.3	-57.2	173.3	4	59.1	-57.2	173.3	2	59.9	-57.3	173.3	68
9	59.6	-57.1	173.5	8	00.4	-57.2	173.6	6	01.1	-57.2	173.6	4	01.9	-57.3	173.6	2	02.6	-57.4	173.6	69
9	02.5	-57.1	173.9	7	03.2	-57.1	173.9	5	03.9	-57.2	173.9	3	04.6	-57.3	173.9	1	05.2	-57.3	173.9	70
8	05.4	-57.1	174.2	6	06.1	-57.2	174.2	4	06.7	-57.2	174.2	2	07.3	-57.3	174.2	0	07.9	-57.4	174.2	71
7	08.3	-57.1	174.5	5	08.9	-57.2	174.5	3	09.5	-57.3	174.5	1	10.0	-57.3	174.5	0	49.5	+57.3	5.5	72
6	11.2	-57.1	174.8	4	11.7	-57.2	174.8	2	12.2	-57.2	174.8	0	12.7	-57.3	174.8	1	46.8	+57.3	5.2	73
5	14.1	-57.1	175.1	3	14.5	-57.1	175.1	1	15.0	-57.3	175.1	0	17.7	-57.2	175.4	2	44.1	+57.4	4.9	74
4	17.0	-57.2	175.4	2	17.4	-57.2	175.4	0	17.7	-57.2	175.4	0	44.6	+57.3	4.9	3	41.5	+57.3	4.6	75
3	19.8	-57.1	175.7	1	20.2	-57.2	175.7	0	39.5	+57.2	4.3	2	39.2	+57.2	4.3	4	38.8	+57.4	4.3	76
2	22.7	-57.2	176.0	0	23.0	-57.2	176.0	1	36.7	+57.3	4.0	3	36.4	+57.3	4.0	5	36.2	+57.3	4.0	77
1	25.5	-57.1	176.3	0	34.2	+57.2	3.7	2	34.0	+57.2	3.7	4	33.7	+57.3	3.7	6	33.5	+57.3	3.7	78
0	28.4	-57.2	176.6	1	31.4	+57.2	3.4	3	31.2	+57.2	3.4	5	31.0	+57.3	3.4	7	30.8	+57.3	3.4	79
0	28.8	+57.1	3.1	2	28.6	+57.2	3.1	4	28.4	+57.2	3.1	6	28.3	+57.2	3.1	8	28.1	+57.3	3.1	80
1	25.9	+57.2	2.8	3	25.8	+57.2	2.8	5	25.6	+57.3	2.8	7	25.5	+57.2	2.8	9	25.4	+57.2	2.8	81
2	23.1	+57.1	2.5	4	23.0	+57.1	2.5	6	22.9	+57.2	2.5	8	22.7	+57.3	2.5	10	22.6	+57.3	2.5	82
3	20.2	+57.2	2.2	5	20.1	+57.2	2.2	7	20.1	+57.1	2.2	9	20.0	+57.2	2.2	11	19.9	+57.2	2.2	83
4	17.4	+57.1	1.9	6	17.3	+57.2	1.9	8	17.2	+57.2	1.9	10	17.2	+57.2	1.9	12	17.1	+57.2	1.9	84
5	14.5	+57.1	1.5	7	14.5	+57.1	1.6	9	14.4	+57.2	1.6	11	14.4	+57.1	1.6	13	14.3	+57.2	1.6	85
6	11.6	+57.1	1.2	8	11.6	+57.1	1.2	10	11.6	+57.1	1.3	12	11.5	+57.2	1.3	14	11.5	+57.2	1.3	86
7	08.7	+57.1	0.9	9	08.7	+57.1	0.9	11	08.7	+57.1	0.9	13	08.7	+57.1	1.0	15	08.7	+57.1	1.0	87
8	05.8	+57.1	0.6	10	05.8	+57.1	0.6	12	05.8	+57.1	0.6	14	05.8	+57.1	0.6	16	05.8	+57.1	0.6	88
9	02.9	+57.1	0.3	11	02.9	+57.1	0.3	13	02.9	+57.1	0.3	15	02.9	+57.1	0.3	17	02.9	+57.1	0.3	89
10	00.0	+57.1	0.0	12	00.0	+57.1	0.0	14	00.0	+57.1	0.0	16	00.0	+57.0	0.0	18	00.0	+57.0	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 162°, 198°

18°, 342° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	70 54.3	-28.8	• 54.9	71 59.0	-23.9	• 59.9	72 54.1	-18.3	• 65.5	73 37.9	-11.9	• 71.7	74 08.8	-4.7	• 78.4
31	70 25.5	-31.0	• 52.2	71 35.1	-26.6	• 57.0	72 35.8	-21.3	• 62.3	73 26.0	-15.2	• 68.3	74 04.1	-8.4	• 74.8
32	69 54.5	-33.1	• 49.7	71 08.5	-28.9	• 54.2	72 14.5	-24.1	• 59.2	73 10.8	-18.4	• 64.9	73 55.7	-11.9	• 71.2
33	69 21.4	-34.9	• 47.3	70 39.6	-31.2	• 51.5	71 50.4	-26.7	• 56.3	72 52.4	-21.5	• 61.6	73 43.8	-15.3	• 67.7
34	68 46.5	-36.7	• 45.0	70 08.4	-33.2	• 48.9	71 23.7	-29.2	• 53.4	72 30.9	-24.2	• 58.5	73 28.5	-18.6	• 64.2
35	68 09.8	-38.2	• 42.9	69 35.2	-35.2	• 46.5	70 54.5	-31.3	• 50.7	72 06.7	-27.0	• 55.5	73 09.9	-21.6	• 60.9
36	67 31.6	-39.8	• 40.8	69 00.0	-36.9	• 44.2	70 23.2	-33.5	• 48.1	71 39.7	-29.3	• 52.6	72 48.3	-24.5	• 57.7
37	66 51.8	-41.0	• 38.9	68 23.1	-38.4	• 42.1	69 49.7	-35.4	• 45.7	71 10.4	-31.7	• 49.9	72 23.8	-27.2	• 54.7
38	66 10.8	-42.3	• 37.1	67 44.7	-40.0	• 40.0	69 14.3	-37.1	• 43.4	70 38.7	-33.8	• 47.3	71 56.6	-29.6	• 51.8
39	65 28.5	-43.5	• 35.3	67 04.7	-41.3	• 38.1	68 37.2	-38.8	• 41.2	70 04.9	-35.6	• 44.8	71 27.0	-32.0	• 49.0
40	64 45.0	-44.4	• 33.7	66 23.4	-42.5	• 36.2	67 58.4	-40.2	• 39.1	69 29.3	-37.5	• 42.5	70 55.0	-34.1	• 46.4
41	64 00.6	-45.4	• 32.2	65 40.9	-43.7	• 34.5	67 18.2	-41.6	• 37.2	68 51.8	-39.0	• 40.3	70 20.9	-36.0	• 43.9
42	63 15.2	-46.3	• 30.7	64 57.2	-44.6	• 32.9	66 36.6	-42.7	• 35.3	68 12.8	-40.5	• 38.2	69 44.9	-37.8	• 41.6
43	62 28.9	-47.0	• 29.3	64 12.6	-45.6	• 31.3	65 53.9	-43.9	• 33.6	67 32.3	-41.9	• 36.3	69 07.1	-39.4	• 39.4
44	61 41.9	-47.8	• 28.0	63 27.0	-46.5	• 29.8	65 10.0	-45.0	• 32.0	66 50.4	-43.1	• 34.4	68 27.7	-40.8	• 37.3
45	60 54.1	-48.5	• 26.7	62 40.5	-47.3	• 28.4	64 25.0	-45.8	• 30.4	66 07.3	-44.1	• 32.7	67 46.9	-42.2	• 35.3
46	60 05.6	-49.0	• 25.5	61 53.2	-48.0	• 27.1	63 39.2	-46.7	• 28.9	65 23.2	-45.2	• 31.0	67 04.7	-43.4	• 33.4
47	59 16.6	-49.7	• 24.4	61 05.2	-48.6	• 25.8	62 52.5	-47.5	• 27.5	64 38.0	-46.2	• 29.5	66 21.3	-44.5	• 31.7
48	58 26.9	-50.1	• 23.3	60 16.6	-49.3	• 24.6	62 05.0	-48.2	• 26.2	63 51.8	-47.0	• 28.0	65 36.8	-45.6	• 30.1
49	57 36.8	-50.7	• 22.2	59 27.3	-49.8	• 23.5	61 16.8	-48.9	• 25.0	63 04.8	-47.7	• 26.6	64 51.2	-46.4	• 28.5
50	56 46.1	-51.1	• 21.3	58 37.5	-50.4	• 22.4	60 27.9	-49.5	• 23.8	62 17.1	-48.5	• 25.3	64 04.8	-47.3	• 27.0
51	55 55.0	-51.5	• 20.3	57 47.1	-50.8	• 21.4	59 38.4	-50.0	• 22.6	61 28.6	-49.1	• 24.0	63 17.5	-48.0	• 25.6
52	55 03.5	-51.9	• 19.4	56 56.3	-51.3	• 20.4	58 48.4	-50.6	• 21.6	60 39.5	-49.7	• 22.8	62 29.5	-48.8	• 24.3
53	54 11.6	-52.3	• 18.5	56 05.0	-51.6	• 19.5	57 57.8	-51.0	• 20.5	59 49.8	-50.3	• 21.7	61 40.7	-49.4	• 23.1
54	53 19.3	-52.6	• 17.7	55 13.4	-52.1	• 18.6	57 06.8	-51.5	• 19.5	58 59.5	-50.8	• 20.6	60 51.3	-50.0	• 21.9
55	52 26.7	-52.9	• 16.9	54 21.3	-52.4	• 17.7	56 15.3	-51.9	• 18.6	58 08.7	-51.2	• 19.6	60 01.3	-50.5	• 20.8
56	51 33.8	-53.2	• 16.1	53 28.9	-52.8	• 16.9	55 23.4	-52.2	• 17.7	57 17.5	-51.7	• 18.6	59 10.8	-51.0	• 19.7
57	50 40.6	-53.4	• 15.4	52 36.1	-53.0	• 16.1	54 31.2	-52.6	• 16.9	56 25.8	-52.1	• 17.7	58 19.8	-51.5	• 18.7
58	49 47.2	-53.7	• 14.7	51 43.1	-53.4	• 15.3	53 38.6	-52.9	• 16.0	55 33.7	-52.4	• 16.8	57 28.3	-51.9	• 17.7
59	48 53.5	-54.0	• 14.0	50 49.7	-53.6	• 14.6	52 45.7	-53.2	• 15.2	54 41.3	-52.8	• 16.0	56 36.4	-52.3	• 16.8
60	47 59.5	-54.2	• 13.3	49 56.1	-53.8	• 13.9	51 52.5	-53.5	• 14.5	53 48.5	-53.1	• 15.2	55 44.1	-52.7	• 15.9
61	47 05.3	-54.3	• 12.7	49 02.3	-54.1	• 13.2	50 59.0	-53.8	• 13.8	52 55.4	-53.4	• 14.4	54 51.4	-53.0	• 15.1
62	46 11.0	-54.6	• 12.1	48 08.2	-54.3	• 12.6	50 05.2	-54.0	• 13.1	52 02.0	-53.7	• 13.6	53 58.4	-53.3	• 14.3
63	45 16.4	-54.7	• 11.5	47 13.9	-54.5	• 11.9	49 11.2	-54.2	• 12.4	51 08.3	-53.9	• 12.9	53 05.1	-53.6	• 13.5
64	44 21.7	-54.9	• 10.9	46 19.4	-54.7	• 11.3	48 17.0	-54.4	• 11.7	50 14.4	-54.2	• 12.2	52 11.5	-53.8	• 12.8
65	43 26.8	-55.1	• 10.4	45 24.7	-54.8	• 10.7	47 22.6	-54.7	• 11.1	49 20.2	-54.4	• 11.6	51 17.7	-54.1	• 12.1
66	42 31.7	-55.2	• 9.8	44 29.9	-55.1	• 10.1	46 27.9	-54.8	• 10.5	48 25.8	-54.6	• 10.9	50 23.6	-54.4	• 11.4
67	41 36.5	-55.4	• 9.3	43 34.8	-55.1	• 9.6	45 33.1	-55.0	• 9.9	47 31.2	-54.7	• 10.3	49 29.2	-54.5	• 10.7
68	40 41.1	-55.5	• 8.8	42 39.7	-55.4	• 9.1	44 38.1	-55.1	• 9.4	46 36.5	-55.0	• 9.7	48 34.7	-54.8	• 10.1
69	39 45.6	-55.6	• 8.3	41 44.3	-55.4	• 8.5	43 43.0	-55.4	• 8.8	45 41.5	-55.1	• 9.1	47 39.9	-54.9	• 9.5
70	38 50.0	-55.7	• 7.8	40 48.9	-55.6	• 8.0	42 47.6	-55.4	• 8.3	44 46.4	-55.3	• 8.6	46 45.0	-55.2	• 8.9
71	37 54.3	-55.9	• 7.3	39 53.3	-55.8	• 7.5	41 52.2	-55.6	• 7.8	43 51.1	-55.5	• 8.0	45 49.8	-55.2	• 8.3
72	36 58.4	-55.9	• 6.9	38 57.5	-55.8	• 7.1	40 56.6	-55.7	• 7.3	42 55.6	-55.6	• 7.5	44 54.6	-55.5	• 7.7
73	36 02.5	-56.1	• 6.4	38 01.7	-55.9	• 6.6	40 00.9	-55.8	• 6.8	42 00.0	-55.7	• 7.0	43 59.1	-55.6	• 7.2
74	35 06.4	-56.1	• 6.0	37 05.8	-56.1	• 6.1	39 05.1	-56.0	• 6.3	41 04.3	-55.8	• 6.5	43 03.5	-55.7	• 6.7
75	34 10.3	-56.2	• 5.5	36 09.7	-56.1	• 5.7	38 09.1	-56.0	• 5.8	40 08.5	-56.0	• 6.0	42 07.8	-55.9	• 6.2
76	33 14.1	-56.3	• 5.1	35 13.6	-56.3	• 5.3	37 13.1	-56.2	• 5.4	39 12.5	-56.1	• 5.5	41 11.9	-55.9	• 5.7
77	32 17.8	-56.4	• 4.7	34 17.3	-56.3	• 4.8	36 16.9	-56.2	• 4.9	38 16.4	-56.1	• 5.1	40 16.0	-56.1	• 5.2
78	31 21.4	-56.5	• 4.3	33 21.0	-56.4	• 4.4	35 20.7	-56.4	• 4.5	37 20.3	-56.3	• 4.6	39 19.9	-56.2	• 4.8
79	30 24.9	-56.5	• 3.9	32 24.6	-56.5	• 4.0	34 24.3	-56.4	• 4.1	36 24.0	-56.3	• 4.2	38 23.7	-56.3	• 4.3
80	29 28.4	-56.6	• 3.5	31 28.1	-56.5	• 3.6	33 27.9	-56.5	• 3.7	35 27.7	-56.5	• 3.8	37 27.4	-56.4	• 3.9
81	28 31.8	-56.7	• 3.2	30 31.6	-56.6	• 3.2	32 31.4	-56.6	• 3.3	34 31.2	-56.5	• 3.4	36 31.0	-56.5	• 3.4
82	27 35.1	-56.7	• 2.8	29 35.0	-56.7	• 2.8	31 34.8	-56.6	• 2.9	33 34.7	-56.6	• 3.0	35 34.5	-56.6	• 3.0
83	26 38.4	-56.8	• 2.4	28 38.3	-56.7	• 2.5	30 38.2	-56.7	• 2.5	32 38.1	-56.7	• 2.6	34 37.9	-56.6	• 2.6
84	25 41.6	-56.8	• 2.1	27 41.6	-56.8	• 2.1	29 41.5	-56.8	• 2.1	31 41.4	-56.8	• 2.2	33 41.3	-56.7	• 2.2
85	24 44.8	-56.9	• 1.7	26 44.8	-56.9	• 1.7	28 44.7	-56.8	• 1.8	30 44.6	-56.8	• 1.8	32 44.6	-56.8	• 1.8
86	23 47.9	-56.9	• 1.3	25 47.9	-56.9	• 1.4	27 47.9	-56.9	• 1.4	29 47.8	-56.8	• 1.4	31 47.8	-56.9	• 1.5
87	22 51.0	-56.9	• 1.0	24 51.0	-57.0	• 1.0	26 51.0	-57.0	• 1.0	28 51.0	-57.0	• 1.1	30 50.9	-56.9	• 1.1
88	21 54.1	-57.1	• 0.7	23 54.0	-57.0	• 0.7	25 54.0	-57.0	• 0.7	27 54.0	-57.0	• 0.7	29 54.0	-57.0	• 0.7
89	20 57.0	-57.0	• 0.3	22 57.0	-57.0	• 0.3	24 57.0	-57.0	• 0.3	26 57.0	-57.0	• 0.3	28 57.0	-57.0	• 0.4
90	20 00.0	-57.1	• 0.0	22 00.0	-57.1	• 0.0	24 00.0	-57.1	• 0.0	26 00.0	-57.1	• 0.0	28 00.0	-57.1	• 0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 18°, 342°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
37 04.9 -55.9 160.4			35 11.7 -56.2 160.9			33 18.2 -56.5 161.3			31 24.3 -56.7 161.7			29 30.3 -57.0 162.1			30
36 09.0 -56.0 160.9			34 15.5 -56.4 161.3			32 21.7 -56.6 161.7			30 27.6 -56.8 162.1			28 33.3 -57.1 162.4			31
35 13.0 -56.2 161.3			33 19.1 -56.4 161.7			31 25.1 -56.7 162.1			29 30.8 -56.9 162.5			27 36.2 -57.1 162.8			32
34 16.8 -56.2 161.7			32 22.7 -56.4 162.1			30 28.4 -56.7 162.5			28 33.9 -57.0 162.8			26 39.1 -57.2 163.1			33
33 20.6 -56.3 162.1			31 26.3 -56.6 162.5			29 31.7 -56.8 162.9			27 36.9 -57.0 163.2			25 41.9 -57.2 163.5			34
32 24.3 -56.4 162.6			30 29.7 -56.6 162.9			28 34.9 -56.8 163.2			26 39.9 -57.0 163.5			24 44.7 -57.2 163.8			35
31 27.9 -56.4 163.0			29 33.1 -56.7 163.3			27 38.1 -56.9 163.6			25 42.9 -57.1 163.9			23 47.5 -57.3 164.1			36
30 31.5 -56.5 163.4			28 36.4 -56.7 163.7			26 41.2 -57.0 164.0			24 45.8 -57.2 164.2			22 50.2 -57.3 164.5			37
29 35.0 -56.6 163.7			27 39.7 -56.8 164.0			25 44.2 -57.0 164.3			23 48.6 -57.2 164.6			21 52.9 -57.4 164.8			38
28 38.4 -56.7 164.1			26 42.9 -56.9 164.4			24 47.2 -57.0 164.7			22 51.4 -57.2 164.9			20 55.5 -57.4 165.1			39
27 41.7 -56.7 164.5			25 46.0 -56.9 164.8			23 50.2 -57.1 165.0			21 54.2 -57.3 165.2			19 58.1 -57.4 165.4			40
26 45.0 -56.8 164.9			24 49.1 -57.0 165.1			22 53.1 -57.2 165.3			20 56.9 -57.3 165.5			19 00.7 -57.5 165.7			41
25 48.2 -56.8 165.2			23 52.1 -57.0 165.5			21 55.9 -57.1 165.7			19 59.6 -57.3 165.9			18 03.2 -57.5 166.0			42
24 51.4 -56.9 165.6			22 55.1 -57.0 165.8			20 58.8 -57.3 166.0			19 02.3 -57.4 166.2			17 05.7 -57.5 166.3			43
23 54.5 -56.9 165.9			21 58.1 -57.1 166.1			20 01.5 -57.2 166.3			18 04.9 -57.4 166.5			16 08.2 -57.5 166.6			44
22 57.6 -56.9 166.3			21 01.0 -57.1 166.5			19 04.3 -57.3 166.6			17 07.5 -57.4 166.8			15 10.7 -57.6 166.9			45
22 00.7 -57.0 166.6			20 03.9 -57.2 166.8			18 07.0 -57.3 166.9			16 10.1 -57.5 167.1			14 13.1 -57.6 167.2			46
21 03.7 -57.1 166.9			19 06.7 -57.2 167.1			17 09.7 -57.3 167.3			15 12.6 -57.4 167.4			13 15.5 -57.6 167.5			47
20 06.6 -57.0 167.3			18 09.5 -57.2 167.4			16 12.4 -57.4 167.6			14 15.2 -57.5 167.7			12 17.9 -57.6 167.8			48
19 09.6 -57.2 167.6			17 12.3 -57.2 167.7			15 15.0 -57.4 167.9			13 17.7 -57.5 168.0			11 20.3 -57.6 168.1			49
18 12.4 -57.1 167.9			16 15.1 -57.3 168.1			14 17.6 -57.4 168.2			12 20.2 -57.4 168.3			10 22.7 -57.6 168.3			50
17 15.3 -57.2 168.3			15 17.8 -57.3 168.4			13 20.2 -57.4 168.5			11 22.6 -57.5 168.6			9 25.0 -57.7 168.6			51
16 18.1 -57.2 168.6			14 20.5 -57.3 168.7			12 22.8 -57.4 168.8			10 25.1 -57.6 168.8			8 27.3 -57.6 168.9			52
15 20.9 -57.2 168.9			13 23.2 -57.4 169.0			11 25.4 -57.5 169.1			9 27.5 -57.6 169.1			7 29.7 -57.7 169.2			53
14 23.7 -57.3 169.2			12 25.8 -57.4 169.3			10 27.9 -57.5 169.4			8 29.9 -57.6 169.4			6 32.0 -57.7 169.5			54
13 26.4 -57.2 169.5			11 28.4 -57.4 169.6			9 30.4 -57.5 169.6			7 32.3 -57.6 169.7			5 34.3 -57.7 169.7			55
12 29.2 -57.3 169.8			10 31.0 -57.4 169.9			8 32.9 -57.5 169.9			6 34.7 -57.6 170.0			4 36.6 -57.7 170.0			56
11 31.9 -57.3 170.1			9 33.6 -57.4 170.2			7 35.4 -57.5 170.2			5 37.1 -57.6 170.3			3 38.9 -57.8 170.3			57
10 34.6 -57.4 170.4			8 36.2 -57.4 170.5			6 37.9 -57.6 170.5			4 39.5 -57.6 170.5			2 41.1 -57.7 170.6			58
9 37.2 -57.3 170.7			7 38.8 -57.4 170.8			5 40.3 -57.5 170.8			3 41.9 -57.6 170.8			1 43.4 -57.7 170.8			59
8 39.9 -57.4 171.0			6 41.4 -57.5 171.1			4 42.8 -57.5 171.1			2 44.3 -57.7 171.1			0 45.7 -57.7 171.1			60
7 42.5 -57.3 171.3			5 43.9 -57.5 171.3			3 45.3 -57.6 171.4			1 46.6 -57.6 171.4			0 12.0 +57.7 8.6			61
6 45.2 -57.4 171.6			4 46.4 -57.4 171.6			2 47.7 -57.5 171.6			1 50.2 -57.6 171.9			0 49.0 -57.7 171.7			62
5 47.8 -57.4 171.9			3 49.0 -57.5 171.9			1 50.2 -57.6 171.9			0 08.7 +57.6 8.1			2 07.5 +57.7 8.1			63
4 50.4 -57.4 172.2			2 51.5 -57.5 172.2			0 52.6 -57.6 172.2			1 06.3 +57.6 7.8			3 05.2 +57.7 7.8			64
3 53.0 -57.4 172.5			1 54.0 -57.5 172.5			0 56.5 -57.5 172.8			0 05.0 +57.5 7.5			2 03.9 +57.7 7.5			65
2 55.6 -57.4 172.8			0 56.5 -57.5 172.8			0 01.0 +57.4 6.9			1 02.5 +57.6 7.2			3 01.6 +57.6 7.2			66
1 58.2 -57.4 173.1			0 58.4 +57.5 6.6			0 01.0 +57.4 6.9			2 00.1 +57.5 6.9			3 59.2 +57.6 7.0			67
0 03.3 -57.4 173.6			1 55.9 +57.5 6.4			0 58.4 +57.5 6.6			2 57.6 +57.6 6.7			4 56.8 +57.6 6.7			68
0 54.1 +57.4 6.1			2 53.4 +57.5 6.1			4 52.7 +57.6 6.1			3 55.2 +57.5 6.4			5 54.4 +57.7 6.4			69
1 51.5 +57.4 5.8			3 50.9 +57.5 5.8			5 50.3 +57.5 5.8			4 52.7 +57.6 6.1			6 52.1 +57.6 6.1			70
2 48.9 +57.4 5.5			4 48.4 +57.4 5.5			6 47.8 +57.5 5.5			7 49.7 +57.5 5.8			8 47.2 +57.6 5.5			71
3 46.3 +57.4 5.2			5 45.8 +57.5 5.2			7 45.3 +57.5 5.2			8 47.8 +57.5 5.5			9 44.8 +57.6 5.3			72
4 43.7 +57.4 4.9			6 43.3 +57.4 4.9			8 42.8 +57.5 4.9			9 44.8 +57.6 5.3			10 42.4 +57.5 5.0			73
5 41.1 +57.4 4.6			7 40.7 +57.4 4.6			9 40.3 +57.5 4.7			11 39.9 +57.5 4.7			12 37.4 +57.6 4.4			74
6 38.5 +57.4 4.3			8 38.1 +57.5 4.3			10 37.8 +57.5 4.4			11 39.9 +57.5 4.7			13 39.5 +57.6 4.7			75
7 35.9 +57.3 4.0			9 35.6 +57.4 4.0			11 35.3 +57.4 4.1			12 37.4 +57.6 4.4			14 37.1 +57.5 4.4			76
8 33.2 +57.4 3.7			10 33.0 +57.4 3.7			12 32.7 +57.4 3.8			13 35.0 +57.4 4.1			15 34.6 +57.6 4.1			77
9 30.6 +57.3 3.4			11 30.4 +57.3 3.4			13 30.1 +57.4 3.5			14 32.4 +57.5 3.8			16 32.2 +57.5 3.8			78
10 27.9 +57.3 3.1			12 27.7 +57.4 3.2			14 27.5 +57.4 3.2			15 29.9 +57.4 3.5			17 29.7 +57.5 3.5			79
11 25.2 +57.3 2.8			13 25.1 +57.3 2.8			15 24.9 +57.4 2.9			16 27.3 +57.5 3.2			18 27.2 +57.4 3.2			80
12 22.5 +57.3 2.5			14 22.4 +57.3 2.5			16 22.3 +57.3 2.6			17 24.8 +57.4 2.9			19 24.6 +57.4 2.9			81
13 19.8 +57.2 2.2			15 19.7 +57.3 2.2			17 19.6 +57.3 2.3			18 22.2 +57.3 2.6			20 22.0 +57.4 2.6			82
14 17.0 +57.3 1.9			16 17.0 +57.2 1.9			18 16.9 +57.3 1.9			19 19.5 +57.3 2.3			21 19.4 +57.4 2.3			83
15 14.3 +57.2 1.6			17 14.2 +57.2 1.6			19 14.2 +57.2 1.6			20 16.8 +57.3 2.0			22 16.8 +57.3 2.0			84
16 11.5 +57.2 1.3			18 11.4 +57.2 1.3			20 11.4 +57.2 1.3			21 14.1 +57.3 1.7			23 14.1 +57.3 1.7			85
17 08.7 +57.1 1.0			19 08.6 +57.2 1.0			21 08.6 +57.2 1.0			22 11.4 +57.2 1.3			24 11.4 +57.2 1.4			86
18 05.8 +57.1 0.7			20 05.8 +57.1 0.7			22 05.8 +57.1 0.7			23 08.6 +57.2 1.0			25 08.6 +57.2 1.0			87
19 02.9 +57.1 0.3			21 02.9 +57.1 0.3			23 02.9 +57.1 0.3			24 05.8 +57.1 0.7			26 05.8 +57.1 0.7			88
20 00.0 +57.0 0.0			22 00.0 +57.0 0.0			24 00.0 +57.0 0.0			25 02.9 +57.1 0.3			27 02.9 +57.1 0.3			89
									26 00.0 +57.0 0.0			28 00.0 +57.0 0.0			90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 162°, 198°

20°, 340° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	H	c	d
30	54 28.1	-48.7	30.6	56 10.6	-47.7	32.1	57 51.2	-46.3	33.8	59 29.8	-44.9	35.7	61 06.0	-43.3	37.8
31	53 39.4	-49.3	29.6	55 22.9	-48.2	31.1	57 04.9	-47.1	32.6	58 44.9	-45.7	34.4	60 22.7	-44.1	36.4
32	52 50.1	-49.6	28.7	54 34.7	-48.7	30.0	56 17.8	-47.6	31.5	57 59.2	-46.3	33.2	59 38.6	-44.9	35.0
33	52 00.5	-50.1	27.8	53 46.0	-49.2	29.0	55 30.2	-48.1	30.4	57 12.9	-47.0	32.0	58 53.7	-45.7	33.7
34	51 10.4	-50.5	26.9	52 56.8	-49.6	28.1	54 42.1	-48.7	29.4	56 25.9	-47.6	30.9	58 08.0	-46.3	32.5
35	50 19.9	-50.8	26.0	52 07.2	-50.0	27.1	53 53.4	-49.2	28.4	55 38.3	-48.2	29.8	57 21.7	-47.0	31.3
36	49 29.1	-51.2	25.2	51 17.2	-50.5	26.3	53 04.2	-49.6	27.4	54 50.1	-48.6	28.7	56 34.7	-47.7	30.2
37	48 37.9	-51.5	24.4	50 26.7	-50.8	25.4	52 14.6	-50.0	26.5	54 01.5	-49.2	27.7	55 47.0	-48.1	29.1
38	47 46.4	-51.8	23.6	49 35.9	-51.1	24.6	51 24.6	-50.4	25.6	53 12.3	-49.6	26.7	54 58.9	-48.7	28.0
39	46 54.6	-52.1	22.9	48 44.8	-51.5	23.8	50 34.2	-50.8	24.7	52 22.7	-50.0	25.8	54 10.2	-49.2	27.0
40	46 02.5	-52.3	22.2	47 53.3	-51.8	23.0	49 43.4	-51.1	23.9	51 32.7	-50.4	24.9	53 21.0	-49.6	26.0
41	45 10.2	-52.6	21.5	47 01.5	-52.0	22.3	48 52.3	-51.5	23.1	50 42.3	-50.8	24.1	52 31.4	-50.1	25.1
42	44 17.6	-52.8	20.8	46 09.5	-52.3	21.5	48 00.8	-51.7	22.3	49 51.5	-51.2	23.2	51 41.3	-50.4	24.2
43	43 24.8	-53.1	20.1	45 17.2	-52.6	20.8	47 09.1	-52.1	21.6	49 00.3	-51.4	22.4	50 50.9	-50.8	23.3
44	42 31.7	-53.2	19.5	44 24.6	-52.8	20.1	46 17.0	-52.3	20.9	48 08.9	-51.8	21.6	50 00.1	-51.2	22.5
45	41 38.5	-53.5	18.9	43 31.8	-53.0	19.5	45 24.7	-52.6	20.2	47 17.1	-52.1	20.9	49 08.9	-51.5	21.7
46	40 45.0	-53.6	18.3	42 38.8	-53.2	18.8	44 32.1	-52.8	19.5	46 25.0	-52.3	20.2	48 17.4	-51.8	20.9
47	39 51.4	-53.8	17.7	41 45.6	-53.5	18.2	43 39.3	-53.0	18.8	45 32.7	-52.5	19.5	47 25.6	-52.1	20.2
48	38 57.6	-54.0	17.1	40 52.1	-53.6	17.6	42 46.3	-53.2	18.2	44 40.2	-52.9	18.8	46 33.5	-52.3	19.4
49	38 03.6	-54.1	16.6	39 58.5	-53.8	17.0	41 53.1	-53.4	17.5	43 47.3	-53.0	18.1	45 41.2	-52.6	18.7
50	37 09.5	-54.3	16.0	39 04.7	-53.9	16.5	40 59.7	-53.6	16.9	42 54.3	-53.2	17.5	44 48.6	-52.8	18.1
51	36 15.2	-54.4	15.5	38 10.8	-54.1	15.9	40 06.1	-53.8	16.3	42 01.1	-53.5	16.8	43 55.8	-53.1	17.4
52	35 20.8	-54.5	15.0	37 16.7	-54.3	15.3	39 12.3	-54.0	15.8	41 07.6	-53.6	16.2	43 02.7	-53.3	16.7
53	34 26.3	-54.6	14.5	36 22.4	-54.4	14.8	38 18.3	-54.1	15.2	40 14.0	-53.8	15.6	42 09.4	-53.4	16.1
54	33 31.7	-54.8	14.0	35 28.0	-54.5	14.3	37 24.2	-54.2	14.7	39 20.2	-54.0	15.1	41 16.0	-53.7	15.5
55	32 36.9	-54.9	13.5	34 33.5	-54.6	13.8	36 30.0	-54.4	14.1	38 26.2	-54.1	14.5	40 22.3	-53.8	14.9
56	31 42.0	-55.0	13.0	33 38.9	-54.8	13.3	35 35.6	-54.6	13.6	37 32.1	-54.3	14.0	39 28.5	-54.0	14.3
57	30 47.0	-55.1	12.5	32 44.1	-54.9	12.8	34 41.0	-54.6	13.1	36 37.8	-54.4	13.4	38 34.5	-54.2	13.8
58	29 51.9	-55.2	12.1	31 49.2	-55.0	12.3	33 46.4	-54.8	12.6	35 43.4	-54.5	12.9	37 40.3	-54.3	13.2
59	28 56.7	-55.2	11.6	30 54.2	-55.1	11.8	32 51.6	-54.9	12.1	34 48.9	-54.7	12.4	36 46.0	-54.4	12.7
60	28 01.5	-55.4	11.2	29 59.1	-55.1	11.4	31 56.7	-55.0	11.6	33 54.2	-54.8	11.9	35 51.6	-54.6	12.2
61	27 06.1	-55.4	10.7	29 04.0	-55.3	10.9	31 01.7	-55.0	11.2	32 59.4	-54.9	11.4	34 57.0	-54.7	11.7
62	26 10.7	-55.5	10.3	28 08.7	-55.3	10.5	30 06.7	-55.2	10.7	32 04.5	-55.0	10.9	34 02.3	-54.8	11.2
63	25 15.2	-55.6	9.9	27 13.4	-55.5	10.1	29 11.5	-55.3	10.2	31 09.5	-55.1	10.5	33 07.5	-54.9	10.7
64	24 19.6	-55.7	9.5	26 17.9	-55.5	9.6	28 16.2	-55.4	9.8	30 14.4	-55.2	10.0	32 12.6	-55.1	10.2
65	23 23.9	-55.7	9.1	25 22.4	-55.6	9.2	27 20.8	-55.4	9.4	29 19.2	-55.3	9.5	31 17.5	-55.1	9.7
66	22 28.2	-55.7	8.7	24 26.8	-55.6	8.8	26 25.4	-55.5	8.9	28 23.9	-55.3	9.1	30 22.4	-55.2	9.3
67	21 32.5	-55.9	8.3	23 31.2	-55.7	8.4	25 29.9	-55.6	8.5	27 28.6	-55.5	8.7	29 27.2	-55.4	8.8
68	20 36.6	-55.8	7.9	22 35.5	-55.8	8.0	24 34.3	-55.6	8.1	26 33.1	-55.5	8.2	28 31.8	-55.4	8.4
69	19 40.8	-56.0	7.5	21 39.7	-55.8	7.6	23 38.7	-55.8	7.7	25 37.6	-55.6	7.8	27 36.4	-55.5	8.0
70	18 44.8	-55.9	7.1	20 43.9	-55.9	7.2	22 42.9	-55.7	7.3	24 42.0	-55.7	7.4	26 40.9	-55.5	7.5
71	17 48.9	-56.1	6.7	19 48.0	-55.9	6.8	21 47.2	-55.9	6.9	23 46.3	-55.7	7.0	25 45.4	-55.6	7.1
72	16 52.8	-56.0	6.3	18 52.1	-56.0	6.4	20 51.3	-55.8	6.5	22 50.6	-55.8	6.6	24 49.8	-55.7	6.7
73	15 56.8	-56.1	6.0	17 56.1	-56.0	6.0	19 55.5	-56.0	6.1	21 54.8	-55.9	6.2	23 54.1	-55.8	6.3
74	15 00.7	-56.1	5.6	17 00.1	-56.0	5.7	18 59.5	-56.0	5.7	20 58.9	-55.9	5.8	22 58.3	-55.8	5.9
75	14 04.6	-56.2	5.2	16 04.1	-56.1	5.3	18 03.5	-56.0	5.3	20 03.0	-55.9	5.4	22 02.5	-55.9	5.5
76	13 08.4	-56.2	4.9	15 08.0	-56.2	4.9	17 07.5	-56.0	5.0	19 07.1	-56.0	5.0	21 06.6	-55.9	5.1
77	12 12.2	-56.2	4.5	14 11.8	-56.1	4.6	16 11.5	-56.2	4.6	18 11.1	-56.1	4.6	20 10.7	-56.0	4.7
78	11 16.0	-56.3	4.2	13 15.7	-56.2	4.2	15 15.3	-56.1	4.2	17 15.0	-56.1	4.3	19 14.7	-56.0	4.3
79	10 19.7	-56.2	3.8	12 19.5	-56.2	3.8	14 19.2	-56.2	3.9	16 18.9	-56.1	3.9	18 18.7	-56.1	3.9
80	9 23.5	-56.3	3.5	11 23.3	-56.3	3.5	13 23.0	-56.2	3.5	15 22.8	-56.1	3.5	17 22.6	-56.1	3.6
81	8 27.2	-56.3	3.1	10 27.0	-56.3	3.1	12 26.8	-56.2	3.1	14 26.7	-56.2	3.2	16 26.5	-56.2	3.2
82	7 30.9	-56.3	2.8	9 30.7	-56.3	2.8	11 30.6	-56.3	2.8	13 30.5	-56.3	2.8	15 30.3	-56.2	2.8
83	6 34.6	-56.4	2.4	8 34.4	-56.3	2.4	10 34.3	-56.2	2.4	12 34.2	-56.2	2.4	14 34.1	-56.2	2.5
84	5 38.2	-56.3	2.1	7 38.1	-56.3	2.1	9 38.1	-56.3	2.1	11 38.0	-56.3	2.1	13 37.9	-56.3	2.1
85	4 41.9	-56.4	1.7	6 41.8	-56.3	1.7	8 41.8	-56.4	1.7	10 41.7	-56.3	1.7	12 41.6	-56.2	1.8
86	3 45.5	-56.4	1.4	5 45.5	-56.4	1.4	7 45.4	-56.3	1.4	9 45.4	-56.3	1.4	11 45.4	-56.3	1.4
87	2 49.1	-56.3	1.0	4 49.1	-56.3	1.0	6 49.1	-56.4	1.0	8 49.1	-56.4	1.0	10 49.1	-56.4	1.0
88	1 52.8	-56.4	0.7	3 52.8	-56.4	0.7	5 52.7	-56.3	0.7	7 52.7	-56.3	0.7	9 52.7	-56.3	0.7
89	0 56.4	-56.4	0.3	2 56.4	-56.4	0.3	4 56.4	-56.4	0.3	6 56.4	-56.4	0.3	8 56.4	-56.4	0.3
90	0 00.0	-56.4	0.0	2 00.0	-56.4	0.0	4 00.0	-56.4	0.0	6 00.0	-56.4	0.0	8 00.0	-56.4	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 20°, 340°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
54	28.1	-48.7 149.4	52	44.1	-49.7 150.7	50	58.9	-50.7 151.9	49	12.4	-51.4 153.0	47	25.0	-52.1 154.0	30
53	39.4	-49.3 150.4	51	54.4	-50.1 151.6	50	08.2	-50.9 152.8	48	21.0	-51.7 153.8	46	32.9	-52.3 154.8	31
52	50.1	-49.6 151.3	51	04.3	-50.6 152.5	49	17.3	-51.3 153.6	47	29.3	-51.9 154.6	45	40.6	-52.7 155.5	32
52	00.5	-50.1 152.2	50	13.7	-50.9 153.4	48	26.0	-51.6 154.4	46	37.4	-52.3 155.3	44	47.9	-52.8 156.2	33
51	10.4	-50.5 153.1	49	22.8	-51.2 154.2	47	34.4	-51.9 155.1	45	45.1	-52.5 156.0	43	55.1	-53.1 156.8	34
50	19.9	-50.8 154.0	48	31.6	-51.5 155.0	46	42.5	-52.2 155.9	44	52.6	-52.8 156.7	43	02.0	-53.2 157.5	35
49	29.1	-51.2 154.8	47	40.1	-51.9 155.7	45	50.3	-52.5 156.6	43	59.8	-53.0 157.4	42	08.8	-53.5 158.1	36
48	37.9	-51.5 155.6	46	48.2	-52.1 156.5	44	57.8	-52.6 157.3	43	06.8	-53.1 158.0	41	15.3	-53.7 158.7	37
47	46.4	-51.8 156.4	45	56.1	-52.4 157.2	44	05.2	-52.9 158.0	42	13.7	-53.4 158.7	40	21.6	-53.8 159.3	38
46	54.6	-52.1 157.1	45	03.7	-52.6 157.9	43	12.3	-53.2 158.6	41	20.3	-53.6 159.3	39	27.8	-54.0 159.9	39
46	02.5	-52.3 157.8	44	11.1	-52.9 158.6	42	19.1	-53.3 159.2	40	26.7	-53.8 159.9	38	33.8	-54.1 160.4	40
45	10.2	-52.6 158.5	43	18.2	-53.0 159.2	41	25.8	-53.5 159.9	39	32.9	-53.9 160.4	37	39.7	-54.3 161.0	41
44	17.6	-52.8 159.2	42	25.2	-53.3 159.9	40	32.3	-53.7 160.5	38	39.0	-54.1 161.0	36	45.4	-54.5 161.5	42
43	24.8	-53.1 159.9	41	31.9	-53.5 160.5	39	38.6	-53.9 161.0	37	44.9	-54.2 161.6	35	50.9	-54.6 162.0	43
42	31.7	-53.2 160.5	40	38.4	-53.7 161.1	38	44.7	-54.0 161.6	36	50.7	-54.4 162.1	34	56.3	-54.7 162.5	44
41	38.5	-53.5 161.1	39	44.7	-53.8 161.7	37	50.7	-54.2 162.2	35	56.3	-54.5 162.6	34	01.6	-54.8 163.0	45
40	45.0	-53.6 161.7	38	50.9	-54.0 162.2	36	56.5	-54.4 162.7	35	01.8	-54.7 163.1	33	06.8	-54.9 163.5	46
39	51.4	-53.8 162.3	37	56.9	-54.1 162.8	36	02.1	-54.4 163.2	34	07.1	-54.4 163.2	32	11.9	-55.1 164.0	47
38	57.6	-54.0 162.9	37	02.8	-54.3 163.3	35	07.7	-54.6 163.8	33	12.4	-54.9 164.1	31	16.8	-55.1 164.5	48
38	03.6	-54.1 163.4	36	08.5	-54.4 163.9	34	13.1	-54.7 164.3	32	17.5	-55.0 164.6	30	21.7	-55.2 164.9	49
37	09.5	-54.3 164.0	35	14.1	-54.6 164.4	33	18.4	-54.9 164.7	31	22.5	-55.1 165.1	29	26.5	-55.3 165.4	50
36	15.2	-54.4 164.5	34	19.5	-54.7 164.9	32	23.5	-54.9 165.2	30	27.4	-55.1 165.5	28	31.2	-55.4 165.8	51
35	20.8	-54.5 165.0	33	24.8	-54.8 165.4	31	28.6	-55.0 165.7	29	32.3	-55.3 166.0	27	35.8	-55.5 166.3	52
34	26.3	-54.6 165.5	32	30.0	-54.9 165.9	30	33.6	-55.2 166.2	28	37.0	-55.4 166.4	26	40.3	-55.6 166.7	53
33	31.7	-54.8 166.0	31	35.1	-55.0 166.3	29	38.4	-55.2 166.6	27	41.6	-55.4 166.9	25	44.7	-55.6 167.1	54
32	36.9	-54.9 166.5	30	40.1	-55.1 166.8	28	43.2	-55.3 167.1	26	46.2	-55.5 167.3	24	49.1	-55.7 167.5	55
31	42.0	-55.0 167.0	29	45.0	-55.2 167.3	27	47.9	-55.4 167.5	25	50.7	-55.6 167.7	23	53.4	-55.8 167.9	56
30	47.0	-55.1 167.5	28	49.8	-55.3 167.7	26	52.5	-55.5 167.9	24	55.1	-55.7 168.1	22	57.6	-55.8 168.3	57
29	51.9	-55.2 167.9	27	54.5	-55.4 168.2	25	57.0	-55.5 168.4	23	59.4	-55.7 168.6	22	01.8	-55.9 168.7	58
28	56.7	-55.2 168.4	26	59.1	-55.4 168.6	25	01.5	-55.6 168.8	23	03.7	-55.8 169.0	21	05.9	-55.9 169.1	59
28	01.5	-55.4 168.8	26	03.7	-55.5 169.0	24	05.9	-55.7 169.2	22	07.9	-55.8 169.4	20	10.0	-56.0 169.5	60
27	06.1	-55.4 169.3	25	08.2	-55.6 169.4	23	10.2	-55.8 169.6	21	12.1	-55.9 169.8	19	14.0	-56.0 169.9	61
26	10.7	-55.5 169.7	24	12.6	-55.7 169.9	22	14.4	-55.8 170.0	20	16.2	-55.9 170.1	18	18.0	-56.1 170.3	62
25	15.2	-55.6 170.1	23	16.9	-55.7 170.3	21	18.6	-55.8 170.4	19	20.3	-56.0 170.5	17	21.9	-56.1 170.6	63
24	19.6	-55.7 170.5	22	21.2	-55.8 170.7	20	22.8	-55.9 170.8	18	24.3	-56.0 170.9	16	25.8	-56.2 171.0	64
23	23.9	-55.7 170.9	21	25.4	-55.8 171.1	19	26.9	-56.0 171.2	17	28.3	-56.1 171.3	15	29.6	-56.2 171.4	65
22	28.2	-55.7 171.3	20	29.6	-55.9 171.5	18	30.9	-56.0 171.6	16	32.2	-56.1 171.7	14	33.4	-56.2 171.7	66
21	32.5	-55.9 171.7	19	33.7	-55.9 171.8	17	34.9	-56.1 171.9	15	36.1	-56.2 172.0	13	37.2	-56.2 172.1	67
20	36.6	-55.8 172.1	18	37.8	-56.0 172.2	16	38.8	-56.0 172.3	14	39.9	-56.2 172.4	12	41.0	-56.3 172.5	68
19	40.8	-56.0 172.5	17	41.8	-56.1 172.6	15	42.8	-56.2 172.7	13	43.7	-56.2 172.8	11	44.7	-56.3 172.8	69
18	44.8	-55.9 172.9	16	45.7	-56.0 173.0	14	46.6	-56.1 173.1	12	47.5	-56.2 173.1	10	48.4	-56.4 173.2	70
17	48.9	-56.1 173.3	15	49.7	-56.1 173.4	13	50.5	-56.2 173.4	11	51.3	-56.3 173.5	9	52.0	-56.3 173.5	71
16	52.8	-56.0 173.7	14	53.6	-56.2 173.7	12	54.3	-56.2 173.8	10	55.0	-56.3 173.8	8	55.7	-56.4 173.9	72
15	56.8	-56.1 174.0	13	57.4	-56.1 174.1	11	58.1	-56.3 174.1	9	58.7	-56.3 174.2	7	59.3	-56.4 174.2	73
15	00.7	-56.1 174.4	13	01.3	-56.2 174.4	11	01.8	-56.2 174.5	9	02.4	-56.4 174.5	7	02.9	-56.4 174.5	74
14	04.6	-56.2 174.8	12	05.1	-56.3 174.8	10	05.6	-56.3 174.8	8	06.0	-56.3 174.9	6	06.5	-56.4 174.9	75
13	08.4	-56.2 175.1	11	08.8	-56.2 175.2	9	09.3	-56.4 175.2	7	09.7	-56.4 175.2	5	10.1	-56.4 175.2	76
12	12.2	-56.2 175.5	10	12.6	-56.3 175.5	8	12.9	-56.3 175.5	6	13.3	-56.4 175.6	4	13.7	-56.5 175.6	77
11	16.0	-56.3 175.8	9	16.3	-56.3 175.9	7	16.6	-56.3 175.9	5	16.9	-56.4 175.9	3	17.2	-56.4 175.9	78
10	19.7	-56.2 176.2	8	20.0	-56.3 176.2	6	20.3	-56.4 176.2	4	20.5	-56.4 176.2	2	20.8	-56.5 176.3	79
9	23.5	-56.3 176.5	7	23.7	-56.3 176.6	5	23.9	-56.4 176.6	3	24.1	-56.4 176.6	1	24.3	-56.4 176.6	80
8	27.2	-56.3 176.9	6	27.4	-56.4 176.9	4	27.5	-56.3 176.9	2	27.7	-56.4 176.9	0	27.9	-56.5 176.9	81
7	30.9	-56.3 177.2	5	31.0	-56.3 177.3	3	31.2	-56.4 177.3	1	31.3	-56.4 177.3	0	28.6	+56.4 2.7	82
6	34.6	-56.4 177.6	4	34.7	-56.4 177.6	2	34.8	-56.4 177.6	0	34.9	-56.5 177.6	0	25.0	+56.5 2.4	83
5	38.2	-56.3 177.9	3	38.3	-56.4 177.9	1	38.4	-56.4 178.0	0	21.6	+56.4 2.0	2	21.5	+56.4 2.1	84
4	41.9	-56.4 178.3	2	41.9	-56.4 178.3	0	42.0	-56.4 178.3	1	18.0	+56.4 1.7	3	17.9	+56.5 1.7	85
3	45.5	-56.4 178.6	1	45.5	-56.3 178.6	0	14.4	+56.4 1.4	2	14.4	+56.4 1.4	4	14.4	+56.4 1.4	86
2	49.1	-56.3 179.0	0	49.2	-56.4 179.0	1	10.8	+56.4 1.0	3	10.8	+56.4 1.0	5	10.8	+56.4 1.0	87
1	52.8	-56.4 179.3	0	07.2	+56.4 0.7	2	07.2	+56.4 0.7	4	07.2	+56.4 0.7	6	07.2	+56.4 0.7	88
0	56.4	-56.4 179.7	1	03.6	+56.4 0.3	3	03.6	+56.4 0.3	5	03.6	+56.4 0.3	7	03.6	+56.4 0.3	89
0	00.0	+56.4 0.0	2	00.0	+56.4 0.0	4	00.0	+56.4 0.0	6	00.0	+56.4 0.0	8	00.0	+56.4 0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 160°, 200°

20°, 340° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	62 39.3	-41.3	40.2	64 09.2	-39.0	42.8	65 35.2	-36.5	45.8	66 56.4	-33.5	49.1	68 11.9	-29.9	52.9
31	61 58.0	-42.4	38.6	63 30.2	-40.3	41.1	64 58.7	-37.9	43.9	66 22.9	-35.1	47.0	67 42.0	-31.8	50.6
32	61 15.6	-43.2	37.1	62 49.9	-41.4	39.4	64 20.8	-39.1	42.1	65 47.8	-36.5	45.0	67 10.2	-33.6	48.4
33	60 32.4	-44.2	35.7	62 08.5	-42.4	37.9	63 41.7	-40.4	40.3	65 11.3	-38.0	43.1	66 36.6	-35.2	46.3
34	59 48.2	-44.9	34.3	61 26.1	-43.3	36.4	63 01.3	-41.4	38.7	64 33.3	-39.3	41.3	66 01.4	-36.7	44.2
35	59 03.3	-45.7	33.0	60 42.8	-44.2	34.9	62 19.9	-42.5	37.1	63 54.0	-40.4	39.6	65 24.7	-38.1	42.3
36	58 17.6	-46.4	31.8	59 58.6	-45.0	33.6	61 37.4	-43.4	35.6	63 13.6	-41.6	37.9	64 46.6	-39.4	40.5
37	57 31.2	-47.1	30.6	59 13.6	-45.8	32.3	60 54.0	-44.3	34.2	62 32.0	-42.6	36.3	64 07.2	-40.6	38.7
38	56 44.1	-47.6	29.4	58 27.8	-46.4	31.0	60 09.7	-45.1	32.8	61 49.4	-43.5	34.8	63 26.6	-41.7	37.1
39	55 56.5	-48.2	28.3	57 41.4	-47.1	29.8	59 24.6	-45.8	31.5	61 05.9	-44.4	33.4	62 44.9	-42.7	35.5
40	55 08.3	-48.8	27.3	56 54.3	-47.8	28.7	58 38.8	-46.6	30.2	60 21.5	-45.2	32.0	62 02.2	-43.7	34.0
41	54 19.5	-49.2	26.3	56 06.5	-48.2	27.6	57 52.2	-47.2	29.0	59 36.3	-46.0	30.7	61 18.5	-44.5	32.5
42	53 30.3	-49.7	25.3	55 18.3	-48.8	26.5	57 05.0	-47.8	27.9	58 50.3	-46.7	29.4	60 34.0	-45.4	31.1
43	52 40.6	-50.1	24.4	54 29.5	-49.3	25.5	56 17.2	-48.4	26.8	58 03.6	-47.3	28.2	59 48.6	-46.1	29.8
44	51 50.5	-50.4	23.5	53 40.2	-49.8	24.5	55 28.8	-48.9	25.7	57 16.3	-47.9	27.1	59 02.5	-46.9	28.6
45	51 00.1	-50.9	22.6	52 50.4	-50.1	23.6	54 39.9	-49.3	24.7	56 28.4	-48.5	26.0	58 15.6	-47.4	27.4
46	50 09.2	-51.2	21.8	52 00.3	-50.6	22.7	53 50.6	-49.9	23.7	55 39.9	-49.0	24.9	57 28.2	-48.1	26.2
47	49 18.0	-51.6	21.0	51 09.7	-50.9	21.8	53 00.7	-50.2	22.8	54 50.9	-49.5	23.9	56 40.1	-48.6	25.1
48	48 26.4	-51.8	20.2	50 18.8	-51.3	21.0	52 10.5	-50.7	21.9	54 01.4	-49.9	22.9	55 51.5	-49.2	24.1
49	47 34.6	-52.1	19.4	49 27.5	-51.6	20.2	51 19.8	-51.0	21.0	53 11.5	-50.4	22.0	55 02.3	-49.6	23.1
50	46 42.5	-52.4	18.7	48 35.9	-51.9	19.4	50 28.8	-51.4	20.2	52 21.1	-50.8	21.1	54 12.7	-50.1	22.1
51	45 50.1	-52.7	18.0	47 44.0	-52.2	18.7	49 37.4	-51.6	19.4	51 30.3	-51.1	20.2	53 22.6	-50.5	21.1
52	44 57.4	-52.8	17.3	46 51.8	-52.4	17.9	48 45.8	-52.0	18.6	50 39.2	-51.5	19.4	52 32.1	-50.9	20.3
53	44 04.6	-53.1	16.6	45 59.4	-52.8	17.2	47 53.8	-52.3	17.9	49 47.7	-51.8	18.6	51 41.2	-51.2	19.4
54	43 11.5	-53.4	16.0	45 06.6	-52.9	16.6	47 01.5	-52.5	17.2	48 55.9	-52.0	17.8	50 50.0	-51.6	18.6
55	42 18.1	-53.5	15.4	44 13.7	-53.2	15.9	46 09.0	-52.8	16.4	48 03.9	-52.4	17.1	49 58.4	-52.0	17.8
56	41 24.6	-53.7	14.8	43 20.5	-53.3	15.2	45 16.2	-53.1	15.8	47 11.5	-52.7	16.3	49 06.4	-52.2	17.0
57	40 30.9	-53.9	14.2	42 27.2	-53.6	14.6	44 23.1	-53.2	15.1	46 18.8	-52.8	15.6	48 14.2	-52.5	16.2
58	39 37.0	-54.0	13.6	41 33.6	-53.8	14.0	43 29.9	-53.5	14.5	45 26.0	-53.2	15.0	47 21.7	-52.7	15.5
59	38 43.0	-54.2	13.0	40 39.8	-53.9	13.4	42 36.4	-53.6	13.8	44 32.8	-53.3	14.3	46 29.0	-53.0	14.8
60	37 48.8	-54.3	12.5	39 45.9	-54.1	12.9	41 42.8	-53.9	13.2	43 39.5	-53.6	13.7	45 36.0	-53.3	14.1
61	36 54.5	-54.5	12.0	38 51.8	-54.3	12.3	40 48.9	-54.0	12.7	42 45.9	-53.7	13.1	44 42.7	-53.4	13.5
62	36 00.0	-54.6	11.4	37 57.5	-54.4	11.8	39 54.9	-54.1	12.1	41 52.2	-53.9	12.5	43 49.3	-53.7	12.9
63	35 05.4	-54.8	10.9	37 03.1	-54.5	11.2	39 00.8	-54.4	11.5	40 58.3	-54.1	11.9	42 55.6	-53.8	12.2
64	34 10.6	-54.8	10.4	36 08.6	-54.7	10.7	38 06.4	-54.4	11.0	40 04.2	-54.3	11.3	42 01.8	-54.0	11.6
65	33 15.8	-55.0	10.0	35 13.9	-54.8	10.2	37 12.0	-54.6	10.5	39 09.9	-54.4	10.7	41 07.8	-54.3	11.1
66	32 20.8	-55.1	9.5	34 19.1	-54.9	9.7	36 17.4	-54.8	9.9	38 15.5	-54.6	10.2	40 13.5	-54.3	10.5
67	31 25.7	-55.2	9.0	33 24.2	-55.0	9.2	35 22.6	-54.9	9.4	37 20.9	-54.7	9.7	39 19.2	-54.5	9.9
68	30 30.5	-55.2	8.6	32 29.2	-55.2	8.7	34 27.7	-54.9	8.9	36 26.2	-54.8	9.2	38 24.7	-54.7	9.4
69	29 35.3	-55.4	8.1	31 34.0	-55.2	8.3	33 32.8	-55.1	8.5	35 31.4	-54.9	8.7	37 30.0	-54.8	8.9
70	28 39.9	-55.4	7.7	30 38.8	-55.3	7.8	32 37.7	-55.2	8.0	34 36.5	-55.1	8.2	36 35.2	-54.9	8.4
71	27 44.5	-55.6	7.2	29 43.5	-55.4	7.4	31 42.5	-55.3	7.5	33 41.4	-55.2	7.7	35 40.3	-55.0	7.9
72	26 48.9	-55.6	6.8	28 48.1	-55.5	6.9	30 47.2	-55.4	7.1	32 46.2	-55.2	7.2	34 45.3	-55.2	7.4
73	25 53.3	-55.6	6.4	27 52.6	-55.6	6.5	29 51.8	-55.5	6.6	31 51.0	-55.4	6.8	33 50.1	-55.2	6.9
74	24 57.7	-55.8	6.0	26 57.0	-55.7	6.1	28 56.3	-55.5	6.2	30 55.6	-55.5	6.3	32 54.9	-55.4	6.4
75	24 01.9	-55.8	5.6	26 01.3	-55.7	5.7	28 00.8	-55.7	5.8	30 00.1	-55.5	5.9	31 59.5	-55.5	6.0
76	23 06.1	-55.8	5.2	25 05.6	-55.8	5.2	27 05.1	-55.7	5.3	29 04.6	-55.6	5.4	31 04.0	-55.5	5.5
77	22 10.3	-56.0	4.8	24 09.8	-55.8	4.8	26 09.4	-55.8	4.9	28 09.0	-55.8	5.0	30 08.5	-55.7	5.1
78	21 14.3	-55.9	4.4	23 14.0	-55.9	4.4	25 13.6	-55.8	4.5	27 13.2	-55.7	4.6	29 12.8	-55.7	4.7
79	20 18.4	-56.1	4.0	22 18.1	-56.0	4.0	24 17.8	-55.9	4.1	26 17.5	-55.9	4.2	28 17.1	-55.8	4.3
80	19 22.3	-56.0	3.6	21 22.1	-56.0	3.7	23 21.9	-56.0	3.7	25 21.6	-55.9	3.8	27 21.3	-55.8	3.8
81	18 26.3	-56.1	3.2	20 26.1	-56.1	3.3	22 25.9	-56.0	3.3	24 25.7	-56.0	3.4	26 25.5	-56.0	3.4
82	17 30.2	-56.2	2.9	19 30.0	-56.1	2.9	21 29.9	-56.1	2.9	23 29.7	-56.0	3.0	25 29.5	-56.0	3.0
83	16 34.0	-56.2	2.5	18 33.9	-56.2	2.5	20 33.8	-56.2	2.6	22 33.7	-56.1	2.6	24 33.5	-56.0	2.6
84	15 37.8	-56.2	2.1	17 37.7	-56.2	2.1	19 37.6	-56.1	2.2	21 37.6	-56.2	2.2	23 37.5	-56.1	2.2
85	14 41.6	-56.3	1.8	16 41.5	-56.2	1.8	18 41.5	-56.2	1.8	20 41.4	-56.2	1.8	22 41.4	-56.2	1.9
86	13 45.3	-56.3	1.4	15 45.3	-56.3	1.4	17 45.3	-56.3	1.4	19 45.2	-56.2	1.5	21 45.2	-56.2	1.5
87	12 49.0	-56.3	1.1	14 49.0	-56.3	1.1	16 49.0	-56.3	1.1	18 49.0	-56.3	1.1	20 49.0	-56.3	1.1
88	11 52.7	-56.3	0.7	13 52.7	-56.3	0.7	15 52.7	-56.3	0.7	17 52.7	-56.3	0.7	19 52.7	-56.3	0.7
89	10 56.4	-56.4	0.3	12 56.4	-56.4	0.4	14 56.4	-56.4	0.4	16 56.4	-56.4	0.4	18 56.4	-56.4	0.4
90	10 00.0	-56.4	0.0	12 00.0	-56.4	0.0	14 00.0	-56.4	0.0	16 00.0	-56.4	0.0	18 00.0	-56.4	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 20°, 340°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
45	36.7	-52.7	154.9	43	47.6	-53.3	155.8	41	57.8	-53.7	156.5	40	07.5	-54.3	157.2	38	16.6	-54.7	157.8	30
44	44.0	-53.0	155.6	42	54.3	-53.5	156.4	41	04.1	-54.0	157.1	39	13.2	-54.4	157.8	37	21.9	-54.8	158.4	31
43	51.0	-53.1	156.3	42	00.8	-53.6	157.0	40	10.1	-54.1	157.7	38	18.8	-54.5	158.3	36	27.1	-54.9	158.9	32
42	57.9	-53.4	156.9	41	07.2	-53.9	157.6	39	16.0	-54.3	158.3	37	24.3	-54.7	158.8	35	32.2	-55.1	159.4	33
42	04.5	-53.6	157.5	40	13.3	-54.0	158.2	38	21.7	-54.5	158.8	36	29.6	-54.8	159.3	34	37.1	-55.2	159.8	34
41	10.9	-53.7	158.1	39	19.3	-54.2	158.8	37	27.2	-54.5	159.3	35	34.8	-55.0	159.9	33	41.9	-55.2	160.3	35
40	17.2	-53.9	158.7	38	25.1	-54.3	159.3	36	32.7	-54.7	159.9	34	39.8	-55.0	160.3	32	46.7	-55.4	160.8	36
39	23.3	-54.1	159.3	37	30.8	-54.5	159.9	35	38.0	-54.9	160.4	33	44.8	-55.2	160.8	31	51.3	-55.5	161.2	37
38	29.2	-54.2	159.9	36	36.3	-54.6	160.4	34	43.1	-54.9	160.9	32	49.6	-55.3	161.3	30	55.8	-55.5	161.7	38
37	35.0	-54.4	160.4	35	41.7	-54.7	160.9	33	48.2	-55.1	161.3	31	54.3	-55.3	161.8	30	00.3	-55.7	162.1	39
36	40.6	-54.6	160.9	34	47.0	-54.9	161.4	32	53.1	-55.1	161.8	30	59.0	-55.2	162.2	29	04.4	-55.7	162.6	40
35	46.0	-54.6	161.5	33	52.1	-54.9	161.9	31	58.0	-55.3	162.3	30	03.5	-55.5	162.6	28	08.9	-55.8	163.0	41
34	51.4	-54.8	162.0	32	57.2	-55.1	162.4	31	02.7	-55.4	162.7	29	08.0	-55.6	163.1	27	13.1	-55.9	163.4	42
33	56.6	-54.9	162.5	32	02.1	-55.2	162.8	30	07.3	-55.4	163.2	28	12.4	-55.8	163.5	26	17.2	-55.9	163.8	43
33	01.7	-55.0	162.9	31	06.9	-55.3	163.3	29	11.9	-55.6	163.6	27	16.6	-55.7	163.9	25	21.3	-56.1	164.2	44
32	06.7	-55.1	163.4	30	11.6	-55.3	163.8	28	16.3	-55.6	164.1	26	20.9	-55.9	164.3	24	25.2	-56.2	164.6	45
31	11.6	-55.2	163.9	29	16.3	-55.5	164.2	27	20.7	-55.7	164.5	25	25.0	-55.9	164.7	23	29.2	-56.2	165.0	46
30	16.4	-55.3	164.3	28	20.8	-55.5	164.6	26	25.0	-55.7	164.9	24	29.1	-56.0	165.1	22	33.0	-56.1	165.4	47
29	21.1	-55.3	164.8	27	25.3	-55.6	165.1	25	29.3	-55.9	165.3	23	33.1	-56.0	165.5	21	36.9	-56.3	165.7	48
28	25.8	-55.5	165.2	26	29.7	-55.7	165.5	24	33.4	-55.9	165.7	22	37.1	-56.1	165.9	20	40.6	-56.2	166.1	49
27	30.3	-55.6	165.6	25	34.0	-55.8	165.9	23	37.5	-55.9	166.1	21	41.0	-56.2	166.3	19	44.4	-56.6	166.5	50
26	34.7	-55.6	166.1	24	38.2	-55.8	166.3	22	41.6	-56.0	166.5	20	44.8	-56.1	166.7	18	48.0	-56.3	166.9	51
25	39.1	-55.7	166.5	23	42.4	-55.9	166.7	21	45.6	-56.1	166.9	19	48.7	-56.3	167.1	17	51.7	-56.4	167.2	52
24	43.4	-55.7	166.9	22	46.5	-55.9	167.1	20	49.5	-56.1	167.3	18	52.4	-56.3	167.4	16	55.3	-56.5	167.6	53
23	47.7	-55.8	167.3	21	50.6	-56.0	167.5	19	53.4	-56.2	167.7	17	56.1	-56.3	167.8	15	58.8	-56.5	167.9	54
22	51.9	-55.9	167.7	20	54.6	-56.1	167.9	18	57.2	-56.2	168.0	16	59.8	-56.2	168.2	14	02.3	-56.6	168.3	55
21	56.0	-55.9	168.1	19	58.5	-56.1	168.3	18	01.0	-56.2	168.4	16	03.4	-56.4	168.5	14	05.8	-56.5	168.6	56
21	00.1	-56.0	168.5	19	02.4	-56.1	168.6	17	04.8	-56.3	168.8	15	07.0	-56.4	168.9	13	09.3	-56.6	169.0	57
20	04.1	-56.1	168.9	18	06.3	-56.2	169.0	16	08.5	-56.3	169.1	14	10.6	-56.4	169.2	12	12.7	-56.6	169.3	58
19	08.0	-56.0	169.3	17	10.1	-56.2	169.4	15	12.2	-56.4	169.5	13	14.2	-56.5	169.6	11	16.1	-56.6	169.7	59
18	12.0	-56.2	169.6	16	13.9	-56.3	169.7	14	15.8	-56.4	169.8	12	17.7	-56.5	169.9	10	19.5	-56.6	170.0	60
17	15.8	-56.1	170.0	15	17.6	-56.2	170.1	13	19.4	-56.4	170.2	11	21.2	-56.6	170.3	9	22.9	-56.7	170.3	61
16	19.7	-56.2	170.4	14	21.4	-56.4	170.5	12	23.0	-56.4	170.5	10	24.6	-56.5	170.6	8	26.2	-56.7	170.7	62
15	23.5	-56.3	170.7	13	25.0	-56.3	170.8	11	26.6	-56.5	170.9	9	28.1	-56.6	170.9	7	29.5	-56.6	171.0	63
14	27.2	-56.2	171.1	12	28.7	-56.4	171.2	10	30.1	-56.5	171.2	8	31.5	-56.6	171.3	6	32.9	-56.7	171.3	64
13	31.0	-56.3	171.5	11	32.3	-56.4	171.5	9	33.6	-56.5	171.6	7	34.9	-56.6	171.6	5	36.3	-56.7	171.6	65
12	34.7	-56.4	171.8	10	35.9	-56.4	171.9	8	37.1	-56.5	171.9	6	38.3	-56.7	171.9	4	39.5	-56.8	172.0	66
11	38.3	-56.3	172.2	9	39.5	-56.5	172.2	7	40.6	-56.6	172.3	5	41.6	-56.6	172.3	3	42.7	-56.7	172.3	67
10	42.0	-56.4	172.5	8	43.0	-56.5	172.6	6	44.0	-56.5	172.6	4	45.0	-56.6	172.6	2	46.0	-56.7	172.6	68
9	45.6	-56.4	172.9	7	46.5	-56.4	172.9	5	47.5	-56.6	172.9	3	48.4	-56.7	172.9	1	49.3	-56.8	173.0	69
8	49.2	-56.4	173.2	6	50.1	-56.5	173.2	4	50.9	-56.6	173.3	2	51.7	-56.6	173.3	0	52.5	-56.7	173.3	70
7	52.8	-56.4	173.5	5	53.6	-56.6	173.6	3	54.3	-56.6	173.6	1	55.1	-56.7	173.6	0	04.2	-56.7	173.6	71
6	56.4	-56.5	173.9	4	57.0	-56.5	173.9	2	57.7	-56.6	173.9	0	58.4	-56.7	173.9	1	00.9	-56.8	173.9	72
5	59.9	-56.4	174.2	4	00.5	-56.5	174.2	2	01.1	-56.6	174.3	0	01.7	-56.6	174.3	1	07.7	-56.7	174.3	73
5	03.5	-56.5	174.6	3	04.0	-56.5	174.6	1	04.5	-56.6	174.6	0	04.9	-56.7	174.6	2	14.4	-56.7	174.6	74
4	07.0	-56.5	174.9	2	07.5	-56.6	174.9	0	07.9	-56.6	174.9	0	07.9	-56.6	174.9	2	24.4	-56.7	174.9	75
3	10.5	-56.5	175.2	1	10.9	-56.5	175.3	0	10.9	-56.5	175.3	0	10.9	-56.5	175.3	3	34.4	-56.7	175.3	76
2	14.0	-56.5	175.6	0	14.4	-56.6	175.6	0	14.4	-56.6	175.6	0	14.4	-56.6	175.6	4	44.4	-56.7	175.6	77
1	17.5	-56.5	175.9	0	17.5	-56.5	175.9	0	17.5	-56.5	175.9	0	17.5	-56.5	175.9	5	54.4	-56.7	175.9	78
0	21.0	-56.5	176.3	1	21.0	-56.5	176.3	1	21.0	-56.5	176.3	1	21.0	-56.5	176.3	6	64.4	-56.7	176.3	79
0	35.5	+56.4	3.4	2	35.2	+56.6	3.4	4	35.0	+56.6	3.4	6	34.8	+56.6	3.4	8	34.6	+56.7	3.4	80
1	31.9	+56.5	3.1	3	31.8	+56.5	3.1	5	31.6	+56.6	3.1	7	31.4	+56.6	3.1	9	31.3	+56.6	3.1	81
2	28.4	+56.5	2.7	4	28.3	+56.5	2.7	6	28.2	+56.5	2.7	8	28.0	+56.6	2.8	10	27.9	+56.6	2.8	82
3	24.9	+56.5	2.4	5	24.8	+56.5	2.4	7	24.7	+56.5	2.4	9	24.6	+56.6	2.4	11	24.5	+56.6	2.4	83
4	21.4	+56.5	2.1	6	21.3	+56.5	2.1	8	21.2	+56.6	2.1	10	21.2	+56.5	2.1	12	21.1	+56.5	2.1	84
5	17.9	+56.4	1.7	7	17.8	+56.5	1.7	9	17.8	+56.5	1.7	11	17.7	+56.5	1.7	13	17.6	+56.6	1.8	85
6	14.3	+56.5	1.4	8	14.3	+56.4	1.4	10	14.3	+56.4	1.4	12	14.2	+56.5	1.4	14	14.2	+56.5	1.4	86
7	10.8	+56.4	1.0	9	10.7	+56.5	1.0	11	10.7	+56.5	1.0	13	10.7	+56.5	1.1	15	10.7	+56.5	1.1	87
8	07.2	+56.4	0.7	10	07.2	+56.4	0.7	12	07.2	+56.4	0.7	14	07.2	+56.4	0.7	16	07.2	+56.4	0.7	88
9	03.6	+56.4	0.3	11	03.6	+56.4	0.3	13	03.6	+56.4	0.4	15	03.6	+56.4	0.4	17	03.6	+56.4	0.4	89
10	00.0	+56.4	0.0	12	00.0	+56.4	0.0	14	00.0	+56.4	0.0	16	00.0	+56.4	0.0	18	00.0	+56.4	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 160°, 200°

20°, 340° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 20.8	-25.9	• 57.1	70 21.8	-21.1	• 61.8	71 13.7	-15.8	• 67.0	71 55.2	-9.8	• 72.6	72 25.0	-3.3	• 78.7
31	68 54.9	-28.0	• 54.6	70 00.7	-23.7	• 59.1	70 57.9	-18.5	• 64.0	71 45.4	-12.9	• 69.5	72 21.7	-6.6	• 75.4
32	68 26.9	-30.0	• 52.1	69 37.0	-25.9	• 56.4	70 39.4	-21.3	• 61.1	71 32.5	-15.8	• 66.4	72 15.1	-9.7	• 72.1
33	67 56.9	-32.0	• 49.8	69 11.1	-28.2	• 53.8	70 18.1	-23.7	• 58.3	71 16.7	-18.7	• 63.3	72 05.4	-12.9	• 68.9
34	67 24.9	-33.7	• 47.6	68 42.9	-30.2	• 51.4	69 54.4	-26.1	• 55.6	70 58.0	-21.3	• 60.4	71 52.5	-15.9	• 65.7
35	66 51.2	-35.3	• 45.5	68 12.7	-32.1	• 49.0	69 28.3	-28.3	• 53.0	70 36.7	-23.9	• 57.6	71 36.6	-18.8	• 62.6
36	66 15.9	-36.9	• 43.4	67 40.6	-33.9	• 46.8	69 00.0	-30.4	• 50.5	70 12.8	-26.3	• 54.8	71 17.8	-21.6	• 59.6
37	65 39.0	-38.3	• 41.5	67 06.7	-35.5	• 44.6	68 29.6	-32.4	• 48.2	69 46.5	-28.6	• 52.2	70 56.2	-24.1	• 56.8
38	65 00.7	-39.5	• 39.6	66 31.2	-37.1	• 42.6	67 57.2	-34.1	• 45.9	69 17.9	-30.6	• 49.7	70 32.1	-26.5	• 54.0
39	64 21.2	-40.8	• 37.9	65 54.1	-38.4	• 40.6	67 23.1	-35.8	• 43.7	68 47.3	-32.6	• 47.3	70 05.6	-28.9	• 51.3
40	63 40.4	-41.9	• 36.2	65 15.7	-39.8	• 38.8	66 47.3	-37.3	• 41.7	68 14.7	-34.4	• 45.0	69 36.7	-30.9	• 48.8
41	62 58.5	-42.9	• 34.6	64 35.9	-41.0	• 37.0	66 10.0	-38.7	• 39.7	67 40.3	-36.1	• 42.8	69 05.8	-32.9	• 46.3
42	62 15.6	-43.9	• 33.1	63 54.9	-42.1	• 35.3	65 31.3	-40.1	• 37.8	67 04.2	-37.6	• 40.7	68 32.9	-34.7	• 44.0
43	61 31.7	-44.7	• 31.6	63 12.8	-43.2	• 33.7	64 51.2	-41.2	• 36.1	66 26.6	-39.1	• 38.7	67 58.2	-36.5	• 41.8
44	60 47.0	-45.6	• 30.3	62 29.6	-44.1	• 32.2	64 10.0	-42.4	• 34.4	65 47.5	-40.3	• 36.9	67 21.7	-37.9	• 39.7
45	60 01.4	-46.3	• 28.9	61 45.5	-44.9	• 30.7	63 27.6	-43.4	• 32.8	65 07.2	-41.6	• 35.1	66 43.8	-39.4	• 37.7
46	59 15.1	-47.0	• 27.7	61 00.6	-45.8	• 29.4	62 44.2	-44.3	• 31.2	64 25.6	-42.6	• 33.4	66 04.4	-40.7	• 35.9
47	58 28.1	-47.6	• 26.5	60 14.8	-46.5	• 28.0	61 59.9	-45.2	• 29.8	63 43.0	-43.7	• 31.8	65 23.7	-41.9	• 34.1
48	57 40.5	-48.3	• 25.3	59 28.3	-47.2	• 26.8	61 14.7	-46.0	• 28.4	62 59.3	-44.6	• 30.3	64 41.8	-43.0	• 32.4
49	56 52.2	-48.7	• 24.2	58 41.1	-47.9	• 25.6	60 28.7	-46.8	• 27.1	62 14.7	-45.5	• 28.8	63 58.8	-44.0	• 30.8
50	56 03.5	-49.4	• 23.2	57 53.2	-48.4	• 24.4	59 41.9	-47.4	• 25.8	61 29.2	-46.3	• 27.4	63 14.8	-44.9	• 29.2
51	55 14.1	-49.8	• 22.2	57 04.8	-49.0	• 23.3	58 54.5	-48.1	• 24.6	60 42.9	-47.0	• 26.1	62 29.9	-45.8	• 27.8
52	54 24.3	-50.2	• 21.2	56 15.8	-49.5	• 22.3	58 06.4	-48.7	• 23.5	59 55.9	-47.8	• 24.9	61 44.1	-46.6	• 26.4
53	53 34.1	-50.7	• 20.3	55 26.3	-50.0	• 21.3	57 17.7	-49.2	• 22.4	59 08.1	-48.3	• 23.7	60 57.5	-47.4	• 25.1
54	52 43.4	-51.0	• 19.4	54 36.3	-50.4	• 20.3	56 28.5	-49.7	• 21.3	58 19.8	-48.9	• 22.5	60 10.1	-48.0	• 23.8
55	51 52.4	-51.4	• 18.5	53 45.9	-50.8	• 19.4	55 38.8	-50.2	• 20.3	57 30.9	-49.5	• 21.4	59 22.1	-48.6	• 22.6
56	51 01.0	-51.8	• 17.7	52 55.1	-51.3	• 18.5	54 48.6	-50.7	• 19.4	56 41.4	-49.9	• 20.4	58 33.5	-49.2	• 21.5
57	50 09.2	-52.0	• 16.9	52 03.8	-51.5	• 17.6	53 57.9	-51.0	• 18.5	55 51.5	-50.5	• 19.4	57 44.3	-49.7	• 20.4
58	49 17.2	-52.4	• 16.1	51 12.3	-51.9	• 16.8	53 06.9	-51.4	• 17.6	55 01.0	-50.8	• 18.4	56 54.6	-50.3	• 19.4
59	48 24.8	-52.6	• 15.4	50 20.4	-52.3	• 16.0	52 15.5	-51.8	• 16.7	54 10.2	-51.3	• 17.5	56 04.3	-50.6	• 18.4
60	47 32.2	-52.9	• 14.7	49 28.1	-52.5	• 15.3	51 23.7	-52.1	• 15.9	53 18.9	-51.6	• 16.6	55 13.7	-51.1	• 17.4
61	46 39.3	-53.1	• 14.0	48 35.6	-52.8	• 14.5	50 31.6	-52.4	• 15.1	52 27.3	-52.0	• 15.8	54 22.6	-51.5	• 16.5
62	45 46.2	-53.4	• 13.3	47 42.8	-53.0	• 13.8	49 39.2	-52.7	• 14.4	51 35.3	-52.3	• 15.0	53 31.1	-51.9	• 15.7
63	44 52.8	-53.6	• 12.7	46 49.8	-53.3	• 13.1	48 46.5	-52.9	• 13.6	50 43.0	-52.6	• 14.2	52 39.2	-52.2	• 14.8
64	43 59.2	-53.8	• 12.0	45 56.5	-53.5	• 12.5	47 53.6	-53.2	• 12.9	49 50.4	-52.9	• 13.4	51 47.0	-52.5	• 14.0
65	43 05.4	-53.9	• 11.4	45 03.0	-53.7	• 11.8	47 00.4	-53.5	• 12.2	48 57.5	-53.1	• 12.7	50 54.5	-52.9	• 13.3
66	42 11.5	-54.2	• 10.8	44 09.3	-53.9	• 11.2	46 06.9	-53.6	• 11.6	48 04.4	-53.4	• 12.0	50 01.6	-53.0	• 12.5
67	41 17.3	-54.3	• 10.2	43 15.4	-54.1	• 10.6	45 13.3	-53.9	• 10.9	47 11.0	-53.6	• 11.3	49 08.6	-53.4	• 11.8
68	40 23.0	-54.5	• 9.7	42 21.3	-54.3	• 10.0	44 19.4	-54.1	• 10.3	46 17.4	-53.9	• 10.7	48 15.2	-53.6	• 11.1
69	39 28.5	-54.6	• 9.1	41 27.0	-54.5	• 9.4	43 25.3	-54.3	• 9.7	45 23.5	-54.0	• 10.1	47 21.6	-53.8	• 10.4
70	38 33.9	-54.8	• 8.6	40 32.5	-54.6	• 8.9	42 31.0	-54.4	• 9.1	44 29.5	-54.3	• 9.4	46 27.8	-54.0	• 9.8
71	37 39.1	-54.9	• 8.1	39 37.9	-54.7	• 8.3	41 36.6	-54.6	• 8.6	43 35.2	-54.4	• 8.8	45 33.8	-54.3	• 9.2
72	36 44.2	-55.0	• 7.6	38 43.2	-54.9	• 7.8	40 42.0	-54.7	• 8.0	42 40.8	-54.6	• 8.3	44 39.5	-54.4	• 8.5
73	35 49.2	-55.1	• 7.1	37 48.3	-55.0	• 7.3	39 47.3	-54.9	• 7.5	41 46.2	-54.7	• 7.7	43 45.1	-54.6	• 8.0
74	34 54.1	-55.3	• 6.6	36 53.3	-55.2	• 6.8	38 52.4	-55.0	• 7.0	40 51.5	-54.9	• 7.2	42 50.5	-54.7	• 7.4
75	33 58.8	-55.3	• 6.1	35 58.1	-55.2	• 6.3	37 57.4	-55.2	• 6.4	39 56.6	-55.0	• 6.6	41 55.8	-54.9	• 6.8
76	33 03.5	-55.5	• 5.7	35 02.9	-55.4	• 5.8	37 02.2	-55.2	• 5.9	39 01.6	-55.2	• 6.1	41 00.9	-55.1	• 6.3
77	32 08.0	-55.6	• 5.2	34 07.5	-55.5	• 5.3	36 07.0	-55.4	• 5.5	38 06.4	-55.3	• 5.6	40 05.8	-55.2	• 5.8
78	31 12.4	-55.6	• 4.8	33 12.0	-55.6	• 4.9	35 11.6	-55.5	• 5.0	37 11.1	-55.4	• 5.1	39 10.6	-55.3	• 5.3
79	30 16.8	-55.7	• 4.3	32 16.4	-55.6	• 4.4	34 16.1	-55.6	• 4.5	36 15.7	-55.5	• 4.6	38 15.3	-55.5	• 4.8
80	29 21.1	-55.8	• 3.9	31 20.8	-55.8	• 4.0	33 20.5	-55.7	• 4.1	35 20.2	-55.7	• 4.2	37 19.8	-55.5	• 4.3
81	28 25.3	-55.9	• 3.5	30 25.0	-55.8	• 3.6	32 24.8	-55.8	• 3.6	34 24.5	-55.7	• 3.7	36 24.3	-55.7	• 3.8
82	27 29.4	-56.0	• 3.1	29 29.2	-55.9	• 3.1	31 29.0	-55.9	• 3.2	33 28.8	-55.8	• 3.3	35 28.6	-55.8	• 3.4
83	26 33.4	-56.0	• 2.7	28 33.3	-56.0	• 2.7	30 33.1	-55.9	• 2.8	32 33.0	-55.9	• 2.8	34 32.8	-55.8	• 2.9
84	25 37.4	-56.1	• 2.3	27 37.3	-56.1	• 2.3	29 37.2	-56.0	• 2.4	31 37.1	-56.0	• 2.4	33 37.0	-56.0	• 2.5
85	24 41.3	-56.2	• 1.9	26 41.2	-56.1	• 1.9	28 41.2	-56.1	• 1.9	30 41.1	-56.1	• 2.0	32 41.0	-56.0	• 2.0
86	23 45.1	-56.2	• 1.5	25 45.1	-56.2	• 1.5	27 45.1	-56.2	• 1.5	29 45.0	-56.1	• 1.6	31 45.0	-56.2	• 1.6
87	22 48.9	-56.2	• 1.1	24 48.9	-56.2	• 1.1	26 48.9	-56.3	• 1.1	28 48.9	-56.3	• 1.2	30 48.8	-56.2	• 1.2
88	21 52.7	-56.3	• 0.7	23 52.7	-56.3	• 0.7	25 52.6	-56.2	• 0.8	27 52.6	-56.2	• 0.8	29 52.6	-56.3	• 0.8
89	20 56.4	-56.4	• 0.4	22 56.4	-56.4	• 0.4	24 56.4	-56.4	• 0.4	26 56.4	-56.4	• 0.4	28 56.3	-56.3	• 0.4
90	20 00.0	-56.4	• 0.0	22 00.0	-56.4	• 0.0	24 00.0	-56.4	• 0.0	26 00.0	-56.4	• 0.0	28 00.0	-56.4	• 0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 20°, 340°

20°			22°			24°			26°			28°			Dec.	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
36	25.2	-55.0	158.4	34	33.5	-55.5	158.9	32	41.3	-55.7	159.4	30	48.8	-56.0	159.8	30
35	30.2	-55.2	158.9	33	38.0	-55.5	159.4	31	45.6	-55.9	159.8	29	52.8	-56.2	160.2	31
34	35.0	-55.3	159.4	32	42.5	-55.6	159.8	30	49.7	-55.9	160.3	28	56.6	-56.2	160.6	32
33	39.7	-55.4	159.8	31	46.9	-55.7	160.3	29	53.8	-56.0	160.7	28	00.4	-56.3	161.0	33
32	44.3	-55.5	160.3	30	51.2	-55.8	160.7	28	57.8	-56.1	161.1	27	04.1	-56.3	161.4	34
31	48.8	-55.6	160.7	29	55.4	-55.9	161.1	28	01.7	-56.1	161.5	26	07.8	-56.4	161.8	35
30	53.2	-55.7	161.2	28	59.5	-56.0	161.6	27	05.6	-56.3	161.9	25	11.4	-56.5	162.2	36
29	57.5	-55.7	161.6	28	03.5	-56.0	162.0	26	09.3	-56.2	162.3	24	14.9	-56.5	162.6	37
29	01.8	-55.9	162.0	27	07.5	-56.1	162.4	25	13.1	-56.4	162.7	23	18.4	-56.5	162.9	38
28	05.9	-55.9	162.5	26	11.4	-56.1	162.8	24	16.7	-56.4	163.0	22	21.9	-56.7	163.3	39
27	10.0	-56.0	162.9	25	15.3	-56.3	163.2	23	20.3	-56.4	163.4	21	25.2	-56.6	163.7	40
26	14.0	-56.0	163.3	24	19.0	-56.2	163.5	22	23.9	-56.5	163.8	20	28.6	-56.7	164.0	41
25	18.0	-56.1	163.7	23	22.8	-56.4	163.9	21	27.4	-56.6	164.2	19	31.9	-56.7	164.4	42
24	21.9	-56.2	164.1	22	26.4	-56.4	164.3	20	30.8	-56.5	164.5	18	35.2	-56.8	164.7	43
23	25.7	-56.2	164.4	21	30.0	-56.4	164.7	19	34.3	-56.7	164.9	17	38.4	-56.8	165.0	44
22	29.5	-56.3	164.8	20	33.6	-56.5	165.0	18	37.6	-56.6	165.2	16	41.6	-56.9	165.4	45
21	33.2	-56.3	165.2	19	37.1	-56.5	165.4	17	41.0	-56.7	165.6	15	44.7	-56.8	165.7	46
20	36.9	-56.4	165.6	18	40.6	-56.5	165.7	16	44.3	-56.8	165.9	14	47.9	-56.9	166.0	47
19	40.5	-56.4	165.9	17	44.1	-56.6	166.1	15	47.5	-56.7	166.2	13	51.0	-57.0	166.4	48
18	44.1	-56.5	166.3	16	47.5	-56.7	166.4	14	50.8	-56.8	166.6	12	54.0	-56.9	166.7	49
17	47.6	-56.5	166.7	15	50.8	-56.6	166.8	13	54.0	-56.8	166.9	11	57.1	-57.0	167.0	50
16	51.1	-56.5	167.0	14	54.2	-56.7	167.1	12	57.2	-56.9	167.2	11	00.1	-57.0	167.3	51
15	54.6	-56.6	167.4	13	57.5	-56.7	167.5	12	00.3	-56.8	167.6	10	03.1	-57.0	167.7	52
14	58.0	-56.6	167.7	13	00.8	-56.8	167.8	11	03.5	-56.9	167.9	9	06.1	-57.0	168.0	53
14	01.4	-56.6	168.0	12	04.0	-56.7	168.1	10	06.6	-56.9	168.2	8	09.1	-57.1	168.3	54
13	04.8	-56.6	168.4	11	07.3	-56.8	168.5	9	09.7	-57.0	168.5	7	12.0	-57.0	168.6	55
12	08.2	-56.7	168.7	10	10.5	-56.9	168.8	8	12.7	-56.9	168.9	6	15.0	-57.1	168.9	56
11	11.5	-56.7	169.1	9	13.6	-56.8	169.1	7	15.8	-57.0	169.2	5	17.9	-57.1	169.2	57
10	14.8	-56.7	169.4	8	16.8	-56.8	169.4	6	18.8	-56.9	169.5	4	20.8	-57.0	169.5	58
9	18.1	-56.8	169.7	7	20.0	-56.9	169.8	5	21.9	-57.0	169.8	3	23.8	-57.1	169.8	59
8	21.3	-56.7	170.0	6	23.1	-56.8	170.1	4	24.9	-57.0	170.1	2	26.7	-57.1	170.1	60
7	24.6	-56.8	170.4	5	26.3	-56.9	170.4	3	27.9	-57.0	170.4	1	29.6	-57.1	170.5	61
6	27.8	-56.8	170.7	4	29.4	-56.9	170.7	2	30.9	-57.0	170.8	0	32.5	-57.1	170.8	62
5	31.0	-56.8	171.0	3	32.5	-56.9	171.1	1	33.9	-57.0	171.1	0	24.6	+57.1	8.9	63
4	34.2	-56.8	171.3	2	35.6	-56.9	171.4	0	36.9	-56.9	171.4	1	21.7	+57.1	8.6	64
3	37.4	-56.8	171.7	1	38.7	-56.9	171.7	0	20.0	+57.0	8.3	2	18.8	+57.1	8.3	65
2	40.6	-56.8	172.0	0	41.8	-56.9	172.0	1	17.0	+57.0	8.0	3	15.9	+57.1	8.0	66
1	43.8	-56.8	172.3	0	47.0	-56.8	172.6	2	14.0	+57.0	7.7	4	13.0	+57.0	7.7	67
0	09.8	+56.8	7.0	1	12.0	+56.9	7.4	3	11.0	+57.0	7.4	5	10.0	+57.1	7.4	68
1	06.6	+56.9	6.7	2	08.9	+56.9	7.0	4	08.0	+57.0	7.1	6	07.1	+57.0	7.1	69
2	03.5	+56.8	6.4	3	05.8	+56.9	6.7	5	05.0	+56.9	6.7	7	04.1	+57.1	6.8	70
3	00.3	+56.8	6.1	4	02.7	+56.9	6.4	6	01.9	+57.0	6.4	8	01.2	+57.0	6.5	71
3	57.1	+56.8	5.8	4	59.6	+56.9	6.1	6	58.9	+56.9	6.1	8	58.2	+57.0	6.1	72
4	53.9	+56.7	5.4	5	56.5	+56.8	5.8	7	55.8	+57.0	5.8	9	55.2	+57.0	5.8	73
5	50.6	+56.8	5.1	6	53.3	+56.9	5.4	8	52.8	+56.9	5.5	10	52.2	+57.0	5.5	74
6	47.4	+56.8	4.8	7	50.2	+56.8	5.1	9	49.7	+56.9	5.2	11	49.2	+57.0	5.2	75
7	44.2	+56.7	4.5	8	47.0	+56.8	4.8	10	46.6	+56.9	4.8	12	46.2	+56.9	4.9	76
8	40.9	+56.8	4.1	9	43.8	+56.8	4.5	11	43.5	+56.8	4.5	13	43.1	+56.9	4.5	77
9	37.7	+56.7	3.8	10	40.6	+56.8	4.1	12	40.3	+56.8	4.2	14	40.0	+56.9	4.2	78
10	34.4	+56.7	3.5	11	37.4	+56.8	3.8	13	37.1	+56.8	3.9	15	36.9	+56.8	3.9	79
11	31.1	+56.6	3.1	12	34.2	+56.7	3.5	14	33.9	+56.8	3.5	16	33.7	+56.8	3.6	80
12	27.7	+56.7	2.8	13	30.9	+56.7	3.2	15	30.7	+56.8	3.2	17	30.5	+56.8	3.2	81
13	24.4	+56.6	2.5	14	27.6	+56.7	2.8	16	27.5	+56.7	2.8	18	27.3	+56.7	2.9	82
14	21.0	+56.6	2.1	15	24.3	+56.6	2.5	17	24.2	+56.6	2.5	19	24.0	+56.8	2.5	83
15	17.6	+56.5	1.8	16	20.9	+56.6	2.1	18	20.8	+56.7	2.2	20	20.8	+56.6	2.2	84
16	14.1	+56.6	1.4	17	17.5	+56.6	1.8	19	17.5	+56.6	1.8	21	17.4	+56.6	1.8	85
17	10.7	+56.5	1.1	18	14.1	+56.5	1.4	20	14.1	+56.5	1.5	22	14.0	+56.6	1.5	86
18	07.2	+56.4	0.7	19	10.6	+56.5	1.1	21	10.6	+56.5	1.1	23	10.6	+56.5	1.1	87
19	03.6	+56.4	0.4	20	07.1	+56.5	0.7	22	07.1	+56.5	0.7	24	07.1	+56.5	0.7	88
20	00.0	+56.4	0.0	21	03.6	+56.4	0.4	23	03.6	+56.4	0.4	25	03.6	+56.4	0.4	89
				22	00.0	+56.4	0.0	24	00.0	+56.4	0.0	26	00.0	+56.4	0.0	90
20°			22°			24°			26°			28°				

LATITUDE SAME NAME

L.H.A. 160°, 200°

22°, 338° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	53 24.8	-46.9	33.0	55 04.6	-45.7	34.5	56 42.5	-44.3	36.2	58 18.1	-42.7	38.1	59 51.2	-41.0	40.2
31	52 37.9	-47.5	31.9	54 18.9	-46.3	33.4	55 58.2	-45.0	35.0	57 35.4	-43.5	36.8	59 10.2	-41.8	38.8
32	51 50.4	-47.9	30.9	53 32.6	-46.8	32.3	55 13.2	-45.7	33.8	56 51.9	-44.3	35.5	58 28.4	-42.7	37.4
33	51 02.5	-48.4	30.0	52 45.8	-47.4	31.3	54 27.5	-46.2	32.7	56 07.6	-45.0	34.3	57 45.7	-43.5	36.1
34	50 14.1	-48.9	29.0	51 58.4	-47.9	30.3	53 41.3	-46.8	31.6	55 22.6	-45.6	33.1	57 02.2	-44.3	34.8
35	49 25.2	-49.2	28.1	51 10.5	-48.4	29.3	52 54.5	-47.4	30.6	54 37.0	-46.2	32.0	56 17.9	-45.0	33.6
36	48 36.0	-49.7	27.3	50 22.1	-48.8	28.4	52 07.1	-47.8	29.6	53 50.8	-46.8	30.9	55 32.9	-45.6	32.4
37	47 46.3	-49.9	26.4	49 33.3	-49.2	27.5	51 19.3	-48.4	28.6	53 04.0	-47.4	29.9	54 47.3	-46.2	31.3
38	46 56.4	-50.4	25.6	48 44.1	-49.6	26.6	50 30.9	-48.7	27.7	52 16.6	-47.8	28.8	54 01.1	-46.8	30.2
39	46 06.0	-50.6	24.8	47 54.5	-49.9	25.7	49 42.2	-49.2	26.8	51 28.8	-48.3	27.9	53 14.3	-47.4	29.1
40	45 15.4	-51.0	24.1	47 04.6	-50.3	24.9	48 53.0	-49.6	25.9	50 40.5	-48.8	26.9	52 26.9	-47.8	28.1
41	44 24.4	-51.2	23.3	46 14.3	-50.6	24.1	48 03.4	-49.9	25.0	49 51.7	-49.1	26.0	51 39.1	-48.3	27.1
42	43 33.2	-51.5	22.6	45 23.7	-50.9	23.4	47 13.5	-50.3	24.2	49 02.6	-49.6	25.1	50 50.8	-48.8	26.2
43	42 41.7	-51.7	21.9	44 32.8	-51.2	22.6	46 23.2	-50.5	23.4	48 13.0	-49.9	24.3	50 02.0	-49.2	25.2
44	41 50.0	-52.0	21.2	43 41.6	-51.5	21.9	45 32.7	-50.9	22.6	47 23.1	-50.3	23.5	49 12.8	-49.6	24.4
45	40 58.0	-52.2	20.5	42 50.1	-51.7	21.2	44 41.8	-51.2	21.9	46 32.8	-50.6	22.7	48 23.2	-49.9	23.5
46	40 05.8	-52.4	19.9	41 58.4	-51.9	20.5	43 50.6	-51.5	21.1	45 42.2	-50.9	21.9	47 33.3	-50.3	22.7
47	39 13.4	-52.6	19.3	41 06.5	-52.2	19.8	42 59.1	-51.7	20.4	44 51.3	-51.2	21.1	46 43.0	-50.6	21.9
48	38 20.8	-52.9	18.6	40 14.3	-52.4	19.2	42 07.4	-51.9	19.8	44 00.1	-51.4	20.4	45 52.4	-51.0	21.1
49	37 27.9	-52.9	18.0	39 21.9	-52.6	18.5	41 15.5	-52.2	19.1	43 08.7	-51.7	19.7	45 01.4	-51.2	20.3
50	36 35.0	-53.2	17.4	38 29.3	-52.8	17.9	40 23.3	-52.4	18.4	42 17.0	-52.0	19.0	44 10.2	-51.5	19.6
51	35 41.8	-53.3	16.9	37 36.5	-53.0	17.3	39 30.9	-52.6	17.8	41 25.0	-52.2	18.3	43 18.7	-51.7	18.9
52	34 48.5	-53.5	16.3	36 43.5	-53.1	16.7	38 38.3	-52.7	17.2	40 32.8	-52.4	17.7	42 27.0	-52.0	18.2
53	33 55.0	-53.6	15.8	35 50.4	-53.3	16.1	37 45.6	-53.0	16.6	39 40.4	-52.6	17.0	41 35.0	-52.2	17.5
54	33 01.4	-53.7	15.2	34 57.1	-53.4	15.6	36 52.6	-53.1	16.0	38 47.8	-52.8	16.4	40 42.8	-52.4	16.9
55	32 07.7	-53.9	14.7	34 03.7	-53.6	15.0	35 59.5	-53.3	15.4	37 55.0	-52.9	15.8	39 50.4	-52.7	16.3
56	31 13.8	-54.0	14.2	33 10.1	-53.8	14.5	35 06.2	-53.5	14.8	37 02.1	-53.2	15.2	38 57.7	-52.8	15.6
57	30 19.8	-54.1	13.7	32 16.3	-53.8	14.0	34 12.7	-53.6	14.3	36 08.9	-53.3	14.6	38 04.9	-53.0	15.0
58	29 25.7	-54.2	13.2	31 22.5	-54.0	13.4	33 19.1	-53.7	13.7	35 15.6	-53.5	14.1	37 11.9	-53.2	14.4
59	28 31.5	-54.4	12.7	30 28.5	-54.1	12.9	32 25.4	-53.9	13.2	34 22.1	-53.6	13.5	36 18.7	-53.3	13.9
60	27 37.1	-54.4	12.2	29 34.4	-54.2	12.4	31 31.5	-54.0	12.7	33 28.5	-53.7	13.0	35 25.4	-53.5	13.3
61	26 42.7	-54.5	11.7	28 40.2	-54.3	11.9	30 37.5	-54.1	12.2	32 34.8	-53.9	12.4	34 31.9	-53.7	12.7
62	25 48.2	-54.6	11.3	27 45.9	-54.5	11.5	29 43.4	-54.2	11.7	31 40.9	-54.0	11.9	33 38.2	-53.7	12.2
63	24 53.6	-54.7	10.8	26 51.4	-54.5	11.0	28 49.2	-54.3	11.2	30 46.9	-54.1	11.4	32 44.5	-54.0	11.7
64	23 58.9	-54.7	10.4	25 56.9	-54.6	10.5	27 54.9	-54.4	10.7	29 52.8	-54.3	10.9	31 50.5	-54.0	11.1
65	23 04.2	-54.9	9.9	25 02.3	-54.6	10.1	27 00.5	-54.5	10.2	28 58.5	-54.3	10.4	30 56.5	-54.2	10.6
66	22 09.3	-54.9	9.5	24 07.7	-54.8	9.6	26 06.0	-54.6	9.8	28 04.2	-54.5	9.9	30 02.3	-54.2	10.1
67	21 14.4	-55.0	9.0	23 12.9	-54.8	9.2	25 11.4	-54.7	9.3	27 09.7	-54.5	9.5	29 08.1	-54.4	9.6
68	20 19.4	-55.0	8.6	22 18.1	-54.9	8.7	24 16.7	-54.8	8.9	26 15.2	-54.6	9.0	28 13.7	-54.5	9.2
69	19 24.4	-55.1	8.2	21 23.2	-55.0	8.3	23 21.9	-54.8	8.4	25 20.6	-54.7	8.5	27 19.2	-54.5	8.7
70	18 29.3	-55.1	7.8	20 28.2	-55.0	7.9	22 27.1	-55.0	8.0	24 25.9	-54.8	8.1	26 24.7	-54.7	8.2
71	17 34.2	-55.2	7.3	19 33.2	-55.1	7.4	21 32.1	-54.9	7.5	23 31.1	-54.9	7.6	25 30.0	-54.7	7.8
72	16 39.0	-55.3	6.9	18 38.1	-55.2	7.0	20 37.2	-55.1	7.1	22 36.2	-54.9	7.2	24 35.3	-54.8	7.3
73	15 43.7	-55.3	6.5	17 42.9	-55.2	6.6	19 42.1	-55.1	6.7	21 41.3	-55.0	6.8	23 40.5	-54.9	6.9
74	14 48.4	-55.3	6.1	16 47.7	-55.2	6.2	18 47.0	-55.1	6.3	20 46.3	-55.1	6.3	22 45.6	-55.0	6.4
75	13 53.1	-55.4	5.7	15 52.5	-55.3	5.8	17 51.9	-55.2	5.8	19 51.2	-55.1	5.9	21 50.6	-55.0	6.0
76	12 57.7	-55.4	5.3	14 57.2	-55.3	5.4	16 56.7	-55.3	5.4	18 56.1	-55.2	5.5	20 55.6	-55.1	5.6
77	12 02.3	-55.4	4.9	14 01.9	-55.4	5.0	16 01.4	-55.3	5.0	18 00.9	-55.2	5.1	20 00.5	-55.2	5.1
78	11 06.9	-55.5	4.6	13 06.5	-55.4	4.6	15 06.1	-55.3	4.6	17 05.7	-55.3	4.7	19 05.3	-55.2	4.7
79	10 11.4	-55.5	4.2	12 11.1	-55.5	4.2	14 10.8	-55.4	4.2	16 10.4	-55.3	4.3	18 10.1	-55.3	4.3
80	9 15.9	-55.5	3.8	11 15.6	-55.4	3.8	13 15.4	-55.4	3.8	15 15.1	-55.4	3.9	17 14.8	-55.3	3.9
81	8 20.4	-55.6	3.4	10 20.2	-55.5	3.4	12 20.0	-55.5	3.4	14 19.7	-55.4	3.5	16 19.5	-55.3	3.5
82	7 24.8	-55.5	3.0	9 24.7	-55.5	3.0	11 24.5	-55.5	3.0	13 24.3	-55.4	3.1	15 24.2	-55.4	3.1
83	6 29.3	-55.6	2.6	8 29.2	-55.6	2.6	10 29.0	-55.5	2.7	12 28.9	-55.5	2.7	14 28.8	-55.5	2.7
84	5 33.7	-55.6	2.3	7 33.6	-55.6	2.3	9 33.5	-55.5	2.3	11 33.4	-55.5	2.3	13 33.3	-55.5	2.3
85	4 38.1	-55.6	1.9	6 38.0	-55.5	1.9	8 38.0	-55.6	1.9	10 37.9	-55.5	1.9	12 37.8	-55.5	1.9
86	3 42.5	-55.6	1.5	5 42.5	-55.6	1.5	7 42.4	-55.6	1.5	9 42.4	-55.6	1.5	11 42.3	-55.5	1.5
87	2 46.9	-55.6	1.1	4 46.9	-55.7	1.1	6 46.8	-55.6	1.1	8 46.8	-55.6	1.1	10 46.8	-55.6	1.1
88	1 51.3	-55.7	0.7	3 51.2	-55.6	0.8	5 51.2	-55.6	0.8	7 51.2	-55.6	0.8	9 51.2	-55.6	0.8
89	0 55.6	-55.6	0.4	2 55.6	-55.6	0.4	4 55.6	-55.6	0.4	6 55.6	-55.6	0.4	8 55.6	-55.6	0.4
90	0 00.0	-55.6	0.0	2 00.0	-55.6	0.0	4 00.0	-55.6	0.0	6 00.0	-55.6	0.0	8 00.0	-55.6	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 22°, 338°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
53 24.8	-46.9	147.0	51 43.4	-48.1	148.4	50 00.5	-49.1	149.7	48 16.3	-49.9	150.8	46 30.9	-50.6	151.9	30
52 37.9	-47.5	148.1	50 55.3	-48.5	149.4	49 11.4	-49.4	150.6	47 26.4	-50.3	151.7	45 40.3	-51.0	152.6	31
51 50.4	-47.9	149.1	50 06.8	-48.9	150.3	48 22.0	-49.8	151.4	46 36.1	-50.6	152.5	44 49.3	-51.3	153.4	32
51 02.5	-48.4	150.0	49 17.9	-49.3	151.2	47 32.2	-50.1	152.3	45 45.5	-50.8	153.2	43 58.0	-51.6	154.1	33
50 14.1	-48.9	151.0	48 28.6	-49.7	152.1	46 42.1	-50.5	153.1	44 54.7	-51.2	154.0	43 06.4	-51.8	154.8	34
49 25.2	-49.2	151.9	47 38.9	-50.1	152.9	45 51.6	-50.8	153.9	44 03.5	-51.4	154.7	42 14.6	-52.0	155.5	35
48 36.0	-49.7	152.7	46 48.8	-50.3	153.7	45 00.8	-51.0	154.6	43 12.1	-51.7	155.4	41 22.6	-52.3	156.2	36
47 46.3	-49.9	153.6	45 58.5	-50.7	154.5	44 09.8	-51.4	155.4	42 20.4	-52.0	156.2	40 30.3	-52.5	156.8	37
46 56.4	-50.4	154.4	45 07.8	-51.0	155.3	43 18.4	-51.6	156.1	41 28.4	-52.2	156.8	39 37.8	-52.6	157.5	38
46 06.0	-50.6	155.2	44 16.8	-51.3	156.0	42 26.8	-51.9	156.8	40 36.2	-52.3	157.5	38 45.2	-52.9	158.1	39
45 15.4	-51.0	155.9	43 25.5	-51.6	156.7	41 34.9	-52.1	157.4	39 43.9	-52.6	158.1	37 52.3	-53.1	158.7	40
44 24.4	-51.2	156.7	42 33.9	-51.8	157.4	40 42.8	-52.3	158.1	38 51.3	-52.8	158.7	36 59.2	-53.2	159.3	41
43 33.2	-51.5	157.4	41 42.1	-52.0	158.1	39 50.5	-52.5	158.7	37 58.5	-53.0	159.3	36 06.0	-53.4	159.8	42
42 41.7	-51.7	158.1	40 50.1	-52.2	158.8	38 58.0	-52.7	159.4	37 05.5	-53.1	159.9	35 12.6	-53.5	160.4	43
41 50.0	-52.0	158.8	39 57.9	-52.5	159.4	38 05.3	-52.9	160.0	36 12.4	-53.3	160.5	34 19.1	-53.7	161.0	44
40 58.0	-52.2	159.5	39 05.4	-52.7	160.0	37 12.4	-53.1	160.6	35 19.1	-53.1	161.1	33 25.4	-53.8	161.5	45
40 05.8	-52.4	160.1	38 12.7	-52.8	160.7	36 19.3	-53.2	161.2	34 25.6	-53.6	161.6	32 31.6	-53.9	162.0	46
39 13.4	-52.6	160.7	37 19.9	-53.0	161.3	35 26.1	-53.4	161.7	33 32.0	-53.7	162.2	31 37.7	-54.1	162.5	47
38 20.8	-52.9	161.4	36 26.9	-53.2	161.8	34 32.7	-53.5	162.3	32 38.3	-53.9	162.7	30 43.6	-54.2	163.0	48
37 27.9	-52.9	162.0	35 33.7	-53.4	162.4	33 39.2	-53.7	162.8	31 44.4	-54.0	163.2	29 49.4	-54.3	163.5	49
36 35.0	-53.2	162.6	34 40.3	-53.4	163.0	32 45.5	-53.8	163.4	30 50.4	-54.1	163.7	28 55.1	-54.4	164.0	50
35 41.8	-53.3	163.1	33 46.9	-53.7	163.5	31 51.7	-54.0	163.9	29 56.3	-54.2	164.2	28 00.7	-54.5	164.5	51
34 48.5	-53.5	163.7	32 53.2	-53.8	164.1	30 57.7	-54.0	164.4	29 02.1	-54.4	164.7	27 06.2	-54.6	165.0	52
33 55.0	-53.6	164.2	31 59.4	-53.9	164.6	30 03.7	-54.2	164.9	28 07.7	-54.4	165.2	26 11.6	-54.6	165.4	53
33 01.4	-53.7	164.8	31 05.5	-54.0	165.1	29 09.5	-54.3	165.4	27 13.3	-54.5	165.7	25 17.0	-54.8	165.9	54
32 07.7	-53.9	165.3	30 11.5	-54.1	165.6	28 15.2	-54.4	165.9	26 18.8	-54.6	166.1	24 22.2	-54.8	166.4	55
31 13.8	-54.0	165.8	29 17.4	-54.3	166.1	27 20.8	-54.4	166.4	25 24.2	-54.7	166.6	23 27.4	-54.9	166.8	56
30 19.8	-54.1	166.3	28 23.1	-54.3	166.6	26 26.4	-54.6	166.8	24 29.5	-54.8	167.0	22 32.5	-55.0	167.2	57
29 25.7	-54.2	166.8	27 28.8	-54.5	167.1	25 31.8	-54.7	167.3	23 34.9	-54.9	167.5	21 37.5	-55.1	167.7	58
28 31.5	-54.4	167.3	26 34.3	-54.5	167.5	24 37.1	-54.7	167.7	22 39.8	-54.9	167.9	20 42.4	-55.1	168.1	59
27 37.1	-54.4	167.8	25 39.8	-54.6	168.0	23 42.4	-54.8	168.2	21 44.9	-55.0	168.4	19 47.3	-55.1	168.5	60
26 42.7	-54.5	168.3	24 45.2	-54.7	168.5	22 47.6	-54.9	168.6	20 49.9	-55.1	168.8	18 52.2	-55.3	168.9	61
25 48.2	-54.6	168.7	23 50.5	-54.8	168.9	21 52.7	-55.0	169.1	19 54.8	-55.1	169.2	17 56.9	-55.2	169.3	62
24 53.6	-54.7	169.2	22 55.7	-54.9	169.4	20 57.7	-55.0	169.5	18 59.7	-55.2	169.6	17 01.7	-55.4	169.8	63
23 58.9	-54.7	169.6	22 00.8	-54.9	169.8	20 02.7	-55.1	169.9	18 04.5	-55.2	170.1	16 06.3	-55.3	170.2	64
23 04.2	-54.9	170.1	21 05.9	-55.0	170.2	19 07.6	-55.1	170.4	17 09.3	-55.3	170.5	15 11.0	-55.4	170.6	65
22 09.3	-54.9	170.5	20 10.9	-55.0	170.7	18 12.5	-55.2	170.8	16 14.0	-55.3	170.9	14 15.6	-55.5	171.0	66
21 14.4	-55.0	171.0	19 15.9	-55.1	171.1	17 17.3	-55.2	171.2	15 18.7	-55.3	171.3	13 20.1	-55.5	171.3	67
20 19.4	-55.0	171.4	18 20.8	-55.2	171.5	16 22.1	-55.3	171.6	14 23.4	-55.4	171.7	12 24.6	-55.5	171.7	68
19 24.4	-55.1	171.8	17 25.6	-55.2	171.9	15 26.8	-55.3	172.0	13 28.0	-55.5	172.1	11 29.1	-55.6	172.1	69
18 29.3	-55.1	172.2	16 30.4	-55.3	172.3	14 31.5	-55.4	172.4	12 32.5	-55.5	172.5	10 33.5	-55.5	172.5	70
17 34.2	-55.2	172.7	15 35.1	-55.3	172.7	13 36.1	-55.4	172.8	11 37.0	-55.5	172.8	9 38.0	-55.6	172.9	71
16 39.0	-55.3	173.1	14 39.8	-55.3	173.1	12 40.7	-55.4	173.2	10 41.5	-55.5	173.2	8 42.4	-55.7	173.3	72
15 43.7	-55.3	173.5	13 44.5	-55.4	173.5	11 45.3	-55.5	173.6	9 46.0	-55.6	173.6	7 46.7	-55.6	173.7	73
14 48.4	-55.3	173.9	12 49.1	-55.4	173.9	10 49.8	-55.5	174.0	8 50.4	-55.5	174.0	6 51.1	-55.7	174.0	74
13 53.1	-55.4	174.3	11 53.7	-55.5	174.3	9 54.3	-55.6	174.4	7 54.9	-55.6	174.4	5 55.4	-55.6	174.4	75
12 57.7	-55.4	174.7	10 58.2	-55.4	174.7	8 58.7	-55.5	174.7	6 59.3	-55.7	174.8	4 59.8	-55.7	174.8	76
12 02.3	-55.4	175.1	10 02.8	-55.5	175.1	8 03.2	-55.6	175.1	6 03.6	-55.6	175.1	4 04.1	-55.7	175.2	77
11 06.9	-55.5	175.4	9 07.3	-55.6	175.5	7 07.6	-55.6	175.5	5 08.0	-55.7	175.5	3 08.4	-55.7	175.5	78
10 11.4	-55.5	175.8	8 11.7	-55.5	175.9	6 12.0	-55.6	175.9	4 12.3	-55.6	175.9	2 12.7	-55.8	175.9	79
9 15.9	-55.5	176.2	7 16.2	-55.6	176.2	5 16.4	-55.6	176.3	3 16.7	-55.7	176.3	1 16.9	-55.7	176.3	80
8 20.4	-55.6	176.6	6 20.6	-55.6	176.6	4 20.8	-55.6	176.6	2 21.0	-55.7	176.6	0 21.2	-55.7	176.6	81
7 24.8	-55.5	177.0	5 25.0	-55.6	177.0	3 25.2	-55.7	177.0	1 25.3	-55.6	177.0	0 34.5	+55.7	3.0	82
6 29.3	-55.6	177.4	4 29.4	-55.6	177.4	2 29.5	-55.6	177.4	0 29.7	-55.7	177.4	1 30.2	+55.7	2.6	83
5 33.7	-55.6	177.7	3 33.8	-55.6	177.8	1 33.9	-55.7	177.8	0 26.0	+55.7	2.2	2 25.9	+55.7	2.2	84
4 38.1	-55.6	178.1	2 38.2	-55.7	178.1	0 38.2	-55.6	178.1	1 21.7	+55.7	1.9	3 21.6	+55.7	1.9	85
3 42.5	-55.6	178.5	1 42.5	-55.6	178.5	0 17.4	+55.7	1.5	2 17.4	+55.6	1.5	4 17.3	+55.7	1.5	86
2 46.9	-55.6	178.9	0 46.9	-55.6	178.9	1 13.1	+55.6	1.1	3 13.0	+55.7	1.1	5 13.0	+55.7	1.1	87
1 51.3	-55.7	179.3	0 08.7	+55.7	0.7	2 08.7	+55.7	0.7	4 08.7	+55.7	0.8	6 08.7	+55.7	0.8	88
0 55.6	-55.6	179.6	1 04.4	+55.6	0.4	3 04.4	+55.6	0.4	5 04.4	+55.6	0.4	7 04.4	+55.6	0.4	89
0 00.0	+55.6	0.0	2 00.0	+55.6	0.0	4 00.0	+55.6	0.0	6 00.0	+55.6	0.0	8 00.0	+55.6	0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 158°, 202°

22°, 338° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	61 21.2	-38.9	42.6	62 47.7	-36.5	45.2	64 10.1	-33.9	48.1	65 27.7	-30.8	51.4	66 39.6	-27.2	55.0
31	60 42.3	-39.9	41.0	62 11.2	-37.8	43.5	63 36.2	-35.2	46.2	64 56.9	-32.3	49.3	66 12.4	-29.0	52.7
32	60 02.4	-41.0	39.5	61 33.4	-38.9	41.8	63 01.0	-36.6	44.4	64 24.6	-33.9	47.3	65 43.4	-30.8	50.6
33	59 21.4	-41.8	38.1	60 54.5	-39.9	40.3	62 24.4	-37.7	42.7	63 50.7	-35.3	45.5	65 12.6	-32.5	48.5
34	58 39.6	-42.7	36.7	60 14.6	-41.0	38.7	61 46.7	-39.0	41.1	63 15.4	-36.7	43.6	64 40.1	-34.0	46.5
35	57 56.9	-43.5	35.3	59 33.6	-41.9	37.3	61 07.7	-40.0	39.5	62 38.7	-37.8	41.9	64 06.1	-35.4	44.6
36	57 13.4	-44.3	34.0	58 51.7	-42.7	35.9	60 27.7	-41.0	37.9	62 00.9	-39.1	40.2	63 30.7	-36.7	42.8
37	56 29.1	-45.0	32.8	58 09.0	-43.6	34.5	59 46.7	-42.0	36.5	61 21.8	-40.1	38.6	62 54.0	-38.0	41.1
38	55 44.1	-45.7	31.6	57 25.4	-44.4	33.2	59 04.7	-42.8	35.1	60 41.7	-41.1	37.1	62 16.0	-39.2	39.4
39	54 58.4	-46.2	30.5	56 41.0	-45.0	32.0	58 21.9	-43.7	33.7	60 00.6	-42.1	35.6	61 36.8	-40.2	37.8
40	54 12.2	-46.9	29.4	55 56.0	-45.7	30.8	57 38.2	-44.4	32.4	59 18.5	-43.0	34.2	60 56.6	-41.3	36.2
41	53 25.3	-47.4	28.3	55 10.3	-46.3	29.7	56 53.8	-45.1	31.2	58 35.5	-43.7	32.9	60 15.3	-42.2	34.7
42	52 37.9	-47.9	27.3	54 24.0	-46.9	28.6	56 08.7	-45.8	30.0	57 51.8	-44.6	31.6	59 33.1	-43.1	33.3
43	51 50.0	-48.3	26.3	53 37.1	-47.5	27.5	55 22.9	-46.5	28.8	57 07.2	-45.2	30.3	58 50.0	-44.0	32.0
44	51 01.7	-48.8	25.4	52 49.6	-47.9	26.5	54 36.4	-47.0	27.7	56 22.0	-45.9	29.1	58 06.0	-44.6	30.7
45	50 12.9	-49.3	24.5	52 01.7	-48.5	25.5	53 49.4	-47.5	26.7	55 36.1	-46.6	28.0	57 21.4	-45.4	29.4
46	49 23.6	-49.6	23.6	51 13.2	-48.9	24.5	53 01.9	-48.0	25.6	54 49.5	-47.1	26.9	56 36.0	-46.1	28.2
47	48 34.0	-50.0	22.7	50 24.3	-49.3	23.6	52 13.9	-48.6	24.7	54 02.4	-47.6	25.8	55 49.9	-46.7	27.1
48	47 44.0	-50.3	21.9	49 35.0	-49.6	22.7	51 25.3	-48.9	23.7	53 14.8	-48.2	24.8	55 03.2	-47.3	26.0
49	46 53.7	-50.7	21.1	48 45.4	-50.1	21.9	50 36.4	-49.4	22.8	52 26.6	-48.7	23.8	54 15.9	-47.8	24.9
50	46 03.0	-50.9	20.3	47 55.3	-50.4	21.1	49 47.0	-49.8	21.9	51 37.9	-49.0	22.8	53 28.1	-48.3	23.9
51	45 12.1	-51.3	19.5	47 04.9	-50.7	20.3	48 57.2	-50.2	21.0	50 48.9	-49.5	21.9	52 39.8	-48.8	22.9
52	44 20.8	-51.5	18.8	46 14.2	-51.1	19.5	48 07.0	-50.5	20.2	49 59.4	-49.9	21.0	51 51.0	-49.2	21.9
53	43 29.3	-51.8	18.1	45 23.1	-51.3	18.7	47 16.5	-50.8	19.4	49 09.5	-50.3	20.2	51 01.8	-49.6	21.0
54	42 37.5	-52.1	17.4	44 31.8	-51.6	18.0	46 25.7	-51.1	18.6	48 19.2	-50.6	19.3	50 12.2	-50.1	20.1
55	41 45.4	-52.2	16.7	43 40.2	-51.9	17.3	45 34.6	-51.4	17.9	47 28.6	-51.0	18.5	49 22.1	-50.4	19.3
56	40 53.2	-52.5	16.1	42 48.3	-52.1	16.6	44 43.2	-51.7	17.1	46 37.6	-51.2	17.8	48 31.7	-50.7	18.4
57	40 00.7	-52.7	15.4	41 56.2	-52.3	15.9	43 51.5	-52.0	16.4	45 46.4	-51.5	17.0	47 41.0	-51.1	17.6
58	39 08.0	-52.9	14.8	41 03.9	-52.5	15.3	42 59.5	-52.2	15.7	44 54.9	-51.8	16.3	46 49.9	-51.4	16.9
59	38 15.1	-53.0	14.2	40 11.4	-52.8	14.6	42 07.3	-52.4	15.1	44 03.1	-52.1	15.6	45 58.5	-51.6	16.1
60	37 22.1	-53.2	13.6	39 18.6	-52.9	14.0	41 14.9	-52.6	14.4	43 11.0	-52.3	14.9	45 06.9	-52.0	15.4
61	36 28.9	-53.4	13.1	38 25.7	-53.2	13.4	40 22.3	-52.8	13.8	42 18.7	-52.5	14.2	44 14.9	-52.1	14.7
62	35 35.5	-53.6	12.5	37 32.5	-53.2	12.8	39 29.5	-53.0	13.2	41 26.2	-52.7	13.6	43 22.8	-52.4	14.0
63	34 41.9	-53.7	11.9	36 39.3	-53.5	12.2	38 36.5	-53.2	12.6	40 33.5	-52.9	12.9	42 30.4	-52.7	13.3
64	33 48.2	-53.8	11.4	35 45.8	-53.6	11.7	37 43.3	-53.4	12.0	39 40.6	-53.2	12.3	41 37.7	-52.8	12.7
65	32 54.4	-54.0	10.9	34 52.2	-53.8	11.1	36 49.9	-53.6	11.4	38 47.4	-53.3	11.7	40 44.9	-53.1	12.1
66	32 00.4	-54.1	10.4	33 58.4	-53.9	10.6	35 56.3	-53.6	10.8	37 54.1	-53.4	11.1	39 51.8	-53.2	11.4
67	31 06.3	-54.2	9.8	33 04.5	-54.0	10.1	35 02.7	-53.9	10.3	37 00.7	-53.7	10.6	38 58.6	-53.4	10.9
68	30 12.1	-54.3	9.3	32 10.5	-54.1	9.5	34 08.8	-54.0	9.8	36 07.0	-53.7	10.0	38 05.2	-53.6	10.3
69	29 17.8	-54.4	8.9	31 16.4	-54.3	9.0	33 14.8	-54.1	9.2	35 13.3	-54.0	9.5	37 11.6	-53.8	9.7
70	28 23.4	-54.5	8.4	30 22.1	-54.4	8.5	32 20.7	-54.2	8.7	34 19.3	-54.0	8.9	36 17.8	-53.9	9.1
71	27 28.9	-54.6	7.9	29 27.7	-54.4	8.1	31 26.5	-54.3	8.2	33 25.3	-54.2	8.4	35 23.9	-54.0	8.6
72	26 34.3	-54.7	7.4	28 33.3	-54.6	7.6	30 32.2	-54.5	7.7	32 31.1	-54.3	7.9	34 29.9	-54.2	8.1
73	25 39.6	-54.8	7.0	27 38.7	-54.7	7.1	29 37.7	-54.5	7.2	31 36.8	-54.5	7.4	33 35.7	-54.3	7.6
74	24 44.8	-54.9	6.5	26 44.0	-54.8	6.6	28 43.2	-54.7	6.8	30 42.3	-54.5	6.9	32 41.4	-54.4	7.0
75	23 49.9	-54.9	6.1	25 49.2	-54.8	6.2	27 48.5	-54.7	6.3	29 47.8	-54.6	6.4	31 47.0	-54.5	6.5
76	22 55.0	-55.0	5.6	24 54.4	-54.9	5.7	26 53.8	-54.8	5.8	28 53.2	-54.8	5.9	30 52.5	-54.6	6.1
77	22 00.0	-55.1	5.2	23 59.5	-55.0	5.3	25 59.0	-55.0	5.4	27 58.4	-54.8	5.5	29 57.9	-54.8	5.6
78	21 04.9	-55.1	4.8	23 04.5	-55.1	4.9	25 04.0	-55.0	4.9	27 03.6	-54.9	5.0	29 03.1	-54.8	5.1
79	20 09.8	-55.2	4.4	22 09.4	-55.1	4.4	24 09.0	-55.0	4.5	26 08.7	-55.0	4.6	28 08.3	-55.0	4.6
80	19 14.6	-55.3	4.0	21 14.3	-55.2	4.0	23 14.0	-55.2	4.1	25 13.7	-55.1	4.1	27 13.3	-55.0	4.2
81	18 19.3	-55.3	3.5	20 19.1	-55.3	3.6	22 18.8	-55.2	3.6	24 18.6	-55.2	3.7	26 18.3	-55.1	3.7
82	17 24.0	-55.4	3.1	19 23.8	-55.3	3.2	21 23.6	-55.3	3.2	23 23.4	-55.2	3.3	25 23.2	-55.1	3.3
83	16 28.6	-55.4	2.7	18 28.5	-55.4	2.8	20 28.3	-55.3	2.8	22 28.2	-55.3	2.8	24 28.1	-55.3	2.9
84	15 33.2	-55.4	2.3	17 33.1	-55.4	2.4	19 33.0	-55.4	2.4	21 32.9	-55.3	2.4	23 32.8	-55.3	2.4
85	14 37.8	-55.5	1.9	16 37.7	-55.5	2.0	18 37.6	-55.4	2.0	20 37.6	-55.4	2.0	22 37.5	-55.4	2.0
86	13 42.3	-55.5	1.5	15 42.2	-55.5	1.6	17 42.2	-55.5	1.6	19 42.2	-55.5	1.6	21 42.1	-55.4	1.6
87	12 46.8	-55.6	1.2	14 46.7	-55.5	1.2	16 46.7	-55.5	1.2	18 46.7	-55.5	1.2	20 46.7	-55.5	1.2
88	11 51.2	-55.6	0.8	13 51.2	-55.6	0.8	15 51.2	-55.6	0.8	17 51.2	-55.6	0.8	19 51.2	-55.6	0.8
89	10 55.6	-55.6	0.4	12 55.6	-55.6	0.4	14 55.6	-55.6	0.4	16 55.6	-55.6	0.4	18 55.6	-55.6	0.4
90	10 00.0	-55.6	0.0	12 00.0	-55.6	0.0	14 00.0	-55.6	0.0	16 00.0	-55.7	0.0	18 00.0	-55.7	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 22°, 338°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
44	44.6	-51.4	152.8	42	57.5	-52.1	153.7	41	09.5	-52.6	154.5	39	20.9	-53.2	155.2	37	31.7	-53.7	155.9	30
43	53.2	-51.6	153.5	42	05.4	-52.3	154.4	40	16.9	-52.9	155.1	38	27.7	-53.3	155.8	36	38.0	-53.8	156.4	31
43	01.6	-52.0	154.2	41	13.1	-52.5	155.0	39	24.0	-53.0	155.7	37	34.4	-53.6	156.4	35	44.2	-54.0	157.0	32
42	09.6	-52.1	154.9	40	20.6	-52.7	155.7	38	31.0	-53.2	156.3	36	40.8	-53.6	156.9	34	50.2	-54.1	157.5	33
41	17.5	-52.4	155.6	39	27.9	-52.9	156.3	37	37.8	-53.4	156.9	35	47.2	-53.9	157.5	33	56.1	-54.3	158.0	34
40	25.1	-52.6	156.2	38	35.0	-53.1	156.9	36	44.4	-53.6	157.5	34	53.3	-54.0	158.0	32	01.8	-54.3	158.5	35
39	32.5	-52.8	156.9	37	41.9	-53.2	157.5	35	50.8	-53.7	158.0	33	59.3	-54.1	158.6	32	07.5	-54.5	159.0	36
38	39.7	-52.9	157.5	36	48.7	-53.5	158.1	34	57.1	-53.8	158.6	33	05.2	-54.2	159.1	31	13.0	-54.6	159.5	37
37	46.8	-53.2	158.1	35	55.2	-53.6	158.6	34	03.3	-54.0	159.1	32	11.0	-54.4	159.6	30	18.4	-54.7	160.0	38
36	53.6	-53.3	158.7	35	01.6	-53.7	159.2	33	09.3	-54.1	159.7	31	16.6	-54.4	160.1	29	23.7	-54.8	160.5	39
36	00.3	-53.5	159.2	34	07.9	-53.9	159.7	32	15.2	-54.2	160.2	30	22.2	-54.6	160.6	28	28.9	-54.9	160.9	40
35	06.8	-53.6	159.8	33	14.0	-54.0	160.2	31	21.0	-54.4	160.7	29	27.6	-54.7	161.1	27	34.0	-55.0	161.4	41
34	13.2	-53.8	160.3	32	20.0	-54.1	160.8	30	26.6	-54.5	161.2	28	32.9	-54.8	161.5	26	39.0	-55.1	161.9	42
33	19.4	-53.9	160.9	31	25.9	-54.2	161.3	29	32.1	-54.5	161.6	27	38.1	-54.8	162.0	25	43.9	-55.1	162.3	43
32	25.5	-54.0	161.4	30	31.7	-54.4	161.8	28	37.6	-54.7	162.1	26	43.3	-55.0	162.4	24	48.8	-55.3	162.7	44
31	31.5	-54.2	161.9	29	37.3	-54.4	162.3	27	42.9	-54.7	162.6	25	48.3	-55.1	162.9	23	53.5	-55.2	163.2	45
30	37.3	-54.2	162.4	28	42.9	-54.6	162.7	26	48.2	-54.9	163.0	24	53.3	-55.1	163.3	22	58.3	-55.4	163.6	46
29	43.1	-54.4	162.9	27	48.3	-54.7	163.2	25	53.3	-54.9	163.5	23	58.2	-55.2	163.8	22	02.9	-55.4	164.0	47
28	48.7	-54.5	163.4	26	53.6	-54.7	163.7	24	58.4	-55.0	163.9	23	03.0	-55.2	164.2	21	07.5	-55.5	164.4	48
27	54.2	-54.5	163.9	25	58.9	-54.8	164.1	24	03.4	-55.1	164.4	22	07.8	-55.4	164.6	20	12.0	-55.5	164.8	49
26	59.7	-54.7	164.3	25	04.1	-54.9	164.8	23	08.3	-55.1	164.8	21	12.4	-55.3	165.0	19	16.5	-55.6	165.2	50
26	05.0	-54.7	164.8	24	09.2	-55.0	165.0	22	13.2	-55.2	165.2	20	17.1	-55.5	165.4	18	20.9	-55.7	165.6	51
25	10.3	-54.9	165.2	23	14.2	-55.1	165.5	21	18.0	-55.3	165.7	19	21.6	-55.4	165.9	17	25.2	-55.6	166.0	52
24	15.4	-54.9	165.7	22	19.1	-55.1	165.9	20	22.7	-55.4	166.1	18	26.2	-55.6	166.3	16	29.6	-55.8	166.4	53
23	20.5	-55.0	166.1	21	24.0	-55.2	166.3	19	27.3	-55.3	166.5	17	30.6	-55.6	166.7	15	33.8	-55.7	166.8	54
22	25.5	-55.0	166.6	20	28.8	-55.3	166.7	18	32.0	-55.5	166.9	16	35.0	-55.8	167.0	14	38.1	-55.8	167.2	55
21	30.5	-55.1	167.0	19	33.5	-55.3	167.2	17	36.5	-55.5	167.3	15	39.4	-55.7	167.4	13	42.3	-55.9	167.5	56
20	35.4	-55.2	167.4	18	38.2	-55.3	167.6	16	41.0	-55.5	167.7	14	43.7	-55.7	167.8	12	46.4	-55.8	167.9	57
19	40.2	-55.2	167.8	17	42.9	-55.4	168.0	15	45.5	-55.6	168.1	13	48.0	-55.7	168.2	11	50.6	-55.9	168.3	58
18	45.0	-55.3	168.2	16	47.5	-55.5	168.4	14	49.9	-55.6	168.5	12	52.3	-55.8	168.6	10	54.7	-56.0	168.7	59
17	49.7	-55.3	168.7	15	52.0	-55.5	168.8	13	54.3	-55.7	168.9	11	56.5	-55.8	169.0	9	58.7	-55.9	169.0	60
16	54.4	-55.4	169.1	14	56.5	-55.5	169.2	12	58.6	-55.6	169.3	11	00.7	-55.8	169.3	9	02.8	-56.0	169.4	61
15	59.0	-55.5	169.5	14	01.0	-55.6	169.6	12	03.0	-55.8	169.6	10	04.9	-55.9	169.7	8	06.8	-56.0	169.8	62
15	03.5	-55.4	169.9	13	05.4	-55.6	169.9	11	07.2	-55.7	170.0	9	09.0	-55.8	170.1	7	10.8	-56.0	170.1	63
14	08.1	-55.5	170.3	12	09.8	-55.6	170.3	10	11.5	-55.8	170.4	8	13.2	-55.9	170.4	6	14.8	-56.0	170.5	64
13	12.6	-55.6	170.6	11	14.2	-55.7	170.7	9	15.7	-55.8	170.8	7	17.3	-55.9	170.8	5	18.8	-56.0	170.9	65
12	17.0	-55.5	171.0	10	18.5	-55.7	171.1	8	19.9	-55.8	171.1	6	21.4	-56.0	171.2	4	22.8	-56.1	171.2	66
11	21.5	-55.6	171.4	9	22.8	-55.7	171.5	7	24.1	-55.8	171.5	5	25.4	-55.9	171.5	3	26.7	-56.0	171.6	67
10	25.9	-55.7	171.8	8	27.1	-55.8	171.8	6	28.3	-55.9	171.9	4	29.5	-56.0	171.9	2	30.7	-56.1	171.9	68
9	30.2	-55.6	172.2	7	31.3	-55.7	172.2	5	32.4	-55.8	172.2	3	33.5	-55.9	172.3	1	34.6	-56.0	172.3	69
8	34.6	-55.7	172.6	6	35.6	-55.8	172.6	4	36.6	-55.9	172.6	2	37.6	-56.0	172.6	<u>0</u>	<u>38.6</u>	-56.1	<u>172.6</u>	70
7	38.9	-55.7	172.9	5	39.8	-55.8	173.0	3	40.7	-55.9	173.0	1	41.6	-56.0	173.0	<u>0</u>	<u>17.5</u>	+56.1	<u>7.0</u>	71
6	43.2	-55.7	173.3	4	44.0	-55.8	173.3	2	44.8	-55.9	173.3	<u>0</u>	<u>45.6</u>	-56.0	<u>173.4</u>	1	13.6	+56.0	6.6	72
5	47.5	-55.8	173.7	3	48.2	-55.8	173.7	1	48.9	-55.9	173.7	0	10.4	+55.9	6.3	2	09.6	+56.1	6.3	73
4	51.7	-55.7	174.1	2	52.4	-55.8	174.1	<u>0</u>	<u>53.0</u>	-55.9	<u>174.1</u>	1	06.3	+56.0	5.9	3	05.7	+56.0	5.9	74
3	56.0	-55.8	174.4	1	56.6	-55.9	174.4	0	02.9	+55.9	5.6	2	02.3	+56.0	5.6	4	01.7	+56.1	5.6	75
3	00.2	-55.7	174.8	1	00.7	-55.8	174.8	0	05.8	+55.9	5.2	2	58.3	+55.9	5.2	4	57.8	+56.0	5.2	76
2	04.5	-55.8	175.2	<u>0</u>	<u>04.9</u>	-55.8	<u>175.2</u>	1	54.7	+55.8	4.8	3	54.2	+56.0	4.8	5	53.8	+56.0	4.9	77
1	08.7	-55.7	175.5	0	50.9	+55.8	4.5	2	50.5	+55.9	4.5	4	50.2	+55.9	4.5	6	49.8	+56.0	4.5	78
0	13.0	-55.8	175.9	1	46.7	+55.9	4.1	3	46.4	+55.9	4.1	5	46.1	+55.9	4.1	7	45.8	+56.0	4.1	79
0	42.8	+55.8	3.7	2	42.6	+55.8	3.7	4	42.3	+55.9	3.7	6	42.0	+56.0	3.8	8	41.8	+55.9	3.8	80
1	38.6	+55.7	3.4	3	38.4	+55.8	3.4	5	38.2	+55.8	3.4	7	38.0	+55.8	3.4	9	37.7	+56.0	3.4	81
2	34.3	+55.8	3.0	4	34.2	+55.8	3.0	6	34.0	+55.8	3.0	8	33.8	+55.9	3.0	10	33.7	+55.9	3.0	82
3	30.1	+55.7	2.6	5	30.0	+55.7	2.6	7	29.8	+55.9	2.6	9	29.7	+55.9	2.7	11	29.6	+55.9	2.7	83
4	25.8	+55.8	2.3	6	25.7	+55.8	2.3	8	25.7	+55.7	2.3	10	25.6	+55.8	2.3	12	25.5	+55.8	2.3	84
5	21.6	+55.7	1.9	7	21.5	+55.8	1.9	9	21.4	+55.8	1.9	11	21.4	+55.8	1.9	13	21.3	+55.8	1.9	85
6	17.3	+55.7	1.5	8	17.3	+55.7	1.5	10	17.2	+55.8	1.5	12	17.2	+55.7	1.5	14	17.1	+55.8	1.5	86
7	13.0	+55.7	1.1	9	13.0	+55.7	1.1	11	13.0	+55.7	1.1	13	12.9	+55.8	1.2	15	12.9	+55.7	1.2	87
8	08.7	+55.7	0.8	10	08.7	+55.7	0.8	12	08.7	+55.7	0.8	14	08.7	+55.6	0.8	16	08.6	+55.7	0.8	88
9	04.4	+55.6	0.4	11	04.4	+55.6	0.4	13	04.4	+55.6	0.4	15	04.3	+55.7	0.4	17	04.3	+55.7	0.4	89
10	00.0	+55.6	0.0	12	00.0	+55.6	0.0	14	00.0	+55.6	0.0	16	00.0	+55.6	0.0	18	00.0	+55.6	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 158°, 202°

22°, 338° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	67 45.1	-23.2	59.0	68 43.0	-18.6	63.4	69 32.4	-13.6	68.1	70 12.0	-7.9	73.3	70 41.1	-2.0	78.8
31	67 21.9	-25.3	56.5	68 24.4	-21.0	60.8	69 18.8	-16.2	65.4	70 04.1	-10.8	70.4	70 39.1	-5.0	75.7
32	66 56.6	-27.3	54.2	68 03.4	-23.3	58.2	69 02.6	-18.6	62.7	69 53.3	-13.6	67.5	70 34.1	-7.9	72.7
33	66 29.3	-29.1	52.0	67 40.1	-25.3	55.8	68 44.0	-21.1	60.0	69 39.7	-16.2	64.7	70 26.2	-10.7	69.8
34	66 00.2	-30.9	49.8	67 14.8	-27.4	53.4	68 22.9	-23.3	57.5	69 23.5	-18.7	61.9	70 15.5	-13.6	66.8
35	65 29.3	-32.6	47.7	66 47.4	-29.3	51.1	67 59.6	-25.5	55.0	69 04.8	-21.2	59.2	70 01.9	-16.3	64.0
36	64 56.7	-34.1	45.7	66 18.1	-31.0	48.9	67 34.1	-27.6	52.6	68 43.6	-23.5	56.6	69 45.6	-18.8	61.2
37	64 22.6	-35.5	43.8	65 47.1	-32.8	46.8	67 06.5	-29.4	50.3	68 20.1	-25.7	54.1	69 26.8	-21.4	58.4
38	63 47.1	-37.0	41.9	65 14.3	-34.3	44.8	66 37.1	-31.3	48.1	67 54.4	-27.7	51.7	69 05.4	-23.7	55.8
39	63 10.1	-38.1	40.2	64 40.0	-35.7	42.9	66 05.8	-33.0	45.9	67 26.7	-29.7	49.4	68 41.7	-25.9	53.3
40	62 32.0	-39.4	38.5	64 04.3	-37.1	41.0	65 32.8	-34.5	43.9	66 57.0	-31.5	47.1	68 15.8	-28.0	50.8
41	61 52.6	-40.4	36.9	63 27.2	-38.4	39.2	64 58.3	-36.0	41.9	66 25.5	-33.3	45.0	67 47.8	-30.0	48.4
42	61 12.2	-41.5	35.3	62 48.8	-39.6	37.5	64 22.3	-37.3	40.1	65 52.2	-34.8	42.9	67 17.8	-31.8	46.2
43	60 30.7	-42.4	33.8	62 09.2	-40.6	35.9	63 45.0	-38.7	38.3	65 17.4	-36.2	41.0	66 46.0	-33.5	44.0
44	59 48.3	-43.2	32.4	61 28.6	-41.7	34.4	63 06.3	-39.8	36.6	64 41.2	-37.7	39.1	66 12.5	-35.2	41.9
45	59 05.1	-44.1	31.0	60 46.9	-42.6	32.9	62 26.5	-40.9	34.9	64 03.5	-38.9	37.3	65 37.3	-36.6	39.9
46	58 21.0	-44.9	29.7	60 04.3	-43.5	31.4	61 45.6	-41.9	33.4	63 24.6	-40.1	35.5	65 00.7	-38.0	38.0
47	57 36.1	-45.6	28.5	59 20.8	-44.4	30.1	61 03.7	-42.9	31.9	62 44.5	-41.2	33.9	64 22.7	-39.3	36.2
48	56 50.5	-46.2	27.3	58 36.4	-45.0	28.8	60 20.8	-43.8	30.4	62 03.3	-42.3	32.3	63 43.4	-40.4	34.5
49	56 04.3	-46.9	26.1	57 51.4	-45.8	27.5	59 37.0	-44.5	29.1	61 21.0	-43.2	30.8	63 03.0	-41.6	32.8
50	55 17.4	-47.5	25.0	57 05.6	-46.5	26.3	58 52.5	-45.4	27.8	60 37.8	-44.0	29.4	62 21.4	-42.5	31.3
51	54 29.9	-47.9	24.0	56 19.1	-47.1	25.2	58 07.1	-46.0	26.5	59 53.8	-44.9	28.0	61 38.9	-43.6	29.8
52	53 42.0	-48.5	22.9	55 32.0	-47.6	24.0	57 21.1	-46.7	25.3	59 08.9	-45.6	26.7	60 55.3	-44.3	28.3
53	52 53.5	-49.0	21.9	54 44.4	-48.2	23.0	56 34.4	-47.3	24.2	58 23.3	-46.3	25.5	60 11.0	-45.2	27.0
54	52 04.5	-49.4	21.0	53 56.2	-48.7	22.0	55 47.1	-47.9	23.1	57 37.0	-47.0	24.3	59 25.8	-46.0	25.7
55	51 15.1	-49.8	20.1	53 07.5	-49.2	21.0	54 59.2	-48.5	22.0	56 50.0	-47.6	23.1	58 39.8	-46.6	24.4
56	50 25.3	-50.2	19.2	52 18.3	-49.6	20.0	54 10.7	-48.9	21.0	56 02.4	-48.2	22.0	57 53.2	-47.3	23.2
57	49 35.1	-50.6	18.3	51 28.7	-50.0	19.1	53 21.8	-49.4	20.0	55 14.2	-48.6	21.0	57 05.9	-47.9	22.1
58	48 44.5	-50.9	17.5	50 38.7	-50.3	18.2	52 32.4	-49.8	19.1	54 25.6	-49.2	20.0	56 18.0	-48.4	21.0
59	47 53.6	-51.2	16.7	49 48.4	-50.8	17.4	51 42.6	-50.2	18.1	53 36.4	-49.6	19.0	55 29.6	-49.0	19.9
60	47 02.4	-51.5	16.0	48 57.6	-51.1	16.6	50 52.4	-50.6	17.3	52 46.8	-50.1	18.0	54 40.6	-49.5	18.9
61	46 10.9	-51.8	15.2	48 06.5	-51.4	15.8	50 01.8	-50.9	16.4	51 56.7	-50.4	17.1	53 51.1	-49.9	17.9
62	45 19.1	-52.1	14.5	47 15.1	-51.7	15.0	49 10.9	-51.3	15.6	51 06.3	-50.9	16.3	53 01.2	-50.3	17.0
63	44 27.0	-52.3	13.8	46 23.4	-51.9	14.3	48 19.6	-51.6	14.8	50 15.4	-51.1	15.4	52 10.9	-50.7	16.1
64	43 34.7	-52.6	13.1	45 31.5	-52.3	13.6	47 28.0	-51.9	14.1	49 24.3	-51.5	14.6	51 20.2	-51.1	15.2
65	42 42.1	-52.7	12.4	44 39.2	-52.5	12.9	46 36.1	-52.2	13.3	48 32.8	-51.9	13.8	50 29.1	-51.4	14.4
66	41 49.4	-53.0	11.8	43 46.7	-52.7	12.2	45 43.9	-52.4	12.6	47 40.9	-52.1	13.1	49 37.7	-51.7	13.6
67	40 56.4	-53.2	11.2	42 54.0	-52.9	11.5	44 51.5	-52.6	11.9	46 48.8	-52.3	12.3	48 46.0	-52.1	12.8
68	40 03.2	-53.4	10.6	42 01.1	-53.1	10.9	43 58.9	-52.9	11.2	45 56.5	-52.6	11.6	47 53.9	-52.3	12.1
69	39 09.8	-53.5	10.0	41 08.0	-53.4	10.3	43 06.0	-53.1	10.6	45 03.9	-52.9	11.0	47 01.6	-52.6	11.4
70	38 16.3	-53.7	9.4	40 14.6	-53.5	9.7	42 12.9	-53.3	10.0	44 11.0	-53.1	10.3	46 09.0	-52.8	10.7
71	37 22.6	-53.9	8.8	39 21.1	-53.7	9.1	41 19.6	-53.5	9.3	43 17.9	-53.3	9.6	45 16.2	-53.1	10.0
72	36 28.7	-54.0	8.3	38 27.4	-53.8	8.5	40 26.1	-53.7	8.7	42 24.6	-53.5	9.0	44 23.1	-53.3	9.3
73	35 34.7	-54.2	7.7	37 33.6	-54.1	7.9	39 32.4	-53.9	8.2	41 31.1	-53.7	8.4	43 29.8	-53.5	8.7
74	34 40.5	-54.3	7.2	36 39.5	-54.1	7.4	38 38.5	-54.0	7.6	40 37.4	-53.8	7.8	42 36.3	-53.7	8.1
75	33 46.2	-54.4	6.7	35 45.4	-54.3	6.9	37 44.5	-54.2	7.0	39 43.6	-54.1	7.2	41 42.6	-53.9	7.5
76	32 51.8	-54.5	6.2	34 51.1	-54.4	6.3	36 50.3	-54.3	6.5	38 49.5	-54.1	6.7	40 48.7	-54.0	6.9
77	31 57.3	-54.7	5.7	33 56.7	-54.6	5.8	35 56.0	-54.4	6.0	37 55.4	-54.4	6.1	39 54.7	-54.3	6.3
78	31 02.6	-54.7	5.2	33 02.1	-54.6	5.3	35 01.6	-54.6	5.5	37 01.0	-54.4	5.6	39 00.4	-54.3	5.8
79	30 07.9	-54.9	4.7	32 07.5	-54.8	4.8	34 07.0	-54.7	5.0	36 06.6	-54.6	5.1	38 06.1	-54.5	5.2
80	29 13.0	-54.9	4.3	31 12.7	-54.9	4.4	33 12.3	-54.8	4.5	35 12.0	-54.8	4.6	37 11.6	-54.7	4.7
81	28 18.1	-55.1	3.8	30 17.8	-55.0	3.9	32 17.5	-54.9	4.0	34 17.2	-54.8	4.1	36 16.9	-54.8	4.2
82	27 23.0	-55.1	3.4	29 22.8	-55.1	3.4	31 22.6	-55.0	3.5	33 22.4	-55.0	3.6	35 22.1	-54.9	3.7
83	26 27.9	-55.2	2.9	28 27.7	-55.1	3.0	30 27.6	-55.1	3.0	32 27.4	-55.1	3.1	34 27.2	-55.0	3.2
84	25 32.7	-55.3	2.5	27 32.6	-55.3	2.5	29 32.5	-55.2	2.6	31 32.3	-55.1	2.6	33 32.2	-55.1	2.7
85	24 37.4	-55.3	2.1	26 37.3	-55.3	2.1	28 37.3	-55.3	2.1	30 37.2	-55.3	2.2	32 37.1	-55.3	2.2
86	23 42.1	-55.5	1.6	25 42.0	-55.4	1.7	27 42.0	-55.4	1.7	29 41.9	-55.3	1.7	31 41.8	-55.3	1.8
87	22 46.6	-55.4	1.2	24 46.6	-55.5	1.2	26 46.6	-55.5	1.3	28 46.6	-55.5	1.3	30 46.5	-55.4	1.3
88	21 51.2	-55.6	0.8	23 51.1	-55.5	0.8	25 51.1	-55.5	0.8	27 51.1	-55.5	0.8	29 51.1	-55.5	0.9
89	20 55.6	-55.6	0.4	22 55.6	-55.6	0.4	24 55.6	-55.6	0.4	26 55.6	-55.6	0.4	28 55.6	-55.6	0.4
90	20 00.0	-55.7	0.0	22 00.0	-55.7	0.0	24 00.0	-55.7	0.0	26 00.0	-55.7	0.0	28 00.0	-55.7	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 22°, 338°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
35	42.0	-54.2	156.5	33	51.7	-54.5	157.0	32	01.0	-54.9	157.5	30	10.0	-55.3	158.0	28	18.6	-55.7	158.4	30
34	47.8	-54.3	157.0	32	57.2	-54.7	157.5	31	06.1	-55.1	158.0	29	14.7	-55.4	158.4	27	22.9	-55.7	158.8	31
33	53.5	-54.4	157.5	32	02.5	-54.8	158.0	30	11.0	-55.1	158.4	28	19.3	-55.5	158.8	26	27.2	-55.8	159.2	32
32	59.1	-54.5	158.0	31	07.7	-54.9	158.5	29	15.9	-55.2	158.9	27	23.8	-55.5	159.3	25	31.4	-55.8	159.6	33
31	10.0	-54.8	159.0	30	12.8	-55.0	158.9	28	20.7	-55.4	159.3	26	28.3	-55.7	159.7	24	35.6	-55.9	160.0	34
30	15.2	-54.8	159.5	29	17.8	-55.1	159.4	27	25.3	-55.4	159.8	25	32.6	-55.7	160.1	23	39.7	-56.0	160.4	35
29	20.4	-54.9	159.9	28	22.7	-55.1	159.9	26	29.9	-55.4	160.2	24	36.9	-55.7	160.5	22	43.7	-56.1	160.8	36
28	25.5	-55.1	160.4	27	27.6	-55.3	160.3	25	34.5	-55.6	160.6	23	41.2	-55.9	160.9	21	47.6	-56.0	161.2	37
27	30.4	-55.1	160.8	26	32.3	-55.3	160.7	24	38.9	-55.6	161.0	22	45.3	-55.9	161.3	20	51.6	-56.2	161.6	38
26	35.3	-55.2	161.3	25	37.0	-55.4	161.2	23	43.3	-55.7	161.5	21	49.4	-55.9	161.7	19	55.4	-56.2	162.0	39
25	40.1	-55.2	161.7	24	41.6	-55.5	161.6	22	47.6	-55.7	161.9	20	53.5	-56.0	162.1	18	59.2	-56.2	162.3	40
24	44.9	-55.4	162.1	23	46.1	-55.6	162.0	21	51.9	-55.8	162.3	19	57.5	-56.0	162.5	18	03.0	-56.3	162.7	41
23	49.5	-55.4	162.6	22	50.5	-55.6	162.4	20	56.1	-55.9	162.7	19	01.5	-56.1	162.9	17	06.7	-56.3	163.1	42
22	54.1	-55.5	163.0	21	54.9	-55.6	162.8	20	00.2	-55.9	163.0	18	05.4	-56.2	163.2	16	10.4	-56.3	163.4	43
21	58.6	-55.5	163.4	20	59.3	-55.7	163.2	19	04.3	-55.9	163.4	17	09.2	-56.1	163.6	15	14.1	-56.4	163.8	44
20	03.1	-55.6	163.8	20	03.6	-55.8	163.6	18	08.4	-56.0	163.8	16	13.1	-56.2	164.0	14	17.7	-56.4	164.1	45
19	07.8	-55.8	164.2	19	07.8	-55.8	164.0	17	12.4	-56.1	164.2	15	16.9	-56.3	164.3	13	21.3	-56.5	164.5	46
18	11.8	-55.7	164.6	18	12.0	-55.9	164.4	16	16.3	-56.0	164.6	14	20.6	-56.3	164.7	12	24.8	-56.4	164.8	47
17	16.1	-55.7	165.0	17	16.1	-55.9	164.8	15	20.3	-56.2	164.9	13	24.3	-56.3	165.1	11	28.4	-56.5	165.2	48
16	20.4	-55.8	165.4	16	20.2	-56.0	165.2	14	24.1	-56.1	165.3	12	28.0	-56.3	165.4	10	31.9	-56.5	165.5	49
15	24.6	-55.8	165.8	15	24.2	-56.0	165.5	13	28.0	-56.2	165.7	11	31.7	-56.4	165.8	9	35.4	-56.6	165.9	50
14	28.8	-55.9	166.2	14	28.2	-56.0	165.9	12	31.8	-56.2	166.0	10	35.3	-56.3	166.1	8	38.8	-56.5	166.2	51
13	32.9	-55.9	166.6	13	32.2	-56.0	166.3	11	35.6	-56.2	166.4	9	39.0	-56.4	166.5	7	42.3	-56.6	166.5	52
12	37.0	-56.0	166.9	12	36.2	-56.1	166.6	10	39.4	-56.3	166.7	8	42.6	-56.5	166.8	6	45.7	-56.6	166.9	53
11	41.0	-55.9	167.3	11	40.1	-56.1	167.0	9	43.1	-56.3	167.1	7	46.1	-56.4	167.2	5	49.1	-56.6	167.2	54
10	45.1	-56.0	167.6	10	44.0	-56.2	167.4	8	46.8	-56.3	167.4	6	49.7	-56.5	167.5	4	52.5	-56.6	167.5	55
9	49.1	-56.1	168.0	9	47.8	-56.1	167.7	7	50.5	-56.3	167.8	5	53.3	-56.5	167.8	3	55.9	-56.6	167.9	56
8	53.0	-56.0	168.4	8	51.7	-56.2	168.1	6	54.2	-56.3	168.1	4	56.8	-56.5	168.2	2	59.3	-56.6	168.2	57
7	57.0	-56.1	168.7	7	55.5	-56.2	168.4	5	57.9	-56.3	168.5	4	00.7	-56.5	168.5	2	02.7	-56.6	168.5	58
6	00.9	-56.1	169.1	6	59.3	-56.2	168.8	5	01.6	-56.4	168.8	3	03.8	-56.5	168.9	1	06.1	-56.6	168.9	59
5	04.8	-56.1	169.5	5	03.1	-56.3	169.1	4	05.2	-56.4	169.2	2	07.3	-56.5	169.2	0	09.5	-56.7	169.2	60
4	08.7	-56.1	169.8	4	06.8	-56.2	169.5	3	08.8	-56.3	169.5	1	10.8	-56.5	169.5	0	12.7	-56.6	169.5	61
3	12.6	-56.1	170.2	3	10.6	-56.2	169.8	2	12.5	-56.4	169.9	0	14.3	-56.4	169.9	0	16.1	-56.4	170.2	62
2	16.5	-56.2	170.5	2	14.4	-56.3	170.2	1	16.1	-56.4	170.2	0	18.7	-56.3	170.5	0	19.7	-56.3	170.5	63
1	20.3	-56.1	170.9	1	18.1	-56.3	170.5	0	36.6	+56.4	9.1	0	38.6	+56.5	9.5	0	42.1	+56.5	9.8	64
0	24.2	-56.2	171.2	0	25.6	-56.3	171.2	0	33.0	+56.4	8.8	2	35.1	+56.5	9.1	2	40.4	+56.6	9.8	65
0	28.0	-56.1	171.6	0	30.7	+56.3	8.4	2	29.4	+56.4	8.4	3	31.6	+56.5	8.8	3	37.0	+56.6	9.5	66
0	31.9	-56.2	171.9	1	27.0	+56.2	8.1	3	25.8	+56.3	8.1	4	28.1	+56.5	8.4	4	26.8	+56.6	8.5	67
0	24.3	+56.2	7.7	2	23.2	+56.3	7.7	4	22.1	+56.4	7.7	5	24.6	+56.4	8.1	5	23.4	+56.5	8.1	68
1	20.5	+56.1	7.4	3	19.5	+56.2	7.4	5	18.5	+56.3	7.4	6	21.0	+56.5	7.8	6	19.9	+56.6	7.8	69
2	16.6	+56.2	7.0	4	15.7	+56.3	7.0	6	14.8	+56.3	7.0	7	17.5	+56.4	7.4	7	16.5	+56.5	7.5	70
3	12.8	+56.1	6.7	5	12.0	+56.2	6.7	7	11.1	+56.3	6.7	8	13.9	+56.4	7.1	8	13.0	+56.5	7.1	71
4	08.9	+56.1	6.3	6	08.2	+56.2	6.3	8	07.4	+56.3	6.4	9	10.3	+56.4	6.7	9	09.5	+56.5	6.8	72
5	05.0	+56.2	6.0	7	04.4	+56.2	6.0	9	03.7	+56.3	6.0	10	06.7	+56.4	6.4	10	06.0	+56.4	6.4	73
6	01.2	+56.1	5.6	8	00.6	+56.2	5.6	10	00.0	+56.3	5.6	11	03.1	+56.3	6.0	11	02.4	+56.4	6.1	74
6	57.3	+56.1	5.2	8	56.8	+56.1	5.3	10	56.3	+56.2	5.3	11	59.4	+56.3	5.7	13	58.8	+56.4	5.7	75
7	53.4	+56.0	4.9	9	52.9	+56.2	4.9	11	52.5	+56.2	4.9	12	55.7	+56.3	5.3	14	55.2	+56.4	5.4	76
8	49.4	+56.1	4.5	10	49.1	+56.1	4.5	12	48.7	+56.2	4.6	13	52.0	+56.3	5.0	15	51.6	+56.3	5.0	77
9	45.5	+56.0	4.2	11	45.2	+56.1	4.2	13	44.9	+56.1	4.2	14	48.3	+56.2	4.6	16	47.9	+56.3	4.7	78
10	41.5	+56.0	3.8	12	41.3	+56.0	3.8	14	41.0	+56.1	3.9	15	44.5	+56.2	4.3	17	44.2	+56.2	4.3	79
11	37.5	+56.0	3.4	13	37.3	+56.0	3.5	15	37.1	+56.1	3.5	16	40.7	+56.2	3.9	18	40.4	+56.2	3.9	80
12	33.5	+56.0	3.1	14	33.3	+56.0	3.1	16	33.2	+56.0	3.1	17	36.9	+56.1	3.5	19	36.6	+56.2	3.6	81
13	29.5	+55.9	2.7	15	29.3	+56.0	2.7	17	29.2	+56.0	2.7	18	33.0	+56.0	3.2	20	32.8	+56.1	3.2	82
14	25.4	+55.8	2.3	16	25.3	+55.9	2.3	18	25.2	+55.9	2.4	19	29.0	+56.1	2.8	21	28.9	+56.1	2.8	83
15	21.2	+55.9	1.9	17	21.2	+55.8	2.0	19	21.1	+55.9	2.0	20	25.1	+55.9	2.4	22	25.0	+56.0	2.4	84
16	17.1	+55.8	1.6	18	17.0	+55.9	1.6	20	17.0	+55.8	1.6	21	21.0	+55.9	2.0	23	21.0	+55.9	2.0	85
17	12.9	+55.7	1.2	19	12.9	+55.7	1.2	21	12.8	+55.8	1.2	22	16.9	+55.9	1.6	24	16.9	+55.9	1.6	86
18	08.6	+55.7	0.8	20	08.6	+55.7	0.8	22	08.6	+55.7	0.8	23	12.8	+55.8	1.2	25	12.8	+55.8	1.2	87
19	04.3	+55.7	0.4	21	04.3	+55.7	0.4	23	04.3	+55.7	0.4	24	08.6	+55.7	0.8	26	08.6	+55.7	0.8	88
20	00.0	+55.6	0.0	22	00.0	+55.6	0.0	24	00.0	+55.6	0.0	25	04.3	+55.7	0.4	27	04.3	+55.7	0.4	89
												26	00.0	+55.6	0.0	28	00.0	+55.6	0.0	90
20°				22°				24°				26°				28°				

LATITUDE SAME NAME

L.H.A. 158°, 202°

24°, 336° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	52 17.6	-45.1	35.2	53 54.8	-43.8	36.7	55 29.9	-42.3	38.5	57 02.6	-40.5	40.4	58 32.6	-38.6	42.5
31	51 32.5	-45.7	34.1	53 11.0	-44.4	35.6	54 47.6	-43.0	37.2	56 22.1	-41.4	39.0	57 54.0	-39.6	41.0
32	50 46.8	-46.2	33.1	52 26.6	-45.0	34.5	54 04.6	-43.6	36.0	55 40.7	-42.2	37.7	57 14.4	-40.5	39.6
33	50 00.6	-46.7	32.1	51 41.6	-45.6	33.4	53 21.0	-44.4	34.9	54 58.5	-43.0	36.5	56 33.9	-41.4	38.2
34	49 13.9	-47.1	31.1	50 56.0	-46.1	32.3	52 36.6	-44.9	33.7	54 15.5	-43.6	35.3	55 52.5	-42.1	36.9
35	48 26.8	-47.6	30.2	50 09.9	-46.6	31.3	51 51.7	-45.5	32.6	53 31.9	-44.3	34.1	55 10.4	-42.9	35.7
36	47 39.2	-48.1	29.2	49 23.3	-47.1	30.4	51 06.2	-46.1	31.6	52 47.6	-44.9	33.0	54 27.5	-43.7	34.5
37	46 51.1	-48.4	28.4	48 36.2	-47.6	29.4	50 20.1	-46.5	30.6	52 02.7	-45.4	31.9	53 43.8	-44.2	33.3
38	46 02.7	-48.8	27.5	47 48.6	-47.9	28.5	49 33.6	-47.1	29.6	51 17.3	-46.1	30.8	52 59.6	-44.9	32.2
39	45 13.9	-49.2	26.7	47 00.7	-48.4	27.6	48 46.5	-47.5	28.7	50 31.2	-46.5	29.8	52 14.7	-45.5	31.1
40	44 24.7	-49.5	25.9	46 12.3	-48.7	26.8	47 59.0	-47.9	27.7	49 44.7	-47.0	28.8	51 29.2	-46.0	30.0
41	43 35.2	-49.8	25.1	45 23.6	-49.1	25.9	47 11.1	-48.4	26.9	48 57.7	-47.5	27.9	50 43.2	-46.6	29.0
42	42 45.4	-50.0	24.3	44 34.5	-49.5	25.1	46 22.7	-48.7	26.0	48 10.2	-47.9	27.0	49 56.6	-47.0	28.0
43	41 55.4	-50.4	23.6	43 45.0	-49.7	24.3	45 34.0	-49.0	25.1	47 22.3	-48.4	26.1	49 09.6	-47.5	27.1
44	41 05.0	-50.7	22.8	42 55.3	-50.1	23.5	44 45.0	-49.5	24.3	46 33.9	-48.7	25.2	48 22.1	-47.9	26.1
45	40 14.3	-50.9	22.1	42 05.2	-50.3	22.8	43 55.5	-49.7	23.5	45 45.2	-49.0	24.3	47 34.2	-48.4	25.2
46	39 23.4	-51.1	21.4	41 14.9	-50.6	22.1	43 05.8	-50.0	22.8	44 56.2	-49.4	23.5	46 45.8	-48.7	24.4
47	38 32.3	-51.4	20.8	40 24.3	-50.9	21.4	42 15.8	-50.3	22.0	44 06.8	-49.8	22.7	45 57.1	-49.1	23.5
48	37 40.9	-51.5	20.1	39 33.4	-51.1	20.7	41 25.5	-50.6	21.3	43 17.0	-50.0	22.0	45 08.0	-49.4	22.7
49	36 49.4	-51.8	19.5	38 42.3	-51.3	20.0	40 34.9	-50.9	20.6	42 27.0	-50.3	21.2	44 18.6	-49.7	21.9
50	35 57.6	-52.0	18.8	37 51.0	-51.6	19.3	39 44.0	-51.1	19.9	41 36.7	-50.6	20.5	43 28.9	-50.1	21.1
51	35 05.6	-52.1	18.2	36 59.4	-51.7	18.7	38 52.9	-51.3	19.2	40 46.1	-50.9	19.8	42 38.8	-50.3	20.4
52	34 13.5	-52.4	17.6	36 07.7	-52.0	18.1	38 01.6	-51.5	18.5	39 55.2	-51.1	19.1	41 48.5	-50.7	19.6
53	33 21.1	-52.4	17.0	35 15.7	-52.1	17.4	37 10.1	-51.8	17.9	39 04.1	-51.3	18.4	40 57.8	-50.8	18.9
54	32 28.7	-52.7	16.5	34 23.6	-52.3	16.8	36 18.3	-51.9	17.3	38 12.8	-51.5	17.7	40 07.0	-51.2	18.2
55	31 36.0	-52.8	15.9	33 31.3	-52.4	16.3	35 26.4	-52.1	16.6	37 21.3	-51.8	17.1	39 15.8	-51.3	17.5
56	30 43.2	-52.9	15.3	32 38.9	-52.7	15.7	34 34.3	-52.3	16.0	36 29.5	-51.9	16.4	38 24.5	-51.6	16.9
57	29 50.3	-53.1	14.8	31 46.2	-52.7	15.1	33 42.0	-52.5	15.4	35 37.6	-52.2	15.8	37 32.9	-51.8	16.2
58	28 57.2	-53.2	14.3	30 53.5	-52.9	14.5	32 49.5	-52.6	14.9	34 45.4	-52.3	15.2	36 41.1	-52.0	15.6
59	28 04.0	-53.3	13.7	30 00.6	-53.1	14.0	31 56.9	-52.8	14.3	33 53.1	-52.5	14.6	35 49.1	-52.1	15.0
60	27 10.7	-53.4	13.2	29 07.5	-53.2	13.5	31 04.1	-52.9	13.7	33 00.6	-52.6	14.0	34 57.0	-52.4	14.4
61	26 17.3	-53.5	12.7	28 14.3	-53.3	12.9	30 11.2	-53.0	13.2	32 08.0	-52.8	13.5	34 04.6	-52.5	13.8
62	25 23.8	-53.6	12.2	27 21.0	-53.4	12.4	29 18.2	-53.2	12.6	31 15.2	-52.9	12.9	33 12.1	-52.6	13.2
63	24 30.2	-53.7	11.7	26 27.6	-53.5	11.9	28 25.0	-53.3	12.1	30 22.3	-53.1	12.4	32 19.5	-52.9	12.6
64	23 36.5	-53.8	11.2	25 34.1	-53.6	11.4	27 31.7	-53.4	11.6	29 29.2	-53.2	11.8	31 26.6	-52.9	12.1
65	22 42.7	-53.9	10.7	24 40.5	-53.7	10.9	26 38.3	-53.5	11.1	28 36.0	-53.3	11.3	30 33.7	-53.1	11.5
66	21 48.8	-54.0	10.3	23 46.8	-53.8	10.4	25 44.8	-53.6	10.6	27 42.7	-53.4	10.8	29 40.6	-53.3	11.0
67	20 54.8	-54.1	9.8	22 53.0	-53.9	9.9	24 51.2	-53.7	10.1	26 49.3	-53.5	10.3	28 47.3	-53.3	10.4
68	20 00.7	-54.1	9.3	21 59.1	-53.9	9.5	23 57.5	-53.8	9.6	25 55.8	-53.7	9.8	27 54.0	-53.5	9.9
69	19 06.6	-54.2	8.9	21 05.2	-54.1	9.0	23 03.7	-53.9	9.1	25 02.1	-53.7	9.3	27 00.5	-53.5	9.4
70	18 12.4	-54.2	8.4	20 11.1	-54.1	8.5	22 09.8	-54.0	8.6	24 08.4	-53.8	8.8	26 07.0	-53.7	8.9
71	17 18.2	-54.3	8.0	19 17.0	-54.2	8.1	21 15.8	-54.1	8.2	23 14.6	-54.0	8.3	25 13.3	-53.8	8.4
72	16 23.9	-54.4	7.5	18 22.8	-54.2	7.6	20 21.7	-54.1	7.7	22 20.6	-54.0	7.8	24 19.5	-53.9	7.9
73	15 29.5	-54.4	7.1	17 28.6	-54.3	7.2	19 27.6	-54.2	7.2	21 26.6	-54.0	7.3	23 25.6	-53.9	7.4
74	14 35.1	-54.5	6.7	16 34.3	-54.4	6.7	18 33.4	-54.2	6.8	20 32.6	-54.2	6.9	22 31.7	-54.0	7.0
75	13 40.6	-54.5	6.2	15 39.9	-54.4	6.3	17 39.2	-54.4	6.3	19 38.4	-54.2	6.4	21 37.7	-54.2	6.5
76	12 46.1	-54.6	5.8	14 45.5	-54.5	5.8	16 44.8	-54.3	5.9	18 44.2	-54.3	6.0	20 43.5	-54.1	6.0
77	11 51.5	-54.6	5.4	13 51.0	-54.5	5.4	15 50.5	-54.5	5.5	17 49.9	-54.3	5.5	19 49.4	-54.3	5.6
78	10 56.9	-54.6	4.9	12 56.5	-54.6	5.0	14 56.0	-54.4	5.0	16 55.6	-54.4	5.1	18 55.1	-54.3	5.1
79	10 02.3	-54.6	4.5	12 01.9	-54.5	4.6	14 01.6	-54.6	4.6	16 01.2	-54.5	4.6	18 00.8	-54.4	4.7
80	9 07.7	-54.7	4.1	11 07.4	-54.7	4.1	13 07.0	-54.5	4.2	15 06.7	-54.5	4.2	17 06.4	-54.4	4.2
81	8 13.0	-54.7	3.7	10 12.7	-54.6	3.7	12 12.5	-54.6	3.7	14 12.2	-54.5	3.8	16 12.0	-54.5	3.8
82	7 18.3	-54.8	3.3	9 18.1	-54.7	3.3	11 17.9	-54.7	3.3	13 17.7	-54.6	3.3	15 17.5	-54.6	3.4
83	6 23.5	-54.7	2.9	8 23.4	-54.7	2.9	10 23.2	-54.6	2.9	12 23.1	-54.7	2.9	14 22.9	-54.6	2.9
84	5 28.8	-54.8	2.4	7 28.7	-54.8	2.5	9 28.6	-54.7	2.5	11 28.4	-54.6	2.5	13 28.3	-54.6	2.5
85	4 34.0	-54.8	2.0	6 33.9	-54.7	2.0	8 33.9	-54.8	2.1	10 33.8	-54.7	2.1	12 33.7	-54.7	2.1
86	3 39.2	-54.8	1.6	5 39.2	-54.8	1.6	7 39.1	-54.7	1.6	9 39.1	-54.8	1.6	11 39.0	-54.7	1.7
87	2 44.4	-54.8	1.2	4 44.4	-54.8	1.2	6 44.4	-54.8	1.2	8 44.3	-54.7	1.2	10 44.3	-54.7	1.2
88	1 49.6	-54.8	0.8	3 49.6	-54.8	0.8	5 49.6	-54.8	0.8	7 49.6	-54.8	0.8	9 49.6	-54.8	0.8
89	0 54.8	-54.8	0.4	2 54.8	-54.8	0.4	4 54.8	-54.8	0.4	6 54.8	-54.8	0.4	8 54.8	-54.8	0.4
90	0 00.0	-54.8	0.0	2 00.0	-54.8	0.0	4 00.0	-54.8	0.0	6 00.0	-54.8	0.0	8 00.0	-54.8	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 24°, 336°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
52	17.6	-45.1 144.8	50	38.6	-46.3 146.3	48	58.1	-47.4 147.5	47	16.2	-48.4 148.7	45	33.0	-49.2 149.8	30
51	32.5	-45.7 145.9	49	52.3	-46.8 147.3	48	10.7	-47.8 148.5	46	27.8	-48.7 149.6	44	43.8	-49.6 150.6	31
50	46.8	-46.2 146.9	49	05.5	-47.2 148.2	47	22.9	-48.2 149.4	45	39.1	-49.2 150.4	43	54.2	-49.9 151.4	32
50	00.6	-46.7 147.9	48	18.3	-47.7 149.1	46	34.7	-48.7 150.2	44	49.9	-49.4 151.2	43	04.3	-50.2 152.2	33
49	13.9	-47.1 148.9	47	30.6	-48.2 150.1	45	46.0	-49.0 151.1	44	00.5	-49.8 152.0	42	14.1	-50.5 152.9	34
48	26.8	-47.6 149.8	46	42.4	-48.5 150.9	44	57.0	-49.3 151.9	43	10.7	-50.0 152.8	41	23.6	-50.8 153.6	35
47	39.2	-48.1 150.8	45	53.9	-48.9 151.8	44	07.7	-49.6 152.7	42	20.7	-50.4 153.6	40	32.8	-51.0 154.3	36
46	51.1	-48.4 151.6	45	05.0	-49.2 152.6	43	18.1	-50.0 153.5	41	30.3	-50.6 154.3	39	41.8	-51.2 155.0	37
46	02.7	-48.8 152.5	44	15.8	-49.6 153.4	42	28.1	-50.2 154.2	40	39.7	-50.9 155.0	38	50.6	-51.5 155.7	38
45	13.9	-49.2 153.3	43	26.2	-49.8 154.2	41	37.9	-50.6 155.0	39	48.8	-51.1 155.7	37	59.1	-51.6 156.4	39
44	24.7	-49.5 154.1	42	36.4	-50.2 155.0	40	47.3	-50.8 155.7	38	57.7	-51.4 156.4	37	07.5	-51.9 157.0	40
43	35.2	-49.8 154.9	41	46.2	-50.4 155.7	39	56.5	-51.0 156.4	38	06.3	-51.6 157.0	36	15.6	-52.1 157.6	41
42	45.4	-50.0 155.7	40	55.8	-50.7 156.4	39	05.5	-51.2 157.1	37	14.7	-51.7 157.7	35	23.5	-52.2 158.2	42
41	55.4	-50.4 156.4	40	05.1	-51.0 157.1	38	14.3	-51.5 157.7	36	23.0	-52.0 158.3	34	31.3	-52.5 158.8	43
41	05.0	-50.7 157.2	39	14.1	-51.2 157.8	37	22.8	-51.7 158.4	35	31.0	-52.2 158.9	33	38.8	-52.6 159.4	44
40	14.3	-50.9 157.9	38	22.9	-51.4 158.5	36	31.1	-51.9 159.0	34	38.8	-52.3 159.5	32	46.2	-52.7 160.0	45
39	23.4	-51.1 158.6	37	31.5	-51.6 159.1	35	39.2	-52.1 159.7	33	46.5	-52.5 160.1	31	53.5	-52.9 160.6	46
38	32.3	-51.4 159.2	36	39.9	-51.8 159.8	34	47.1	-52.2 160.3	32	54.0	-52.6 160.7	31	00.6	-53.0 161.1	47
37	40.9	-51.5 159.9	35	48.1	-52.0 160.4	33	54.9	-52.5 160.9	32	01.4	-52.9 161.3	30	07.6	-53.2 161.7	48
36	49.4	-51.8 160.5	34	56.1	-52.2 161.0	33	02.4	-52.5 161.4	31	08.5	-52.9 161.8	29	14.4	-53.3 162.2	49
35	57.6	-52.0 161.2	34	03.9	-52.4 161.6	32	09.9	-52.8 162.0	30	15.6	-53.1 162.4	28	21.1	-53.4 162.7	50
35	05.6	-52.1 161.8	33	11.5	-52.5 162.2	31	17.1	-52.9 162.6	29	22.5	-53.2 162.9	27	27.7	-53.5 163.2	51
34	13.5	-52.4 162.4	32	19.0	-52.7 162.8	30	24.2	-53.0 163.1	28	29.3	-53.3 163.4	26	34.2	-53.6 163.7	52
33	21.1	-52.4 163.0	31	26.3	-52.8 163.3	29	31.2	-53.1 163.7	27	36.0	-53.5 164.0	25	40.6	-53.7 164.2	53
32	28.7	-52.7 163.5	30	33.5	-53.0 163.9	28	38.1	-53.3 164.2	26	42.5	-53.5 164.5	24	46.9	-53.9 164.7	54
31	36.0	-52.8 164.1	29	40.5	-53.1 164.4	27	44.8	-53.4 164.7	25	49.0	-53.7 165.0	23	53.0	-53.9 165.2	55
30	43.2	-52.9 164.7	28	47.4	-53.2 165.0	26	51.4	-53.4 165.2	24	55.3	-53.7 165.5	22	59.1	-54.0 165.7	56
29	50.3	-53.1 165.2	27	54.2	-53.3 165.5	25	58.0	-53.6 165.7	24	01.6	-53.8 166.0	22	05.1	-54.0 166.2	57
28	57.2	-53.2 165.7	27	00.9	-53.5 166.0	25	04.4	-53.7 166.2	23	07.8	-54.0 166.4	21	11.1	-54.2 166.6	58
28	04.0	-53.3 166.3	26	07.4	-53.5 166.5	24	10.7	-53.8 166.7	22	13.8	-54.0 166.9	20	16.9	-54.2 167.1	59
27	10.7	-53.4 166.8	25	13.9	-53.7 167.0	23	16.9	-53.9 167.2	21	19.8	-54.1 167.4	19	22.7	-54.3 167.6	60
26	17.3	-53.5 167.3	24	20.2	-53.7 167.5	22	23.0	-53.9 167.7	20	25.7	-54.1 167.9	18	28.4	-54.4 168.0	61
25	23.8	-53.6 167.8	23	26.5	-53.9 168.0	21	29.1	-54.1 168.2	19	31.6	-54.2 168.3	17	34.0	-54.4 168.4	62
24	30.2	-53.7 168.3	22	32.6	-53.9 168.5	20	35.0	-54.1 168.6	18	37.4	-54.3 168.8	16	39.6	-54.4 168.9	63
23	36.5	-53.8 168.8	21	38.7	-54.0 168.9	19	40.9	-54.2 169.1	17	43.1	-54.4 169.2	15	45.2	-54.6 169.3	64
22	42.7	-53.9 169.3	20	44.7	-54.0 169.4	18	46.7	-54.2 169.5	16	48.7	-54.4 169.7	14	50.6	-54.5 169.8	65
21	48.8	-54.0 169.7	19	50.7	-54.2 169.9	17	52.5	-54.3 170.0	15	54.3	-54.5 170.1	13	56.1	-54.6 170.2	66
20	54.8	-54.1 170.2	18	56.5	-54.2 170.3	16	58.2	-54.4 170.4	14	59.8	-54.5 170.5	13	01.5	-54.7 170.6	67
20	00.7	-54.1 170.7	18	02.3	-54.3 170.8	16	03.8	-54.4 170.9	14	05.3	-54.5 171.0	12	06.8	-54.7 171.0	68
19	06.6	-54.2 171.1	17	08.0	-54.3 171.2	15	09.4	-54.4 171.3	13	10.8	-54.6 171.4	11	12.1	-54.7 171.5	69
18	12.4	-54.2 171.6	16	13.7	-54.4 171.7	14	15.0	-54.6 171.7	12	16.2	-54.7 171.8	10	17.4	-54.8 171.9	70
17	18.2	-54.3 172.0	15	19.3	-54.4 172.1	13	20.4	-54.5 172.2	11	21.5	-54.6 172.2	9	22.6	-54.7 172.3	71
16	23.9	-54.4 172.5	14	24.9	-54.5 172.5	12	25.9	-54.6 172.6	10	26.9	-54.7 172.7	8	27.9	-54.9 172.7	72
15	29.5	-54.4 172.9	13	30.4	-54.5 173.0	11	31.3	-54.6 173.0	9	32.2	-54.8 173.1	7	33.0	-54.8 173.1	73
14	35.1	-54.5 173.3	12	35.9	-54.6 173.4	10	36.7	-54.7 173.5	8	37.4	-54.7 173.5	6	38.2	-54.8 173.5	74
13	40.6	-54.5 173.8	11	41.3	-54.6 173.8	9	42.0	-54.7 173.9	7	42.7	-54.8 173.9	5	43.4	-54.9 173.9	75
12	46.1	-54.6 174.2	10	46.7	-54.6 174.3	8	47.3	-54.7 174.3	6	47.9	-54.8 174.3	4	48.5	-54.9 174.3	76
11	51.5	-54.6 174.6	9	52.1	-54.7 174.7	7	52.6	-54.8 174.7	5	53.1	-54.8 174.7	3	53.6	-54.9 174.7	77
10	56.9	-54.6 175.1	8	57.4	-54.7 175.1	6	57.8	-54.7 175.1	4	58.3	-54.9 175.1	2	58.7	-54.9 175.1	78
10	02.3	-54.6 175.5	8	02.7	-54.7 175.5	6	03.1	-54.8 175.5	4	03.4	-54.8 175.5	2	03.8	-54.9 175.5	79
9	07.7	-54.7 175.9	7	08.0	-54.8 175.9	5	08.3	-54.8 175.9	3	08.6	-54.9 175.9	1	08.9	-54.9 175.9	80
8	13.0	-54.7 176.3	6	13.2	-54.7 176.3	4	13.5	-54.8 176.3	2	13.7	-54.9 176.3	0	14.0	-55.0 176.4	81
7	18.3	-54.8 176.7	5	18.5	-54.8 176.7	3	18.7	-54.9 176.7	1	18.8	-54.8 176.8	0	41.0	+54.9 3.2	82
6	23.5	-54.7 177.1	4	23.7	-54.8 177.2	2	23.8	-54.8 177.2	0	24.0	-54.9 177.2	0	35.9	+54.9 2.8	83
5	28.8	-54.8 177.6	3	28.9	-54.8 177.6	1	29.0	-54.8 177.6	0	30.9	+54.9 2.4	2	30.8	+54.9 2.4	84
4	34.0	-54.8 178.0	2	34.1	-54.8 178.0	0	34.2	-54.9 178.0	1	25.8	+54.8 2.0	3	25.7	+54.9 2.0	85
3	39.2	-54.8 178.4	1	39.3	-54.8 178.4	0	20.7	+54.8 1.6	2	20.6	+54.9 1.6	4	20.6	+54.9 1.6	86
2	44.4	-54.8 178.8	0	44.5	-54.9 178.8	1	15.5	+54.9 1.2	3	15.5	+54.8 1.2	5	15.5	+54.8 1.2	87
1	49.6	-54.8 179.2	0	10.4	+54.8 0.8	2	10.4	+54.8 0.8	4	10.3	+54.9 0.8	6	10.3	+54.9 0.8	88
0	54.8	-54.8 179.6	1	05.2	+54.8 0.4	3	05.2	+54.8 0.4	5	05.2	+54.8 0.4	7	05.2	+54.8 0.4	89
0	00.0	+54.8 0.0	2	00.0	+54.8 0.0	4	00.0	+54.8 0.0	6	00.0	+54.8 0.0	8	00.0	+54.8 0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 156°, 204°

24°, 336° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	59 59.5	-36.5	44.8	61 22.8	-34.0	47.3	62 42.0	-31.3	50.2	63 56.3	-28.2	53.3	65 05.2	-24.7	56.7
31	59 23.0	-37.5	43.2	60 48.8	-35.3	45.6	62 10.7	-32.8	48.3	63 28.1	-29.8	51.3	64 40.5	-26.5	54.6
32	58 45.5	-38.7	41.7	60 13.5	-36.5	44.0	61 37.9	-34.0	46.6	62 58.3	-31.3	49.4	64 14.0	-28.3	52.5
33	58 06.8	-39.6	40.2	59 37.0	-37.6	42.4	61 03.9	-35.4	44.8	62 27.0	-32.8	47.5	63 45.7	-29.8	50.5
34	57 27.2	-40.5	38.8	58 59.4	-38.6	40.9	60 28.5	-36.5	43.2	61 54.2	-34.1	45.7	63 15.9	-31.4	48.6
35	56 46.7	-41.3	37.5	58 20.8	-39.6	39.4	59 52.0	-37.6	41.6	61 20.1	-35.4	44.0	62 44.5	-32.8	46.7
36	56 05.4	-42.2	36.1	57 41.2	-40.6	38.0	59 14.4	-38.7	40.0	60 44.7	-36.5	42.3	62 11.7	-34.2	44.9
37	55 23.2	-42.9	34.9	57 00.6	-41.4	36.6	58 35.7	-39.6	38.6	60 08.2	-37.7	40.7	61 37.5	-35.5	43.1
38	54 40.3	-43.6	33.7	56 19.2	-42.1	35.3	57 56.1	-40.6	37.1	59 30.5	-38.8	39.2	61 02.0	-36.7	41.4
39	53 56.7	-44.3	32.5	55 37.1	-43.0	34.0	57 15.5	-41.5	35.8	58 51.7	-39.8	37.7	60 25.3	-37.8	39.8
40	53 12.4	-44.9	31.3	54 54.1	-43.7	32.8	56 34.0	-42.2	34.4	58 11.9	-40.6	36.2	59 47.5	-38.9	38.3
41	52 27.5	-45.5	30.2	54 10.4	-44.3	31.6	55 51.8	-43.1	33.2	57 31.3	-41.6	34.9	59 08.6	-39.9	36.8
42	51 42.0	-46.1	29.2	53 26.1	-45.0	30.5	55 08.7	-43.7	31.9	56 49.7	-42.4	33.5	58 28.7	-40.8	35.3
43	50 55.9	-46.5	28.2	52 41.1	-45.5	29.4	54 25.0	-44.4	30.7	56 07.3	-43.1	32.3	57 47.9	-41.7	33.9
44	50 09.4	-47.1	27.2	51 55.6	-46.1	28.3	53 40.6	-45.1	29.6	55 24.2	-43.9	31.0	57 06.2	-42.5	32.6
45	49 22.3	-47.5	26.2	51 09.5	-46.7	27.3	52 55.5	-45.6	28.5	54 40.3	-44.5	29.8	56 23.7	-43.3	31.3
46	48 34.8	-48.0	25.3	50 22.8	-47.1	26.3	52 09.9	-46.2	27.4	53 55.8	-45.2	28.7	55 40.4	-44.0	30.1
47	47 46.8	-48.4	24.4	49 35.7	-47.6	25.3	51 23.7	-46.8	26.4	53 10.6	-45.8	27.6	54 56.4	-44.7	28.9
48	46 58.4	-48.7	23.5	48 48.1	-48.0	24.4	50 36.9	-47.2	25.4	52 24.8	-46.3	26.5	54 11.7	-45.4	27.7
49	46 09.7	-49.2	22.7	48 00.1	-48.5	23.5	49 49.7	-47.7	24.4	51 38.5	-46.8	25.5	53 26.3	-45.9	26.6
50	45 20.5	-49.4	21.8	47 11.6	-48.8	22.6	49 02.0	-48.1	23.5	50 51.7	-47.4	24.5	52 40.4	-46.5	25.5
51	44 31.1	-49.8	21.0	46 22.8	-49.2	21.8	48 13.9	-48.5	22.6	50 04.3	-47.8	23.5	51 53.9	-47.0	24.5
52	43 41.3	-50.1	20.3	45 33.6	-49.6	21.0	47 25.4	-49.0	21.7	49 16.5	-48.2	22.6	51 06.9	-47.4	23.5
53	42 51.2	-50.4	19.5	44 44.0	-49.8	20.2	46 36.4	-49.3	20.9	48 28.3	-48.7	21.7	50 19.5	-48.0	22.5
54	42 00.8	-50.7	18.8	43 54.2	-50.2	19.4	45 47.1	-49.6	20.0	47 39.6	-49.0	20.8	49 31.5	-48.4	21.6
55	41 10.1	-50.9	18.1	43 04.0	-50.5	18.6	44 57.5	-50.0	19.2	46 50.6	-49.4	19.9	48 43.1	-48.8	20.7
56	40 19.2	-51.2	17.4	42 13.5	-50.7	17.9	44 07.5	-50.2	18.5	46 01.2	-49.8	19.1	47 54.3	-49.2	19.8
57	39 28.0	-51.4	16.7	41 22.8	-51.0	17.2	43 17.3	-50.6	17.7	45 11.4	-50.1	18.3	47 05.1	-49.6	19.0
58	38 36.6	-51.6	16.0	40 31.8	-51.2	16.5	42 26.7	-50.8	17.0	44 21.3	-50.4	17.5	46 15.5	-49.9	18.2
59	37 45.0	-51.9	15.4	39 40.6	-51.5	15.8	41 35.9	-51.1	16.3	43 30.9	-50.6	16.8	45 25.6	-50.2	17.4
60	36 53.1	-52.0	14.7	38 49.1	-51.7	15.1	40 44.8	-51.3	15.6	42 40.3	-51.0	16.1	44 35.4	-50.5	16.6
61	36 01.1	-52.2	14.1	37 57.4	-51.9	14.5	39 53.5	-51.6	14.9	41 49.3	-51.2	15.3	43 44.9	-50.8	15.8
62	35 08.9	-52.4	13.5	37 05.5	-52.1	13.9	39 01.9	-51.8	14.2	40 58.1	-51.4	14.6	42 54.1	-51.1	15.1
63	34 16.5	-52.6	12.9	36 13.4	-52.3	13.2	38 10.1	-52.0	13.6	40 06.7	-51.7	14.0	42 03.0	-51.3	14.4
64	33 23.9	-52.7	12.3	35 21.1	-52.5	12.6	37 18.1	-52.2	13.0	39 15.0	-51.9	13.3	41 11.7	-51.6	13.7
65	32 31.2	-52.9	11.8	34 28.6	-52.6	12.0	36 25.9	-52.4	12.3	38 23.1	-52.1	12.7	40 20.1	-51.8	13.0
66	31 38.3	-53.0	11.2	33 36.0	-52.8	11.5	35 33.5	-52.5	11.7	37 31.0	-52.3	12.0	39 28.3	-52.1	12.4
67	30 45.3	-53.1	10.7	32 43.2	-52.9	10.9	34 41.0	-52.7	11.1	36 38.7	-52.5	11.4	38 36.2	-52.2	11.7
68	29 52.2	-53.3	10.1	31 50.3	-53.1	10.3	33 48.3	-52.9	10.6	35 46.2	-52.7	10.8	37 44.0	-52.4	11.1
69	28 58.9	-53.4	9.6	30 57.2	-53.2	9.8	32 55.4	-53.0	10.0	34 53.5	-52.8	10.2	36 51.6	-52.6	10.5
70	28 05.5	-53.5	9.1	30 04.0	-53.4	9.2	32 02.4	-53.2	9.4	34 00.7	-53.0	9.7	35 59.0	-52.8	9.9
71	27 12.0	-53.7	8.6	29 10.6	-53.5	8.7	31 09.2	-53.3	8.9	33 07.7	-53.1	9.1	35 06.2	-53.0	9.3
72	26 18.3	-53.7	8.1	28 17.1	-53.5	8.2	30 15.9	-53.4	8.4	32 14.6	-53.3	8.5	34 13.2	-53.1	8.7
73	25 24.6	-53.8	7.6	27 23.6	-53.7	7.7	29 22.5	-53.6	7.8	31 21.3	-53.4	8.0	33 20.1	-53.2	8.2
74	24 30.8	-53.9	7.1	26 29.9	-53.8	7.2	28 28.9	-53.7	7.3	30 27.9	-53.5	7.5	32 26.9	-53.4	7.6
75	23 36.9	-54.0	6.6	25 36.1	-53.9	6.7	27 35.2	-53.7	6.8	29 34.4	-53.7	7.0	31 33.5	-53.6	7.1
76	22 42.9	-54.1	6.1	24 42.2	-54.0	6.2	26 41.5	-53.9	6.3	28 40.7	-53.8	6.4	30 39.9	-53.6	6.6
77	21 48.8	-54.2	5.7	23 48.2	-54.1	5.7	25 47.6	-54.0	5.8	27 46.9	-53.8	5.9	29 46.3	-53.8	6.1
78	20 54.6	-54.2	5.2	22 54.1	-54.1	5.3	24 53.6	-54.1	5.3	26 53.1	-54.0	5.4	28 52.5	-53.9	5.5
79	20 00.4	-54.3	4.7	22 00.0	-54.3	4.8	23 59.5	-54.1	4.9	25 59.1	-54.1	5.0	27 58.6	-54.0	5.0
80	19 06.1	-54.4	4.3	21 05.7	-54.3	4.3	23 05.4	-54.3	4.4	25 05.0	-54.2	4.5	27 04.6	-54.0	4.5
81	18 11.7	-54.4	3.8	20 11.4	-54.4	3.9	22 11.1	-54.3	3.9	24 10.8	-54.2	4.0	26 10.6	-54.2	4.1
82	17 17.3	-54.5	3.4	19 17.0	-54.4	3.4	21 16.8	-54.4	3.5	23 16.6	-54.3	3.5	25 16.4	-54.3	3.6
83	16 22.8	-54.6	3.0	18 22.6	-54.5	3.0	20 22.4	-54.4	3.0	22 22.3	-54.4	3.1	24 22.1	-54.4	3.1
84	15 28.2	-54.6	2.5	17 28.1	-54.6	2.6	19 28.0	-54.5	2.6	21 27.9	-54.5	2.6	23 27.7	-54.4	2.7
85	14 33.6	-54.6	2.1	16 33.5	-54.6	2.1	18 33.5	-54.6	2.1	20 33.4	-54.6	2.2	22 33.3	-54.5	2.2
86	13 39.0	-54.7	1.7	15 38.9	-54.6	1.7	17 38.9	-54.7	1.7	19 38.8	-54.6	1.7	21 38.8	-54.6	1.7
87	12 44.3	-54.7	1.3	14 44.3	-54.8	1.3	16 44.2	-54.7	1.3	18 44.2	-54.7	1.3	20 44.2	-54.7	1.3
88	11 49.6	-54.8	0.8	13 49.5	-54.7	0.8	15 49.5	-54.7	0.8	17 49.5	-54.7	0.9	19 49.5	-54.7	0.9
89	10 54.8	-54.8	0.4	12 54.8	-54.8	0.4	14 54.8	-54.8	0.4	16 54.8	-54.8	0.4	18 54.8	-54.8	0.4
90	10 00.0	-54.8	0.0	12 00.0	-54.8	0.0	14 00.0	-54.8	0.0	16 00.0	-54.8	0.0	18 00.0	-54.8	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 24°, 336°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
43	48.8	-50.1	150.8	42	03.6	-50.8	151.7	40	17.6	-51.5	152.5	38	30.8	-52.1	153.2	36	43.3	-52.7	153.9	30
42	58.7	-50.3	151.5	41	12.8	-51.0	152.4	39	26.1	-51.7	153.2	37	38.7	-52.3	153.9	35	50.6	-52.8	154.5	31
42	08.4	-50.6	152.3	40	21.8	-51.3	153.1	38	34.4	-51.9	153.8	36	46.4	-52.4	154.5	34	57.8	-52.9	155.1	32
41	17.8	-50.9	153.0	39	30.5	-51.5	153.8	37	42.5	-52.1	154.5	35	54.0	-52.7	155.1	34	04.9	-53.2	155.7	33
40	26.9	-51.2	153.7	38	39.0	-51.8	154.4	36	50.4	-52.3	155.1	35	01.3	-52.8	155.7	33	11.7	-53.3	156.2	34
39	35.7	-51.3	154.4	37	47.2	-51.9	155.1	35	58.1	-52.4	155.7	34	08.5	-52.9	156.3	32	18.4	-53.4	156.8	35
38	44.4	-51.6	155.0	36	55.3	-52.2	155.7	35	05.7	-52.7	156.3	33	15.6	-53.2	156.8	31	25.0	-53.5	157.3	36
37	52.8	-51.8	155.7	36	03.1	-52.3	156.3	34	13.0	-52.8	156.9	32	22.4	-53.2	157.4	30	31.5	-53.7	157.8	37
37	01.0	-52.0	156.3	35	10.8	-52.5	156.9	33	20.2	-53.0	157.4	31	29.2	-53.4	157.9	29	37.8	-53.8	158.4	38
36	09.0	-52.2	157.0	34	18.3	-52.7	157.5	32	27.2	-53.1	158.0	30	35.8	-53.5	158.5	28	44.0	-53.9	158.9	39
35	16.8	-52.4	157.6	33	25.6	-52.8	158.1	31	34.1	-53.2	158.5	29	42.3	-53.7	159.0	27	50.1	-54.0	159.4	40
34	24.4	-52.5	158.2	32	32.8	-52.9	158.6	30	40.9	-53.4	159.1	28	48.6	-53.7	159.5	26	56.1	-54.1	159.9	41
33	31.9	-52.7	158.7	31	39.9	-53.2	159.2	29	47.5	-53.5	159.6	27	54.9	-53.9	160.0	26	02.0	-54.2	160.3	42
32	39.2	-52.9	159.3	30	46.7	-53.2	159.7	28	54.0	-53.6	160.1	27	01.0	-53.9	160.5	25	07.8	-54.3	160.8	43
31	46.3	-53.0	159.9	29	53.5	-53.4	160.3	28	00.4	-53.7	160.6	26	07.1	-54.1	161.0	24	13.5	-54.4	161.3	44
30	53.3	-53.1	160.4	29	00.1	-53.5	160.8	27	06.7	-53.9	161.1	25	13.0	-54.1	161.5	23	19.1	-54.4	161.7	45
30	00.2	-53.3	161.0	28	06.6	-53.6	161.3	26	12.8	-53.9	161.6	24	18.9	-54.3	161.9	22	24.7	-54.5	162.2	46
29	06.9	-53.3	161.5	27	13.0	-53.7	161.8	25	18.9	-54.0	162.1	23	24.6	-54.3	162.4	21	30.2	-54.7	162.7	47
28	13.6	-53.5	162.0	26	19.3	-53.8	162.3	24	24.9	-54.1	162.6	22	30.3	-54.4	162.9	20	35.5	-54.6	163.1	48
27	20.1	-53.7	162.5	25	25.5	-53.9	162.8	23	30.8	-54.2	163.1	21	35.9	-54.5	163.3	19	40.9	-54.8	163.5	49
26	26.4	-53.7	163.0	24	31.6	-54.0	163.3	22	36.6	-54.3	163.5	20	41.4	-54.5	163.8	18	46.1	-54.9	164.0	50
25	32.7	-53.8	163.5	23	37.6	-54.1	163.8	21	42.3	-54.4	164.0	19	46.9	-54.6	164.2	17	51.4	-54.9	164.4	51
24	38.9	-53.9	164.0	22	43.5	-54.2	164.2	20	47.9	-54.4	164.5	18	52.3	-54.7	164.7	16	56.5	-54.9	164.8	52
23	45.0	-54.0	164.5	21	49.3	-54.2	164.7	19	53.5	-54.5	164.9	17	57.6	-54.7	165.1	16	01.6	-54.9	165.2	53
22	51.0	-54.1	165.0	20	55.1	-54.3	165.2	18	59.0	-54.5	165.4	17	02.9	-54.8	165.5	15	06.7	-55.0	165.7	54
21	56.9	-54.1	165.4	20	00.8	-54.4	165.6	18	04.5	-54.6	165.8	16	08.1	-54.8	165.9	14	11.7	-55.1	166.1	55
21	02.8	-54.2	165.9	19	06.4	-54.5	166.1	17	09.9	-54.7	166.2	15	13.3	-54.9	166.4	13	16.6	-55.1	166.5	56
20	08.6	-54.3	166.4	18	11.9	-54.5	166.5	16	15.2	-54.7	166.7	14	18.4	-54.9	166.8	12	21.5	-55.1	166.9	57
19	14.3	-54.4	166.8	17	17.4	-54.6	167.0	15	20.5	-54.8	167.1	13	23.5	-55.0	167.2	11	26.4	-55.1	167.3	58
18	19.9	-54.4	167.3	16	22.8	-54.6	167.4	14	25.7	-54.8	167.5	12	28.5	-55.0	167.6	10	31.3	-55.2	167.7	59
17	25.5	-54.5	167.7	15	28.2	-54.7	167.8	13	30.9	-54.9	167.9	11	33.5	-55.0	168.0	9	36.1	-55.2	168.1	60
16	31.0	-54.6	168.1	14	33.5	-54.7	168.2	12	36.0	-54.9	168.3	10	38.5	-55.1	168.4	8	40.9	-55.2	168.5	61
15	36.4	-54.5	168.6	13	38.8	-54.8	168.7	11	41.1	-54.9	168.8	9	43.4	-55.1	168.8	7	45.7	-55.3	168.9	62
14	41.9	-54.7	169.0	12	44.0	-54.8	169.1	10	46.2	-55.0	169.2	8	48.5	-55.1	169.2	6	50.4	-55.2	169.3	63
13	47.2	-54.7	169.4	11	49.2	-54.8	169.5	9	51.2	-54.9	169.6	7	53.2	-55.1	169.6	5	55.2	-55.3	169.7	64
12	52.5	-54.7	169.8	10	54.4	-54.9	169.9	8	56.3	-55.1	170.0	6	58.1	-55.1	170.0	4	59.9	-55.3	170.1	65
11	57.8	-54.7	170.3	9	59.5	-54.9	170.3	8	01.2	-55.0	170.4	6	02.9	-55.2	170.4	4	04.6	-55.3	170.5	66
11	03.1	-54.8	170.7	9	04.6	-54.9	170.7	7	06.2	-55.1	170.8	5	07.7	-55.2	170.8	3	09.3	-55.3	170.8	67
10	08.3	-54.9	171.1	8	09.7	-54.9	171.1	6	11.1	-55.0	171.2	4	12.5	-55.2	171.2	2	14.0	-55.4	171.2	68
9	13.4	-54.8	171.5	7	14.8	-55.0	171.6	5	16.1	-55.1	171.6	3	17.3	-55.2	171.6	1	18.6	-55.3	171.6	69
8	18.6	-54.9	171.9	6	19.8	-55.0	172.0	4	21.0	-55.1	172.0	2	22.1	-55.2	172.0	0	23.3	-55.3	172.0	70
7	23.7	-54.9	172.3	5	24.8	-55.0	172.4	3	25.9	-55.2	172.4	1	26.9	-55.2	172.4	0	32.0	+55.4	172.0	71
6	28.8	-54.9	172.7	4	29.8	-55.0	172.8	2	30.7	-55.1	172.8	0	31.7	-55.2	172.8	0	31.7	-55.2	172.8	72
5	33.9	-54.9	173.1	3	34.8	-55.1	173.2	1	35.6	-55.1	173.2	0	35.6	-55.1	173.2	0	35.6	-55.1	173.2	73
4	39.0	-55.0	173.5	2	39.7	-55.0	173.6	0	40.5	-55.1	173.6	0	40.5	-55.1	173.6	0	40.5	-55.1	173.6	74
3	44.0	-54.9	173.9	1	44.7	-55.1	174.0	0	44.6	+55.2	174.0	0	44.6	+55.2	174.0	0	44.6	+55.2	174.0	75
2	49.1	-55.0	174.3	0	49.6	-55.0	174.4	0	49.6	-55.0	174.4	0	49.6	-55.0	174.4	0	49.6	-55.0	174.4	76
1	54.1	-55.0	174.7	0	05.4	+55.0	174.4	0	05.4	+55.0	174.4	0	05.4	+55.0	174.4	0	05.4	+55.0	174.4	77
0	59.1	-55.0	175.1	0	10.4	+55.1	174.9	0	10.4	+55.1	174.9	0	10.4	+55.1	174.9	0	10.4	+55.1	174.9	78
0	04.1	-54.9	175.5	1	55.5	+55.0	175.5	1	55.5	+55.1	175.5	1	55.5	+55.1	175.5	1	55.5	+55.1	175.5	79
0	50.8	+55.0	4.1	2	50.5	+55.1	4.1	4	50.2	+55.1	4.1	6	49.9	+55.2	4.1	8	49.6	+55.2	4.1	80
1	45.8	+55.0	3.6	3	45.6	+55.0	3.7	5	45.3	+55.1	3.7	7	45.1	+55.1	3.7	9	44.8	+55.2	3.7	81
2	40.8	+54.9	3.2	4	40.6	+55.0	3.3	6	40.4	+55.0	3.3	8	40.2	+55.1	3.3	10	40.0	+55.1	3.3	82
3	35.7	+55.0	2.8	5	35.6	+55.0	2.9	7	35.4	+55.1	2.9	9	35.3	+55.0	2.9	11	35.1	+55.1	2.9	83
4	30.7	+54.9	2.4	6	30.6	+54.9	2.5	8	30.5	+55.0	2.5	10	30.3	+55.1	2.5	12	30.2	+55.1	2.5	84
5	25.6	+54.9	2.0	7	25.5	+55.0	2.0	9	25.5	+54.9	2.1	11	25.4	+55.0	2.1	13	25.3	+55.0	2.1	85
6	20.5	+54.9	1.6	8	20.5	+54.9	1.6	10	20.4	+55.0	1.7	12	20.4	+55.0	1.7	14	20.3	+55.0	1.7	86
7	15.4	+54.9	1.2	9	15.4	+54.9	1.2	11	15.4	+54.9	1.2	13	15.4	+54.9	1.3	15	15.3	+55.0	1.3	87
8	10.3	+54.9	0.8	10	10.3	+54.9	0.8	12	10.3	+54.9	0.8	14	10.3	+54.9	0.8	16	10.3	+54.9	0.8	88
9	05.2	+54.8	0.4	11	05.2	+54.8	0.4	13	05.2	+54.8	0.4	15	05.2	+54.8	0.4	17	05.2	+54.8	0.4	89
10	00.0	+54.8	0.0	12	00.0	+54.8	0.0	14	00.0	+54.8	0.0	16	00.0	+54.8	0.0	18	00.0	+54.8	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 156°, 204°

24°, 336° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	66 07.7	-20.8	• 60.5	67 03.0	-16.4	• 64.6	67 50.3	-11.6	• 69.0	68 28.6	-6.4	• 73.8	68 57.1	-0.8	• 78.8
31	65 46.9	-22.8	58.2	66 46.6	-18.6	• 62.2	67 38.7	-14.0	• 66.4	68 22.2	-8.9	• 71.1	68 56.3	-3.5	• 76.0
32	65 24.1	-24.7	56.0	66 28.0	-20.8	• 59.8	67 24.7	-16.4	• 63.9	68 13.3	-11.5	• 68.4	68 52.8	-6.2	• 73.2
33	64 59.4	-26.5	53.8	66 07.2	-22.8	• 57.4	67 08.3	-18.6	• 61.4	68 01.8	-14.0	• 65.8	68 46.6	-8.9	• 70.4
34	64 32.9	-28.3	51.7	65 44.4	-24.8	55.2	66 49.7	-20.8	• 59.0	67 47.8	-16.4	• 63.2	68 37.7	-11.5	• 67.7
35	64 04.6	-30.0	49.7	65 19.6	-26.6	53.0	66 28.9	-22.9	• 56.6	67 31.4	-18.7	• 60.6	68 26.2	-14.0	• 65.0
36	63 34.6	-31.4	47.7	64 53.0	-28.4	50.8	66 06.0	-24.9	54.3	67 12.7	-20.9	• 58.2	68 12.2	-16.4	• 62.4
37	63 03.2	-33.0	45.8	64 24.6	-30.1	48.8	65 41.1	-26.8	52.1	66 51.8	-23.0	• 55.8	67 55.8	-18.8	• 59.8
38	62 30.2	-34.3	44.0	63 54.5	-31.6	46.8	65 14.3	-28.6	49.9	66 28.8	-25.1	• 53.4	67 37.0	-21.1	• 57.3
39	61 55.9	-35.7	42.2	63 22.9	-33.1	44.9	64 45.7	-30.2	47.8	66 03.7	-27.0	51.2	67 15.9	-23.2	• 54.9
40	61 20.2	-36.8	40.5	62 49.8	-34.5	43.0	64 15.5	-31.9	45.8	65 36.7	-28.8	49.0	66 52.7	-25.3	• 52.5
41	60 43.4	-38.0	38.9	62 15.3	-35.9	41.3	63 43.6	-33.3	43.9	65 07.9	-30.5	46.9	66 27.4	-27.2	50.2
42	60 05.4	-39.1	37.3	61 39.4	-37.0	39.5	63 10.3	-34.7	42.0	64 37.4	-32.1	44.9	66 00.2	-29.1	48.0
43	59 26.3	-40.0	35.8	61 02.4	-38.2	37.9	62 35.6	-36.1	40.3	64 05.3	-33.6	42.9	65 31.1	-30.7	45.9
44	58 46.3	-41.0	34.4	60 24.2	-39.3	36.3	61 59.5	-37.3	38.5	63 31.7	-35.0	41.0	65 00.4	-32.5	43.8
45	58 05.3	-41.9	33.0	59 44.9	-40.3	34.8	61 22.2	-38.4	36.9	62 56.7	-36.3	39.2	64 27.9	-33.9	41.9
46	57 23.4	-42.7	31.6	59 04.6	-41.2	33.4	60 43.8	-39.6	35.3	62 20.4	-37.6	37.5	63 54.0	-35.3	40.0
47	56 40.7	-43.5	30.3	58 23.4	-42.1	32.0	60 04.2	-40.5	33.8	61 42.8	-38.8	35.8	63 18.7	-36.7	38.1
48	55 57.2	-44.2	29.1	57 41.3	-42.9	30.6	59 23.7	-41.5	32.3	61 04.0	-39.8	34.2	62 42.0	-37.9	36.4
49	55 13.0	-44.8	27.9	56 58.4	-43.7	29.3	58 42.2	-42.3	30.9	60 24.2	-40.8	32.7	62 04.1	-39.1	34.7
50	54 28.2	-45.5	26.7	56 14.7	-44.4	28.1	57 59.9	-43.2	29.6	59 43.4	-41.8	31.2	61 25.0	-40.2	33.1
51	53 42.7	-46.1	25.6	55 30.3	-45.1	26.9	57 16.7	-44.0	28.3	59 01.6	-42.7	29.8	60 44.8	-41.2	31.6
52	52 56.6	-46.7	24.6	54 45.2	-45.7	25.7	56 32.7	-44.7	27.0	58 18.9	-43.4	28.5	60 03.6	-42.1	30.1
53	52 09.9	-47.2	23.5	53 59.5	-46.4	24.6	55 48.0	-45.3	25.8	57 35.5	-44.3	27.2	59 21.5	-43.0	28.7
54	51 22.7	-47.7	22.5	53 13.1	-46.8	23.5	55 02.7	-46.0	24.7	56 51.2	-45.0	25.9	58 38.5	-43.8	27.3
55	50 35.0	-48.1	21.6	52 26.3	-47.4	22.5	54 16.7	-46.5	23.6	56 06.2	-45.6	24.7	57 54.7	-44.6	26.0
56	49 46.9	-48.6	20.6	51 38.9	-47.9	21.5	53 30.2	-47.2	22.5	55 20.6	-46.3	23.6	57 10.1	-45.3	24.8
57	48 58.3	-49.0	19.7	50 51.0	-48.4	20.5	52 43.0	-47.6	21.5	54 34.3	-46.8	22.5	56 24.8	-46.0	23.6
58	48 09.3	-49.3	18.9	50 02.6	-48.7	19.6	51 55.4	-48.1	20.5	53 47.5	-47.4	21.4	55 38.8	-46.6	22.5
59	47 20.0	-49.8	18.0	49 13.9	-49.2	18.7	51 07.3	-48.6	19.5	53 00.1	-47.9	20.4	54 52.2	-47.1	21.3
60	46 30.2	-50.0	17.2	48 24.7	-49.6	17.8	50 18.7	-49.0	18.6	52 12.2	-48.4	19.4	54 05.1	-47.7	20.3
61	45 40.2	-50.4	16.4	47 35.1	-49.9	17.0	49 29.7	-49.4	17.7	51 23.8	-48.9	18.4	53 17.4	-48.3	19.3
62	44 49.8	-50.7	15.6	46 45.2	-50.3	16.2	48 40.3	-49.8	16.8	50 34.9	-49.2	17.5	52 29.1	-48.7	18.3
63	43 59.1	-51.0	14.9	45 54.9	-50.5	15.4	47 50.5	-50.2	16.0	49 45.7	-49.7	16.6	51 40.4	-49.1	17.3
64	43 08.1	-51.2	14.1	45 04.4	-50.9	14.6	47 00.3	-50.4	15.2	48 56.0	-50.0	15.7	50 51.3	-49.5	16.4
65	42 16.9	-51.5	13.4	44 13.5	-51.2	13.9	46 09.9	-50.8	14.4	48 06.0	-50.4	14.9	50 01.8	-50.0	15.5
66	41 25.4	-51.8	12.7	43 22.3	-51.4	13.2	45 19.1	-51.1	13.6	47 15.6	-50.7	14.1	49 11.8	-50.3	14.7
67	40 33.6	-51.9	12.1	42 30.9	-51.7	12.5	44 28.0	-51.4	12.9	46 24.9	-51.0	13.3	48 21.5	-50.6	13.8
68	39 41.7	-52.2	11.4	41 39.2	-51.9	11.8	43 36.6	-51.6	12.1	45 33.9	-51.4	12.6	47 30.9	-51.0	13.0
69	38 49.5	-52.4	10.8	40 47.3	-52.1	11.1	42 45.0	-51.9	11.4	44 42.5	-51.5	11.8	46 39.9	-51.3	12.3
70	37 57.1	-52.6	10.2	39 55.2	-52.4	10.5	41 53.1	-52.1	10.8	43 51.0	-51.9	11.1	45 48.6	-51.5	11.5
71	37 04.5	-52.7	9.6	39 02.8	-52.6	9.8	41 01.0	-52.3	10.1	42 59.1	-52.1	10.4	44 57.1	-51.9	10.8
72	36 11.8	-52.9	9.0	38 10.3	-52.8	9.2	40 08.7	-52.5	9.5	42 07.0	-52.3	9.8	44 05.2	-52.1	10.1
73	35 18.9	-53.1	8.4	37 17.5	-52.9	8.6	39 16.2	-52.8	8.8	41 14.7	-52.5	9.1	43 13.1	-52.3	9.4
74	34 25.8	-53.3	7.8	36 24.6	-53.1	8.0	38 23.4	-52.9	8.2	40 22.2	-52.8	8.5	42 20.8	-52.5	8.7
75	33 32.5	-53.4	7.3	35 31.5	-53.2	7.4	37 30.5	-53.1	7.6	39 29.4	-52.9	7.8	41 28.3	-52.8	8.1
76	32 39.1	-53.5	6.7	34 38.3	-53.4	6.9	36 37.4	-53.3	7.0	38 36.5	-53.1	7.2	40 35.5	-53.0	7.4
77	31 45.6	-53.7	6.2	33 44.9	-53.6	6.3	35 44.1	-53.4	6.5	37 43.4	-53.3	6.6	39 42.5	-53.1	6.8
78	30 51.9	-53.7	5.7	32 51.3	-53.6	5.8	34 50.7	-53.5	5.9	36 50.1	-53.5	6.1	38 49.4	-53.4	6.2
79	29 58.2	-53.9	5.1	31 57.7	-53.8	5.2	33 57.2	-53.8	5.4	35 56.6	-53.6	5.5	37 56.0	-53.5	5.6
80	29 04.3	-54.1	4.6	31 03.9	-54.0	4.7	33 03.4	-53.8	4.8	35 03.0	-53.8	4.9	37 02.5	-53.6	5.1
81	28 10.2	-54.1	4.1	30 09.9	-54.0	4.2	32 09.6	-54.0	4.3	34 09.2	-53.8	4.4	36 08.9	-53.8	4.5
82	27 16.1	-54.2	3.7	29 15.9	-54.2	3.7	31 15.6	-54.1	3.8	33 15.4	-54.1	3.9	35 15.1	-54.0	4.0
83	26 21.9	-54.3	3.2	28 21.7	-54.2	3.2	30 21.5	-54.2	3.3	32 21.3	-54.1	3.4	34 21.1	-54.1	3.4
84	25 27.6	-54.4	2.7	27 27.5	-54.4	2.7	29 27.3	-54.3	2.8	31 27.2	-54.3	2.9	33 27.0	-54.2	2.9
85	24 33.2	-54.5	2.2	26 33.1	-54.5	2.3	28 33.0	-54.4	2.3	30 32.9	-54.4	2.4	32 32.8	-54.3	2.4
86	23 38.7	-54.6	1.8	25 38.6	-54.5	1.8	27 38.6	-54.5	1.8	29 38.5	-54.5	1.9	31 38.5	-54.5	1.9
87	22 44.1	-54.6	1.3	24 44.1	-54.6	1.3	26 44.1	-54.6	1.4	28 44.0	-54.6	1.4	30 44.0	-54.6	1.4
88	21 49.5	-54.7	0.9	23 49.5	-54.7	0.9	25 49.5	-54.7	0.9	27 49.4	-54.6	0.9	29 49.4	-54.6	0.9
89	20 54.8	-54.8	0.4	22 54.8	-54.8	0.4	24 54.8	-54.8	0.4	26 54.8	-54.8	0.5	28 54.8	-54.8	0.5
90	20 00.0	-54.8	0.0	22 00.0	-54.8	0.0	24 00.0	-54.9	0.0	26 00.0	-54.9	0.0	28 00.0	-54.9	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 24°, 336°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
34	55.2	-53.2	154.6	33	06.6	-53.7	155.1	31	17.5	-54.1	155.7	29	27.9	-54.5	156.1	27	38.0	-54.9	156.6	30
34	02.0	-53.3	155.1	32	12.9	-53.7	155.7	30	23.4	-54.2	156.2	28	33.4	-54.6	156.6	26	43.1	-55.0	157.0	31
33	08.7	-53.4	155.7	31	19.2	-53.9	156.2	29	29.2	-54.3	156.7	27	38.8	-54.7	157.1	25	48.1	-55.0	157.5	32
32	15.3	-53.6	156.2	30	25.3	-54.1	156.7	28	34.9	-54.5	157.1	26	44.1	-54.8	157.5	24	53.1	-55.2	157.9	33
31	21.7	-53.7	156.7	29	31.2	-54.1	157.2	27	40.4	-54.5	157.6	25	49.3	-54.8	158.0	23	57.9	-55.2	158.3	34
30	28.0	-53.9	157.3	28	37.1	-54.2	157.7	26	45.9	-54.6	158.1	24	54.5	-55.0	158.4	22	64.5	-55.3	158.8	35
29	34.1	-53.9	157.8	27	42.9	-54.4	158.2	25	51.3	-54.7	158.6	23	59.5	-55.0	158.9	22	07.4	-55.3	159.2	36
28	40.2	-54.1	158.3	26	48.5	-54.4	158.7	24	56.6	-54.7	159.0	22	64.5	-55.1	159.3	21	12.1	-55.4	159.6	37
27	46.1	-54.2	158.8	25	54.1	-54.5	159.1	24	01.9	-54.9	159.5	22	09.4	-55.2	159.8	20	16.7	-55.4	160.0	38
26	51.9	-54.2	159.2	24	59.6	-54.6	159.6	23	07.0	-54.9	159.9	21	14.2	-55.2	160.2	19	21.3	-55.6	160.4	39
25	57.7	-54.4	159.7	24	05.0	-54.7	160.0	22	12.1	-55.0	160.3	20	19.0	-55.0	160.6	18	25.7	-55.5	160.8	40
25	03.3	-54.4	160.2	23	10.3	-54.7	160.5	21	17.1	-55.0	160.8	19	23.7	-55.3	161.0	17	30.2	-55.6	161.2	41
24	08.9	-54.5	160.7	22	15.6	-54.9	160.9	20	22.1	-55.2	161.2	18	28.4	-55.4	161.4	16	34.6	-55.7	161.6	42
23	14.4	-54.6	161.1	21	20.7	-54.9	161.4	19	26.9	-55.1	161.6	17	33.0	-55.4	161.8	15	38.9	-55.7	162.0	43
22	19.8	-54.7	161.6	20	25.8	-54.9	161.8	18	31.8	-55.3	162.0	16	37.6	-55.5	162.2	14	43.2	-55.7	162.4	44
21	25.1	-54.8	162.0	19	30.9	-55.0	162.2	17	36.5	-55.2	162.4	15	42.1	-55.5	162.6	13	47.5	-55.8	162.8	45
20	30.3	-54.8	162.4	18	35.9	-55.1	162.7	16	41.3	-55.4	162.8	14	46.6	-55.6	163.0	12	51.7	-55.8	163.2	46
19	35.5	-54.8	162.9	17	40.8	-55.1	163.1	15	45.9	-55.3	163.2	13	51.0	-55.6	163.4	11	55.9	-55.8	163.5	47
18	40.7	-55.0	163.3	16	45.7	-55.2	163.5	14	50.6	-55.4	163.6	12	55.4	-55.7	163.8	11	00.1	-55.8	163.9	48
17	45.7	-54.9	163.7	15	50.5	-55.2	163.9	13	55.2	-55.5	164.0	11	59.7	-55.6	164.2	10	04.3	-55.9	164.3	49
16	50.8	-55.1	164.1	14	55.3	-55.3	164.3	12	59.7	-55.5	164.4	11	04.1	-55.7	164.5	9	08.4	-55.9	164.6	50
15	55.7	-55.1	164.6	14	00.0	-55.3	164.7	12	04.2	-55.5	164.8	10	08.4	-55.7	164.9	8	12.5	-55.9	165.0	51
15	00.6	-55.1	165.0	13	04.7	-55.3	165.1	11	08.7	-55.5	165.2	9	12.7	-55.8	165.3	7	16.6	-56.0	165.4	52
14	05.5	-55.1	165.4	12	09.4	-55.4	165.5	10	13.2	-55.6	165.6	8	16.9	-55.7	165.7	6	20.6	-55.9	165.7	53
13	10.4	-55.2	165.8	11	14.0	-55.4	165.9	9	17.6	-55.6	166.0	7	21.2	-55.8	166.1	5	24.7	-56.0	166.1	54
12	15.2	-55.3	166.2	10	18.6	-55.4	166.3	8	22.0	-55.6	166.4	6	25.4	-55.8	166.4	4	27.5	-56.0	166.5	55
11	19.9	-55.3	166.6	9	23.2	-55.5	166.7	7	26.4	-55.7	166.7	5	29.6	-55.8	166.8	3	32.7	-56.0	166.8	56
10	24.6	-55.3	167.0	8	27.7	-55.5	167.1	6	30.7	-55.6	167.1	4	33.8	-55.9	167.2	2	36.7	-55.9	167.2	57
9	29.3	-55.3	167.4	7	32.2	-55.5	167.4	5	35.1	-55.7	167.5	3	37.9	-55.8	167.5	1	40.8	-56.0	167.5	58
8	34.0	-55.3	167.8	6	36.7	-55.5	167.8	4	39.4	-55.7	167.9	2	42.1	-55.8	167.9	0	44.8	-56.0	167.9	59
7	38.7	-55.4	168.2	5	41.2	-55.5	168.2	3	43.7	-55.6	168.2	1	46.3	-55.6	168.3	0	49.4	-55.9	168.3	60
6	43.3	-55.4	168.5	4	45.7	-55.6	168.6	2	48.1	-55.7	168.6	0	50.4	-55.8	168.6	0	52.7	-55.8	168.6	61
5	47.9	-55.4	168.9	3	50.1	-55.5	169.0	1	52.4	-55.7	169.0	0	54.7	-55.7	169.0	0	57.0	-55.7	169.0	62
4	52.5	-55.4	169.3	2	54.6	-55.6	169.3	0	56.7	-55.7	169.3	0	59.0	-55.7	169.3	0	61.3	-55.7	169.3	63
3	57.1	-55.4	169.7	1	59.0	-55.5	169.7	0	61.0	-55.8	169.7	0	63.3	-55.8	169.7	0	65.6	-55.8	169.7	64
3	01.7	-55.5	170.1	1	03.5	-55.6	170.1	0	54.8	+55.7	9.9	0	05.4	+55.9	11.0	0	11.2	+56.0	11.7	65
2	06.2	-55.4	170.5	0	07.9	-55.6	170.5	0	50.5	+55.7	9.5	0	05.4	+55.9	11.0	0	07.2	+56.0	11.4	66
1	10.8	-55.4	170.9	0	11.8	-55.5	171.2	0	47.7	+55.5	9.1	0	05.4	+55.9	11.0	0	05.4	+55.9	11.0	67
0	15.4	-55.5	171.2	1	16.2	-55.4	171.5	0	44.6	+55.8	9.2	0	05.4	+55.9	11.0	0	05.4	+55.9	11.0	68
0	40.1	+55.4	8.4	1	43.2	+55.6	8.8	3	41.8	+55.7	8.8	5	40.4	+55.8	8.8	7	39.0	+55.9	8.8	69
1	35.5	+55.5	8.0	2	38.8	+55.6	8.4	4	37.5	+55.7	8.4	6	36.2	+55.8	8.4	8	34.9	+55.9	8.5	70
2	31.0	+55.4	7.6	3	34.4	+55.5	8.0	5	33.2	+55.6	8.0	7	32.0	+55.8	8.1	9	30.8	+55.9	8.1	71
3	26.4	+55.4	7.2	4	29.9	+55.5	7.6	6	28.8	+55.7	7.7	8	27.8	+55.7	7.7	10	26.7	+55.8	7.7	72
4	21.8	+55.4	6.8	5	25.4	+55.6	7.3	7	24.5	+55.6	7.3	9	23.5	+55.7	7.3	11	22.5	+55.8	7.4	73
5	17.2	+55.4	6.5	6	21.0	+55.5	6.9	8	20.1	+55.6	6.9	10	19.2	+55.7	6.9	12	18.3	+55.8	7.0	74
6	12.6	+55.4	6.1	7	16.5	+55.5	6.5	9	15.7	+55.6	6.5	11	14.9	+55.7	6.6	13	14.1	+55.8	6.6	75
7	08.0	+55.4	5.7	8	12.0	+55.4	6.1	10	11.3	+55.5	6.1	12	10.6	+55.6	6.2	14	09.9	+55.7	6.2	76
8	03.4	+55.3	5.3	9	07.4	+55.5	5.7	11	06.8	+55.5	5.8	13	06.2	+55.6	5.8	15	05.6	+55.7	5.8	77
8	58.7	+55.3	4.9	10	02.9	+55.4	5.3	12	02.3	+55.5	5.4	14	01.8	+55.6	5.4	16	01.3	+55.6	5.5	78
9	54.0	+55.3	4.5	10	58.3	+55.3	4.9	12	57.8	+55.5	5.0	14	57.4	+55.5	5.0	16	56.9	+55.6	5.1	79
10	49.3	+55.3	4.1	11	53.6	+55.4	4.5	13	53.3	+55.4	4.6	15	52.9	+55.5	4.6	17	52.5	+55.5	4.7	80
11	44.6	+55.2	3.7	12	49.0	+55.3	4.2	14	48.7	+55.3	4.2	16	48.4	+55.4	4.2	18	48.0	+55.5	4.3	81
12	39.8	+55.2	3.3	13	44.3	+55.3	3.8	15	44.0	+55.4	3.8	17	43.8	+55.4	3.8	19	43.5	+55.4	3.9	82
13	35.0	+55.1	2.9	14	39.6	+55.2	3.4	16	39.4	+55.3	3.4	18	39.2	+55.3	3.4	20	38.9	+55.4	3.5	83
14	30.1	+55.1	2.5	15	34.8	+55.2	2.9	17	34.7	+55.2	3.0	19	34.5	+55.3	3.0	21	34.3	+55.3	3.1	84
15	25.2	+55.1	2.1	16	30.0	+55.1	2.5	18	29.9	+55.2	2.6	20	29.8	+55.2	2.6	22	29.6	+55.3	2.6	85
16	20.3	+55.0	1.7	17	25.1	+55.1	2.1	19	25.1	+55.1	2.2	21	25.0	+55.1	2.2	23	24.9	+55.2	2.2	86
17	15.3	+55.0	1.3	18	20.2	+55.1	1.7	20	20.2	+55.0	1.7	22	20.1	+55.1	1.8	24	20.1	+55.1	1.8	87
18	10.3	+54.9	0.9	19	15.3	+54.9	1.3	21	15.2	+55.0	1.3	23	15.2	+55.0	1.3	25	15.2	+55.0	1.3	88
19	05.2	+54.8	0.4	20	10.2	+55.0	0.9	22	10.2	+54.9	0.9	24	10.2	+54.9	0.9	26	10.2	+54.9	0.9	89
20	00.0	+54.8	0.0	21	05.2	+54.8	0.4	23	05.1	+54.9	0.4	25	05.1	+54.9	0.4	27	05.1	+54.9	0.5	90
20	00.0	+54.8	0.0	22	00.0	+54.8	0.0	24	00.0	+54.8	0.0	26	00.0	+54.8	0.0	28	00.0	+54.8	0.0	90

LATITUDE SAME NAME

L.H.A. 156°, 204°

26°, 334° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	51 06.7	-43.2	37.2	52 41.3	-41.8	38.8	54 13.7	-40.2	40.5	55 43.7	-38.4	42.4	57 10.9	-36.5	44.5
31	50 23.5	-43.9	36.1	51 59.5	-42.5	37.6	53 33.5	-41.0	39.2	55 05.3	-39.3	41.0	56 34.4	-37.4	43.0
32	49 39.6	-44.4	35.1	51 17.0	-43.1	36.5	52 52.5	-41.7	38.0	54 26.0	-40.1	39.7	55 57.0	-38.3	41.6
33	48 55.2	-45.0	34.0	50 33.9	-43.8	35.4	52 10.8	-42.4	36.8	53 45.9	-40.9	38.5	55 18.7	-39.3	40.2
34	48 10.2	-45.4	33.0	49 50.1	-44.3	34.3	51 28.4	-43.0	35.7	53 05.0	-41.7	37.2	54 39.4	-40.0	38.9
35	47 24.8	-46.0	32.0	49 05.8	-44.8	33.3	50 45.4	-43.7	34.6	52 23.3	-42.3	36.0	53 59.4	-40.9	37.6
36	46 38.8	-46.4	31.1	48 21.0	-45.4	32.3	50 01.7	-44.2	33.5	51 41.0	-43.0	34.9	53 18.5	-41.6	36.4
37	45 52.4	-46.8	30.2	47 35.6	-45.9	31.3	49 17.5	-44.8	32.5	50 58.0	-43.6	33.8	52 36.9	-42.3	35.2
38	45 05.6	-47.2	29.3	46 49.7	-46.3	30.3	48 32.7	-45.3	31.5	50 14.4	-44.2	32.7	51 54.6	-42.9	34.1
39	44 18.4	-47.6	28.4	46 03.4	-46.7	29.4	47 47.4	-45.8	30.5	49 30.2	-44.7	31.6	51 11.7	-43.6	32.9
40	43 30.8	-48.0	27.6	45 16.7	-47.2	28.5	47 01.6	-46.2	29.5	48 45.5	-45.3	30.6	50 28.1	-44.2	31.8
41	42 42.8	-48.3	26.8	44 29.5	-47.5	27.6	46 15.4	-46.7	28.6	48 00.2	-45.7	29.6	49 43.9	-44.7	30.8
42	41 54.5	-48.7	26.0	43 42.0	-47.9	26.8	45 28.7	-47.1	27.7	47 14.5	-46.3	28.7	48 59.2	-45.2	29.8
43	41 05.8	-48.9	25.2	42 54.1	-48.3	26.0	44 41.6	-47.5	26.8	46 28.2	-46.6	27.7	48 14.0	-45.8	28.8
44	40 16.9	-49.3	24.4	42 05.8	-48.6	25.1	43 54.1	-47.9	26.0	45 41.6	-47.1	26.8	47 28.2	-46.2	27.8
45	39 27.6	-49.5	23.7	41 17.2	-48.9	24.4	43 06.2	-48.2	25.1	44 54.5	-47.5	26.0	46 42.0	-46.7	26.9
46	38 38.1	-49.8	22.9	40 28.3	-49.2	23.6	42 18.0	-48.6	24.3	44 07.0	-47.8	25.1	45 55.3	-47.1	26.0
47	37 48.3	-50.0	22.2	39 39.1	-49.4	22.8	41 29.4	-48.8	23.5	43 19.2	-48.2	24.3	45 08.2	-47.5	25.1
48	36 58.3	-50.3	21.5	38 49.7	-49.8	22.1	40 40.6	-49.2	22.8	42 31.0	-48.6	23.5	44 20.7	-47.8	24.2
49	36 08.0	-50.5	20.9	37 59.9	-50.0	21.4	39 51.4	-49.4	22.0	41 42.4	-48.8	22.7	43 32.9	-48.3	23.4
50	35 17.5	-50.7	20.2	37 09.9	-50.2	20.7	39 02.0	-49.8	21.3	40 53.6	-49.2	21.9	42 44.6	-48.5	22.6
51	34 26.8	-51.0	19.5	36 19.7	-50.5	20.0	38 12.2	-49.9	20.6	40 04.4	-49.5	21.1	41 56.1	-48.9	21.8
52	33 35.8	-51.1	18.9	35 29.2	-50.7	19.4	37 22.3	-50.3	19.9	39 14.9	-49.7	20.4	41 07.2	-49.2	21.0
53	32 44.7	-51.3	18.3	34 38.5	-50.9	18.7	36 32.0	-50.4	19.2	38 25.2	-50.0	19.7	40 18.0	-49.5	20.2
54	31 53.4	-51.4	17.7	33 47.6	-51.0	18.1	35 41.6	-50.7	18.5	37 35.2	-50.2	19.0	39 28.5	-49.7	19.5
55	31 02.0	-51.7	17.1	32 56.6	-51.3	17.4	34 50.9	-50.8	17.8	36 45.0	-50.4	18.3	38 38.8	-50.0	18.8
56	30 10.3	-51.8	16.5	32 05.3	-51.4	16.8	34 00.1	-51.1	17.2	35 54.6	-50.7	17.6	37 48.8	-50.3	18.1
57	29 18.5	-51.9	15.9	31 13.9	-51.7	16.2	33 09.0	-51.3	16.6	35 03.9	-50.9	17.0	36 58.5	-50.4	17.4
58	28 26.6	-52.1	15.3	30 22.2	-51.7	15.6	32 17.7	-51.4	16.0	34 13.0	-51.1	16.3	36 08.1	-50.8	16.7
59	27 34.5	-52.2	14.8	29 30.5	-51.9	15.0	31 26.3	-51.6	15.3	33 21.9	-51.2	15.7	35 17.3	-50.9	16.1
60	26 42.3	-52.3	14.2	28 38.6	-52.1	14.5	30 34.7	-51.8	14.7	32 30.7	-51.5	15.1	34 26.4	-51.1	15.4
61	25 50.0	-52.5	13.7	27 46.5	-52.2	13.9	29 42.9	-51.9	14.2	31 39.2	-51.6	14.5	33 35.3	-51.3	14.8
62	24 57.5	-52.6	13.1	26 54.3	-52.3	13.3	28 51.0	-52.0	13.6	30 47.6	-51.8	13.9	32 44.0	-51.5	14.2
63	24 04.9	-52.7	12.6	26 02.0	-52.5	12.8	27 59.0	-52.2	13.0	29 55.8	-51.9	13.3	31 52.5	-51.6	13.6
64	23 12.2	-52.7	12.1	25 09.5	-52.5	12.3	27 06.8	-52.4	12.5	29 03.9	-52.1	12.7	31 00.9	-51.8	13.0
65	22 19.5	-52.9	11.6	24 17.0	-52.7	11.7	26 14.4	-52.4	11.9	28 11.8	-52.2	12.1	30 09.1	-52.0	12.4
66	21 26.6	-53.0	11.0	23 24.3	-52.8	11.2	25 22.0	-52.6	11.4	27 19.6	-52.3	11.6	29 17.1	-52.1	11.8
67	20 33.6	-53.1	10.5	22 31.5	-52.8	10.7	24 29.4	-52.6	10.8	26 27.3	-52.5	11.0	28 25.0	-52.3	11.2
68	19 40.5	-53.1	10.0	21 38.7	-53.0	10.2	23 36.8	-52.8	10.3	25 34.8	-52.6	10.5	27 32.7	-52.3	10.7
69	18 47.4	-53.2	9.6	20 45.7	-53.0	9.7	22 44.0	-52.9	9.8	24 42.2	-52.7	10.0	26 40.4	-52.5	10.1
70	17 54.2	-53.3	9.1	19 52.7	-53.2	9.2	21 51.1	-53.0	9.3	23 49.5	-52.8	9.4	25 47.9	-52.7	9.6
71	17 00.9	-53.4	8.6	18 59.5	-53.2	8.7	20 58.1	-53.0	8.8	22 56.7	-52.9	8.9	24 55.2	-52.7	9.1
72	16 07.5	-53.4	8.1	18 06.3	-53.3	8.2	20 05.1	-53.2	8.3	22 03.8	-53.0	8.4	24 02.5	-52.8	8.5
73	15 14.1	-53.5	7.6	17 13.0	-53.3	7.7	19 11.9	-53.2	7.8	21 10.8	-53.1	7.9	23 09.7	-53.0	8.0
74	14 20.6	-53.5	7.2	16 19.7	-53.4	7.2	18 18.7	-53.3	7.3	20 17.7	-53.1	7.4	22 16.7	-53.0	7.5
75	13 27.1	-53.6	6.7	15 26.3	-53.5	6.8	17 25.4	-53.3	6.8	19 24.6	-53.3	6.9	21 23.7	-53.1	7.0
76	12 33.5	-53.6	6.2	14 32.8	-53.5	6.3	16 32.1	-53.5	6.4	18 31.3	-53.3	6.4	20 30.6	-53.2	6.5
77	11 39.9	-53.7	5.8	13 39.3	-53.6	5.8	15 38.6	-53.4	5.9	17 38.0	-53.4	5.9	19 37.4	-53.3	6.0
78	10 46.2	-53.7	5.3	12 45.7	-53.6	5.4	14 45.2	-53.6	5.4	16 44.6	-53.4	5.5	18 44.1	-53.4	5.5
79	9 52.5	-53.8	4.9	11 52.1	-53.7	4.9	13 51.6	-53.6	4.9	15 51.2	-53.5	5.0	17 50.7	-53.4	5.0
80	8 58.7	-53.7	4.4	10 58.4	-53.7	4.4	12 58.0	-53.6	4.5	14 57.7	-53.6	4.5	16 57.3	-53.5	4.6
81	8 05.0	-53.8	4.0	10 04.7	-53.8	4.0	12 04.4	-53.7	4.0	14 04.1	-53.6	4.1	16 03.8	-53.6	4.1
82	7 11.2	-53.9	3.5	9 10.9	-53.8	3.5	11 10.7	-53.7	3.6	13 10.5	-53.7	3.6	15 10.2	-53.6	3.6
83	6 17.3	-53.8	3.1	8 17.1	-53.8	3.1	10 17.0	-53.8	3.1	12 16.8	-53.7	3.1	14 16.6	-53.7	3.2
84	5 23.5	-53.9	2.6	7 23.3	-53.8	2.6	9 23.2	-53.8	2.7	11 23.1	-53.8	2.7	13 22.9	-53.7	2.7
85	4 29.6	-53.9	2.2	6 29.5	-53.9	2.2	8 29.4	-53.8	2.2	10 29.3	-53.8	2.2	12 29.2	-53.8	2.2
86	3 35.7	-53.9	1.8	5 35.6	-53.9	1.8	7 35.6	-53.9	1.8	9 35.5	-53.8	1.8	11 35.4	-53.8	1.8
87	2 41.8	-53.9	1.3	4 41.7	-53.9	1.3	6 41.7	-53.9	1.3	8 41.7	-53.9	1.3	10 41.6	-53.8	1.3
88	1 47.9	-54.0	0.9	3 47.8	-53.9	0.9	5 47.8	-53.9	0.9	7 47.8	-53.9	0.9	9 47.8	-53.9	0.9
89	0 53.9	-53.9	0.4	2 53.9	-53.9	0.4	4 53.9	-53.9	0.4	6 53.9	-53.9	0.4	8 53.9	-53.9	0.4
90	0 00.0	-53.9	0.0	2 00.0	-53.9	0.0	4 00.0	-53.9	0.0	6 00.0	-53.9	0.0	8 00.0	-53.9	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 26°, 334°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
51	06.7	-43.2	142.8	49	30.3	-44.6	144.2	47	52.1	-45.7	145.5	46	12.4	-46.8	146.7	44	31.5	-47.8	147.8	30
50	23.5	-43.9	143.9	48	45.7	-45.1	145.2	47	06.4	-46.3	146.5	45	25.6	-47.2	147.6	43	43.7	-48.1	148.7	31
49	39.6	-44.4	144.9	48	00.6	-45.6	146.2	46	20.1	-46.6	147.4	44	38.4	-47.6	148.5	42	55.6	-48.5	149.5	32
48	55.2	-45.0	146.0	47	15.0	-46.0	147.2	45	33.5	-47.1	148.3	43	50.8	-48.0	149.4	42	07.1	-48.8	150.3	33
48	10.2	-45.4	147.0	46	29.0	-46.6	148.1	44	46.4	-47.4	149.2	43	02.8	-48.3	150.2	41	18.3	-49.2	151.1	34
47	24.8	-46.0	148.0	45	42.4	-46.9	149.1	43	59.0	-47.9	150.1	42	14.5	-48.6	151.0	40	29.1	-49.4	151.8	35
46	38.8	-46.4	148.9	44	55.5	-47.3	149.9	43	11.1	-48.1	150.9	41	25.9	-49.0	151.8	39	39.7	-49.7	152.6	36
45	52.4	-46.8	149.8	44	08.2	-47.7	150.8	42	23.0	-48.6	151.7	40	36.9	-49.3	152.5	38	50.0	-49.9	153.3	37
45	05.6	-47.2	150.7	43	20.5	-48.1	151.6	41	34.4	-48.8	152.5	39	47.6	-49.5	153.3	38	00.1	-50.2	154.0	38
44	18.4	-47.6	151.6	42	32.4	-48.4	152.5	40	45.6	-49.1	153.3	38	58.1	-49.8	154.0	37	09.9	-50.4	154.7	39
43	30.8	-48.0	152.4	41	44.0	-48.7	153.3	39	56.5	-49.5	154.0	38	08.3	-50.1	154.7	36	19.5	-50.7	155.4	40
42	42.8	-48.3	153.2	40	55.3	-49.1	154.0	39	07.0	-49.6	154.8	37	18.2	-50.3	155.4	35	28.8	-50.9	156.0	41
41	54.5	-48.7	154.0	40	06.2	-49.3	154.8	38	17.4	-50.0	155.5	36	27.9	-50.5	156.1	34	37.9	-51.0	156.7	42
41	05.8	-48.9	154.8	39	16.9	-49.6	155.5	37	27.4	-50.2	156.2	35	37.4	-50.8	156.8	33	46.9	-51.3	157.3	43
40	16.9	-49.3	155.6	38	27.3	-49.9	156.3	36	37.2	-50.4	156.9	34	46.6	-50.9	157.4	32	55.6	-51.4	157.9	44
39	27.6	-49.5	156.3	37	37.4	-50.1	157.0	35	46.8	-50.7	157.5	33	55.7	-51.2	158.1	32	04.2	-51.6	158.5	45
38	38.1	-49.8	157.1	36	47.3	-50.3	157.7	34	56.1	-50.8	158.2	33	04.5	-51.3	158.7	31	12.6	-51.8	159.1	46
37	48.3	-50.0	157.8	35	57.0	-50.6	158.3	34	05.3	-51.1	158.8	32	13.2	-51.5	159.3	30	20.8	-52.0	159.7	47
36	58.3	-50.3	158.5	35	06.4	-50.7	159.0	33	14.2	-51.2	159.5	31	21.7	-51.7	159.9	29	28.8	-52.0	160.3	48
36	08.0	-50.5	159.1	34	15.7	-51.0	159.6	32	23.0	-51.4	160.1	30	30.0	-51.8	160.5	28	36.8	-52.3	160.9	49
35	17.5	-50.7	159.8	33	24.7	-51.2	160.3	31	31.6	-51.6	160.7	29	38.2	-52.0	161.1	27	44.5	-52.3	161.4	50
34	26.8	-51.0	160.5	32	33.5	-51.3	160.9	30	40.0	-51.8	161.3	28	46.2	-52.1	161.7	26	52.2	-52.5	162.0	51
33	35.8	-51.1	161.1	31	42.2	-51.5	161.5	29	48.2	-51.9	161.9	27	54.1	-52.3	162.2	25	59.7	-52.6	162.5	52
32	44.7	-51.3	161.7	30	50.7	-51.7	162.1	28	56.3	-52.0	162.5	27	01.8	-52.4	162.8	25	07.1	-52.7	163.1	53
31	53.4	-51.4	162.3	29	59.0	-51.9	162.7	28	04.3	-52.2	163.0	26	09.4	-52.5	163.3	24	14.4	-52.8	163.6	54
31	02.0	-51.7	162.9	29	07.1	-51.9	163.3	27	12.1	-52.3	163.6	25	16.9	-52.6	163.9	23	21.6	-52.9	164.1	55
30	10.3	-51.8	163.5	28	15.2	-52.2	163.8	26	19.8	-52.4	164.1	24	24.3	-52.7	164.4	22	28.7	-53.0	164.6	56
29	18.5	-51.9	164.1	27	23.0	-52.2	164.4	25	27.4	-52.6	164.7	23	31.6	-52.8	164.9	21	35.7	-53.1	165.1	57
28	26.6	-52.1	164.7	26	30.8	-52.4	165.0	24	34.8	-52.6	165.2	22	38.8	-53.0	165.4	20	42.6	-53.2	165.6	58
27	34.5	-52.2	165.2	25	38.4	-52.5	165.5	23	42.2	-52.8	165.7	21	45.8	-53.0	165.9	19	49.4	-53.3	166.1	59
26	42.3	-52.3	165.8	24	45.9	-52.6	166.0	22	49.4	-52.9	166.2	20	52.8	-53.1	166.4	18	56.1	-53.3	166.6	60
25	50.0	-52.5	166.3	23	53.3	-52.7	166.6	21	56.5	-52.9	166.8	19	59.7	-53.2	166.9	18	02.8	-53.5	167.1	61
24	57.5	-52.6	166.9	23	00.6	-52.8	167.1	21	03.6	-53.1	167.3	19	06.5	-53.3	167.4	17	09.3	-53.4	167.6	62
24	04.9	-52.7	167.4	22	07.8	-52.9	167.6	20	10.5	-53.1	167.8	18	13.2	-53.3	167.9	16	15.9	-53.6	168.0	63
23	12.2	-52.7	167.9	21	14.9	-53.1	168.1	19	17.4	-53.2	168.3	17	19.9	-53.4	168.4	15	22.3	-53.6	168.5	64
22	19.5	-52.9	168.4	20	21.8	-53.0	168.6	18	24.2	-53.3	168.7	16	26.5	-53.4	168.9	14	28.7	-53.6	169.0	65
21	26.6	-53.0	169.0	19	28.8	-53.2	169.1	17	30.9	-53.4	169.2	15	33.0	-53.5	169.3	13	35.1	-53.8	169.4	66
20	33.6	-53.1	169.5	18	35.6	-53.2	169.6	16	37.5	-53.4	169.7	14	39.5	-53.6	169.8	12	41.3	-53.7	169.9	67
19	40.5	-53.1	170.0	17	42.4	-53.4	170.1	15	44.1	-53.4	170.2	13	45.9	-53.7	170.3	11	47.6	-53.8	170.3	68
18	47.4	-53.2	170.4	16	49.0	-53.3	170.6	14	50.7	-53.6	170.6	12	52.2	-53.7	170.7	10	53.8	-53.8	170.8	69
17	54.2	-53.3	170.9	15	55.7	-53.5	171.0	13	57.1	-53.6	171.1	11	58.5	-53.7	171.2	10	00.0	-53.9	171.2	70
17	00.9	-53.4	171.4	15	02.2	-53.5	171.5	13	03.5	-53.6	171.6	11	04.8	-53.8	171.6	9	06.1	-53.9	171.7	71
16	07.5	-53.4	171.9	14	08.7	-53.5	172.0	12	09.9	-53.7	172.0	10	11.0	-53.8	172.1	8	12.2	-54.0	172.1	72
15	14.1	-53.5	172.4	13	15.2	-53.6	172.4	11	16.2	-53.7	172.5	9	17.2	-53.8	172.5	7	18.2	-53.9	172.6	73
14	20.6	-53.5	172.8	12	21.6	-53.7	172.9	10	22.5	-53.8	172.9	8	23.4	-53.9	173.0	6	24.3	-54.0	173.0	74
13	27.1	-53.6	173.3	11	27.9	-53.7	173.4	9	28.7	-53.8	173.4	7	29.5	-53.9	173.4	5	30.3	-54.0	173.5	75
12	33.5	-53.6	173.8	10	34.2	-53.7	173.8	8	34.9	-53.8	173.8	6	35.6	-53.9	173.9	4	36.3	-54.0	173.9	76
11	39.9	-53.7	174.2	9	40.5	-53.8	174.3	7	41.1	-53.9	174.3	5	41.7	-54.0	174.3	3	42.3	-54.1	174.3	77
10	46.2	-53.7	174.7	8	46.7	-53.8	174.7	6	47.2	-53.8	174.7	4	47.7	-53.9	174.8	2	48.2	-54.0	174.8	78
9	52.5	-53.8	175.1	7	52.9	-53.8	175.2	5	53.4	-53.9	175.2	3	53.8	-54.0	175.2	1	54.2	-54.0	175.2	79
8	58.7	-53.7	175.6	6	59.1	-53.9	175.6	4	59.5	-54.0	175.6	2	59.8	-54.0	175.6	1	00.2	-54.1	175.6	80
8	05.0	-53.8	176.0	6	05.2	-53.8	176.0	4	05.5	-53.9	176.1	2	05.8	-54.0	176.1	0	06.1	-54.1	176.1	81
7	11.2	-53.9	176.5	5	11.4	-53.9	176.5	3	11.6	-53.9	176.5	1	11.8	-54.0	176.5	0	48.0	+54.0	3.5	82
6	17.3	-53.8	176.9	4	17.5	-53.9	176.9	2	17.7	-54.0	176.9	0	17.8	-54.0	176.9	0	42.0	+54.0	3.1	83
5	23.5	-53.9	177.4	3	23.6	-53.9	177.4	1	23.7	-54.0	177.4	0	23.7	-53.9	177.8	2	36.0	+54.1	2.6	84
4	29.6	-53.9	177.8	2	29.7	-54.0	177.8	0	29.7	-53.9	177.8	1	30.2	+54.0	2.2	3	30.1	+54.0	2.2	85
3	35.7	-53.9	178.2	1	35.7	-53.9	178.2	0	24.2	+54.0	1.8	2	24.2	+53.9	1.8	4	24.1	+54.0	1.8	86
2	41.8	-53.9	178.7	0	41.8	-53.9	178.7	1	18.2	+53.9	1.3	3	18.1	+54.0	1.3	5	18.1	+54.0	1.3	87
1	47.9	-54.0	179.1	0	12.1	+54.0	0.9	2	12.1	+54.0	0.9	4	12.1	+54.0	0.9	6	12.1	+54.0	0.9	88
0	53.9	-53.9	179.6	1	06.1	+53.9	0.4	3	06.1	+53.9	0.4	5	06.1	+53.9	0.4	7	06.1	+53.9	0.4	89
0	00.0	+53.9	0.0	2	00.0	+53.9	0.0	4	00.0	+53.9	0.0	6	00.0	+53.9	0.0	8	00.0	+53.9	0.0	90

LATITUDE SAME NAME

L.H.A. 154°, 206°

26°, 334° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	58 34.9	-34.3	46.7	59 55.2	-31.7	49.2	61 11.4	-29.0	52.0	62 22.8	-25.8	55.0	63 28.9	-22.4	58.2
31	58 00.6	-35.3	45.2	59 23.5	-33.0	47.6	60 42.4	-30.3	50.2	61 57.0	-27.4	53.0	63 06.5	-24.1	56.2
32	57 25.3	-36.3	43.7	58 50.5	-34.2	45.9	60 12.1	-31.7	48.4	61 29.6	-28.9	51.2	62 42.4	-25.8	54.2
33	56 49.0	-37.4	42.2	58 16.3	-35.3	44.4	59 40.4	-33.0	46.7	61 00.7	-30.4	49.3	62 16.6	-27.4	52.2
34	56 11.6	-38.3	40.8	57 41.0	-36.3	42.8	59 07.4	-34.1	45.1	60 30.3	-31.7	47.6	61 49.2	-29.0	50.3
35	55 33.3	-39.2	39.4	57 04.7	-37.4	41.4	58 33.3	-35.3	43.5	59 58.6	-32.9	45.9	61 20.2	-30.3	48.5
36	54 54.1	-40.1	38.1	56 27.3	-38.3	39.9	57 58.0	-36.4	42.0	59 25.7	-34.2	44.2	60 49.9	-31.8	46.7
37	54 14.0	-40.8	36.8	55 49.0	-39.2	38.5	57 21.6	-37.4	40.5	58 51.5	-35.4	42.6	60 18.1	-33.0	45.0
38	53 33.2	-41.6	35.6	55 09.8	-40.0	37.2	56 44.2	-38.3	39.0	58 16.1	-36.4	41.1	59 45.1	-34.3	43.3
39	52 51.6	-42.3	34.4	54 29.8	-40.9	35.9	56 05.9	-39.3	37.6	57 39.7	-37.5	39.6	59 10.8	-35.5	41.7
40	52 09.3	-43.0	33.2	53 48.9	-41.6	34.7	55 26.6	-40.1	36.3	57 02.2	-38.4	38.1	58 35.3	-36.5	40.1
41	51 26.3	-43.5	32.1	53 07.3	-42.3	33.5	54 46.5	-40.9	35.0	56 23.8	-39.4	36.7	57 58.8	-37.6	38.6
42	50 42.8	-44.2	31.0	52 25.0	-43.0	32.3	54 05.6	-41.7	33.7	55 44.4	-40.2	35.4	57 21.2	-38.5	37.1
43	49 58.6	-44.8	29.9	51 42.0	-43.7	31.1	53 23.9	-42.4	32.5	55 04.2	-41.0	34.1	56 42.7	-39.5	35.7
44	49 13.8	-45.3	28.9	50 58.3	-44.2	30.4	52 41.5	-43.1	31.4	54 23.2	-41.8	32.8	56 03.2	-40.4	34.4
45	48 28.5	-45.7	27.9	50 14.1	-44.8	29.0	51 58.4	-43.7	30.2	53 41.4	-42.5	31.6	55 22.8	-41.1	33.1
46	47 42.8	-46.3	26.9	49 29.3	-45.4	28.0	51 14.7	-44.3	29.1	52 58.9	-43.2	30.4	54 41.7	-41.9	31.8
47	46 56.5	-46.7	26.0	48 43.9	-45.8	27.0	50 30.4	-44.9	28.0	52 15.7	-43.8	29.2	53 59.8	-42.7	30.6
48	46 09.8	-47.1	25.1	47 58.1	-46.3	26.0	49 45.5	-45.4	27.0	51 31.9	-44.4	28.1	53 17.1	-43.3	29.4
49	45 22.7	-47.5	24.2	47 11.8	-46.8	25.0	49 00.1	-45.9	26.0	50 47.5	-45.0	27.1	52 33.8	-44.0	28.2
50	44 35.2	-47.9	23.3	46 25.0	-47.2	24.1	48 14.2	-46.4	25.0	50 02.5	-45.6	26.0	51 49.8	-44.6	27.1
51	43 47.3	-48.3	22.5	45 37.8	-47.6	23.2	47 27.8	-46.9	24.1	49 16.9	-46.0	25.0	51 05.2	-45.2	26.1
52	42 59.0	-48.6	21.6	44 50.2	-47.9	22.4	46 40.9	-47.3	23.2	48 30.9	-46.6	24.0	50 20.0	-45.7	25.0
53	42 10.4	-48.9	20.9	44 02.3	-48.4	21.5	45 53.6	-47.7	22.3	47 44.3	-46.9	23.1	49 34.3	-46.2	24.0
54	41 21.5	-49.3	20.1	43 13.9	-48.6	20.7	45 05.9	-48.0	21.4	46 57.4	-47.5	22.2	48 48.1	-46.6	23.0
55	40 32.2	-49.5	19.3	42 25.3	-49.0	19.9	44 17.9	-48.5	20.6	46 09.9	-47.8	21.3	48 01.5	-47.2	22.1
56	39 42.7	-49.8	18.6	41 36.3	-49.3	19.1	43 29.4	-48.8	19.7	45 22.1	-48.2	20.4	47 14.3	-47.6	21.2
57	38 52.9	-50.1	17.9	40 47.0	-49.6	18.4	42 40.6	-49.1	19.0	44 33.9	-48.5	19.6	46 26.7	-47.9	20.3
58	38 02.8	-50.3	17.2	39 57.4	-49.9	17.6	41 51.5	-49.4	18.2	43 45.4	-48.9	18.8	45 38.8	-48.4	19.4
59	37 12.5	-50.5	16.5	39 07.5	-50.1	16.9	41 02.1	-49.6	17.4	42 56.5	-49.2	18.0	44 50.4	-48.7	18.6
60	36 22.0	-50.7	15.8	38 17.4	-50.4	16.2	40 12.5	-50.0	16.7	42 07.3	-49.6	17.2	44 01.7	-49.0	17.7
61	35 31.3	-51.0	15.1	37 27.0	-50.6	15.5	39 22.5	-50.2	16.0	41 17.7	-49.8	16.4	43 12.7	-49.4	17.0
62	34 40.3	-51.2	14.5	36 36.4	-50.9	14.9	38 32.3	-50.5	15.3	40 27.9	-50.1	15.7	42 23.3	-49.7	16.2
63	33 49.1	-51.3	13.9	35 45.5	-51.0	14.2	37 41.8	-50.7	14.6	39 37.8	-50.3	15.0	41 33.6	-49.9	15.4
64	32 57.8	-51.6	13.2	34 54.5	-51.2	13.6	36 51.1	-51.0	13.9	38 47.5	-50.6	14.3	40 43.7	-50.3	14.7
65	32 06.2	-51.7	12.6	34 03.3	-51.5	12.9	36 00.1	-51.1	13.2	37 56.9	-50.9	13.6	39 53.4	-50.5	14.0
66	31 14.5	-51.8	12.0	33 11.8	-51.6	12.3	35 09.0	-51.3	12.6	37 06.0	-51.0	12.9	39 02.9	-50.7	13.3
67	30 22.7	-52.1	11.5	32 20.2	-51.8	11.7	34 17.7	-51.6	12.0	36 15.0	-51.3	12.3	38 12.2	-51.0	12.6
68	29 30.6	-52.1	10.9	31 28.4	-51.9	11.1	33 26.1	-51.7	11.3	35 23.7	-51.4	11.6	37 21.2	-51.2	11.9
69	28 38.5	-52.3	10.3	30 36.5	-52.1	10.5	32 34.4	-51.9	10.7	34 32.3	-51.7	11.0	36 30.0	-51.4	11.3
70	27 46.2	-52.5	9.8	29 44.4	-52.3	9.9	31 42.5	-52.0	10.2	33 40.6	-51.8	10.4	35 38.6	-51.6	10.6
71	26 53.7	-52.5	9.2	28 52.1	-52.3	9.4	30 50.5	-52.2	9.6	32 48.8	-52.0	9.8	34 47.0	-51.8	10.0
72	26 01.2	-52.7	8.7	27 59.8	-52.6	8.8	29 58.3	-52.3	9.0	31 56.8	-52.2	9.2	33 55.2	-51.9	9.4
73	25 08.5	-52.8	8.1	27 07.2	-52.6	8.3	29 06.0	-52.5	8.4	31 04.6	-52.3	8.6	33 03.3	-52.2	8.8
74	24 15.7	-52.9	7.6	26 14.6	-52.8	7.7	28 13.5	-52.6	7.9	30 12.3	-52.4	8.0	32 11.1	-52.3	8.2
75	23 22.8	-53.0	7.1	25 21.8	-52.8	7.2	27 20.9	-52.8	7.3	29 19.9	-52.6	7.5	31 18.8	-52.4	7.6
76	22 29.8	-53.1	6.6	24 29.0	-53.0	6.7	26 28.1	-52.8	6.8	28 27.3	-52.7	6.9	30 26.4	-52.6	7.1
77	21 36.7	-53.2	6.1	23 36.0	-53.1	6.2	25 35.3	-53.0	6.3	27 34.6	-52.9	6.4	29 33.8	-52.7	6.5
78	20 43.5	-53.3	5.6	22 42.9	-53.1	5.7	24 42.3	-53.0	5.8	26 41.7	-52.9	5.9	28 41.1	-52.9	6.0
79	19 50.2	-53.3	5.1	21 49.8	-53.3	5.2	23 49.3	-53.2	5.2	25 48.8	-53.1	5.3	27 48.2	-53.0	5.4
80	18 56.9	-53.4	4.6	20 56.5	-53.3	4.7	22 56.1	-53.3	4.7	24 55.7	-53.2	4.8	26 55.2	-53.0	4.9
81	18 03.5	-53.5	4.1	20 03.2	-53.5	4.2	22 02.8	-53.3	4.2	24 02.5	-53.3	4.3	26 02.2	-53.3	4.4
82	17 10.0	-53.6	3.7	19 09.7	-53.5	3.7	21 09.5	-53.5	3.8	23 09.2	-53.4	3.8	25 08.9	-53.3	3.9
83	16 16.4	-53.6	3.2	18 16.2	-53.5	3.2	20 16.0	-53.5	3.3	22 15.8	-53.4	3.3	24 15.6	-53.4	3.4
84	15 22.8	-53.7	2.7	17 22.7	-53.7	2.8	19 22.5	-53.6	2.8	21 22.4	-53.6	2.8	23 22.2	-53.5	2.9
85	14 29.1	-53.7	2.3	16 29.0	-53.7	2.3	18 28.9	-53.6	2.3	20 28.8	-53.6	2.3	22 28.7	-53.6	2.4
86	13 35.4	-53.8	1.8	15 35.3	-53.7	1.8	17 35.3	-53.8	1.8	19 35.2	-53.7	1.9	21 35.1	-53.6	1.9
87	12 41.6	-53.8	1.3	14 41.6	-53.8	1.4	16 41.5	-53.8	1.4	18 41.5	-53.8	1.4	20 41.5	-53.8	1.4
88	11 47.8	-53.9	0.9	13 47.8	-53.9	0.9	15 47.7	-53.8	0.9	17 47.7	-53.8	0.9	19 47.7	-53.8	0.9
89	10 53.9	-53.9	0.4	12 53.9	-53.9	0.4	14 53.9	-53.9	0.5	16 53.9	-53.9	0.5	18 53.9	-53.9	0.5
90	10 00.0	-53.9	0.0	12 00.0	-53.9	0.0	14 00.0	-54.0	0.0	16 00.0	-54.0	0.0	18 00.0	-54.0	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 26°, 334°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
42 49.3	-48.6	148.8	41 06.2	-49.5	149.7	39 22.1	-50.3	150.6	37 37.1	-50.9	151.4	35 51.5	-51.6	152.1	30
42 00.7	-49.0	149.6	40 16.7	-49.8	150.5	38 31.8	-50.4	151.3	36 46.2	-51.1	152.0	34 59.9	-51.7	152.7	31
41 11.7	-49.3	150.4	39 26.9	-50.0	151.2	37 41.4	-50.7	152.0	35 55.1	-51.4	152.7	34 08.2	-52.0	153.3	32
40 22.4	-49.6	151.1	38 36.9	-50.3	151.9	36 50.7	-51.0	152.7	35 03.7	-51.5	153.3	33 16.2	-52.0	153.9	33
39 32.8	-49.8	151.9	37 46.6	-50.5	152.6	35 59.7	-51.1	153.3	34 12.2	-51.7	153.9	32 24.2	-52.3	154.5	34
38 43.0	-50.1	152.6	36 56.1	-50.8	153.3	35 08.6	-51.4	154.0	33 20.5	-51.9	154.5	31 31.9	-52.4	155.1	35
37 52.9	-50.4	153.3	36 05.3	-50.9	154.0	34 17.2	-51.5	154.6	32 28.6	-52.1	155.1	30 39.5	-52.6	155.7	36
37 02.5	-50.6	154.0	35 14.4	-51.2	154.6	33 25.7	-51.7	155.2	31 36.5	-52.2	155.7	29 46.9	-52.7	156.2	37
36 11.9	-50.8	154.7	34 23.2	-51.3	155.3	32 34.0	-51.9	155.8	30 44.3	-52.3	156.3	28 54.2	-52.8	156.8	38
35 21.1	-51.0	155.3	33 31.9	-51.6	155.9	31 42.1	-52.0	156.4	29 52.0	-52.6	156.9	28 01.4	-52.9	157.3	39
34 30.1	-51.2	156.0	32 40.3	-51.7	156.5	30 50.1	-52.2	157.0	28 59.4	-52.6	157.4	27 08.5	-53.1	157.8	40
33 38.9	-51.4	156.6	31 48.6	-51.9	157.1	29 57.9	-52.4	157.5	28 06.8	-52.8	158.0	26 15.4	-53.2	158.4	41
32 47.5	-51.5	157.2	30 56.7	-52.0	157.7	29 05.5	-52.4	158.1	27 14.0	-52.9	158.5	25 22.2	-53.3	158.9	42
31 56.0	-51.8	157.8	30 04.7	-52.2	158.3	28 13.1	-52.7	158.7	26 21.1	-53.0	159.0	24 28.9	-53.3	159.4	43
31 04.2	-51.9	158.4	29 12.5	-52.3	158.8	27 20.4	-52.7	159.2	25 28.1	-53.1	159.6	23 35.6	-53.5	159.9	44
30 12.3	-52.0	159.0	28 20.2	-52.5	159.4	26 27.7	-52.8	159.7	24 35.0	-53.2	160.1	22 42.1	-53.6	160.4	45
29 20.3	-52.2	159.6	27 27.7	-52.6	159.9	25 34.9	-53.0	160.3	23 41.8	-53.3	160.6	21 48.5	-53.6	160.9	46
28 28.1	-52.4	160.1	26 35.1	-52.7	160.5	24 41.9	-53.1	160.8	22 48.5	-53.4	161.1	20 54.9	-53.8	161.3	47
27 35.7	-52.4	160.7	25 42.4	-52.8	161.0	23 48.8	-53.2	161.3	21 55.1	-53.5	161.6	20 01.1	-53.8	161.8	48
26 43.3	-52.6	161.2	24 49.6	-53.0	161.5	22 55.6	-53.2	161.8	21 01.6	-53.6	162.1	19 07.3	-53.8	162.3	49
25 50.7	-52.7	161.8	23 56.6	-53.0	162.0	22 02.4	-53.4	162.3	20 08.0	-53.7	162.5	18 13.5	-54.1	162.7	50
24 58.0	-52.8	162.3	23 03.6	-53.1	162.6	21 09.0	-53.4	162.8	19 14.3	-53.7	163.0	17 19.5	-54.0	163.2	51
24 05.2	-53.0	162.8	22 10.5	-53.3	163.1	20 15.6	-53.5	163.3	18 20.6	-53.8	163.5	16 25.5	-54.1	163.7	52
23 12.2	-53.0	163.3	21 17.2	-53.3	163.6	19 22.1	-53.6	163.8	17 26.8	-53.9	163.9	15 31.4	-54.1	164.1	53
22 19.2	-53.1	163.8	20 23.9	-53.4	164.0	18 28.5	-53.7	164.2	16 32.9	-53.9	164.4	14 37.3	-54.1	164.6	54
21 26.1	-53.2	164.3	19 30.5	-53.4	164.5	17 34.8	-53.7	164.7	15 39.0	-54.1	164.9	13 43.2	-54.3	165.0	55
20 32.9	-53.3	164.8	18 37.1	-53.6	165.0	16 41.1	-53.8	165.2	14 45.0	-54.0	165.3	12 48.9	-54.2	165.4	56
19 39.6	-53.3	165.3	17 43.5	-53.6	165.5	15 47.3	-53.8	165.5	13 51.0	-54.1	165.8	11 54.7	-54.3	165.9	57
18 46.3	-53.5	165.8	16 49.9	-53.7	166.0	14 53.5	-53.9	166.1	12 56.9	-54.1	166.2	11 00.4	-54.4	166.3	58
17 52.8	-53.5	166.3	15 56.2	-53.7	166.4	13 59.6	-54.0	166.5	12 02.8	-54.1	166.7	10 06.0	-54.3	166.7	59
16 59.3	-53.5	166.8	15 02.5	-53.8	166.9	13 05.6	-54.0	167.0	11 08.7	-54.2	167.1	9 11.7	-54.4	167.2	60
16 05.8	-53.7	167.2	14 08.7	-53.8	167.3	12 11.6	-54.0	167.4	10 14.5	-54.3	167.5	8 17.3	-54.5	167.6	61
15 12.1	-53.7	167.7	13 14.9	-53.9	167.8	11 17.6	-54.1	167.9	9 20.2	-54.3	168.0	7 22.8	-54.4	168.0	62
14 18.4	-53.7	168.1	12 21.0	-54.0	168.2	10 23.5	-54.1	168.3	8 25.9	-54.3	168.4	6 28.4	-54.5	168.4	63
13 24.7	-53.8	168.6	11 27.0	-53.9	168.7	9 29.4	-54.2	168.8	7 31.6	-54.3	168.8	5 33.9	-54.5	168.9	64
12 30.9	-53.8	169.1	10 33.1	-54.0	169.1	8 35.2	-54.2	169.2	6 37.3	-54.3	169.3	4 39.4	-54.5	169.3	65
11 37.1	-53.9	169.5	9 39.1	-54.1	169.6	7 41.0	-54.2	169.6	5 43.0	-54.4	169.7	3 44.9	-54.5	169.7	66
10 43.2	-53.9	170.0	8 45.0	-54.1	170.0	6 46.8	-54.2	170.1	4 48.6	-54.4	170.2	2 50.4	-54.5	170.1	67
9 49.3	-54.0	170.4	7 50.9	-54.1	170.5	5 52.6	-54.2	170.5	3 54.2	-54.4	170.5	1 55.9	-54.6	170.5	68
8 55.3	-54.0	170.8	6 56.8	-54.1	170.9	4 58.4	-54.3	170.9	2 59.8	-54.4	170.9	1 01.3	-54.5	171.0	69
8 01.3	-54.0	171.3	6 02.7	-54.1	171.3	4 04.1	-54.3	171.4	2 05.4	-54.4	171.4	0 06.8	-54.5	171.4	70
7 07.3	-54.0	171.7	5 08.6	-54.2	171.8	3 09.8	-54.3	171.8	1 11.0	-54.4	171.8	0 47.7	+54.6	8.2	71
6 13.3	-54.1	172.2	4 14.4	-54.2	172.2	2 15.5	-54.3	172.2	0 16.6	-54.4	172.2	1 42.3	+54.5	7.8	72
5 19.2	-54.0	172.6	3 20.2	-54.2	172.6	1 21.2	-54.3	172.6	0 37.8	+54.4	7.4	2 36.8	+54.5	7.4	73
4 25.2	-54.1	173.0	2 26.0	-54.2	173.1	0 26.9	-54.3	173.1	1 32.2	+54.4	6.9	3 31.3	+54.5	7.0	74
3 31.1	-54.1	173.5	1 31.8	-54.2	173.5	0 27.4	+54.3	6.5	2 26.6	+54.4	6.5	4 25.8	+54.5	6.5	75
2 37.0	-54.1	173.9	0 37.6	-54.2	173.9	1 21.7	+54.3	6.1	3 21.0	+54.4	6.1	5 20.3	+54.5	6.1	76
1 42.9	-54.2	174.3	0 16.6	+54.2	5.7	2 16.0	+54.3	5.7	4 15.4	+54.4	5.7	6 14.8	+54.5	5.7	77
0 48.7	-54.1	174.8	1 10.8	+54.2	5.2	3 10.3	+54.2	5.2	5 09.8	+54.3	5.3	7 09.3	+54.4	5.3	78
0 05.4	+54.1	4.8	2 05.0	+54.2	4.8	4 04.5	+54.3	4.8	6 04.1	+54.4	4.8	8 03.7	+54.4	4.8	79
0 59.5	+54.1	4.4	2 59.2	+54.1	4.4	4 58.8	+54.2	4.4	6 58.5	+54.3	4.4	8 58.1	+54.4	4.4	80
1 53.6	+54.1	3.9	3 53.3	+54.2	3.9	5 53.0	+54.3	4.0	7 52.8	+54.2	4.0	9 52.5	+54.3	4.0	81
2 47.7	+54.1	3.5	4 47.5	+54.2	3.5	6 47.3	+54.2	3.5	8 47.0	+54.3	3.5	10 46.8	+54.3	3.6	82
3 41.8	+54.1	3.1	5 41.7	+54.1	3.1	7 41.5	+54.2	3.1	9 41.3	+54.2	3.1	11 41.1	+54.3	3.1	83
4 35.9	+54.1	2.6	6 35.8	+54.1	2.6	8 35.7	+54.1	2.7	10 35.5	+54.2	2.7	12 35.4	+54.2	2.7	84
5 30.0	+54.0	2.2	7 29.9	+54.1	2.2	9 29.8	+54.1	2.2	11 29.7	+54.2	2.2	13 29.6	+54.2	2.3	85
6 24.0	+54.1	1.8	8 24.0	+54.0	1.8	10 23.9	+54.1	1.8	12 23.9	+54.1	1.8	14 23.8	+54.1	1.8	86
7 18.1	+54.0	1.3	9 18.0	+54.1	1.3	11 18.0	+54.0	1.3	13 18.0	+54.0	1.4	15 17.9	+54.1	1.4	87
8 12.1	+54.0	0.9	10 12.1	+54.0	0.9	12 12.0	+54.0	0.9	14 12.0	+54.0	0.9	16 12.0	+54.0	0.9	88
9 06.1	+53.9	0.4	11 06.1	+53.9	0.4	13 06.0	+54.0	0.5	15 06.0	+54.0	0.5	17 06.0	+54.0	0.5	89
10 00.0	+53.9	0.0	12 00.0	+53.9	0.0	14 00.0	+53.9	0.0	16 00.0	+53.9	0.0	18 00.0	+53.9	0.0	90
10°			12°			14°			16°			18°			

LATITUDE SAME NAME

L.H.A. 154°, 206°

26°, 334° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	64 28.9	-18.6	61.8	65 22.1	-14.4	65.6	66 07.7	-9.8	69.7	66 45.0	-4.9	74.1	67 13.2	+0.3	78.7
31	64 10.3	-20.4	59.6	65 07.7	-16.4	63.3	65 57.9	-12.1	67.3	66 40.1	-7.3	71.6	67 13.5	-2.2	76.1
32	63 49.9	-22.4	57.5	64 51.3	-18.6	61.0	65 45.8	-14.3	64.9	66 32.8	-9.7	69.1	67 11.3	-4.7	73.5
33	63 27.5	-24.1	55.4	64 32.7	-20.4	58.8	65 31.5	-16.4	62.6	66 23.1	-12.0	66.6	67 06.6	-7.2	70.9
34	63 03.4	-25.9	53.3	64 12.3	-22.4	56.6	65 15.1	-18.5	60.2	66 11.1	-14.2	64.2	66 59.4	-9.6	68.4
35	62 37.5	-27.4	51.3	63 49.9	-24.2	54.5	64 56.6	-20.5	58.0	65 56.9	-16.5	61.8	66 49.8	-11.9	65.9
36	62 10.1	-29.0	49.4	63 25.7	-25.9	52.5	64 36.1	-22.4	55.8	65 40.4	-18.5	59.4	66 37.9	-14.2	63.4
37	61 41.1	-30.5	47.6	62 59.8	-27.5	50.5	64 13.7	-24.3	53.6	65 21.9	-20.6	57.1	66 23.0	-16.5	61.0
38	61 10.6	-31.8	45.8	62 32.3	-29.1	48.5	63 49.4	-26.0	51.5	65 01.3	-22.5	54.9	66 07.2	-18.7	58.6
39	60 38.8	-33.2	44.0	62 03.2	-30.6	46.6	63 23.4	-27.7	49.5	64 38.8	-24.5	52.7	65 48.5	-20.7	56.2
40	60 05.6	-34.4	42.3	61 32.6	-32.0	44.8	62 55.7	-29.3	47.6	64 14.3	-26.2	50.6	65 27.8	-22.7	54.0
41	59 31.2	-35.6	40.7	61 00.6	-33.4	43.0	62 26.4	-30.8	45.6	63 48.1	-27.9	48.5	65 05.1	-24.7	51.8
42	58 55.6	-36.7	39.1	60 27.2	-34.6	41.3	61 55.6	-32.2	43.8	63 20.2	-29.5	46.5	64 40.4	-26.4	49.6
43	58 18.9	-37.7	37.6	59 52.6	-35.7	39.7	61 23.4	-33.5	42.0	62 50.7	-31.0	44.6	64 14.0	-28.2	47.5
44	57 41.2	-38.7	36.2	59 16.9	-36.9	38.1	60 49.9	-34.9	40.3	62 19.7	-32.5	42.8	63 45.8	-29.7	45.5
45	57 02.5	-39.7	34.7	58 40.0	-38.0	36.6	60 15.0	-36.0	38.7	61 47.2	-33.8	41.0	63 16.1	-31.4	43.6
46	56 22.8	-40.5	33.4	58 02.0	-38.9	35.1	59 39.0	-37.1	37.1	61 13.4	-35.1	39.2	62 44.7	-32.7	41.7
47	55 42.3	-41.3	32.0	57 23.1	-39.9	33.7	59 01.9	-38.2	35.5	60 38.3	-36.3	37.6	62 12.0	-34.2	39.9
48	55 01.0	-42.2	30.8	56 43.2	-40.7	32.3	58 23.7	-39.2	34.0	60 02.0	-37.4	36.0	61 37.8	-35.4	38.1
49	54 18.8	-42.8	29.5	56 02.5	-41.6	31.0	57 44.5	-40.1	32.6	59 24.6	-38.5	34.4	61 02.4	-36.7	36.4
50	53 36.0	-43.5	28.3	55 20.9	-42.3	29.7	57 04.4	-41.0	31.2	58 46.1	-39.5	32.9	60 25.7	-37.7	34.8
51	52 52.5	-44.2	27.2	54 38.6	-43.1	28.5	56 23.4	-41.8	29.9	58 06.6	-40.4	31.5	59 48.0	-38.9	33.3
52	52 08.3	-44.8	26.1	53 55.5	-43.7	27.3	55 41.6	-42.6	28.6	57 26.2	-41.3	30.1	59 09.1	-39.8	31.8
53	51 23.5	-45.3	25.0	53 11.8	-44.4	26.1	54 59.0	-43.4	27.4	56 44.9	-42.2	28.8	58 29.3	-40.8	30.3
54	50 38.2	-45.9	24.0	52 27.4	-45.0	25.0	54 15.6	-44.0	26.2	56 02.7	-42.9	27.5	57 48.5	-41.7	28.9
55	49 52.3	-46.4	23.0	51 42.4	-45.6	23.9	53 31.6	-44.6	25.0	55 19.8	-43.6	26.2	57 06.8	-42.4	27.6
56	49 05.9	-46.9	22.0	50 56.8	-46.1	22.9	52 47.0	-45.3	23.9	54 36.2	-44.3	25.0	56 24.4	-43.3	26.3
57	48 19.0	-47.3	21.0	50 10.7	-46.6	21.9	52 01.7	-45.8	22.8	53 51.9	-45.0	23.9	55 41.1	-44.0	25.1
58	47 31.7	-47.7	20.1	49 24.1	-47.1	20.9	51 15.9	-46.4	21.8	53 06.9	-45.5	22.8	54 57.1	-44.6	23.9
59	46 44.0	-48.2	19.2	48 37.0	-47.5	20.0	50 29.5	-46.9	20.8	52 21.4	-46.2	21.7	54 12.5	-45.3	22.7
60	45 55.8	-48.5	18.4	47 49.5	-48.0	19.1	49 42.6	-47.3	19.8	51 35.2	-46.6	20.7	53 27.2	-45.9	21.6
61	45 07.3	-48.9	17.5	47 01.5	-48.4	18.2	48 55.3	-47.8	18.9	50 48.6	-47.2	19.7	52 41.3	-46.5	20.5
62	44 18.4	-49.2	16.7	46 13.1	-48.7	17.3	48 07.5	-48.2	18.0	50 01.4	-47.6	18.7	51 54.8	-46.9	19.5
63	43 29.2	-49.6	15.9	45 24.4	-49.1	16.5	47 19.3	-48.6	17.1	49 13.8	-48.1	17.7	51 07.9	-47.5	18.5
64	42 39.6	-49.8	15.1	44 35.3	-49.4	15.7	46 30.7	-49.0	16.2	48 25.7	-48.4	16.8	50 20.4	-47.9	17.5
65	41 49.8	-50.2	14.4	43 45.9	-49.8	14.9	45 41.7	-49.3	15.4	47 37.3	-48.9	16.0	49 32.5	-48.4	16.6
66	40 59.6	-50.4	13.7	42 56.1	-50.0	14.1	44 52.4	-49.7	14.6	46 48.4	-49.3	15.1	48 44.1	-48.8	15.7
67	40 09.2	-50.7	13.0	42 06.1	-50.4	13.3	44 02.7	-50.0	13.8	45 59.1	-49.5	14.3	47 55.3	-49.2	14.8
68	39 18.5	-50.9	12.3	41 15.7	-50.6	12.6	43 12.7	-50.2	13.0	45 09.6	-50.0	13.5	47 06.1	-49.5	14.0
69	38 27.6	-51.1	11.6	40 25.1	-50.8	11.9	42 22.5	-50.6	12.3	44 19.6	-50.2	12.7	46 16.6	-49.9	13.1
70	37 36.5	-51.4	10.9	39 34.3	-51.1	11.2	41 31.9	-50.8	11.6	43 29.4	-50.5	11.9	45 26.7	-50.2	12.3
71	36 45.1	-51.5	10.3	38 43.2	-51.4	10.5	40 41.1	-51.1	10.8	42 38.9	-50.8	11.2	44 36.5	-50.5	11.6
72	35 53.6	-51.8	9.6	37 51.8	-51.5	9.9	39 50.0	-51.3	10.2	41 48.1	-51.1	10.5	43 46.0	-50.8	10.8
73	35 01.8	-51.9	9.0	37 00.3	-51.7	9.2	38 58.7	-51.5	9.5	40 57.0	-51.3	9.8	42 55.2	-51.0	10.1
74	34 09.9	-52.1	8.4	36 08.6	-52.0	8.6	38 07.2	-51.8	8.8	40 05.7	-51.5	9.1	42 04.2	-51.4	9.4
75	33 17.8	-52.3	7.8	35 16.6	-52.1	8.0	37 15.4	-51.9	8.2	39 14.2	-51.8	8.4	41 12.8	-51.5	8.7
76	32 25.5	-52.5	7.2	34 24.5	-52.3	7.4	36 23.5	-52.2	7.6	38 22.4	-52.0	7.8	40 21.3	-51.8	8.0
77	31 33.0	-52.6	6.6	33 32.2	-52.5	6.8	35 31.3	-52.3	7.0	37 30.4	-52.2	7.1	39 29.5	-52.1	7.3
78	30 40.4	-52.7	6.1	32 39.7	-52.6	6.2	34 39.0	-52.5	6.4	36 38.2	-52.3	6.5	38 37.4	-52.2	6.7
79	29 47.7	-52.9	5.5	31 47.1	-52.8	5.6	33 46.5	-52.6	5.8	35 45.9	-52.6	5.9	37 45.2	-52.4	6.1
80	28 54.8	-53.0	5.0	30 54.3	-52.9	5.1	32 53.9	-52.9	5.2	34 53.3	-52.7	5.3	36 52.8	-52.6	5.5
81	28 01.8	-53.1	4.5	30 01.4	-53.0	4.5	32 01.0	-52.9	4.6	34 00.6	-52.8	4.7	36 00.2	-52.8	4.9
82	27 08.7	-53.3	3.9	29 08.4	-53.2	4.0	31 08.1	-53.1	4.1	33 07.8	-53.0	4.2	35 07.4	-52.9	4.3
83	26 15.4	-53.3	3.4	28 15.2	-53.3	3.5	30 15.0	-53.2	3.5	32 14.8	-53.2	3.6	34 14.5	-53.1	3.7
84	25 22.1	-53.5	2.9	27 21.9	-53.4	3.0	29 21.8	-53.4	3.0	31 21.6	-53.3	3.1	33 21.4	-53.2	3.1
85	24 28.6	-53.5	2.4	26 28.5	-53.5	2.4	28 28.4	-53.5	2.5	30 28.3	-53.4	2.5	32 28.2	-53.4	2.6
86	23 35.1	-53.7	1.9	25 35.0	-53.6	1.9	27 34.9	-53.5	2.0	29 34.9	-53.6	2.0	31 34.8	-53.5	2.1
87	22 41.4	-53.7	1.4	24 41.4	-53.7	1.4	26 41.4	-53.7	1.5	28 41.3	-53.6	1.5	30 41.3	-53.7	1.5
88	21 47.7	-53.8	0.9	23 47.7	-53.8	1.0	25 47.7	-53.8	1.0	27 47.7	-53.8	1.0	29 47.6	-53.7	1.0
89	20 53.9	-53.9	0.5	22 53.9	-53.9	0.5	24 53.9	-53.9	0.5	26 53.9	-53.9	0.5	28 53.9	-53.9	0.5
90	20 00.0	-54.0	0.0	22 00.0	-54.0	0.0	24 00.0	-54.0	0.0	26 00.0	-54.0	0.0	28 00.0	-54.0	0.0
	20°			22°			24°			26°			28°		

28°, 332° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	49 52.6	-41.4	39.1	51 24.7	-39.9	40.7	52 54.5	-38.2	42.4	54 21.8	-36.3	44.3	55 46.3	-34.3	46.3
31	49 11.2	-42.1	38.0	50 44.8	-40.7	39.5	52 16.3	-39.0	41.1	53 45.5	-37.3	42.9	55 12.0	-35.3	44.8
32	48 29.1	-42.6	36.9	50 04.1	-41.2	38.3	51 37.3	-39.8	39.9	53 08.2	-38.1	41.6	54 36.7	-36.2	43.4
33	47 46.5	-43.3	35.9	49 22.9	-41.9	37.2	50 57.5	-40.5	38.7	52 30.1	-38.9	40.3	54 00.5	-37.2	42.1
34	47 03.2	-43.7	34.8	48 41.0	-42.5	36.1	50 17.0	-41.1	37.5	51 51.2	-39.6	39.1	53 23.3	-38.0	40.7
35	46 19.5	-44.3	33.8	47 58.5	-43.1	35.1	49 35.9	-41.8	36.4	51 11.6	-40.4	37.9	52 45.3	-38.8	39.5
36	45 35.2	-44.7	32.9	47 15.4	-43.6	34.0	48 54.1	-42.4	35.3	50 31.2	-41.1	36.7	52 06.5	-39.6	38.2
37	44 50.5	-45.2	31.9	46 31.8	-44.2	33.0	48 11.7	-43.0	34.2	49 50.1	-41.7	35.5	51 26.9	-40.3	37.0
38	44 05.3	-45.6	31.0	45 47.6	-44.6	32.0	47 28.7	-43.5	33.2	49 08.4	-42.3	34.4	50 46.6	-41.0	35.8
39	43 19.7	-46.0	30.1	45 03.0	-45.1	31.1	46 45.2	-44.1	32.2	48 26.1	-42.9	33.4	50 05.6	-41.7	34.7
40	42 33.7	-46.5	29.2	44 17.9	-45.5	30.2	46 01.1	-44.5	31.2	47 43.2	-43.5	32.3	49 23.9	-42.3	33.5
41	41 47.2	-46.7	28.4	43 32.4	-45.9	29.3	45 16.6	-45.0	30.2	46 59.7	-44.0	31.3	48 41.6	-42.9	32.5
42	41 00.5	-47.2	27.5	42 46.5	-46.4	28.4	44 31.6	-45.5	29.3	46 15.7	-44.5	30.3	47 58.7	-43.4	31.4
43	40 13.3	-47.5	26.7	42 00.1	-46.7	27.5	43 46.1	-45.9	28.4	45 31.2	-45.0	29.3	47 15.3	-44.0	30.4
44	39 25.8	-47.8	25.9	41 13.4	-47.1	26.7	43 00.2	-46.2	27.5	44 46.2	-45.4	28.4	46 31.3	-44.5	29.4
45	38 38.0	-48.1	25.1	40 26.3	-47.4	25.9	42 14.0	-46.7	26.6	44 00.8	-45.8	27.5	45 46.8	-44.9	28.4
46	37 49.9	-48.4	24.4	39 38.9	-47.7	25.1	41 27.3	-47.0	25.8	43 15.0	-46.3	26.6	45 01.9	-45.4	27.5
47	37 01.5	-48.6	23.6	38 51.2	-48.1	24.3	40 40.3	-47.4	25.0	42 28.7	-46.6	25.7	44 16.5	-45.9	26.6
48	36 12.9	-49.0	22.9	38 03.1	-48.3	23.5	39 52.9	-47.7	24.2	41 42.1	-47.0	24.9	43 30.6	-46.2	25.7
49	35 23.9	-49.1	22.2	37 14.8	-48.6	22.8	39 05.2	-48.0	23.4	40 55.1	-47.4	24.1	42 44.4	-46.7	24.8
50	34 34.8	-49.4	21.5	36 26.2	-48.9	22.0	38 17.2	-48.3	22.6	40 07.7	-47.6	23.2	41 57.7	-47.0	23.9
51	33 45.4	-49.7	20.8	35 37.3	-49.1	21.3	37 28.9	-48.5	21.9	39 20.1	-48.0	22.5	41 10.7	-47.3	23.1
52	32 55.7	-49.8	20.1	34 48.2	-49.3	20.6	36 40.4	-48.9	21.1	38 32.1	-48.3	21.7	40 23.4	-47.7	22.3
53	32 05.9	-50.1	19.5	33 58.9	-49.6	19.9	35 51.5	-49.1	20.4	37 43.8	-48.6	20.9	39 35.7	-48.0	21.5
54	31 15.8	-50.2	18.8	33 09.3	-49.8	19.2	35 02.4	-49.3	19.7	36 55.2	-48.8	20.2	38 47.3	-48.3	20.7
55	30 25.6	-50.4	18.2	32 19.5	-50.0	18.6	34 13.1	-49.6	19.0	36 06.4	-49.1	19.5	37 59.4	-48.6	20.0
56	29 35.2	-50.6	17.6	31 29.5	-50.2	17.9	33 23.5	-49.8	18.3	35 17.3	-49.3	18.8	37 10.8	-48.9	19.2
57	28 44.6	-50.8	17.0	30 39.3	-50.4	17.3	32 33.7	-49.9	17.7	34 28.0	-49.6	18.1	36 21.9	-49.1	18.5
58	27 53.8	-50.9	16.3	29 48.9	-50.6	16.7	31 43.8	-50.2	17.0	33 38.4	-49.8	17.4	35 32.8	-49.4	17.8
59	27 02.9	-51.0	15.8	28 58.3	-50.7	16.0	30 53.6	-50.4	16.4	32 48.6	-50.0	16.7	34 43.4	-49.6	17.1
60	26 11.9	-51.2	15.2	28 07.6	-50.9	15.4	30 03.2	-50.5	15.7	31 58.6	-50.2	16.1	33 53.8	-49.8	16.4
61	25 20.7	-51.4	14.6	27 16.7	-51.0	14.8	29 12.7	-50.7	15.1	31 08.4	-50.3	15.4	33 04.0	-50.0	15.8
62	24 29.3	-51.4	14.0	26 25.7	-51.2	14.2	28 22.0	-50.9	14.5	30 18.1	-50.6	14.8	32 14.0	-50.2	15.1
63	23 37.9	-51.6	13.5	25 34.5	-51.3	13.7	27 31.1	-51.0	13.9	29 27.5	-50.7	14.2	31 23.8	-50.4	14.5
64	22 46.3	-51.7	12.9	24 43.2	-51.4	13.1	26 40.1	-51.2	13.3	28 36.8	-50.9	13.6	30 33.4	-50.6	13.8
65	21 54.6	-51.8	12.3	23 51.8	-51.6	12.5	25 48.9	-51.3	12.7	27 45.9	-51.1	13.0	29 42.8	-50.8	13.2
66	21 02.8	-51.9	11.8	23 00.2	-51.7	12.0	24 57.6	-51.5	12.2	26 54.8	-51.2	12.4	28 52.0	-50.9	12.6
67	20 10.9	-52.0	11.3	22 08.5	-51.7	11.4	24 06.1	-51.5	11.6	26 03.6	-51.3	11.8	28 01.1	-51.1	12.0
68	19 18.9	-52.1	10.7	21 16.8	-51.9	10.9	23 14.6	-51.7	11.0	25 12.3	-51.4	11.2	27 10.0	-51.2	11.4
69	18 26.8	-52.2	10.2	20 24.9	-52.0	10.3	22 22.9	-51.8	10.5	24 20.9	-51.6	10.6	26 18.8	-51.4	10.8
70	17 34.6	-52.2	9.7	19 32.9	-52.1	9.8	21 31.1	-51.9	9.9	23 29.3	-51.7	10.1	25 27.4	-51.5	10.2
71	16 42.4	-52.4	9.2	18 40.8	-52.2	9.3	20 39.2	-52.0	9.4	22 37.6	-51.8	9.5	24 35.9	-51.6	9.7
72	15 50.0	-52.4	8.7	17 48.6	-52.2	8.8	19 47.2	-52.1	8.9	21 45.8	-52.0	9.0	23 44.3	-51.8	9.1
73	14 57.6	-52.5	8.2	16 56.4	-52.3	8.2	18 55.1	-52.1	8.3	20 53.8	-52.0	8.4	22 52.5	-51.8	8.6
74	14 05.1	-52.5	7.7	16 04.1	-52.4	7.7	18 03.0	-52.3	7.8	20 01.8	-52.1	7.9	22 00.7	-52.0	8.0
75	13 12.6	-52.6	7.2	15 11.7	-52.5	7.2	17 10.7	-52.3	7.3	19 09.7	-52.2	7.4	21 08.7	-52.1	7.5
76	12 20.0	-52.6	6.7	14 19.2	-52.5	6.7	16 18.4	-52.4	6.8	18 17.5	-52.3	6.9	20 16.6	-52.1	7.0
77	11 27.4	-52.7	6.2	13 26.7	-52.6	6.2	15 26.0	-52.5	6.3	17 25.2	-52.3	6.4	19 24.5	-52.3	6.4
78	10 34.7	-52.8	5.7	12 34.1	-52.7	5.7	14 33.5	-52.6	5.8	16 32.9	-52.5	5.8	18 32.2	-52.3	5.9
79	9 41.9	-52.7	5.2	11 41.4	-52.6	5.2	13 40.9	-52.6	5.3	15 40.4	-52.5	5.3	17 39.9	-52.4	5.4
80	8 49.2	-52.8	4.7	10 48.8	-52.8	4.8	12 48.3	-52.6	4.8	14 47.9	-52.6	4.8	16 47.5	-52.5	4.9
81	7 56.4	-52.9	4.3	9 56.0	-52.8	4.3	11 55.7	-52.7	4.3	13 55.3	-52.6	4.3	15 55.0	-52.6	4.4
82	7 03.5	-52.9	3.8	9 03.2	-52.8	3.8	11 03.0	-52.8	3.8	13 02.7	-52.7	3.8	15 02.4	-52.6	3.9
83	6 10.6	-52.9	3.3	8 10.4	-52.8	3.3	10 10.2	-52.8	3.3	12 10.0	-52.7	3.4	14 09.8	-52.7	3.4
84	5 17.7	-52.9	2.8	7 17.6	-52.9	2.8	9 17.4	-52.8	2.9	11 17.3	-52.8	2.9	13 17.1	-52.7	2.9
85	4 24.8	-52.9	2.4	6 24.7	-52.9	2.4	8 24.6	-52.9	2.4	10 24.5	-52.8	2.4	12 24.4	-52.8	2.4
86	3 31.9	-53.0	1.9	5 31.8	-52.9	1.9	7 31.7	-52.9	1.9	9 31.7	-52.9	1.9	11 31.6	-52.8	1.9
87	2 38.9	-53.0	1.4	4 38.9	-53.0	1.4	6 38.8	-52.9	1.4	8 38.8	-52.9	1.4	10 38.8	-52.9	1.4
88	1 45.9	-52.9	0.9	3 45.9	-52.9	0.9	5 45.9	-52.9	0.9	7 45.9	-52.9	0.9	9 45.9	-52.9	1.0
89	0 53.0	-53.0	0.5	2 53.0	-53.0	0.5	4 53.0	-53.0	0.5	6 53.0	-53.0	0.5	8 53.0	-53.0	0.5
90	0 00.0	-53.0	0.0	2 00.0	-53.0	0.0	4 00.0	-53.0	0.0	6 00.0	-53.0	0.0	8 00.0	-53.0	0.0

LATITUDE CONTRARY NAME

L.H.A. 28°, 332°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
49 52.6	-41.4	140.9	48 18.5	-42.8	142.3	46 42.7	-44.1	143.6	45 05.3	-45.2	144.8	43 26.6	-46.3	145.9	30
49 11.2	-42.1	142.0	47 35.7	-43.4	143.4	45 58.6	-44.5	144.6	44 20.1	-45.7	145.8	42 40.3	-46.7	146.8	31
48 29.1	-42.6	143.1	46 52.3	-43.9	144.4	45 14.1	-45.1	145.6	43 34.4	-46.1	146.7	41 53.6	-47.0	147.7	32
47 46.5	-43.3	144.1	46 08.4	-44.4	145.4	44 29.0	-45.5	146.5	42 48.3	-46.4	147.5	41 06.6	-47.4	148.5	33
47 03.2	-43.7	145.2	45 24.0	-44.8	146.3	43 43.5	-45.9	147.4	42 01.9	-46.9	148.4	40 19.2	-47.8	149.3	34
46 19.5	-44.3	146.2	44 39.2	-45.3	147.3	42 57.6	-46.3	148.3	41 15.0	-47.2	149.2	39 31.4	-48.0	150.1	35
45 35.2	-44.7	147.1	43 53.9	-45.8	148.2	42 11.3	-46.6	149.2	40 27.8	-47.5	150.1	38 43.4	-48.3	150.9	36
44 50.5	-45.2	148.1	43 08.1	-46.1	149.1	41 24.7	-47.1	150.0	39 40.3	-47.9	150.8	37 55.1	-48.6	151.6	37
44 05.3	-45.6	149.0	42 22.0	-46.6	150.0	40 37.6	-47.4	150.8	38 52.4	-48.1	151.6	37 06.5	-48.9	152.4	38
43 19.7	-46.0	149.9	41 35.4	-46.9	150.8	39 50.2	-47.7	151.6	38 04.3	-48.5	152.4	36 17.6	-49.1	153.1	39
42 33.7	-46.5	150.8	40 48.5	-47.2	151.6	39 02.5	-48.0	152.4	37 15.8	-48.7	153.1	35 28.5	-49.4	153.8	40
41 47.2	-46.7	151.6	40 01.3	-47.6	152.4	38 14.5	-48.3	153.2	36 27.1	-49.0	153.9	34 39.1	-49.6	154.5	41
41 00.5	-47.2	152.5	39 13.7	-47.9	153.2	37 26.2	-48.6	153.9	35 38.1	-49.2	154.6	33 49.5	-49.9	155.2	42
40 13.3	-47.5	153.3	38 25.8	-48.2	154.0	36 37.6	-48.8	154.7	34 48.9	-49.5	155.3	32 59.6	-50.0	155.8	43
39 25.8	-47.8	154.1	37 37.6	-48.5	154.8	35 48.8	-49.2	155.4	33 59.4	-49.7	156.0	32 09.6	-50.3	156.5	44
38 38.0	-48.1	154.9	36 49.1	-48.7	155.5	34 59.6	-49.3	156.1	33 09.7	-49.9	156.6	31 19.3	-50.4	157.1	45
37 49.9	-48.4	155.6	36 00.4	-49.0	156.2	34 10.3	-49.6	156.8	32 19.8	-50.1	157.3	30 28.9	-50.6	157.8	46
37 01.5	-48.6	156.4	35 11.4	-49.3	156.9	33 20.7	-49.8	157.5	31 29.7	-50.3	157.9	29 38.3	-50.8	158.4	47
36 12.9	-49.0	157.1	34 22.1	-49.5	157.6	32 30.9	-50.0	158.1	30 39.4	-50.5	158.6	28 47.5	-50.9	159.0	48
35 23.9	-49.1	157.8	33 32.6	-49.7	158.3	31 40.9	-50.2	158.8	29 48.9	-50.6	159.2	27 56.6	-51.1	159.6	49
34 34.8	-49.4	158.5	32 42.9	-49.9	159.0	30 50.7	-50.3	159.4	28 58.3	-50.9	159.8	27 05.5	-51.3	160.2	50
33 45.4	-49.7	159.2	31 53.0	-50.1	159.6	30 00.4	-50.6	160.1	28 07.4	-50.9	160.4	26 14.2	-51.3	160.8	51
32 55.7	-49.8	159.9	31 02.9	-50.3	160.3	29 09.8	-50.7	160.7	27 16.5	-51.2	161.0	25 22.9	-51.5	161.3	52
32 05.9	-50.1	160.5	30 12.6	-50.5	160.9	28 19.1	-50.9	161.3	26 25.3	-51.2	161.6	24 31.4	-51.7	161.9	53
31 15.8	-50.2	161.2	29 22.1	-50.6	161.5	27 28.2	-51.0	161.9	25 34.1	-51.4	162.2	23 39.7	-51.7	162.5	54
30 25.6	-50.4	161.8	28 31.5	-50.8	162.2	26 37.2	-51.2	162.5	24 42.7	-51.6	162.8	22 48.0	-51.9	163.0	55
29 35.2	-50.6	162.4	27 40.7	-51.0	162.8	25 46.0	-51.3	163.1	23 51.1	-51.6	163.3	21 56.1	-52.0	163.6	56
28 44.6	-50.8	163.0	26 49.7	-51.1	163.3	24 54.7	-51.5	163.6	22 59.5	-51.8	163.9	21 04.1	-52.0	164.1	57
27 53.8	-50.9	163.7	25 58.6	-51.2	163.9	24 03.2	-51.5	164.2	22 07.7	-51.9	164.4	20 12.1	-52.2	164.6	58
27 02.9	-51.0	164.2	25 07.4	-51.4	164.5	23 11.7	-51.7	164.7	21 15.8	-52.0	165.0	19 19.9	-52.3	165.2	59
26 11.9	-51.2	164.8	24 16.0	-51.5	165.1	22 20.0	-51.8	165.3	20 23.8	-52.0	165.5	18 27.6	-52.3	165.7	60
25 20.7	-51.4	165.4	23 24.5	-51.6	165.6	21 28.2	-51.9	165.8	19 31.8	-52.2	166.0	17 35.3	-52.4	166.2	61
24 29.3	-51.4	166.0	22 32.9	-51.8	166.2	20 36.3	-52.0	166.4	18 39.6	-52.2	166.5	16 42.9	-52.5	166.7	62
23 37.9	-51.6	166.5	21 41.1	-51.8	166.7	19 44.3	-52.1	166.9	17 47.4	-52.4	167.1	15 50.4	-52.6	167.2	63
22 46.3	-51.7	167.1	20 49.3	-52.0	167.3	18 52.2	-52.2	167.4	16 55.0	-52.4	167.6	14 57.8	-52.6	167.7	64
21 54.6	-51.8	167.7	19 57.3	-52.0	167.8	18 00.0	-52.3	168.0	16 02.6	-52.5	168.1	14 05.2	-52.7	168.2	65
21 02.8	-51.9	168.2	19 05.3	-52.1	168.3	17 07.7	-52.3	168.5	15 10.1	-52.5	168.6	13 12.5	-52.7	168.7	66
20 10.9	-52.0	168.7	18 13.2	-52.2	168.9	16 15.4	-52.4	169.0	14 17.6	-52.6	169.1	12 19.8	-52.8	169.2	67
19 18.9	-52.1	169.3	17 21.0	-52.3	169.4	15 23.0	-52.5	169.5	13 25.0	-52.7	169.6	11 27.0	-52.9	169.7	68
18 26.8	-52.2	169.8	16 28.7	-52.4	169.9	14 30.5	-52.5	170.0	12 32.3	-52.7	170.1	10 34.1	-52.9	170.1	69
17 34.6	-52.2	170.3	15 36.3	-52.4	170.4	13 38.0	-52.6	170.5	11 39.6	-52.8	170.6	9 41.2	-52.9	170.6	70
16 42.4	-52.4	170.8	14 43.9	-52.5	170.9	12 45.4	-52.7	171.0	10 46.8	-52.8	171.0	8 48.3	-53.0	171.1	71
15 50.0	-52.4	171.3	13 51.4	-52.6	171.4	11 52.7	-52.7	171.5	9 54.0	-52.8	171.5	7 55.3	-53.0	171.6	72
14 57.6	-52.5	171.8	12 58.8	-52.6	171.9	11 00.0	-52.7	172.0	9 01.2	-52.9	172.0	7 02.3	-53.0	172.1	73
14 05.1	-52.5	172.3	12 06.2	-52.7	172.4	10 07.3	-52.8	172.4	8 08.3	-52.9	172.5	6 09.3	-53.0	172.5	74
13 12.6	-52.6	172.8	11 13.5	-52.7	172.9	9 14.5	-52.9	172.9	7 15.4	-53.0	173.0	5 16.3	-53.1	173.0	75
12 20.0	-52.6	173.3	10 20.8	-52.7	173.4	8 21.6	-52.8	173.4	6 22.4	-53.0	173.4	4 23.2	-53.1	173.5	76
11 27.4	-52.7	173.8	9 28.1	-52.8	173.9	7 28.8	-52.9	173.9	5 29.4	-53.0	173.9	3 30.1	-53.1	173.9	77
10 34.7	-52.8	174.3	8 35.3	-52.9	174.3	6 35.9	-53.0	174.4	4 36.4	-53.0	174.4	2 37.0	-53.1	174.4	78
9 41.9	-52.7	174.8	7 42.4	-52.8	174.8	5 42.9	-52.9	174.8	3 43.4	-53.0	174.8	1 43.9	-53.1	174.9	79
8 49.2	-52.8	175.3	6 49.6	-52.9	175.3	4 50.0	-53.0	175.3	2 50.4	-53.1	175.3	0 50.8	-53.1	175.3	80
7 56.4	-52.9	175.7	5 56.7	-52.9	175.8	3 57.0	-53.0	175.8	1 57.3	-53.0	175.8	0 02.3	+53.2	4.2	81
7 03.5	-52.9	176.2	5 03.8	-53.0	176.2	3 04.0	-53.0	176.2	1 04.3	-53.1	176.3	0 55.5	+53.1	3.7	82
6 10.6	-52.9	176.7	4 10.8	-52.9	176.7	2 11.0	-53.0	176.7	0 11.2	-53.0	176.7	1 48.6	+53.1	3.3	83
5 17.7	-52.9	177.2	3 17.9	-53.0	177.2	1 18.0	-53.0	177.2	0 41.8	+53.1	2.8	2 41.7	+53.1	2.8	84
4 24.8	-52.9	177.6	2 24.9	-53.0	177.7	0 25.0	-53.0	177.7	1 34.9	+53.0	2.3	3 34.8	+53.1	2.3	85
3 31.9	-53.0	178.1	1 31.9	-52.9	178.1	0 28.0	+53.0	1.9	2 27.9	+53.1	1.9	4 27.9	+53.0	1.9	86
2 38.9	-53.0	178.6	0 39.0	-53.0	178.6	1 21.0	+53.0	1.4	3 21.0	+53.0	1.4	5 20.9	+53.1	1.4	87
1 45.9	-52.9	179.1	0 14.0	+53.0	0.9	2 14.0	+53.0	0.9	4 14.0	+53.0	0.9	6 14.0	+53.0	0.9	88
0 53.0	-53.0	179.5	1 07.0	+53.0	0.5	3 07.0	+53.0	0.5	5 07.0	+53.0	0.5	7 07.0	+53.0	0.5	89
0 00.0	+53.0	0.0	2 00.0	+53.0	0.0	4 00.0	+53.0	0.0	6 00.0	+53.0	0.0	8 00.0	+53.0	0.0	90

LATITUDE SAME NAME

L.H.A. 152°, 208°

28°, 332° L.H.A.

LATITUDE SAME NAME

Dec. °	10°			12°			14°			16°			18°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	57 07.5	-32.0	48.5	58 25.1	-29.4	50.9	59 38.6	-26.7	53.6	60 47.5	-23.6	56.4	61 51.2	-20.3	59.5
31	56 35.5	-33.1	47.0	57 55.7	-30.8	49.3	59 11.9	-28.0	51.8	60 23.9	-25.2	54.6	61 30.9	-21.9	57.5
32	56 02.4	-34.2	45.5	57 24.9	-31.9	47.7	58 43.9	-29.5	50.1	59 58.7	-26.6	52.7	61 09.0	-23.5	55.6
33	55 28.2	-35.2	44.0	56 53.0	-33.1	46.1	58 14.4	-30.6	48.4	59 32.1	-28.0	50.9	60 45.5	-25.1	53.7
34	54 53.0	-36.2	42.6	56 19.9	-34.1	44.6	57 43.8	-31.9	46.8	59 04.1	-29.4	49.2	60 20.4	-26.7	51.9
35	54 16.8	-37.1	41.2	55 45.8	-35.2	43.1	57 11.9	-33.1	45.2	58 34.7	-30.7	47.5	59 53.7	-28.0	50.1
36	53 39.7	-37.9	39.9	55 10.6	-36.1	41.7	56 38.8	-34.1	43.7	58 04.0	-31.9	45.9	59 25.7	-29.4	48.3
37	53 01.8	-38.8	38.6	54 34.5	-37.1	40.3	56 04.7	-35.2	42.2	57 32.1	-33.1	44.3	58 56.3	-30.7	46.6
38	52 23.0	-39.6	37.3	53 57.4	-38.0	39.0	55 29.5	-36.1	40.8	56 59.0	-34.1	42.8	58 25.6	-32.0	45.0
39	51 43.4	-40.3	36.1	53 19.4	-38.7	37.7	54 53.4	-37.1	39.4	56 24.9	-35.2	41.3	57 53.6	-33.1	43.4
40	51 03.1	-41.0	34.9	52 40.7	-39.6	36.4	54 16.3	-38.0	38.0	55 49.7	-36.3	39.8	57 20.5	-34.2	41.8
41	50 22.1	-41.6	33.7	52 01.1	-40.3	35.2	53 38.3	-38.8	36.7	55 13.4	-37.1	38.4	56 46.3	-35.3	40.3
42	49 40.5	-42.3	32.6	51 20.8	-41.0	34.0	52 59.5	-39.6	35.4	54 36.3	-38.1	37.0	56 11.0	-36.4	38.8
43	48 58.2	-42.9	31.5	50 39.8	-41.7	32.8	52 19.9	-40.4	34.2	53 58.2	-38.9	35.7	55 34.6	-37.2	37.4
44	48 15.3	-43.4	30.5	49 58.1	-42.3	31.7	51 39.5	-41.1	33.0	53 19.3	-39.7	34.4	54 57.4	-38.2	36.0
45	47 31.9	-44.0	29.4	49 15.8	-43.0	30.6	50 58.4	-41.7	31.8	52 39.6	-40.4	33.2	54 19.2	-39.0	34.7
46	46 47.9	-44.5	28.4	48 32.8	-43.5	29.5	50 16.7	-42.4	30.7	51 59.2	-41.2	32.0	53 40.2	-39.8	33.4
47	46 03.4	-45.0	27.5	47 49.3	-44.0	28.5	49 34.3	-43.0	29.6	51 18.0	-41.9	30.8	53 00.4	-40.6	32.1
48	45 18.4	-45.5	26.5	47 05.3	-44.5	27.5	48 51.3	-43.6	28.5	50 36.1	-42.5	29.7	52 19.8	-41.4	30.9
49	44 32.9	-45.8	25.6	46 20.6	-45.1	26.5	48 07.7	-44.1	27.5	49 53.6	-43.1	28.6	51 38.4	-42.0	29.8
50	43 47.1	-46.3	24.7	45 35.7	-45.5	25.5	47 23.6	-44.7	26.5	49 10.5	-43.7	27.5	50 56.4	-42.6	28.6
51	43 00.8	-46.7	23.8	44 50.2	-45.9	24.6	46 38.9	-45.1	25.5	48 26.8	-44.2	26.4	50 13.8	-43.3	27.5
52	42 14.1	-47.0	23.0	44 04.3	-46.4	23.7	45 53.8	-45.6	24.5	47 42.6	-44.8	25.4	49 30.5	-43.9	26.4
53	41 27.1	-47.4	22.1	43 17.9	-46.7	22.8	45 08.2	-46.0	23.6	46 57.8	-45.2	24.5	48 46.6	-44.3	25.4
54	40 39.7	-47.8	21.3	42 31.2	-47.1	22.0	44 22.2	-46.5	22.7	46 12.6	-45.7	23.5	48 02.3	-45.0	24.4
55	39 51.9	-48.0	20.5	41 44.1	-47.5	21.2	43 35.7	-46.8	21.8	45 26.9	-46.2	22.6	47 17.3	-45.4	23.4
56	39 03.9	-48.4	19.8	40 56.6	-47.8	20.3	42 48.9	-47.2	21.0	44 40.7	-46.6	21.7	46 31.9	-45.9	22.4
57	38 15.5	-48.6	19.0	40 08.8	-48.1	19.5	42 01.7	-47.6	20.1	43 54.1	-46.9	20.8	45 46.0	-46.3	21.5
58	37 26.9	-48.9	18.3	39 20.7	-48.4	18.8	41 14.1	-47.9	19.3	43 07.2	-47.4	19.9	44 59.7	-46.7	20.6
59	36 38.0	-49.2	17.5	38 32.3	-48.8	18.0	40 26.2	-48.2	18.5	42 19.8	-47.7	19.1	44 13.0	-47.1	19.7
60	35 48.8	-49.4	16.8	37 43.5	-48.9	17.3	39 38.0	-48.5	17.7	41 32.1	-48.0	18.3	43 25.9	-47.5	18.9
61	34 59.4	-49.6	16.1	36 54.6	-49.3	16.5	38 49.5	-48.9	17.0	40 44.1	-48.4	17.5	42 38.4	-47.9	18.0
62	34 09.8	-49.9	15.4	36 05.3	-49.5	15.8	38 00.6	-49.0	16.2	39 55.7	-48.6	16.7	41 50.5	-48.2	17.2
63	33 19.9	-50.1	14.8	35 15.8	-49.7	15.1	37 11.6	-49.4	15.5	39 07.1	-49.0	15.9	41 02.3	-48.5	16.4
64	32 29.8	-50.3	14.1	34 26.1	-50.0	14.4	36 22.2	-49.6	14.8	38 18.1	-49.2	15.2	40 13.8	-48.8	15.6
65	31 39.5	-50.4	13.5	33 36.1	-50.1	13.8	35 32.6	-49.8	14.1	37 28.9	-49.5	14.5	39 25.0	-49.1	14.9
66	30 49.1	-50.7	12.8	32 46.0	-50.4	13.1	34 42.8	-50.1	13.4	36 39.4	-49.7	13.8	38 35.9	-49.4	14.1
67	29 58.4	-50.8	12.2	31 55.6	-50.5	12.5	33 52.7	-50.2	12.8	35 49.7	-50.0	13.1	37 46.5	-49.6	13.4
68	29 07.6	-51.0	11.6	31 05.1	-50.8	11.9	33 02.5	-50.5	12.1	34 59.7	-50.2	12.4	36 56.9	-49.9	12.7
69	28 16.6	-51.2	11.0	30 14.3	-50.9	11.2	32 12.0	-50.7	11.5	34 09.5	-50.4	11.7	36 07.0	-50.1	12.0
70	27 25.4	-51.2	10.4	29 23.4	-51.0	10.6	31 21.3	-50.8	10.8	33 19.1	-50.5	11.1	35 16.9	-50.4	11.3
71	26 34.2	-51.5	9.8	28 32.4	-51.3	10.0	30 30.5	-51.0	10.2	32 28.6	-50.8	10.4	34 26.5	-50.5	10.7
72	25 42.7	-51.5	9.3	27 41.1	-51.3	9.4	29 39.5	-51.2	9.6	31 37.8	-51.0	9.8	33 36.0	-50.8	10.0
73	24 51.2	-51.7	8.7	26 49.8	-51.6	8.8	28 48.3	-51.3	9.0	30 46.8	-51.1	9.2	32 45.2	-50.9	9.4
74	23 59.5	-51.8	8.1	25 58.2	-51.6	8.3	27 57.0	-51.5	8.4	29 55.7	-51.3	8.6	31 54.3	-51.1	8.8
75	23 07.7	-52.0	7.6	25 06.6	-51.8	7.7	27 05.5	-51.6	7.8	29 04.4	-51.5	8.0	31 03.2	-51.3	8.2
76	22 15.7	-52.0	7.0	24 14.8	-51.9	7.2	26 13.9	-51.8	7.3	28 12.9	-51.6	7.4	30 11.9	-51.5	7.6
77	21 23.7	-52.1	6.5	23 22.9	-52.0	6.6	25 22.1	-51.9	6.7	27 21.3	-51.8	6.8	29 20.4	-51.6	7.0
78	20 31.6	-52.2	6.0	22 30.9	-52.1	6.1	24 30.2	-52.0	6.2	26 29.5	-51.8	6.3	28 28.8	-51.7	6.4
79	19 39.4	-52.4	5.5	21 38.8	-52.2	5.5	23 38.2	-52.1	5.6	25 37.7	-52.0	5.7	27 37.1	-51.9	5.8
80	18 47.0	-52.4	4.9	20 46.6	-52.3	5.0	22 46.1	-52.2	5.1	24 45.7	-52.2	5.2	26 45.2	-52.1	5.2
81	17 54.6	-52.4	4.4	19 54.3	-52.4	4.5	21 53.9	-52.3	4.5	23 53.5	-52.2	4.6	25 53.1	-52.1	4.7
82	17 02.2	-52.6	3.9	19 01.9	-52.5	4.0	21 01.6	-52.4	4.0	23 01.3	-52.4	4.1	25 01.0	-52.3	4.1
83	16 09.6	-52.6	3.4	18 09.4	-52.6	3.5	20 09.2	-52.5	3.5	22 08.9	-52.4	3.5	24 08.7	-52.4	3.6
84	15 17.0	-52.7	2.9	17 16.8	-52.6	2.9	19 16.7	-52.6	3.0	21 16.5	-52.5	3.0	23 16.3	-52.5	3.1
85	14 24.3	-52.8	2.4	16 24.2	-52.7	2.4	18 24.1	-52.7	2.5	20 24.0	-52.7	2.5	22 23.8	-52.5	2.5
86	13 31.5	-52.8	1.9	15 31.5	-52.8	1.9	17 31.4	-52.7	2.0	19 31.3	-52.7	2.0	21 31.3	-52.7	2.0
87	12 38.7	-52.8	1.4	14 38.7	-52.8	1.5	16 38.7	-52.9	1.5	18 38.6	-52.8	1.5	20 38.6	-52.8	1.5
88	11 45.9	-52.9	1.0	13 45.9	-52.9	1.0	15 45.8	-52.9	1.0	17 45.8	-52.9	1.0	19 45.8	-52.9	1.0
89	10 53.0	-53.0	0.5	12 53.0	-53.0	0.5	14 52.9	-52.9	0.5	16 52.9	-52.9	0.5	18 52.9	-52.9	0.5
90	10 00.0	-53.0	0.0	12 00.0	-53.0	0.0	14 00.0	-53.0	0.0	16 00.0	-53.0	0.0	18 00.0	-53.0	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 28°, 332°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
41	46.5	-47.2 147.0	40	05.4	-48.1 147.9	38	23.3	-49.0 148.8	36	40.2	-49.7 149.5	34	56.4	-50.4 150.3	30
40	59.3	-47.6 147.8	39	17.3	-48.5 148.7	37	34.3	-49.2 149.5	35	50.5	-49.9 150.2	34	06.0	-50.6 150.9	31
40	11.7	-47.9 148.6	38	28.8	-48.7 149.4	36	45.1	-49.5 150.2	35	00.6	-50.2 150.9	33	15.4	-50.9 151.6	32
39	23.8	-48.3 149.4	37	40.1	-49.0 150.2	35	55.6	-49.7 150.9	34	10.4	-50.4 151.6	32	24.5	-51.0 152.2	33
38	35.5	-48.5 150.1	36	51.1	-49.3 150.9	35	05.9	-50.0 151.6	33	20.0	-50.6 152.2	31	33.5	-51.2 152.8	34
37	47.0	-48.8 150.9	36	01.8	-49.5 151.6	34	15.9	-50.2 152.3	32	29.4	-50.8 152.9	30	42.3	-51.3 153.4	35
36	58.2	-49.1 151.6	35	12.3	-49.7 152.3	33	25.7	-50.3 152.9	31	38.6	-51.0 153.5	29	51.0	-51.6 154.0	36
36	09.1	-49.3 152.3	34	22.6	-50.0 153.0	32	35.4	-50.6 153.6	30	47.6	-51.1 154.1	28	59.4	-51.6 154.6	37
35	19.8	-49.5 153.0	33	32.6	-50.2 153.6	31	44.8	-50.8 154.2	29	56.5	-51.3 154.7	28	07.8	-51.8 155.2	38
34	30.3	-49.8 153.7	32	42.4	-50.4 154.3	30	54.0	-50.9 154.8	29	05.2	-51.5 155.3	27	16.0	-52.0 155.8	39
33	40.5	-50.0 154.4	31	52.0	-50.5 154.9	30	03.1	-51.1 155.4	28	13.7	-51.6 155.9	26	24.0	-52.1 156.3	40
32	50.5	-50.2 155.1	31	01.5	-50.8 155.6	29	12.0	-51.3 156.1	27	22.1	-51.7 156.5	25	31.9	-52.2 156.9	41
32	00.3	-50.4 155.7	30	10.7	-50.9 156.2	28	20.7	-51.4 156.6	26	30.4	-51.9 157.1	24	39.7	-52.3 157.4	42
31	09.9	-50.6 156.3	29	19.8	-51.1 156.8	27	29.3	-51.5 157.2	25	38.5	-52.0 157.6	23	47.4	-52.4 158.0	43
30	19.3	-50.7 157.0	28	28.7	-51.2 157.4	26	37.8	-51.7 157.8	24	46.5	-52.1 158.2	22	55.0	-52.5 158.5	44
29	28.6	-50.9 157.6	27	37.5	-51.4 158.0	25	46.1	-51.8 158.4	23	54.4	-52.2 158.7	22	02.5	-52.7 159.0	45
28	37.7	-51.1 158.2	26	46.1	-51.5 158.6	24	54.3	-52.0 158.9	23	02.2	-52.4 159.2	21	09.8	-52.7 159.5	46
27	46.6	-51.2 158.8	25	54.6	-51.7 159.1	24	02.3	-52.0 159.5	22	09.8	-52.4 159.8	20	17.1	-52.8 160.0	47
26	55.4	-51.4 159.4	25	02.9	-51.8 159.7	23	10.3	-52.2 160.0	21	17.4	-52.6 160.3	19	24.3	-52.9 160.5	48
26	04.0	-51.5 159.9	24	11.1	-51.9 160.3	22	18.1	-52.3 160.6	20	24.8	-52.6 160.8	18	31.4	-52.9 161.0	49
25	12.5	-51.7 160.5	23	19.2	-52.0 160.8	21	25.8	-52.4 161.1	19	32.2	-52.7 161.3	17	38.5	-53.1 161.5	50
24	20.8	-51.7 161.1	22	27.2	-52.1 161.4	20	33.4	-52.4 161.6	18	39.5	-52.8 161.8	16	45.4	-53.1 162.0	51
23	29.1	-51.9 161.6	21	35.1	-52.2 161.9	19	41.0	-52.6 162.1	17	46.7	-52.9 162.3	15	52.3	-53.2 162.5	52
22	37.2	-52.0 162.2	20	42.9	-52.3 162.4	18	48.4	-52.6 162.6	16	53.8	-52.9 162.8	14	59.1	-53.2 163.0	53
21	45.2	-52.1 162.7	19	50.6	-52.4 162.9	17	55.8	-52.7 163.1	15	00.9	-53.0 163.3	14	05.9	-53.3 163.5	54
20	53.1	-52.2 163.2	18	58.2	-52.5 163.5	17	03.1	-52.8 163.6	16	07.9	-53.1 163.8	13	12.6	-53.3 163.9	55
20	00.9	-52.2 163.8	18	05.7	-52.6 164.0	16	10.3	-52.9 164.1	14	14.8	-53.1 164.3	12	19.3	-53.4 164.4	56
19	08.7	-52.4 164.3	17	13.1	-52.7 164.5	15	17.4	-52.9 164.6	13	21.7	-53.2 164.8	11	25.9	-53.5 164.9	57
18	16.3	-52.5 164.8	16	20.4	-52.7 165.0	14	24.5	-53.0 165.1	12	28.5	-53.2 165.2	10	32.4	-53.4 165.3	58
17	23.8	-52.5 165.3	15	27.7	-52.8 165.5	13	31.5	-53.0 165.6	11	35.3	-53.3 165.7	9	39.0	-53.6 165.8	59
16	31.3	-52.6 165.8	14	34.9	-52.8 166.0	12	38.5	-53.1 166.1	10	42.0	-53.1 166.2	8	45.4	-53.5 166.3	60
15	38.7	-52.6 166.3	13	42.1	-52.9 166.5	11	45.4	-53.1 166.6	9	48.7	-53.4 166.6	7	51.9	-53.6 166.7	61
14	46.1	-52.8 166.8	12	49.2	-53.0 166.9	10	52.3	-53.2 167.0	8	55.3	-53.4 167.1	6	58.3	-53.6 167.2	62
13	53.3	-52.8 167.3	11	56.2	-53.0 167.4	9	59.1	-53.2 167.5	8	01.9	-53.4 167.6	6	04.7	-53.6 167.6	63
13	00.5	-52.8 167.8	11	03.2	-53.0 167.9	9	05.9	-53.3 168.0	7	08.5	-53.4 168.0	5	11.1	-53.6 168.1	64
12	07.7	-52.9 168.3	10	10.2	-53.1 168.4	8	12.6	-53.3 168.4	6	15.1	-53.5 168.5	4	17.5	-53.7 168.5	65
11	14.8	-52.9 168.8	9	17.1	-53.1 168.8	7	19.3	-53.3 168.9	5	21.6	-53.5 168.9	3	23.8	-53.7 169.0	66
10	21.9	-53.0 169.3	8	24.0	-53.2 169.3	6	26.0	-53.3 169.4	4	28.1	-53.5 169.4	2	30.1	-53.6 169.4	67
9	28.9	-53.0 169.7	7	30.8	-53.2 169.8	5	32.7	-53.4 169.8	3	34.6	-53.5 169.9	1	36.5	-53.7 169.9	68
8	35.9	-53.1 170.2	6	37.6	-53.2 170.2	4	39.3	-53.3 170.3	2	41.1	-53.6 170.3	0	42.8	-53.7 170.3	69
7	42.8	-53.1 170.7	5	44.4	-53.2 170.7	3	46.0	-53.4 170.7	1	47.5	-53.5 170.8	0	10.9	+53.7 9.2	70
6	49.7	-53.1 171.1	4	51.2	-53.3 171.2	2	52.6	-53.4 171.2	0	54.0	-53.6 171.2	1	04.6	+53.7 8.8	71
5	56.6	-53.1 171.6	3	57.9	-53.3 171.6	1	59.2	-53.4 171.7	0	00.4	-53.5 171.7	1	58.3	+53.7 8.3	72
5	03.5	-53.2 172.1	3	04.6	-53.3 172.1	1	05.8	-53.4 172.1	0	53.1	+53.5 7.9	2	52.0	+53.6 7.9	73
4	10.3	-53.1 172.5	2	11.3	-53.2 172.6	0	12.4	-53.5 172.6	1	46.6	+53.6 7.4	3	45.6	+53.7 7.5	74
3	17.2	-53.2 173.0	1	18.1	-53.3 173.0	0	41.1	+53.4 7.0	2	40.2	+53.5 7.0	4	39.3	+53.6 7.0	75
2	24.0	-53.2 173.5	0	24.8	-53.3 173.5	1	34.5	+53.4 6.5	3	33.7	+53.5 6.5	5	32.9	+53.6 6.6	76
1	30.8	-53.2 173.9	0	28.5	+53.3 6.1	2	27.9	+53.4 6.1	4	27.2	+53.5 6.1	6	26.5	+53.6 6.1	77
0	37.6	-53.2 174.4	1	21.8	+53.3 5.6	3	21.3	+53.4 5.6	5	20.7	+53.5 5.6	7	20.1	+53.6 5.6	78
0	15.6	+53.2 5.1	2	15.1	+53.3 5.1	4	14.7	+53.3 5.2	6	14.2	+53.4 5.2	8	13.7	+53.5 5.2	79
1	08.8	+53.2 4.7	3	08.4	+53.3 4.7	5	08.0	+53.4 4.7	7	07.6	+53.4 4.7	9	07.2	+53.5 4.7	80
2	02.0	+53.2 4.2	4	01.7	+53.2 4.2	6	01.4	+53.3 4.2	8	01.0	+53.4 4.3	10	00.7	+53.5 4.3	81
2	55.2	+53.2 3.8	4	54.9	+53.3 3.8	6	54.7	+53.3 3.8	8	54.4	+53.4 3.8	10	54.2	+53.4 3.8	82
3	48.4	+53.1 3.3	5	48.2	+53.2 3.3	7	48.0	+53.2 3.3	9	47.8	+53.3 3.3	11	47.6	+53.3 3.4	83
4	41.5	+53.2 2.8	6	41.4	+53.2 2.8	8	41.2	+53.3 2.8	10	41.1	+53.3 2.9	12	40.9	+53.4 2.9	84
5	34.7	+53.1 2.4	7	34.6	+53.1 2.4	9	34.5	+53.2 2.4	11	34.4	+53.2 2.4	13	34.3	+53.2 2.4	85
6	27.8	+53.1 1.9	8	27.7	+53.2 1.9	10	27.7	+53.1 1.9	12	27.6	+53.2 1.9	14	27.5	+53.3 1.9	86
7	20.9	+53.1 1.4	9	20.9	+53.1 1.4	11	20.8	+53.1 1.4	13	20.8	+53.1 1.4	15	20.8	+53.1 1.5	87
8	14.0	+53.0 0.9	10	14.0	+53.0 1.0	12	13.9	+53.1 1.0	14	13.9	+53.1 1.0	16	13.9	+53.1 1.0	88
9	07.0	+53.0 0.5	11	07.0	+53.0 0.5	13	07.0	+53.0 0.5	15	07.0	+53.0 0.5	17	07.0	+53.0 0.5	89
10	00.0	+53.0 0.0	12	00.0	+53.0 0.0	14	00.0	+52.9 0.0	16	00.0	+52.9 0.0	18	00.0	+52.9 0.0	90
10°			12°			14°			16°			18°			

LATITUDE SAME NAME

L.H.A. 152°, 208°

28°, 332° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	62 49.0	-16.5	62.9	63 40.4	-12.5	66.5	64 24.7	-8.2	70.3	65 01.2	-3.6	74.3	65 29.4	+1.3	78.5
31	62 32.5	-18.4	60.8	63 27.9	-14.5	64.3	64 16.5	-10.3	68.0	64 57.6	-5.8	72.0	65 30.7	-1.1	76.1
32	62 14.1	-20.1	58.7	63 13.4	-16.4	62.1	64 06.2	-12.4	65.7	64 51.8	-7.9	69.6	65 29.6	-3.3	73.7
33	61 54.0	-21.9	56.7	62 57.0	-18.3	60.0	63 53.8	-14.4	63.5	64 43.9	-10.2	67.3	65 26.3	-5.6	71.3
34	61 32.1	-23.5	54.7	62 38.7	-20.1	57.9	63 39.4	-16.3	61.3	64 33.7	-12.3	65.0	65 20.7	-7.8	68.9
35	61 08.6	-25.2	52.8	62 18.6	-21.9	55.8	63 23.1	-18.3	59.1	64 21.4	-14.3	62.7	65 12.9	-10.1	66.5
36	60 43.4	-26.6	51.0	61 56.7	-23.6	53.9	63 04.8	-20.2	57.0	64 07.1	-16.4	60.5	65 02.8	-12.2	64.2
37	60 16.8	-28.1	49.1	61 33.1	-25.1	51.9	62 44.6	-21.9	55.0	63 50.7	-18.3	58.3	64 50.6	-14.4	61.9
38	59 48.7	-29.5	47.4	61 08.0	-26.8	50.0	62 22.7	-23.6	52.9	63 32.4	-20.2	56.1	64 36.2	-16.4	59.6
39	59 19.2	-30.7	45.6	60 41.2	-28.1	48.2	61 59.1	-25.3	51.0	63 12.2	-22.0	54.0	64 19.8	-18.4	57.4
40	58 48.5	-32.1	44.0	60 13.1	-29.6	46.4	61 33.8	-26.8	49.0	62 50.2	-23.8	52.0	64 01.4	-20.3	55.2
41	58 16.4	-33.2	42.4	59 43.5	-31.0	44.7	61 07.0	-28.4	47.2	62 26.4	-25.4	50.0	63 41.1	-22.2	53.1
42	57 43.2	-34.4	40.8	59 12.5	-32.2	43.0	60 38.6	-29.7	45.4	62 01.0	-27.1	48.0	63 18.9	-23.9	51.0
43	57 08.8	-35.5	39.3	58 40.3	-33.4	41.3	60 08.9	-31.1	43.6	61 33.9	-28.5	46.1	62 55.0	-25.7	48.9
44	56 33.3	-36.4	37.8	58 06.9	-34.5	39.7	59 37.8	-32.5	41.9	61 05.4	-30.0	44.3	62 29.3	-27.3	47.0
45	55 56.9	-37.4	36.4	57 32.4	-35.7	38.2	59 05.3	-33.6	40.3	60 35.4	-31.4	42.5	62 02.0	-28.8	45.1
46	55 19.5	-38.4	35.0	56 56.7	-36.6	36.7	58 31.7	-34.8	38.7	60 04.0	-32.6	40.8	61 33.2	-30.3	43.2
47	54 41.1	-39.2	33.6	56 20.1	-37.6	35.3	57 56.9	-35.8	37.1	59 31.4	-33.9	39.1	61 02.9	-31.6	41.4
48	54 01.9	-40.0	32.3	55 42.5	-38.6	33.9	57 21.1	-36.9	35.6	58 57.5	-35.1	37.5	60 31.3	-33.0	39.7
49	53 21.9	-40.8	31.1	55 03.9	-39.4	32.5	56 44.2	-37.9	34.2	58 22.4	-36.2	36.0	59 58.3	-34.2	38.0
50	52 41.1	-41.5	29.9	54 24.5	-40.2	31.2	56 06.3	-38.8	32.8	57 46.2	-37.2	34.5	59 24.1	-35.4	36.4
51	51 59.6	-42.2	28.7	53 44.3	-41.0	30.0	55 27.5	-39.7	31.4	57 09.0	-38.1	33.0	58 48.7	-36.5	34.8
52	51 17.4	-42.8	27.5	53 03.3	-41.8	28.7	54 47.8	-40.5	30.1	56 30.9	-39.2	31.6	58 12.2	-37.6	33.3
53	50 34.6	-43.5	26.4	52 21.5	-42.4	27.6	54 07.3	-41.3	28.8	55 51.7	-39.9	30.2	57 34.6	-38.5	31.8
54	49 51.1	-44.0	25.3	51 39.1	-43.1	26.4	53 26.0	-42.0	27.6	55 11.8	-40.8	28.9	56 56.1	-39.5	30.4
55	49 07.1	-44.6	24.3	50 56.0	-43.6	25.3	52 44.0	-42.7	26.4	54 31.0	-41.6	27.6	56 16.6	-40.4	29.0
56	48 22.5	-45.1	23.3	50 12.4	-44.3	24.2	52 01.3	-43.3	25.3	53 49.4	-42.4	26.4	55 36.2	-41.1	27.7
57	47 37.4	-45.6	22.3	49 28.1	-44.8	23.2	51 18.0	-44.0	24.1	53 07.0	-43.0	25.2	54 55.1	-42.0	26.4
58	46 51.8	-46.1	21.3	48 43.3	-45.4	22.2	50 34.0	-44.5	23.1	52 24.0	-43.6	24.1	54 13.1	-42.6	25.2
59	46 05.7	-46.5	20.4	47 57.9	-45.8	21.2	49 49.5	-45.1	22.0	51 40.4	-44.3	22.9	53 30.5	-43.4	24.0
60	45 19.2	-46.9	19.5	47 12.1	-46.3	20.2	49 04.4	-45.6	21.0	50 56.1	-44.8	21.9	52 47.1	-44.0	22.8
61	44 32.3	-47.3	18.6	46 25.8	-46.8	19.3	48 18.8	-46.1	20.0	50 11.3	-45.4	20.8	52 03.1	-44.6	21.7
62	43 45.0	-47.7	17.8	45 39.0	-47.1	18.4	47 32.7	-46.6	19.1	49 25.9	-45.9	19.8	51 18.5	-45.2	20.6
63	42 57.3	-48.1	16.9	44 51.9	-47.5	17.5	46 46.1	-46.9	18.1	48 40.0	-46.4	18.8	50 33.3	-45.8	19.6
64	42 09.2	-48.4	16.1	44 04.4	-48.0	16.6	45 59.2	-47.5	17.2	47 53.6	-46.9	17.9	49 47.5	-46.2	18.6
65	41 20.8	-48.7	15.3	43 16.4	-48.2	15.8	45 11.7	-47.8	16.4	47 06.7	-47.3	16.9	49 01.3	-46.7	17.6
66	40 32.1	-49.0	14.6	42 28.2	-48.6	15.0	44 23.9	-48.1	15.5	46 19.4	-47.7	16.1	48 14.6	-47.2	16.7
67	39 43.1	-49.3	13.8	41 39.6	-49.0	14.2	43 35.8	-48.5	14.7	45 31.7	-48.1	15.2	47 27.4	-47.6	15.7
68	38 53.8	-49.5	13.1	40 50.6	-49.2	13.4	42 47.3	-48.9	13.9	44 43.6	-48.4	14.3	46 39.8	-48.0	14.8
69	38 04.3	-49.8	12.3	40 01.4	-49.5	12.7	41 58.4	-49.2	13.1	43 55.2	-48.8	13.5	45 51.8	-48.4	14.0
70	37 14.5	-50.1	11.6	39 11.9	-49.8	12.0	41 09.2	-49.4	12.3	43 06.4	-49.1	12.7	45 03.4	-48.8	13.1
71	36 24.4	-50.3	10.9	38 22.1	-50.0	11.2	40 19.8	-49.8	11.6	42 17.3	-49.5	11.9	44 14.6	-49.1	12.3
72	35 34.1	-50.5	10.3	37 32.1	-50.3	10.5	39 30.0	-50.0	10.8	41 27.8	-49.7	11.2	43 25.5	-49.4	11.5
73	34 43.6	-50.8	9.6	36 41.8	-50.5	9.9	38 40.0	-50.2	10.1	40 38.1	-50.0	10.4	42 36.1	-49.8	10.7
74	33 52.8	-50.9	9.0	35 51.3	-50.7	9.2	37 49.8	-50.5	9.4	39 48.1	-50.3	9.7	41 46.3	-50.0	10.0
75	33 01.9	-51.1	8.3	35 00.6	-50.9	8.5	36 59.3	-50.8	8.7	38 57.8	-50.5	9.0	40 56.3	-50.3	9.3
76	32 10.8	-51.3	7.7	34 09.7	-51.1	7.9	36 08.5	-50.9	8.1	38 07.3	-50.7	8.3	40 06.0	-50.5	8.5
77	31 19.5	-51.4	7.1	33 18.6	-51.3	7.3	35 17.6	-51.2	7.4	37 16.6	-51.0	7.6	39 15.5	-50.8	7.8
78	30 28.1	-51.7	6.5	32 27.3	-51.5	6.6	34 26.4	-51.3	6.8	36 25.6	-51.2	7.0	38 24.7	-51.1	7.2
79	29 36.4	-51.7	5.9	31 35.8	-51.7	6.0	33 35.1	-51.5	6.2	35 34.4	-51.4	6.3	37 33.6	-51.2	6.5
80	28 44.7	-52.0	5.3	30 44.1	-51.8	5.4	32 43.6	-51.7	5.6	34 43.0	-51.6	5.7	36 42.4	-51.5	5.8
81	27 52.7	-52.0	4.8	29 52.3	-52.0	4.9	31 51.9	-51.9	5.0	33 51.4	-51.8	5.1	35 50.9	-51.6	5.2
82	27 00.7	-52.2	4.2	29 00.3	-52.1	4.3	31 00.0	-52.0	4.4	32 59.6	-51.9	4.5	34 59.3	-51.9	4.6
83	26 08.5	-52.3	3.7	28 08.2	-52.2	3.7	30 08.0	-52.2	3.8	32 07.7	-52.1	3.9	34 07.4	-52.0	4.0
84	25 16.2	-52.5	3.1	27 16.0	-52.4	3.2	29 15.8	-52.3	3.2	31 15.6	-52.3	3.3	33 15.4	-52.2	3.4
85	24 23.7	-52.5	2.6	26 23.6	-52.5	2.6	28 23.5	-52.5	2.7	30 23.3	-52.4	2.7	32 23.2	-52.3	2.8
86	23 31.2	-52.7	2.0	25 31.1	-52.6	2.1	27 31.0	-52.6	2.1	29 30.9	-52.5	2.2	31 30.9	-52.6	2.2
87	22 38.5	-52.7	1.5	24 38.5	-52.7	1.5	26 38.4	-52.7	1.6	28 38.4	-52.7	1.6	30 38.3	-52.6	1.6
88	21 45.8	-52.9	1.0	23 45.8	-52.9	1.0	25 45.7	-52.8	1.0	27 45.7	-52.8	1.1	29 45.7	-52.8	1.1
89	20 52.9	-52.9	0.5	22 52.9	-52.9	0.5	24 52.9	-52.9	0.5	26 52.9	-52.9	0.5	28 52.9	-52.9	0.5
90	20 00.0	-53.0	0.0	22 00.0	-53.0	0.0	24 00.0	-53.0	0.0	26 00.0	-53.0	0.0	28 00.0	-53.0	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 28°, 332°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
33	11.9	-51.1	150.9	31	26.7	-51.7	151.5	29	40.9	-52.3	152.1	27	54.6	-52.8	152.6	26	07.8	-53.3	153.1	30
32	20.8	-51.3	151.6	30	35.0	-51.9	152.1	28	48.6	-52.3	152.7	27	01.8	-52.9	153.1	25	14.5	-53.3	153.6	31
31	29.5	-51.4	152.2	29	43.1	-52.0	152.7	27	56.3	-52.6	153.2	26	08.9	-53.0	153.7	24	21.2	-53.5	154.1	32
30	38.1	-51.6	152.8	28	51.1	-52.1	153.3	27	03.7	-52.6	153.8	25	15.9	-53.1	154.2	23	27.7	-53.6	154.6	33
29	46.5	-51.7	153.4	27	59.0	-52.3	153.8	26	11.1	-52.8	154.3	24	22.8	-53.2	154.7	22	34.1	-53.6	155.1	34
28	54.8	-51.9	153.9	27	06.7	-52.4	154.4	25	18.3	-52.8	154.8	23	29.8	-53.4	155.2	21	40.5	-53.8	155.6	35
28	02.9	-52.1	154.5	26	14.3	-52.5	154.9	24	25.5	-53.0	155.3	22	36.2	-53.4	155.7	20	46.7	-53.8	156.0	36
27	10.8	-52.1	155.1	25	21.8	-52.6	155.5	23	32.5	-53.1	155.9	21	42.8	-53.5	156.2	19	52.9	-53.9	156.5	37
26	18.7	-52.3	155.6	24	29.2	-52.8	156.0	22	39.4	-53.2	156.4	20	49.3	-53.6	156.7	18	59.0	-54.0	157.0	38
25	26.4	-52.4	156.2	23	36.4	-52.8	156.5	21	46.2	-53.2	156.9	19	55.7	-53.6	157.2	18	05.0	-54.0	157.4	39
24	34.0	-52.6	156.7	22	43.6	-53.0	157.1	20	53.0	-53.4	157.4	19	02.1	-53.7	157.6	17	11.0	-54.1	157.9	40
23	41.4	-52.6	157.2	21	50.6	-53.0	157.6	19	59.6	-53.4	157.8	18	08.4	-53.8	158.1	16	16.9	-54.1	158.3	41
22	48.8	-52.7	157.8	20	57.6	-53.1	158.1	19	06.2	-53.5	158.3	17	14.6	-53.9	158.6	15	22.8	-54.2	158.8	42
21	56.1	-52.9	158.3	20	04.5	-53.2	158.6	18	12.7	-53.6	158.8	16	20.7	-53.9	159.0	14	28.6	-54.3	159.2	43
21	03.2	-52.9	158.8	19	11.3	-53.3	159.0	17	19.1	-53.6	159.3	15	26.8	-54.0	159.5	13	34.3	-54.3	159.7	44
20	10.3	-53.0	159.3	18	18.0	-53.4	159.5	16	25.5	-53.7	159.8	14	32.8	-54.0	159.9	12	40.5	-54.3	160.1	45
19	17.3	-53.1	159.8	17	24.6	-53.4	160.0	15	31.8	-53.8	160.2	13	38.8	-54.1	160.4	11	45.7	-54.4	160.5	46
18	24.2	-53.1	160.3	16	31.2	-53.5	160.5	14	38.0	-53.8	160.7	12	44.7	-54.1	160.8	10	51.3	-54.4	161.0	47
17	31.1	-53.2	160.8	15	37.7	-53.5	161.0	13	44.2	-53.8	161.1	11	50.6	-54.1	161.3	9	56.9	-54.4	161.4	48
16	37.9	-53.3	161.2	14	44.2	-53.6	161.4	12	50.4	-53.9	161.6	10	56.5	-54.2	161.7	9	02.5	-54.5	161.8	49
15	44.6	-53.4	161.7	13	50.6	-53.7	161.9	11	56.5	-54.0	162.0	10	02.1	-54.3	162.2	8	08.0	-54.5	162.3	50
14	51.2	-53.4	162.2	12	56.9	-53.7	162.4	11	02.5	-54.0	162.5	9	08.0	-54.2	162.6	7	13.5	-54.5	162.7	51
13	57.8	-53.5	162.7	12	03.2	-53.8	162.8	10	08.5	-54.0	162.9	8	13.8	-54.3	163.0	6	19.0	-54.6	163.1	52
13	04.3	-53.5	163.1	11	09.4	-53.7	163.3	9	14.5	-54.1	163.4	7	19.5	-54.3	163.4	5	24.4	-54.5	163.5	53
12	10.8	-53.6	163.6	10	15.7	-53.9	163.7	8	20.4	-54.0	163.8	6	25.2	-54.4	163.9	4	29.9	-54.6	163.9	54
11	17.2	-53.6	164.1	9	21.8	-53.8	164.2	7	26.4	-54.2	164.2	5	30.8	-54.4	164.3	3	35.3	-54.6	164.3	55
10	23.6	-53.6	164.5	8	28.0	-53.9	164.6	6	32.2	-54.1	164.7	4	36.5	-54.4	164.7	2	40.7	-54.6	164.8	56
9	30.0	-53.7	165.0	7	34.1	-53.9	165.1	5	38.1	-54.1	165.1	3	42.1	-54.3	165.2	1	46.1	-54.6	165.2	57
8	36.3	-53.7	165.4	6	40.2	-54.0	165.5	4	44.0	-54.2	165.5	2	47.8	-54.4	165.6	0	51.5	-54.6	165.6	58
7	42.6	-53.7	165.9	5	46.2	-54.0	165.9	3	49.8	-54.2	166.0	1	53.4	-54.4	166.0	0	03.1	+54.6	166.0	59
6	48.9	-53.8	166.3	4	52.2	-53.9	166.4	2	55.6	-54.2	166.4	0	59.0	-54.4	166.4	0	07.7	+54.6	166.4	60
5	55.1	-53.8	166.8	3	58.3	-54.0	166.8	2	01.4	-54.2	166.8	0	04.6	-54.4	166.8	0	12.3	+54.6	166.8	61
5	01.3	-53.8	167.2	3	04.3	-54.0	167.2	1	07.2	-54.2	167.3	0	09.8	+54.4	167.3	0	14.2	+54.6	167.3	62
4	07.5	-53.8	167.7	2	10.3	-54.0	167.7	0	13.0	-54.2	167.7	1	14.2	+54.4	167.7	1	14.2	+54.4	167.7	63
3	13.7	-53.8	168.1	1	16.3	-54.1	168.1	0	41.2	+54.2	11.9	2	38.6	+54.4	11.9	2	38.6	+54.4	11.9	64
2	19.9	-53.9	168.5	1	25.8	+54.0	10.6	1	35.4	+54.2	11.4	3	33.0	+54.4	11.5	5	30.6	+54.5	11.5	65
1	26.0	-53.8	169.0	0	31.8	+54.0	11.0	2	29.6	+54.2	11.0	4	27.4	+54.3	11.0	6	25.1	+54.5	11.1	66
0	32.2	-53.9	169.4	0	32.2	-53.9	169.4	3	23.8	+54.1	10.6	5	21.7	+54.3	10.6	7	19.6	+54.5	10.7	67
0	21.7	+53.8	10.1	2	19.8	+54.0	10.1	4	17.9	+54.2	10.2	6	16.0	+54.4	10.2	8	14.1	+54.5	10.2	68
1	15.5	+53.9	9.7	3	13.8	+54.0	9.7	5	12.1	+54.1	9.7	7	10.4	+54.2	9.8	9	08.6	+54.4	9.8	69
2	09.4	+53.8	9.2	4	07.8	+54.0	9.3	6	06.2	+54.1	9.3	8	04.6	+54.3	9.3	10	03.0	+54.5	9.4	70
3	03.2	+53.8	8.8	5	01.8	+53.9	8.8	7	00.3	+54.1	8.9	8	58.9	+54.2	8.9	10	57.5	+54.3	9.0	71
3	57.0	+53.8	8.4	5	55.7	+54.0	8.4	7	54.4	+54.1	8.4	9	53.1	+54.2	8.5	11	51.8	+54.4	8.5	72
4	50.8	+53.8	7.9	6	49.7	+53.9	7.9	8	48.5	+54.1	8.0	10	47.3	+54.2	8.0	12	46.2	+54.2	8.1	73
5	44.6	+53.8	7.5	7	43.6	+53.9	7.5	9	42.6	+54.0	7.5	11	41.5	+54.1	7.6	13	40.4	+54.3	7.7	74
6	38.4	+53.7	7.0	8	37.5	+53.8	7.1	10	36.6	+53.9	7.1	12	35.6	+54.1	7.2	14	34.7	+54.2	7.2	75
7	32.1	+53.7	6.6	9	31.3	+53.9	6.6	11	30.5	+54.0	6.7	13	29.7	+54.0	6.7	15	28.9	+54.1	6.8	76
8	25.8	+53.7	6.1	10	25.2	+53.7	6.2	12	24.5	+53.8	6.2	14	23.7	+54.0	6.3	16	23.0	+54.1	6.3	77
9	19.5	+53.7	5.7	11	18.9	+53.8	5.7	13	18.3	+53.9	5.8	15	17.7	+54.0	5.8	17	17.1	+54.0	5.9	78
10	13.2	+53.6	5.2	12	12.7	+53.7	5.3	14	12.2	+53.8	5.3	16	11.7	+53.8	5.4	18	11.1	+54.0	5.4	79
11	06.8	+53.6	4.8	13	06.4	+53.6	4.8	15	06.0	+53.7	4.8	17	05.5	+53.8	4.9	19	05.1	+53.9	4.9	80
12	00.4	+53.5	4.3	14	00.0	+53.6	4.3	15	59.7	+53.6	4.4	17	59.3	+53.8	4.4	19	59.0	+53.8	4.5	81
12	53.9	+53.5	3.8	14	53.6	+53.6	3.9	16	53.3	+53.6	3.9	18	53.1	+53.6	4.0	20	52.8	+53.7	4.0	82
13	47.4	+53.4	3.4	15	47.2	+53.4	3.4	17	46.9	+53.6	3.4	19	46.7	+53.6	3.5	21	46.5	+53.7	3.5	83
14	40.8	+53.4	2.9	16	40.6	+53.5	2.9	18	40.5	+53.4	3.0	20	40.3	+53.5	3.0	22	40.2	+53.5	3.0	84
15	34.2	+53.3	2.4	17	34.1	+53.3	2.5	19	33.9	+53.4	2.5	21	33.8	+53.5	2.5	23	33.7	+53.5	2.6	85
16	27.5	+53.2	2.0	18	27.4	+53.3	2.0	20	27.3	+53.3	2.0	22	27.3	+53.3	2.0	24	27.2	+53.3	2.1	86
17	20.7	+53.2	1.5	19	20.7	+53.2	1.5	21	20.6	+53.2	1.5	23	20.6	+53.2	1.5	25	20.5	+53.3	1.6	87
18	13.9	+53.1	1.0	20	13.9	+53.1	1.0	22	13.8	+53.2	1.0	24	13.8	+53.2	1.0	26	13.8	+53.2	1.0	88
19	07.0	+53.0	0.5	21	07.0	+53.0	0.5	23	07.0	+53.0	0.5	25	07.0	+53.0	0.5	27	07.0	+53.0	0.5	89
20	00.0	+52.9	0.0	22	00.0	+52.9	0.0	24	00.0	+52.9	0.0	26	00.0	+52.9	0.0	28	00.0	+52.9	0.0	90

LATITUDE SAME NAME

L.H.A. 152°, 208°

30°, 330° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	48 35.4	-39.6	40.9	50 05.1	-38.0	42.4	51 32.4	-36.2	44.1	52 57.3	-34.4	46.0	54 19.2	-32.2	47.9
31	47 55.8	-40.2	39.8	49 27.1	-38.8	41.2	50 56.2	-37.1	42.9	52 22.9	-35.2	44.6	53 47.0	-33.3	46.5
32	47 15.6	-40.9	38.7	48 48.3	-39.4	40.1	50 19.1	-37.8	41.6	51 47.7	-36.1	43.3	53 13.7	-34.2	45.1
33	46 34.7	-41.5	37.6	48 08.9	-40.1	38.9	49 41.3	-38.6	40.4	51 11.6	-36.9	42.0	52 39.5	-35.1	43.7
34	45 53.2	-42.0	36.5	47 28.8	-40.7	37.8	49 02.7	-39.3	39.2	50 34.7	-37.7	40.7	52 04.4	-35.9	42.4
35	45 11.2	-42.5	35.5	46 48.1	-41.3	36.8	48 23.4	-39.9	38.1	49 57.0	-38.5	39.5	51 28.5	-36.9	41.1
36	44 28.7	-43.1	34.5	46 06.8	-41.8	35.7	47 43.5	-40.6	37.0	49 18.5	-39.1	38.3	50 51.6	-37.6	39.9
37	43 45.6	-43.5	33.6	45 25.0	-42.5	34.7	47 02.9	-41.1	35.9	48 39.4	-39.9	37.2	50 14.0	-38.3	38.6
38	43 02.1	-44.0	32.6	44 42.5	-42.9	33.7	46 21.8	-41.8	34.8	47 59.5	-40.4	36.1	49 35.7	-39.1	37.4
39	42 18.1	-44.5	31.7	43 59.6	-43.4	32.7	45 40.0	-42.3	33.8	47 19.1	-41.1	35.0	48 56.6	-39.7	36.3
40	41 33.6	-44.8	30.8	43 16.2	-43.8	31.7	44 57.7	-42.8	32.8	46 38.0	-41.7	33.9	48 16.9	-40.5	35.1
41	40 48.8	-45.2	29.9	42 32.4	-44.4	30.8	44 14.9	-43.3	31.8	45 56.3	-42.2	32.9	47 36.4	-41.0	34.0
42	40 03.6	-45.6	29.0	41 48.0	-44.7	29.9	43 31.6	-43.8	30.8	45 14.1	-42.7	31.8	46 55.4	-41.6	33.0
43	39 18.0	-46.0	28.2	41 03.3	-45.1	29.0	42 47.8	-44.2	29.9	44 31.4	-43.3	30.9	46 13.8	-42.2	31.9
44	38 32.0	-46.3	27.4	40 18.2	-45.5	28.1	42 03.6	-44.7	29.0	43 48.1	-43.7	29.9	45 31.4	-42.7	30.9
45	37 45.7	-46.7	26.6	39 32.7	-45.9	27.3	41 18.9	-45.0	28.1	43 04.4	-44.2	28.9	44 48.9	-43.2	29.9
46	36 59.0	-46.9	25.8	38 46.8	-46.2	26.5	40 33.9	-45.5	27.2	42 20.2	-44.6	28.0	44 05.7	-43.7	28.9
47	36 12.1	-47.2	25.0	38 00.6	-46.6	25.6	39 48.4	-45.8	26.4	41 35.6	-45.0	27.1	43 22.0	-44.2	28.0
48	35 24.9	-47.6	24.2	37 14.0	-46.8	24.8	39 02.6	-46.1	25.5	40 50.6	-45.4	26.2	42 37.8	-44.6	27.0
49	34 37.3	-47.7	23.5	36 27.2	-47.2	24.1	38 16.5	-46.5	24.7	40 05.2	-45.8	25.4	41 53.2	-45.0	26.1
50	33 49.6	-48.1	22.8	35 40.0	-47.5	23.3	37 30.0	-46.9	23.9	39 19.4	-46.1	24.5	41 08.2	-45.4	25.3
51	33 01.5	-48.3	22.0	34 52.5	-47.7	22.6	36 43.1	-47.1	23.1	38 33.3	-46.5	23.7	40 22.8	-45.7	24.4
52	32 13.2	-48.5	21.3	34 04.8	-48.0	21.8	35 56.0	-47.4	22.3	37 46.8	-46.8	22.9	39 37.1	-46.2	23.6
53	31 24.7	-48.7	20.6	33 16.8	-48.2	21.1	35 08.6	-47.7	21.6	37 00.0	-47.1	22.1	38 50.9	-46.5	22.7
54	30 36.0	-49.0	20.0	32 28.6	-48.4	20.4	34 20.9	-47.9	20.9	36 12.9	-47.4	21.4	38 04.4	-46.8	21.9
55	29 47.0	-49.1	19.3	31 40.2	-48.7	19.7	33 33.0	-48.2	20.1	35 25.5	-47.7	20.6	37 17.6	-47.1	21.1
56	28 57.9	-49.3	18.6	30 51.5	-48.9	19.0	32 44.8	-48.4	19.4	34 37.8	-47.9	19.9	36 30.5	-47.4	20.4
57	28 08.6	-49.5	18.0	30 02.6	-49.1	18.3	31 56.4	-48.7	18.7	33 49.9	-48.2	19.1	35 43.1	-47.7	19.6
58	27 19.1	-49.7	17.4	29 13.5	-49.3	17.7	31 07.7	-48.8	18.0	33 01.7	-48.4	18.4	34 55.4	-47.9	18.9
59	26 29.4	-49.9	16.7	28 24.2	-49.5	17.0	30 18.9	-49.1	17.4	32 13.3	-48.7	17.7	34 07.5	-48.3	18.1
60	25 39.5	-50.0	16.1	27 34.7	-49.6	16.4	29 29.8	-49.3	16.7	31 24.6	-48.8	17.0	33 19.2	-48.4	17.4
61	24 49.5	-50.1	15.5	26 45.1	-49.8	15.8	28 40.5	-49.4	16.0	30 35.8	-49.1	16.4	32 30.8	-48.7	16.7
62	23 59.4	-50.3	14.9	25 55.3	-50.0	15.1	27 51.1	-49.7	15.4	29 46.7	-49.3	15.7	31 42.1	-48.9	16.0
63	23 09.1	-50.4	14.3	25 05.3	-50.1	14.5	27 01.4	-49.8	14.8	28 57.4	-49.5	15.0	30 53.2	-49.1	15.3
64	22 18.7	-50.6	13.7	24 15.2	-50.2	13.9	26 11.6	-49.9	14.1	28 07.9	-49.6	14.4	30 04.1	-49.3	14.7
65	21 28.1	-50.6	13.1	23 25.0	-50.4	13.3	25 21.7	-50.1	13.5	27 18.3	-49.8	13.8	29 14.8	-49.5	14.0
66	20 37.5	-50.8	12.6	22 34.6	-50.5	12.7	24 31.6	-50.3	12.9	26 28.5	-50.0	13.1	28 25.3	-49.7	13.4
67	19 46.7	-50.9	12.0	21 44.1	-50.7	12.1	23 41.3	-50.4	12.3	25 38.5	-50.1	12.5	27 35.6	-49.8	12.7
68	18 55.8	-51.0	11.4	20 53.4	-50.7	11.6	22 50.9	-50.5	11.7	24 48.4	-50.3	11.9	26 45.8	-50.0	12.1
69	18 04.8	-51.0	10.9	20 02.7	-50.9	11.0	22 00.4	-50.6	11.1	23 58.1	-50.4	11.3	25 55.8	-50.2	11.5
70	17 13.8	-51.2	10.3	19 11.8	-51.0	10.4	21 09.8	-50.8	10.6	23 07.7	-50.5	10.7	25 05.6	-50.3	10.9
71	16 22.6	-51.3	9.8	18 20.8	-51.0	9.9	20 19.0	-50.8	10.0	22 17.2	-50.7	10.1	24 15.3	-50.5	10.3
72	15 31.3	-51.3	9.2	17 29.8	-51.2	9.3	19 28.2	-51.0	9.4	21 26.5	-50.7	9.6	23 24.8	-50.5	9.7
73	14 40.0	-51.4	8.7	16 38.6	-51.2	8.8	18 37.2	-51.1	8.9	20 35.8	-50.9	9.0	22 34.3	-50.7	9.1
74	13 48.6	-51.4	8.2	15 47.4	-51.3	8.2	17 46.1	-51.1	8.3	19 44.9	-51.0	8.4	21 43.6	-50.9	8.5
75	12 57.2	-51.6	7.6	14 56.1	-51.4	7.7	16 55.0	-51.3	7.8	18 53.9	-51.1	7.9	20 52.7	-50.9	8.0
76	12 05.6	-51.6	7.1	14 04.7	-51.5	7.2	16 03.7	-51.3	7.2	18 02.8	-51.2	7.3	20 01.8	-51.0	7.4
77	11 14.0	-51.6	6.6	13 13.2	-51.5	6.6	15 12.4	-51.4	6.7	17 11.6	-51.3	6.8	19 10.8	-51.2	6.8
78	10 22.4	-51.7	6.1	12 21.7	-51.6	6.1	14 21.0	-51.5	6.2	16 20.3	-51.3	6.2	18 19.6	-51.2	6.3
79	9 30.7	-51.7	5.6	11 30.1	-51.6	5.6	13 29.5	-51.5	5.6	15 29.0	-51.5	5.7	17 28.4	-51.4	5.7
80	8 39.0	-51.8	5.0	10 38.5	-51.7	5.1	12 38.0	-51.6	5.1	14 37.5	-51.5	5.1	16 37.0	-51.4	5.2
81	7 47.2	-51.8	4.5	9 46.8	-51.7	4.6	11 46.4	-51.6	4.6	13 46.0	-51.5	4.6	15 45.6	-51.5	4.7
82	6 55.4	-51.9	4.0	8 55.1	-51.8	4.0	10 54.8	-51.8	4.1	12 54.5	-51.7	4.1	14 54.1	-51.5	4.1
83	6 03.5	-51.9	3.5	8 03.3	-51.8	3.5	10 03.0	-51.7	3.5	12 02.8	-51.7	3.6	14 02.6	-51.6	3.6
84	5 11.6	-51.9	3.0	7 11.5	-51.9	3.0	9 11.3	-51.8	3.0	11 11.1	-51.7	3.1	13 11.0	-51.7	3.1
85	4 19.7	-51.9	2.5	6 19.6	-51.9	2.5	8 19.5	-51.8	2.5	10 19.4	-51.8	2.5	12 19.3	-51.8	2.6
86	3 27.8	-51.9	2.0	5 27.7	-51.9	2.0	7 27.7	-51.9	2.0	9 27.6	-51.9	2.0	11 27.5	-51.8	2.0
87	2 35.9	-52.0	1.5	4 35.8	-51.9	1.5	6 35.8	-51.9	1.5	8 35.7	-51.8	1.5	10 35.7	-51.9	1.5
88	1 43.9	-51.9	1.0	3 43.9	-51.9	1.0	5 43.9	-51.9	1.0	7 43.9	-52.0	1.0	9 43.8	-51.9	1.0
89	0 52.0	-52.0	0.5	2 52.0	-52.0	0.5	4 52.0	-52.0	0.5	6 51.9	-51.9	0.5	8 51.9	-51.9	0.5
90	0 00.0	-52.0	0.0	2 00.0	-52.0	0.0	4 00.0	-52.0	0.0	6 00.0	-52.0	0.0	8 00.0	-52.0	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 30°, 330°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
48	35.4	-39.6	139.1	47	03.7	-41.0	140.5	45	30.2	-42.4	141.8	43	55.1	-43.7	143.0	42	18.5	-44.8	144.2	30
47	55.8	-40.2	140.2	46	22.7	-41.7	141.6	44	47.8	-42.9	142.8	43	11.4	-44.1	144.0	41	33.7	-45.2	145.1	31
47	15.6	-40.9	141.3	45	41.0	-42.2	142.6	44	04.9	-43.4	143.8	42	27.3	-44.5	144.9	40	48.5	-45.6	145.9	32
46	34.7	-41.5	142.4	44	58.8	-42.7	143.6	43	21.5	-43.9	144.8	41	42.8	-45.0	145.8	40	02.9	-45.9	146.8	33
45	53.2	-42.0	143.5	44	16.1	-43.2	144.6	42	37.6	-44.4	145.7	40	57.8	-45.3	146.7	39	17.0	-46.3	147.6	34
45	11.2	-42.5	144.5	43	32.9	-43.7	145.6	41	53.2	-44.7	146.6	40	12.5	-45.7	147.6	38	30.7	-46.6	148.4	35
44	28.7	-43.1	145.5	42	49.2	-44.2	146.5	41	08.5	-45.2	147.5	39	26.8	-46.1	148.4	37	44.1	-47.0	149.2	36
43	45.6	-43.5	146.4	42	05.0	-44.6	147.4	40	23.3	-45.5	148.4	38	40.7	-46.4	149.2	36	57.1	-47.2	150.0	37
43	02.1	-44.0	147.4	41	20.4	-44.9	148.3	39	37.8	-45.9	149.2	37	54.3	-46.8	150.0	36	09.9	-47.5	150.8	38
42	18.1	-44.5	148.3	40	35.5	-45.4	149.2	38	51.9	-46.2	150.1	37	07.5	-47.0	150.8	35	22.4	-47.8	151.5	39
41	33.6	-44.8	149.2	39	50.1	-45.7	150.1	38	05.7	-46.6	150.9	36	20.5	-47.4	151.6	34	34.6	-48.1	152.3	40
40	48.8	-45.2	150.1	39	04.4	-46.1	150.9	37	19.1	-46.9	151.7	35	33.1	-47.6	152.4	33	46.5	-48.3	153.0	41
40	03.6	-45.6	151.0	38	18.3	-46.5	151.7	36	32.2	-47.2	152.5	34	45.5	-47.9	153.1	32	58.2	-48.6	153.7	42
39	18.0	-46.0	151.8	37	31.8	-46.7	152.5	35	45.0	-47.5	153.2	33	57.6	-48.2	153.8	32	09.6	-48.8	154.4	43
38	32.0	-46.3	152.6	36	45.1	-47.1	153.3	34	57.5	-47.7	154.0	33	09.4	-48.3	154.6	31	20.8	-48.9	155.1	44
37	45.7	-46.7	153.4	35	58.0	-47.3	154.1	34	09.8	-48.0	154.7	32	21.1	-48.7	155.3	30	31.9	-49.2	155.8	45
36	59.0	-46.9	154.2	35	10.7	-47.6	154.9	33	21.8	-48.2	155.4	31	32.4	-48.8	155.9	29	42.7	-49.4	156.4	46
36	12.1	-47.2	155.0	34	23.1	-47.9	155.6	32	33.6	-48.5	156.1	30	43.6	-49.0	156.6	28	53.3	-49.6	157.1	47
35	24.9	-47.6	155.8	33	35.2	-48.1	156.3	31	45.1	-48.7	156.8	29	54.6	-49.3	157.3	28	03.7	-49.8	157.7	48
34	37.3	-47.7	156.5	32	47.1	-48.4	157.0	30	56.4	-48.9	157.5	29	05.3	-49.4	158.0	27	13.9	-49.9	158.4	49
33	49.6	-48.1	157.2	31	58.7	-48.6	157.7	30	07.5	-49.2	158.2	28	15.9	-49.6	158.6	26	24.0	-50.1	159.0	50
33	01.5	-48.3	158.0	31	10.1	-48.8	158.4	29	18.3	-49.3	158.8	27	26.3	-49.8	159.2	25	33.9	-50.2	159.6	51
32	13.2	-48.5	158.7	30	21.3	-49.0	159.1	28	29.0	-49.5	159.5	26	36.5	-49.9	159.9	24	43.7	-50.4	160.2	52
31	24.7	-48.7	159.4	29	32.3	-49.2	159.8	27	39.5	-49.6	160.1	25	46.6	-50.1	160.5	23	53.3	-50.5	160.8	53
30	36.0	-49.0	160.0	28	43.1	-49.4	160.4	26	49.9	-49.9	160.8	24	56.5	-50.3	161.1	23	02.8	-50.6	161.4	54
29	47.0	-49.1	160.7	27	53.7	-49.6	161.1	26	00.0	-50.0	161.4	24	06.2	-50.4	161.7	22	12.2	-50.8	162.0	55
28	57.9	-49.3	161.4	27	04.1	-49.8	161.7	25	10.0	-50.1	162.0	23	15.8	-50.5	162.3	21	21.4	-50.8	162.5	56
28	08.6	-49.5	162.0	26	14.3	-49.9	162.3	24	19.9	-50.3	162.6	22	25.3	-50.6	162.9	20	30.6	-51.0	163.1	57
27	19.1	-49.7	162.6	25	24.4	-50.0	162.9	23	29.6	-50.4	163.2	21	34.7	-50.8	163.4	19	39.6	-51.1	163.7	58
26	29.4	-49.9	163.3	24	34.4	-50.2	163.6	22	39.2	-50.5	163.8	20	43.9	-50.9	164.0	18	48.5	-51.2	164.2	59
25	39.5	-50.0	163.9	23	44.2	-50.4	164.2	21	48.7	-50.7	164.4	19	53.0	-50.9	164.6	17	57.3	-51.3	164.8	60
24	49.5	-50.1	164.5	22	53.8	-50.4	164.7	20	58.0	-50.8	165.0	19	02.1	-51.1	165.1	17	06.0	-51.3	165.3	61
23	59.4	-50.3	165.1	22	03.4	-50.6	165.3	20	07.2	-50.9	165.5	18	11.0	-51.2	165.7	16	14.7	-51.5	165.8	62
23	09.1	-50.4	165.7	21	12.8	-50.7	165.9	19	16.3	-51.0	166.1	17	19.8	-51.2	166.2	15	23.2	-51.5	166.4	63
22	18.7	-50.6	166.3	20	22.1	-50.9	166.5	18	25.3	-51.0	166.6	16	28.6	-51.4	166.8	14	31.7	-51.6	166.9	64
21	28.1	-50.6	166.9	19	31.2	-50.9	167.0	17	34.3	-51.2	167.2	15	37.2	-51.4	167.3	13	40.1	-51.7	167.4	65
20	37.5	-50.8	167.4	18	40.3	-51.0	167.6	16	43.1	-51.3	167.7	14	45.8	-51.5	167.9	12	48.4	-51.7	168.0	66
19	46.7	-50.9	168.0	17	49.3	-51.1	168.2	15	51.8	-51.3	168.3	13	54.3	-51.6	168.4	11	56.7	-51.7	168.5	67
18	55.8	-51.0	168.6	16	58.2	-51.2	168.7	15	00.5	-51.4	168.8	13	02.7	-51.6	168.9	11	05.0	-51.9	169.0	68
18	04.8	-51.0	169.1	16	07.0	-51.3	169.3	14	09.1	-51.5	169.4	12	11.1	-51.7	169.4	10	13.1	-51.9	169.5	69
17	13.8	-51.2	169.7	15	15.7	-51.4	169.8	13	17.6	-51.6	169.9	11	19.4	-51.7	170.0	9	21.2	-51.9	170.0	70
16	22.6	-51.3	170.2	14	24.3	-51.4	170.3	12	26.0	-51.6	170.4	10	27.7	-51.8	170.5	8	29.3	-51.9	170.5	71
15	31.3	-51.3	170.8	13	32.9	-51.5	170.9	11	34.4	-51.7	170.9	9	35.9	-51.8	171.0	7	37.4	-52.0	171.0	72
14	40.0	-51.4	171.3	12	41.4	-51.6	171.4	10	42.7	-51.7	171.4	8	44.1	-51.9	171.5	6	45.4	-52.1	171.5	73
13	48.6	-51.4	171.8	11	49.8	-51.6	171.9	9	51.0	-51.8	172.0	7	52.2	-51.9	172.0	5	53.3	-52.0	172.0	74
12	57.2	-51.6	172.4	10	58.2	-51.7	172.4	8	59.2	-51.8	172.5	7	00.3	-52.0	172.5	5	01.3	-52.1	172.5	75
12	05.6	-51.6	172.9	10	06.5	-51.7	172.9	8	07.4	-51.8	173.0	6	08.3	-51.9	173.0	4	09.2	-52.1	173.0	76
11	14.0	-51.6	173.4	9	14.8	-51.7	173.5	7	15.6	-51.9	173.5	5	16.4	-52.0	173.5	3	17.1	-52.1	173.5	77
10	22.4	-51.7	173.9	8	23.1	-51.9	174.0	6	23.7	-51.9	174.0	4	24.4	-52.0	174.0	2	25.0	-52.1	174.0	78
9	30.7	-51.7	174.4	7	31.2	-51.8	174.5	5	31.8	-51.9	174.5	3	32.4	-52.1	174.5	1	32.9	-52.1	174.5	79
8	39.0	-51.8	175.0	6	39.4	-51.9	175.0	4	39.9	-52.0	175.0	2	40.3	-52.0	175.0	0	40.8	-52.2	175.0	80
7	47.2	-51.8	175.5	5	47.5	-51.9	175.5	3	47.9	-52.0	175.5	1	48.3	-52.1	175.5	0	11.4	+52.1	4.5	81
6	55.4	-51.9	176.0	4	55.6	-51.9	176.0	2	55.9	-51.9	176.0	0	56.2	-52.0	176.0	1	03.5	+52.1	4.0	82
6	03.5	-51.9	176.5	4	03.7	-51.9	176.5	2	04.0	-52.0	176.5	0	04.2	-52.1	176.5	1	55.6	+52.1	3.5	83
5	11.6	-51.9	177.0	3	11.8	-52.0	177.0	1	12.0	-52.0	177.0	0	47.9	+52.0	3.0	2	47.7	+52.1	3.0	84
4	19.7	-51.9	177.5	2	19.8	-51.9	177.5	0	20.0	-52.0	177.5	1	39.9	+52.1	2.5	3	39.8	+52.1	2.5	85
3	27.8	-51.9	178.0	1	27.9	-52.0	178.0	0	32.0	+52.1	2.0	2	32.0	+52.0	2.0	4	31.9	+52.1	2.0	86
2	35.9	-52.0	178.5	0	35.9	-52.0	178.5	1	24.1	+51.9	1.5	3	24.0	+52.0	1.5	5	24.0	+52.0	1.5	87
1	43.9	-51.9	179.0	0	16.1	+51.9	1.0	2	16.0	+52.0	1.0	4	16.0	+52.0	1.0	6	16.0	+52.0	1.0	88
0	52.0	-52.0	179.5	1	08.0	+52.0	0.5	3	08.0	+52.0	0.5	5	08.0	+52.0	0.5	7	08.0	+52.0	0.5	89
0	00.0	+52.0	0.0	2	00.0	+52.0	0.0	4	00.0	+52.0	0.0	6	00.0	+51.9	0.0	8	00.0	+51.9	0.0	90

LATITUDE SAME NAME

L.H.A. 150°, 210°

30°, 330° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	55 37.9	-29.9	50.1	56 53.0	-27.3	52.4	58 04.1	-24.6	55.0	59 10.7	-21.6	57.7	60 12.2	-18.2	60.6
31	55 08.0	-31.0	48.6	56 25.7	-28.6	50.8	57 39.5	-25.9	53.2	58 49.1	-23.0	55.9	59 54.0	-19.9	58.7
32	54 37.0	-32.1	47.1	55 57.1	-29.8	49.2	57 13.6	-27.3	51.6	58 26.1	-24.5	54.1	59 34.1	-21.4	56.8
33	54 04.9	-33.1	45.6	55 27.3	-31.0	47.7	56 46.3	-28.5	49.9	58 01.6	-25.8	52.4	59 12.7	-22.9	55.0
34	53 31.8	-34.1	44.2	54 56.3	-32.0	46.2	56 17.8	-29.7	48.3	57 35.8	-27.2	50.7	58 49.8	-24.5	53.2
35	52 57.7	-35.0	42.8	54 24.3	-33.0	44.7	55 48.1	-30.9	46.8	57 08.6	-28.5	49.0	58 25.3	-25.8	51.5
36	52 22.7	-35.9	41.5	53 51.3	-34.0	43.3	55 17.2	-31.9	45.3	56 40.1	-29.7	47.4	57 59.5	-27.2	49.7
37	51 46.8	-36.8	40.2	53 17.3	-35.0	41.9	54 45.3	-33.0	43.8	56 10.4	-30.8	45.8	57 32.3	-28.4	48.1
38	51 10.0	-37.5	38.9	52 42.3	-35.9	40.6	54 12.3	-34.0	42.3	55 39.6	-32.0	44.3	57 03.9	-29.7	46.4
39	50 32.5	-38.3	37.7	52 06.4	-36.7	39.2	53 38.3	-35.0	40.9	55 07.6	-33.0	42.8	56 34.2	-30.9	44.9
40	49 54.2	-39.1	36.5	51 29.7	-37.5	38.0	53 03.3	-35.9	39.6	54 34.6	-34.0	41.4	56 03.3	-32.0	43.3
41	49 15.1	-39.7	35.3	50 52.2	-38.3	36.7	52 27.4	-36.7	38.3	54 00.6	-35.0	40.0	55 31.3	-33.1	41.8
42	48 35.4	-40.4	34.2	50 13.9	-39.0	35.5	51 50.7	-37.6	37.0	53 25.6	-36.0	38.6	54 58.2	-34.1	40.3
43	47 55.0	-41.0	33.1	49 34.9	-39.8	34.3	51 13.1	-38.3	35.7	52 49.6	-36.7	37.2	54 24.1	-35.1	38.9
44	47 14.0	-41.6	32.0	48 55.1	-40.4	33.2	50 34.8	-39.1	34.5	52 12.9	-37.7	35.9	53 49.0	-36.0	37.5
45	46 32.4	-42.2	30.9	48 14.7	-41.0	32.1	49 55.7	-39.7	33.3	51 35.2	-38.4	34.7	53 13.0	-36.9	36.2
46	45 50.2	-42.7	29.9	47 33.7	-41.6	31.0	49 16.0	-40.5	32.2	50 56.8	-39.1	33.5	52 36.1	-37.7	34.9
47	45 07.5	-43.2	28.9	46 52.1	-42.2	29.9	48 35.5	-41.1	31.0	50 17.7	-39.9	32.3	51 58.4	-38.6	33.6
48	44 24.3	-43.7	27.9	46 09.9	-42.8	28.9	47 54.4	-41.7	29.9	49 37.8	-40.6	31.1	51 19.8	-39.2	32.4
49	43 40.6	-44.2	27.0	45 27.1	-43.3	27.9	47 12.7	-42.3	28.9	48 57.2	-41.2	30.0	50 40.6	-40.1	31.2
50	42 56.4	-44.6	26.0	44 43.8	-43.7	26.9	46 30.4	-42.8	27.8	48 16.0	-41.8	28.9	50 00.5	-40.7	30.0
51	42 11.8	-45.0	25.1	44 00.1	-44.2	25.9	45 47.6	-43.4	26.8	47 34.2	-42.4	27.8	49 19.8	-41.3	28.9
52	41 26.8	-45.5	24.2	43 15.9	-44.7	25.0	45 04.2	-43.8	25.8	46 51.8	-42.9	26.8	48 38.5	-42.0	27.8
53	40 41.3	-45.8	23.4	42 31.2	-45.1	24.1	44 20.4	-44.3	24.9	46 08.9	-43.5	25.7	47 56.5	-42.5	26.7
54	39 55.5	-46.2	22.5	41 46.1	-45.5	23.2	43 36.1	-44.8	23.9	45 25.4	-44.0	24.8	47 14.0	-43.1	25.6
55	39 09.3	-46.5	21.7	41 00.6	-45.9	22.3	42 51.3	-45.2	23.0	44 41.4	-44.4	23.8	46 30.9	-43.6	24.6
56	38 22.8	-46.8	20.9	40 14.7	-46.2	21.5	42 06.1	-45.6	22.1	43 57.0	-44.9	22.9	45 47.3	-44.2	23.6
57	37 36.0	-47.2	20.1	39 28.5	-46.6	20.7	41 20.5	-46.0	21.3	43 12.1	-45.3	21.9	45 03.1	-44.6	22.7
58	36 48.8	-47.4	19.3	38 41.9	-46.9	19.8	40 34.5	-46.3	20.4	42 26.8	-45.7	21.0	44 18.5	-45.0	21.7
59	36 01.4	-47.8	18.6	37 55.0	-47.3	19.1	39 48.2	-46.7	19.6	41 41.1	-46.2	20.2	43 33.5	-45.5	20.8
60	35 13.6	-48.0	17.8	37 07.7	-47.5	18.3	39 01.5	-47.0	18.8	40 54.9	-46.4	19.3	42 48.0	-45.9	19.9
61	34 25.6	-48.2	17.1	36 20.2	-47.8	17.5	38 14.5	-47.4	18.0	40 08.5	-46.9	18.5	42 02.1	-46.3	19.0
62	33 37.4	-48.6	16.4	35 32.4	-48.1	16.8	37 27.1	-47.6	17.2	39 21.6	-47.1	17.7	41 15.8	-46.6	18.2
63	32 48.8	-48.7	15.7	34 44.3	-48.4	16.0	36 39.5	-47.9	16.4	38 34.5	-47.5	16.9	40 29.2	-47.0	17.4
64	32 00.1	-48.9	15.0	33 55.9	-48.5	15.3	35 51.6	-48.2	15.7	37 47.0	-47.8	16.1	39 42.2	-47.4	16.6
65	31 11.2	-49.2	14.3	33 07.4	-48.9	14.6	35 03.4	-48.5	15.0	36 59.2	-48.0	15.3	38 54.8	-47.6	15.8
66	30 22.0	-49.4	13.6	32 18.5	-49.0	13.9	34 14.9	-48.7	14.2	36 11.2	-48.4	14.6	38 07.2	-48.0	15.0
67	29 32.6	-49.5	13.0	31 29.5	-49.3	13.2	33 26.2	-48.9	13.5	35 22.8	-48.6	13.9	37 19.2	-48.2	14.2
68	28 43.1	-49.8	12.3	30 40.2	-49.4	12.6	32 37.3	-49.2	12.8	34 34.2	-48.8	13.1	36 31.0	-48.5	13.5
69	27 53.3	-49.9	11.7	29 50.8	-49.7	11.9	31 48.1	-49.3	12.2	33 45.4	-49.1	12.4	35 42.5	-48.8	12.7
70	27 03.4	-50.1	11.1	29 01.1	-49.8	11.3	30 58.8	-49.6	11.5	32 56.3	-49.3	11.8	34 53.7	-49.0	12.0
71	26 13.3	-50.2	10.5	28 11.3	-50.0	10.6	30 09.2	-49.8	10.9	32 07.0	-49.5	11.1	34 04.7	-49.2	11.3
72	25 23.1	-50.4	9.8	27 21.3	-50.2	10.0	29 19.4	-49.9	10.2	31 17.5	-49.7	10.4	33 15.5	-49.5	10.6
73	24 32.7	-50.5	9.2	26 31.1	-50.3	9.4	28 29.5	-50.1	9.6	30 27.8	-49.9	9.8	32 26.0	-49.7	10.0
74	23 42.2	-50.6	8.7	25 40.8	-50.4	8.8	27 39.4	-50.3	9.0	29 37.9	-50.1	9.1	31 36.3	-49.8	9.3
75	22 51.6	-50.8	8.1	24 50.4	-50.7	8.2	26 49.1	-50.4	8.3	28 47.8	-50.2	8.5	30 46.5	-50.1	8.7
76	22 00.8	-50.9	7.5	23 59.7	-50.7	7.6	25 58.7	-50.6	7.7	27 57.6	-50.5	7.9	29 56.4	-50.2	8.0
77	21 09.9	-51.0	6.9	23 09.0	-50.9	7.0	25 08.1	-50.7	7.1	27 07.1	-50.5	7.3	29 06.2	-50.5	7.4
78	20 18.9	-51.1	6.4	22 18.1	-51.0	6.5	24 17.4	-50.9	6.5	26 16.6	-50.8	6.7	28 15.7	-50.5	6.8
79	19 27.8	-51.3	5.8	21 27.1	-51.1	5.9	23 26.5	-51.0	6.0	25 25.8	-50.8	6.1	27 25.2	-50.8	6.2
80	18 36.5	-51.3	5.3	20 36.0	-51.2	5.3	22 35.5	-51.1	5.4	24 35.0	-51.0	5.5	26 34.4	-50.9	5.6
81	17 45.2	-51.4	4.7	19 44.8	-51.3	4.8	21 44.4	-51.2	4.8	23 44.0	-51.2	4.9	25 43.5	-51.0	5.0
82	16 53.8	-51.5	4.2	18 53.5	-51.4	4.2	20 53.2	-51.4	4.3	22 52.8	-51.2	4.3	24 52.5	-51.2	4.4
83	16 02.3	-51.5	3.6	18 02.1	-51.5	3.7	20 01.8	-51.4	3.7	22 01.6	-51.4	3.8	24 01.3	-51.3	3.8
84	15 10.8	-51.7	3.1	17 10.6	-51.6	3.1	19 10.4	-51.5	3.2	21 10.2	-51.4	3.2	23 10.0	-51.4	3.3
85	14 19.1	-51.7	2.6	16 19.0	-51.6	2.6	18 18.9	-51.6	2.6	20 18.8	-51.6	2.7	22 18.6	-51.5	2.7
86	13 27.4	-51.7	2.1	15 27.4	-51.8	2.1	17 27.3	-51.7	2.1	19 27.2	-51.7	2.1	21 27.1	-51.6	2.1
87	12 35.7	-51.9	1.5	14 35.6	-51.8	1.5	16 35.6	-51.8	1.6	18 35.5	-51.7	1.6	20 35.5	-51.8	1.6
88	11 43.8	-51.9	1.0	13 43.8	-51.9	1.0	15 43.8	-51.9	1.0	17 43.8	-51.9	1.0	19 43.7	-51.8	1.1
89	10 51.9	-51.9	0.5	12 51.9	-51.9	0.5	14 51.9	-51.9	0.5	16 51.9	-51.9	0.5	18 51.9	-51.9	0.5
90	10 00.0	-52.0	0.0	12 00.0	-52.0	0.0	14 00.0	-52.0	0.0	16 00.0	-52.0	0.0	18 00.0	-52.0	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 30°, 330°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
40	40.6	-45.9	145.2	39	01.5	-46.8	146.1	37	21.3	-47.6	147.0	35	40.2	-48.5	147.8	33	58.3	-49.3	148.5	30
39	54.7	-46.1	146.0	38	14.7	-47.1	146.9	36	33.7	-48.0	147.8	34	51.7	-48.7	148.5	33	09.0	-49.5	149.2	31
39	08.6	-46.6	146.9	37	27.6	-47.4	147.7	35	45.7	-48.2	148.5	34	03.0	-49.0	149.2	32	19.5	-49.7	149.9	32
38	22.0	-46.8	147.7	36	40.2	-47.7	148.5	34	57.5	-48.5	149.2	33	14.0	-49.2	149.9	31	29.8	-49.9	150.5	33
37	35.2	-47.2	148.5	35	52.5	-48.0	149.2	34	09.0	-48.7	149.9	32	24.8	-49.4	150.6	30	39.9	-50.1	151.2	34
36	48.0	-47.4	149.2	35	04.5	-48.2	150.0	33	20.3	-49.0	150.6	31	35.4	-49.7	151.3	29	49.8	-50.2	151.8	35
36	00.6	-47.8	150.0	34	16.3	-48.5	150.7	32	31.3	-49.2	151.3	30	45.7	-49.8	151.9	28	59.6	-50.5	152.5	36
35	12.8	-48.0	150.7	33	27.8	-48.7	151.4	31	42.1	-49.4	152.0	29	55.9	-50.0	152.6	28	09.1	-50.6	153.1	37
34	24.8	-48.3	151.5	32	39.1	-49.0	152.1	30	52.7	-49.6	152.7	29	05.9	-50.2	153.2	27	18.5	-50.7	153.7	38
33	36.5	-48.5	152.2	31	50.1	-49.2	152.8	30	03.1	-49.7	153.3	28	15.7	-50.4	153.8	26	27.8	-50.9	154.3	39
32	48.0	-48.7	152.9	31	00.9	-49.3	153.5	29	13.4	-50.0	154.0	27	25.3	-50.5	154.4	25	36.9	-51.1	154.9	40
31	59.3	-49.0	153.6	30	11.6	-49.6	154.1	28	23.4	-50.1	154.6	26	34.8	-50.7	155.0	24	45.8	-51.2	155.4	41
31	10.3	-49.1	154.3	29	22.0	-49.7	154.8	27	33.3	-50.3	155.2	25	44.1	-50.8	155.6	23	54.6	-51.3	156.0	42
30	21.2	-49.4	154.9	28	32.3	-50.0	155.4	26	43.0	-50.5	155.8	24	53.3	-51.0	156.2	23	03.3	-51.4	156.6	43
29	31.8	-49.6	155.6	27	42.3	-50.1	156.0	25	52.5	-50.6	156.4	24	02.3	-51.0	156.8	22	11.9	-51.5	157.1	44
28	42.2	-49.7	156.2	26	52.2	-50.2	156.7	25	01.9	-50.7	157.0	23	11.3	-51.2	157.4	21	20.4	-51.2	157.8	45
27	52.5	-49.9	156.9	26	02.0	-50.4	157.3	24	11.2	-50.9	157.6	22	20.1	-51.4	157.9	20	28.7	-51.7	158.2	46
27	02.6	-50.1	157.5	25	11.6	-50.6	157.9	23	20.3	-51.0	158.2	21	28.7	-51.4	158.5	19	37.0	-51.9	158.8	47
26	12.5	-50.2	158.1	24	21.0	-50.7	158.5	22	29.3	-51.1	158.8	20	37.3	-51.5	159.1	18	45.1	-51.9	159.3	48
25	22.3	-50.4	158.7	23	30.3	-50.8	159.0	21	38.2	-51.3	159.3	19	45.8	-51.7	159.6	17	53.2	-52.0	159.8	49
24	31.9	-50.5	159.3	22	39.5	-50.9	159.6	20	46.9	-51.3	159.9	18	54.1	-51.7	160.1	17	01.2	-52.1	160.4	50
23	41.4	-50.7	159.9	21	48.6	-51.1	160.2	19	55.6	-51.5	160.4	18	02.4	-51.8	160.7	16	09.1	-52.2	160.9	51
22	50.7	-50.8	160.5	20	57.5	-51.2	160.8	19	04.1	-51.5	161.0	17	10.6	-51.9	161.2	15	16.9	-52.2	161.4	52
21	59.9	-50.9	161.1	20	06.3	-51.2	161.3	18	12.6	-51.6	161.5	16	18.7	-52.0	161.7	14	24.7	-52.3	161.9	53
21	09.0	-51.0	161.6	19	15.1	-51.4	161.9	17	21.0	-51.8	162.1	15	26.7	-52.0	162.2	13	32.4	-52.4	162.4	54
20	18.0	-51.1	162.2	18	23.7	-51.5	162.4	16	29.2	-51.7	162.6	14	34.7	-52.1	162.8	12	40.0	-52.4	162.9	55
19	26.9	-51.2	162.8	17	32.2	-51.5	162.9	15	37.5	-51.9	163.1	13	42.6	-52.2	163.3	11	47.6	-52.5	163.4	56
18	35.7	-51.3	163.3	16	40.7	-51.6	163.5	14	45.6	-51.9	163.6	12	50.4	-52.2	163.8	10	55.1	-52.5	163.9	57
17	44.4	-51.4	163.8	15	49.1	-51.8	164.0	13	53.7	-52.0	164.2	11	58.2	-52.3	164.3	10	02.6	-52.5	164.4	58
16	53.0	-51.5	164.4	14	57.3	-51.7	164.5	13	01.7	-52.1	164.7	11	05.9	-52.3	164.8	9	10.1	-52.6	164.9	59
16	01.5	-51.6	164.9	14	05.6	-51.9	165.1	12	09.6	-52.1	165.2	10	13.6	-52.4	165.3	8	17.5	-52.7	165.4	60
15	09.9	-51.6	165.5	13	13.7	-51.9	165.6	11	17.5	-52.2	165.7	9	21.2	-52.4	165.8	7	24.8	-52.6	165.9	61
14	18.3	-51.7	166.0	12	21.8	-52.0	166.1	10	25.3	-52.2	166.2	8	28.8	-52.5	166.3	6	32.2	-52.7	166.3	62
13	26.6	-51.8	166.5	11	29.8	-52.0	166.6	9	33.1	-52.3	166.7	7	36.3	-52.5	166.8	5	39.5	-52.7	166.8	63
12	34.8	-51.8	167.0	10	37.8	-52.0	167.1	8	40.8	-52.3	167.2	6	43.8	-52.5	167.2	4	46.8	-52.8	167.3	64
11	43.0	-51.9	167.5	9	45.8	-52.1	167.6	7	48.5	-52.3	167.7	5	51.3	-52.6	167.7	3	54.0	-52.7	167.8	65
10	51.1	-52.0	168.0	8	53.7	-52.2	168.1	6	56.2	-52.4	168.2	4	58.7	-52.5	168.2	3	01.3	-52.8	168.2	66
9	59.1	-52.0	168.6	8	01.5	-52.2	168.6	6	03.8	-52.3	168.7	4	06.2	-52.6	168.7	2	08.5	-52.8	168.7	67
9	07.1	-52.0	169.1	7	09.3	-52.2	169.1	5	11.5	-52.4	169.2	3	13.6	-52.6	169.2	1	15.7	-52.8	169.2	68
8	15.1	-52.0	169.6	6	17.1	-52.3	169.6	4	19.1	-52.5	169.6	2	21.0	-52.6	169.7	0	22.9	-52.7	169.7	69
7	23.1	-52.1	170.1	5	24.8	-52.2	170.1	3	26.6	-52.4	170.1	1	28.4	-52.6	170.2	0	29.8	+52.8	9.8	70
6	31.0	-52.2	170.6	4	32.6	-52.3	170.6	2	34.2	-52.5	170.6	0	35.8	-52.6	170.6	1	22.6	+52.8	9.4	71
5	38.8	-52.1	171.1	3	40.3	-52.3	171.1	1	41.7	-52.4	171.1	0	16.8	+52.6	8.9	2	15.4	+52.8	8.9	72
4	46.7	-52.2	171.6	2	48.0	-52.3	171.6	0	49.3	-52.5	171.6	1	09.4	+52.7	8.4	3	08.2	+52.7	8.4	73
3	54.5	-52.2	172.1	1	55.7	-52.4	172.1	0	03.2	+52.5	7.9	2	02.1	+52.6	7.9	4	00.9	+52.7	7.9	74
3	02.3	-52.2	172.6	1	03.3	-52.3	172.6	0	55.7	+52.4	7.4	2	54.7	+52.5	7.4	4	53.6	+52.8	7.5	75
2	10.1	-52.2	173.0	0	11.0	-52.3	173.1	1	48.1	+52.5	7.0	3	47.2	+52.6	7.0	5	46.4	+52.7	7.0	76
1	17.9	-52.2	173.5	0	41.3	+52.4	6.5	2	40.6	+52.4	6.5	4	39.8	+52.6	6.5	6	39.1	+52.6	6.5	77
0	25.7	-52.2	174.0	1	33.7	+52.3	6.0	3	33.0	+52.5	6.0	5	32.4	+52.5	6.0	7	31.7	+52.6	6.0	78
0	26.5	+52.3	5.5	2	26.0	+52.3	5.5	4	25.5	+52.4	5.5	6	24.9	+52.5	5.5	8	24.3	+52.6	5.5	79
1	18.8	+52.2	5.0	3	18.3	+52.3	5.0	5	17.9	+52.3	5.0	7	17.4	+52.5	5.0	9	16.9	+52.6	5.0	80
2	11.0	+52.2	4.5	4	10.6	+52.3	4.5	6	10.2	+52.4	4.5	8	09.9	+52.4	4.5	10	09.5	+52.5	4.6	81
3	03.2	+52.2	4.0	5	02.9	+52.3	4.0	7	02.6	+52.3	4.0	9	02.3	+52.4	4.0	11	02.0	+52.5	4.1	82
3	55.4	+52.2	3.5	5	55.2	+52.2	3.5	7	54.9	+52.3	3.5	9	54.7	+52.4	3.5	11	54.5	+52.4	3.6	83
4	47.6	+52.1	3.0	6	47.4	+52.2	3.0	8	47.2	+52.3	3.0	10	47.1	+52.3	3.0	12	46.9	+52.3	3.1	84
5	39.7	+52.1	2.5	7	39.6	+52.2	2.5	9	39.5	+52.2	2.5	11	39.4	+52.2	2.6	13	39.2	+52.3	2.6	85
6	31.8	+52.1	2.0	8	31.8	+52.1	2.0	10	31.7	+52.1	2.0	12	31.6	+52.2	2.0	14	31.5	+52.3	2.1	86
7	23.9	+52.1	1.5	9	23.9	+52.1	1.5	11	23.8	+52.2	1.5	13	23.8	+52.1	1.5	15	23.8	+52.1	1.6	87
8	16.0	+52.0	1.0	10	16.0	+52.0	1.0	12	16.0	+52.0	1.0	14	15.9	+52.1	1.0	16	15.9	+52.1	1.0	88
9	08.0	+52.0	0.5	11	08.0	+52.0	0.5	13	08.0	+52.0	0.5	15	08.0	+52.0	0.5	17	08.0	+52.0	0.5	89
10	00.0	+51.9	0.0	12	00.0	+51.9	0.0	14	00.0	+51.9	0.0	16	00.0	+51.9	0.0	18	00.0	+51.9	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 150°, 210°

30°, 330° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	61 08.2	-14.6	63.8	61 58.1	-10.8	67.1	62 41.3	-6.6	70.7	63 17.3	-2.3	74.4	63 45.6	+2.2	78.3
31	60 53.6	-16.4	61.8	61 47.3	-12.6	65.0	62 34.7	-8.7	68.5	63 15.0	-4.4	72.2	63 47.8	+0.1	76.1
32	60 37.2	-18.1	59.8	61 34.7	-14.5	63.0	62 26.0	-10.6	66.4	63 10.6	-6.4	70.0	63 47.9	-2.0	73.8
33	60 19.1	-19.8	57.9	61 20.2	-16.3	61.0	62 15.4	-12.5	64.3	63 04.2	-8.5	67.8	63 45.9	-4.2	71.5
34	59 59.3	-21.4	56.0	61 03.9	-18.1	59.0	62 02.9	-14.4	62.2	62 55.7	-10.5	65.6	63 41.7	-6.2	69.3
35	59 37.9	-22.9	54.1	60 45.8	-19.7	57.0	61 48.5	-16.2	60.1	62 45.2	-12.4	63.5	63 35.5	-8.3	67.1
36	59 15.0	-24.4	52.3	60 26.1	-21.3	55.1	61 32.3	-18.0	58.1	62 32.8	-14.3	61.3	63 27.2	-10.4	64.8
37	58 50.6	-25.8	50.5	60 04.8	-22.9	53.2	61 14.3	-19.8	56.1	62 18.5	-16.2	59.2	63 16.8	-12.4	62.6
38	58 24.8	-27.2	48.8	59 41.9	-24.5	51.3	60 54.5	-21.3	54.1	62 02.3	-18.0	57.2	63 04.4	-14.3	60.5
39	57 57.6	-28.5	47.1	59 17.4	-25.8	49.5	60 33.2	-23.0	52.2	61 44.3	-19.8	55.1	62 50.1	-16.2	58.3
40	57 29.1	-29.8	45.4	58 51.6	-27.3	47.8	60 10.2	-24.5	50.4	61 24.5	-21.5	53.2	62 33.9	-18.1	56.2
41	56 59.3	-30.9	43.8	58 24.3	-28.6	46.1	59 45.7	-26.0	48.5	61 03.0	-23.1	51.2	62 15.8	-19.9	54.2
42	56 28.4	-32.1	42.3	57 55.7	-29.9	44.4	59 19.7	-27.4	46.8	60 39.9	-24.6	49.3	61 55.9	-21.6	52.2
43	55 56.3	-33.2	40.8	57 25.8	-31.1	42.8	58 52.3	-28.8	45.0	60 15.3	-26.2	47.5	61 34.3	-23.3	50.2
44	55 23.1	-34.3	39.3	56 54.7	-32.3	41.2	58 23.5	-30.1	43.3	59 49.1	-27.6	45.7	61 11.0	-24.9	48.3
45	54 48.8	-35.2	37.8	56 22.4	-33.3	39.7	57 53.4	-31.2	41.7	59 21.5	-29.0	43.9	60 46.1	-26.3	46.4
46	54 13.6	-36.1	36.5	55 49.1	-34.4	38.2	57 22.2	-32.5	40.1	58 52.5	-30.3	42.2	60 19.8	-27.9	44.6
47	53 37.5	-37.1	35.1	55 14.7	-35.4	36.7	56 49.7	-33.6	38.6	58 22.2	-31.5	40.6	59 51.9	-29.3	42.8
48	53 00.4	-37.9	33.8	54 39.3	-36.4	35.3	56 16.1	-34.6	37.0	57 50.7	-32.7	38.9	59 22.6	-30.6	41.1
49	52 22.5	-38.7	32.5	54 02.9	-37.3	34.0	55 41.5	-35.7	35.6	57 18.0	-33.9	37.4	58 52.0	-31.8	39.4
50	51 43.8	-39.5	31.3	53 25.6	-38.1	32.6	55 05.8	-36.6	34.2	56 44.1	-34.9	35.9	58 20.2	-33.1	37.8
51	51 04.3	-40.2	30.1	52 47.5	-38.9	31.4	54 29.2	-37.5	32.8	56 09.2	-36.0	34.4	57 47.1	-34.1	36.2
52	50 24.1	-40.8	28.9	52 08.6	-39.7	30.1	53 51.7	-38.4	31.5	55 33.2	-36.9	33.0	57 13.0	-35.3	34.6
53	49 43.3	-41.6	27.7	51 28.9	-40.4	28.9	53 13.3	-39.2	30.2	54 56.3	-37.8	31.6	56 37.7	-36.3	33.2
54	49 01.7	-42.1	26.6	50 48.5	-41.1	27.7	52 34.1	-39.9	28.9	54 18.5	-38.7	30.2	56 01.4	-37.3	31.7
55	48 19.6	-42.8	25.6	50 07.4	-41.8	26.6	51 54.2	-40.7	27.7	53 39.8	-39.5	28.9	55 24.1	-38.2	30.3
56	47 36.8	-43.3	24.5	49 25.6	-42.4	25.5	51 13.5	-41.4	26.5	53 00.3	-40.3	27.7	54 45.9	-39.0	29.0
57	46 53.5	-43.8	23.5	48 43.2	-43.0	24.4	50 32.1	-42.1	25.4	52 20.0	-41.0	26.5	54 06.9	-39.9	27.7
58	46 09.7	-44.3	22.5	48 00.2	-43.5	23.3	49 50.0	-42.6	24.3	51 39.0	-41.7	25.3	53 27.0	-40.6	26.4
59	45 25.4	-44.8	21.5	47 16.7	-44.1	22.3	49 07.4	-43.3	23.2	50 57.3	-42.4	24.1	52 46.4	-41.4	25.2
60	44 40.6	-45.3	20.6	46 32.6	-44.5	21.3	48 24.1	-43.8	22.1	50 14.9	-43.0	23.0	52 05.0	-42.1	24.0
61	43 55.3	-45.7	19.7	45 48.1	-45.1	20.3	47 40.3	-44.3	21.1	49 31.9	-43.5	21.9	51 22.9	-42.7	22.9
62	43 09.6	-46.1	18.8	45 03.0	-45.5	19.4	46 56.0	-44.9	20.1	48 48.4	-44.2	20.9	50 40.2	-43.4	21.7
63	42 23.5	-46.5	17.9	44 17.5	-45.9	18.5	46 11.1	-45.3	19.1	48 04.2	-44.6	19.9	49 56.8	-43.9	20.7
64	41 37.0	-46.8	17.0	43 31.6	-46.3	17.6	45 25.8	-45.8	18.2	47 19.6	-45.2	18.9	49 12.9	-44.5	19.6
65	40 50.2	-47.2	16.2	42 45.3	-46.8	16.7	44 40.0	-46.2	17.3	46 34.4	-45.6	17.9	48 28.4	-45.0	18.6
66	40 03.0	-47.5	15.4	41 58.5	-47.0	15.9	43 53.8	-46.6	16.4	45 48.8	-46.1	17.0	47 43.4	-45.6	17.6
67	39 15.5	-47.9	14.6	41 11.5	-47.5	15.0	43 07.2	-47.0	15.5	45 02.7	-46.5	16.1	46 57.8	-45.9	16.6
68	38 27.6	-48.1	13.8	40 24.0	-47.7	14.2	42 20.2	-47.3	14.7	44 16.2	-46.9	15.2	46 11.9	-46.5	15.7
69	37 39.5	-48.5	13.1	39 36.3	-48.1	13.4	41 32.9	-47.7	13.9	43 29.3	-47.3	14.3	45 25.4	-46.8	14.8
70	36 51.0	-48.7	12.3	38 48.2	-48.4	12.7	40 45.2	-48.1	13.0	42 42.0	-47.7	13.5	44 38.6	-47.3	13.9
71	36 02.3	-48.9	11.6	37 59.8	-48.7	11.9	39 57.1	-48.3	12.3	41 54.3	-48.0	12.6	43 51.3	-47.6	13.0
72	35 13.4	-49.2	10.9	37 11.1	-48.9	11.2	39 08.8	-48.6	11.5	41 06.3	-48.3	11.8	43 03.7	-48.0	12.2
73	34 24.2	-49.5	10.2	36 22.2	-49.2	10.5	38 20.2	-48.9	10.7	40 18.0	-48.6	11.1	42 15.7	-48.3	11.4
74	33 34.7	-49.6	9.5	35 33.0	-49.4	9.8	37 31.3	-49.2	10.0	39 29.4	-48.9	10.3	41 27.4	-48.6	10.6
75	32 45.1	-49.9	8.9	34 43.6	-49.6	9.1	36 42.1	-49.5	9.3	38 40.5	-49.2	9.5	40 38.8	-49.0	9.8
76	31 55.2	-50.1	8.2	33 54.0	-49.9	8.4	35 52.6	-49.6	8.6	37 51.3	-49.5	8.8	39 49.8	-49.2	9.1
77	31 05.1	-50.2	7.5	33 04.1	-50.1	7.7	35 03.0	-49.9	7.9	37 01.8	-49.7	8.1	39 00.6	-49.5	8.3
78	30 14.9	-50.5	6.9	32 14.0	-50.3	7.1	34 13.1	-50.2	7.2	36 12.1	-50.0	7.4	38 11.1	-49.8	7.6
79	29 24.4	-50.6	6.3	31 23.7	-50.5	6.4	33 22.9	-50.3	6.6	35 22.1	-50.1	6.7	37 21.3	-50.0	6.9
80	28 33.8	-50.7	5.7	30 33.2	-50.6	5.8	32 32.6	-50.5	5.9	34 32.0	-50.4	6.0	36 31.3	-50.3	6.2
81	27 43.1	-51.0	5.1	29 42.6	-50.8	5.2	31 42.1	-50.7	5.3	33 41.6	-50.6	5.4	35 41.0	-50.5	5.5
82	26 52.1	-51.0	4.5	28 51.8	-51.0	4.6	30 51.4	-50.9	4.6	32 51.0	-50.8	4.8	34 50.8	-50.6	4.9
83	26 01.1	-51.3	3.9	28 00.8	-51.2	4.0	30 00.5	-51.1	4.0	32 00.2	-51.0	4.1	33 59.9	-50.9	4.2
84	25 09.8	-51.3	3.3	27 09.6	-51.2	3.4	29 09.4	-51.2	3.4	31 09.2	-51.1	3.5	33 09.0	-51.1	3.6
85	24 18.5	-51.5	2.7	26 18.4	-51.5	2.8	28 18.2	-51.4	2.8	30 18.1	-51.4	2.9	32 17.9	-51.2	3.0
86	23 27.0	-51.6	2.2	25 26.9	-51.5	2.2	27 26.8	-51.5	2.3	29 26.7	-51.4	2.3	31 26.7	-51.5	2.3
87	22 35.4	-51.7	1.6	24 35.4	-51.7	1.6	26 35.3	-51.6	1.7	28 35.3	-51.6	1.7	30 35.2	-51.6	1.7
88	21 43.7	-51.8	1.1	23 43.7	-51.8	1.1	25 43.7	-51.8	1.1	27 43.7	-51.8	1.1	29 43.6	-51.7	1.2
89	20 51.9	-51.9	0.5	22 51.9	-51.9	0.5	24 51.9	-51.9	0.6	26 51.9	-51.9	0.6	28 51.9	-51.9	0.6
90	20 00.0	-52.0	0.0	22 00.0	-52.0	0.0	24 00.0	-52.0	0.0	26 00.0	-52.0	0.0	28 00.0	-52.0	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 30°, 330°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
32	15.6	-50.0	149.2	30	32.2	-50.7	149.8	28	48.1	-51.2	150.4	27	03.5	-51.8	150.9	25	18.4	-52.4	151.4	30
31	25.6	-50.2	149.9	29	41.5	-50.8	150.4	27	56.9	-51.5	151.0	26	11.7	-52.0	151.5	24	26.0	-52.5	151.9	31
30	35.4	-50.3	150.5	28	50.7	-51.0	151.0	27	05.4	-51.5	151.6	25	19.7	-52.1	152.0	23	33.5	-52.6	152.4	32
29	45.1	-50.6	151.1	27	59.7	-51.1	151.6	26	13.9	-51.7	152.1	24	27.6	-52.3	152.6	22	40.9	-52.8	153.0	33
28	54.5	-50.7	151.7	27	08.6	-51.3	152.2	25	22.2	-51.9	152.7	23	35.3	-52.3	153.1	21	48.1	-52.8	153.5	34
28	03.8	-50.9	152.3	26	17.3	-51.4	152.8	24	30.3	-51.9	153.2	22	43.0	-52.5	153.6	20	55.3	-52.9	154.0	35
27	12.9	-51.0	152.9	25	25.9	-51.6	153.4	23	38.4	-52.1	153.8	21	50.5	-52.5	154.2	20	02.4	-53.0	154.5	36
26	21.9	-51.1	153.5	24	34.3	-51.7	154.0	22	46.3	-52.2	154.3	20	58.0	-52.6	154.7	19	09.4	-53.1	155.0	37
25	30.8	-51.3	154.1	23	42.6	-51.8	154.5	21	54.1	-52.2	154.9	20	05.4	-52.8	155.2	18	16.3	-53.2	155.5	38
24	39.5	-51.4	154.7	22	50.8	-51.9	155.1	21	01.9	-52.4	155.4	19	12.6	-52.8	155.7	17	23.1	-53.2	156.0	39
23	48.1	-51.6	155.3	21	58.9	-52.0	155.6	20	09.5	-52.5	155.9	18	19.8	-52.9	156.2	16	29.9	-53.3	156.5	40
22	56.5	-51.7	155.8	21	06.9	-52.1	156.1	19	17.0	-52.5	156.4	17	26.9	-52.9	156.7	15	36.6	-53.3	156.9	41
22	04.8	-51.7	156.4	20	14.8	-52.2	156.7	18	24.5	-52.6	156.9	16	34.0	-53.1	157.2	14	43.3	-53.5	157.4	42
21	13.1	-51.9	156.9	19	22.6	-52.3	157.2	17	31.9	-52.8	157.5	15	40.9	-53.1	157.7	13	49.8	-53.4	157.9	43
20	21.2	-52.0	157.4	18	30.3	-52.4	157.7	16	39.1	-52.7	158.0	14	47.8	-53.1	158.2	12	56.4	-53.5	158.3	44
19	29.2	-52.0	158.0	17	37.9	-52.5	158.2	15	46.4	-52.9	158.4	13	54.0	-53.2	158.6	12	02.9	-53.6	158.8	45
18	37.2	-52.2	158.5	16	45.4	-52.5	158.7	14	53.5	-52.9	158.9	13	01.5	-53.3	159.1	11	09.3	-53.6	159.3	46
17	45.0	-52.2	159.0	15	52.9	-52.6	159.2	14	00.6	-52.9	159.4	12	08.2	-53.3	159.6	10	15.7	-53.6	159.7	47
16	52.8	-52.3	159.5	15	00.3	-52.7	159.7	13	07.7	-53.1	159.9	11	14.9	-53.3	160.1	9	22.1	-53.7	160.2	48
16	00.5	-52.4	160.0	14	07.6	-52.7	160.2	12	14.6	-53.0	160.4	10	21.6	-53.4	160.5	8	28.4	-53.7	160.6	49
15	08.1	-52.4	160.6	13	14.9	-52.8	160.7	11	21.6	-53.1	160.9	9	28.2	-53.5	161.0	7	34.7	-53.8	161.1	50
14	15.7	-52.5	161.1	12	22.1	-52.8	161.2	10	28.5	-53.2	161.3	8	34.7	-53.4	161.4	6	40.9	-53.7	161.5	51
13	23.2	-52.6	161.6	11	29.3	-52.9	161.7	9	35.3	-53.2	161.8	7	41.3	-53.6	161.9	5	47.2	-53.8	162.0	52
12	30.6	-52.6	162.0	10	36.4	-52.9	162.2	8	42.1	-53.2	162.3	6	47.8	-53.5	162.4	4	53.4	-53.8	162.4	53
11	38.0	-52.7	162.5	9	43.5	-53.0	162.7	7	48.9	-53.3	162.7	5	54.3	-53.6	162.8	3	59.6	-53.8	162.9	54
10	45.3	-52.7	163.0	8	50.5	-53.0	163.1	6	55.6	-53.3	163.2	5	00.7	-53.6	163.3	3	05.8	-53.8	163.3	55
9	52.6	-52.8	163.5	7	57.5	-53.0	163.6	6	02.3	-53.3	163.7	4	07.2	-53.6	163.7	3	12.0	-53.9	163.8	56
8	59.8	-52.8	164.0	7	04.5	-53.1	164.1	5	09.0	-53.3	164.1	3	13.6	-53.6	164.2	2	18.1	-53.8	164.2	57
8	07.0	-52.8	164.5	6	11.4	-53.1	164.5	4	15.7	-53.3	164.6	2	20.0	-53.6	164.6	0	24.3	-53.8	164.6	58
7	14.2	-52.9	165.0	5	18.3	-53.1	165.0	3	22.4	-53.4	165.1	1	26.4	-53.6	165.1	0	29.5	-53.9	165.1	59
6	21.3	-52.8	165.4	4	25.2	-53.1	165.5	2	29.0	-53.4	165.5	0	32.8	-53.6	165.5	0	23.4	+53.8	165.5	60
5	28.5	-52.9	165.9	3	32.1	-53.2	165.9	1	35.6	-53.3	166.0	0	20.8	+53.6	166.0	2	17.2	+53.8	166.0	61
4	35.6	-53.0	166.4	2	38.9	-53.1	166.4	0	42.3	-53.4	166.4	0	14.4	+53.6	166.4	3	11.0	+53.8	166.4	62
3	42.6	-52.9	166.9	1	45.8	-53.2	166.9	0	11.1	+53.4	166.9	2	08.0	+53.6	166.9	4	04.8	+53.8	166.9	63
2	49.7	-53.0	167.3	0	52.6	-53.2	167.3	1	04.5	+53.3	167.3	3	01.6	+53.5	167.3	4	58.6	+53.8	167.3	64
1	56.7	-52.9	167.8	0	00.6	+53.1	167.8	1	57.8	+53.4	167.8	3	55.1	+53.6	167.8	5	52.4	+53.8	167.8	65
1	03.8	-53.0	168.3	0	53.7	+53.2	168.3	2	51.2	+53.4	168.3	4	48.7	+53.5	168.3	6	46.2	+53.7	168.3	66
0	10.8	-53.0	168.7	1	46.9	+53.1	168.7	3	44.6	+53.3	168.7	5	42.2	+53.5	168.7	7	39.9	+53.7	168.7	67
0	42.2	+52.9	10.8	2	40.0	+53.2	10.8	4	37.9	+53.3	10.8	6	35.7	+53.5	10.9	8	33.6	+53.7	10.9	68
1	35.1	+53.0	10.3	3	33.2	+53.1	10.3	5	31.2	+53.3	10.4	7	29.2	+53.5	10.4	9	27.3	+53.6	10.5	69
2	28.1	+52.9	9.9	4	26.3	+53.1	9.9	6	24.5	+53.3	9.9	8	22.7	+53.5	10.0	10	20.9	+53.6	10.0	70
3	21.0	+52.9	9.4	5	19.4	+53.1	9.4	7	17.8	+53.2	9.4	9	16.2	+53.4	9.5	11	14.5	+53.6	9.6	71
4	13.9	+53.0	8.9	6	12.5	+53.1	8.9	8	11.0	+53.2	9.0	10	09.6	+53.3	9.0	12	08.1	+53.5	9.1	72
5	06.9	+52.9	8.4	7	05.6	+53.0	8.5	9	04.2	+53.2	8.5	11	02.9	+53.3	8.6	13	01.6	+53.4	8.6	73
5	59.8	+52.8	8.0	7	58.6	+53.0	8.0	9	57.4	+53.2	8.0	11	56.2	+53.3	8.1	13	55.0	+53.4	8.2	74
6	52.6	+52.9	7.5	8	51.6	+53.0	7.5	10	50.6	+53.1	7.6	12	49.5	+53.2	7.6	14	48.4	+53.4	7.7	75
7	45.5	+52.8	7.0	9	44.6	+52.9	7.0	11	43.7	+53.0	7.1	13	42.7	+53.2	7.2	15	41.8	+53.3	7.2	76
8	38.3	+52.7	6.5	10	37.5	+52.9	6.6	12	36.7	+53.0	6.6	14	35.9	+53.1	6.7	16	35.1	+53.2	6.7	77
9	31.0	+52.8	6.1	11	30.4	+52.8	6.1	13	29.7	+52.9	6.1	15	29.0	+53.0	6.2	17	28.3	+53.1	6.3	78
10	23.8	+52.7	5.6	12	23.2	+52.8	5.6	14	22.6	+52.9	5.7	16	22.0	+53.0	5.7	18	21.4	+53.1	5.8	79
11	16.5	+52.6	5.1	13	16.0	+52.7	5.1	15	15.5	+52.8	5.2	17	15.0	+52.9	5.2	19	14.5	+53.0	5.3	80
12	09.1	+52.6	4.6	14	08.7	+52.7	4.6	16	08.3	+52.8	4.7	18	07.9	+52.9	4.7	20	07.5	+52.9	4.8	81
13	01.7	+52.5	4.1	15	01.4	+52.6	4.1	17	01.1	+52.7	4.2	19	00.8	+52.7	4.2	21	00.4	+52.8	4.3	82
13	54.2	+52.5	3.6	15	54.0	+52.5	3.6	17	53.8	+52.5	3.7	19	53.5	+52.7	3.7	21	53.2	+52.8	3.8	83
14	46.7	+52.4	3.1	16	46.5	+52.5	3.1	18	46.3	+52.6	3.2	20	46.2	+52.5	3.2	22	46.0	+52.6	3.2	84
15	39.1	+52.3	2.6	17	39.0	+52.4	2.6	19	38.9	+52.4	2.7	21	38.7	+52.5	2.7	23	38.6	+52.5	2.7	85
16	31.4	+52.3	2.1	18	31.4	+52.3	2.1	20	31.3	+52.3	2.1	22	31.2	+52.4	2.2	24	31.1	+52.4	2.2	86
17	23.7	+52.2	1.6	19	23.7	+52.2	1.6	21	23.6	+52.3	1.6	23	23.6	+52.2	1.6	25	23.5	+52.3	1.7	87
18	15.9	+52.1	1.1	20	15.9	+52.1	1.1	22	15.9	+52.1	1.1	24	15.8	+52.2	1.1	26	15.8	+52.2	1.1	88
19	08.0	+52.0	0.5	21	08.0	+52.0	0.5	23	08.0	+52.0	0.5	25	08.0	+52.0	0.6	27	08.0	+52.0	0.6	89
20	00.0	+51.9	0.0	22	00.0	+51.9	0.0	24	00.0	+51.9	0.0	26	00.0	+51.9	0.0	28	00.0	+51.9	0.0	90

LATITUDE SAME NAME

L.H.A. 150°, 210°

32°, 328° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	47 15.6	-37.9	42.5	48 42.9	-36.2	44.1	50 07.9	-34.4	45.7	51 30.4	-32.4	47.5	52 49.9	-30.2	49.4
31	46 37.7	-38.5	41.4	48 06.7	-36.9	42.9	49 33.5	-35.1	44.4	50 58.0	-33.3	46.2	52 19.7	-31.3	48.0
32	45 59.2	-39.1	40.3	47 29.8	-37.6	41.7	48 58.4	-36.0	43.2	50 24.7	-34.2	44.8	51 48.4	-32.2	46.6
33	45 20.1	-39.7	39.2	46 52.2	-38.3	40.5	48 22.4	-36.7	42.0	49 50.5	-35.0	43.6	51 16.2	-33.1	45.3
34	44 40.4	-40.3	38.2	46 13.9	-38.9	39.4	47 45.7	-37.4	40.8	49 15.5	-35.8	42.3	50 43.1	-34.0	43.9
35	44 00.1	-40.8	37.1	45 35.0	-39.5	38.3	47 08.3	-38.1	39.7	48 39.7	-36.5	41.1	50 09.1	-34.8	42.6
36	43 19.3	-41.4	36.1	44 55.5	-40.1	37.3	46 30.2	-38.7	38.5	48 03.2	-37.3	39.9	49 34.3	-35.7	41.4
37	42 37.9	-41.9	35.1	44 15.4	-40.7	36.2	45 51.5	-39.4	37.4	47 25.9	-37.9	38.7	48 58.6	-36.4	40.1
38	41 56.0	-42.3	34.1	43 34.7	-41.2	35.2	45 12.1	-40.0	36.3	46 48.0	-38.6	37.6	48 22.2	-37.2	38.9
39	41 13.7	-42.8	33.2	42 53.5	-41.7	34.2	44 32.1	-40.5	35.3	46 09.4	-39.3	36.5	47 45.0	-37.8	37.8
40	40 30.9	-43.3	32.3	42 11.8	-42.2	33.2	43 51.6	-41.1	34.3	45 30.1	-39.8	35.4	47 07.2	-38.5	36.6
41	39 47.6	-43.6	31.4	41 29.6	-42.6	32.3	43 10.5	-41.6	33.3	44 50.3	-40.5	34.3	46 28.7	-39.2	35.5
42	39 04.0	-44.1	30.5	40 47.0	-43.1	31.3	42 28.9	-42.0	32.3	44 09.8	-40.9	33.3	45 49.5	-39.8	34.4
43	38 19.9	-44.4	29.6	40 03.9	-43.6	30.4	41 46.9	-42.6	31.3	43 28.9	-41.5	32.3	45 09.7	-40.3	33.3
44	37 35.5	-44.8	28.8	39 20.3	-43.9	29.5	41 04.3	-43.0	30.4	42 47.4	-42.0	31.3	44 29.4	-41.0	32.3
45	36 50.7	-45.1	27.9	38 36.4	-44.3	28.7	40 21.3	-43.4	29.5	42 05.4	-42.5	30.3	43 48.4	-41.4	31.3
46	36 05.6	-45.5	27.1	37 52.1	-44.7	27.8	39 37.9	-43.8	28.6	41 22.9	-42.9	29.4	43 07.0	-42.0	30.3
47	35 20.1	-45.7	26.3	37 07.4	-45.0	27.0	38 54.1	-44.3	27.7	40 40.0	-43.4	28.5	42 25.0	-42.4	29.3
48	34 34.4	-46.1	25.5	36 22.4	-45.4	26.1	38 09.8	-44.6	26.8	39 56.6	-43.8	27.5	41 42.6	-42.9	28.4
49	33 48.3	-46.3	24.7	35 37.0	-45.6	25.3	37 25.2	-44.9	26.0	39 12.8	-44.2	26.7	40 59.7	-43.4	27.4
50	33 02.0	-46.7	24.0	34 51.4	-46.0	24.5	36 40.3	-45.3	25.1	38 28.6	-44.5	25.8	40 16.3	-43.7	26.5
51	32 15.3	-46.9	23.2	34 05.4	-46.3	23.7	35 55.0	-45.6	24.3	37 44.1	-44.9	24.9	39 32.6	-44.2	25.6
52	31 28.4	-47.1	22.5	33 19.1	-46.5	23.0	35 09.4	-46.0	23.5	36 59.2	-45.3	24.1	38 48.4	-44.5	24.8
53	30 41.3	-47.4	21.8	32 32.6	-46.8	22.2	34 23.4	-46.2	22.7	36 13.9	-45.6	23.3	38 03.9	-44.9	23.9
54	29 53.9	-47.6	21.1	31 45.8	-47.1	21.5	33 37.2	-46.5	22.0	35 28.3	-45.9	22.5	37 19.0	-45.3	23.1
55	29 06.3	-47.8	20.4	30 58.7	-47.3	20.8	32 50.7	-46.7	21.2	34 42.4	-46.2	21.7	36 33.7	-45.6	22.2
56	28 18.5	-48.0	19.7	30 11.4	-47.5	20.0	32 04.0	-47.1	20.5	33 56.2	-46.5	20.9	35 48.1	-45.9	21.4
57	27 30.5	-48.2	19.0	29 23.9	-47.8	19.3	31 16.9	-47.2	19.7	33 09.7	-46.7	20.2	35 02.2	-46.2	20.6
58	26 42.3	-48.4	18.3	28 36.1	-47.9	18.7	30 29.7	-47.5	19.0	32 23.0	-47.0	19.4	34 16.0	-46.5	19.9
59	25 53.9	-48.6	17.7	27 48.2	-48.2	18.0	29 42.2	-47.7	18.3	31 36.0	-47.3	18.7	33 29.5	-46.7	19.1
60	25 05.3	-48.7	17.0	27 00.0	-48.3	17.3	28 54.5	-48.0	17.6	30 48.7	-47.5	18.0	32 42.8	-47.1	18.4
61	24 16.6	-48.9	16.4	26 11.7	-48.6	16.6	28 06.5	-48.1	16.9	30 01.2	-47.7	17.3	31 55.7	-47.3	17.6
62	23 27.7	-49.1	15.7	25 23.1	-48.7	16.0	27 18.4	-48.3	16.3	29 13.5	-47.9	16.6	31 08.4	-47.5	16.9
63	22 38.6	-49.1	15.1	24 34.4	-48.8	15.3	26 30.1	-48.5	15.6	28 25.6	-48.1	15.9	30 20.9	-47.7	16.2
64	21 49.5	-49.4	14.5	23 45.6	-49.0	14.7	25 41.6	-48.7	14.9	27 37.5	-48.4	15.2	29 33.2	-48.0	15.5
65	21 00.1	-49.4	13.9	22 56.6	-49.2	14.1	24 52.9	-48.8	14.3	26 49.1	-48.5	14.5	28 45.2	-48.1	14.8
66	20 10.7	-49.6	13.3	22 07.4	-49.3	13.5	24 04.1	-49.0	13.7	26 00.6	-48.7	13.9	27 57.1	-48.4	14.1
67	19 21.1	-49.7	12.7	21 18.1	-49.4	12.8	23 15.1	-49.2	13.0	25 11.9	-48.8	13.2	27 08.7	-48.5	13.5
68	18 31.4	-49.8	12.1	20 28.7	-49.6	12.2	22 25.9	-49.3	12.4	24 23.1	-49.0	12.6	26 20.2	-48.8	12.8
69	17 41.6	-49.9	11.5	19 39.1	-49.6	11.6	21 36.6	-49.4	11.8	23 34.1	-49.2	12.0	25 31.4	-48.9	12.1
70	16 51.7	-50.1	10.9	18 49.5	-49.8	11.0	20 47.2	-49.5	11.2	22 44.9	-49.3	11.3	24 42.5	-49.0	11.5
71	16 01.6	-50.1	10.3	17 59.7	-49.9	10.5	19 57.7	-49.7	10.6	21 55.6	-49.4	10.7	23 53.5	-49.2	10.9
72	15 11.5	-50.1	9.8	17 09.8	-50.0	9.9	19 08.0	-49.8	10.0	21 06.2	-49.6	10.1	23 04.3	-49.4	10.3
73	14 21.4	-50.3	9.2	16 19.8	-50.1	9.3	18 18.2	-49.9	9.4	20 16.6	-49.7	9.5	22 14.9	-49.5	9.6
74	13 31.1	-50.4	8.6	15 29.7	-50.2	8.7	17 28.3	-50.0	8.8	19 26.9	-49.8	8.9	21 25.4	-49.6	9.0
75	12 40.7	-50.4	8.1	14 39.5	-50.2	8.2	16 38.3	-50.1	8.2	18 37.1	-49.9	8.3	20 35.8	-49.8	8.4
76	11 50.3	-50.4	7.5	13 49.3	-50.3	7.6	15 48.2	-50.1	7.7	17 47.2	-50.1	7.7	19 46.0	-49.8	7.8
77	10 59.9	-50.6	7.0	12 59.0	-50.4	7.0	14 58.1	-50.3	7.1	16 57.1	-50.1	7.2	18 56.2	-50.0	7.2
78	10 09.3	-50.6	6.4	12 08.6	-50.5	6.5	14 07.8	-50.3	6.5	16 07.0	-50.2	6.6	18 06.2	-50.1	6.7
79	9 18.7	-50.6	5.9	11 18.1	-50.5	5.9	13 17.5	-50.5	6.0	15 16.8	-50.3	6.0	17 16.1	-50.1	6.1
80	8 28.1	-50.7	5.3	10 27.6	-50.6	5.4	12 27.0	-50.4	5.4	14 26.5	-50.4	5.5	16 26.0	-50.3	5.5
81	7 37.4	-50.7	4.8	9 37.0	-50.6	4.8	11 36.6	-50.6	4.9	13 36.1	-50.4	4.9	15 35.7	-50.4	4.9
82	6 46.7	-50.8	4.3	8 46.4	-50.7	4.3	10 46.0	-50.6	4.3	12 45.7	-50.5	4.3	14 45.3	-50.4	4.4
83	5 55.9	-50.8	3.7	7 55.7	-50.7	3.7	9 55.4	-50.6	3.8	11 55.2	-50.6	3.8	13 54.9	-50.5	3.8
84	5 05.1	-50.8	3.2	7 05.0	-50.8	3.2	9 04.8	-50.7	3.2	11 04.6	-50.7	3.2	13 04.4	-50.6	3.3
85	4 14.3	-50.8	2.7	6 14.2	-50.8	2.7	8 14.1	-50.8	2.7	10 13.9	-50.7	2.7	12 13.8	-50.6	2.7
86	3 23.5	-50.9	2.1	5 23.4	-50.8	2.1	7 23.3	-50.8	2.1	9 23.2	-50.7	2.1	11 23.2	-50.8	2.2
87	2 32.6	-50.8	1.6	4 32.6	-50.9	1.6	6 32.5	-50.8	1.6	8 32.5	-50.8	1.6	10 32.4	-50.7	1.6
88	1 41.8	-50.9	1.1	3 41.7	-50.8	1.1	5 41.7	-50.8	1.1	7 41.7	-50.8	1.1	9 41.7	-50.8	1.1
89	0 50.9	-50.9	0.5	2 50.9	-50.9	0.5	4 50.9	-50.9	0.5	6 50.9	-50.9	0.5	8 50.9	-50.9	0.5
90	0 00.0	-50.9	0.0	2 00.0	-50.9	0.0	4 00.0	-50.9	0.0	6 00.0	-50.9	0.0	8 00.0	-50.9	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 32°, 328°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
47	15.6	-37.9	137.5	45	46.1	-39.3	138.9	44	14.9	-40.8	140.2	42	41.9	-42.0	141.4	41	07.5	-43.3	142.5	30
46	37.7	-38.5	138.6	45	06.8	-40.0	139.9	43	34.1	-41.3	141.2	41	59.9	-42.6	142.3	40	24.2	-43.7	143.4	31
45	59.2	-39.1	139.7	44	26.8	-40.5	141.0	42	52.8	-41.8	142.2	41	17.3	-43.0	143.3	39	40.5	-44.1	144.3	32
45	20.1	-39.7	140.8	43	46.3	-41.0	142.0	42	11.0	-42.3	143.1	40	34.3	-43.4	144.2	38	56.4	-44.4	145.2	33
44	40.4	-40.3	141.8	43	05.3	-41.6	143.0	41	28.7	-42.7	144.1	39	50.9	-43.8	145.1	38	12.0	-44.9	146.0	34
44	00.1	-40.8	142.9	42	23.7	-42.1	144.0	40	46.0	-43.2	145.0	39	07.1	-44.2	146.0	37	27.1	-45.2	146.9	35
43	19.3	-41.4	143.9	41	41.6	-42.5	145.0	40	02.8	-43.6	145.9	38	22.9	-44.6	146.8	36	41.9	-45.5	147.7	36
42	37.9	-41.9	144.9	40	59.1	-43.0	145.9	39	19.2	-44.0	146.8	37	38.3	-45.0	147.7	35	56.4	-45.9	148.5	37
41	56.0	-42.3	145.9	40	16.1	-43.4	146.8	38	35.2	-44.4	147.7	36	53.3	-45.3	148.5	35	10.5	-46.1	149.3	38
41	13.7	-42.8	146.8	39	32.7	-43.8	147.7	37	50.8	-44.7	148.6	36	08.0	-45.6	149.3	34	24.4	-46.5	150.1	39
40	30.9	-43.3	147.7	38	48.9	-44.2	148.6	37	06.1	-45.1	149.4	35	22.4	-46.0	150.1	33	37.9	-46.8	150.8	40
39	47.6	-43.6	148.6	38	04.7	-44.5	149.5	36	21.0	-45.5	150.2	34	36.4	-46.2	150.9	32	51.2	-47.0	151.6	41
39	04.0	-44.1	149.5	37	20.2	-45.0	150.3	35	35.5	-45.7	151.0	33	50.2	-46.5	151.7	32	04.2	-47.2	152.3	42
38	19.9	-44.4	150.4	36	35.2	-45.2	151.1	34	49.8	-46.1	151.8	33	03.7	-46.8	152.5	31	17.0	-47.5	153.0	43
37	35.5	-44.8	151.2	35	50.0	-45.6	152.0	34	03.7	-46.3	152.6	32	16.9	-47.0	153.2	30	29.5	-47.7	153.7	44
36	50.7	-45.1	152.1	35	04.4	-45.9	152.8	33	17.4	-46.6	153.4	31	29.9	-47.3	153.9	29	41.8	-47.9	154.4	45
36	05.6	-45.5	152.9	34	18.5	-46.2	153.5	32	30.8	-46.9	154.1	30	42.6	-47.6	154.6	28	53.9	-48.1	155.1	46
35	20.1	-45.7	153.7	33	32.3	-46.5	154.3	31	43.9	-47.1	154.9	29	55.0	-47.7	155.4	28	05.8	-48.4	155.8	47
34	34.4	-46.1	154.5	32	45.8	-46.7	155.1	30	56.8	-47.4	155.6	29	07.3	-48.0	156.1	27	17.4	-48.5	156.5	48
33	48.3	-46.3	155.3	31	59.1	-47.0	155.8	30	09.4	-47.6	156.3	28	19.3	-48.1	156.7	26	28.9	-48.7	157.1	49
33	02.0	-46.7	156.0	31	12.1	-47.3	156.5	29	21.8	-47.8	157.0	27	31.2	-48.4	157.4	25	40.2	-48.8	157.8	50
32	15.3	-46.9	156.8	30	24.8	-47.4	157.3	28	34.0	-48.0	157.7	26	42.8	-48.5	158.1	24	51.4	-49.1	158.4	51
31	28.4	-47.1	157.5	29	37.4	-47.7	158.0	27	46.0	-48.2	158.4	25	54.3	-48.7	158.7	24	02.3	-49.1	159.1	52
30	41.3	-47.4	158.2	28	49.7	-47.9	158.7	26	57.8	-48.4	159.0	25	05.6	-48.9	159.4	23	13.2	-49.4	159.7	53
29	53.9	-47.6	158.9	28	01.8	-48.1	159.3	26	09.4	-48.6	159.7	24	16.7	-49.0	160.0	22	23.8	-49.4	160.3	54
29	06.3	-47.8	159.6	27	13.7	-48.3	160.0	25	20.8	-48.7	160.3	23	27.3	-49.2	160.6	21	34.4	-49.6	160.9	55
28	18.5	-48.0	160.3	26	25.4	-48.5	160.7	24	32.1	-49.0	161.0	22	38.5	-49.3	161.3	20	44.8	-49.8	161.5	56
27	30.5	-48.2	161.0	25	36.9	-48.6	161.3	23	43.1	-49.0	161.6	21	49.2	-49.5	161.9	19	55.0	-49.8	162.1	57
26	42.3	-48.4	161.7	24	48.3	-48.8	162.0	22	54.1	-49.2	162.3	20	59.7	-49.6	162.5	19	05.2	-50.0	162.7	58
25	53.9	-48.6	162.3	23	59.5	-49.0	162.6	22	04.9	-49.4	162.9	20	10.1	-49.7	163.1	18	15.2	-50.0	163.3	59
25	05.3	-48.7	163.0	23	10.5	-49.1	163.2	21	15.5	-49.5	163.5	19	20.4	-49.8	163.7	17	25.2	-50.2	163.9	60
24	16.6	-48.9	163.6	22	21.4	-49.3	163.9	20	26.0	-49.6	164.1	18	30.6	-49.9	164.3	16	35.0	-50.2	164.5	61
23	27.7	-49.1	164.3	21	32.1	-49.4	164.5	19	36.4	-49.7	164.7	17	40.7	-50.1	164.9	15	44.8	-50.4	165.0	62
22	38.6	-49.1	164.9	20	42.7	-49.5	165.1	18	46.7	-49.8	165.3	16	50.6	-50.1	165.4	14	54.4	-50.4	165.6	63
21	49.5	-49.4	165.5	19	53.2	-49.6	165.7	17	56.9	-49.9	165.9	16	00.5	-50.2	166.0	14	04.0	-50.5	166.1	64
21	00.1	-49.4	166.1	19	03.6	-49.8	166.3	17	07.0	-50.1	166.4	15	10.3	-50.3	166.6	13	13.5	-50.6	166.7	65
20	10.7	-49.6	166.7	18	13.8	-49.8	166.9	16	16.9	-50.1	167.0	14	20.0	-50.4	167.1	12	22.9	-50.6	167.3	66
19	21.1	-49.7	167.3	17	24.0	-50.0	167.5	15	26.8	-50.2	167.6	13	29.6	-50.5	167.7	11	32.3	-50.7	167.8	67
18	31.4	-49.8	167.9	16	34.0	-50.0	168.0	14	36.6	-50.3	168.2	12	39.1	-50.5	168.3	10	41.6	-50.8	168.3	68
17	41.6	-49.9	168.5	15	44.0	-50.2	168.6	13	46.3	-50.4	168.7	11	48.6	-50.6	168.8	9	50.8	-50.8	168.9	69
16	51.7	-50.1	169.1	14	53.8	-50.2	169.2	12	55.9	-50.4	169.3	10	58.0	-50.7	169.4	9	00.0	-50.8	169.4	70
16	01.6	-50.1	169.7	14	03.6	-50.3	169.8	12	05.5	-50.5	169.8	10	07.3	-50.7	169.9	8	09.2	-50.9	170.0	71
15	11.5	-50.1	170.2	13	13.3	-50.4	170.3	11	15.0	-50.6	170.4	9	16.6	-50.7	170.4	7	18.3	-50.9	170.5	72
14	21.4	-50.3	170.8	12	22.9	-50.5	170.9	10	24.4	-50.6	170.9	8	25.9	-50.8	171.0	6	27.4	-51.0	171.0	73
13	31.1	-50.4	171.4	11	32.4	-50.5	171.4	9	33.8	-50.7	171.5	7	35.1	-50.8	171.5	5	36.4	-51.0	171.6	74
12	40.7	-50.4	171.9	10	41.9	-50.5	172.0	8	43.1	-50.7	172.0	6	44.3	-50.9	172.1	4	45.4	-51.0	172.1	75
11	50.3	-50.4	172.5	9	51.4	-50.7	172.5	7	52.4	-50.8	172.6	5	53.4	-50.9	172.6	3	54.4	-51.1	172.6	76
10	59.9	-50.6	173.0	9	00.7	-50.6	173.1	7	01.6	-50.8	173.1	5	02.5	-50.9	173.1	3	03.3	-51.0	173.1	77
10	09.3	-50.6	173.6	8	10.1	-50.7	173.6	6	10.8	-50.8	173.6	4	11.6	-51.0	173.7	2	12.3	-51.1	173.7	78
9	18.7	-50.6	174.1	7	19.4	-50.8	174.1	5	20.0	-50.9	174.2	3	20.6	-51.0	174.2	1	21.2	-51.1	174.2	79
8	28.1	-50.7	174.7	6	28.6	-50.8	174.7	4	29.1	-50.9	174.7	2	29.6	-50.9	174.7	0	30.1	-51.0	174.7	80
7	37.4	-50.7	175.2	5	37.8	-50.8	175.2	3	38.2	-50.9	175.2	1	38.7	-51.0	175.2	0	20.9	+51.1	4.8	81
6	46.7	-50.8	175.7	4	47.0	-50.8	175.8	2	47.3	-50.9	175.8	0	47.7	-51.0	175.8	1	12.0	+51.1	4.2	82
5	55.9	-50.8	176.3	3	56.2	-50.9	176.3	1	56.4	-50.9	176.3	0	03.3	+51.0	3.7	2	03.1	+51.0	3.7	83
5	05.1	-50.8	176.8	3	05.3	-50.8	176.8	1	05.5	-50.9	176.8	0	04.3	+51.0	3.2	2	04.1	+51.1	3.2	84
4	14.3	-50.8	177.3	2	14.5	-50.9	177.4	0	14.6	-51.0	177.4	1	45.3	+51.0	2.6	3	45.2	+51.0	2.7	85
3	23.5	-50.9	177.9	1	23.6	-50.9	177.9	0	23.6	+50.9	2.1	2	36.3	+50.9	2.1	4	36.2	+51.0	2.1	86
2	32.6	-50.8	178.4	0	32.7	-50.9	178.4	1	27.3	+50.9	1.6	3	27.2	+51.0	1.6	5	27.2	+51.0	1.6	87
1	41.8	-50.9	178.9	0	41.8	+50.9	1.1	2	18.2	+50.9	1.1	4	18.2	+50.9	1.1	6	18.2	+50.9	1.1	88
0	50.9	-50.9	179.5	1	09.1	+50.9	0.5	3	09.1	+50.9	0.5	5	09.1	+50.9	0.5	7	09.1	+50.9	0.5	89
0	00.0	+50.9	0.0	2	00.0	+50.9	0.0	4	00.0	+50.9	0.0	6	00.0	+50.9	0.0	8	00.0	+50.9	0.0	90

LATITUDE SAME NAME

L.H.A. 148°, 212°

32°, 328° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	54 06.3	-27.9	51.5	55 19.2	-25.4	53.8	56 28.1	-22.6	56.2	57 32.6	-19.6	58.8	58 32.3	-16.4	61.6
31	53 38.4	-29.0	50.0	54 53.8	-26.6	52.2	56 05.5	-24.0	54.5	57 13.0	-21.1	57.0	58 15.9	-17.9	59.7
32	53 09.4	-30.1	48.5	54 27.2	-27.7	50.6	55 41.5	-25.2	52.9	56 51.9	-22.4	55.3	57 58.0	-19.4	57.9
33	52 39.3	-31.1	47.1	53 59.5	-28.9	49.1	55 16.3	-26.4	51.3	56 29.5	-23.8	53.6	57 38.6	-21.0	56.1
34	52 08.2	-32.0	45.7	53 30.6	-29.9	47.6	54 49.9	-27.6	49.7	56 05.7	-25.1	52.0	57 17.6	-22.3	54.4
35	51 36.2	-33.0	44.3	53 00.7	-31.0	46.2	54 22.3	-28.8	48.2	55 40.6	-26.3	50.3	56 55.3	-23.7	52.7
36	51 03.2	-33.9	43.0	52 29.7	-32.0	44.8	53 53.5	-29.9	46.7	55 14.3	-27.6	48.8	56 31.6	-25.0	51.0
37	50 29.3	-34.7	41.7	51 57.7	-32.9	43.4	53 23.6	-30.9	45.2	54 46.7	-28.7	47.2	56 06.6	-26.3	49.4
38	49 54.6	-35.6	40.4	51 24.8	-33.8	42.0	52 52.7	-31.9	43.8	54 18.0	-29.8	45.7	55 40.3	-27.6	47.8
39	49 19.0	-36.3	39.2	50 51.0	-34.7	40.7	52 20.8	-32.8	42.4	53 48.2	-30.9	44.2	55 12.7	-28.7	46.2
40	48 42.7	-37.1	38.0	50 16.3	-35.5	39.4	51 48.0	-33.8	41.0	53 17.3	-31.9	42.8	54 44.0	-29.8	44.7
41	48 05.6	-37.8	36.8	49 40.8	-36.3	38.2	51 14.2	-34.7	39.7	52 45.4	-32.9	41.4	54 14.2	-30.9	43.2
42	47 27.8	-38.5	35.6	49 04.5	-37.0	37.0	50 39.5	-35.5	38.4	52 12.5	-33.8	40.0	53 43.3	-32.0	41.7
43	46 49.3	-39.1	34.5	48 27.5	-37.8	35.8	50 04.0	-36.3	37.1	51 38.7	-34.7	38.6	53 11.3	-32.9	40.3
44	46 10.2	-39.8	33.4	47 49.7	-38.5	34.6	49 27.7	-37.1	35.9	51 04.0	-35.6	37.3	52 38.4	-33.9	38.9
45	45 30.4	-40.3	32.3	47 11.2	-39.1	33.5	48 50.6	-37.8	34.7	50 28.4	-36.3	36.1	52 04.5	-34.8	37.6
46	44 50.1	-40.9	31.3	46 32.1	-39.8	32.4	48 12.8	-38.5	33.5	49 52.1	-37.2	34.8	51 29.7	-35.6	36.2
47	44 09.2	-41.4	30.2	45 52.3	-40.3	31.3	47 34.3	-39.2	32.4	49 14.9	-37.9	33.6	50 54.1	-36.5	35.0
48	43 27.8	-42.0	29.2	45 12.0	-41.0	30.2	46 55.1	-39.8	31.3	48 37.0	-38.6	32.4	50 17.6	-37.3	33.7
49	42 45.8	-42.4	28.3	44 31.0	-41.4	29.2	46 15.3	-40.4	30.2	47 58.4	-39.2	31.3	49 40.3	-38.0	32.5
50	42 03.4	-43.0	27.3	43 49.6	-42.0	28.2	45 34.9	-41.0	29.1	47 19.2	-39.9	30.2	49 02.3	-38.7	31.3
51	41 20.4	-43.3	26.4	43 07.6	-42.5	27.2	44 53.9	-41.5	28.1	46 39.3	-40.5	29.1	48 23.6	-39.4	30.1
52	40 37.1	-43.8	25.5	42 25.1	-43.0	26.2	44 12.4	-42.1	27.1	45 58.8	-41.1	28.0	47 44.2	-40.0	29.0
53	39 53.3	-44.2	24.6	41 42.1	-43.4	25.3	43 30.3	-42.6	26.1	45 17.7	-41.7	27.0	47 04.2	-40.7	27.9
54	39 09.1	-44.5	23.7	40 58.7	-43.8	24.4	42 47.7	-43.0	25.1	44 36.0	-42.2	25.9	46 23.5	-41.2	26.8
55	38 24.6	-45.0	22.8	40 14.9	-44.2	23.5	42 04.7	-43.5	24.2	43 53.8	-42.7	24.9	45 42.3	-41.9	25.8
56	37 39.6	-45.3	22.0	39 30.7	-44.7	22.6	41 21.2	-43.9	23.3	43 11.1	-43.1	24.0	45 00.4	-42.3	24.8
57	36 54.3	-45.6	21.2	38 46.0	-45.0	21.7	40 37.3	-44.4	22.3	42 28.0	-43.6	23.0	44 18.1	-42.8	23.8
58	36 08.7	-45.9	20.3	38 01.0	-45.3	20.9	39 52.9	-44.7	21.5	41 44.4	-44.1	22.1	43 35.3	-43.4	22.8
59	35 22.8	-46.3	19.6	37 15.7	-45.7	20.1	39 08.2	-45.1	20.6	41 00.3	-44.5	21.2	42 51.9	-43.8	21.9
60	34 36.5	-46.5	18.8	36 30.0	-46.1	19.2	38 23.1	-45.5	19.8	40 15.8	-44.8	20.3	42 08.1	-44.2	20.9
61	33 50.0	-46.8	18.0	35 43.9	-46.3	18.5	37 37.6	-45.8	18.9	39 31.0	-45.3	19.5	41 23.9	-44.6	20.0
62	33 03.2	-47.1	17.3	34 57.6	-46.6	17.7	36 51.8	-46.1	18.1	38 45.7	-45.6	18.6	40 39.3	-45.1	19.1
63	32 16.1	-47.4	16.5	34 11.0	-46.9	16.9	36 05.7	-46.4	17.3	38 00.1	-45.9	17.8	39 54.2	-45.4	18.3
64	31 28.7	-47.5	15.8	33 24.1	-47.2	16.2	35 19.3	-46.8	16.5	37 14.2	-46.3	17.0	39 08.8	-45.8	17.4
65	30 41.2	-47.8	15.1	32 36.9	-47.4	15.4	34 32.5	-47.0	15.8	36 27.9	-46.6	16.2	38 23.0	-46.1	16.6
66	29 53.4	-48.1	14.4	31 49.5	-47.6	14.7	33 45.5	-47.3	15.0	35 41.3	-46.9	15.4	37 36.9	-46.5	15.8
67	29 05.3	-48.2	13.7	31 01.9	-47.9	14.0	32 58.2	-47.5	14.3	34 54.4	-47.1	14.6	36 50.4	-46.7	15.0
68	28 17.1	-48.4	13.0	30 14.0	-48.1	13.3	32 10.7	-47.8	13.6	34 07.3	-47.5	13.9	36 03.7	-47.1	14.2
69	27 28.7	-48.6	12.4	29 25.9	-48.4	12.6	31 22.9	-48.0	12.9	33 19.8	-47.6	13.1	35 16.6	-47.3	13.5
70	26 40.1	-48.8	11.7	28 37.5	-48.5	11.9	30 34.9	-48.2	12.2	32 32.2	-48.0	12.4	34 29.3	-47.6	12.7
71	25 51.3	-49.0	11.1	27 49.0	-48.7	11.2	29 46.7	-48.5	11.5	31 44.2	-48.1	11.7	33 41.7	-47.9	12.0
72	25 02.3	-49.1	10.4	27 00.3	-48.9	10.6	28 58.2	-48.6	10.8	30 56.1	-48.4	11.0	32 53.8	-48.1	11.2
73	24 13.2	-49.3	9.8	26 11.4	-49.0	9.9	28 09.6	-48.8	10.1	30 07.7	-48.6	10.3	32 05.7	-48.3	10.5
74	23 23.9	-49.4	9.2	25 22.4	-49.3	9.3	27 20.8	-49.1	9.5	29 19.1	-48.8	9.6	31 17.4	-48.6	9.8
75	22 34.5	-49.6	8.5	24 33.1	-49.3	8.7	26 31.7	-49.2	8.8	28 30.3	-49.0	9.0	30 28.8	-48.8	9.2
76	21 44.9	-49.7	7.9	23 43.8	-49.6	8.1	25 42.5	-49.3	8.2	27 41.3	-49.2	8.3	29 40.0	-49.0	8.5
77	20 55.2	-49.8	7.3	22 54.2	-49.6	7.4	24 53.2	-49.5	7.6	26 52.1	-49.3	7.7	28 51.0	-49.1	7.8
78	20 05.4	-49.9	6.7	22 04.6	-49.8	6.8	24 03.7	-49.7	6.9	26 02.8	-49.5	7.0	28 01.9	-49.4	7.2
79	19 15.5	-50.1	6.1	21 14.8	-50.0	6.2	23 14.0	-49.8	6.3	25 13.3	-49.7	6.4	27 12.5	-49.5	6.5
80	18 25.4	-50.2	5.6	20 24.8	-50.0	5.6	22 24.2	-49.9	5.7	24 23.6	-49.8	5.8	26 23.0	-49.7	5.9
81	17 35.2	-50.2	5.0	19 34.8	-50.2	5.0	21 34.3	-50.0	5.1	23 33.8	-49.9	5.2	25 33.3	-49.8	5.3
82	16 45.0	-50.4	4.4	18 44.6	-50.2	4.5	20 44.3	-50.2	4.5	22 43.9	-50.1	4.6	24 43.5	-50.0	4.7
83	15 54.6	-50.4	3.9	17 54.4	-50.4	3.9	19 54.1	-50.3	3.9	21 53.8	-50.2	4.0	23 53.5	-50.1	4.1
84	15 04.2	-50.5	3.3	17 04.0	-50.5	3.3	19 03.8	-50.4	3.4	21 03.6	-50.4	3.4	23 03.4	-50.3	3.5
85	14 13.7	-50.6	2.7	16 13.5	-50.5	2.8	18 13.4	-50.5	2.8	20 13.2	-50.4	2.8	22 13.1	-50.4	2.9
86	13 23.1	-50.7	2.2	15 23.0	-50.7	2.2	17 22.9	-50.6	2.2	19 22.8	-50.6	2.2	21 22.7	-50.5	2.3
87	12 32.4	-50.7	1.6	14 32.3	-50.7	1.6	16 32.3	-50.7	1.7	18 32.2	-50.6	1.7	20 32.2	-50.6	1.7
88	11 41.7	-50.8	1.1	13 41.6	-50.7	1.1	15 41.6	-50.8	1.1	17 41.6	-50.8	1.1	19 41.6	-50.8	1.1
89	10 50.9	-50.9	0.5	12 50.9	-50.9	0.5	14 50.8	-50.8	0.5	16 50.8	-50.8	0.6	18 50.8	-50.8	0.6
90	10 00.0	-50.9	0.0	12 00.0	-50.9	0.0	14 00.0	-50.9	0.0	16 00.0	-50.9	0.0	18 00.0	-50.9	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 32°, 328°

10°			12°			14°			16°			18°			Dec.				
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z					
39	31.7	-44.4	143.5	37	54.6	-45.4	144.4	36	16.5	-46.4	145.3	34	37.3	-47.2	146.1	30	57.3	-48.1	146.8
38	47.3	-44.8	144.4	37	09.2	-45.7	145.3	35	30.1	-46.7	146.1	33	50.1	-47.6	146.8	32	09.2	-48.3	147.6
38	02.5	-45.1	145.2	36	23.5	-46.1	146.1	34	43.4	-46.9	146.9	33	02.5	-47.7	147.6	31	20.9	-48.6	148.3
37	17.4	-45.4	146.0	35	37.4	-46.4	146.9	33	56.5	-47.2	147.6	32	14.8	-48.0	148.3	30	32.3	-48.7	148.9
36	32.0	-45.8	146.9	34	51.0	-46.6	147.6	33	09.3	-47.5	148.3	31	26.8	-48.3	149.0	29	43.6	-49.0	149.6
35	46.2	-46.1	147.7	34	04.4	-47.0	148.4	32	21.8	-47.7	149.1	30	38.5	-48.4	149.7	28	54.6	-49.2	150.3
35	00.1	-46.4	148.4	33	17.4	-47.2	149.1	31	34.1	-48.0	149.8	29	50.1	-48.7	150.4	28	05.4	-49.3	150.9
34	13.7	-46.7	149.2	32	30.2	-47.4	149.9	30	46.1	-48.2	150.5	29	01.4	-48.9	151.1	27	16.1	-49.5	151.6
33	27.0	-46.9	150.0	31	42.8	-47.7	150.6	29	57.9	-48.4	151.2	28	12.5	-49.0	151.7	26	26.6	-49.7	152.2
32	40.1	-47.3	150.7	30	55.1	-47.9	151.3	29	09.5	-48.6	151.9	27	23.5	-49.3	152.4	25	36.9	-49.8	152.8
31	52.8	-47.4	151.4	30	07.2	-48.2	152.0	28	20.9	-48.7	152.5	26	34.2	-49.4	153.0	24	47.1	-50.0	153.4
31	05.4	-47.7	152.2	29	19.0	-48.3	152.7	27	32.2	-49.0	153.2	25	44.8	-49.5	153.6	23	57.1	-50.1	154.0
30	17.7	-47.9	152.9	28	30.7	-48.6	153.4	26	43.2	-49.2	153.8	24	55.3	-49.7	154.3	23	07.0	-50.3	154.6
29	29.8	-48.1	153.6	27	42.1	-48.7	154.0	25	54.0	-49.3	154.5	24	05.6	-49.9	154.9	22	16.7	-50.3	155.2
28	41.7	-48.4	154.2	26	53.4	-48.9	154.7	25	04.7	-49.5	155.1	23	15.7	-50.0	155.5	21	26.4	-50.5	155.8
27	53.3	-48.5	154.9	26	04.5	-49.1	155.3	24	15.2	-49.6	155.7	22	25.5	-50.1	156.1	20	35.9	-50.7	156.4
27	04.8	-48.7	155.6	25	15.4	-49.3	156.0	23	25.6	-49.7	156.3	21	35.6	-50.3	156.7	19	45.2	-50.7	157.0
26	16.1	-48.9	156.2	24	26.1	-49.4	156.6	22	35.9	-49.9	157.0	20	45.3	-50.4	157.3	18	54.5	-50.8	157.5
25	27.2	-49.0	156.9	23	36.7	-49.5	157.2	21	46.0	-50.1	157.6	19	54.9	-50.5	157.8	18	03.7	-50.9	158.1
24	38.2	-49.2	157.5	22	47.2	-49.7	157.8	20	55.9	-50.1	158.1	19	04.4	-50.5	158.4	17	12.8	-51.0	158.7
23	49.0	-49.4	158.1	21	57.5	-49.8	158.5	20	05.8	-50.3	158.7	18	13.9	-50.3	159.0	16	21.8	-51.1	159.2
22	59.6	-49.5	158.8	21	07.7	-50.0	159.1	19	15.5	-50.4	159.3	17	23.2	-50.8	159.5	15	30.7	-51.2	159.8
22	10.1	-49.6	159.4	20	17.7	-50.0	159.6	18	25.1	-50.4	159.9	16	32.4	-50.9	160.1	14	39.5	-51.3	160.3
21	20.5	-49.7	160.0	19	27.7	-50.2	160.2	17	34.7	-50.6	160.5	15	41.5	-50.9	160.7	13	48.2	-51.3	160.8
20	30.8	-49.9	160.6	18	37.5	-50.3	160.8	16	44.1	-50.7	161.0	14	50.6	-51.1	161.2	12	56.9	-51.4	161.4
19	40.9	-50.0	161.2	17	47.2	-50.4	161.4	15	53.4	-50.7	161.6	13	59.5	-51.1	161.7	12	05.5	-51.4	161.9
18	50.9	-50.1	161.8	16	56.8	-50.4	162.0	15	02.7	-50.8	162.1	13	08.4	-51.1	162.3	11	14.1	-51.5	162.4
18	00.8	-50.2	162.3	16	06.4	-50.6	162.5	14	11.9	-50.9	162.7	12	17.3	-51.3	162.8	10	22.6	-51.6	162.9
17	10.6	-50.3	162.9	15	15.8	-50.6	163.1	13	21.0	-51.0	163.2	11	26.0	-51.3	163.4	9	31.0	-51.6	163.5
16	20.3	-50.4	163.5	14	25.2	-50.8	163.6	12	30.0	-51.1	163.8	10	34.7	-51.3	163.9	8	39.4	-51.6	164.0
15	29.9	-50.5	164.0	13	34.4	-50.8	164.2	11	38.9	-51.0	164.3	9	43.4	-51.4	164.4	7	47.8	-51.7	164.5
14	39.4	-50.6	164.6	12	43.6	-50.8	164.7	10	47.9	-51.2	164.8	8	52.0	-51.4	164.9	6	56.1	-51.7	165.0
13	48.8	-50.6	165.2	11	52.8	-50.9	165.3	9	56.7	-51.2	165.4	8	00.6	-51.5	165.4	6	04.4	-51.7	165.5
12	58.2	-50.7	165.7	11	01.9	-51.0	165.8	9	05.5	-51.2	165.9	7	09.1	-51.5	166.0	5	12.7	-51.8	166.0
12	07.5	-50.8	166.3	10	10.9	-51.0	166.3	8	14.3	-51.3	166.4	6	17.6	-51.5	166.5	4	20.9	-51.8	166.5
11	16.7	-50.8	166.8	9	19.9	-51.1	166.9	7	23.0	-51.4	166.9	5	26.1	-51.6	167.0	3	29.1	-51.8	167.0
10	25.9	-50.9	167.3	8	28.8	-51.1	167.4	6	31.6	-51.3	167.5	4	34.5	-51.6	167.5	2	37.3	-51.8	167.5
9	35.0	-50.9	167.9	7	37.7	-51.2	167.9	5	40.3	-51.4	168.0	3	42.9	-51.6	168.0	1	45.5	-51.8	168.0
8	44.1	-51.0	168.4	6	46.5	-51.2	168.5	4	48.9	-51.4	168.5	2	51.3	-51.6	168.5	0	53.7	-51.8	168.5
7	53.1	-51.0	168.9	5	55.3	-51.2	169.0	3	57.5	-51.4	169.0	1	59.7	-51.6	169.0	0	01.9	-51.8	169.1
7	02.1	-51.1	169.5	5	04.1	-51.3	169.5	3	06.1	-51.5	169.5	1	08.1	-51.7	169.6	0	49.9	+51.9	10.4
6	11.0	-51.1	170.0	4	12.8	-51.2	170.0	2	14.6	-51.4	170.1	0	16.4	-51.6	170.1	1	41.8	+51.8	9.9
5	19.9	-51.1	170.5	3	21.6	-51.3	170.6	1	23.2	-51.5	170.6	0	35.2	+51.6	9.4	2	33.6	+51.8	9.4
4	28.8	-51.1	171.1	2	30.3	-51.3	171.1	0	31.7	-51.4	171.1	1	26.8	+51.6	8.9	3	25.4	+51.8	8.9
3	37.7	-51.2	171.6	1	39.0	-51.3	171.6	0	19.7	+51.5	8.4	2	18.4	+51.7	8.4	4	17.2	+51.7	8.4
2	46.5	-51.1	172.1	0	47.7	-51.3	172.1	1	11.2	+51.4	7.9	3	10.1	+51.6	7.9	5	08.9	+51.8	7.9
1	55.4	-51.2	172.6	0	03.6	+51.3	7.4	2	02.6	+51.5	7.4	4	01.7	+51.5	7.4	6	00.7	+51.7	7.4
1	04.2	-51.2	173.2	0	54.9	+51.4	6.8	2	54.1	+51.4	6.9	4	53.2	+51.6	6.9	6	52.4	+51.6	6.9
0	13.0	-51.2	173.7	1	46.3	+51.2	6.3	3	45.5	+51.4	6.3	5	44.8	+51.5	6.4	7	44.0	+51.7	6.4
0	38.2	+51.1	5.8	2	37.5	+51.3	5.8	4	36.9	+51.4	5.8	6	36.3	+51.5	5.8	8	35.7	+51.6	5.9
1	29.3	+51.2	5.3	3	28.8	+51.3	5.3	5	28.3	+51.4	5.3	7	27.8	+51.5	5.3	9	27.3	+51.5	5.4
2	20.5	+51.2	4.8	4	20.1	+51.2	4.8	6	19.7	+51.3	4.8	8	19.3	+51.4	4.8	10	18.8	+51.5	4.8
3	11.7	+51.1	4.2	5	11.3	+51.3	4.2	7	11.0	+51.3	4.3	9	10.7	+51.3	4.3	11	10.3	+51.5	4.3
4	02.8	+51.1	3.7	6	02.6	+51.2	3.7	8	02.3	+51.3	3.7	10	02.0	+51.4	3.8	12	01.8	+51.4	3.8
4	53.9	+51.1	3.2	6	53.8	+51.1	3.2	8	53.6	+51.2	3.2	10	53.4	+51.2	3.2	12	53.2	+51.3	3.3
5	45.0	+51.1	2.7	7	44.9	+51.1	2.7	9	44.8	+51.1	2.7	11	44.6	+51.3	2.7	13	44.5	+51.3	2.7
6	36.1	+51.0	2.1	8	36.0	+51.1	2.1	10	35.9	+51.1	2.2	12	35.9	+51.1	2.2	14	35.8	+51.1	2.2
7	27.1	+51.0	1.6	9	27.1	+51.0	1.6	11	27.0	+51.1	1.6	13	27.0	+51.1	1.6	15	26.9	+51.2	1.6
8	18.1	+51.0	1.1	10	18.1	+51.0	1.1	12	18.1	+51.0	1.1	14	18.1	+51.0	1.1	16	18.1	+51.0	1.1
9	09.1	+50.9	0.5	11	09.1	+50.9	0.5	13	09.1	+50.9	0.5	15	09.1	+50.9	0.5	17	09.1	+50.9	0.6
10	00.0	+50.9	0.0	12	00.0	+50.9	0.0	14	00.0	+50.8	0.0	16	00.0	+50.8	0.0	18	00.0	+50.8	0.0
10°			12°			14°			16°			18°							

LATITUDE SAME NAME

L.H.A. 148°, 212°

32°, 328° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	59 26.8	-13.0	64.5	60 15.4	-9.2	67.7	60 57.8	-5.3	71.0	61 33.4	-1.2	74.5	62 01.8	+3.2	78.1
31	59 13.8	-14.5	62.6	60 06.2	-11.0	65.7	60 52.5	-7.1	68.9	61 32.2	-3.0	72.4	62 05.0	+1.1	76.0
32	58 59.3	-16.2	60.7	59 55.2	-12.7	63.7	60 45.4	-9.0	66.9	61 29.2	-5.0	70.3	62 06.1	-0.8	73.8
33	58 43.1	-17.8	58.9	59 42.5	-14.4	61.8	60 36.4	-10.8	64.9	61 24.2	-6.9	68.2	62 05.3	-2.8	71.7
34	58 25.3	-19.4	57.0	59 28.1	-16.1	59.9	60 25.6	-12.6	62.9	61 17.3	-8.8	66.1	62 02.5	-4.7	69.6
35	58 05.9	-20.8	55.2	59 12.0	-17.7	58.0	60 13.0	-14.2	60.9	61 08.5	-10.6	64.1	61 57.8	-6.7	67.4
36	57 45.1	-22.3	53.5	58 54.3	-19.2	56.1	59 58.8	-16.0	59.0	60 57.9	-12.5	62.0	61 51.1	-8.7	65.3
37	57 22.8	-23.6	51.7	58 35.1	-20.8	54.3	59 42.8	-17.7	57.1	60 45.4	-14.2	60.0	61 42.4	-10.5	63.2
38	56 59.2	-25.1	50.0	58 14.3	-22.3	52.5	59 25.1	-19.2	55.2	60 31.2	-16.0	58.1	61 31.9	-12.4	61.2
39	56 34.1	-26.3	48.4	57 52.0	-23.7	50.7	59 05.9	-20.8	53.3	60 15.2	-17.6	56.1	61 19.5	-14.2	59.1
40	56 07.8	-27.5	46.8	57 28.3	-25.0	49.0	58 45.1	-22.3	51.5	59 57.6	-19.3	54.2	61 05.3	-15.9	57.1
41	55 40.3	-28.8	45.2	57 03.3	-26.4	47.3	58 22.8	-23.8	49.7	59 38.3	-20.9	52.3	60 49.4	-17.8	55.1
42	55 11.5	-29.9	43.6	56 36.9	-27.6	45.7	57 59.0	-25.1	48.0	59 17.4	-22.4	50.5	60 31.6	-19.3	53.2
43	54 41.6	-31.0	42.1	56 09.3	-28.9	44.1	57 33.9	-26.5	46.3	58 55.0	-23.9	48.6	60 12.3	-21.0	51.3
44	54 10.6	-32.0	40.6	55 40.4	-30.0	42.5	57 07.4	-27.8	44.6	58 31.1	-25.3	46.9	59 51.3	-22.6	49.4
45	53 38.6	-33.1	39.2	55 10.4	-31.1	41.0	56 39.6	-29.0	43.0	58 05.8	-26.6	45.2	59 28.7	-24.1	47.5
46	53 05.5	-34.0	37.8	54 39.3	-32.2	39.5	56 10.6	-30.2	41.4	57 39.2	-28.0	43.5	59 04.6	-25.5	45.8
47	52 31.5	-34.9	36.4	54 07.1	-33.3	38.1	55 40.4	-31.3	39.9	57 11.2	-29.3	41.8	58 39.1	-26.9	44.0
48	51 56.6	-35.8	35.1	53 33.8	-34.1	36.7	55 09.1	-32.5	38.4	56 41.9	-30.4	40.2	58 12.2	-28.3	42.3
49	51 20.8	-36.6	33.8	52 59.7	-35.2	35.3	54 36.6	-33.4	36.9	56 11.5	-31.6	38.7	57 43.9	-29.5	40.6
50	50 44.2	-37.4	32.6	52 24.5	-35.9	33.9	54 03.2	-34.4	35.5	55 39.9	-32.7	37.2	57 14.4	-30.7	39.0
51	50 06.8	-38.2	31.3	51 48.6	-36.9	32.6	53 28.8	-35.4	34.1	55 07.2	-33.7	35.7	56 43.7	-31.9	37.4
52	49 28.6	-38.9	30.1	51 11.7	-37.6	31.4	52 53.4	-36.2	32.7	54 33.5	-34.7	34.2	56 11.8	-33.1	35.9
53	48 49.7	-39.6	29.0	50 34.1	-38.4	30.1	52 17.2	-37.1	31.4	53 58.8	-35.6	32.8	55 38.7	-34.0	34.4
54	48 10.1	-40.2	27.8	49 55.7	-39.1	28.9	51 40.1	-37.9	30.1	53 23.2	-36.6	31.5	55 04.7	-35.1	33.0
55	47 29.9	-40.9	26.7	49 16.6	-39.9	27.8	51 02.2	-38.7	28.9	52 46.6	-37.4	30.2	54 29.6	-36.0	31.6
56	46 49.0	-41.4	25.7	48 36.7	-40.4	26.6	50 23.5	-39.4	27.7	52 09.2	-38.2	28.9	53 53.6	-36.9	30.2
57	46 07.6	-42.0	24.6	47 56.3	-41.1	25.5	49 44.1	-40.1	26.5	51 31.0	-39.0	27.6	53 16.7	-37.8	28.9
58	45 25.6	-42.6	23.6	47 15.2	-41.7	24.4	49 04.0	-40.7	25.4	50 52.0	-39.8	26.4	52 38.9	-38.6	27.6
59	44 43.0	-43.0	22.6	46 33.5	-42.3	23.4	48 23.3	-41.4	24.3	50 12.2	-40.4	25.2	52 00.3	-39.4	26.3
60	44 00.0	-43.6	21.6	45 51.2	-42.8	22.4	47 41.9	-42.0	23.2	49 31.8	-41.1	24.1	51 20.9	-40.1	25.1
61	43 16.4	-44.0	20.7	45 08.4	-43.3	21.4	46 59.9	-42.5	22.1	48 50.7	-41.7	23.0	50 40.8	-40.8	23.9
62	42 32.4	-44.4	19.7	44 25.1	-43.7	20.4	46 17.4	-43.1	21.1	48 09.0	-42.3	21.9	50 00.0	-41.4	22.8
63	41 48.0	-44.9	18.8	43 41.4	-44.3	19.4	45 34.3	-43.6	20.1	47 26.7	-42.9	20.8	49 18.6	-42.1	21.7
64	41 03.1	-45.2	17.9	42 57.1	-44.7	18.5	44 50.7	-44.1	19.1	46 43.8	-43.4	19.8	48 36.5	-42.7	20.6
65	40 17.9	-45.7	17.1	42 12.4	-45.1	17.6	44 06.6	-44.5	18.2	46 00.4	-43.9	18.8	47 53.8	-43.3	19.5
66	39 32.2	-46.0	16.2	41 27.3	-45.5	16.7	43 22.1	-45.0	17.2	45 16.5	-44.4	17.8	47 10.5	-43.8	18.5
67	38 46.2	-46.3	15.4	40 41.8	-45.9	15.8	42 37.1	-45.4	16.3	44 32.1	-44.9	16.9	46 26.7	-44.2	17.5
68	37 59.9	-46.7	14.6	39 55.9	-46.2	15.0	41 51.7	-45.8	15.5	43 47.2	-45.3	16.0	45 42.5	-44.8	16.5
69	37 13.2	-46.9	13.8	39 09.7	-46.6	14.2	41 05.9	-46.1	14.6	43 01.9	-45.7	15.1	44 57.7	-45.3	15.6
70	36 26.3	-47.3	13.0	38 23.1	-46.9	13.4	40 19.8	-46.6	13.8	42 16.2	-46.1	14.2	44 12.4	-45.6	14.6
71	35 39.0	-47.5	12.3	37 36.2	-47.2	12.6	39 33.2	-46.8	12.9	41 30.1	-46.5	13.3	43 26.8	-46.1	13.7
72	34 51.5	-47.9	11.5	36 49.0	-47.5	11.8	38 46.4	-47.2	12.1	40 43.6	-46.8	12.5	42 40.7	-46.5	12.9
73	34 03.6	-48.0	10.8	36 01.5	-47.8	11.0	37 59.2	-47.5	11.3	39 56.8	-47.2	11.7	41 54.2	-46.8	12.0
74	33 15.6	-48.4	10.1	35 13.7	-48.1	10.3	37 11.7	-47.8	10.6	39 09.6	-47.5	10.9	41 07.4	-47.2	11.2
75	32 27.2	-48.5	9.4	34 25.6	-48.3	9.6	36 23.9	-48.1	9.8	38 22.1	-47.8	10.1	40 20.2	-47.5	10.4
76	31 38.7	-48.8	8.7	33 37.3	-48.6	8.9	35 35.8	-48.3	9.1	37 34.3	-48.1	9.3	39 32.7	-47.9	9.6
77	30 49.9	-49.0	8.0	32 48.7	-48.8	8.2	34 47.5	-48.6	8.3	36 46.2	-48.4	8.6	38 44.8	-48.2	8.8
78	30 00.9	-49.2	7.3	31 59.9	-49.0	7.5	33 58.9	-48.8	7.6	35 57.8	-48.6	7.8	37 56.6	-48.4	8.0
79	29 11.7	-49.3	6.7	31 10.9	-49.2	6.8	33 10.1	-49.1	6.9	35 09.2	-48.9	7.1	37 08.2	-48.7	7.3
80	28 22.4	-49.6	6.0	30 21.7	-49.4	6.1	32 21.0	-49.3	6.3	34 20.3	-49.2	6.4	36 19.5	-49.0	6.6
81	27 32.8	-49.7	5.4	29 32.3	-49.6	5.5	31 31.7	-49.5	5.6	33 31.1	-49.3	5.7	35 30.5	-49.2	5.8
82	26 43.1	-49.9	4.7	28 42.7	-49.8	4.8	30 42.2	-49.7	4.9	32 41.8	-49.6	5.0	34 41.3	-49.5	5.1
83	25 53.2	-50.1	4.1	27 52.9	-50.0	4.2	29 52.5	-49.8	4.3	31 52.2	-49.8	4.4	33 51.8	-49.6	4.5
84	25 03.1	-50.2	3.5	27 02.9	-50.1	3.6	29 02.7	-50.1	3.6	31 02.4	-49.9	3.7	33 02.2	-49.9	3.8
85	24 12.9	-50.3	2.9	26 12.8	-50.3	3.0	28 12.6	-50.2	3.0	30 12.5	-50.2	3.1	32 12.3	-50.1	3.1
86	23 22.6	-50.5	2.3	25 22.5	-50.4	2.3	27 22.4	-50.4	2.4	29 22.3	-50.3	2.4	31 22.2	-50.3	2.5
87	22 32.1	-50.6	1.7	24 32.1	-50.6	1.7	26 32.0	-50.5	1.8	28 32.0	-50.5	1.8	30 31.9	-50.5	1.8
88	21 41.5	-50.7	1.1	23 41.5	-50.7	1.2	25 41.5	-50.7	1.2	27 41.5	-50.7	1.2	29 41.4	-50.6	1.2
89	20 50.8	-50.8	0.6	22 50.8	-50.8	0.6	24 50.8	-50.8	0.6	26 50.8	-50.8	0.6	28 50.8	-50.8	0.6
90	20 00.0	-50.9	0.0	22 00.0	-50.9	0.0	24 00.0	-50.9	0.0	26 00.0	-51.0	0.0	28 00.0	-51.0	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 32°, 328°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
31	16.4	-48.8	147.5	29	34.8	-49.6	148.1	27	52.6	-50.3	148.7	26	09.7	-50.9	149.2	24	26.4	-51.6	149.7	30
30	27.6	-49.1	148.2	28	45.2	-49.7	148.8	27	02.3	-50.4	149.3	25	18.8	-51.0	149.8	23	34.8	-51.6	150.3	31
29	38.5	-49.3	148.9	27	55.5	-50.0	149.4	26	11.9	-50.6	149.9	24	27.8	-51.2	150.4	22	43.2	-51.8	150.8	32
28	49.2	-49.4	149.5	27	05.5	-50.1	150.1	25	21.3	-50.8	150.5	23	36.6	-51.4	151.0	21	51.4	-51.9	151.4	33
27	59.8	-49.7	150.2	26	15.4	-50.3	150.7	24	30.5	-50.8	151.1	22	45.2	-51.4	151.5	20	59.5	-51.9	151.9	34
27	10.1	-49.8	150.8	25	25.1	-50.4	151.3	23	39.7	-51.0	151.7	21	53.8	-51.5	152.1	20	07.6	-52.1	152.5	35
26	20.3	-49.9	151.4	24	34.7	-50.5	151.9	22	48.7	-51.1	152.3	21	02.3	-51.7	152.7	19	15.5	-52.2	153.0	36
25	30.4	-50.2	152.0	23	44.2	-50.7	152.5	21	57.6	-51.3	152.9	20	10.6	-51.7	153.2	18	23.3	-52.2	153.5	37
24	40.2	-50.2	152.6	22	53.5	-50.9	153.0	21	06.3	-51.3	153.4	19	18.9	-51.9	153.7	17	31.1	-52.3	154.0	38
23	50.0	-50.4	153.2	22	02.6	-50.9	153.6	20	15.0	-51.5	154.0	18	27.0	-51.9	154.3	16	38.8	-52.4	154.5	39
22	59.6	-50.6	153.8	21	11.7	-51.0	154.2	19	23.5	-51.5	154.5	17	35.1	-52.0	154.8	15	46.4	-52.5	155.1	40
22	09.0	-50.6	154.4	20	20.7	-51.2	154.8	18	32.0	-51.6	155.1	16	43.1	-52.1	155.3	14	53.9	-52.5	155.6	41
21	18.4	-50.8	155.0	19	29.5	-51.2	155.3	17	40.4	-51.8	155.6	15	51.0	-52.2	155.8	14	01.4	-52.6	156.1	42
20	27.6	-50.8	155.6	18	38.3	-51.4	155.9	16	48.6	-51.8	156.1	14	58.8	-52.2	156.3	13	08.8	-52.6	156.5	43
19	36.8	-51.0	156.1	17	46.9	-51.4	156.4	15	56.8	-51.8	156.6	14	06.6	-52.3	156.9	12	16.2	-52.7	157.0	44
18	45.8	-51.1	156.7	16	55.5	-51.6	156.9	15	05.0	-52.0	157.2	13	14.3	-52.4	157.4	11	23.5	-52.9	157.5	45
17	54.7	-51.2	157.2	16	03.9	-51.6	157.5	14	13.0	-52.0	157.7	12	21.9	-52.4	157.9	10	30.7	-52.8	158.0	46
17	03.5	-51.2	157.8	15	12.3	-51.6	158.0	13	21.0	-52.1	158.2	11	29.5	-52.4	158.4	9	37.9	-52.8	158.5	47
16	12.3	-51.4	158.3	14	20.7	-51.8	158.5	12	28.9	-52.1	158.7	10	37.1	-52.6	158.9	8	45.1	-52.9	159.0	48
15	20.9	-51.4	158.9	13	28.9	-51.8	159.1	11	36.8	-52.2	159.2	9	44.5	-52.5	159.3	7	52.2	-52.9	159.5	49
14	29.5	-51.5	159.4	12	37.1	-51.9	159.6	10	44.6	-52.2	159.7	8	52.0	-52.6	159.8	6	59.3	-52.9	159.9	50
13	38.0	-51.6	159.9	11	45.2	-51.9	160.1	9	52.4	-52.3	160.2	7	59.4	-52.6	160.3	6	06.4	-53.0	160.4	51
12	46.4	-51.6	160.5	10	53.3	-52.0	160.6	9	00.1	-52.3	160.7	7	06.8	-52.7	160.8	5	13.4	-52.9	160.9	52
11	54.8	-51.6	161.0	10	01.3	-52.0	161.1	8	07.8	-52.4	161.2	6	14.1	-52.6	161.3	4	20.5	-53.0	161.3	53
11	03.2	-51.8	161.5	9	09.3	-52.0	161.6	7	15.4	-52.4	161.7	5	21.5	-52.7	161.8	3	27.5	-53.0	161.8	54
10	11.4	-51.8	162.0	8	17.3	-52.1	162.1	6	23.0	-52.4	162.2	4	28.8	-52.8	162.2	2	34.5	-53.1	162.3	55
9	19.6	-51.8	162.5	7	25.2	-52.2	162.6	5	30.6	-52.4	162.7	3	36.0	-52.7	162.7	1	41.4	-53.0	162.8	56
8	27.8	-51.8	163.0	6	33.0	-52.1	163.1	4	38.2	-52.5	163.2	2	43.3	-52.7	163.2	0	48.4	-53.0	163.2	57
7	36.0	-51.9	163.5	5	40.9	-52.2	163.6	3	45.7	-52.5	163.7	1	50.6	-52.8	163.7	0	04.6	+53.0	163.3	58
6	44.1	-52.0	164.0	4	48.7	-52.2	164.1	2	53.2	-52.4	164.1	0	57.8	-52.7	164.2	0	07.6	+53.1	163.3	59
5	52.1	-51.9	164.6	3	56.5	-52.3	164.6	2	00.8	-52.5	164.6	0	05.1	-52.8	164.6	1	50.7	+53.0	164.4	60
5	00.2	-52.0	165.1	3	04.2	-52.2	165.1	1	08.3	-52.5	165.1	0	47.7	+52.8	14.9	2	43.7	+53.0	14.9	61
4	08.2	-52.0	165.6	2	12.0	-52.3	165.6	1	19.7	-52.2	166.1	0	15.8	-52.5	165.6	1	40.5	+52.7	14.4	62
3	16.2	-52.0	166.1	1	19.7	-52.2	166.1	0	36.7	+52.5	13.9	2	33.2	+52.7	13.9	3	25.9	+52.8	13.5	63
2	24.2	-52.0	166.6	0	27.5	-52.3	166.6	1	29.2	+52.5	13.4	3	25.9	+52.8	13.5	5	22.6	+53.0	13.5	64
1	32.2	-52.0	167.1	0	24.8	+52.2	12.9	2	21.7	+52.5	13.0	4	18.7	+52.7	13.0	6	15.6	+52.9	13.0	65
0	40.2	-52.1	167.6	1	17.0	+52.3	12.5	3	14.2	+52.5	12.5	5	11.4	+52.6	12.5	7	08.5	+52.9	12.5	66
0	11.9	+52.0	11.9	2	09.3	+52.2	12.0	4	06.7	+52.4	12.0	6	04.0	+52.7	12.0	8	01.4	+52.9	12.1	67
1	03.9	+52.0	11.5	3	01.5	+52.2	11.5	4	59.1	+52.4	11.5	6	56.7	+52.6	11.5	8	54.3	+52.8	11.6	68
1	55.9	+52.1	11.0	3	53.7	+52.3	11.0	5	51.5	+52.4	11.0	7	49.3	+52.6	11.1	9	47.1	+52.8	11.1	69
2	48.0	+52.0	10.5	4	46.0	+52.1	10.5	6	43.9	+52.4	10.5	8	41.9	+52.6	10.6	10	39.9	+52.7	10.6	70
3	40.0	+51.9	10.0	5	38.1	+52.2	10.0	7	36.3	+52.4	10.0	9	34.5	+52.5	10.1	11	32.6	+52.7	10.1	71
4	31.9	+52.0	9.5	6	30.3	+52.1	9.5	8	28.7	+52.3	9.5	10	27.0	+52.5	9.6	12	25.3	+52.6	9.7	72
5	23.9	+52.0	9.0	7	22.4	+52.1	9.0	9	21.0	+52.2	9.0	11	19.5	+52.4	9.1	13	17.9	+52.6	9.2	73
6	15.9	+51.9	8.4	8	14.5	+52.1	8.5	10	13.2	+52.2	8.5	12	11.9	+52.4	8.6	14	10.5	+52.5	8.7	74
7	07.8	+51.8	7.9	9	06.6	+52.0	8.0	11	05.4	+52.2	8.0	13	04.3	+52.3	8.1	15	03.0	+52.5	8.2	75
7	59.6	+51.9	7.4	9	58.6	+52.0	7.5	11	57.6	+52.1	7.5	13	56.6	+52.2	7.6	15	55.5	+52.4	7.7	76
8	51.5	+51.8	6.9	10	50.6	+51.9	7.0	12	49.7	+52.1	7.0	14	48.8	+52.2	7.1	16	47.9	+52.3	7.2	77
9	43.3	+51.8	6.4	11	42.5	+51.9	6.5	13	41.8	+52.0	6.5	15	41.0	+52.1	6.6	17	40.2	+52.2	6.6	78
10	35.1	+51.7	5.9	12	34.4	+51.8	5.9	14	33.8	+51.9	6.0	16	33.1	+52.0	6.1	18	32.4	+52.2	6.1	79
11	26.8	+51.6	5.4	13	26.2	+51.8	5.4	15	25.7	+51.8	5.5	17	25.1	+52.0	5.5	19	24.6	+52.0	5.6	80
12	18.4	+51.6	4.9	14	18.0	+51.7	4.9	16	17.5	+51.8	5.0	18	17.1	+51.8	5.0	20	16.6	+52.0	5.1	81
13	10.0	+51.5	4.3	15	09.7	+51.6	4.4	17	09.3	+51.7	4.4	19	08.9	+51.8	4.5	21	08.6	+51.8	4.5	82
14	01.5	+51.5	3.8	16	01.3	+51.5	3.9	18	01.0	+51.6	3.9	20	00.7	+51.7	3.9	22	00.4	+51.8	4.0	83
14	53.0	+51.4	3.3	16	52.8	+51.4	3.3	18	52.6	+51.5	3.4	20	52.4	+51.5	3.4	22	52.2	+51.6	3.4	84
15	44.4	+51.3	2.8	17	44.2	+51.4	2.8	19	44.1	+51.4	2.8	21	43.9	+51.5	2.8	23	43.8	+51.5	2.9	85
16	35.7	+51.2	2.2	18	35.6	+51.2	2.2	20	35.5	+51.3	2.3	22	35.4	+51.3	2.3	24	35.3	+51.4	2.3	86
17	26.9	+51.1	1.7	19	26.8	+51.2	1.7	21	26.8	+51.2	1.7	23	26.7	+51.3	1.7	25	26.7	+51.2	1.8	87
18	18.0	+51.1	1.1	20	18.0	+51.1	1.1	22	18.0	+51.1	1.1	24	18.0	+51.0	1.2	26	17.9	+51.1	1.2	88
19	09.1	+50.9	0.6	21	09.1	+50.9	0.6	23	09.1	+50.9	0.6	25	09.0	+51.0	0.6	27	09.0	+51.0	0.6	89
20	00.0	+50.8	0.0	22	00.0	+50.8	0.0	24	00.0	+50.8	0.0	26	00.0	+50.8	0.0	28	00.0	+50.8	0.0	90
20°			22°			24°			26°			28°								

LATITUDE SAME NAME

L.H.A. 148°, 212°

34°, 326° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	45 53.2	-36.1	44.1	47 18.3	-34.3	45.6	48 41.1	-32.5	47.2	50 01.4	-30.5	48.9	51 18.8	-28.4	50.8
31	45 17.1	-36.7	42.9	46 44.0	-35.1	44.4	48 08.6	-33.3	45.9	49 30.9	-31.5	47.6	50 50.4	-29.3	49.4
32	44 40.4	-37.4	41.8	46 08.9	-35.8	43.2	47 35.3	-34.1	44.7	48 59.4	-32.2	46.3	50 21.1	-30.3	48.0
33	44 03.0	-38.0	40.7	45 33.1	-36.5	42.0	47 01.2	-34.9	43.5	48 27.2	-33.1	45.0	49 50.8	-31.2	46.7
34	43 25.0	-38.6	39.7	44 56.6	-37.2	40.9	46 26.3	-35.6	42.3	47 54.1	-33.9	43.7	49 19.6	-32.1	45.3
35	42 46.4	-39.1	38.6	44 19.4	-37.7	39.8	45 50.7	-36.2	41.1	47 20.2	-34.7	42.5	48 47.5	-32.9	44.1
36	42 07.3	-39.7	37.6	43 41.7	-38.4	38.7	45 14.5	-37.0	40.0	46 45.5	-35.4	41.3	48 14.6	-33.7	42.8
37	41 27.6	-40.2	36.6	43 03.3	-38.9	37.7	44 37.5	-37.6	38.9	46 10.1	-36.1	40.2	47 40.9	-34.5	41.6
38	40 47.4	-40.7	35.6	42 24.4	-39.5	36.6	43 59.9	-38.1	37.8	45 34.0	-36.8	39.0	47 06.4	-35.3	40.3
39	40 06.7	-41.1	34.6	41 44.9	-40.0	35.6	43 21.8	-38.8	36.7	44 57.2	-37.4	37.9	46 31.1	-36.0	39.2
40	39 25.6	-41.7	33.7	41 04.9	-40.5	34.6	42 43.0	-39.3	35.7	44 19.8	-38.0	36.8	45 55.1	-36.6	38.0
41	38 43.9	-42.0	32.8	40 24.4	-41.0	33.7	42 03.7	-39.9	34.6	43 41.8	-38.7	35.7	45 18.5	-37.3	36.9
42	38 01.9	-42.5	31.8	39 43.4	-41.5	32.7	41 23.8	-40.4	33.6	43 03.1	-39.2	34.7	44 41.2	-38.0	35.8
43	37 19.4	-42.8	30.9	39 01.9	-41.9	31.8	40 43.4	-40.8	32.7	42 23.9	-39.7	33.6	44 03.2	-38.5	34.7
44	36 36.6	-43.3	30.1	38 20.0	-42.3	30.9	40 02.6	-41.3	31.7	41 44.2	-40.3	32.6	43 24.7	-39.1	33.6
45	35 53.3	-43.5	29.2	37 37.7	-42.7	30.0	39 21.3	-41.8	30.8	41 03.9	-40.7	31.6	42 45.6	-39.7	32.6
46	35 09.8	-44.0	28.4	36 55.0	-43.1	29.1	38 39.5	-42.2	29.8	40 23.2	-41.3	30.7	42 05.9	-40.2	31.6
47	34 25.8	-44.3	27.5	36 11.9	-43.5	28.2	37 57.3	-42.6	28.9	39 41.9	-41.7	29.7	41 25.7	-40.7	30.6
48	33 41.5	-44.5	26.7	35 28.4	-43.8	27.4	37 14.7	-43.0	28.0	39 00.2	-42.1	28.8	40 45.0	-41.2	29.6
49	32 57.0	-44.9	25.9	34 44.6	-44.1	26.5	36 31.7	-43.4	27.2	38 18.1	-42.5	27.9	40 03.8	-41.6	28.6
50	32 12.1	-45.2	25.1	34 00.5	-44.5	25.7	35 48.3	-43.7	26.3	37 35.6	-43.0	27.0	39 22.2	-42.1	27.7
51	31 26.9	-45.4	24.4	33 16.0	-44.8	24.9	35 04.6	-44.1	25.5	36 52.6	-43.3	26.1	38 40.1	-42.5	26.8
52	30 41.5	-45.8	23.6	32 31.2	-45.1	24.1	34 20.5	-44.4	24.6	36 09.3	-43.6	25.2	37 57.6	-42.9	25.9
53	29 55.7	-45.9	22.8	31 46.1	-45.3	23.3	33 36.1	-44.7	23.8	35 25.7	-44.1	24.4	37 14.7	-43.3	25.0
54	29 09.8	-46.2	22.1	31 00.8	-45.6	22.6	32 51.4	-45.0	23.0	34 41.6	-44.3	23.6	36 31.4	-43.7	24.1
55	28 23.6	-46.5	21.4	30 15.2	-45.9	21.8	32 06.4	-45.3	22.3	33 57.3	-44.7	22.7	35 47.7	-44.0	23.3
56	27 37.1	-46.6	20.7	29 29.3	-46.1	21.1	31 21.1	-45.5	21.5	33 12.6	-45.0	21.9	35 03.7	-44.3	22.5
57	26 50.5	-46.9	20.0	28 43.2	-46.4	20.3	30 35.6	-45.9	20.7	32 27.6	-45.2	21.2	34 19.4	-44.7	21.6
58	26 03.6	-47.0	19.3	27 56.8	-46.6	19.6	29 49.7	-46.0	20.0	31 42.4	-45.6	20.4	33 34.7	-45.0	20.8
59	25 16.6	-47.3	18.6	27 10.2	-46.8	18.9	29 03.7	-46.4	19.2	30 56.8	-45.8	19.6	32 49.7	-45.3	20.0
60	24 29.3	-47.4	17.9	26 23.4	-46.9	18.2	28 17.3	-46.5	18.5	30 11.0	-46.0	18.9	32 04.4	-45.5	19.3
61	23 41.9	-47.6	17.2	25 36.5	-47.2	17.5	27 30.8	-46.7	17.8	29 25.0	-46.3	18.1	31 18.9	-45.8	18.5
62	22 54.3	-47.7	16.6	24 49.3	-47.4	16.8	26 44.1	-47.0	17.1	28 38.7	-46.6	17.4	30 33.1	-46.1	17.7
63	22 06.6	-48.0	15.9	24 01.9	-47.5	16.1	25 57.1	-47.2	16.4	27 52.1	-46.7	16.7	29 47.0	-46.3	17.0
64	21 18.6	-48.0	15.3	23 14.4	-47.8	15.5	25 09.9	-47.3	15.7	27 05.4	-47.0	16.0	29 00.7	-46.6	16.3
65	20 30.6	-48.2	14.6	22 26.6	-47.8	14.8	24 22.6	-47.5	15.0	26 18.4	-47.1	15.3	28 14.1	-46.8	15.6
66	19 42.4	-48.4	14.0	21 38.8	-48.0	14.2	23 35.1	-47.7	14.4	25 31.3	-47.4	14.6	27 27.3	-47.0	14.9
67	18 54.0	-48.4	13.4	20 50.8	-48.2	13.5	22 47.4	-47.9	13.7	24 43.9	-47.5	13.9	26 40.3	-47.1	14.2
68	18 05.6	-48.6	12.7	20 02.6	-48.3	12.9	21 59.5	-48.0	13.1	23 56.4	-47.7	13.2	25 53.2	-47.4	13.5
69	17 17.0	-48.7	12.1	19 14.3	-48.4	12.3	21 11.5	-48.1	12.4	23 08.7	-47.9	12.6	25 05.8	-47.6	12.8
70	16 28.3	-48.8	11.5	18 25.9	-48.6	11.6	20 23.4	-48.3	11.8	22 20.8	-48.0	11.9	24 18.2	-47.7	12.1
71	15 39.5	-48.9	10.9	17 37.3	-48.6	11.0	19 35.1	-48.4	11.1	21 32.8	-48.2	11.3	23 30.5	-47.9	11.5
72	14 50.6	-49.0	10.3	16 48.7	-48.8	10.4	18 46.7	-48.6	10.5	20 44.6	-48.3	10.6	22 42.6	-48.1	10.8
73	14 01.6	-49.0	9.7	15 59.9	-48.9	9.8	17 58.1	-48.6	9.9	19 56.3	-48.4	10.0	21 54.5	-48.2	10.1
74	13 12.6	-49.2	9.1	15 11.0	-48.9	9.2	17 09.5	-48.8	9.3	19 07.9	-48.6	9.4	21 06.3	-48.4	9.5
75	12 23.4	-49.2	8.5	14 22.1	-49.1	8.6	16 20.7	-48.8	8.7	18 19.3	-48.6	8.8	20 17.9	-48.5	8.9
76	11 34.2	-49.3	7.9	13 33.0	-49.1	8.0	15 31.9	-49.0	8.1	17 30.7	-48.8	8.2	19 29.4	-48.6	8.3
77	10 44.9	-49.4	7.4	12 43.9	-49.2	7.4	14 42.9	-49.1	7.5	16 41.9	-48.9	7.5	18 40.8	-48.7	7.6
78	9 55.5	-49.4	6.8	11 54.7	-49.3	6.8	13 53.8	-49.1	6.9	15 53.0	-49.0	6.9	17 52.1	-48.9	7.0
79	9 06.1	-49.5	6.2	11 05.4	-49.4	6.2	13 04.7	-49.2	6.3	15 04.0	-49.1	6.3	17 03.2	-49.0	6.4
80	8 16.6	-49.5	5.6	10 16.0	-49.4	5.7	12 15.5	-49.3	5.7	14 14.9	-49.2	5.7	16 14.2	-49.0	5.8
81	7 27.1	-49.6	5.1	9 26.6	-49.4	5.1	11 26.2	-49.4	5.1	13 25.7	-49.3	5.2	15 25.2	-49.2	5.2
82	6 37.5	-49.6	4.5	8 37.2	-49.6	4.5	10 36.8	-49.4	4.5	12 36.4	-49.3	4.6	14 36.0	-49.2	4.6
83	5 47.9	-49.6	3.9	7 47.6	-49.5	3.9	9 47.4	-49.5	4.0	11 47.1	-49.4	4.0	13 46.8	-49.4	4.0
84	4 58.3	-49.7	3.4	6 58.1	-49.6	3.4	8 57.9	-49.6	3.4	10 57.7	-49.5	3.4	12 57.4	-49.4	3.4
85	4 08.6	-49.7	2.8	6 08.5	-49.7	2.8	8 08.3	-49.6	2.8	10 08.2	-49.6	2.8	12 08.0	-49.5	2.9
86	3 18.9	-49.7	2.2	5 18.8	-49.6	2.2	7 18.7	-49.6	2.3	9 18.6	-49.6	2.3	11 18.5	-49.5	2.3
87	2 29.2	-49.7	1.7	4 29.2	-49.7	1.7	6 29.1	-49.7	1.7	8 29.0	-49.6	1.7	10 29.0	-49.6	1.7
88	1 39.5	-49.8	1.1	3 39.5	-49.8	1.1	5 39.4	-49.7	1.1	7 39.4	-49.7	1.1	9 39.4	-49.7	1.1
89	0 49.7	-49.7	0.6	2 49.7	-49.7	0.6	4 49.7	-49.7	0.6	6 49.7	-49.7	0.6	8 49.7	-49.7	0.6
90	0 00.0	-49.7	0.0	2 00.0	-49.7	0.0	4 00.0	-49.8	0.0	6 00.0	-49.8	0.0	8 00.0	-49.8	0.0

0°

2°

4°

6°

8°

LATITUDE CONTRARY NAME

L.H.A. 34°, 326°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
45	53.2	-36.1 135.9	44	26.0	-37.7 137.3	42	56.9	-39.1 138.6	41	26.1	-40.5 139.8	39	53.8	-41.8 140.9	30
45	17.1	-36.7 137.1	43	48.3	-38.2 138.4	42	17.8	-39.7 139.6	40	45.6	-41.0 140.7	39	12.0	-42.2 141.8	31
44	40.4	-37.4 138.2	43	10.1	-38.8 139.4	41	38.1	-40.2 140.6	40	04.6	-41.4 141.7	38	29.8	-42.6 142.7	32
44	03.0	-38.0 139.3	42	31.3	-39.4 140.5	40	57.9	-40.7 141.6	39	23.2	-41.9 142.6	37	47.2	-43.0 143.6	33
43	25.0	-38.6 140.3	41	51.9	-40.0 141.5	40	17.2	-41.1 142.6	38	41.3	-42.3 143.6	37	04.2	-43.4 144.5	34
42	46.4	-39.1 141.4	41	11.9	-40.4 142.5	39	36.1	-41.6 143.5	37	59.0	-42.7 144.5	36	20.8	-43.7 145.3	35
42	07.3	-39.7 142.4	40	31.5	-40.9 143.5	38	54.5	-42.1 144.5	37	16.3	-43.1 145.4	35	37.1	-44.1 146.2	36
41	27.6	-40.2 143.4	39	50.6	-41.4 144.4	38	12.4	-42.4 145.4	36	33.2	-43.5 146.2	34	53.0	-44.5 147.0	37
40	47.4	-40.7 144.4	39	09.2	-41.8 145.4	37	30.0	-42.9 146.3	35	49.7	-43.8 147.1	34	08.5	-44.7 147.8	38
40	06.7	-41.1 145.4	38	27.4	-42.2 146.3	36	47.1	-43.2 147.1	35	05.9	-44.2 147.9	33	23.8	-45.1 148.6	39
39	25.6	-41.7 146.3	37	45.2	-42.7 147.2	36	03.9	-43.6 148.0	34	21.7	-44.5 148.8	32	38.7	-45.3 149.4	40
38	43.9	-42.0 147.2	37	02.5	-43.0 148.1	35	20.3	-44.0 148.8	33	37.2	-44.8 149.5	31	53.4	-45.6 150.2	41
38	01.9	-42.5 148.2	36	19.5	-43.4 148.9	34	36.3	-44.3 149.7	32	52.4	-45.1 150.3	31	07.8	-45.9 151.0	42
37	19.4	-42.8 149.1	35	36.1	-43.7 149.8	33	52.0	-44.6 150.5	32	07.3	-45.4 151.1	30	21.9	-46.2 151.7	43
36	36.6	-43.3 149.9	34	52.4	-44.1 150.6	33	07.4	-44.9 151.3	31	21.9	-45.7 151.9	29	35.7	-46.3 152.4	44
35	53.3	-43.5 150.8	34	08.3	-44.5 151.5	32	22.5	-45.2 152.1	30	49.4	-46.2 152.7	28	49.4	-46.6 153.2	45
35	09.8	-44.0 151.6	33	23.8	-44.7 152.3	31	37.3	-45.4 152.9	29	50.3	-46.2 153.4	28	02.8	-46.9 153.9	46
34	25.8	-44.3 152.5	32	39.1	-45.0 153.1	30	51.9	-45.8 153.6	29	04.1	-46.4 154.1	27	15.9	-47.0 154.6	47
33	41.5	-44.5 153.3	31	54.1	-45.3 153.8	30	06.1	-46.0 154.4	28	17.7	-46.6 154.9	26	28.9	-47.2 155.3	48
32	57.0	-44.9 154.1	31	08.8	-45.6 154.6	29	20.1	-46.2 155.1	27	31.1	-46.9 155.6	25	41.7	-47.5 156.0	49
32	12.1	-45.2 154.9	30	23.2	-45.8 155.4	28	33.9	-46.4 155.8	26	44.2	-47.0 156.3	24	54.2	-47.6 156.7	50
31	26.9	-45.4 155.6	29	37.4	-46.1 156.1	27	47.5	-46.7 156.6	25	57.2	-47.2 157.0	24	06.6	-47.8 157.3	51
30	41.5	-45.8 156.4	28	51.3	-46.3 156.9	27	00.8	-46.9 157.3	25	10.0	-47.5 157.6	23	18.8	-47.9 158.0	52
29	55.7	-45.9 157.2	28	05.0	-46.6 157.6	26	13.9	-47.1 158.0	24	22.5	-47.6 158.3	22	30.9	-48.1 158.6	53
29	09.8	-46.2 157.9	27	18.4	-46.7 158.3	25	26.8	-47.3 158.7	23	34.9	-47.8 159.0	21	42.8	-48.3 159.3	54
28	23.6	-46.5 158.6	26	31.7	-47.0 159.0	24	39.5	-47.4 159.3	22	47.1	-47.9 159.6	20	54.5	-48.4 159.9	55
27	37.1	-46.6 159.3	25	44.7	-47.1 159.7	23	52.1	-47.6 160.0	21	59.2	-48.1 160.3	20	06.1	-48.5 160.6	56
26	50.5	-46.9 160.0	24	57.6	-47.3 160.4	23	04.5	-47.8 160.7	21	11.1	-48.2 160.9	19	17.6	-48.6 161.2	57
26	03.6	-47.0 160.7	24	10.3	-47.6 161.0	22	16.7	-48.0 161.3	20	22.9	-48.4 161.6	18	29.0	-48.8 161.8	58
25	16.6	-47.3 161.4	23	22.7	-47.6 161.7	21	28.7	-48.1 162.0	19	34.5	-48.5 162.2	17	40.2	-48.9 162.4	59
24	29.3	-47.4 162.1	22	35.1	-47.9 162.4	20	40.6	-48.2 162.6	18	46.0	-48.6 162.8	16	51.3	-49.0 163.0	60
23	41.9	-47.6 162.8	21	47.2	-48.0 163.0	19	52.4	-48.4 163.2	17	57.4	-48.7 163.4	16	02.3	-49.1 163.6	61
22	54.3	-47.7 163.4	20	59.2	-48.1 163.7	19	04.0	-48.5 163.9	17	08.7	-48.9 164.1	15	13.2	-49.1 164.2	62
22	06.6	-48.0 164.1	20	11.1	-48.3 164.3	18	15.5	-48.6 164.5	16	19.8	-48.9 164.7	14	24.1	-49.3 164.8	63
21	18.6	-48.0 164.7	19	22.8	-48.4 164.9	17	26.9	-48.7 165.1	15	30.9	-49.1 165.3	13	34.8	-49.4 165.4	64
20	30.6	-48.2 165.4	18	34.4	-48.5 165.6	16	38.2	-48.9 165.7	14	41.8	-49.1 165.9	12	45.4	-49.4 166.0	65
19	42.4	-48.4 166.0	17	45.9	-48.6 166.2	15	49.3	-48.9 166.3	13	52.7	-49.2 166.5	11	56.0	-49.5 166.6	66
18	54.0	-48.4 166.6	16	57.3	-48.8 166.8	15	00.4	-49.0 166.9	13	03.5	-49.3 167.0	11	06.5	-49.6 167.1	67
18	05.6	-48.6 167.3	16	08.5	-48.8 167.4	14	11.4	-49.1 167.5	12	14.2	-49.3 167.6	10	16.9	-49.6 167.7	68
17	17.0	-48.7 167.9	15	19.7	-49.0 168.0	13	22.3	-49.2 168.1	11	24.8	-49.4 168.2	9	27.3	-49.7 168.3	69
16	28.3	-48.8 168.5	14	30.7	-49.0 168.6	12	33.1	-49.3 168.7	10	35.4	-49.5 168.8	8	37.6	-49.7 168.8	70
15	39.5	-48.9 169.1	13	41.7	-49.1 169.2	11	43.8	-49.4 169.3	9	45.9	-49.6 169.4	7	47.9	-49.8 169.4	71
14	50.6	-49.0 169.7	12	52.6	-49.2 169.8	10	54.4	-49.4 169.9	8	56.3	-49.6 169.9	6	58.1	-49.8 170.0	72
14	01.6	-49.0 170.3	12	03.4	-49.3 170.4	10	05.0	-49.4 170.4	8	06.7	-49.7 170.5	6	08.3	-49.8 170.5	73
13	12.6	-49.2 170.9	11	14.1	-49.4 171.0	9	15.6	-49.6 171.0	7	17.0	-49.7 171.1	5	18.5	-49.9 171.1	74
12	23.4	-49.2 171.5	10	24.7	-49.4 171.5	8	26.0	-49.5 171.6	6	27.3	-49.7 171.6	4	28.6	-49.9 171.7	75
11	34.2	-49.3 172.1	9	35.3	-49.4 172.1	7	36.5	-49.7 172.2	5	37.6	-49.8 172.2	3	38.7	-49.9 172.2	76
10	44.9	-49.4 172.6	8	45.9	-49.5 172.7	6	46.8	-49.6 172.7	4	47.8	-49.8 172.7	2	48.8	-50.0 172.8	77
9	55.5	-49.4 173.2	7	56.4	-49.6 173.3	5	57.2	-49.7 173.3	3	58.0	-49.8 173.3	1	58.8	-49.9 173.3	78
9	06.1	-49.5 173.8	7	06.8	-49.6 173.8	5	07.5	-49.7 173.9	3	08.2	-49.9 173.9	1	08.9	-50.0 173.9	79
8	16.6	-49.5 174.4	6	17.2	-49.6 174.4	4	17.8	-49.8 174.4	2	18.3	-49.8 174.4	0	18.9	-49.9 174.4	80
7	27.1	-49.6 174.9	5	27.6	-49.7 175.0	3	28.0	-49.7 175.0	1	28.5	-49.9 175.0	0	31.0	+50.0 5.0	81
6	37.5	-49.6 175.5	4	37.9	-49.7 175.5	2	38.3	-49.8 175.5	0	38.6	-49.8 175.5	1	21.0	+50.0 4.5	82
5	47.9	-49.6 176.1	3	48.2	-49.7 176.1	1	48.5	-49.8 176.1	0	11.2	+49.9 3.9	2	11.0	+49.9 3.9	83
4	58.3	-49.7 176.6	2	58.5	-49.7 176.6	0	58.7	-49.8 176.6	1	01.1	+49.9 3.4	3	00.9	+49.9 3.4	84
4	08.6	-49.7 177.2	2	08.8	-49.8 177.2	0	08.9	-49.8 177.2	1	51.0	+49.8 2.8	3	50.8	+49.9 2.8	85
3	18.9	-49.7 177.8	1	19.0	-49.7 177.8	0	40.9	+49.8 2.2	2	40.8	+49.8 2.2	4	40.7	+49.9 2.2	86
2	29.2	-49.7 178.3	0	29.3	-49.8 178.3	1	30.7	+49.8 1.7	3	30.6	+49.9 1.7	5	30.6	+49.8 1.7	87
1	39.5	-49.8 178.9	0	20.5	+49.8 1.1	2	20.5	+49.7 1.1	4	20.5	+49.7 1.1	6	20.4	+49.8 1.1	88
0	49.7	-49.7 179.4	1	10.3	+49.7 0.6	3	10.2	+49.8 0.6	5	10.2	+49.8 0.6	7	10.2	+49.8 0.6	89
0	00.0	+49.7 0.0	2	00.0	+49.7 0.0	4	00.0	+49.7 0.0	6	00.0	+49.7 0.0	8	00.0	+49.7 0.0	90

LATITUDE SAME NAME

L.H.A. 146°, 214°

34°, 326° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	52 33.0	-26.0	52.8	53 43.8	-23.5	54.9	54 50.7	-20.7	57.3	55 53.5	-17.8	59.7	56 51.6	-14.7	62.4
31	52 07.0	-27.1	51.3	53 20.3	-24.6	53.4	54 30.0	-22.0	55.6	55 35.7	-19.2	58.0	56 36.9	-16.1	60.6
32	51 39.9	-28.1	49.9	52 55.7	-25.8	51.9	54 08.0	-23.3	54.0	55 16.5	-20.5	56.4	56 20.8	-17.6	58.8
33	51 11.8	-29.1	48.5	52 29.9	-26.9	50.4	53 44.7	-24.4	52.5	54 56.0	-21.9	54.7	56 03.2	-19.0	57.1
34	50 42.7	-30.1	47.1	52 03.0	-28.0	48.9	53 20.3	-25.7	50.9	54 34.1	-23.1	53.1	55 44.2	-20.3	55.4
35	50 12.6	-31.0	45.7	51 35.0	-28.9	47.5	52 54.6	-26.7	49.4	54 11.0	-24.3	51.5	55 23.9	-21.7	53.8
36	49 41.6	-32.0	44.4	51 06.1	-30.0	46.1	52 27.9	-27.8	47.9	53 46.7	-25.5	50.0	55 02.2	-23.0	52.1
37	49 09.6	-32.8	43.1	50 36.1	-30.9	44.7	52 00.1	-28.9	46.5	53 21.2	-26.6	48.4	54 39.2	-24.2	50.5
38	48 36.8	-33.6	41.8	50 05.2	-31.8	43.4	51 31.2	-29.9	45.1	52 54.6	-27.8	46.9	54 15.0	-25.5	49.0
39	48 03.2	-34.4	40.6	49 33.4	-32.7	42.1	51 01.3	-30.8	43.7	52 26.8	-28.8	45.5	53 49.5	-26.6	47.4
40	47 28.8	-35.1	39.3	49 00.7	-33.5	40.8	50 30.5	-31.7	42.3	51 58.0	-29.8	44.0	53 22.9	-27.7	45.9
41	46 53.7	-35.9	38.1	48 27.2	-34.3	39.5	49 58.8	-32.7	41.0	51 28.2	-30.8	42.6	52 55.2	-28.8	44.4
42	46 17.8	-36.6	37.0	47 52.9	-35.1	38.3	49 26.1	-33.5	39.7	50 57.4	-31.8	41.3	52 26.4	-29.8	43.0
43	45 41.2	-37.2	35.8	47 17.8	-35.9	37.1	48 52.6	-34.3	38.5	50 25.6	-32.6	39.9	51 56.6	-30.9	41.6
44	45 04.0	-37.9	34.7	46 41.9	-36.5	35.9	48 18.3	-35.1	37.2	49 53.0	-33.5	38.6	51 25.7	-31.8	40.2
45	44 26.1	-38.5	33.6	46 05.4	-37.3	34.8	47 43.2	-35.8	36.0	49 19.5	-34.4	37.3	50 53.9	-32.7	38.8
46	43 47.6	-39.1	32.6	45 28.1	-37.8	33.6	47 07.4	-36.6	34.8	48 45.1	-35.1	36.1	50 21.2	-33.6	37.5
47	43 08.5	-39.6	31.5	44 50.3	-38.5	32.5	46 30.8	-37.2	33.7	48 10.0	-35.9	34.9	49 47.6	-34.4	36.2
48	42 28.9	-40.2	30.5	44 11.8	-39.1	31.5	45 53.6	-37.9	32.5	47 34.1	-36.6	33.7	49 13.2	-35.2	35.0
49	41 48.7	-40.7	29.5	43 32.7	-39.6	30.4	45 15.7	-38.6	31.4	46 57.5	-37.3	32.5	48 38.0	-36.0	33.7
50	41 08.0	-41.1	28.5	42 53.1	-40.2	29.4	44 37.1	-39.1	30.3	46 20.2	-38.0	31.4	48 02.0	-36.7	32.5
51	40 26.9	-41.7	27.5	42 12.9	-40.7	28.4	43 58.0	-39.7	29.3	45 42.2	-38.6	30.3	47 25.3	-37.5	31.3
52	39 45.2	-42.1	26.6	41 32.2	-41.2	27.4	43 18.3	-40.3	28.2	45 03.6	-39.3	29.2	46 47.8	-38.1	30.2
53	39 03.1	-42.5	25.7	40 51.0	-41.7	26.4	42 38.0	-40.7	27.2	44 24.3	-39.8	28.1	46 09.7	-38.7	29.1
54	38 20.6	-42.9	24.8	40 09.3	-42.2	25.5	41 57.3	-41.3	26.2	43 44.5	-40.3	27.1	45 31.0	-39.4	28.0
55	37 37.7	-43.3	23.9	39 27.1	-42.5	24.5	41 16.0	-41.8	25.3	43 04.2	-40.9	26.0	44 51.6	-40.0	26.9
56	36 54.4	-43.7	23.0	38 44.6	-43.0	23.6	40 34.2	-42.2	24.3	42 23.3	-41.4	25.0	44 11.6	-40.5	25.9
57	36 10.7	-44.0	22.2	38 01.6	-43.4	22.7	39 52.0	-42.6	23.4	41 41.9	-41.9	24.1	43 31.1	-41.0	24.8
58	35 26.7	-44.4	21.3	37 18.2	-43.7	21.9	39 09.4	-43.1	22.5	41 00.0	-42.3	23.1	42 50.1	-41.6	23.8
59	34 42.3	-44.7	20.5	36 34.5	-44.1	21.0	38 26.3	-43.5	21.6	40 17.7	-42.8	22.2	42 08.5	-42.0	22.9
60	33 57.6	-45.1	19.7	35 50.4	-44.5	20.2	37 42.8	-43.8	20.7	39 34.9	-43.2	21.3	41 26.5	-42.6	21.9
61	33 12.5	-45.3	18.9	35 05.9	-44.8	19.4	36 59.0	-44.2	19.8	38 51.7	-43.6	20.4	40 43.9	-42.9	21.0
62	32 27.2	-45.6	18.1	34 21.1	-45.1	18.5	36 14.8	-44.6	19.0	38 08.1	-44.0	19.5	40 01.0	-43.4	20.0
63	31 41.6	-45.8	17.4	33 36.0	-45.4	17.7	35 30.2	-44.9	18.2	37 24.1	-44.4	18.6	39 17.6	-43.8	19.1
64	30 55.8	-46.2	16.6	32 50.6	-45.6	17.0	34 45.3	-45.2	17.4	36 39.7	-44.7	17.8	38 33.8	-44.2	18.3
65	30 09.6	-46.4	15.9	32 05.0	-46.0	16.2	34 00.1	-45.5	16.6	35 55.0	-45.1	17.0	37 49.6	-44.5	17.4
66	29 23.2	-46.6	15.1	31 19.0	-46.2	15.4	33 14.6	-45.8	15.8	35 09.9	-45.3	16.2	37 05.1	-44.9	16.6
67	28 36.6	-46.8	14.4	30 32.8	-46.5	14.7	32 28.8	-46.1	15.0	34 24.6	-45.7	15.4	36 20.2	-45.2	15.7
68	27 49.8	-47.1	13.7	29 46.3	-46.7	14.0	31 42.7	-46.3	14.3	33 38.9	-45.9	14.6	35 35.0	-45.6	14.9
69	27 02.7	-47.2	13.0	28 59.6	-46.9	13.2	30 56.4	-46.6	13.5	32 53.0	-46.3	13.8	34 49.4	-45.8	14.1
70	26 15.5	-47.5	12.3	28 12.7	-47.2	12.5	30 09.8	-46.9	12.8	32 06.7	-46.5	13.0	34 03.6	-46.2	13.3
71	25 28.0	-47.6	11.6	27 25.5	-47.3	11.8	29 22.9	-47.0	12.1	31 20.2	-46.7	12.3	33 17.4	-46.4	12.6
72	24 40.4	-47.8	11.0	26 38.2	-47.6	11.1	28 35.9	-47.3	11.4	30 33.5	-47.0	11.6	32 31.0	-46.7	11.8
73	23 52.6	-48.0	10.3	25 50.6	-47.7	10.5	27 48.6	-47.5	10.7	29 46.5	-47.2	10.9	31 44.3	-47.0	11.1
74	23 04.6	-48.1	9.6	25 02.9	-47.9	9.8	27 01.1	-47.7	10.0	28 59.3	-47.5	10.1	30 57.3	-47.1	10.4
75	22 16.5	-48.3	9.0	24 15.0	-48.1	9.1	26 13.4	-47.9	9.3	28 11.8	-47.6	9.5	30 10.2	-47.5	9.6
76	21 28.2	-48.5	8.4	23 26.9	-48.3	8.5	25 25.5	-48.0	8.6	27 24.2	-47.9	8.8	29 22.7	-47.6	8.9
77	20 39.7	-48.5	7.7	22 38.6	-48.4	7.8	24 37.5	-48.2	8.0	26 36.3	-48.0	8.1	28 35.1	-47.8	8.2
78	19 51.2	-48.7	7.1	21 50.2	-48.5	7.2	23 49.3	-48.4	7.3	25 48.3	-48.2	7.4	27 47.3	-48.1	7.6
79	19 02.5	-48.9	6.5	21 01.7	-48.7	6.6	23 00.9	-48.6	6.7	25 00.1	-48.4	6.8	26 59.2	-48.2	6.9
80	18 13.6	-48.9	5.9	20 13.0	-48.8	5.9	22 12.3	-48.7	6.0	24 11.7	-48.6	6.1	26 11.0	-48.4	6.2
81	17 24.7	-49.1	5.3	19 24.2	-49.0	5.3	21 23.6	-48.8	5.4	23 23.1	-48.7	5.5	25 22.6	-48.6	5.6
82	16 35.6	-49.1	4.7	18 35.2	-49.0	4.7	20 34.8	-48.9	4.8	22 34.4	-48.9	4.8	24 34.0	-48.8	4.9
83	15 46.5	-49.3	4.1	17 46.2	-49.2	4.1	19 45.9	-49.1	4.2	21 45.5	-49.0	4.2	23 45.2	-48.9	4.3
84	14 57.2	-49.3	3.5	16 57.0	-49.3	3.5	18 56.8	-49.2	3.5	20 56.5	-49.1	3.6	22 56.3	-49.1	3.6
85	14 07.9	-49.4	2.9	16 07.7	-49.3	2.9	18 07.6	-49.3	2.9	20 07.4	-49.2	3.0	22 07.2	-49.2	3.0
86	13 18.5	-49.6	2.3	15 18.4	-49.5	2.3	17 18.3	-49.5	2.3	19 18.2	-49.4	2.4	21 18.0	-49.3	2.4
87	12 28.9	-49.5	1.7	14 28.9	-49.6	1.7	16 28.8	-49.5	1.7	18 28.8	-49.5	1.8	20 28.7	-49.4	1.8
88	11 39.4	-49.7	1.1	13 39.3	-49.6	1.2	15 39.3	-49.6	1.2	17 39.3	-49.6	1.2	19 39.3	-49.6	1.2
89	10 49.7	-49.7	0.6	12 49.7	-49.7	0.6	14 49.7	-49.7	0.6	16 49.7	-49.7	0.6	18 49.7	-49.7	0.6
90	10 00.0	-49.8	0.0	12 00.0	-49.8	0.0	14 00.0	-49.8	0.0	16 00.0	-49.8	0.0	18 00.0	-49.8	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 34°, 326°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
38	20.0	-42.9	141.9	36	45.0	-44.0	142.8	35	08.8	-45.0	143.7	33	31.6	-46.0	144.5	31	53.5	-46.9	145.2	30
37	37.1	-43.3	142.8	36	01.0	-44.4	143.7	34	23.8	-45.4	144.5	32	45.6	-46.2	145.3	31	06.6	-47.1	146.0	31
36	53.8	-43.7	143.6	35	16.6	-44.7	144.5	33	38.4	-45.6	145.3	31	59.4	-46.6	146.0	30	19.5	-47.4	146.7	32
36	10.1	-44.1	144.5	34	31.9	-45.0	145.3	32	52.8	-46.0	146.1	31	12.8	-46.8	146.7	29	32.1	-47.6	147.4	33
35	26.0	-44.4	145.3	33	46.9	-45.4	146.1	32	06.8	-46.2	146.8	30	26.0	-47.0	147.5	28	44.5	-47.8	148.1	34
34	41.6	-44.7	146.1	33	01.5	-45.6	146.9	31	20.6	-46.4	147.6	29	39.0	-47.3	148.2	27	56.7	-48.0	148.8	35
33	56.9	-45.0	147.0	32	15.9	-45.9	147.7	30	34.2	-46.7	148.3	28	51.7	-47.4	148.9	27	08.7	-48.2	149.4	36
33	11.9	-45.3	147.7	31	30.0	-46.1	148.4	29	47.5	-47.0	149.0	28	04.3	-47.7	149.6	26	20.5	-48.4	150.1	37
32	26.6	-45.6	148.5	30	43.9	-46.4	149.2	29	00.5	-47.1	149.7	27	16.6	-47.9	150.3	25	32.1	-48.5	150.8	38
31	41.0	-45.9	149.3	29	57.5	-46.7	149.9	28	13.4	-47.4	150.4	26	28.7	-48.1	151.0	24	43.6	-48.8	151.4	39
30	55.1	-46.1	150.0	29	10.8	-46.9	150.6	27	26.0	-47.6	151.1	25	40.6	-48.2	151.6	23	54.8	-48.8	152.1	40
30	09.0	-46.4	150.8	28	23.9	-47.1	151.3	26	38.4	-47.8	151.8	24	52.4	-48.4	152.3	23	06.0	-49.1	152.7	41
29	22.6	-46.6	151.5	27	36.8	-47.3	152.0	25	50.6	-47.9	152.5	24	04.0	-48.6	152.9	22	16.9	-49.1	153.3	42
28	36.0	-46.9	152.2	26	49.5	-47.5	152.7	25	02.7	-48.2	153.2	23	15.4	-48.7	153.6	21	27.8	-49.3	153.9	43
27	49.1	-47.0	152.9	26	02.0	-47.7	153.4	24	14.5	-48.3	153.8	22	26.7	-48.9	154.2	20	38.5	-49.5	154.5	44
27	02.1	-47.3	153.6	25	14.3	-47.8	154.1	23	26.2	-48.4	154.5	21	37.8	-49.0	154.8	19	49.0	-49.5	155.1	45
26	14.8	-47.5	154.3	24	26.5	-48.1	154.7	22	37.8	-48.7	155.1	20	48.8	-49.2	155.4	18	59.5	-49.7	155.7	46
25	27.3	-47.6	155.0	23	38.4	-48.2	155.4	21	49.1	-48.7	155.7	19	59.6	-49.3	155.9	18	09.8	-49.8	156.3	47
24	39.7	-47.8	155.7	22	50.2	-48.4	156.0	21	00.4	-48.9	156.4	19	10.3	-49.4	156.7	17	20.0	-49.8	156.9	48
23	51.9	-48.0	156.3	22	01.8	-48.5	156.7	20	11.5	-49.0	157.0	18	20.9	-49.5	157.3	16	30.2	-50.0	157.5	49
23	03.9	-48.1	157.0	21	13.3	-48.6	157.3	19	22.5	-49.2	157.6	17	31.4	-49.6	157.9	15	40.2	-50.1	158.1	50
22	15.8	-48.3	157.7	20	24.7	-48.8	157.9	18	33.3	-49.2	158.2	16	41.8	-49.7	158.4	14	50.1	-50.1	158.7	51
21	27.5	-48.5	158.3	19	35.9	-48.9	158.6	17	44.1	-49.4	158.8	15	52.1	-49.8	159.0	14	00.0	-50.2	159.2	52
20	39.0	-48.5	158.9	18	47.0	-49.1	159.2	16	54.7	-49.5	159.4	15	02.3	-49.9	159.6	13	09.8	-50.3	159.8	53
19	50.5	-48.8	159.5	17	57.9	-49.1	159.8	16	05.2	-49.5	160.0	14	12.4	-50.0	160.2	12	19.5	-50.4	160.3	54
19	01.7	-48.8	160.2	17	08.8	-49.3	160.4	15	15.7	-49.7	160.6	13	22.4	-50.0	160.8	11	29.1	-50.4	160.9	55
18	12.9	-48.9	160.8	16	19.5	-49.3	161.0	14	26.0	-49.7	161.2	12	32.4	-50.1	161.3	10	38.7	-50.5	161.4	56
17	24.0	-49.1	161.4	15	30.2	-49.5	161.6	13	36.3	-49.8	161.7	11	42.3	-50.2	161.9	9	48.2	-50.5	162.0	57
16	34.9	-49.1	162.0	14	40.7	-49.5	162.2	12	46.5	-49.9	162.3	10	52.1	-50.3	162.4	8	57.7	-50.6	162.5	58
15	45.8	-49.3	162.6	13	51.2	-49.6	162.7	11	56.6	-50.0	162.9	10	01.8	-50.2	163.0	8	07.1	-50.7	163.1	59
14	56.5	-49.3	163.2	13	01.6	-49.7	163.3	11	06.6	-50.0	163.4	9	11.6	-50.4	163.5	7	16.4	-50.6	163.6	60
14	07.2	-49.5	163.8	12	11.9	-49.8	163.9	10	16.6	-50.1	164.0	8	21.2	-50.4	164.1	6	25.8	-50.7	164.2	61
13	17.7	-49.5	164.4	11	22.1	-49.8	164.5	9	26.5	-50.1	164.6	7	30.8	-50.4	164.6	5	35.1	-50.8	164.7	62
12	28.2	-49.6	164.9	10	32.3	-49.9	165.0	8	36.4	-50.2	165.1	6	40.4	-50.5	165.2	4	44.3	-50.7	165.2	63
11	38.6	-49.6	165.5	9	42.4	-49.9	165.6	7	46.2	-50.2	165.7	5	49.9	-50.5	165.7	3	53.6	-50.8	165.8	64
10	49.0	-49.7	166.1	8	52.5	-50.0	166.2	6	56.0	-50.3	166.2	4	59.4	-50.6	166.3	3	02.8	-50.8	166.3	65
9	59.3	-49.8	166.6	8	02.5	-50.0	166.7	6	05.7	-50.3	166.8	4	08.9	-50.6	166.8	2	12.0	-50.8	166.8	66
9	09.5	-49.8	167.2	7	12.5	-50.1	167.3	5	15.4	-50.3	167.3	3	18.3	-50.5	167.4	1	21.2	-50.8	167.4	67
8	19.7	-49.9	167.8	6	22.4	-50.1	167.8	4	25.1	-50.4	167.9	2	27.8	-50.6	167.9	0	30.4	-50.8	167.9	68
7	29.8	-49.9	168.3	5	32.3	-50.2	168.4	3	34.7	-50.3	168.4	1	37.2	-50.6	168.4	0	40.6	-50.8	169.0	69
6	39.9	-50.0	168.9	4	42.1	-50.1	168.9	2	44.4	-50.4	169.0	0	46.6	-50.6	169.0	0	46.6	-50.6	169.0	70
5	49.9	-49.9	169.5	3	52.0	-50.2	169.5	1	54.0	-50.4	169.5	0	04.0	+50.6	10.5	2	02.0	+50.8	10.5	71
5	00.0	-50.0	170.0	3	01.8	-50.2	170.0	1	03.6	-50.4	170.0	0	05.6	+50.6	10.0	2	52.8	+50.8	10.0	72
4	10.0	-50.1	170.6	2	11.6	-50.2	170.6	0	13.2	-50.4	170.6	1	45.2	+50.6	9.4	3	43.6	+50.7	9.4	73
3	19.9	-50.0	171.1	1	21.4	-50.3	171.1	0	37.2	+50.4	8.9	2	35.8	+50.5	8.9	4	34.3	+50.8	8.9	74
2	29.9	-50.1	171.7	0	31.1	-50.2	171.7	1	27.6	+50.4	8.3	3	26.3	+50.6	8.3	5	25.1	+50.7	8.4	75
1	39.8	-50.1	172.2	0	19.1	+50.2	7.8	2	18.0	+50.4	7.8	4	16.9	+50.5	7.8	6	15.8	+50.7	7.8	76
0	49.7	-50.1	172.8	1	09.3	+50.2	7.2	3	08.4	+50.3	7.2	5	07.4	+50.5	7.3	7	06.5	+50.6	7.3	77
0	00.4	+50.0	6.7	1	59.5	+50.3	6.7	3	58.7	+50.4	6.7	5	57.9	+50.5	6.7	7	57.1	+50.6	6.7	78
0	50.4	+50.1	6.1	2	49.8	+50.2	6.1	4	49.1	+50.3	6.1	6	48.4	+50.4	6.2	8	47.7	+50.5	6.2	79
1	40.5	+50.1	5.6	3	40.0	+50.1	5.6	5	39.4	+50.3	5.6	7	38.8	+50.4	5.6	9	38.2	+50.5	5.7	80
2	30.6	+50.0	5.0	4	30.1	+50.2	5.0	6	29.7	+50.2	5.1	8	29.2	+50.3	5.1	10	28.7	+50.5	5.1	81
3	20.6	+50.1	4.5	5	20.3	+50.1	4.5	7	19.9	+50.2	4.5	9	19.5	+50.3	4.5	11	19.2	+50.3	4.6	82
4	10.7	+50.0	3.9	6	10.4	+50.1	3.9	8	10.1	+50.2	3.9	10	09.8	+50.3	4.0	12	09.5	+50.3	4.0	83
5	00.7	+50.0	3.4	7	00.5	+50.0	3.4	9	00.3	+50.1	3.4	11	00.1	+50.1	3.4	12	59.8	+50.3	3.4	84
5	50.7	+49.9	2.8	7	50.5	+50.0	2.8	9	50.4	+50.0	2.8	11	50.2	+50.1	2.9	13	50.1	+50.1	2.9	85
6	40.6	+49.9	2.3	8	40.5	+50.0	2.3	10	40.4	+50.0	2.3	12	40.3	+50.1	2.3	14	40.2	+50.1	2.3	86
7	30.5	+49.9	1.7	9	30.5	+49.9	1.7	11	30.4	+50.0	1.7	13	30.4	+49.9	1.7	15	30.3	+50.0	1.7	87
8	20.4	+49.8	1.1	10	20.4	+49.8	1.1	12	20.4	+49.8	1.1	14	20.3	+49.9	1.2	16	20.3	+49.9	1.2	88
9	10.2	+49.8	0.6	11	10.2	+49.8	0.6	13	10.2	+49.8	0.6	15	10.2	+49.8	0.6	17	10.2	+49.8	0.6	89
10	00.0	+49.7	0.0	12	00.0	+49.7	0.0	14	00.0	+49.7	0.0	16	00.0	+49.7	0.0	18	00.0	+49.7	0.0	90

LATITUDE SAME NAME

L.H.A. 146°, 214°

34°, 326° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	57 44.7	-11.3	65.1	58 32.3	-7.7	68.1	59 14.0	-3.9	71.2	59 49.5	-0.1	74.5	60 18.2	+4.0	77.8
31	57 33.4	-12.9	63.3	58 24.6	-9.4	66.2	59 10.1	-5.8	69.3	59 49.4	-1.8	72.5	60 22.2	+2.2	75.8
32	57 20.5	-14.4	61.5	58 15.2	-11.1	64.3	59 04.3	-7.4	67.3	59 47.6	-3.7	70.5	60 24.4	+0.3	73.8
33	57 06.1	-15.9	59.7	58 04.1	-12.6	62.5	58 56.9	-9.1	65.4	59 43.9	-5.4	68.5	60 24.7	-1.5	71.8
34	56 50.2	-17.4	57.9	57 51.5	-14.2	60.6	58 47.8	-10.9	63.5	59 38.5	-7.2	66.5	60 23.2	-3.4	69.7
35	56 32.8	-18.9	56.2	57 37.3	-15.8	58.8	58 36.9	-12.5	61.6	59 31.3	-9.0	64.6	60 19.8	-5.2	67.7
36	56 13.9	-20.3	54.5	57 21.5	-17.3	57.0	58 24.4	-14.1	59.7	59 22.3	-10.6	62.6	60 14.6	-7.0	65.7
37	55 53.6	-21.6	52.8	57 04.2	-18.8	55.2	58 10.3	-15.6	57.9	59 11.7	-12.4	60.7	60 07.6	-8.8	63.7
38	55 32.0	-22.9	51.1	56 45.4	-20.2	53.5	57 54.7	-17.3	56.0	58 59.3	-14.0	58.8	59 58.8	-10.5	61.7
39	55 09.1	-24.2	49.5	56 25.2	-21.6	51.8	57 37.4	-18.7	54.2	58 45.3	-15.7	56.9	59 48.3	-12.3	59.8
40	54 44.9	-25.4	47.9	56 03.6	-22.9	50.1	57 18.7	-20.2	52.5	58 29.6	-17.2	55.1	59 36.0	-14.0	57.8
41	54 19.5	-26.6	46.4	55 40.7	-24.2	48.5	56 58.5	-21.6	50.7	58 12.4	-18.7	53.2	59 22.0	-15.6	55.9
42	53 52.9	-27.8	44.8	55 16.9	-25.5	46.8	56 36.9	-23.0	49.0	57 53.7	-20.3	51.4	59 06.4	-17.3	54.0
43	53 25.1	-28.8	43.3	54 51.0	-26.7	45.3	56 13.9	-24.3	47.4	57 33.4	-21.7	49.7	58 49.1	-18.9	52.2
44	52 56.3	-29.9	41.9	54 24.3	-27.8	43.7	55 49.6	-25.6	45.7	57 11.7	-23.1	47.9	58 30.2	-20.3	50.3
45	52 26.4	-30.9	40.4	53 56.5	-29.0	42.2	55 24.0	-26.8	44.1	56 48.6	-24.4	46.2	58 09.9	-21.9	48.6
46	51 55.5	-31.9	39.0	53 27.5	-30.0	40.7	54 57.2	-27.9	42.6	56 24.2	-25.8	44.6	57 48.0	-23.2	46.8
47	51 23.6	-32.8	37.7	52 57.5	-31.0	39.3	54 29.3	-29.2	41.0	55 58.4	-26.9	43.0	57 24.8	-24.7	45.1
48	50 50.8	-33.8	36.3	52 26.5	-32.1	37.9	54 00.1	-30.2	39.5	55 31.5	-28.2	41.4	57 00.1	-26.0	43.4
49	50 17.0	-34.5	35.0	51 54.4	-33.0	36.5	53 29.9	-31.2	38.1	55 03.3	-29.4	39.8	56 34.1	-27.2	41.8
50	49 42.5	-35.4	33.8	51 21.4	-33.8	35.1	52 58.7	-32.3	36.7	54 33.9	-30.5	38.3	56 06.9	-28.5	40.1
51	49 07.1	-36.1	32.5	50 47.6	-34.8	33.8	52 26.4	-33.2	35.3	54 03.4	-31.5	36.8	55 38.4	-29.6	38.6
52	48 31.0	-36.9	31.3	50 12.8	-35.6	32.5	51 53.2	-34.1	33.9	53 31.9	-32.5	35.4	55 08.8	-30.8	37.0
53	47 54.1	-37.7	30.1	49 37.2	-36.3	31.3	51 19.1	-35.0	32.6	52 59.4	-33.5	34.0	54 38.0	-31.8	35.6
54	47 16.4	-38.2	29.0	49 00.9	-37.1	30.1	50 44.1	-35.8	31.3	52 25.9	-34.4	32.6	54 06.2	-32.9	34.1
55	46 38.2	-39.0	27.8	48 23.8	-37.9	28.9	50 08.3	-36.7	30.0	51 51.5	-35.3	31.3	53 33.3	-33.9	32.7
56	45 59.2	-39.5	26.7	47 45.9	-38.5	27.7	49 31.6	-37.4	28.8	51 16.2	-36.2	30.0	52 59.4	-34.7	31.3
57	45 19.7	-40.2	25.7	47 07.4	-39.2	26.6	48 54.2	-38.1	27.6	50 40.0	-36.9	28.7	52 24.7	-35.7	30.0
58	44 39.5	-40.7	24.6	46 28.2	-39.8	25.5	48 16.1	-38.8	26.4	50 03.1	-37.7	27.5	51 49.0	-36.5	28.6
59	43 58.8	-41.3	23.6	45 48.4	-40.4	24.4	47 37.3	-39.5	25.3	49 25.4	-38.5	26.3	51 12.5	-37.4	27.4
60	43 17.5	-41.7	22.6	45 08.0	-40.9	23.3	46 57.8	-40.0	24.2	48 46.9	-39.1	25.1	50 35.1	-38.1	26.1
61	42 35.8	-42.3	21.6	44 27.1	-41.6	22.3	46 17.8	-40.7	23.1	48 07.8	-39.8	24.0	49 57.0	-38.8	24.9
62	41 53.5	-42.7	20.7	43 45.5	-42.0	21.3	45 37.1	-41.3	22.0	47 28.0	-40.5	22.9	49 18.2	-39.5	23.7
63	41 10.8	-43.2	19.7	43 03.5	-42.5	20.3	44 55.8	-41.8	21.0	46 47.5	-41.0	21.8	48 38.7	-40.2	22.6
64	40 27.6	-43.6	18.8	42 21.0	-43.0	19.4	44 14.0	-42.3	20.0	46 06.5	-41.6	20.7	47 58.5	-40.9	21.5
65	39 44.0	-44.0	17.9	41 38.0	-43.4	18.4	43 31.7	-42.9	19.0	45 24.9	-42.2	19.7	47 17.6	-41.4	20.4
66	39 00.0	-44.4	17.0	40 54.6	-43.9	17.5	42 48.8	-43.3	18.1	44 42.7	-42.6	18.7	46 36.2	-42.0	19.3
67	38 15.6	-44.8	16.2	40 10.7	-44.3	16.6	42 05.5	-43.7	17.1	44 00.1	-43.2	17.7	45 54.2	-42.6	18.3
68	37 30.8	-45.1	15.3	39 26.4	-44.6	15.7	41 21.8	-44.2	16.2	43 16.9	-43.7	16.7	45 11.6	-43.0	17.3
69	36 45.7	-45.5	14.5	38 41.8	-45.1	14.9	40 37.6	-44.5	15.3	42 33.2	-44.0	15.8	44 28.6	-43.6	16.3
70	36 00.2	-45.7	13.7	37 56.7	-45.3	14.0	39 53.1	-45.0	14.4	41 49.2	-44.5	14.9	43 45.0	-44.0	15.4
71	35 14.5	-46.1	12.9	37 11.4	-45.8	13.2	39 08.1	-45.3	13.6	41 04.7	-45.0	14.0	43 01.0	-44.5	14.4
72	34 28.4	-46.4	12.1	36 25.6	-46.0	12.4	38 22.8	-45.7	12.7	40 19.7	-45.3	13.1	42 16.5	-44.9	13.5
73	33 42.0	-46.7	11.3	35 39.6	-46.3	11.6	37 37.1	-46.0	11.9	39 34.4	-45.6	12.2	41 31.6	-45.3	12.6
74	32 55.3	-46.9	10.6	34 53.3	-46.7	10.8	36 51.1	-46.4	11.1	38 48.8	-46.1	11.4	40 46.3	-45.7	11.7
75	32 08.4	-47.1	9.8	34 06.6	-46.9	10.1	36 04.7	-46.6	10.3	38 02.7	-46.3	10.6	40 00.6	-46.0	10.9
76	31 21.3	-47.5	9.1	33 19.7	-47.2	9.3	35 18.1	-47.0	9.5	37 16.4	-46.7	9.8	39 14.6	-46.4	10.1
77	30 33.8	-47.6	8.4	32 32.5	-47.4	8.6	34 31.1	-47.2	8.8	36 29.7	-47.0	9.0	38 28.2	-46.7	9.2
78	29 46.2	-47.9	7.7	31 45.1	-47.7	7.9	33 43.9	-47.4	8.0	35 42.7	-47.2	8.2	37 41.5	-47.1	8.4
79	28 58.3	-48.0	7.0	30 57.4	-47.9	7.1	32 56.5	-47.8	7.3	34 55.5	-47.6	7.5	36 54.4	-47.3	7.7
80	28 10.3	-48.3	6.3	30 09.5	-48.1	6.4	32 08.7	-47.9	6.6	34 07.9	-47.8	6.7	36 07.1	-47.7	6.9
81	27 22.0	-48.5	5.7	29 21.4	-48.3	5.8	31 20.8	-48.2	5.9	33 20.1	-48.0	6.0	35 19.4	-47.9	6.2
82	26 33.5	-48.6	5.0	28 33.1	-48.6	5.1	30 32.6	-48.4	5.2	32 32.1	-48.3	5.3	34 31.5	-48.1	5.4
83	25 44.9	-48.8	4.3	27 44.5	-48.7	4.4	29 44.2	-48.7	4.5	31 43.8	-48.5	4.6	33 43.4	-48.4	4.7
84	24 56.1	-49.0	3.7	26 55.8	-48.9	3.8	28 55.5	-48.8	3.8	30 55.3	-48.8	3.9	32 55.0	-48.7	4.0
85	24 07.1	-49.2	3.1	26 06.9	-49.1	3.1	28 06.7	-49.0	3.2	30 06.5	-48.9	3.2	32 06.3	-48.8	3.3
86	23 17.9	-49.2	2.4	25 17.8	-49.2	2.5	27 17.7	-49.2	2.5	29 17.6	-49.1	2.6	31 17.5	-49.1	2.6
87	22 28.7	-49.5	1.8	24 28.6	-49.4	1.8	26 28.5	-49.3	1.9	28 28.5	-49.3	1.9	30 28.4	-49.3	1.9
88	21 39.2	-49.5	1.2	23 39.2	-49.5	1.2	25 39.2	-49.5	1.2	27 39.2	-49.5	1.3	29 39.1	-49.4	1.3
89	20 49.7	-49.7	0.6	22 49.7	-49.7	0.6	24 49.7	-49.7	0.6	26 49.7	-49.7	0.6	28 49.7	-49.7	0.6
90	20 00.0	-49.8	0.0	22 00.0	-49.8	0.0	24 00.0	-49.8	0.0	26 00.0	-49.8	0.0	28 00.0	-49.8	0.0

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LATITUDE CONTRARY NAME

L.H.A. 34°, 326°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
30	14.5	-47.7	145.9	28	34.8	-48.5	146.5	26	54.4	-49.3	147.1	25	13.3	-50.0	147.6	23	31.7	-50.7	148.1	30
29	26.8	-47.9	146.6	27	46.3	-48.7	147.2	26	05.1	-49.4	147.7	24	23.3	-50.1	148.2	22	41.0	-50.7	148.7	31
28	38.9	-48.2	147.3	26	57.6	-48.9	147.9	25	15.7	-49.6	148.4	23	33.2	-50.2	148.8	21	50.3	-50.9	149.3	32
27	50.7	-48.4	148.0	26	08.7	-49.1	148.5	24	26.1	-49.8	149.0	22	43.0	-50.4	149.4	20	59.4	-51.0	149.8	33
27	02.3	-48.5	148.6	25	19.6	-49.2	149.1	23	36.3	-49.8	149.6	21	52.6	-50.5	150.0	20	08.4	-51.0	150.4	34
26	13.8	-48.7	149.3	24	30.4	-49.4	149.8	22	46.5	-50.1	150.2	21	02.1	-50.6	150.6	19	17.4	-51.2	151.0	35
25	25.1	-48.9	149.9	23	41.0	-49.5	150.4	21	56.4	-50.1	150.8	20	11.5	-50.7	151.2	18	26.2	-51.3	151.5	36
24	36.2	-49.0	150.6	22	51.5	-49.7	151.0	21	06.3	-50.3	151.4	19	20.8	-50.9	151.8	17	34.9	-51.4	152.1	37
23	47.2	-49.2	151.2	22	01.8	-49.8	151.6	20	16.0	-50.3	152.0	18	29.9	-50.9	152.3	16	43.5	-51.4	152.6	38
22	58.0	-49.4	151.8	21	12.0	-49.9	152.2	19	25.7	-50.5	152.6	17	39.0	-51.0	152.9	15	52.1	-51.6	153.1	39
22	08.6	-49.4	152.5	20	22.1	-50.1	152.8	18	35.2	-50.6	153.1	16	48.0	-51.1	153.4	15	00.5	-51.6	153.7	40
21	19.2	-49.7	153.1	19	32.0	-50.1	153.4	17	44.6	-50.7	153.7	15	56.9	-51.2	154.0	14	08.9	-51.6	154.2	41
20	29.5	-49.7	153.7	18	41.9	-50.3	154.0	16	53.9	-50.8	154.3	15	05.7	-51.3	154.5	13	17.3	-51.8	154.7	42
19	39.8	-49.8	154.3	17	51.6	-50.4	154.6	16	03.1	-50.9	154.8	14	14.4	-51.3	155.0	12	25.5	-51.8	155.2	43
18	50.0	-50.0	154.8	17	01.2	-50.4	155.1	15	12.2	-50.9	155.4	13	23.1	-51.4	155.6	11	33.7	-51.8	155.8	44
18	00.0	-50.1	155.4	16	10.8	-50.6	155.7	14	21.3	-51.0	155.9	12	31.1	-51.5	156.1	10	41.9	-51.9	156.3	45
17	09.9	-50.1	156.0	15	20.2	-50.6	156.2	13	30.3	-51.1	156.5	11	40.2	-51.5	156.6	9	50.0	-52.0	156.8	46
16	19.8	-50.3	156.6	14	29.6	-50.7	156.8	12	39.2	-51.1	157.0	10	49.2	-51.6	157.2	8	58.8	-52.1	157.3	47
15	29.5	-50.3	157.2	13	38.9	-50.8	157.4	11	48.1	-51.3	157.5	9	57.1	-51.6	157.7	8	06.1	-52.1	157.8	48
14	39.2	-50.4	157.7	12	48.1	-50.9	157.9	10	56.8	-51.2	158.1	9	05.5	-51.7	158.2	7	14.0	-52.0	158.3	49
13	48.8	-50.5	158.3	11	57.2	-50.9	158.4	10	05.6	-51.3	158.6	8	13.8	-51.7	158.7	6	22.0	-52.1	158.8	50
12	58.3	-50.6	158.8	11	06.3	-50.9	159.0	9	14.3	-51.4	159.1	7	22.1	-51.7	159.2	5	29.9	-52.1	159.3	51
12	07.7	-50.6	159.4	10	15.4	-51.1	159.5	8	22.9	-51.4	159.6	6	30.4	-51.8	159.7	4	37.8	-52.2	159.8	52
11	17.1	-50.7	159.9	9	24.3	-51.0	160.1	7	31.5	-51.4	160.2	5	38.6	-51.8	160.2	3	45.6	-52.1	160.3	53
10	26.4	-50.7	160.5	8	33.3	-51.1	160.6	6	40.1	-51.5	160.7	4	46.8	-51.8	160.7	2	53.5	-52.2	160.8	54
9	35.7	-50.8	161.0	7	42.2	-51.2	161.1	5	48.6	-51.5	161.2	3	55.0	-51.8	161.2	2	01.3	-52.1	161.3	55
8	44.9	-50.9	161.6	6	51.0	-51.2	161.6	4	57.1	-51.5	161.7	3	03.1	-51.8	161.8	1	09.2	-52.2	161.8	56
7	54.0	-50.8	162.1	5	59.8	-51.2	162.2	4	05.6	-51.6	162.2	2	11.3	-51.9	162.3	0	17.0	-52.2	162.3	57
7	03.2	-51.0	162.6	5	08.6	-51.2	162.7	3	14.0	-51.5	162.7	1	19.4	-51.8	162.8	0	35.2	+52.2	17.2	58
6	12.2	-50.9	163.2	4	17.4	-51.3	163.2	2	22.5	-51.6	163.2	0	27.6	-51.9	163.3	1	27.4	+52.1	16.7	59
5	21.3	-51.0	163.7	3	26.1	-51.3	163.7	1	30.9	-51.6	163.8	0	24.3	+51.9	16.2	2	19.5	+52.2	16.2	60
4	30.3	-51.0	164.2	2	34.8	-51.3	164.3	0	39.3	-51.6	164.3	1	16.2	+51.8	15.7	3	11.7	+52.1	15.8	61
3	39.3	-51.0	164.7	1	43.5	-51.3	164.8	0	52.2	-51.3	165.3	2	08.0	+51.9	15.2	4	03.8	+52.2	15.3	62
2	48.3	-51.0	165.3	0	00.9	-51.3	165.8	1	03.8	+51.6	14.7	2	59.9	+51.8	14.7	4	56.0	+52.1	14.8	63
1	57.3	-51.1	165.8	0	00.9	-51.3	165.8	1	55.4	+51.6	14.2	3	51.7	+51.9	14.2	5	48.1	+52.0	14.3	64
0	35.9	+51.0	12.6	0	50.4	+51.3	13.7	2	47.0	+51.5	13.7	4	43.6	+51.8	13.7	6	40.1	+52.1	13.8	65
1	26.9	+51.1	12.1	1	41.7	+51.3	13.2	3	38.5	+51.6	13.2	5	35.4	+51.7	13.2	7	32.2	+52.0	13.3	66
2	18.0	+51.0	11.6	2	33.0	+51.3	12.6	4	30.1	+51.5	12.7	6	27.1	+51.8	12.7	8	24.2	+52.0	12.8	67
3	09.0	+51.0	11.0	3	24.3	+51.2	12.1	5	21.6	+51.5	12.1	7	18.9	+51.7	12.2	9	16.2	+51.9	12.3	68
4	00.0	+51.0	10.5	4	15.5	+51.3	11.6	6	13.1	+51.4	11.6	8	10.6	+51.7	11.7	10	08.1	+51.9	11.7	69
4	51.0	+51.0	10.0	5	06.8	+51.2	11.1	7	04.5	+51.4	11.1	9	02.3	+51.6	11.2	11	00.0	+51.8	11.2	70
5	42.0	+50.9	9.5	5	58.0	+51.2	10.5	7	55.9	+51.4	10.6	9	53.9	+51.6	10.6	11	51.8	+51.8	10.7	71
6	32.9	+50.9	8.9	6	49.2	+51.1	10.0	8	47.3	+51.4	10.1	10	45.5	+51.5	10.1	12	43.6	+51.7	10.2	72
7	23.8	+50.9	8.4	7	40.3	+51.1	9.5	9	38.7	+51.3	9.5	11	37.0	+51.5	9.6	13	35.3	+51.6	9.7	73
8	14.7	+50.8	7.9	8	31.4	+51.1	9.0	10	30.0	+51.2	9.0	12	28.5	+51.4	9.1	14	26.9	+51.6	9.2	74
9	05.5	+50.8	7.3	9	22.5	+51.0	8.4	11	21.2	+51.2	8.5	13	19.9	+51.3	8.6	15	18.5	+51.5	8.6	75
9	56.3	+50.7	6.8	10	13.5	+51.0	7.9	12	12.4	+51.1	8.0	14	11.2	+51.3	8.0	16	10.0	+51.5	8.1	76
10	47.0	+50.6	6.2	11	04.5	+50.9	7.4	13	03.5	+51.1	7.4	15	02.5	+51.2	7.5	17	01.5	+51.3	7.6	77
11	37.6	+50.6	5.7	11	55.4	+50.9	6.8	13	54.6	+50.9	6.9	15	53.7	+51.1	6.9	17	52.8	+51.2	7.0	78
12	28.2	+50.6	5.1	12	46.3	+50.7	6.3	14	45.5	+50.9	6.3	16	44.8	+51.0	6.4	18	44.0	+51.2	6.5	79
13	18.8	+50.4	4.6	13	37.0	+50.8	5.7	15	36.4	+50.9	5.8	17	35.8	+51.0	5.8	19	35.2	+51.0	5.9	80
14	09.2	+50.4	4.0	14	27.8	+50.6	5.2	16	27.3	+50.7	5.2	18	26.8	+50.8	5.3	20	26.2	+51.0	5.4	81
14	59.6	+50.3	3.5	15	18.4	+50.5	4.6	17	18.0	+50.6	4.7	19	17.6	+50.7	4.7	21	17.2	+50.8	4.8	82
15	49.9	+50.2	2.9	16	08.9	+50.5	4.1	18	08.6	+50.6	4.1	20	08.3	+50.6	4.2	22	08.0	+50.7	4.2	83
16	40.1	+50.2	2.3	16	59.4	+50.4	3.5	18	59.2	+50.4	3.5	20	58.9	+50.6	3.6	22	58.7	+50.6	3.6	84
17	30.3	+50.0	1.8	17	49.8	+50.2	2.9	19	49.6	+50.3	3.0	21	49.5	+50.3	3.0	23	49.3	+50.4	3.1	85
18	20.3	+49.9	1.2	18	40.0	+50.2	2.4	20	39.9	+50.3	2.4	22	39.8	+50.3	2.4	24	39.7	+50.3	2.5	86
19	10.2	+49.8	0.6	19	30.2	+50.1	1.8	21	30.2	+50.0	1.8	23	30.1	+50.1	1.8	25	30.0	+50.2	1.9	87
20	00.0	+49.7	0.0	20	20.3	+49.9	1.2	22	20.2	+50.0	1.2	24	20.2	+50.0	1.2	26	20.2	+50.0	1.2	88
				21	10.2	+49.8	0.6	23	10.2	+49.8	0.6	25	10.2	+49.8	0.6	27	10.2	+49.8	0.6	89
				22	00.0	+49.7	0.0	24	00.0	+49.7	0.0	26	00.0	+49.7	0.0	28	00.0	+49.7	0.0	90
20°			22°			24°			26°			28°								

LATITUDE SAME NAME

L.H.A. 146°, 214°

36°, 324° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	44 28.7	-34.4	45.5	45 51.7	-32.6	47.0	47 12.4	-30.8	48.5	48 30.5	-28.7	50.2	49 45.9	-26.5	52.0
31	43 54.3	-35.0	44.4	45 19.1	-33.4	45.8	46 41.6	-31.5	47.3	48 01.8	-29.6	48.9	49 19.4	-27.5	50.6
32	43 19.3	-35.7	43.2	44 45.7	-34.0	44.6	46 10.1	-32.3	46.0	47 32.2	-30.4	47.6	48 51.9	-28.4	49.3
33	42 43.6	-36.3	42.1	44 11.7	-34.8	43.4	45 37.8	-33.1	44.8	47 01.8	-31.3	46.3	48 23.5	-29.4	47.9
34	42 07.3	-36.9	41.1	43 36.9	-35.4	42.3	45 04.7	-33.8	43.6	46 30.5	-32.0	45.1	47 54.1	-30.2	46.6
35	41 30.4	-37.5	40.0	43 01.5	-36.0	41.2	44 30.9	-34.4	42.5	45 58.5	-32.8	43.9	47 23.9	-31.0	45.3
36	40 52.9	-38.0	39.0	42 25.5	-36.6	40.1	43 56.5	-35.2	41.3	45 25.7	-33.6	42.7	46 52.9	-31.9	44.1
37	40 14.9	-38.5	38.0	41 48.9	-37.3	39.0	43 21.3	-35.8	40.2	44 52.1	-34.3	41.5	46 21.0	-32.6	42.9
38	39 36.4	-39.0	37.0	41 11.6	-37.7	38.0	42 45.5	-36.4	39.1	44 17.8	-34.9	40.3	45 48.4	-33.4	41.6
39	38 57.4	-39.6	36.0	40 33.9	-38.3	37.0	42 09.1	-37.0	38.0	43 42.9	-35.7	39.2	45 15.0	-34.1	40.5
40	38 17.8	-39.9	35.0	39 55.6	-38.9	36.0	41 32.1	-37.6	37.0	43 07.2	-36.2	38.1	44 40.9	-34.8	39.3
41	37 37.9	-40.5	34.1	39 16.7	-39.3	35.0	40 54.5	-38.1	35.9	42 31.0	-36.8	37.0	44 06.1	-35.5	38.2
42	36 57.4	-40.8	33.1	38 37.4	-39.8	34.0	40 16.4	-38.7	34.9	41 54.2	-37.5	35.9	43 30.6	-36.1	37.0
43	36 16.6	-41.3	32.2	37 57.6	-40.2	33.0	39 37.7	-39.1	33.9	41 16.7	-37.9	34.9	42 54.5	-36.7	35.9
44	35 35.3	-41.7	31.3	37 17.4	-40.7	32.1	38 58.6	-39.7	32.9	40 38.8	-38.6	33.9	42 17.8	-37.3	34.9
45	34 53.6	-42.0	30.4	36 36.7	-41.1	31.2	38 18.9	-40.1	32.0	40 00.2	-39.0	32.9	41 40.5	-37.9	33.8
46	34 11.6	-42.4	29.6	35 55.6	-41.5	30.3	37 38.8	-40.5	31.0	39 21.2	-39.5	31.9	41 02.6	-38.4	32.8
47	33 29.2	-42.7	28.7	35 14.1	-41.9	29.4	36 58.3	-41.0	30.1	38 41.7	-40.0	30.9	40 24.2	-38.9	31.8
48	32 46.5	-43.1	27.9	34 32.2	-42.2	28.5	36 17.3	-41.3	29.2	38 01.7	-40.4	30.0	39 45.3	-39.5	30.8
49	32 03.4	-43.4	27.1	33 50.0	-42.6	27.7	35 36.0	-41.8	28.3	37 21.3	-40.9	29.0	39 05.8	-39.9	29.8
50	31 20.0	-43.6	26.3	33 07.4	-42.9	26.8	34 54.2	-42.1	27.4	36 40.4	-41.3	28.1	38 25.9	-40.4	28.8
51	30 36.4	-44.0	25.5	32 24.5	-43.3	26.0	34 12.1	-42.5	26.6	35 59.1	-41.7	27.2	37 45.5	-40.8	27.9
52	29 52.4	-44.3	24.7	31 41.2	-43.5	25.2	33 29.6	-42.8	25.7	35 17.4	-42.0	26.3	37 04.7	-41.3	27.0
53	29 08.1	-44.5	23.9	30 57.7	-43.9	24.4	32 46.8	-43.2	24.9	34 35.4	-42.5	25.4	36 23.4	-41.6	26.1
54	28 23.6	-44.7	23.1	30 13.8	-44.3	23.6	32 03.6	-43.5	24.1	33 52.9	-42.7	24.6	35 41.8	-42.0	25.2
55	27 38.9	-45.0	22.4	29 29.7	-44.4	22.8	31 20.1	-43.8	23.2	33 10.2	-43.1	23.8	34 59.8	-42.4	24.3
56	26 53.9	-45.3	21.6	28 45.3	-44.7	22.0	30 36.3	-44.0	22.5	32 27.1	-43.5	22.9	34 17.4	-42.8	23.4
57	26 08.6	-45.4	20.9	28 00.6	-44.9	21.3	29 52.3	-44.4	21.7	31 43.6	-43.7	22.1	33 34.3	-43.1	22.6
58	25 23.2	-45.7	20.2	27 15.7	-45.2	20.5	29 07.9	-44.6	20.9	30 59.9	-44.0	21.3	32 51.5	-43.4	21.8
59	24 37.5	-45.9	19.5	26 30.5	-45.3	19.8	28 23.3	-44.8	20.1	30 15.9	-44.3	20.5	32 08.1	-43.7	20.9
60	23 51.6	-46.0	18.7	25 45.2	-45.6	19.0	27 38.5	-45.1	19.4	29 31.6	-44.6	19.7	31 24.4	-44.1	20.1
61	23 05.6	-46.3	18.0	24 59.6	-45.8	18.3	26 53.4	-45.3	18.6	28 47.0	-44.9	19.0	30 40.3	-44.3	19.3
62	22 19.3	-46.4	17.4	24 13.8	-46.0	17.6	26 08.1	-45.6	17.9	28 02.1	-45.0	18.2	29 56.0	-44.6	18.6
63	21 32.9	-46.6	16.7	23 27.8	-46.2	16.9	25 22.5	-45.7	17.2	27 17.1	-45.3	17.5	29 11.4	-44.8	17.8
64	20 46.3	-46.7	16.0	22 41.6	-46.3	16.2	24 36.8	-46.0	16.5	26 31.8	-45.6	16.7	28 26.6	-45.1	17.0
65	19 59.6	-46.9	15.3	21 55.3	-46.6	15.5	23 50.8	-46.1	15.8	25 46.2	-45.7	16.0	27 41.5	-45.3	16.3
66	19 12.7	-47.0	14.7	21 08.7	-46.6	14.9	23 04.7	-46.4	15.1	25 00.5	-46.0	15.3	26 56.2	-45.6	15.6
67	18 25.7	-47.2	14.0	20 22.1	-46.9	14.2	22 18.3	-46.4	14.4	24 14.5	-46.1	14.6	26 10.6	-45.8	14.8
68	17 38.5	-47.3	13.4	19 35.2	-47.0	13.5	21 31.9	-46.7	13.7	23 28.4	-46.3	13.9	25 24.8	-46.0	14.1
69	16 51.2	-47.4	12.7	18 48.2	-47.1	12.9	20 45.2	-46.8	13.0	22 42.1	-46.5	13.2	24 38.8	-46.1	13.4
70	16 03.8	-47.5	12.1	18 01.1	-47.2	12.2	19 58.4	-47.0	12.4	21 55.6	-46.7	12.5	23 52.7	-46.4	12.7
71	15 16.3	-47.6	11.4	17 13.9	-47.4	11.6	19 11.4	-47.1	11.7	21 08.9	-46.8	11.8	23 06.3	-46.5	12.0
72	14 28.7	-47.8	10.8	16 26.5	-47.5	10.9	18 24.3	-47.2	11.0	20 22.1	-47.0	11.2	22 19.8	-46.8	11.3
73	13 40.9	-47.8	10.2	15 39.0	-47.6	10.3	17 37.1	-47.4	10.4	19 35.1	-47.1	10.5	21 33.0	-46.8	10.6
74	12 53.1	-47.9	9.6	14 51.4	-47.7	9.6	16 49.7	-47.5	9.7	18 48.0	-47.3	9.9	20 46.2	-47.1	10.0
75	12 05.2	-48.0	9.0	14 03.7	-47.8	9.0	16 02.2	-47.6	9.1	18 00.7	-47.4	9.2	19 59.1	-47.1	9.3
76	11 17.2	-48.1	8.3	13 15.9	-47.9	8.4	15 14.6	-47.7	8.5	17 13.3	-47.5	8.6	19 12.0	-47.4	8.7
77	10 29.1	-48.1	7.7	12 28.0	-47.9	7.8	14 26.9	-47.8	7.8	16 25.8	-47.6	7.9	18 24.6	-47.4	8.0
78	9 41.0	-48.2	7.1	11 40.1	-48.1	7.2	13 39.1	-47.9	7.2	15 38.2	-47.8	7.3	17 37.2	-47.6	7.4
79	8 52.8	-48.2	6.5	10 52.0	-48.1	6.6	12 51.2	-47.9	6.6	14 50.4	-47.8	6.7	16 49.6	-47.7	6.7
80	8 04.6	-48.4	5.9	10 03.9	-48.2	6.0	12 03.3	-48.1	6.0	14 02.6	-47.9	6.0	16 01.9	-47.8	6.1
81	7 16.2	-48.3	5.3	9 15.7	-48.2	5.3	11 15.2	-48.1	5.4	13 14.7	-48.1	5.4	15 14.1	-47.9	5.5
82	6 27.9	-48.4	4.7	8 27.5	-48.3	4.7	10 27.1	-48.2	4.8	12 26.6	-48.1	4.8	14 26.2	-48.0	4.8
83	5 39.5	-48.4	4.1	7 39.2	-48.4	4.1	9 38.9	-48.3	4.2	11 38.5	-48.1	4.2	13 38.2	-48.1	4.2
84	4 51.1	-48.5	3.5	6 50.8	-48.4	3.5	8 50.6	-48.3	3.6	10 50.4	-48.3	3.6	12 50.1	-48.1	3.6
85	4 02.6	-48.5	2.9	6 02.4	-48.4	3.0	8 02.3	-48.4	3.0	10 02.1	-48.3	3.0	12 02.0	-48.3	3.0
86	3 14.1	-48.5	2.4	5 14.0	-48.5	2.4	7 13.9	-48.4	2.4	9 13.8	-48.4	2.4	11 13.7	-48.3	2.4
87	2 25.6	-48.5	1.8	4 25.5	-48.5	1.8	6 25.5	-48.5	1.8	8 25.4	-48.4	1.8	10 25.4	-48.4	1.8
88	1 37.1	-48.6	1.2	3 37.0	-48.5	1.2	5 37.0	-48.5	1.2	7 37.0	-48.5	1.2	9 37.0	-48.5	1.2
89	0 48.5	-48.5	0.6	2 48.5	-48.5	0.6	4 48.5	-48.5	0.6	6 48.5	-48.5	0.6	8 48.5	-48.5	0.6
90	0 00.0	-48.5	0.0	2 00.0	-48.5	0.0	4 00.0	-48.6	0.0	6 00.0	-48.6	0.0	8 00.0	-48.6	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 36°, 324°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
44	28.7	-34.4 134.5	43	03.5	-35.9 135.8	41	36.5	-37.5 137.1	40	07.8	-38.9 138.3	38	37.5	-40.2 139.3	30
43	54.3	-35.0 135.6	42	27.6	-36.6 136.9	40	59.0	-38.0 138.1	39	28.9	-39.4 139.2	37	57.3	-40.7 140.3	31
43	19.3	-35.7 136.8	41	51.0	-37.2 138.0	40	21.0	-38.6 139.2	38	48.5	-39.9 140.2	37	16.6	-41.1 141.2	32
42	43.6	-36.3 137.9	41	13.8	-37.8 139.0	39	42.4	-39.1 140.2	38	09.6	-40.4 141.2	36	35.5	-41.6 142.1	33
42	07.3	-36.9 138.9	40	36.0	-38.2 140.1	39	03.3	-39.6 141.1	37	29.2	-40.8 142.1	35	53.9	-41.9 143.0	34
41	30.4	-37.5 140.0	39	57.8	-38.8 141.1	38	23.7	-40.0 142.1	36	48.4	-41.2 143.0	35	12.0	-42.3 143.9	35
40	52.9	-38.0 141.0	39	19.0	-39.3 142.1	37	43.7	-40.5 143.0	36	07.2	-41.6 143.9	34	29.7	-42.7 144.8	36
40	14.9	-38.5 142.0	38	39.7	-39.8 143.0	37	03.2	-40.9 144.0	35	25.6	-42.0 144.8	33	47.0	-43.0 145.6	37
39	36.4	-39.0 143.0	37	59.9	-40.2 144.0	36	22.3	-41.3 144.9	34	43.6	-42.3 145.7	33	04.0	-43.3 146.4	38
38	57.4	-39.6 144.0	37	19.7	-40.7 144.9	35	41.0	-41.8 145.8	34	01.3	-42.7 146.6	32	20.7	-43.6 147.3	39
38	17.8	-39.9 145.0	36	39.0	-41.0 145.9	34	59.2	-42.1 146.7	33	18.6	-43.1 147.4	31	37.1	-44.0 148.1	40
37	37.9	-40.5 145.9	35	58.0	-41.5 146.8	34	17.1	-42.4 147.5	32	35.5	-43.4 148.2	30	53.1	-44.2 148.9	41
36	57.4	-40.8 146.9	35	16.5	-41.9 147.7	33	34.7	-42.8 148.4	31	52.1	-43.6 149.0	30	08.9	-44.5 149.7	42
36	16.6	-41.3 147.8	34	34.6	-42.2 148.5	32	51.9	-43.1 149.2	31	08.5	-44.0 149.9	29	24.4	-44.8 150.4	43
35	35.3	-41.7 148.7	33	52.4	-42.6 149.4	32	08.8	-43.5 150.0	30	24.5	-44.3 150.6	28	39.6	-45.0 151.2	44
34	53.6	-42.0 149.6	33	09.8	-42.9 150.2	31	25.3	-43.7 150.9	29	40.2	-44.5 151.4	27	54.6	-45.3 151.9	45
34	11.6	-42.4 150.4	32	26.9	-43.2 151.1	30	41.6	-44.0 151.7	28	55.7	-44.8 152.2	27	09.3	-45.5 152.7	46
33	29.2	-42.7 151.3	31	43.7	-43.6 151.9	29	57.6	-44.3 152.4	28	10.9	-45.0 152.9	26	23.8	-45.7 153.4	47
32	46.5	-43.1 152.1	31	00.1	-43.8 152.7	29	13.3	-44.6 153.2	27	25.9	-45.3 153.7	25	38.1	-45.9 154.1	48
32	03.4	-43.4 152.9	30	16.3	-44.1 153.5	28	28.7	-44.8 154.0	26	40.6	-45.4 154.4	24	52.2	-46.1 154.8	49
31	20.0	-43.6 153.7	29	32.2	-44.4 154.3	27	43.9	-45.1 154.7	25	55.2	-45.8 155.2	24	06.1	-46.3 155.5	50
30	36.4	-44.0 154.5	28	47.8	-44.7 155.0	26	58.8	-45.3 155.5	25	09.4	-45.9 155.9	23	19.8	-46.5 156.2	51
29	52.4	-44.3 155.3	28	03.1	-44.9 155.8	26	13.5	-45.5 156.2	24	23.5	-46.1 156.6	22	33.3	-46.7 156.9	52
29	08.1	-44.5 156.1	27	18.2	-45.1 156.5	25	28.0	-45.7 156.9	23	37.4	-46.3 157.3	21	46.6	-46.8 157.6	53
28	23.6	-44.7 156.9	26	33.1	-45.4 157.3	24	42.3	-46.0 157.6	22	51.1	-46.4 158.0	20	59.8	-47.0 158.3	54
27	38.9	-45.0 157.6	25	47.7	-45.5 158.0	23	56.3	-46.1 158.4	22	04.7	-46.5 158.7	20	12.8	-47.1 158.9	55
26	53.9	-45.3 158.4	25	02.2	-45.8 158.7	23	10.2	-46.3 159.1	21	18.0	-46.8 159.3	19	25.7	-47.3 159.6	56
26	08.6	-45.4 159.1	24	16.4	-46.0 159.4	22	23.9	-46.5 159.7	20	31.2	-46.9 160.0	18	38.4	-47.4 160.3	57
25	23.2	-45.7 159.8	23	30.4	-46.2 160.1	21	37.4	-46.6 160.4	19	44.3	-47.1 160.7	17	51.0	-47.6 160.9	58
24	37.5	-45.9 160.5	22	44.2	-46.3 160.8	20	50.8	-46.8 161.1	18	57.2	-47.3 161.3	17	03.4	-47.6 161.5	59
23	51.6	-46.0 161.3	21	57.9	-46.5 161.5	20	04.0	-47.0 161.8	18	09.9	-47.3 162.0	16	15.8	-47.8 162.2	60
23	05.6	-46.3 162.0	21	11.4	-46.7 162.2	19	17.0	-47.0 162.4	17	22.6	-47.5 162.6	15	28.0	-47.9 162.8	61
22	19.3	-46.4 162.6	20	24.7	-46.8 162.9	18	30.0	-47.3 163.1	16	35.1	-47.6 163.3	14	40.1	-47.9 163.4	62
21	32.9	-46.6 163.3	19	37.9	-47.0 163.5	17	42.7	-47.3 163.7	15	47.5	-47.7 163.9	13	52.2	-48.1 164.0	63
20	46.3	-46.7 164.0	18	50.9	-47.1 164.2	16	55.4	-47.5 164.4	14	59.8	-47.8 164.5	13	04.1	-48.2 164.7	64
19	59.6	-46.9 164.7	18	03.8	-47.2 164.9	16	07.9	-47.6 165.0	14	12.0	-47.9 165.2	12	15.9	-48.2 165.3	65
19	12.7	-47.0 165.3	17	16.6	-47.4 165.5	15	20.3	-47.6 165.6	13	24.1	-48.0 165.8	11	27.7	-48.3 165.9	66
18	25.7	-47.2 166.0	16	29.2	-47.5 166.1	14	32.7	-47.8 166.3	12	36.1	-48.1 166.4	10	39.4	-48.4 166.5	67
17	38.5	-47.3 166.6	15	41.7	-47.6 166.8	13	44.9	-47.9 166.9	11	48.0	-48.2 167.0	9	51.0	-48.4 167.1	68
16	51.2	-47.4 167.3	14	54.1	-47.7 167.4	12	57.0	-48.0 167.5	10	59.8	-48.2 167.6	9	02.6	-48.5 167.7	69
16	03.8	-47.5 167.9	14	06.4	-47.8 168.0	12	09.0	-48.0 168.1	10	11.6	-48.3 168.2	8	14.1	-48.6 168.3	70
15	16.3	-47.6 168.6	13	18.6	-47.8 168.7	11	21.0	-48.2 168.7	9	23.3	-48.4 168.8	7	25.5	-48.6 168.9	71
14	28.7	-47.8 169.2	12	30.8	-48.0 169.3	10	32.8	-48.2 169.4	8	34.9	-48.4 169.4	6	36.9	-48.6 169.5	72
13	40.9	-47.8 169.8	11	42.8	-48.0 169.9	9	44.6	-48.2 170.0	7	46.5	-48.5 170.0	5	48.3	-48.7 170.1	73
12	53.1	-47.9 170.4	10	54.8	-48.2 170.5	8	56.4	-48.3 170.6	6	58.0	-48.5 170.6	4	59.6	-48.7 170.6	74
12	05.2	-48.0 171.0	10	06.6	-48.1 171.1	8	08.1	-48.4 171.2	6	09.5	-48.6 171.2	4	10.9	-48.7 171.2	75
11	17.2	-48.1 171.7	9	18.5	-48.3 171.7	7	19.7	-48.4 171.8	5	20.9	-48.5 171.8	3	22.2	-48.8 171.8	76
10	29.1	-48.1 172.3	8	30.2	-48.3 172.3	6	31.3	-48.5 172.4	4	32.4	-48.7 172.4	2	33.4	-48.8 172.4	77
9	41.0	-48.2 172.9	7	41.9	-48.3 172.9	5	42.8	-48.5 172.9	3	43.7	-48.6 173.0	1	44.6	-48.7 173.0	78
8	52.8	-48.2 173.5	6	53.6	-48.4 173.5	4	54.3	-48.5 173.5	2	55.1	-48.7 173.6	0	55.9	-48.8 173.6	79
8	04.6	-48.4 174.1	6	05.2	-48.4 174.1	4	05.8	-48.5 174.1	2	06.4	-48.6 174.1	0	07.1	-48.8 174.1	80
7	16.2	-48.3 174.7	5	16.8	-48.5 174.7	3	17.3	-48.6 174.7	1	17.8	-48.7 174.7	0	41.7	+48.8 5.3	81
6	27.9	-48.4 175.3	4	28.3	-48.5 175.3	2	28.7	-48.6 175.3	0	29.1	-48.7 175.3	1	30.5	+48.8 4.7	82
5	39.5	-48.4 175.9	3	39.8	-48.5 175.9	1	40.1	-48.6 175.9	0	40.3	+48.7 4.1	2	19.3	+48.7 4.1	83
4	51.1	-48.5 176.5	2	51.3	-48.5 176.5	0	51.5	-48.6 176.5	1	08.3	+48.6 3.5	3	08.0	+48.8 3.5	84
4	02.6	-48.5 177.1	2	02.8	-48.6 177.1	0	02.9	-48.6 177.1	1	56.9	+48.7 2.9	3	56.8	+48.7 2.9	85
3	14.1	-48.5 177.6	1	14.2	-48.5 177.6	0	45.7	+48.6 2.4	2	45.6	+48.6 2.4	4	45.5	+48.7 2.4	86
2	25.6	-48.5 178.2	0	25.7	-48.6 178.2	1	34.3	+48.6 1.8	3	34.2	+48.6 1.8	5	34.2	+48.6 1.8	87
1	37.1	-48.6 178.8	0	22.9	+48.5 1.2	2	22.9	+48.5 1.2	4	22.8	+48.6 1.2	6	22.8	+48.6 1.2	88
0	48.5	+48.5 179.4	1	11.5	+48.5 0.6	3	11.4	+48.6 0.6	5	11.4	+48.6 0.6	7	11.4	+48.6 0.6	89
0	00.0	+48.5 0.0	2	00.0	+48.5 0.0	4	00.0	+48.5 0.0	6	00.0	+48.5 0.0	8	00.0	+48.5 0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 144°, 216°

36°, 324° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	50 58.2	-24.2	53.9	52 07.1	-21.7	56.0	53 12.3	-19.0	58.2	54 13.4	-16.1	60.5	55 10.2	-13.0	63.0
31	50 34.0	-25.2	52.5	51 45.4	-22.8	54.5	52 53.3	-20.2	56.6	53 57.3	-17.4	58.9	54 57.2	-14.5	61.3
32	50 08.8	-26.3	51.1	51 22.6	-23.9	53.0	52 33.1	-21.4	55.1	53 39.9	-18.7	57.3	54 42.7	-15.8	59.6
33	49 42.5	-27.2	49.7	50 58.7	-25.0	51.5	52 11.7	-22.6	53.5	53 21.2	-19.9	55.7	54 26.9	-17.2	58.0
34	49 15.3	-28.2	48.3	50 33.7	-26.0	50.1	51 49.1	-23.7	52.0	53 01.3	-21.2	54.1	54 09.7	-18.5	56.3
35	48 47.1	-29.1	46.9	50 07.7	-27.1	48.7	51 25.4	-24.8	50.5	52 40.1	-22.4	52.6	53 51.2	-19.7	54.7
36	48 18.0	-30.0	45.6	49 40.6	-28.0	47.3	51 00.6	-25.8	49.1	52 17.7	-23.5	51.0	53 31.5	-21.1	53.1
37	47 48.0	-30.9	44.3	49 12.6	-28.9	45.9	50 34.8	-26.9	47.7	51 54.2	-24.7	49.5	53 10.4	-22.2	51.6
38	47 17.1	-31.7	43.1	48 43.7	-29.9	44.6	50 07.9	-27.9	46.3	51 29.5	-25.7	48.1	52 48.2	-23.4	50.0
39	46 45.4	-32.5	41.8	48 13.8	-30.7	43.3	49 40.0	-28.8	44.9	51 03.8	-26.8	46.6	52 24.8	-24.6	48.5
40	46 12.9	-33.2	40.6	47 43.1	-31.6	42.0	49 11.2	-29.8	43.5	50 37.0	-27.8	45.2	52 00.2	-25.7	47.0
41	45 39.7	-34.0	39.4	47 11.5	-32.4	40.8	48 41.4	-30.6	42.2	50 09.2	-28.8	43.8	51 34.5	-26.7	45.5
42	45 05.7	-34.7	38.2	46 39.1	-33.1	39.5	48 10.8	-31.5	40.9	49 40.4	-29.7	42.5	51 07.8	-27.8	44.1
43	44 31.0	-35.4	37.1	46 06.0	-33.9	38.3	47 39.3	-32.4	39.7	49 10.7	-30.7	41.1	50 40.0	-28.8	42.7
44	43 55.6	-36.0	35.9	45 32.1	-34.7	37.1	47 06.9	-33.1	38.4	48 40.0	-31.5	39.8	50 11.2	-29.7	41.3
45	43 19.6	-36.6	34.8	44 57.4	-35.3	36.0	46 33.8	-33.9	37.2	48 08.5	-32.3	38.5	49 41.5	-30.7	40.0
46	42 43.0	-37.3	33.8	44 22.1	-36.0	34.8	45 59.9	-34.6	36.0	47 36.2	-33.1	37.3	49 10.8	-31.5	38.7
47	42 05.7	-37.8	32.7	43 46.1	-36.6	33.7	45 25.3	-35.3	34.8	47 03.1	-33.9	36.0	48 39.3	-32.4	37.4
48	41 27.9	-38.4	31.7	43 09.5	-37.2	32.6	44 50.0	-36.0	33.7	46 29.2	-34.7	34.8	48 06.9	-33.2	36.1
49	40 49.5	-38.9	30.6	42 32.3	-37.8	31.6	44 14.0	-36.7	32.6	45 54.5	-35.4	33.7	47 33.7	-34.0	34.9
50	40 10.6	-39.4	29.6	41 54.5	-38.4	30.5	43 37.3	-37.2	31.5	45 19.1	-36.0	32.5	46 59.7	-34.7	33.6
51	39 31.2	-39.9	28.7	41 16.1	-38.9	29.5	43 00.1	-37.9	30.4	44 43.1	-36.7	31.4	46 25.0	-35.5	32.4
52	38 51.3	-40.4	27.7	40 37.2	-39.5	28.5	42 22.2	-38.4	29.3	44 06.4	-37.4	30.3	45 49.5	-36.2	31.3
53	38 10.9	-40.8	26.7	39 57.7	-39.9	27.5	41 43.8	-39.0	28.3	43 29.0	-37.9	29.2	45 13.3	-36.8	30.1
54	37 30.1	-41.2	25.8	39 17.8	-40.4	26.5	41 04.8	-39.4	27.3	42 51.1	-38.5	28.1	44 36.5	-37.5	29.0
55	36 48.9	-41.7	24.9	38 37.4	-40.8	25.6	40 25.4	-40.0	26.3	42 12.6	-39.1	27.1	43 59.0	-38.1	27.9
56	36 07.2	-42.0	24.0	37 56.6	-41.3	24.6	39 45.4	-40.5	25.3	41 33.5	-39.6	26.1	43 20.9	-38.6	26.9
57	35 25.2	-42.4	23.1	37 15.3	-41.7	23.7	39 04.9	-40.9	24.4	40 53.9	-40.1	25.1	42 42.3	-39.2	25.8
58	34 42.8	-42.8	22.3	36 33.6	-42.1	22.8	38 24.0	-41.4	23.4	40 13.8	-40.6	24.1	42 03.1	-39.8	24.8
59	34 00.0	-43.1	21.4	35 51.5	-42.5	21.9	37 42.6	-41.8	22.5	39 33.2	-41.0	23.1	41 23.3	-40.3	23.8
60	33 16.9	-43.5	20.6	35 09.0	-42.8	21.1	37 00.8	-42.2	21.6	38 52.2	-41.5	22.2	40 43.0	-40.7	22.8
61	32 33.4	-43.8	19.8	34 26.2	-43.2	20.2	36 18.6	-42.6	20.7	38 10.7	-42.0	21.3	40 02.3	-41.3	21.9
62	31 49.6	-44.0	19.0	33 43.0	-43.5	19.4	35 36.0	-42.9	19.8	37 28.7	-42.3	20.3	39 21.0	-41.6	20.9
63	31 05.6	-44.4	18.2	32 59.5	-43.9	18.6	34 53.1	-43.3	19.0	36 46.4	-42.7	19.5	38 39.4	-42.1	20.0
64	30 21.2	-44.6	17.4	32 15.6	-44.1	17.7	34 09.8	-43.6	18.1	36 03.7	-43.1	18.6	37 57.3	-42.6	19.1
65	29 36.6	-44.9	16.6	31 31.5	-44.5	16.9	33 26.2	-44.0	17.3	35 20.6	-43.5	17.7	37 14.7	-42.9	18.2
66	28 51.7	-45.2	15.8	30 47.0	-44.7	16.2	32 42.2	-44.3	16.5	34 37.1	-43.8	16.9	36 31.8	-43.2	17.3
67	28 06.5	-45.4	15.1	30 02.3	-45.0	15.4	31 57.9	-44.5	15.7	33 53.3	-44.1	16.1	35 48.6	-43.7	16.5
68	27 21.1	-45.6	14.4	29 17.3	-45.2	14.6	31 13.4	-44.9	14.9	33 09.2	-44.4	15.2	35 04.9	-44.0	15.6
69	26 35.5	-45.8	13.6	28 32.1	-45.5	13.9	30 28.5	-45.1	14.1	32 24.8	-44.7	14.4	34 20.9	-44.3	14.8
70	25 49.7	-46.1	12.9	27 46.6	-45.7	13.1	29 43.4	-45.4	13.4	31 40.1	-45.0	13.7	33 36.6	-44.6	14.0
71	25 03.6	-46.2	12.2	27 00.9	-46.0	12.4	28 58.0	-45.6	12.6	30 55.1	-45.3	12.9	32 52.0	-45.0	13.2
72	24 17.4	-46.5	11.5	26 14.9	-46.1	11.7	28 12.4	-45.8	11.9	30 09.8	-45.6	12.1	32 07.0	-45.2	12.4
73	23 30.9	-46.6	10.8	25 28.8	-46.4	11.0	27 26.6	-46.1	11.2	29 24.2	-45.8	11.4	31 21.8	-45.5	11.6
74	22 44.3	-46.8	10.1	24 42.4	-46.5	10.3	26 40.5	-46.3	10.4	28 38.4	-46.0	10.6	30 36.3	-45.7	10.9
75	21 57.5	-46.9	9.4	23 55.9	-46.8	9.6	25 54.2	-46.5	9.7	27 52.4	-46.2	9.9	29 50.6	-46.0	10.1
76	21 10.6	-47.2	8.8	23 09.1	-46.9	8.9	25 07.7	-46.7	9.0	27 06.2	-46.5	9.2	29 04.6	-46.2	9.4
77	20 23.4	-47.2	8.1	22 22.2	-47.0	8.2	24 21.0	-46.9	8.3	26 19.7	-46.7	8.5	28 18.4	-46.5	8.6
78	19 36.2	-47.4	7.5	21 35.2	-47.3	7.6	23 34.1	-47.1	7.7	25 33.0	-46.9	7.8	27 31.9	-46.7	7.9
79	18 48.8	-47.6	6.8	20 47.9	-47.4	6.9	22 47.0	-47.2	7.0	24 46.1	-47.0	7.1	26 45.2	-46.9	7.2
80	18 01.2	-47.6	6.2	20 00.5	-47.5	6.2	21 59.8	-47.4	6.3	23 59.1	-47.3	6.4	25 58.3	-47.1	6.5
81	17 13.6	-47.8	5.5	19 13.0	-47.7	5.6	21 12.4	-47.5	5.7	23 11.8	-47.4	5.7	25 11.2	-47.2	5.8
82	16 25.8	-47.9	4.9	18 25.3	-47.7	4.9	20 24.9	-47.7	5.0	22 24.4	-47.5	5.1	24 24.0	-47.5	5.2
83	15 37.9	-48.0	4.3	17 37.6	-48.0	4.3	19 37.2	-47.8	4.4	21 36.9	-47.8	4.4	23 36.5	-47.6	4.5
84	14 49.9	-48.1	3.6	16 49.6	-48.0	3.7	18 49.4	-48.0	3.7	20 49.1	-47.8	3.8	22 48.9	-47.8	3.8
85	14 01.8	-48.2	3.0	16 01.6	-48.1	3.1	18 01.4	-48.0	3.1	20 01.3	-48.0	3.1	22 01.1	-48.0	3.2
86	13 13.6	-48.3	2.4	15 13.5	-48.2	2.4	17 13.4	-48.2	2.5	19 13.3	-48.2	2.5	21 13.1	-48.0	2.5
87	12 25.3	-48.4	1.8	14 25.3	-48.4	1.8	16 25.2	-48.3	1.8	18 25.1	-48.2	1.9	20 25.1	-48.3	1.9
88	11 36.9	-48.4	1.2	13 36.9	-48.4	1.2	15 36.9	-48.4	1.2	17 36.9	-48.4	1.2	19 36.8	-48.3	1.2
89	10 48.5	-48.5	0.6	12 48.5	-48.5	0.6	14 48.5	-48.5	0.6	16 48.5	-48.5	0.6	18 48.5	-48.5	0.6
90	10 00.0	-48.6	0.0	12 00.0	-48.6	0.0	14 00.0	-48.6	0.0	16 00.0	-48.6	0.0	18 00.0	-48.6	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 36°, 324°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
37	05.8	-41.5	140.3	35	32.8	-42.7	141.3	33	58.6	-43.7	142.1	32	23.4	-44.8	142.9	30	47.1	-45.6	143.7	30
36	24.3	-41.9	141.2	34	50.1	-42.9	142.1	33	14.9	-44.1	143.0	31	38.6	-45.0	143.7	30	01.5	-46.0	144.4	31
35	42.4	-42.2	142.1	34	07.2	-43.4	143.0	32	30.8	-44.3	143.8	30	53.6	-45.3	144.5	29	15.5	-46.2	145.2	32
35	00.2	-42.7	143.0	33	23.8	-43.7	143.8	31	46.5	-44.6	144.6	30	08.3	-45.5	145.2	28	29.3	-46.4	145.9	33
34	17.5	-43.0	143.9	32	40.1	-43.9	144.6	31	01.9	-45.0	145.3	29	22.8	-45.8	146.0	27	42.9	-46.6	146.6	34
33	34.5	-43.3	144.7	31	56.2	-44.3	145.4	30	16.9	-45.1	146.1	28	46.6	-46.1	146.7	26	56.3	-46.9	147.3	35
32	51.2	-43.6	145.5	31	11.9	-44.6	146.2	29	31.8	-45.5	146.9	27	50.9	-46.2	147.5	26	09.4	-47.0	148.0	36
32	07.6	-44.0	146.3	30	27.3	-44.8	147.0	28	46.3	-45.7	147.6	27	04.7	-46.5	148.2	25	22.4	-47.2	148.7	37
31	23.6	-44.2	147.1	29	42.5	-45.1	147.8	28	00.6	-45.9	148.4	26	18.2	-46.7	148.9	24	35.2	-47.4	149.4	38
30	39.4	-44.5	147.9	28	57.4	-45.4	148.5	27	14.7	-46.1	149.1	25	31.5	-46.9	149.6	23	47.8	-47.6	150.1	39
29	54.9	-44.8	148.7	28	12.0	-45.6	149.3	26	28.6	-46.4	149.8	24	44.6	-47.0	150.3	23	00.2	-47.8	150.7	40
29	10.1	-45.1	149.5	27	26.4	-45.8	150.0	25	42.2	-46.5	150.5	23	57.6	-47.3	151.0	22	12.4	-47.9	151.4	41
28	25.0	-45.3	150.2	26	40.6	-46.0	150.7	24	55.7	-46.8	151.2	23	10.3	-47.4	151.6	21	24.5	-48.0	152.0	42
27	39.7	-45.5	151.0	25	54.6	-46.3	151.5	24	08.9	-46.9	151.9	22	22.9	-47.6	152.3	20	36.5	-48.2	152.7	43
26	54.2	-45.7	151.7	25	08.3	-46.4	152.2	23	22.0	-47.1	152.6	21	35.3	-47.7	153.0	19	48.3	-48.3	153.3	44
26	08.5	-46.0	152.4	24	21.9	-46.6	152.9	22	34.9	-47.3	153.2	20	47.6	-47.9	153.6	19	00.0	-48.5	153.9	45
25	22.5	-46.2	153.1	23	35.3	-46.9	153.5	21	47.6	-47.4	153.9	19	59.7	-48.0	154.2	18	11.5	-48.6	154.5	46
24	36.3	-46.3	153.8	22	48.4	-46.9	154.2	21	00.2	-47.6	154.6	19	11.7	-48.1	154.9	17	22.9	-48.7	155.2	47
23	50.0	-46.6	154.5	22	01.5	-47.2	154.9	20	12.6	-47.7	155.2	18	23.6	-48.3	155.5	16	34.2	-48.7	155.8	48
23	03.4	-46.7	155.2	21	14.3	-47.3	155.6	19	24.9	-47.8	155.9	17	35.3	-48.4	156.1	15	45.5	-48.9	156.4	49
22	16.7	-46.9	155.9	20	27.0	-47.4	156.2	18	37.1	-48.0	156.5	16	46.9	-48.5	156.8	14	56.6	-49.0	157.0	50
21	29.8	-47.1	156.6	19	39.6	-47.6	156.9	17	49.1	-48.1	157.1	15	58.4	-48.6	157.4	14	07.6	-49.1	157.6	51
20	42.7	-47.2	157.2	18	52.0	-47.7	157.5	17	01.0	-48.2	157.8	15	09.8	-48.7	158.0	13	18.5	-49.1	158.2	52
19	55.5	-47.3	157.9	18	04.3	-47.9	158.2	16	12.8	-48.3	158.4	14	21.1	-48.7	158.6	12	29.4	-49.3	158.8	53
19	08.2	-47.5	158.5	17	16.4	-48.0	158.8	15	24.5	-48.5	159.0	13	32.4	-48.9	159.2	11	40.1	-49.3	159.3	54
18	20.7	-47.6	159.2	16	28.4	-48.0	159.4	14	36.0	-48.5	159.6	12	43.5	-49.0	159.8	10	50.8	-49.3	159.9	55
17	33.1	-47.7	159.8	15	40.4	-48.2	160.0	13	47.5	-48.6	160.2	11	54.5	-49.0	160.4	10	01.5	-49.5	160.5	56
16	45.4	-47.9	160.5	14	52.2	-48.3	160.7	12	58.9	-48.7	160.8	11	05.5	-49.1	161.0	9	12.0	-49.4	161.1	57
15	57.5	-48.0	161.1	14	03.9	-48.8	161.3	12	10.2	-48.8	161.4	10	16.4	-49.1	161.5	8	22.6	-49.6	161.6	58
15	09.5	-48.0	161.7	13	15.5	-48.4	161.9	11	21.4	-48.8	162.0	9	27.3	-49.2	162.1	7	33.0	-49.5	162.2	59
14	21.5	-48.2	162.3	12	27.1	-48.5	162.5	10	32.6	-48.9	162.6	8	38.1	-49.3	162.7	6	43.5	-49.6	162.8	60
13	33.3	-48.2	163.0	11	38.6	-48.7	163.1	9	43.7	-49.0	163.2	7	48.8	-49.3	163.3	5	53.9	-49.7	163.4	61
12	45.1	-48.4	163.6	10	49.9	-48.6	163.7	8	54.7	-49.0	163.8	6	59.5	-49.4	163.9	5	04.2	-49.7	163.9	62
11	56.7	-48.4	164.2	10	01.3	-48.8	164.3	8	05.7	-49.0	164.4	6	10.1	-49.3	164.4	4	14.5	-49.7	164.5	63
11	08.3	-48.4	164.8	9	12.5	-48.8	164.9	7	16.7	-49.2	164.9	5	20.8	-49.5	165.0	3	24.8	-49.7	165.0	64
10	19.9	-48.6	165.4	8	23.7	-48.8	165.5	6	27.5	-49.1	165.5	4	31.3	-49.4	165.6	2	35.1	-49.7	165.6	65
9	31.3	-48.6	166.0	7	34.9	-48.9	166.0	5	38.4	-49.2	166.1	3	41.9	-49.5	166.1	1	45.4	-49.8	166.2	66
8	42.7	-48.7	166.6	6	46.0	-49.0	166.6	4	49.2	-49.2	166.7	2	52.4	-49.5	166.7	0	55.6	-49.7	166.7	67
7	54.0	-48.7	167.2	5	57.0	-49.0	167.2	4	00.0	-49.2	167.2	2	02.9	-49.4	167.3	0	05.9	-49.8	167.3	68
7	05.3	-48.7	167.7	5	08.0	-49.0	167.8	3	10.8	-49.3	167.8	1	13.5	-49.5	167.8	0	17.8	-49.8	167.8	69
6	16.6	-48.8	168.3	4	19.0	-49.0	168.4	2	21.5	-49.3	168.4	0	24.0	-49.6	168.4	0	33.9	+49.7	12.2	70
5	27.8	-48.9	168.9	3	30.0	-49.1	168.9	1	32.2	-49.3	169.0	0	25.6	+49.5	11.0	2	23.3	+49.8	11.0	71
4	38.9	-48.8	169.5	2	40.9	-49.0	169.5	0	42.9	-49.2	169.5	1	15.1	+49.5	10.5	3	13.1	+49.7	10.5	72
3	50.1	-48.9	170.1	1	51.9	-49.1	170.1	0	06.3	+49.3	9.9	2	04.6	+49.4	9.9	3	02.8	+49.6	9.9	73
3	01.2	-48.9	170.7	1	02.8	-49.1	170.7	0	55.6	+49.3	9.3	2	54.0	+49.5	9.3	4	52.4	+49.7	9.4	74
2	12.3	-48.9	171.2	0	13.7	-49.1	171.2	1	44.9	+49.3	8.8	3	43.5	+49.4	8.8	5	42.1	+49.6	8.8	75
1	23.4	-48.9	171.8	0	35.4	+49.1	8.2	2	34.2	+49.2	8.2	4	32.9	+49.5	8.2	6	31.7	+49.6	8.2	76
0	34.5	-49.0	172.4	1	24.5	+49.1	7.6	3	23.4	+49.3	7.6	5	22.4	+49.3	7.6	7	21.3	+49.5	7.7	77
0	14.5	+48.9	7.0	2	13.6	+49.0	7.0	4	12.7	+49.2	7.0	6	11.7	+49.4	7.1	8	10.8	+49.5	7.1	78
1	03.4	+48.9	6.4	3	02.6	+49.1	6.4	5	01.9	+49.1	6.5	7	01.1	+49.3	6.5	9	00.3	+49.5	6.5	79
1	52.3	+48.9	5.9	3	51.7	+49.0	5.9	5	51.0	+49.2	5.9	7	50.4	+49.3	5.9	9	49.8	+49.3	5.9	80
2	41.2	+48.9	5.3	4	40.7	+49.0	5.3	6	40.2	+49.1	5.3	8	39.7	+49.2	5.3	10	39.1	+49.4	5.4	81
3	30.1	+48.9	4.7	5	29.7	+48.9	4.7	7	29.3	+49.0	4.7	9	28.9	+49.1	4.8	11	28.5	+49.2	4.8	82
4	19.0	+48.8	4.1	6	18.6	+49.0	4.1	8	18.3	+49.0	4.2	10	18.0	+49.1	4.2	12	17.7	+49.2	4.2	83
5	07.8	+48.8	3.5	7	07.6	+48.9	3.5	9	07.3	+49.0	3.6	11	07.1	+49.0	3.6	13	06.9	+49.1	3.6	84
5	56.6	+48.8	3.0	7	56.5	+48.8	3.0	9	56.3	+48.9	3.0	11	56.1	+49.0	3.0	13	56.0	+49.0	3.0	85
6	45.4	+48.7	2.4	8	45.3	+48.8	2.4	10	45.2	+48.8	2.4	12	45.1	+48.8	2.4	14	45.0	+48.9	2.4	86
7	34.1	+48.7	1.8	9	34.1	+48.7	1.8	11	34.0	+48.7	1.8	13	33.9	+48.8	1.8	15	33.9	+48.8	1.8	87
8	22.8	+48.6	1.2	10	22.8	+48.6	1.2	12	22.7	+48.7	1.2	14	22.7	+48.7	1.2	16	22.7	+48.7	1.2	88
9	11.4	+48.6	0.6	11	11.4	+48.6	0.6	13	11.4	+48.6	0.6	15	11.4	+48.6	0.6	17	11.4	+48.6	0.6	89
10	00.0	+48.5	0.0	12	00.0	+48.5	0.0	14	00.0	+48.5	0.0	16	00.0	+48.5	0.0	18	00.0	+48.5	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 144°, 216°

36°, 324° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	56 02.1	-9.7	65.7	56 48.9	-6.3	68.4	57 30.2	-2.7	71.4	58 05.6	+1.0	74.4	58 34.7	+4.8	77.5
31	55 52.4	-11.3	63.9	56 42.6	-7.9	66.6	57 27.5	-4.4	69.5	58 06.6	-0.7	72.5	58 39.5	+3.2	75.6
32	55 41.1	-12.7	62.2	56 34.7	-9.5	64.8	57 23.1	-6.0	67.6	58 05.9	-2.4	70.6	58 42.7	+1.4	73.7
33	55 28.4	-14.2	60.4	56 25.2	-11.0	63.0	57 17.1	-7.7	65.8	58 03.5	-4.1	68.7	58 44.1	-0.4	71.8
34	55 14.2	-15.6	58.7	56 14.2	-12.5	61.3	57 09.4	-9.2	64.0	57 59.4	-5.7	66.8	58 43.7	-2.0	69.8
35	54 58.6	-17.0	57.0	56 01.7	-14.0	59.5	57 00.2	-10.7	62.1	57 53.7	-7.4	65.0	58 41.7	-3.8	67.9
36	54 41.6	-18.3	55.4	55 47.7	-15.4	57.8	56 49.5	-12.4	60.3	57 46.3	-9.0	63.1	58 37.9	-5.4	66.0
37	54 23.3	-19.7	53.7	55 32.3	-16.8	56.1	56 37.1	-13.8	58.6	57 37.3	-10.6	61.2	58 32.5	-7.2	64.1
38	54 03.6	-20.9	52.1	55 15.5	-18.3	54.4	56 23.3	-15.3	56.8	57 26.7	-12.1	59.4	58 25.3	-8.8	62.2
39	53 42.7	-22.2	50.5	54 57.2	-19.5	52.7	56 08.0	-16.8	55.1	57 14.6	-13.8	57.6	58 16.5	-10.5	60.3
40	53 20.5	-23.4	49.0	54 37.7	-20.9	51.1	55 51.2	-18.1	53.3	57 00.8	-15.2	55.8	58 06.0	-12.1	58.4
41	52 57.1	-24.5	47.4	54 16.8	-22.2	49.4	55 33.1	-19.6	51.6	56 45.6	-16.8	54.0	57 53.9	-13.7	56.6
42	52 32.6	-25.7	45.9	53 54.6	-23.3	47.9	55 13.5	-20.9	50.0	56 28.8	-18.2	52.3	57 40.2	-15.3	54.8
43	52 06.9	-26.7	44.4	53 31.3	-24.6	46.3	54 52.6	-22.2	48.3	56 10.6	-19.6	50.6	57 24.9	-16.7	53.0
44	51 40.2	-27.8	43.0	53 06.7	-25.7	44.8	54 30.4	-23.4	46.7	55 51.0	-20.9	48.9	57 08.2	-18.3	51.2
45	51 12.4	-28.8	41.6	52 41.0	-26.9	43.3	54 07.0	-24.7	45.2	55 30.1	-22.3	47.2	56 49.9	-19.7	49.4
46	50 43.6	-29.8	40.2	52 14.1	-27.9	41.8	53 42.3	-25.8	43.6	55 07.8	-23.6	45.6	56 30.2	-21.1	47.7
47	50 13.8	-30.8	38.8	51 46.2	-28.9	40.4	53 16.5	-27.0	42.1	54 44.2	-24.8	44.0	56 09.1	-22.5	46.0
48	49 43.0	-31.6	37.5	51 17.3	-29.9	39.0	52 49.5	-28.0	40.6	54 19.4	-26.0	42.4	55 46.6	-23.7	44.4
49	49 11.4	-32.5	36.2	50 47.4	-30.9	37.6	52 21.5	-29.1	39.2	53 53.4	-27.1	40.9	55 22.9	-25.1	42.7
50	48 38.9	-33.3	34.9	50 16.5	-31.8	36.2	51 52.4	-30.1	37.7	53 26.3	-28.3	39.4	54 57.8	-26.2	41.2
51	48 05.6	-34.2	33.6	49 44.7	-32.6	34.9	51 22.3	-31.1	36.3	52 58.0	-29.4	37.9	54 31.6	-27.4	39.6
52	47 31.4	-34.9	32.4	49 12.1	-33.6	33.6	50 51.2	-32.0	35.0	52 28.6	-30.3	36.5	54 04.2	-28.6	38.1
53	46 56.5	-35.6	31.2	48 38.5	-34.3	32.4	50 19.2	-32.9	33.6	51 58.3	-31.4	35.0	53 35.6	-29.6	36.6
54	46 20.9	-36.3	30.0	48 04.2	-35.1	31.1	49 46.3	-33.8	32.3	51 26.9	-32.3	33.7	53 06.0	-30.7	35.1
55	45 44.6	-37.0	28.9	47 29.1	-35.8	29.9	49 12.5	-34.6	31.1	50 54.6	-33.2	32.3	52 35.3	-31.7	33.7
56	45 07.6	-37.7	27.8	46 53.3	-36.6	28.7	48 37.9	-35.3	29.8	50 21.4	-34.0	31.0	52 03.6	-32.7	32.3
57	44 29.9	-38.3	26.7	46 16.7	-37.2	27.6	48 02.6	-36.1	28.6	49 47.4	-34.9	29.7	51 30.9	-33.5	31.0
58	43 51.6	-38.8	25.6	45 39.5	-37.9	26.5	47 26.5	-36.9	27.4	49 12.5	-35.7	28.5	50 57.4	-34.5	29.6
59	43 12.8	-39.4	24.5	45 01.6	-38.5	25.4	46 49.6	-37.5	26.3	48 36.8	-36.5	27.3	50 22.9	-35.2	28.3
60	42 33.4	-40.0	23.5	44 23.1	-39.1	24.3	46 12.1	-38.2	25.1	48 00.3	-37.1	26.1	49 47.7	-36.1	27.1
61	41 53.4	-40.5	22.5	43 44.0	-39.7	23.2	45 33.9	-38.8	24.0	47 23.2	-37.9	24.9	49 11.6	-36.8	25.9
62	41 12.9	-41.0	21.5	43 04.3	-40.2	22.2	44 55.1	-39.4	22.9	46 45.3	-38.5	23.8	48 34.8	-37.6	24.7
63	40 31.9	-41.4	20.6	42 24.1	-40.8	21.2	44 15.7	-40.0	21.9	46 06.8	-39.2	22.6	47 57.2	-38.3	23.5
64	39 50.5	-41.9	19.6	41 43.3	-41.2	20.2	43 35.7	-40.5	20.8	45 27.6	-39.8	21.6	47 18.9	-38.9	22.3
65	39 08.6	-42.3	18.7	41 02.1	-41.7	19.2	42 55.2	-41.1	19.8	44 47.8	-40.3	20.5	46 40.0	-39.6	21.2
66	38 26.3	-42.8	17.8	40 20.4	-42.2	18.3	42 14.1	-41.5	18.8	44 07.5	-40.9	19.5	46 00.4	-40.2	20.1
67	37 43.5	-43.1	16.9	39 38.2	-42.6	17.4	41 32.6	-42.1	17.9	43 26.6	-41.4	18.4	45 20.2	-40.7	19.1
68	37 00.4	-43.5	16.0	38 55.6	-43.0	16.4	40 50.5	-42.4	16.9	42 45.2	-41.9	17.4	44 39.5	-41.3	18.0
69	36 16.9	-43.9	15.1	38 12.6	-43.4	15.5	40 08.1	-43.0	16.0	42 03.3	-42.4	16.5	43 58.2	-41.8	17.0
70	35 33.0	-44.3	14.3	37 29.2	-43.8	14.7	39 25.1	-43.3	15.1	41 20.9	-42.9	15.5	43 16.4	-42.4	16.0
71	34 48.7	-44.5	13.5	36 45.4	-44.2	13.8	38 41.8	-43.7	14.2	40 38.0	-43.3	14.6	42 34.0	-42.8	15.1
72	34 04.2	-44.9	12.7	36 01.2	-44.5	13.0	37 58.1	-44.2	13.3	39 54.7	-43.7	13.7	41 51.2	-43.2	14.1
73	33 19.3	-45.1	11.9	35 16.7	-44.8	12.2	37 13.9	-44.4	12.5	39 11.0	-44.1	12.8	41 08.0	-43.7	13.2
74	32 34.2	-45.5	11.1	34 31.9	-45.2	11.3	36 29.5	-44.9	11.6	38 26.9	-44.4	11.9	40 24.3	-44.1	12.3
75	31 48.7	-45.7	10.3	33 46.7	-45.4	10.5	35 44.6	-45.1	10.8	37 42.5	-44.9	11.1	39 40.2	-44.6	11.4
76	31 03.0	-46.0	9.6	33 01.3	-45.8	9.8	34 59.5	-45.5	10.0	36 57.6	-45.2	10.3	38 55.6	-44.8	10.5
77	30 17.0	-46.3	8.8	32 15.5	-46.0	9.0	34 14.0	-45.8	9.2	36 12.4	-45.5	9.4	38 10.8	-45.3	9.7
78	29 30.7	-46.5	8.1	31 29.5	-46.3	8.2	33 28.2	-46.0	8.4	35 26.9	-45.8	8.6	37 25.5	-45.6	8.9
79	28 44.2	-46.7	7.3	30 43.2	-46.5	7.5	32 42.2	-46.3	7.7	34 41.1	-46.1	7.8	36 39.9	-45.9	8.0
80	27 57.5	-46.9	6.6	29 56.7	-46.8	6.8	31 55.9	-46.6	6.9	33 55.0	-46.4	7.1	35 54.0	-46.2	7.2
81	27 10.6	-47.1	5.9	29 09.9	-46.9	6.0	31 09.3	-46.9	6.2	33 08.6	-46.7	6.3	35 07.8	-46.5	6.5
82	26 23.5	-47.4	5.2	28 23.0	-47.3	5.3	30 22.4	-47.1	5.4	32 21.9	-47.0	5.6	34 21.3	-46.8	5.7
83	25 36.1	-47.5	4.6	27 35.7	-47.4	4.6	29 35.3	-47.3	4.7	31 34.9	-47.2	4.8	33 34.5	-47.1	4.9
84	24 48.6	-47.7	3.9	26 48.3	-47.6	3.9	28 48.0	-47.5	4.0	30 47.7	-47.4	4.1	32 47.4	-47.3	4.2
85	24 00.9	-47.9	3.2	26 00.7	-47.8	3.3	28 00.5	-47.7	3.3	30 00.3	-47.6	3.4	32 00.1	-47.6	3.5
86	23 13.0	-48.0	2.6	25 12.9	-48.0	2.6	27 12.8	-47.9	2.6	29 12.7	-47.9	2.7	31 12.5	-47.8	2.7
87	22 25.0	-48.2	1.9	24 24.9	-48.1	1.9	26 24.9	-48.2	2.0	28 24.8	-48.1	2.0	30 24.7	-48.0	2.0
88	21 36.8	-48.3	1.3	23 36.8	-48.3	1.3	25 36.7	-48.2	1.3	27 36.7	-48.2	1.3	29 36.7	-48.3	1.4
89	20 48.5	-48.5	0.6	22 48.5	-48.5	0.6	24 48.5	-48.5	0.6	26 48.5	-48.5	0.7	28 48.4	-48.4	0.7
90	20 00.0	-48.6	0.0	22 00.0	-48.6	0.0	24 00.0	-48.6	0.0	26 00.0	-48.6	0.0	28 00.0	-48.6	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 36°, 324°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 10.1 - 46.6 144.3			27 32.2 - 47.5 145.0			25 53.6 - 48.3 145.5			24 14.3 - 49.0 146.1			22 34.5 - 49.7 146.5			30
28 23.5 - 46.8 145.1			26 44.7 - 47.6 145.7			25 05.3 - 48.4 146.2			23 25.3 - 49.1 146.7			21 44.8 - 49.9 147.2			31
27 36.7 - 47.1 145.8			25 57.1 - 47.8 146.3			24 16.9 - 48.5 146.8			22 36.2 - 49.3 147.3			20 54.9 - 49.9 147.7			32
26 49.6 - 47.2 146.5			25 09.3 - 48.0 147.0			23 28.4 - 48.7 147.5			21 46.9 - 49.4 147.9			20 05.0 - 50.1 148.3			33
26 02.4 - 47.4 147.2			24 21.3 - 48.2 147.7			22 39.7 - 48.9 148.1			20 57.5 - 49.5 148.5			19 14.9 - 50.1 148.9			34
25 15.0 - 47.6 147.8			23 33.1 - 48.3 148.3			21 50.8 - 49.0 148.8			20 08.0 - 49.7 149.1			18 24.8 - 50.3 149.5			35
24 27.4 - 47.8 148.5			22 44.8 - 48.5 149.0			21 01.8 - 49.2 149.4			19 18.3 - 49.8 149.7			17 34.5 - 50.4 150.1			36
23 39.6 - 47.9 149.2			21 56.3 - 48.6 149.6			20 12.6 - 49.2 150.0			18 28.5 - 49.8 150.3			16 44.1 - 50.5 150.6			37
22 51.7 - 48.1 149.8			21 07.7 - 48.7 150.2			19 23.4 - 49.4 150.6			17 38.7 - 50.0 150.9			15 53.6 - 50.5 151.2			38
22 03.6 - 48.3 150.5			20 19.0 - 48.9 150.9			18 34.0 - 49.5 151.2			16 48.7 - 50.1 151.5			15 03.1 - 50.7 151.8			39
21 15.3 - 48.4 151.1			19 30.1 - 49.1 151.5			17 44.5 - 49.6 151.8			15 58.6 - 50.2 152.1			14 12.4 - 50.7 152.3			40
20 26.9 - 48.5 151.7			18 41.0 - 49.1 152.1			16 54.9 - 49.7 152.4			15 08.4 - 50.2 152.6			13 21.7 - 50.8 152.9			41
19 38.4 - 48.7 152.4			17 51.9 - 49.2 152.7			16 05.2 - 49.8 153.0			14 18.2 - 50.4 153.2			12 30.9 - 50.8 153.4			42
18 49.7 - 48.8 153.0			17 02.7 - 49.4 153.3			15 15.4 - 49.9 153.5			13 27.8 - 50.4 153.8			11 40.1 - 50.9 154.0			43
18 00.9 - 48.9 153.6			16 13.3 - 49.4 153.9			14 25.5 - 50.0 154.1			12 37.4 - 50.5 154.3			10 49.2 - 51.0 154.5			44
17 12.0 - 49.0 154.2			15 23.9 - 49.6 154.5			13 35.5 - 50.1 154.7			11 46.9 - 50.1 154.9			9 58.2 - 51.0 155.0			45
16 23.0 - 49.1 154.8			14 34.3 - 49.6 155.0			12 45.4 - 50.1 155.3			10 56.4 - 50.6 155.4			9 07.2 - 51.1 155.6			46
15 33.9 - 49.2 155.4			13 44.7 - 49.7 155.6			11 55.3 - 50.2 155.8			10 05.8 - 50.7 156.0			8 16.1 - 51.1 156.1			47
14 44.7 - 49.3 156.0			12 55.0 - 49.8 156.2			11 05.1 - 50.2 156.4			9 15.1 - 50.7 156.5			7 25.0 - 51.1 156.6			48
13 55.4 - 49.4 156.6			12 05.2 - 49.8 156.8			10 14.9 - 50.3 156.9			8 24.4 - 50.7 157.1			6 33.9 - 51.2 157.2			49
13 06.0 - 49.4 157.2			11 15.4 - 50.0 157.3			9 24.6 - 50.4 157.5			7 33.7 - 50.8 157.6			5 42.7 - 51.2 157.7			50
12 16.6 - 49.5 157.8			10 25.4 - 49.9 157.9			8 34.2 - 50.4 158.0			6 42.9 - 50.8 158.1			4 51.5 - 51.2 158.2			51
11 27.1 - 49.6 158.3			9 35.5 - 50.1 158.5			7 43.8 - 50.4 158.6			5 52.1 - 50.9 158.7			4 00.3 - 51.3 158.7			52
10 37.5 - 49.7 158.9			8 45.4 - 50.0 159.0			6 53.4 - 50.5 159.1			5 01.2 - 50.9 159.2			3 09.0 - 51.3 159.3			53
9 47.8 - 49.7 159.5			7 55.4 - 50.2 159.6			6 02.9 - 50.5 159.7			4 10.3 - 50.9 159.7			2 17.7 - 51.2 159.8			54
8 58.1 - 49.8 160.0			7 05.2 - 50.1 160.1			5 12.4 - 50.6 160.2			3 19.4 - 50.6 160.3			1 26.5 - 51.3 160.3			55
8 08.3 - 49.8 160.6			6 15.1 - 50.2 160.7			4 21.8 - 50.6 160.8			2 28.5 - 50.9 160.8			0 35.2 - 51.3 160.8			56
7 18.5 - 49.9 161.2			5 24.9 - 50.2 161.2			3 31.2 - 50.5 161.3			1 37.6 - 51.0 161.3			0 16.1 + 51.3 18.7			57
6 28.6 - 49.9 161.7			4 34.7 - 50.3 161.8			2 40.7 - 50.6 161.8			0 46.6 - 50.9 161.8			1 07.4 + 51.3 18.2			58
5 38.7 - 49.9 162.3			3 44.4 - 50.3 162.3			1 50.1 - 50.6 162.4			0 04.3 + 50.9 17.6			1 58.7 + 51.2 17.6			59
4 48.8 - 49.9 162.8			2 54.1 - 50.2 162.9			0 59.5 - 50.7 162.9			0 55.2 + 51.0 17.1			2 49.9 + 51.3 17.1			60
3 58.9 - 50.0 163.4			2 03.9 - 50.3 163.4			0 08.8 - 50.6 163.4			1 46.2 + 50.9 16.6			3 41.2 + 51.2 16.6			61
3 08.9 - 50.0 164.0			1 13.6 - 50.3 164.0			0 41.8 + 50.6 16.0			2 37.1 + 50.9 16.0			4 32.4 + 51.3 16.1			62
2 18.9 - 50.0 164.5			0 23.3 - 50.4 164.5			1 32.4 + 50.6 15.5			3 28.0 + 50.9 15.5			5 23.7 + 51.1 15.5			63
1 28.9 - 50.0 165.1			0 27.1 + 50.3 14.9			2 23.0 + 50.6 14.9			4 18.9 + 50.9 15.0			6 14.8 + 51.2 15.0			64
0 38.9 - 50.0 165.6			1 17.4 + 50.3 14.4			3 13.6 + 50.6 14.4			5 09.8 + 50.9 14.4			7 06.0 + 51.1 14.5			65
0 11.1 + 50.0 13.8			2 07.7 + 50.2 13.8			4 04.2 + 50.5 13.9			6 00.7 + 50.8 13.9			7 57.1 + 51.1 14.0			66
1 01.1 + 50.1 13.3			2 57.9 + 50.3 13.3			4 54.7 + 50.5 13.3			6 51.5 + 50.8 13.4			8 48.2 + 51.0 13.4			67
1 51.2 + 50.0 12.7			3 48.2 + 50.3 12.7			5 45.2 + 50.5 12.8			7 42.3 + 50.7 12.8			9 39.2 + 51.0 12.9			68
2 41.2 + 49.9 12.2			4 38.5 + 50.2 12.2			6 35.7 + 50.5 12.2			8 33.0 + 50.7 12.3			10 30.2 + 51.0 12.4			69
3 31.1 + 50.0 11.6			5 28.7 + 50.2 11.7			7 26.2 + 50.4 11.7			9 23.7 + 50.6 11.8			11 21.2 + 50.8 11.8			70
4 21.1 + 49.9 11.1			6 18.9 + 50.1 11.1			8 16.6 + 50.4 11.2			10 14.3 + 50.6 11.2			12 12.0 + 50.8 11.3			71
5 11.0 + 50.0 10.5			7 09.0 + 50.1 10.5			9 07.0 + 50.3 10.6			11 04.9 + 50.6 10.7			13 02.8 + 50.8 10.7			72
6 01.0 + 49.8 10.0			7 59.1 + 50.1 10.0			9 57.3 + 50.3 10.0			11 55.5 + 50.4 10.1			13 53.6 + 50.7 10.2			73
6 50.8 + 49.9 9.4			8 49.2 + 50.0 9.4			10 47.6 + 50.2 9.5			12 45.9 + 50.4 9.6			14 44.3 + 50.5 9.6			74
7 40.7 + 49.8 8.8			9 39.2 + 50.0 8.9			11 37.8 + 50.1 8.9			13 36.3 + 50.4 9.0			15 34.8 + 50.5 9.1			75
8 30.5 + 49.7 8.3			10 29.2 + 49.9 8.3			12 27.9 + 50.1 8.4			14 26.7 + 50.2 8.4			16 25.3 + 50.5 8.5			76
9 20.2 + 49.7 7.7			11 19.1 + 49.9 7.7			13 18.0 + 50.0 7.8			15 16.9 + 50.2 7.9			17 15.8 + 50.3 8.0			77
10 09.9 + 49.6 7.1			12 09.0 + 49.8 7.2			14 08.0 + 49.9 7.2			16 07.1 + 50.0 7.3			18 06.1 + 50.2 7.4			78
10 59.5 + 49.6 6.6			12 58.8 + 49.7 6.6			14 57.9 + 49.9 6.7			16 57.1 + 50.0 6.7			18 56.3 + 50.1 6.8			79
11 49.1 + 49.5 6.0			13 48.5 + 49.6 6.0			15 47.8 + 49.7 6.1			17 47.1 + 49.9 6.2			19 46.4 + 50.0 6.2			80
12 38.6 + 49.4 5.4			14 38.1 + 49.5 5.5			16 37.5 + 49.7 5.5			18 37.0 + 49.7 5.6			20 36.4 + 49.9 5.6			81
13 28.0 + 49.4 4.8			15 27.6 + 49.4 4.9			17 27.2 + 49.5 4.9			19 26.7 + 49.7 5.0			21 26.3 + 49.7 5.0			82
14 17.4 + 49.2 4.2			16 17.0 + 49.4 4.3			18 16.7 + 49.4 4.3			20 16.4 + 49.5 4.4			22 16.0 + 49.6 4.4			83
15 06.6 + 49.2 3.6			17 06.4 + 49.2 3.7			19 06.1 + 49.3 3.7			21 05.9 + 49.4 3.8			23 05.6 + 49.5 3.8			84
15 55.8 + 49.1 3.1			17 55.6 + 49.1 3.1			19 55.4 + 49.2 3.1			21 55.3 + 49.2 3.2			23 55.1 + 49.3 3.2			85
16 44.9 + 48.9 2.5			18 44.7 + 49.1 2.5			20 44.6 + 49.1 2.5			22 44.5 + 49.1 2.5			24 44.4 + 49.2 2.6			86
17 33.8 + 48.9 1.8			19 33.8 + 48.8 1.9			21 33.7 + 48.9 1.9			23 33.6 + 49.0 1.9			25 33.6 + 48.9 2.0			87
18 22.7 + 48.7 1.2			20 22.6 + 48.8 1.3			22 22.6 + 48.8 1.3			24 22.6 + 48.8 1.3			26 22.5 + 48.9 1.3			88
19 11.4 + 48.6 0.6			21 11.4 + 48.6 0.6			23 11.4 + 48.6 0.6			25 11.4 + 48.6 0.6			27 11.4 + 48.6 0.7			89
20 00.0 + 48.5 0.0			22 00.0 + 48.5 0.0			24 00.0 + 48.5 0.0			26 00.0 + 48.5 0.0			28 00.0 + 48.4 0.0			90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 144°, 216°

38°, 322° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	43 02.1	-32.7	46.8	44 23.1	-30.9	48.3	45 41.8	-29.0	49.8	46 58.0	-26.9	51.4	48 11.5	-24.7	53.1
31	42 29.4	-33.4	45.7	43 52.2	-31.7	47.1	45 12.8	-29.8	48.5	46 31.1	-27.8	50.1	47 46.8	-25.7	51.8
32	41 56.0	-34.0	44.6	43 20.5	-32.3	45.9	44 43.0	-30.5	47.3	46 03.3	-28.7	48.8	47 21.1	-26.7	50.4
33	41 22.0	-34.6	43.5	42 48.2	-33.0	44.7	44 12.5	-31.3	46.1	45 34.6	-29.5	47.5	46 54.4	-27.5	49.1
34	40 47.4	-35.2	42.4	42 15.2	-33.7	43.6	43 41.2	-32.1	44.9	45 05.1	-30.2	46.3	46 26.9	-28.4	47.8
35	40 12.2	-35.8	41.3	41 41.5	-34.3	42.5	43 09.1	-32.7	43.7	44 34.9	-31.1	45.1	45 58.5	-29.2	46.5
36	39 36.4	-36.3	40.3	41 07.2	-34.9	41.4	42 36.4	-33.4	42.6	44 03.8	-31.7	43.9	45 29.3	-30.0	45.3
37	39 00.1	-36.9	39.2	40 32.3	-35.5	40.3	42 03.0	-34.0	41.5	43 32.1	-32.5	42.7	44 59.3	-30.8	44.0
38	38 23.2	-37.4	38.2	39 56.8	-36.1	39.3	41 29.0	-34.7	40.4	42 59.6	-33.2	41.6	44 28.5	-31.5	42.8
39	37 45.8	-37.9	37.2	39 20.7	-36.6	38.2	40 54.3	-35.3	39.3	42 26.4	-33.8	40.4	43 57.0	-32.3	41.6
40	37 07.9	-38.3	36.3	38 44.1	-37.2	37.2	40 19.0	-35.8	38.2	41 52.6	-34.4	39.3	43 24.7	-33.0	40.5
41	36 29.6	-38.9	35.3	38 06.9	-37.6	36.2	39 43.2	-36.4	37.2	41 18.2	-35.1	38.2	42 51.7	-33.6	39.3
42	35 50.7	-39.2	34.4	37 29.3	-38.1	35.2	39 06.8	-36.9	36.1	40 43.1	-35.7	37.1	42 18.1	-34.3	38.2
43	35 11.5	-39.7	33.4	36 51.2	-38.6	34.2	38 29.9	-37.5	35.1	40 07.4	-36.2	36.1	41 43.8	-34.9	37.1
44	34 31.8	-40.0	32.5	36 12.9	-39.0	33.3	37 52.4	-37.9	34.1	39 31.2	-36.7	35.0	41 08.9	-35.5	36.0
45	33 51.8	-40.5	31.6	35 33.6	-39.5	32.4	37 14.5	-38.4	33.2	38 54.5	-37.3	34.0	40 33.4	-36.1	35.0
46	33 11.3	-40.8	30.7	34 54.1	-39.9	31.4	36 36.1	-38.9	32.2	38 17.2	-37.8	33.0	39 57.3	-36.7	33.9
47	32 30.5	-41.2	29.9	34 14.2	-40.2	30.5	35 57.2	-39.3	31.2	37 39.4	-38.3	32.0	39 20.6	-37.1	32.9
48	31 49.3	-41.5	29.0	33 34.0	-40.7	29.6	35 17.9	-39.7	30.3	37 01.1	-38.7	31.1	38 43.5	-37.7	31.9
49	31 07.8	-41.8	28.2	32 53.3	-41.0	28.8	34 38.2	-40.1	29.4	36 22.4	-39.2	30.1	38 05.8	-38.2	30.9
50	30 26.0	-42.2	27.3	32 12.3	-41.4	27.9	33 58.1	-40.5	28.5	35 43.2	-39.6	29.2	37 27.6	-38.7	29.9
51	29 43.8	-42.5	26.5	31 30.9	-41.7	27.0	33 17.6	-40.9	27.6	35 03.6	-40.0	28.3	36 48.9	-39.1	28.9
52	29 01.3	-42.7	25.7	30 49.2	-42.0	26.2	32 36.7	-41.3	26.7	34 23.6	-40.5	27.3	36 09.8	-39.5	28.0
53	28 18.6	-43.0	24.9	30 07.2	-42.3	25.4	31 55.4	-41.6	25.9	33 43.1	-40.8	26.5	35 30.3	-40.0	27.1
54	27 35.6	-43.3	24.1	29 24.9	-42.6	24.5	31 13.8	-41.9	25.0	33 02.3	-41.1	25.6	34 50.3	-40.4	26.2
55	26 52.3	-43.6	23.3	28 42.3	-42.9	23.7	30 31.9	-42.2	24.2	32 21.2	-41.5	24.7	34 09.9	-40.7	25.3
56	26 08.7	-43.8	22.6	27 59.4	-43.2	22.9	29 49.7	-42.5	23.4	31 39.7	-41.9	23.9	33 29.2	-41.1	24.4
57	25 24.9	-44.0	21.8	27 16.2	-43.4	22.2	29 07.2	-42.8	22.6	30 57.8	-42.1	23.0	32 48.1	-41.5	23.5
58	24 40.9	-44.2	21.0	26 32.8	-43.7	21.4	28 24.4	-43.1	21.8	30 15.7	-42.5	22.2	32 06.6	-41.8	22.7
59	23 56.7	-44.5	20.3	25 49.1	-43.9	20.6	27 41.3	-43.4	21.0	29 33.2	-42.8	21.4	31 24.8	-42.2	21.8
60	23 12.2	-44.6	19.6	25 05.2	-44.1	19.9	26 57.9	-43.6	20.2	28 50.4	-43.0	20.6	30 42.6	-42.4	21.0
61	22 27.6	-44.9	18.8	24 21.1	-44.4	19.1	26 14.3	-43.8	19.4	28 07.4	-43.3	19.8	30 00.2	-42.8	20.2
62	21 42.7	-45.0	18.1	23 36.7	-44.6	18.4	25 30.5	-44.1	18.7	27 24.1	-43.6	19.0	29 17.4	-43.0	19.4
63	20 57.7	-45.2	17.4	22 52.1	-44.7	17.7	24 46.4	-44.3	17.9	26 40.5	-43.8	18.2	28 34.4	-43.4	18.6
64	20 12.5	-45.3	16.7	22 07.4	-45.0	16.9	24 02.1	-44.5	17.2	25 56.7	-44.1	17.5	27 51.0	-43.5	17.8
65	19 27.2	-45.6	16.0	21 22.4	-45.1	16.2	23 17.6	-44.7	16.5	25 12.6	-44.3	16.7	27 07.5	-43.9	17.0
66	18 41.6	-45.6	15.3	20 37.3	-45.3	15.5	22 32.9	-44.9	15.7	24 28.3	-44.5	16.0	26 23.6	-44.1	16.2
67	17 56.0	-45.8	14.6	19 52.0	-45.4	14.8	21 48.0	-45.1	15.0	23 43.8	-44.7	15.2	25 39.5	-44.3	15.5
68	17 10.2	-46.0	14.0	19 06.6	-45.6	14.1	21 02.9	-45.3	14.3	22 59.1	-44.9	14.5	24 55.2	-44.5	14.7
69	16 24.2	-46.1	13.3	18 21.0	-45.8	13.4	20 17.6	-45.4	13.6	22 14.2	-45.1	13.8	24 10.7	-44.7	14.0
70	15 38.1	-46.2	12.6	17 35.2	-45.9	12.8	19 32.2	-45.6	12.9	21 29.1	-45.2	13.1	23 26.0	-45.0	13.3
71	14 51.9	-46.3	12.0	16 49.3	-46.0	12.1	18 46.6	-45.7	12.2	20 43.9	-45.5	12.4	22 41.0	-45.1	12.5
72	14 05.6	-46.4	11.3	16 03.3	-46.2	11.4	18 00.9	-45.9	11.5	19 58.4	-45.6	11.7	21 55.9	-45.3	11.8
73	13 19.2	-46.5	10.7	15 17.1	-46.2	10.8	17 15.0	-46.0	10.9	19 12.8	-45.7	11.0	21 10.6	-45.5	11.1
74	12 32.7	-46.6	10.0	14 30.9	-46.4	10.1	16 29.0	-46.2	10.2	18 27.1	-45.9	10.3	20 25.1	-45.6	10.4
75	11 46.1	-46.7	9.4	13 44.5	-46.5	9.4	15 42.8	-46.2	9.5	17 41.2	-46.1	9.6	19 39.5	-45.9	9.7
76	10 59.4	-46.8	8.7	12 58.0	-46.6	8.8	14 56.6	-46.4	8.9	16 55.1	-46.1	9.0	18 53.6	-45.9	9.1
77	10 12.6	-46.8	8.1	12 11.4	-46.6	8.1	14 10.2	-46.5	8.2	16 09.0	-46.3	8.3	18 07.7	-46.1	8.4
78	9 25.8	-46.9	7.5	11 24.8	-46.8	7.5	13 23.7	-46.6	7.6	15 22.7	-46.4	7.6	17 21.6	-46.2	7.7
79	8 38.9	-47.0	6.8	10 38.0	-46.8	6.9	12 37.1	-46.6	6.9	14 36.3	-46.6	7.0	16 35.4	-46.4	7.0
80	7 51.9	-47.0	6.2	9 51.2	-46.9	6.2	11 50.5	-46.8	6.3	13 49.7	-46.6	6.3	15 49.0	-46.5	6.4
81	7 04.9	-47.1	5.6	9 04.3	-47.0	5.6	11 03.7	-46.8	5.6	13 03.1	-46.7	5.7	15 02.5	-46.5	5.7
82	6 17.8	-47.1	4.9	8 17.3	-47.0	5.0	10 16.9	-46.9	5.0	12 16.4	-46.8	5.0	14 16.0	-46.7	5.1
83	5 30.7	-47.2	4.3	7 30.3	-47.1	4.3	9 30.0	-47.0	4.4	11 29.6	-46.9	4.4	13 29.3	-46.8	4.4
84	4 43.5	-47.2	3.7	6 43.2	-47.1	3.7	8 43.0	-47.1	3.7	10 42.7	-46.9	3.8	12 42.5	-46.9	3.8
85	3 56.3	-47.2	3.1	5 56.1	-47.1	3.1	7 55.9	-47.1	3.1	9 55.8	-47.1	3.1	11 55.6	-47.0	3.1
86	3 09.1	-47.3	2.5	5 09.0	-47.2	2.5	7 08.8	-47.1	2.5	9 08.7	-47.1	2.5	11 08.6	-47.0	2.5
87	2 21.8	-47.2	1.8	4 21.8	-47.3	1.9	6 21.7	-47.2	1.9	8 21.6	-47.1	1.9	10 21.6	-47.2	1.9
88	1 34.6	-47.3	1.2	3 34.5	-47.2	1.2	5 34.5	-47.2	1.2	7 34.5	-47.2	1.2	9 34.4	-47.1	1.2
89	0 47.3	-47.3	0.6	2 47.3	-47.3	0.6	4 47.3	-47.3	0.6	6 47.3	-47.3	0.6	8 47.3	-47.3	0.6
90	0 00.0	-47.3	0.0	2 00.0	-47.3	0.0	4 00.0	-47.3	0.0	6 00.0	-47.3	0.0	8 00.0	-47.3	0.0

0°

2°

4°

6°

8°

LATITUDE CONTRARY NAME

L.H.A. 38°, 322°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
43	02.1	-32.7 133.2	41	39.0	-34.4 134.5	40	14.0	-35.9 135.7	38	47.3	-37.4 136.8	37	19.0	-38.8 137.9	30
42	29.4	-33.4 134.3	41	04.6	-35.0 135.6	39	38.1	-36.5 136.7	38	09.9	-37.9 137.8	36	40.2	-39.2 138.9	31
41	56.0	-34.0 135.4	40	29.6	-35.5 136.6	39	01.6	-37.0 137.8	37	32.0	-38.4 138.8	36	01.0	-39.7 139.8	32
41	22.0	-34.6 136.5	39	54.1	-36.1 137.7	38	24.6	-37.5 138.8	36	53.6	-38.8 139.8	35	21.3	-40.0 140.7	33
40	47.4	-35.2 137.6	39	18.0	-36.7 138.7	37	47.1	-38.0 139.8	36	14.8	-39.3 140.7	34	41.3	-40.5 141.6	34
40	12.2	-35.8 138.7	38	41.3	-37.1 139.8	37	09.1	-38.5 140.7	35	35.5	-39.7 141.7	34	00.8	-40.8 142.5	35
39	36.4	-36.3 139.7	38	04.2	-37.7 140.8	36	30.6	-38.9 141.7	34	55.8	-40.1 142.6	33	20.0	-41.2 143.4	36
39	00.1	-36.9 140.8	37	26.5	-38.2 141.7	35	51.7	-39.4 142.6	34	15.7	-40.5 143.5	32	38.8	-41.6 144.3	37
38	23.2	-37.4 141.8	36	48.3	-38.6 142.7	35	12.3	-39.8 143.6	33	35.2	-40.8 144.4	31	57.2	-41.9 145.1	38
37	45.8	-37.9 142.8	36	09.7	-39.1 143.7	34	32.5	-40.2 144.5	32	54.4	-41.3 145.3	31	15.3	-42.2 146.0	39
37	07.9	-38.3 143.7	35	30.6	-39.5 144.6	33	52.3	-40.5 145.4	32	13.1	-41.5 146.1	30	33.1	-42.5 146.8	40
36	29.6	-38.9 144.7	34	51.1	-39.9 145.5	33	11.8	-41.0 146.3	31	31.6	-42.0 147.0	29	50.6	-42.8 147.6	41
35	50.7	-39.2 145.6	34	11.2	-40.3 146.4	32	30.8	-41.3 147.1	30	49.6	-42.2 147.8	29	07.8	-43.2 148.4	42
35	11.5	-39.7 146.6	33	30.9	-40.6 147.3	31	49.5	-41.6 148.0	30	07.4	-42.5 148.6	28	24.6	-43.3 149.2	43
34	31.8	-40.0 147.5	32	50.3	-41.1 148.2	31	07.9	-41.9 148.8	29	24.9	-42.8 149.4	27	41.3	-43.7 150.0	44
33	51.8	-40.5 148.4	32	09.2	-41.4 149.1	30	26.0	-42.3 149.7	28	42.1	-43.1 150.2	26	57.6	-43.9 150.8	45
33	11.3	-40.8 149.3	31	27.8	-41.7 149.9	29	43.7	-42.6 150.5	27	59.0	-43.4 151.0	26	13.7	-44.1 151.5	46
32	30.5	-41.2 150.1	30	46.1	-42.0 150.7	29	01.1	-42.8 151.3	27	15.6	-43.6 151.8	25	29.6	-44.4 152.3	47
31	49.3	-41.5 151.0	30	04.1	-42.4 151.6	28	18.3	-43.2 152.1	26	32.0	-43.9 152.6	24	45.2	-44.5 153.0	48
31	07.8	-41.8 151.8	29	21.7	-42.6 152.4	27	35.1	-43.3 152.9	25	48.1	-44.1 153.3	24	00.7	-44.8 153.8	49
30	26.0	-42.2 152.7	28	39.1	-42.9 153.2	26	51.8	-43.7 153.7	25	04.0	-44.0 154.1	23	15.9	-45.0 154.5	50
29	43.8	-42.5 153.5	27	56.2	-43.2 154.0	26	08.1	-43.9 154.4	24	19.7	-44.6 154.8	22	30.9	-45.2 155.2	51
29	01.3	-42.7 154.3	27	13.0	-43.5 154.8	25	24.2	-44.1 155.2	23	35.1	-44.7 155.6	21	45.7	-45.3 155.9	52
28	18.6	-43.0 155.1	26	29.5	-43.7 155.5	24	40.1	-44.3 155.9	22	50.4	-44.9 156.3	21	00.4	-45.5 156.6	53
27	35.6	-43.3 155.9	25	45.8	-43.9 156.3	23	55.8	-44.5 156.7	22	05.5	-45.2 157.0	20	14.9	-45.7 157.3	54
26	52.3	-43.6 156.7	25	01.9	-44.1 157.1	23	11.3	-44.8 157.4	21	20.3	-45.3 157.7	19	29.2	-45.9 158.0	55
26	08.7	-43.8 157.4	24	17.8	-44.4 157.8	22	26.5	-44.9 158.1	20	35.0	-45.4 158.4	18	43.3	-45.9 158.7	56
25	24.9	-44.0 158.2	23	33.4	-44.6 158.5	21	41.6	-45.1 158.8	19	49.6	-45.7 159.1	17	57.4	-46.2 159.4	57
24	40.9	-44.2 159.0	22	48.8	-44.8 159.3	20	56.5	-45.3 159.6	19	03.9	-45.8 159.8	17	11.2	-46.2 160.0	58
23	56.7	-44.5 159.7	22	04.0	-44.9 160.0	20	11.2	-45.5 160.3	18	18.1	-45.9 160.5	16	25.0	-46.4 160.7	59
23	12.2	-44.6 160.4	21	19.1	-45.2 160.7	19	25.7	-45.6 160.9	17	32.2	-46.0 161.2	15	38.6	-46.5 161.4	60
22	27.6	-44.9 161.2	20	33.9	-45.3 161.4	18	40.1	-45.7 161.6	16	46.2	-46.2 161.8	14	52.1	-46.6 162.0	61
21	42.7	-45.0 161.9	19	48.6	-45.4 162.1	17	54.4	-45.9 162.3	16	00.0	-46.3 162.5	14	05.5	-46.7 162.7	62
20	57.7	-45.2 162.6	19	03.2	-45.7 162.8	17	08.5	-46.1 163.0	15	13.7	-46.5 163.2	13	18.8	-46.9 163.3	63
20	12.5	-45.3 163.3	18	17.5	-45.7 163.5	16	22.4	-46.1 163.7	14	27.2	-46.5 163.8	12	31.9	-46.9 164.0	64
19	27.2	-45.6 164.0	17	31.8	-45.9 164.2	15	36.3	-46.3 164.3	13	40.7	-46.6 164.5	11	45.0	-46.9 164.6	65
18	41.6	-45.6 164.7	16	45.9	-46.1 164.8	14	50.0	-46.4 165.0	12	54.1	-46.8 165.1	10	58.1	-47.1 165.2	66
17	56.0	-45.8 165.4	15	59.8	-46.1 165.5	14	03.6	-46.5 165.6	12	07.3	-46.8 165.8	10	11.0	-47.2 165.9	67
17	10.2	-46.0 166.0	15	13.7	-46.3 166.2	13	17.1	-46.6 166.3	11	20.5	-46.9 166.4	9	23.8	-47.2 166.5	68
16	24.2	-46.1 166.7	14	27.4	-46.4 166.8	12	30.5	-46.7 166.9	10	33.6	-47.0 167.0	8	36.6	-47.2 167.1	69
15	38.1	-46.2 167.4	13	41.0	-46.5 167.5	11	43.8	-46.7 167.6	9	46.6	-47.0 167.7	7	49.4	-47.3 167.7	70
14	51.9	-46.3 168.0	12	54.5	-46.6 168.1	10	57.1	-46.9 168.2	8	59.6	-47.1 168.3	7	02.1	-47.4 168.3	71
14	05.6	-46.4 168.7	12	07.9	-46.6 168.8	10	10.2	-46.9 168.9	8	12.5	-47.2 168.9	6	14.7	-47.4 169.0	72
13	19.2	-46.5 169.3	11	21.3	-46.8 169.4	9	23.3	-47.0 169.5	7	25.3	-47.2 169.5	5	27.3	-47.5 169.6	73
12	32.7	-46.6 170.0	10	34.5	-46.8 170.1	8	36.3	-47.0 170.1	6	38.1	-47.3 170.2	4	39.8	-47.4 170.2	74
11	46.1	-46.7 170.6	9	47.7	-46.9 170.7	7	49.3	-47.2 170.7	5	50.8	-47.3 170.8	3	52.4	-47.6 170.8	75
10	59.4	-46.8 171.3	9	00.8	-47.0 171.3	7	02.1	-47.1 171.4	5	03.5	-47.3 171.4	3	04.8	-47.5 171.4	76
10	12.6	-46.8 171.9	8	13.8	-47.0 172.0	6	15.0	-47.2 172.0	4	16.2	-47.4 172.0	2	17.3	-47.5 172.0	77
9	25.8	-46.9 172.5	7	26.8	-47.1 172.6	5	27.8	-47.2 172.6	3	28.8	-47.4 172.6	1	29.8	-47.6 172.6	78
8	38.9	-47.0 173.2	6	39.7	-47.1 173.2	4	40.6	-47.3 173.2	2	41.4	-47.4 173.2	0	42.2	-47.5 173.3	79
7	51.9	-47.0 173.8	5	52.6	-47.2 173.8	3	53.3	-47.3 173.8	1	54.0	-47.5 173.9	0	05.3	+47.6 173.9	80
7	04.9	-47.1 174.4	5	05.4	-47.2 174.5	3	06.0	-47.3 174.5	1	06.5	-47.4 174.5	0	05.2	+47.6 174.5	81
6	17.8	-47.1 175.1	4	18.2	-47.2 175.1	2	18.7	-47.4 175.1	0	19.1	-47.4 175.1	1	40.5	+47.5 175.1	82
5	30.7	-47.2 175.7	3	31.0	-47.3 175.7	1	31.3	-47.3 175.7	0	28.3	+47.5 175.7	2	28.0	+47.5 175.7	83
4	43.5	-47.2 176.3	2	43.7	-47.2 176.3	0	44.0	-47.4 176.3	1	15.8	+47.4 176.3	3	15.5	+47.5 176.3	84
3	56.3	-47.2 176.9	1	56.5	-47.3 176.9	0	03.4	+47.3 176.9	2	03.2	+47.4 176.9	4	03.0	+47.5 176.9	85
3	09.1	-47.3 177.5	1	09.2	-47.3 177.5	0	50.7	+47.4 177.5	2	50.6	+47.4 177.5	4	50.5	+47.4 177.5	86
2	21.8	-47.2 178.2	0	21.9	-47.3 178.2	1	38.1	+47.3 178.2	3	38.0	+47.4 178.2	5	37.9	+47.4 178.2	87
1	34.6	-47.3 178.8	0	25.4	+47.3 178.8	2	25.4	+47.3 178.8	4	25.4	+47.3 178.8	6	25.3	+47.4 178.8	88
0	47.3	-47.3 179.4	1	12.7	+47.3 179.4	3	12.7	+47.3 179.4	5	12.7	+47.3 179.4	7	12.7	+47.3 179.4	89
0	00.0	+47.3 0.0	2	00.0	+47.3 0.0	4	00.0	+47.3 0.0	6	00.0	+47.3 0.0	8	00.0	+47.3 0.0	90

LATITUDE SAME NAME

L.H.A. 142°, 218°

38°, 322° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	49 22.0	-22.4	55.0	50 29.2	-19.9	56.9	51 32.9	-17.3	59.0	52 32.6	-14.4	61.2	53 28.2	-11.5	63.6
31	48 59.6	-23.5	53.5	50 09.3	-21.0	55.5	51 15.6	-18.5	57.5	52 18.2	-15.8	59.7	53 16.7	-12.8	62.0
32	48 36.1	-24.4	52.1	49 48.3	-22.2	54.0	50 57.1	-19.6	56.0	52 02.4	-16.9	58.1	53 03.9	-14.1	60.3
33	48 11.7	-25.4	50.8	49 26.1	-23.1	52.6	50 37.5	-20.8	54.5	51 45.5	-18.2	56.5	52 49.8	-15.5	58.7
34	47 46.3	-26.4	49.4	49 03.0	-24.2	51.1	50 16.7	-21.8	53.0	51 27.3	-19.4	55.0	52 34.3	-16.7	57.1
35	47 19.9	-27.2	48.1	48 38.8	-25.2	49.8	49 54.9	-22.9	51.6	51 07.9	-20.5	53.5	52 17.6	-18.0	55.5
36	46 52.7	-28.2	46.8	48 13.6	-26.1	48.4	49 32.0	-24.0	50.1	50 47.4	-21.7	52.0	51 59.6	-19.1	54.0
37	46 24.5	-29.0	45.5	47 47.5	-27.1	47.0	49 08.0	-25.0	48.7	50 25.7	-22.7	50.5	51 40.5	-20.4	52.5
38	45 55.5	-29.8	44.2	47 20.4	-27.9	45.7	48 43.0	-25.9	47.3	50 03.0	-23.8	49.1	51 20.1	-21.5	50.9
39	45 25.7	-30.6	43.0	46 52.5	-28.8	44.4	48 17.1	-26.9	46.0	49 39.2	-24.8	47.6	50 58.6	-22.6	49.5
40	44 55.1	-31.4	41.8	46 23.7	-29.7	43.1	47 50.2	-27.9	44.6	49 14.4	-25.9	46.2	50 36.0	-23.7	48.0
41	44 23.7	-32.1	40.6	45 54.0	-30.5	41.9	47 22.3	-28.7	43.3	48 48.5	-26.8	44.9	50 12.3	-24.7	46.5
42	43 51.6	-32.8	39.4	45 23.5	-31.2	40.7	46 53.6	-29.5	42.0	48 21.7	-27.7	43.5	49 47.6	-25.8	45.1
43	43 18.8	-33.5	38.2	44 52.3	-32.0	39.4	46 24.1	-30.4	40.8	47 54.0	-28.7	42.2	49 21.8	-26.7	43.7
44	42 45.3	-34.2	37.1	44 20.3	-32.8	38.3	45 53.7	-31.2	39.5	47 25.3	-29.5	40.9	48 55.1	-27.8	42.4
45	42 11.1	-34.8	36.0	43 47.5	-33.4	37.1	45 22.5	-31.9	38.3	46 55.8	-30.3	39.6	48 27.3	-28.6	41.0
46	41 36.3	-35.4	34.9	43 14.1	-34.1	35.9	44 50.6	-32.7	37.1	46 25.5	-31.2	38.3	47 58.7	-29.5	39.7
47	41 00.9	-36.0	33.8	42 40.0	-34.7	34.8	44 17.9	-33.4	35.9	45 54.3	-31.9	37.1	47 29.2	-30.4	38.4
48	40 24.9	-36.6	32.8	42 05.3	-35.4	33.7	43 44.5	-34.1	34.8	45 22.4	-32.7	35.9	46 58.8	-31.2	37.1
49	39 48.3	-37.1	31.7	41 29.9	-36.0	32.6	43 10.4	-34.8	33.6	44 49.7	-33.4	34.7	46 27.6	-32.0	35.9
50	39 11.2	-37.6	30.7	40 53.9	-36.5	31.6	42 35.6	-35.3	32.5	44 16.3	-34.2	33.6	45 55.6	-32.8	34.7
51	38 33.6	-38.2	29.7	40 17.4	-37.1	30.5	42 00.3	-36.0	31.4	43 42.1	-34.8	32.4	45 22.8	-33.5	33.5
52	37 55.4	-38.6	28.7	39 40.3	-37.7	29.5	41 24.3	-36.6	30.4	43 07.3	-35.4	31.3	44 49.3	-34.2	32.3
53	37 16.8	-39.1	27.8	39 02.6	-38.1	28.5	40 47.7	-37.1	29.3	42 31.9	-36.0	30.2	44 15.1	-34.9	31.1
54	36 37.7	-39.5	26.8	38 24.5	-38.6	27.5	40 10.6	-37.7	28.3	41 55.9	-36.7	29.1	43 40.2	-35.5	30.0
55	35 58.2	-40.0	25.9	37 45.9	-39.1	26.5	39 32.9	-38.2	27.3	41 19.2	-37.2	28.0	43 04.7	-36.2	28.9
56	35 18.2	-40.3	25.0	37 06.8	-39.6	25.6	38 54.7	-38.7	26.3	40 42.0	-37.8	27.0	42 28.5	-36.8	27.8
57	34 37.9	-40.8	24.0	36 27.2	-40.0	24.6	38 16.0	-39.2	25.3	40 04.2	-38.3	26.0	41 51.7	-37.3	26.8
58	33 57.1	-41.1	23.2	35 47.2	-40.4	23.7	37 36.8	-39.6	24.3	39 25.9	-38.8	25.0	41 14.4	-38.0	25.7
59	33 16.0	-41.5	22.3	35 06.8	-40.8	22.8	36 57.2	-40.1	23.4	38 47.1	-39.3	24.0	40 36.4	-38.4	24.7
60	32 34.5	-41.8	21.4	34 26.0	-41.2	21.9	36 17.1	-40.4	22.5	38 07.8	-39.7	23.0	39 58.0	-39.0	23.7
61	31 52.7	-42.2	20.6	33 44.8	-41.5	21.0	35 36.7	-40.9	21.5	37 28.1	-40.2	22.1	39 19.0	-39.4	22.7
62	31 10.5	-42.5	19.7	33 03.3	-41.9	20.2	34 55.8	-41.3	20.6	36 47.9	-40.7	21.2	38 39.6	-40.0	21.7
63	30 28.0	-42.8	18.9	32 21.4	-42.3	19.3	34 14.5	-41.7	19.8	36 07.2	-41.0	20.2	37 59.6	-40.4	20.8
64	29 45.2	-43.1	18.1	31 39.1	-42.5	18.5	33 32.8	-42.0	18.9	35 26.2	-41.4	19.3	37 19.2	-40.8	19.8
65	29 02.1	-43.4	17.3	30 56.6	-42.9	17.7	32 50.8	-42.4	18.0	34 44.8	-41.9	18.5	36 38.4	-41.2	18.9
66	28 18.7	-43.6	16.5	30 13.7	-43.2	16.8	32 08.4	-42.6	17.2	34 02.9	-42.1	17.6	35 57.2	-41.6	18.0
67	27 35.1	-43.9	15.7	29 30.5	-43.4	16.0	31 25.8	-43.0	16.4	33 20.8	-42.5	16.7	35 15.6	-42.0	17.1
68	26 51.2	-44.1	15.0	28 47.1	-43.8	15.3	30 42.8	-43.3	15.6	32 38.3	-42.9	15.9	34 33.6	-42.4	16.3
69	26 07.1	-44.4	14.2	28 03.3	-43.9	14.5	29 59.5	-43.6	14.8	31 55.4	-43.1	15.1	33 51.2	-42.7	15.4
70	25 22.7	-44.6	13.5	27 19.4	-44.3	13.7	29 15.9	-43.9	14.0	31 12.3	-43.5	14.3	33 08.5	-43.1	14.6
71	24 38.1	-44.8	12.7	26 35.1	-44.5	13.0	28 32.0	-44.1	13.2	30 28.8	-43.8	13.4	32 25.4	-43.4	13.7
72	23 53.3	-45.0	12.0	25 50.6	-44.7	12.2	27 47.9	-44.4	12.4	29 45.0	-44.0	12.7	31 42.0	-43.6	12.9
73	23 08.3	-45.2	11.3	25 05.9	-44.9	11.5	27 03.5	-44.6	11.7	29 01.0	-44.3	11.9	30 58.4	-44.0	12.1
74	22 23.1	-45.4	10.6	24 21.0	-45.1	10.7	26 18.9	-44.9	10.9	28 16.7	-44.6	11.1	30 14.4	-44.3	11.3
75	21 37.7	-45.6	9.9	23 35.9	-45.3	10.0	25 34.0	-45.0	10.2	27 32.1	-44.8	10.4	29 30.1	-44.5	10.5
76	20 52.1	-45.7	9.2	22 50.6	-45.5	9.3	24 49.0	-45.3	9.4	26 47.3	-45.0	9.6	28 45.6	-44.8	9.8
77	20 06.4	-45.9	8.5	22 05.1	-45.7	8.6	24 03.7	-45.5	8.7	26 02.3	-45.3	8.9	28 00.8	-45.0	9.0
78	19 20.5	-46.0	7.8	21 19.4	-45.9	7.9	23 18.2	-45.6	8.0	25 17.0	-45.4	8.1	27 15.8	-45.3	8.3
79	18 34.5	-46.2	7.1	20 33.5	-46.0	7.2	22 32.6	-45.9	7.3	24 31.6	-45.7	7.4	26 30.5	-45.4	7.5
80	17 48.3	-46.4	6.4	19 47.5	-46.2	6.5	21 46.7	-46.0	6.6	23 45.9	-45.9	6.7	25 45.1	-45.7	6.8
81	17 01.9	-46.4	5.8	19 01.3	-46.3	5.8	21 00.7	-46.2	5.9	23 00.0	-46.0	6.0	24 59.4	-45.9	6.1
82	16 15.5	-46.6	5.1	18 15.0	-46.5	5.2	20 14.5	-46.3	5.2	22 14.0	-46.2	5.3	24 13.5	-46.1	5.4
83	15 28.9	-46.7	4.5	17 28.5	-46.6	4.5	19 28.2	-46.5	4.6	21 27.8	-46.4	4.6	23 27.4	-46.3	4.7
84	14 42.2	-46.8	3.8	16 41.9	-46.7	3.9	18 41.7	-46.7	3.9	20 41.4	-46.6	3.9	22 41.1	-46.5	4.0
85	13 55.4	-46.9	3.2	15 55.2	-46.8	3.2	17 55.0	-46.7	3.2	19 54.8	-46.7	3.3	21 54.6	-46.6	3.3
86	13 08.5	-47.0	2.5	15 08.4	-47.0	2.5	17 08.3	-46.9	2.6	19 08.1	-46.8	2.6	21 08.0	-46.8	2.6
87	12 21.5	-47.1	1.9	14 21.4	-47.0	1.9	16 21.4	-47.0	1.9	18 21.3	-47.0	1.9	20 21.2	-46.9	2.0
88	11 34.4	-47.2	1.3	13 34.4	-47.2	1.3	15 34.4	-47.2	1.3	17 34.3	-47.1	1.3	19 34.3	-47.1	1.3
89	10 47.2	-47.2	0.6	12 47.2	-47.2	0.6	14 47.2	-47.2	0.6	16 47.2	-47.2	0.6	18 47.2	-47.2	0.7
90	10 00.0	-47.3	0.0	12 00.0	-47.3	0.0	14 00.0	-47.3	0.0	16 00.0	-47.3	0.0	18 00.0	-47.3	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 38°, 322°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
35 49.2 -40.0 138.9	34 18.2 -41.3 139.8	32 45.9 -42.4 140.6	31 12.6 -43.4 141.4	29 38.3 -44.5 142.2	30										
35 09.2 -40.5 139.8	33 36.9 -41.6 140.7	32 03.5 -42.7 141.5	30 29.2 -43.8 142.2	28 53.8 -44.7 142.9	31										
34 28.7 -40.8 140.7	32 55.3 -42.0 141.5	31 20.8 -43.0 142.3	29 45.4 -44.0 143.0	28 09.1 -45.0 143.7	32										
33 47.9 -41.2 141.6	32 13.3 -42.3 142.4	30 37.8 -43.3 143.1	29 01.4 -44.3 143.8	27 24.1 -45.2 144.4	33										
33 06.7 -41.6 142.5	31 31.0 -42.6 143.2	29 54.5 -43.7 143.9	28 17.1 -44.6 144.6	26 38.9 -45.4 145.2	34										
32 25.1 -41.9 143.3	30 48.4 -42.9 144.0	29 10.8 -43.8 144.7	27 32.5 -44.8 145.3	25 53.5 -45.7 145.9	35										
31 43.2 -42.3 144.2	30 05.5 -43.3 144.9	28 27.0 -44.2 145.5	26 47.7 -45.0 146.1	25 07.8 -45.9 146.6	36										
31 00.9 -42.5 145.0	29 22.2 -43.5 145.7	27 42.8 -44.4 146.3	26 02.7 -45.3 146.8	24 21.9 -46.0 147.3	37										
30 18.4 -42.9 145.8	28 38.7 -43.8 146.4	26 58.4 -44.7 147.0	25 17.4 -45.4 147.5	23 35.9 -46.3 148.0	38										
29 35.5 -43.2 146.6	27 54.9 -44.0 147.2	26 13.7 -44.8 147.8	24 32.0 -45.7 148.3	22 49.6 -46.4 148.7	39										
28 52.3 -43.4 147.4	27 10.9 -44.3 148.0	25 28.9 -45.1 148.5	23 46.3 -46.9 148.9	22 03.2 -46.6 149.4	40										
28 08.9 -43.7 148.2	26 26.6 -44.5 148.7	24 43.8 -45.3 149.2	23 00.4 -46.0 149.7	21 16.6 -46.7 150.1	41										
27 25.2 -43.9 149.0	25 42.1 -44.7 149.5	23 58.5 -45.5 150.0	22 14.4 -46.2 150.4	20 29.9 -46.9 150.8	42										
26 41.3 -44.2 149.7	24 57.4 -45.0 150.2	23 13.0 -45.7 150.7	21 28.2 -46.4 151.1	19 43.0 -47.1 151.4	43										
25 57.1 -44.4 150.5	24 12.4 -45.1 151.0	22 27.3 -45.9 151.4	20 41.8 -46.6 151.7	18 55.9 -47.2 152.1	44										
25 12.7 -44.7 151.2	23 27.3 -45.4 151.7	21 41.4 -46.0 152.1	19 55.2 -46.7 152.4	18 08.7 -47.3 152.9	45										
24 28.0 -44.8 152.0	22 41.9 -45.6 152.4	20 55.4 -46.2 152.8	19 08.5 -46.8 153.1	17 21.4 -47.4 153.4	46										
23 43.2 -45.1 152.7	21 56.3 -45.7 153.1	20 09.2 -46.4 153.4	18 21.7 -47.0 153.7	16 34.0 -47.6 154.0	47										
22 58.1 -45.2 153.4	21 10.6 -45.9 153.8	19 22.8 -46.5 154.1	17 34.7 -47.1 154.4	15 46.4 -47.7 154.7	48										
22 12.9 -45.5 154.1	20 24.7 -46.0 154.5	18 36.3 -46.6 154.8	16 47.6 -47.2 155.0	14 58.7 -47.7 155.3	49										
21 27.4 -45.6 154.8	19 38.7 -46.2 155.2	17 49.7 -46.8 155.4	16 00.4 -47.3 155.8	14 11.0 -47.9 155.9	50										
20 41.8 -45.7 155.5	18 52.5 -46.4 155.8	17 02.9 -46.9 156.1	15 13.1 -47.5 156.3	13 23.1 -48.0 156.5	51										
19 56.1 -46.0 156.2	18 06.1 -46.5 156.5	16 16.0 -47.1 156.7	14 25.6 -47.5 157.0	12 35.1 -48.0 157.1	52										
19 10.1 -46.1 156.9	17 19.6 -46.6 157.2	15 28.9 -47.1 157.4	13 38.1 -47.7 157.6	11 47.1 -48.1 157.8	53										
18 24.0 -46.2 157.6	16 33.0 -46.7 157.8	14 41.8 -47.2 158.0	12 50.4 -47.7 158.2	10 59.0 -48.2 158.4	54										
17 37.8 -46.3 158.3	15 46.3 -46.9 158.5	13 54.6 -47.4 158.7	12 02.7 -47.8 158.8	10 10.8 -48.3 159.0	55										
16 51.5 -46.5 158.9	14 59.4 -47.0 159.1	13 07.2 -47.4 159.3	11 14.9 -47.9 159.5	9 22.5 -48.3 159.6	56										
16 05.0 -46.6 159.6	14 12.4 -47.0 159.8	12 19.8 -47.5 159.9	10 27.0 -47.9 160.1	8 34.2 -48.4 160.2	57										
15 18.4 -46.8 160.2	13 25.4 -47.2 160.4	11 32.3 -47.6 160.6	9 39.1 -48.0 160.7	7 45.8 -48.4 160.8	58										
14 31.6 -46.8 160.9	12 38.2 -47.2 161.0	10 44.7 -47.7 161.2	8 51.1 -48.1 161.3	6 57.4 -48.5 161.4	59										
13 44.8 -46.9 161.5	11 51.0 -47.4 161.7	9 57.0 -47.7 161.8	8 03.0 -48.1 161.9	6 08.9 -48.5 162.0	60										
12 57.9 -47.0 162.2	11 03.6 -47.4 162.3	9 09.3 -47.8 162.4	7 14.9 -48.2 162.5	5 20.4 -48.5 162.6	61										
12 10.9 -47.1 162.8	10 16.2 -47.5 162.9	8 21.5 -47.9 163.0	6 26.7 -48.2 163.1	4 31.9 -48.6 163.1	62										
11 23.8 -47.2 163.4	9 28.7 -47.5 163.5	7 33.6 -47.9 163.6	5 38.5 -48.3 163.7	3 43.3 -48.6 163.7	63										
10 36.6 -47.3 164.1	8 41.2 -47.6 164.2	6 45.7 -47.9 164.2	4 50.2 -48.3 164.3	2 54.7 -48.6 164.3	64										
9 49.3 -47.3 164.7	7 53.6 -47.7 164.8	5 57.8 -48.0 164.8	4 01.9 -48.3 164.9	2 06.1 -48.7 164.9	65										
9 02.0 -47.4 165.3	7 05.9 -47.7 165.4	5 09.8 -48.1 165.4	3 13.6 -48.3 165.5	1 17.4 -48.6 165.5	66										
8 14.6 -47.4 165.9	6 18.2 -47.8 166.0	4 21.7 -48.0 166.0	2 25.3 -48.4 166.1	0 28.8 -48.6 166.1	67										
7 27.2 -47.5 166.6	5 30.4 -47.8 166.6	3 33.7 -48.1 166.6	1 36.9 -48.3 166.7	0 19.8 +48.7 166.7	68										
6 39.7 -47.6 167.2	4 42.6 -47.8 167.2	2 45.6 -48.1 167.2	0 48.6 -48.4 167.3	1 08.5 +48.6 167.3	69										
5 52.1 -47.6 167.8	3 54.8 -47.8 167.8	1 57.5 -48.1 167.8	0 00.2 -48.4 167.8	1 57.1 +48.6 167.8	70										
5 04.5 -47.6 168.4	3 07.0 -47.9 168.4	1 09.4 -48.1 168.4	0 48.2 +48.3 168.4	2 45.7 +48.6 168.4	71										
4 16.9 -47.6 169.0	2 19.1 -47.9 169.0	0 21.3 -48.1 169.0	1 36.5 +48.4 168.9	3 34.3 +48.6 168.9	72										
3 29.3 -47.7 169.6	1 31.2 -47.9 169.6	0 26.8 +48.1 169.6	2 24.9 +48.3 169.6	4 22.9 +48.5 169.6	73										
2 41.6 -47.7 170.2	0 43.3 -47.9 170.2	1 14.9 +48.1 170.2	3 13.2 +48.3 170.2	5 11.4 +48.6 170.2	74										
1 53.9 -47.7 170.8	0 04.6 +47.9 170.8	2 03.0 +48.1 170.8	4 01.5 +48.3 170.8	6 00.0 +48.4 170.8	75										
1 06.2 -47.7 171.4	0 52.5 +47.9 171.4	2 51.1 +48.1 171.4	4 49.8 +48.2 171.4	6 48.4 +48.5 171.4	76										
0 18.5 -47.7 172.0	1 40.4 +47.9 172.0	3 39.2 +48.1 172.0	5 38.0 +48.3 172.0	7 36.9 +48.4 172.0	77										
0 29.2 +47.8 172.6	2 28.3 +47.8 172.6	4 27.3 +48.0 172.6	6 26.6 +48.1 172.6	8 25.3 +48.3 172.6	78										
1 17.0 +47.7 173.2	3 16.1 +47.9 173.2	5 15.3 +48.0 173.2	7 14.4 +48.2 173.2	9 13.6 +48.3 173.2	79										
2 04.7 +47.6 173.8	4 04.0 +47.8 173.8	6 03.3 +47.9 173.8	8 02.6 +48.0 173.8	10 01.9 +48.2 173.8	80										
2 52.3 +47.7 174.4	4 51.8 +47.8 174.4	6 51.2 +47.9 174.4	8 50.6 +48.1 174.4	10 50.1 +48.1 174.4	81										
3 40.0 +47.7 175.0	5 39.6 +47.7 175.0	7 39.1 +47.9 175.0	9 38.7 +47.9 175.0	11 38.2 +48.1 175.0	82										
4 27.7 +47.6 175.6	6 27.3 +47.7 175.6	8 27.0 +47.8 175.6	10 26.6 +47.9 175.6	12 26.3 +47.9 175.6	83										
5 15.3 +47.5 176.2	7 15.0 +47.7 176.2	9 14.8 +47.7 176.2	11 14.5 +47.8 176.2	13 14.2 +47.9 176.2	84										
6 02.8 +47.6 176.8	8 02.7 +47.6 176.8	10 02.5 +47.7 176.8	12 02.3 +47.7 176.8	14 02.1 +47.8 176.8	85										
6 50.4 +47.5 177.4	8 50.3 +47.5 177.4	10 50.2 +47.5 177.4	12 50.0 +47.7 177.4	14 49.9 +47.7 177.4	86										
7 37.9 +47.4 178.0	9 37.8 +47.5 178.0	11 37.7 +47.5 178.0	13 37.7 +47.5 178.0	15 37.6 +47.6 178.0	87										
8 25.3 +47.4 178.6	10 25.3 +47.4 178.6	12 25.2 +47.5 178.6	14 25.2 +47.5 178.6	16 25.2 +47.5 178.6	88										
9 12.7 +47.3 179.2	11 12.7 +47.3 179.2	13 12.7 +47.3 179.2	15 12.7 +47.3 179.2	17 12.7 +47.3 179.2	89										
10 00.0 +47.2 179.8	12 00.0 +47.2 179.8	14 00.0 +47.2 179.8	16 00.0 +47.2 179.8	18 00.0 +47.2 179.8	90										

LATITUDE SAME NAME

L.H.A. 142°, 218°

38°, 322° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	54 19.2	-8.3	66.1	55 05.4	-5.1	68.7	55 46.3	-1.6	71.4	56 21.7	+2.0	74.3	56 51.3	+5.7	77.2
31	54 10.9	-9.8	64.4	55 00.3	-6.5	67.0	55 44.7	-3.1	69.6	56 23.7	+0.4	72.5	56 57.0	+4.0	75.4
32	54 01.1	-11.1	62.7	54 53.8	-8.0	65.2	55 41.6	-4.6	67.9	56 24.1	-1.2	70.7	57 01.0	+2.4	73.6
33	53 50.0	-12.5	61.0	54 45.8	-9.4	63.5	55 37.0	-6.2	66.1	56 22.9	-2.7	68.8	57 03.4	+0.9	71.7
34	53 37.5	-13.9	59.4	54 36.4	-10.8	61.8	55 30.8	-7.7	64.3	56 20.2	-4.3	67.0	57 04.3	-0.8	69.9
35	53 23.6	-15.2	57.7	54 25.6	-12.3	60.1	55 23.1	-9.2	62.6	56 15.9	-5.9	65.2	57 03.5	-2.4	68.0
36	53 08.4	-16.5	56.1	54 13.3	-13.7	58.4	55 13.9	-10.6	60.9	56 10.0	-7.4	63.5	57 01.1	-4.0	66.2
37	52 51.9	-17.8	54.5	53 59.6	-15.0	56.8	55 03.3	-12.1	59.1	56 02.6	-8.9	61.7	56 57.3	-5.7	64.4
38	52 34.1	-19.0	53.0	53 44.6	-16.3	55.1	54 51.2	-13.5	57.4	55 53.7	-10.5	59.9	56 51.4	-7.2	62.5
39	52 15.1	-20.2	51.4	53 28.3	-17.7	53.5	54 37.7	-14.8	55.7	55 43.2	-11.9	58.2	56 44.2	-8.7	60.7
40	51 54.9	-21.4	49.9	53 10.6	-18.9	51.9	54 22.9	-16.3	54.1	55 31.3	-13.4	56.4	56 35.5	-10.3	58.9
41	51 33.5	-22.6	48.4	52 51.7	-20.2	50.3	54 06.6	-17.6	52.4	55 17.9	-14.8	54.7	56 25.2	-11.9	57.1
42	51 10.9	-23.6	46.9	52 31.5	-21.3	48.8	53 49.0	-18.8	50.8	55 03.1	-16.2	53.0	56 13.3	-13.3	55.4
43	50 47.3	-24.7	45.4	52 10.2	-22.5	47.2	53 30.2	-20.2	49.2	54 46.9	-17.6	51.3	56 00.0	-14.8	53.6
44	50 22.6	-25.8	44.0	51 47.7	-23.7	45.7	53 10.0	-21.4	47.6	54 29.3	-18.9	49.7	55 45.2	-16.3	51.9
45	49 56.8	-26.8	42.6	51 24.0	-24.8	44.3	52 48.6	-22.5	46.1	54 10.4	-20.2	48.1	55 28.9	-17.6	50.2
46	49 30.0	-27.7	41.2	50 59.2	-25.8	42.8	52 26.1	-23.8	44.5	53 50.2	-21.5	46.4	55 11.3	-19.0	48.5
47	49 02.3	-28.7	39.8	50 33.4	-26.8	41.4	52 02.3	-24.8	43.0	53 28.7	-22.7	44.9	54 52.3	-20.3	46.9
48	48 33.6	-29.6	38.5	50 06.6	-27.9	40.0	51 37.5	-26.0	41.6	53 06.0	-23.8	43.3	54 32.0	-21.7	45.2
49	48 04.0	-30.4	37.2	49 38.7	-28.7	38.6	51 11.5	-26.9	40.1	52 42.2	-25.1	41.8	54 10.3	-22.8	43.6
50	47 33.6	-31.3	35.9	49 10.0	-29.8	37.2	50 44.6	-28.0	38.7	52 17.1	-26.1	40.3	53 47.5	-24.1	42.1
51	47 02.3	-32.1	34.6	48 40.2	-30.6	35.9	50 16.6	-29.0	37.3	51 51.0	-27.2	38.8	53 23.4	-25.3	40.5
52	46 30.2	-32.9	33.4	48 09.6	-31.4	34.6	49 47.6	-29.9	36.0	51 23.8	-28.2	37.4	52 58.1	-26.4	39.0
53	45 57.3	-33.7	32.2	47 38.2	-32.3	33.4	49 17.7	-30.9	34.6	50 55.6	-29.2	36.0	52 31.7	-27.4	37.5
54	45 23.6	-34.3	31.0	47 05.9	-33.1	32.1	48 46.8	-31.6	33.3	50 26.4	-30.2	34.6	52 04.3	-28.6	36.1
55	44 49.3	-35.1	29.9	46 32.8	-33.9	30.9	48 15.2	-32.6	32.0	49 56.2	-31.1	33.3	51 35.7	-29.5	34.6
56	44 14.2	-35.7	28.7	45 58.9	-34.5	29.7	47 42.6	-33.3	30.8	49 25.1	-32.0	32.0	51 06.2	-30.5	33.2
57	43 38.5	-36.4	27.6	45 24.4	-35.3	28.5	47 09.3	-34.1	29.5	48 53.1	-32.8	30.7	50 35.7	-31.5	31.9
58	43 02.1	-37.0	26.5	44 49.1	-36.0	27.4	46 35.2	-34.9	28.3	48 20.3	-33.7	29.4	50 04.2	-32.3	30.6
59	42 25.1	-37.5	25.4	44 13.1	-36.6	26.3	46 00.3	-35.5	27.2	47 46.6	-34.4	28.2	49 31.9	-33.2	29.2
60	41 47.6	-38.1	24.4	43 36.5	-37.2	25.2	45 24.8	-36.3	26.0	47 12.2	-35.2	26.9	48 58.7	-34.0	28.0
61	41 09.5	-38.7	23.4	42 59.3	-37.8	24.1	44 48.5	-36.9	24.9	46 37.0	-35.9	25.8	48 24.7	-34.9	26.7
62	40 30.8	-39.2	22.3	42 21.5	-38.4	23.0	44 11.6	-37.5	23.8	46 01.1	-36.6	24.6	47 49.8	-35.5	25.5
63	39 51.6	-39.7	21.4	41 43.1	-38.9	22.0	43 34.1	-38.1	22.7	45 24.5	-37.2	23.5	47 14.3	-36.3	24.3
64	39 11.9	-40.1	20.4	41 04.2	-39.4	21.0	42 56.0	-38.7	21.6	44 47.3	-37.9	22.4	46 38.0	-37.0	23.1
65	38 31.8	-40.6	19.4	40 24.8	-40.0	20.0	42 17.3	-39.2	20.6	44 09.4	-38.5	21.3	46 01.0	-37.7	22.0
66	37 51.2	-41.1	18.5	39 44.8	-40.4	19.0	41 38.1	-39.8	19.6	43 30.9	-39.1	20.2	45 23.3	-38.3	20.9
67	37 10.1	-41.4	17.6	39 04.4	-40.9	18.1	40 58.3	-40.3	18.6	42 51.8	-39.6	19.2	44 45.0	-38.9	19.8
68	36 28.7	-41.9	16.7	38 23.5	-41.4	17.1	40 18.0	-40.7	17.6	42 12.2	-40.1	18.1	44 06.1	-39.5	18.7
69	35 46.8	-42.3	15.8	37 42.1	-41.7	16.2	39 37.3	-41.3	16.6	41 32.1	-40.7	17.1	43 26.6	-40.1	17.7
70	35 04.5	-42.6	14.9	37 00.4	-42.2	15.3	38 56.0	-41.6	15.7	40 51.4	-41.1	16.2	42 46.5	-40.6	16.7
71	34 21.9	-43.0	14.1	36 18.2	-42.5	14.4	38 14.4	-42.1	14.8	40 10.3	-41.6	15.2	42 05.9	-41.0	15.7
72	33 38.9	-43.3	13.2	35 35.7	-42.9	13.5	37 32.3	-42.5	13.9	39 28.7	-42.1	14.3	41 24.9	-41.6	14.7
73	32 55.6	-43.6	12.4	34 52.8	-43.3	12.7	36 49.8	-42.9	13.0	38 46.6	-42.5	13.3	40 43.3	-42.1	13.7
74	32 12.0	-43.9	11.6	34 09.5	-43.6	11.8	36 06.9	-43.3	12.1	38 04.1	-42.8	12.4	40 01.2	-42.4	12.8
75	31 28.1	-44.3	10.8	33 25.9	-43.9	11.0	35 23.6	-43.6	11.3	37 21.3	-43.3	11.6	39 18.8	-42.9	11.9
76	30 43.8	-44.5	10.0	32 42.0	-44.3	10.2	34 40.0	-43.9	10.4	36 38.0	-43.6	10.7	38 35.9	-43.3	11.0
77	29 59.3	-44.8	9.2	31 57.7	-44.5	9.4	33 56.1	-44.3	9.6	35 54.4	-44.0	9.8	37 52.6	-43.7	10.1
78	29 14.5	-45.0	8.4	31 13.2	-44.8	8.6	33 11.8	-44.6	8.8	35 10.4	-44.3	9.0	37 08.9	-44.1	9.2
79	28 29.5	-45.3	7.7	30 28.4	-45.1	7.8	32 27.2	-44.8	8.0	34 26.1	-44.7	8.2	36 24.8	-44.4	8.4
80	27 44.2	-45.5	6.9	29 43.3	-45.3	7.1	31 42.4	-45.2	7.2	33 41.4	-45.0	7.4	35 40.4	-44.8	7.6
81	26 58.7	-45.8	6.2	28 58.0	-45.6	6.3	30 57.2	-45.4	6.4	32 56.4	-45.2	6.6	34 55.6	-45.0	6.7
82	26 12.9	-45.9	5.5	28 12.4	-45.9	5.6	30 11.8	-45.7	5.7	32 11.2	-45.6	5.8	34 10.6	-45.4	5.9
83	25 27.0	-46.2	4.8	27 26.5	-46.0	4.8	29 26.1	-45.9	4.9	31 25.6	-45.8	5.0	33 25.2	-45.7	5.2
84	24 40.8	-46.4	4.1	26 40.5	-46.3	4.1	28 40.2	-46.2	4.2	30 39.8	-46.0	4.3	32 39.5	-46.0	4.4
85	23 54.4	-46.5	3.4	25 54.2	-46.5	3.4	27 54.0	-46.4	3.5	29 53.8	-46.3	3.5	31 53.5	-46.2	3.6
86	23 07.9	-46.7	2.7	25 07.7	-46.6	2.7	27 07.6	-46.6	2.8	29 07.5	-46.6	2.8	31 07.3	-46.5	2.9
87	22 21.2	-46.9	2.0	24 21.1	-46.9	2.0	26 21.0	-46.8	2.1	28 20.9	-46.7	2.1	30 20.8	-46.7	2.1
88	21 34.3	-47.1	1.3	23 34.2	-47.0	1.3	25 34.2	-47.0	1.4	27 34.2	-47.0	1.4	29 34.1	-46.9	1.4
89	20 47.2	-47.2	0.7	22 47.2	-47.2	0.7	24 47.2	-47.2	0.7	26 47.2	-47.2	0.7	28 47.2	-47.2	0.7
90	20 00.0	-47.4	0.0	22 00.0	-47.4	0.0	24 00.0	-47.4	0.0	26 00.0	-47.4	0.0	28 00.0	-47.4	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 38°, 322°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
28	03.1	-45.4	142.8	26	27.1	-46.3	143.5	24	50.3	-47.1	144.0	23	12.9	-48.0	144.5	21	34.9	-48.8	145.0	30
27	17.7	-45.7	143.6	25	40.8	-46.6	144.2	24	03.2	-47.4	144.7	22	24.9	-48.1	145.2	20	46.1	-48.9	145.6	31
26	32.0	-45.8	144.3	24	54.2	-46.7	144.9	23	15.8	-47.5	145.4	21	36.8	-48.3	145.8	19	57.2	-49.0	146.3	32
25	46.2	-46.1	145.0	24	07.5	-46.9	145.5	22	28.3	-47.7	146.0	20	48.5	-48.4	146.5	19	08.2	-49.1	146.9	33
25	00.1	-46.3	145.7	23	20.6	-47.1	146.2	21	40.6	-47.8	146.7	20	00.1	-48.6	147.1	18	19.1	-49.2	147.5	34
24	13.8	-46.5	146.4	22	33.5	-47.2	146.9	20	52.8	-48.0	147.3	19	11.5	-48.7	147.7	17	29.9	-49.4	148.1	35
23	27.3	-46.6	147.1	21	46.3	-47.4	147.6	20	04.8	-48.1	148.0	18	22.8	-48.8	148.3	16	40.5	-49.5	148.7	36
22	40.7	-46.9	147.8	20	58.9	-47.6	148.2	19	16.7	-48.3	148.6	17	34.0	-48.9	149.0	15	51.0	-49.5	149.3	37
21	53.8	-47.0	148.5	20	11.3	-47.7	148.9	18	28.4	-48.4	149.2	16	45.1	-49.0	149.6	15	01.5	-49.6	149.8	38
21	06.8	-47.1	149.1	19	23.6	-47.8	149.5	17	40.0	-48.5	149.9	15	56.1	-49.1	150.2	14	11.9	-49.8	150.4	39
20	19.7	-47.3	149.8	18	35.8	-48.0	150.2	16	51.5	-48.6	150.5	15	07.0	-49.2	150.8	13	22.1	-49.8	151.0	40
19	32.4	-47.4	150.5	17	47.8	-48.0	150.8	16	02.9	-48.7	151.1	14	17.8	-49.3	151.3	12	32.3	-49.8	151.6	41
18	45.0	-47.6	151.1	16	59.8	-48.2	151.4	15	14.2	-48.8	151.7	13	28.5	-49.4	151.9	11	42.5	-50.0	152.1	42
17	57.4	-47.7	151.7	16	11.6	-48.3	152.0	14	25.4	-48.8	152.3	12	39.1	-49.5	152.5	10	52.5	-50.0	152.7	43
17	09.7	-47.8	152.4	15	23.3	-48.4	152.7	13	36.6	-49.0	152.9	11	49.6	-49.5	153.1	10	02.5	-50.0	153.3	44
16	21.9	-47.9	153.0	14	34.9	-48.5	153.3	12	47.6	-49.1	153.5	11	00.6	-49.6	153.7	9	12.5	-50.1	153.8	45
15	34.0	-48.0	153.6	13	46.4	-48.6	153.9	11	58.5	-49.1	154.1	10	10.5	-49.6	154.2	8	22.4	-50.2	154.4	46
14	46.0	-48.2	154.3	12	57.8	-48.7	154.5	11	09.4	-49.2	154.7	9	20.9	-49.7	154.8	7	32.2	-50.2	154.9	47
13	57.8	-48.2	154.9	12	09.1	-48.7	155.1	10	20.2	-49.3	155.2	8	31.2	-49.8	155.4	6	42.0	-50.2	155.5	48
13	09.6	-48.3	155.5	11	20.4	-48.9	155.7	9	30.9	-49.3	155.8	7	41.4	-49.8	155.9	5	51.8	-50.3	156.0	49
12	21.3	-48.4	156.1	10	31.5	-48.8	156.3	8	41.6	-49.3	156.4	6	51.6	-49.8	156.5	5	01.5	-50.3	156.6	50
11	32.9	-48.4	156.7	9	42.7	-49.0	156.9	7	52.3	-49.5	157.0	6	01.8	-49.9	157.1	4	11.2	-50.3	157.1	51
10	44.5	-48.6	157.3	8	53.7	-49.0	157.4	7	02.8	-49.4	157.5	5	11.9	-49.9	157.6	3	20.9	-50.3	157.7	52
9	55.9	-48.5	157.9	8	04.7	-49.0	158.0	6	13.4	-49.5	158.1	4	22.0	-49.9	158.2	2	30.6	-50.4	158.2	53
9	07.4	-48.7	158.5	7	15.7	-49.1	158.6	5	23.9	-49.5	158.7	3	32.1	-50.0	158.7	1	40.2	-50.3	158.8	54
8	18.7	-48.7	159.1	6	26.6	-49.2	159.2	4	34.4	-49.6	159.3	2	42.1	-49.9	159.3	0	49.9	-50.4	159.3	55
7	30.0	-48.7	159.7	5	37.4	-49.1	159.8	3	44.8	-49.5	159.8	1	52.2	-50.0	159.9	0	00.5	+50.3	20.1	56
6	41.3	-48.8	160.3	4	48.3	-49.2	160.3	2	55.3	-49.6	160.4	1	02.2	-50.0	160.4	0	11.2	+50.3	19.0	57
5	52.5	-48.9	160.9	3	59.1	-49.2	160.9	2	05.7	-49.6	160.9	0	12.2	-49.9	161.0	0	41.2	+50.3	18.5	58
5	03.6	-48.8	161.4	3	09.9	-49.3	161.5	1	16.1	-49.6	161.5	0	37.7	+50.0	18.5	2	31.5	+50.4	18.5	59
4	14.8	-48.9	162.0	2	20.6	-49.2	162.1	0	26.5	-49.6	162.1	1	27.7	+50.0	17.9	3	21.9	+50.3	18.0	60
3	25.9	-48.9	162.6	1	31.4	-49.3	162.6	0	23.1	+49.7	17.4	2	17.7	+49.9	17.4	4	12.2	+50.3	17.4	61
2	37.0	-48.9	163.2	0	42.1	-49.2	163.2	1	12.8	+49.6	16.8	3	07.6	+50.0	16.8	5	02.5	+50.2	16.9	62
1	48.1	-49.0	163.8	0	07.1	+49.3	16.2	2	02.4	+49.5	16.2	3	57.6	+49.9	16.3	5	52.7	+50.3	16.3	63
0	59.1	-48.9	164.3	0	56.4	+49.3	15.7	2	51.9	+49.6	15.7	4	47.5	+49.9	15.7	6	43.0	+50.2	15.8	64
0	10.2	-48.9	164.9	1	45.7	+49.2	15.1	3	41.5	+49.6	15.1	5	37.4	+49.8	15.2	7	33.2	+50.1	15.2	65
0	38.7	+49.0	14.5	2	34.9	+49.2	14.5	4	31.1	+49.5	14.5	6	27.2	+49.8	14.6	8	23.3	+50.1	14.7	66
1	27.7	+48.9	13.9	3	24.1	+49.3	13.9	5	20.6	+49.5	14.0	7	17.0	+49.8	14.0	9	13.4	+50.1	14.1	67
2	16.6	+48.9	13.3	4	13.4	+49.1	13.4	6	10.1	+49.4	13.4	8	06.8	+49.7	13.5	10	03.5	+50.0	13.5	68
3	05.5	+48.9	12.8	5	02.5	+49.2	12.8	6	59.5	+49.5	12.8	8	56.5	+49.7	12.9	10	53.5	+49.9	13.0	69
3	54.4	+48.9	12.2	5	51.7	+49.1	12.2	7	49.0	+49.3	12.3	9	46.2	+49.6	12.3	11	43.4	+49.9	12.4	70
4	43.3	+48.8	11.6	6	40.8	+49.1	11.6	8	38.3	+49.3	11.7	10	35.8	+49.6	11.8	12	33.3	+49.8	11.8	71
5	32.1	+48.8	11.0	7	29.9	+49.0	11.1	9	27.6	+49.3	11.1	11	25.4	+49.5	11.2	13	23.1	+49.7	11.3	72
6	20.9	+48.8	10.4	8	18.9	+49.0	10.5	10	16.9	+49.2	10.5	12	14.9	+49.4	10.6	14	12.8	+49.6	10.7	73
7	09.7	+48.7	9.8	9	07.9	+48.9	9.9	11	06.1	+49.1	10.0	13	04.3	+49.3	10.0	15	02.4	+49.6	10.1	74
7	58.4	+48.7	9.3	9	56.8	+48.9	9.3	11	55.2	+49.1	9.4	13	53.6	+49.3	9.4	15	52.0	+49.4	9.5	75
8	47.1	+48.6	8.7	10	45.7	+48.8	8.7	12	44.3	+49.0	8.8	14	42.9	+49.1	8.9	16	41.4	+49.4	8.9	76
9	35.7	+48.5	8.1	11	34.5	+48.7	8.1	13	33.3	+48.9	8.2	15	32.0	+49.1	8.3	17	30.8	+49.2	8.4	77
10	24.2	+48.5	7.5	12	23.2	+48.7	7.5	14	22.2	+48.8	7.6	16	21.1	+49.0	7.7	18	20.0	+49.2	7.7	78
11	12.7	+48.5	6.9	13	11.9	+48.5	6.9	15	11.0	+48.7	7.0	17	10.1	+48.8	7.1	19	09.2	+49.0	7.1	79
12	01.2	+48.3	6.3	14	00.4	+48.5	6.3	15	59.7	+48.6	6.4	17	58.9	+48.8	6.5	19	58.2	+48.9	6.5	80
12	49.5	+48.2	5.7	14	48.9	+48.4	5.7	16	48.3	+48.5	5.8	18	47.7	+48.6	5.8	20	47.1	+48.7	5.9	81
13	37.7	+48.2	5.1	15	37.3	+48.2	5.1	17	36.8	+48.4	5.2	19	36.3	+48.5	5.2	21	35.8	+48.6	5.3	82
14	25.9	+48.1	4.4	16	25.5	+48.2	4.5	18	25.2	+48.2	4.5	20	24.8	+48.4	4.6	22	24.4	+48.5	4.7	83
15	14.0	+47.9	3.8	17	13.7	+48.1	3.9	19	13.4	+48.2	3.9	21	13.2	+48.2	4.0	23	12.9	+48.3	4.0	84
16	01.9	+47.9	3.2	18	01.8	+47.9	3.2	20	01.6	+48.0	3.3	22	01.4	+48.0	3.3	24	01.2	+48.1	3.4	85
16	49.8	+47.7	2.6	18	49.7	+47.8	2.6	20	49.6	+47.8	2.6	22	49.4	+47.9	2.7	24	49.3	+48.0	2.7	86
17	37.5	+47.7	1.9	19	37.5	+47.6	2.0	21	37.4	+47.7	2.0	23	37.3	+47.8	2.0	25	37.3	+47.7	2.0	87
18	25.2	+47.4	1.3	20	25.1	+47.5	1.3	22	25.1	+47.5	1.3	24	25.1	+47.5	1.4	26	25.0	+47.6	1.4	88
19	12.6	+47.4	0.7	21	12.6	+47.4	0.7	23	12.6	+47.4	0.7	25	12.6	+47.4	0.7	27	12.6	+47.4	0.7	89
20	00.0	+47.2	0.0	22	00.0	+47.2	0.0	24	00.0	+47.2	0.0	26	00.0	+47.2	0.0	28	00.0	+47.2	0.0	90

LATITUDE SAME NAME

L.H.A. 142°, 218°

40°, 320° L.H.A.

LATITUDE SAME NAME

Dec. °	0°			2°			4°			6°			8°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	41 33.6	-31.0	48.1	42 52.8	-29.3	49.4	44 09.7	-27.4	50.9	45 24.1	-25.3	52.5	46 35.8	-23.0	54.1
31	41 02.6	-31.7	46.9	42 23.5	-29.9	48.2	43 42.3	-28.0	49.7	44 58.8	-26.1	51.2	46 12.8	-24.0	52.8
32	40 30.9	-32.4	45.8	41 53.6	-30.7	47.1	43 14.3	-28.9	48.4	44 32.7	-26.9	49.9	45 48.8	-24.9	51.5
33	39 58.5	-32.9	44.7	41 22.9	-31.3	45.9	42 45.4	-29.6	47.2	44 05.8	-27.7	48.6	45 23.9	-25.8	50.2
34	39 25.6	-33.6	43.6	40 51.6	-32.0	44.8	42 15.8	-30.3	46.1	43 38.1	-28.6	47.4	44 58.1	-26.6	48.9
35	38 52.0	-34.2	42.6	40 19.6	-32.6	43.7	41 45.5	-31.0	44.9	43 09.5	-29.2	46.2	44 31.5	-27.4	47.6
36	38 17.8	-34.7	41.5	39 47.0	-33.3	42.6	41 14.5	-31.7	43.8	42 40.3	-30.0	45.0	44 04.1	-28.2	46.4
37	37 43.1	-35.2	40.5	39 13.7	-33.8	41.5	40 42.8	-32.3	42.6	42 10.3	-30.7	43.8	43 35.9	-29.0	45.1
38	37 07.9	-35.7	39.4	38 39.9	-34.4	40.4	40 10.5	-32.9	41.5	41 39.6	-31.4	42.7	43 06.9	-29.8	43.9
39	36 32.2	-36.3	38.4	38 05.5	-34.9	39.4	39 37.6	-33.6	40.4	41 08.2	-32.1	41.5	42 37.1	-30.4	42.8
40	35 55.9	-36.7	37.5	37 30.6	-35.5	38.4	39 04.0	-34.1	39.4	40 36.1	-32.7	40.4	42 06.7	-31.2	41.6
41	35 19.2	-37.2	36.5	36 55.1	-35.9	37.4	38 29.9	-34.7	38.3	40 03.4	-33.3	39.3	41 35.5	-31.8	40.4
42	34 42.0	-37.6	35.5	36 19.2	-36.5	36.4	37 55.2	-35.2	37.3	39 30.1	-33.9	38.2	41 03.7	-32.5	39.3
43	34 04.4	-38.1	34.6	35 42.7	-36.9	35.4	37 20.0	-35.7	36.2	38 56.2	-34.4	37.2	40 31.2	-33.1	38.2
44	33 26.3	-38.4	33.6	35 05.8	-37.4	34.4	36 44.3	-36.2	35.2	38 21.8	-35.0	36.1	39 58.1	-33.7	37.1
45	32 47.9	-38.9	32.7	34 28.4	-37.8	33.5	36 08.1	-36.8	34.2	37 46.8	-35.6	35.1	39 24.4	-34.3	36.0
46	32 09.0	-39.2	31.8	33 50.6	-38.3	32.5	35 31.3	-37.1	33.3	37 11.2	-36.1	34.1	38 50.1	-34.9	35.0
47	31 29.8	-39.6	30.9	33 12.3	-38.6	31.6	34 54.2	-37.7	32.3	36 35.1	-36.5	33.1	38 15.2	-35.4	33.9
48	30 50.2	-40.0	30.1	32 33.7	-39.0	30.7	34 16.5	-38.0	31.4	35 58.6	-37.0	32.1	37 39.8	-35.9	32.9
49	30 10.2	-40.3	29.2	31 54.7	-39.4	29.8	33 38.5	-38.5	30.4	35 21.6	-37.5	31.1	37 03.9	-36.5	31.9
50	29 29.9	-40.6	28.3	31 15.3	-39.8	28.9	33 00.0	-38.9	29.5	34 44.1	-37.9	30.2	36 27.4	-36.9	30.9
51	28 49.3	-40.9	27.5	30 35.5	-40.1	28.0	32 21.1	-39.2	28.6	34 06.2	-38.4	29.2	35 50.5	-37.4	29.9
52	28 08.4	-41.2	26.7	29 55.4	-40.5	27.2	31 41.9	-39.6	27.7	33 27.8	-38.7	28.3	35 13.1	-37.8	29.0
53	27 27.2	-41.5	25.8	29 14.9	-40.7	26.3	31 02.3	-40.0	26.8	32 49.1	-39.2	27.4	34 35.3	-38.3	28.0
54	26 45.7	-41.8	25.0	28 34.2	-41.1	25.5	30 22.3	-40.3	26.0	32 09.9	-39.5	26.5	33 57.0	-38.6	27.1
55	26 03.9	-42.1	24.2	27 53.1	-41.3	24.7	29 42.0	-40.6	25.1	31 30.4	-39.9	25.6	33 18.4	-39.1	26.2
56	25 21.8	-42.3	23.4	27 11.8	-41.7	23.8	29 01.4	-41.0	24.3	30 50.5	-40.2	24.7	32 39.3	-39.5	25.3
57	24 39.5	-42.5	22.7	26 30.5	-41.9	23.0	28 20.4	-41.2	23.4	30 10.3	-40.5	23.9	31 59.8	-39.8	24.4
58	23 57.0	-42.8	21.9	25 48.2	-42.1	22.2	27 39.2	-41.6	22.6	29 29.8	-40.9	23.0	31 20.0	-40.2	23.5
59	23 14.2	-42.9	21.1	25 06.1	-42.4	21.4	26 57.6	-41.8	21.8	28 48.9	-41.2	22.2	30 39.8	-40.5	22.6
60	22 31.3	-43.2	20.4	24 23.7	-42.7	20.7	26 15.8	-42.1	21.0	28 07.7	-41.5	21.4	29 59.3	-40.9	21.8
61	21 48.1	-43.4	19.6	23 41.0	-42.9	19.9	25 33.7	-42.3	20.2	27 26.2	-41.7	20.6	29 18.4	-41.1	20.9
62	21 04.7	-43.6	18.9	22 58.1	-43.1	19.1	24 51.4	-42.6	19.4	26 44.5	-42.1	19.7	28 37.3	-41.5	20.1
63	20 21.1	-43.8	18.1	22 15.0	-43.3	18.4	24 08.8	-42.8	18.7	26 02.4	-42.3	19.0	27 55.8	-41.7	19.3
64	19 37.3	-43.9	17.4	21 31.7	-43.4	17.6	23 26.0	-43.0	17.9	25 20.1	-42.5	18.2	27 14.1	-42.1	18.5
65	18 53.4	-44.1	16.7	20 48.3	-43.7	16.9	22 43.0	-43.2	17.1	24 37.6	-42.8	17.4	26 32.0	-42.3	17.7
66	18 09.3	-44.3	16.0	20 04.6	-43.9	16.2	21 59.8	-43.5	16.4	23 54.8	-43.0	16.6	25 49.7	-42.5	16.9
67	17 25.0	-44.4	15.3	19 20.7	-44.0	15.4	21 16.3	-43.6	15.6	23 11.8	-43.2	15.9	25 07.2	-42.8	16.1
68	16 40.6	-44.6	14.6	18 36.7	-44.2	14.7	20 32.7	-43.8	14.9	22 28.6	-43.4	15.1	24 24.4	-43.0	15.3
69	15 56.0	-44.7	13.9	17 52.5	-44.4	14.0	19 48.9	-44.0	14.2	21 45.2	-43.6	14.4	23 41.4	-43.3	14.6
70	15 11.3	-44.8	13.2	17 08.1	-44.4	13.3	19 04.9	-44.2	13.5	21 01.6	-43.9	13.6	22 58.1	-43.4	13.8
71	14 26.5	-44.9	12.5	16 23.7	-44.7	12.6	18 20.7	-44.3	12.7	20 17.7	-43.9	12.9	22 14.7	-43.7	13.1
72	13 41.6	-45.1	11.8	15 39.0	-44.7	11.9	17 36.4	-44.4	12.0	19 33.8	-44.2	12.2	21 31.0	-43.8	12.3
73	12 56.5	-45.1	11.1	14 54.3	-44.9	11.2	16 52.0	-44.7	11.3	18 49.6	-44.3	11.5	20 47.2	-44.1	11.6
74	12 11.4	-45.3	10.4	14 09.4	-45.0	10.5	16 07.3	-44.7	10.6	18 05.3	-44.5	10.7	20 03.1	-44.2	10.9
75	11 26.1	-45.3	9.8	13 24.4	-45.1	9.8	15 22.6	-44.9	9.9	17 20.8	-44.6	10.0	19 18.9	-44.4	10.2
76	10 40.8	-45.4	9.1	12 39.3	-45.2	9.2	14 37.7	-45.0	9.2	16 36.2	-44.8	9.3	18 34.5	-44.5	9.4
77	9 55.4	-45.5	8.4	11 54.1	-45.3	8.5	13 52.7	-45.1	8.6	15 51.4	-44.9	8.6	17 50.0	-44.7	8.7
78	9 09.9	-45.6	7.8	11 08.8	-45.4	7.8	13 07.6	-45.2	7.9	15 06.5	-45.0	8.0	17 05.3	-44.8	8.0
79	8 24.3	-45.6	7.1	10 23.4	-45.5	7.2	12 22.4	-45.3	7.2	14 21.5	-45.2	7.3	16 20.5	-45.0	7.3
80	7 38.7	-45.7	6.5	9 37.9	-45.6	6.5	11 37.1	-45.4	6.5	13 36.3	-45.2	6.6	15 35.5	-45.1	6.7
81	6 53.0	-45.8	5.8	8 52.3	-45.6	5.8	10 51.7	-45.5	5.9	12 51.1	-45.4	5.9	14 50.4	-45.2	6.0
82	6 07.2	-45.8	5.2	8 06.7	-45.7	5.2	10 06.2	-45.5	5.2	12 05.7	-45.4	5.2	14 05.2	-45.3	5.3
83	5 21.4	-45.8	4.5	7 21.0	-45.7	4.5	9 20.7	-45.7	4.6	11 20.3	-45.6	4.6	13 19.9	-45.4	4.6
84	4 35.6	-45.9	3.9	6 35.3	-45.8	3.9	8 35.0	-45.7	3.9	10 34.7	-45.6	3.9	12 34.5	-45.6	3.9
85	3 49.7	-45.9	3.2	5 49.5	-45.8	3.2	7 49.3	-45.8	3.2	9 49.1	-45.7	3.3	11 48.9	-45.6	3.3
86	3 03.8	-45.9	2.6	5 03.7	-45.9	2.6	7 03.5	-45.8	2.6	9 03.4	-45.7	2.6	11 03.3	-45.7	2.6
87	2 17.9	-46.0	1.9	4 17.8	-45.9	1.9	6 17.7	-45.8	1.9	8 17.7	-45.9	1.9	10 17.6	-45.8	2.0
88	1 31.9	-45.9	1.3	3 31.9	-45.9	1.3	5 31.9	-46.0	1.3	7 31.8	-45.9	1.3	9 31.8	-45.9	1.3
89	0 46.0	-46.0	0.6	2 46.0	-46.0	0.6	4 45.9	-45.9	0.6	6 45.9	-45.9	0.6	8 45.9	-45.9	0.7
90	0 00.0	-46.0	0.0	2 00.0	-46.0	0.0	4 00.0	-46.0	0.0	6 00.0	-46.0	0.0	8 00.0	-46.0	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 40°, 320°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
41	33.6	-31.0	131.9	40	12.5	-32.8	133.2	38	49.4	-34.4	134.4	37	24.6	-35.9	135.5	35	58.2	-37.2	136.5	30
41	02.6	-31.7	133.1	39	39.7	-33.4	134.3	38	15.0	-34.9	135.4	36	48.7	-36.3	136.5	35	21.0	-37.8	137.5	31
40	30.9	-32.4	134.2	39	06.3	-33.9	135.4	37	40.1	-35.4	136.5	36	12.4	-36.9	137.5	34	43.2	-38.2	138.5	32
39	58.5	-32.9	135.3	38	32.4	-34.5	136.4	37	04.7	-36.0	137.5	35	35.5	-37.3	138.5	34	05.0	-38.6	139.4	33
39	25.6	-33.6	136.4	37	57.9	-35.1	137.5	36	28.7	-36.4	138.5	34	58.2	-37.8	139.4	33	26.4	-39.0	140.3	34
38	52.0	-34.2	137.4	37	22.8	-35.5	138.5	35	52.3	-36.9	139.5	34	20.4	-38.1	140.4	32	47.4	-39.3	141.2	35
38	17.8	-34.7	138.5	36	47.3	-36.1	139.5	35	15.4	-37.4	140.4	33	42.3	-38.6	141.3	32	08.1	-39.8	142.1	36
37	43.1	-35.2	139.5	36	11.2	-36.6	140.5	34	38.0	-37.8	141.4	33	03.7	-39.0	142.2	31	28.3	-40.1	143.0	37
37	07.9	-35.7	140.6	35	34.6	-37.0	141.5	34	00.2	-38.3	142.3	32	24.7	-39.4	143.1	30	48.2	-40.5	143.9	38
36	32.2	-36.3	141.6	34	57.6	-37.5	142.4	33	21.9	-38.6	143.3	31	45.3	-39.8	144.0	30	07.7	-40.7	144.7	39
35	55.9	-36.7	142.5	34	20.1	-37.9	143.4	32	43.3	-39.0	144.2	31	05.5	-40.1	144.9	29	27.0	-41.1	145.6	40
35	19.2	-37.2	143.5	33	42.2	-38.3	144.3	32	04.3	-39.5	145.1	30	25.4	-40.4	145.8	28	45.9	-41.4	146.4	41
34	42.0	-37.6	144.5	33	03.9	-38.8	145.3	31	24.8	-39.7	146.0	29	45.0	-40.7	146.6	28	04.5	-41.7	147.2	42
34	04.4	-38.1	145.4	32	25.1	-39.1	146.2	30	45.1	-40.1	146.8	29	04.3	-41.1	147.5	27	22.8	-42.0	148.0	43
33	26.3	-38.4	146.4	31	46.0	-39.5	147.1	30	05.0	-40.5	147.7	28	23.2	-41.4	148.3	26	40.8	-42.2	148.8	44
32	47.9	-38.9	147.3	31	06.5	-39.8	147.9	29	24.5	-40.8	148.6	27	41.8	-41.6	149.1	25	58.6	-42.5	149.6	45
32	09.0	-39.2	148.2	30	26.7	-40.2	148.8	28	43.7	-41.1	149.4	27	00.2	-42.0	149.9	24	16.1	-42.8	150.4	46
31	29.8	-39.6	149.1	29	46.5	-40.5	149.7	28	02.6	-41.3	150.2	26	18.2	-42.2	150.7	23	33.3	-43.0	151.2	47
30	50.2	-40.0	149.9	29	06.0	-40.8	150.5	27	21.3	-41.7	151.0	25	36.0	-42.4	151.5	23	50.3	-43.2	152.0	48
30	10.2	-40.3	150.8	28	25.2	-41.2	151.3	26	39.6	-41.9	151.8	24	53.6	-42.7	152.3	23	07.1	-43.4	152.7	49
29	29.9	-40.6	151.7	27	44.0	-41.4	152.2	25	57.7	-42.2	152.6	24	10.9	-42.9	153.1	22	23.7	-43.6	153.5	50
28	49.3	-40.9	152.5	27	02.6	-41.7	153.0	25	15.5	-42.4	153.4	23	28.0	-43.1	153.8	21	40.1	-43.8	154.2	51
28	08.4	-41.2	153.3	26	20.9	-41.9	153.8	24	33.1	-42.7	154.2	22	44.9	-43.4	154.6	20	56.3	-44.0	154.9	52
27	27.2	-41.5	154.2	25	39.0	-42.3	154.6	23	50.4	-42.9	155.0	22	01.5	-43.6	155.3	20	12.3	-44.2	155.7	53
26	45.7	-41.8	155.0	24	56.7	-42.4	155.4	23	07.5	-43.1	155.7	21	17.9	-43.7	156.1	19	28.1	-44.3	156.4	54
26	03.9	-42.1	155.8	24	14.3	-42.7	156.2	22	24.4	-43.3	156.5	20	24.4	-43.9	156.8	18	43.8	-44.5	157.1	55
25	21.8	-42.3	156.6	23	31.6	-42.9	156.9	21	41.1	-43.6	157.2	19	50.3	-44.1	157.5	17	59.3	-44.7	157.8	56
24	39.5	-42.5	157.3	22	48.7	-43.2	157.7	20	57.5	-43.7	158.0	19	06.2	-44.3	158.3	17	14.6	-44.8	158.5	57
23	57.0	-42.8	158.1	22	05.5	-43.3	158.4	20	13.8	-43.9	158.7	18	21.9	-44.5	159.0	16	29.8	-44.9	159.2	58
23	14.2	-42.9	158.9	21	22.2	-43.5	159.2	19	29.9	-44.0	159.4	17	37.5	-44.6	159.7	15	44.9	-45.1	159.9	59
22	31.3	-43.2	159.6	20	38.7	-43.8	159.9	18	45.9	-44.3	160.2	16	52.9	-44.7	160.4	14	59.8	-45.2	160.6	60
21	48.1	-43.4	160.4	19	54.9	-43.9	160.6	18	01.6	-44.3	160.9	16	08.2	-44.9	161.1	14	14.6	-45.3	161.2	61
21	04.7	-43.6	161.1	19	11.0	-44.0	161.4	17	17.3	-44.6	161.6	15	23.3	-44.9	161.8	13	29.3	-45.4	161.9	62
20	21.1	-43.8	161.9	18	27.0	-44.3	162.1	16	32.7	-44.6	162.3	14	38.4	-45.1	162.4	12	43.9	-45.5	162.6	63
19	37.3	-43.9	162.6	17	42.7	-44.3	162.8	15	48.1	-44.8	163.0	13	53.3	-45.2	163.1	11	58.4	-45.6	163.3	64
18	53.4	-44.1	163.3	16	58.4	-44.6	163.5	15	03.3	-45.0	163.7	13	08.1	-45.4	163.8	11	12.8	-45.7	163.9	65
18	09.3	-44.3	164.0	16	13.8	-44.6	164.2	14	18.3	-45.0	164.3	12	22.7	-45.4	164.5	10	27.1	-45.8	164.6	66
17	25.0	-44.4	164.7	15	29.2	-44.8	164.9	13	33.3	-45.2	165.0	11	37.3	-45.5	165.1	9	41.3	-45.8	165.2	67
16	40.6	-44.6	165.4	14	44.4	-44.9	165.6	12	48.1	-45.2	165.7	10	51.8	-45.6	165.8	8	55.5	-45.9	165.9	68
15	56.0	-44.7	166.1	13	59.5	-45.0	166.3	12	02.9	-45.4	166.4	10	06.2	-45.6	166.5	8	09.6	-46.0	166.5	69
15	11.3	-44.8	166.8	13	14.5	-45.2	166.9	11	17.5	-45.4	167.0	9	20.6	-45.8	167.1	7	23.6	-46.1	167.2	70
14	26.5	-44.9	167.5	12	29.3	-45.2	167.6	10	32.1	-45.5	167.7	8	34.8	-45.8	167.8	6	37.5	-46.0	167.8	71
13	41.6	-45.1	168.2	11	44.1	-45.3	168.3	9	46.6	-45.6	168.4	7	49.0	-45.8	168.4	5	51.5	-46.2	168.5	72
12	56.5	-45.1	168.9	10	58.8	-45.4	169.0	9	01.0	-45.7	169.0	7	03.2	-46.0	169.1	5	05.3	-46.1	169.1	73
12	11.4	-45.3	169.6	10	13.4	-45.5	169.6	8	15.3	-45.7	169.7	6	17.2	-45.9	169.7	4	19.2	-46.2	169.8	74
11	26.1	-45.3	170.2	9	27.9	-45.6	170.3	7	29.6	-45.8	170.3	5	31.3	-46.0	170.4	3	33.0	-46.3	170.4	75
10	40.8	-45.4	170.9	8	42.3	-45.6	170.9	6	43.8	-45.9	171.0	4	45.3	-46.1	171.0	2	46.7	-46.2	171.0	76
9	55.4	-45.5	171.6	7	56.7	-45.7	171.6	5	57.9	-45.8	171.6	3	59.2	-46.1	171.7	2	00.5	-46.3	171.7	77
9	09.9	-45.6	172.2	7	11.0	-45.8	172.3	5	12.1	-46.0	172.3	3	13.1	-46.1	172.3	1	14.2	-46.3	172.3	78
8	24.3	-45.6	172.9	6	25.2	-45.8	172.9	4	26.1	-45.9	172.9	2	27.0	-46.1	172.9	0	27.9	-46.2	173.0	79
7	38.7	-45.7	173.5	5	39.4	-45.8	173.6	3	40.2	-46.0	173.6	1	40.9	-46.1	173.6	0	18.3	+46.3	6.4	80
6	53.0	-45.8	174.2	4	53.6	-45.9	174.2	2	54.2	-46.0	174.2	0	54.8	-46.1	174.2	1	04.6	+46.3	5.8	81
6	07.2	-45.8	174.8	4	07.7	-45.9	174.9	2	08.2	-46.1	174.9	0	08.7	-46.2	174.9	1	50.9	+46.2	5.1	82
5	21.4	-45.8	175.5	3	21.8	-46.0	175.5	1	22.1	-46.0	175.5	0	37.5	+46.1	4.5	2	37.1	+46.2	4.5	83
4	35.6	-45.9	176.1	2	35.8	-45.9	176.1	0	36.1	-46.0	176.1	1	23.6	+46.1	3.9	3	23.3	+46.3	3.9	84
3	49.7	-45.9	176.8	1	49.9	-46.0	176.8	0	09.9	+46.1	3.2	2	09.7	+46.1	3.2	4	09.6	+46.1	3.2	85
3	03.8	-45.9	177.4	1	03.9	-46.0	177.4	0	56.0	+46.0	2.6	2	55.8	+46.1	2.6	4	55.7	+46.2	2.6	86
2	17.9	-46.0	178.1	0	17.9	-46.0	178.1	1	42.0	+46.0	1.9	3	41.9	+46.1	1.9	5	41.9	+46.1	1.9	87
1	31.9	-45.9	178.7	0	28.1	+45.9	1.3	2	28.0	+46.0	1.3	4	28.0	+46.0	1.3	6	28.0	+46.0	1.3	88
0	46.0	-46.0	179.4	1	14.0	+46.0	0.6	3	14.0	+46.0	0.6	5	14.0	+46.0	0.6	7	14.0	+46.0	0.6	89
0	00.0	+46.0	0.0	2	00.0	+46.0	0.0	4	00.0	+45.9	0.0	6	00.0	+45.9	0.0	8	00.0	+45.9	0.0	90

LATITUDE SAME NAME

L.H.A. 140°, 220°

40°, 320° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	47 44.7	-20.7	55.9	48 50.4	-18.3	57.8	49 52.7	-15.7	59.7	50 51.2	-12.9	61.9	51 45.8	-10.1	64.1
31	47 24.0	-21.8	54.5	48 32.1	-19.3	56.3	49 37.0	-16.8	58.3	50 38.3	-14.1	60.3	51 35.7	-11.3	62.5
32	47 02.2	-22.7	53.1	48 12.8	-20.4	54.9	49 20.2	-18.0	56.8	50 24.2	-15.4	58.8	51 24.4	-12.5	60.9
33	46 39.5	-23.7	51.8	47 52.4	-21.4	53.5	49 02.2	-19.0	55.3	50 08.8	-16.4	57.3	51 11.9	-13.8	59.3
34	46 15.8	-24.5	50.4	47 31.0	-22.5	52.1	48 43.2	-20.1	53.9	49 52.4	-17.7	55.8	50 58.1	-15.0	57.8
35	45 51.3	-25.5	49.1	47 08.5	-23.3	50.7	48 23.1	-21.1	52.5	49 34.7	-18.7	54.3	50 43.1	-16.2	56.3
36	45 25.8	-26.3	47.8	46 45.2	-24.3	49.4	48 02.0	-22.2	51.0	49 16.0	-19.9	52.8	50 26.9	-17.4	54.8
37	44 59.5	-27.2	46.5	46 20.9	-25.2	48.0	47 39.8	-23.1	49.7	48 56.1	-20.9	51.4	50 09.5	-18.5	53.3
38	44 32.3	-28.0	45.3	45 55.7	-26.1	46.7	47 16.7	-24.1	48.3	48 35.2	-21.9	50.0	49 51.0	-19.6	51.8
39	44 04.3	-28.7	44.1	45 29.6	-27.0	45.4	46 52.6	-25.0	47.0	48 13.3	-22.9	48.6	49 31.4	-20.8	50.3
40	43 35.6	-29.6	42.8	45 02.6	-27.8	44.2	46 27.6	-25.9	45.6	47 50.4	-24.0	47.2	49 10.6	-21.7	48.9
41	43 06.0	-30.2	41.6	44 34.8	-28.6	42.9	46 01.7	-26.8	44.3	47 26.4	-24.8	45.8	48 48.9	-22.9	47.5
42	42 35.8	-31.0	40.5	44 06.2	-29.3	41.7	45 34.9	-27.6	43.0	47 01.6	-25.8	44.5	48 26.0	-23.8	46.1
43	42 04.8	-31.7	39.3	43 36.9	-30.2	40.5	45 07.3	-28.5	41.8	46 35.8	-26.7	43.2	48 02.2	-24.8	44.7
44	41 33.1	-32.3	38.2	43 06.7	-30.8	39.3	44 38.8	-29.3	40.5	46 09.1	-27.6	41.9	47 37.4	-25.7	43.3
45	41 00.8	-33.0	37.0	42 35.9	-31.6	38.1	44 09.5	-30.0	39.3	45 41.5	-28.4	40.6	47 11.7	-26.6	42.0
46	40 27.8	-33.6	35.9	42 04.3	-32.2	37.0	43 39.5	-30.8	38.1	45 13.1	-29.2	39.3	46 45.1	-27.6	40.7
47	39 54.2	-34.1	34.9	41 32.1	-32.9	35.8	43 08.7	-31.5	36.9	44 43.9	-30.0	38.1	46 17.5	-28.4	39.4
48	39 20.1	-34.8	33.8	40 59.2	-33.5	34.7	42 37.2	-32.1	35.8	44 13.9	-30.7	36.9	45 49.1	-29.2	38.1
49	38 45.3	-35.3	32.7	40 25.7	-34.1	33.6	42 05.1	-32.9	34.6	43 43.2	-31.5	35.7	45 19.9	-30.0	36.9
50	38 10.0	-35.9	31.7	39 51.6	-34.7	32.6	41 32.2	-33.5	33.5	43 11.7	-32.2	34.5	44 49.9	-30.8	35.6
51	37 34.1	-36.3	30.7	39 16.9	-35.3	31.5	40 58.7	-34.1	32.4	42 39.5	-32.9	33.4	44 19.1	-31.5	34.4
52	36 57.8	-36.9	29.7	38 41.6	-35.8	30.5	40 24.6	-34.7	31.3	42 06.6	-33.5	32.2	43 47.6	-32.3	33.2
53	36 20.9	-37.3	28.7	38 05.8	-36.4	29.4	39 49.9	-35.3	30.2	41 33.1	-34.2	31.1	43 15.3	-33.0	32.1
54	35 43.6	-37.8	27.7	37 29.4	-36.8	28.4	39 14.6	-35.9	29.2	40 58.9	-34.8	30.0	42 42.3	-33.6	30.9
55	35 05.8	-38.2	26.8	36 52.6	-37.3	27.4	38 38.7	-36.3	28.2	40 24.1	-35.3	29.0	42 08.7	-34.3	29.8
56	34 27.6	-38.7	25.8	36 15.3	-37.8	26.5	38 02.4	-36.9	27.2	39 48.8	-35.9	27.9	41 34.4	-34.8	28.7
57	33 48.9	-39.1	24.9	35 37.5	-38.3	25.5	37 25.5	-37.4	26.2	39 12.9	-36.5	26.9	40 59.6	-35.5	27.6
58	33 09.8	-39.4	24.0	34 59.2	-38.7	24.6	36 48.1	-37.9	25.2	38 36.4	-37.0	25.8	40 24.1	-36.1	26.6
59	32 30.4	-39.8	23.1	34 20.5	-39.1	23.6	36 10.2	-38.3	24.2	37 59.4	-37.5	24.8	39 48.0	-36.6	25.5
60	31 50.6	-40.2	22.2	33 41.4	-39.5	22.7	35 31.9	-38.7	23.3	37 21.9	-38.0	23.9	39 11.4	-37.2	24.5
61	31 10.4	-40.6	21.4	33 01.9	-39.8	21.8	34 53.2	-39.2	22.3	36 43.9	-38.4	22.9	38 34.2	-37.6	23.5
62	30 29.8	-40.8	20.5	32 22.1	-40.3	20.9	34 14.0	-39.6	21.4	36 05.5	-38.9	21.9	37 56.6	-38.2	22.5
63	29 49.0	-41.2	19.7	31 41.8	-40.6	20.1	33 34.4	-40.0	20.5	35 26.6	-39.3	21.0	37 18.4	-38.6	21.5
64	29 07.8	-41.5	18.8	31 01.2	-40.9	19.2	32 54.4	-40.3	19.6	34 47.3	-39.7	20.1	36 39.8	-39.0	20.6
65	28 26.3	-41.8	18.0	30 20.3	-41.3	18.3	32 14.1	-40.7	18.7	34 07.6	-40.2	19.2	36 00.8	-39.5	19.6
66	27 44.5	-42.1	17.2	29 39.0	-41.6	17.5	31 33.4	-41.1	17.9	33 27.4	-40.5	18.3	35 21.3	-40.0	18.7
67	27 02.4	-42.3	16.4	28 57.4	-41.8	16.7	30 52.3	-41.4	17.0	32 46.9	-40.8	17.4	34 41.3	-40.3	17.8
68	26 20.1	-42.6	15.6	28 15.6	-42.2	15.9	30 10.9	-41.7	16.2	32 06.1	-41.2	16.5	34 01.0	-40.7	16.9
69	25 37.5	-42.9	14.8	27 33.4	-42.4	15.1	29 29.2	-42.0	15.3	31 24.9	-41.6	15.7	33 20.3	-41.1	16.0
70	24 54.6	-43.1	14.0	26 51.0	-42.7	14.3	28 47.2	-42.3	14.5	30 43.3	-41.9	14.8	32 39.2	-41.4	15.1
71	24 11.5	-43.3	13.3	26 08.3	-43.0	13.5	28 04.9	-42.6	13.7	30 01.4	-42.2	14.0	31 57.8	-41.8	14.3
72	23 28.2	-43.5	12.5	25 25.3	-43.2	12.7	27 22.3	-42.8	12.9	29 19.2	-42.4	13.2	31 16.0	-42.1	13.4
73	22 44.7	-43.7	11.8	24 42.1	-43.4	11.9	26 39.5	-43.1	12.1	28 36.8	-42.8	12.4	30 33.9	-42.4	12.6
74	22 01.0	-44.0	11.0	23 58.7	-43.6	11.2	25 56.4	-43.3	11.4	27 54.0	-43.0	11.6	29 51.5	-42.7	11.8
75	21 17.0	-44.1	10.3	23 15.1	-43.9	10.4	25 13.1	-43.6	10.6	27 11.0	-43.3	10.8	29 08.8	-43.0	11.0
76	20 32.9	-44.3	9.6	22 31.2	-44.0	9.7	24 29.5	-43.8	9.8	26 27.7	-43.6	10.0	28 25.8	-43.2	10.2
77	19 48.6	-44.5	8.8	21 47.2	-44.3	9.0	23 45.7	-44.0	9.1	25 44.1	-43.7	9.2	27 42.6	-43.6	9.4
78	19 04.1	-44.6	8.1	21 02.9	-44.4	8.2	23 01.7	-44.3	8.3	25 00.4	-44.0	8.5	26 59.0	-43.8	8.6
79	18 19.5	-44.8	7.4	20 18.5	-44.6	7.5	22 17.4	-44.4	7.6	24 16.4	-44.3	7.7	26 15.2	-44.0	7.9
80	17 34.7	-44.9	6.7	19 33.9	-44.8	6.8	21 33.0	-44.6	6.9	23 32.1	-44.4	7.0	25 31.2	-44.2	7.1
81	16 49.8	-45.1	6.0	18 49.1	-44.9	6.1	20 48.4	-44.8	6.2	22 47.7	-44.6	6.3	24 47.0	-44.5	6.4
82	16 04.7	-45.2	5.3	18 04.2	-45.1	5.4	20 03.6	-44.9	5.5	22 03.1	-44.8	5.5	24 02.5	-44.7	5.6
83	15 19.5	-45.3	4.7	17 19.1	-45.2	4.7	19 18.7	-45.1	4.8	21 18.3	-45.0	4.8	23 17.8	-44.8	4.9
84	14 34.2	-45.5	4.0	16 33.9	-45.4	4.0	18 33.6	-45.3	4.1	20 33.3	-45.2	4.1	22 33.0	-45.1	4.2
85	13 48.7	-45.5	3.3	15 48.5	-45.5	3.3	17 48.3	-45.4	3.4	19 48.1	-45.3	3.4	21 47.9	-45.3	3.5
86	13 03.2	-45.7	2.6	15 03.0	-45.6	2.7	17 02.9	-45.5	2.7	19 02.8	-45.5	2.7	21 02.6	-45.4	2.8
87	12 17.5	-45.7	2.0	14 17.4	-45.7	2.0	16 17.4	-45.7	2.0	18 17.3	-45.6	2.0	20 17.2	-45.6	2.1
88	11 31.8	-45.9	1.3	13 31.7	-45.8	1.3	15 31.7	-45.8	1.3	17 31.7	-45.8	1.3	19 31.6	-45.7	1.4
89	10 45.9	-45.9	0.7	12 45.9	-45.9	0.7	14 45.9	-45.9	0.7	16 45.9	-45.9	0.7	18 45.9	-45.9	0.7
90	10 00.0	-46.0	0.0	12 00.0	-46.0	0.0	14 00.0	-46.0	0.0	16 00.0	-46.0	0.0	18 00.0	-46.0	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 40°, 320°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
34	30.4	-38.6	137.5	33	01.3	-39.9	138.4	31	31.0	-41.1	139.2	29	59.6	-42.2	140.0	30				
33	51.8	-39.0	138.4	32	21.4	-40.2	139.3	30	49.9	-41.4	140.1	29	17.4	-42.5	140.8	31				
33	12.8	-39.4	139.3	31	41.2	-40.6	140.2	30	08.5	-41.7	140.9	28	34.9	-42.8	141.6	32				
32	33.4	-39.8	140.2	31	00.6	-41.0	141.0	29	26.8	-42.0	141.8	27	52.1	-43.0	142.4	33				
31	53.6	-40.2	141.1	30	19.6	-41.2	141.9	28	44.8	-42.3	142.6	27	09.1	-43.3	143.2	34				
31	13.4	-40.5	142.0	29	38.4	-41.6	142.7	28	02.5	-42.6	143.4	26	25.8	-43.6	144.0	35				
30	32.9	-40.9	142.9	28	56.8	-41.9	143.5	27	19.9	-42.9	144.2	25	42.2	-43.8	144.8	36				
29	52.0	-41.1	143.7	28	14.9	-42.2	144.4	26	37.0	-43.1	145.0	24	58.4	-44.0	145.5	37				
29	10.9	-41.5	144.5	27	32.7	-42.4	145.2	25	53.9	-43.3	145.7	24	14.4	-44.2	146.3	38				
28	29.4	-41.8	145.4	26	50.3	-42.7	146.0	25	10.6	-43.6	146.5	23	30.2	-44.4	147.0	39				
27	47.6	-42.0	146.2	26	07.6	-43.0	146.7	24	27.0	-43.9	147.3	22	45.8	-44.7	147.7	40				
27	05.6	-42.3	147.0	25	24.6	-43.2	147.5	23	43.1	-44.0	148.0	22	01.1	-44.8	148.4	41				
26	23.3	-42.6	147.8	24	41.4	-43.4	148.3	22	59.1	-44.2	148.7	21	16.3	-45.0	149.2	42				
25	40.7	-42.9	148.6	23	58.0	-43.6	149.0	22	14.9	-44.4	149.5	20	31.3	-45.2	149.9	43				
24	57.8	-43.0	149.3	23	14.4	-43.9	149.8	21	30.5	-44.7	150.2	19	46.1	-45.3	150.6	44				
24	14.8	-43.3	150.1	22	30.5	-44.0	150.5	20	45.8	-44.7	150.9	19	00.8	-45.5	151.3	45				
23	31.5	-43.5	150.9	21	46.5	-44.3	151.3	20	01.1	-45.0	151.6	18	15.3	-45.6	152.0	46				
22	48.0	-43.8	151.6	21	02.2	-44.4	152.0	19	16.1	-45.1	152.3	17	29.7	-45.8	152.6	47				
22	04.2	-43.9	152.3	20	17.8	-44.6	152.7	18	31.0	-45.3	153.0	16	43.9	-45.9	153.3	48				
21	20.3	-44.1	153.1	19	33.2	-44.8	153.4	17	45.7	-45.4	153.7	15	58.0	-46.0	154.0	49				
20	36.2	-44.3	153.8	18	48.4	-44.9	154.1	9	00.3	-45.6	154.4	15	12.0	-46.2	154.6	50				
19	51.9	-44.4	154.5	18	03.5	-45.1	154.8	16	14.7	-45.6	155.1	14	25.8	-46.2	155.3	51				
19	07.5	-44.7	155.2	17	18.4	-45.2	155.5	15	29.1	-45.8	155.8	13	39.6	-46.4	156.0	52				
18	22.8	-44.7	155.9	16	33.2	-45.4	156.2	14	43.3	-45.9	156.4	12	53.2	-46.5	156.6	53				
17	38.1	-45.0	156.6	15	47.8	-45.5	156.9	13	57.4	-46.1	157.1	12	06.7	-46.5	157.3	54				
16	53.1	-45.0	157.3	15	02.3	-45.6	157.6	13	11.3	-46.1	157.7	11	20.2	-46.6	157.9	55				
16	08.1	-45.2	158.0	14	16.7	-45.7	158.2	12	25.2	-46.2	158.4	10	33.6	-46.7	158.6	56				
15	22.9	-45.3	158.7	13	31.0	-45.8	158.9	11	39.0	-46.3	159.1	9	46.9	-46.8	159.2	57				
14	37.6	-45.5	159.4	12	45.2	-45.9	159.6	10	52.7	-46.4	159.7	9	00.1	-46.8	159.8	58				
13	52.1	-45.5	160.1	11	59.3	-46.0	160.2	10	06.3	-46.5	160.3	8	13.3	-46.9	160.5	59				
13	06.6	-45.7	160.7	11	13.3	-46.1	160.9	9	19.8	-46.5	161.0	7	26.4	-47.2	161.1	60				
12	20.9	-45.7	161.4	10	27.2	-46.2	161.5	8	33.3	-46.6	161.6	6	39.4	-47.0	161.7	61				
11	35.2	-45.8	162.1	9	41.0	-46.2	162.2	7	46.7	-46.6	162.3	5	52.4	-47.0	162.3	62				
10	49.4	-46.0	162.7	8	54.8	-46.4	162.8	7	00.1	-46.7	162.9	5	05.4	-47.1	163.0	63				
10	03.4	-45.9	163.4	8	08.4	-46.3	163.5	6	13.4	-46.8	163.5	4	18.3	-47.1	163.6	64				
9	17.5	-46.1	164.0	7	22.1	-46.5	164.1	5	26.6	-46.7	164.2	3	31.2	-47.2	164.2	65				
8	31.4	-46.1	164.7	6	35.6	-46.4	164.7	4	39.9	-46.9	164.8	2	44.0	-47.1	164.8	66				
7	45.3	-46.2	165.3	5	49.2	-46.6	165.4	3	53.0	-46.8	165.4	1	56.9	-47.2	165.4	67				
6	59.1	-46.3	166.0	5	02.6	-46.5	166.0	3	06.2	-46.9	166.0	1	09.7	-47.1	166.1	68				
6	12.8	-46.3	166.6	4	16.1	-46.6	166.6	2	19.3	-46.9	166.7	0	22.6	-47.2	166.7	69				
5	26.5	-46.3	167.2	3	29.5	-46.6	167.3	1	32.4	-46.8	167.3	0	24.6	-47.2	167.3	70				
4	40.2	-46.3	167.9	2	42.9	-46.6	167.9	0	45.6	-46.9	167.9	1	11.8	-47.2	167.9	71				
3	53.9	-46.4	168.5	1	56.3	-46.7	168.5	0	01.3	-46.9	168.5	1	59.0	-47.1	168.5	72				
3	07.5	-46.4	169.2	1	09.6	-46.6	169.2	0	48.2	-46.9	169.2	2	46.1	-47.1	169.2	73				
2	21.1	-46.5	169.8	0	23.0	-46.7	169.8	1	35.1	-46.9	169.8	3	33.2	-47.1	169.8	74				
1	34.6	-46.4	170.4	0	23.7	-46.7	170.4	2	22.0	-46.9	170.4	4	20.3	-47.1	170.4	75				
0	48.2	-46.5	171.1	1	10.4	-46.6	171.1	3	08.9	-46.8	171.1	5	07.4	-47.1	171.1	76				
0	01.7	-46.4	171.7	1	57.0	-46.6	171.7	3	55.7	-46.8	171.7	5	54.5	-47.0	171.7	77				
0	44.7	+46.4	7.7	2	43.6	+46.6	7.7	4	42.5	+46.8	7.7	6	41.5	+46.9	7.7	8	40.4	+47.1	7.8	78
1	31.1	+46.5	7.0	3	30.2	+46.6	7.1	5	29.3	+46.8	7.1	7	28.4	+46.9	7.1	9	27.5	+47.0	7.1	79
2	17.6	+46.4	6.4	4	16.8	+46.6	6.4	6	16.1	+46.7	6.4	8	15.3	+46.8	6.5	10	14.5	+47.0	6.5	80
3	04.0	+46.4	5.8	5	03.4	+46.5	5.8	7	02.8	+46.6	5.8	9	02.1	+46.8	5.8	11	01.5	+46.9	5.9	81
3	50.4	+46.3	5.1	5	49.9	+46.5	5.2	7	49.4	+46.6	5.2	9	48.9	+46.7	5.2	11	48.4	+46.8	5.2	82
4	36.7	+46.4	4.5	6	36.4	+46.4	4.5	8	36.0	+46.5	4.5	10	35.6	+46.6	4.6	12	35.2	+46.8	4.6	83
5	23.1	+46.3	3.9	7	22.8	+46.4	3.9	9	22.5	+46.5	3.9	11	22.2	+46.6	3.9	13	22.0	+46.6	4.0	84
6	09.4	+46.2	3.2	8	09.2	+46.3	3.2	10	09.0	+46.4	3.3	12	08.8	+46.4	3.3	14	08.6	+46.5	3.3	85
6	55.6	+46.2	2.6	8	55.5	+46.2	2.6	10	55.4	+46.3	2.6	12	55.2	+46.4	2.6	14	55.1	+46.4	2.7	86
7	41.8	+46.1	1.9	9	41.7	+46.2	2.0	11	41.7	+46.2	2.0	13	41.6	+46.2	2.0	15	41.5	+46.3	2.0	87
8	27.9	+46.1	1.3	10	27.9	+46.1	1.3	12	27.9	+46.1	1.3	14	27.8	+46.2	1.3	16	27.8	+46.2	1.3	88
9	14.0	+46.0	0.7	11	14.0	+46.0	0.7	13	14.0	+46.0	0.7	15	14.0	+46.0	0.7	17	14.0	+46.0	0.7	89
10	00.0	+45.9	0.0	12	00.0	+45.9	0.0	14	00.0	+45.9	0.0	16	00.0	+45.9	0.0	18	00.0	+45.9	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 140°, 220°

40°, 320° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	52 36.0	-7.0	66.4	53 21.7	-3.8	68.9	54 02.4	-0.5	71.4	54 38.0	+2.9	74.1	55 08.1	+6.4	76.9
31	52 29.0	-8.3	64.8	53 17.9	-5.2	67.2	54 01.9	-1.9	69.7	54 40.9	+1.4	72.4	55 14.5	+4.9	75.1
32	52 20.7	-9.6	63.2	53 12.7	-6.6	65.5	54 00.0	-3.4	68.0	54 42.3	0.0	70.6	55 19.4	+3.5	73.4
33	52 11.1	-11.0	61.6	53 06.1	-7.9	63.9	53 56.6	-4.8	66.3	54 42.3	-1.5	68.9	55 22.9	+1.9	71.6
34	52 00.1	-12.2	60.0	52 58.2	-9.3	62.2	53 51.8	-6.2	64.6	54 40.8	-3.0	67.2	55 24.8	+0.4	69.8
35	51 47.9	-13.5	58.4	52 48.9	-10.7	60.6	53 45.6	-7.6	63.0	54 37.8	-4.4	65.5	55 25.2	-1.1	68.1
36	51 34.4	-14.8	56.8	52 38.2	-12.0	59.0	53 38.0	-9.0	61.3	54 33.4	-5.9	63.7	55 24.1	-2.7	66.3
37	51 19.6	-15.9	55.2	52 26.2	-13.2	57.4	53 29.0	-10.4	59.6	54 27.5	-7.4	62.0	55 21.4	-4.1	64.6
38	51 03.7	-17.2	53.7	52 13.0	-14.6	55.8	53 18.6	-11.8	58.0	54 20.1	-8.7	60.3	55 17.3	-5.6	62.8
39	50 46.5	-18.4	52.2	51 58.4	-15.8	54.2	53 06.8	-13.1	56.3	54 11.4	-10.3	58.6	55 11.7	-7.2	61.1
40	50 28.1	-19.4	50.7	51 42.6	-17.0	52.6	52 53.7	-14.4	54.7	54 01.1	-11.5	56.9	55 04.5	-8.6	59.3
41	50 08.7	-20.6	49.2	51 25.6	-18.2	51.1	52 39.3	-15.7	53.1	53 49.6	-13.0	55.3	54 55.9	-10.1	57.6
42	49 48.1	-21.7	47.7	51 07.4	-19.4	49.6	52 23.6	-16.9	51.5	53 36.6	-14.3	53.6	54 45.8	-11.4	55.9
43	49 26.4	-22.8	46.3	50 48.0	-20.6	48.1	52 06.7	-18.2	50.0	53 22.3	-15.7	52.0	54 34.4	-13.0	54.2
44	49 03.6	-23.7	44.9	50 27.4	-21.6	46.6	51 48.5	-19.4	48.4	53 06.6	-16.9	50.4	54 21.4	-14.3	52.5
45	48 39.9	-24.8	43.5	50 05.8	-22.8	45.1	51 29.1	-20.5	46.9	52 49.7	-18.2	48.8	54 07.1	-15.6	50.8
46	48 15.1	-25.7	42.1	49 43.0	-23.8	43.7	51 08.6	-21.7	45.4	52 31.5	-19.4	47.2	53 51.5	-17.0	49.2
47	47 49.4	-26.7	40.8	49 19.2	-24.8	42.3	50 46.9	-22.8	43.9	52 12.1	-20.6	45.7	53 34.5	-18.3	47.6
48	47 22.7	-27.6	39.4	48 54.4	-25.8	40.9	50 24.1	-23.9	42.4	51 51.5	-21.8	44.1	53 16.2	-19.5	46.0
49	46 55.1	-28.4	38.1	48 28.6	-26.7	39.5	50 00.2	-24.9	41.0	51 29.7	-22.9	42.6	52 56.7	-20.8	44.4
50	46 26.7	-29.3	36.8	48 01.9	-27.7	38.2	49 35.3	-25.9	39.6	51 06.8	-24.1	41.2	52 35.9	-21.9	42.9
51	45 57.4	-30.1	35.6	47 34.2	-28.5	36.8	49 09.4	-26.9	38.2	50 42.7	-25.1	39.7	52 14.0	-23.2	41.3
52	45 27.3	-30.9	34.3	47 05.7	-29.5	35.5	48 42.5	-27.8	36.8	50 17.6	-26.1	38.3	51 50.8	-24.2	39.8
53	44 56.4	-31.7	33.1	46 36.2	-30.2	34.3	48 14.7	-28.8	35.5	49 51.5	-27.1	36.9	51 26.6	-25.3	38.4
54	44 24.7	-32.4	31.9	46 06.0	-31.1	33.0	47 45.9	-29.6	34.2	49 24.4	-28.1	35.5	51 01.3	-26.4	36.9
55	43 52.3	-33.1	30.8	45 34.9	-31.8	31.8	47 16.3	-30.5	32.9	48 56.3	-29.0	34.1	50 34.9	-27.5	35.5
56	43 19.2	-33.7	29.6	45 03.1	-32.6	30.6	46 45.8	-31.3	31.6	48 27.3	-29.9	32.8	50 07.4	-28.3	34.1
57	42 45.5	-34.5	28.5	44 30.5	-33.3	29.4	46 14.5	-32.1	30.4	47 57.4	-30.8	31.5	49 39.1	-29.4	32.7
58	42 11.0	-35.0	27.4	43 57.2	-34.0	28.2	45 42.4	-32.8	29.2	47 26.6	-31.6	30.2	49 09.7	-30.2	31.4
59	41 36.0	-35.7	26.3	43 23.2	-34.7	27.1	45 09.6	-33.6	28.0	46 55.0	-32.4	29.0	48 39.5	-31.2	30.1
60	41 00.3	-36.3	25.2	42 48.5	-35.3	26.0	44 36.0	-34.3	26.8	46 22.6	-33.1	27.8	48 08.3	-32.0	28.8
61	40 24.0	-36.8	24.2	42 13.2	-35.9	24.9	44 01.7	-34.9	25.7	45 49.5	-34.0	26.6	47 36.3	-32.7	27.5
62	39 47.2	-37.3	23.1	41 37.3	-36.5	23.8	43 26.8	-35.6	24.6	45 15.5	-34.6	25.4	47 03.6	-33.6	26.3
63	39 09.9	-37.9	22.1	41 00.8	-37.1	22.8	42 51.2	-36.3	23.5	44 40.9	-35.3	24.2	46 30.0	-34.3	25.1
64	38 32.0	-38.4	21.1	40 23.7	-37.6	21.7	42 14.9	-36.8	22.4	44 05.6	-36.0	23.1	45 55.7	-35.1	23.9
65	37 53.6	-38.8	20.1	39 46.1	-38.2	20.7	41 38.1	-37.4	21.3	43 29.6	-36.6	22.0	45 20.6	-35.7	22.7
66	37 14.8	-39.3	19.2	39 07.9	-38.6	19.7	41 00.7	-37.9	20.3	42 53.0	-37.2	20.9	44 44.9	-36.4	21.6
67	36 35.5	-39.8	18.2	38 29.3	-39.2	18.7	40 22.8	-38.5	19.3	42 15.8	-37.7	19.8	44 08.5	-37.0	20.5
68	35 55.7	-40.2	17.3	37 50.1	-39.6	17.8	39 44.3	-39.0	18.2	41 38.1	-38.4	18.8	43 31.5	-37.7	19.4
69	35 15.5	-40.5	16.4	37 10.5	-40.0	16.8	39 05.3	-39.5	17.3	40 59.7	-38.9	17.8	42 53.8	-38.2	18.3
70	34 35.0	-41.0	15.5	36 30.5	-40.5	15.9	38 25.8	-39.9	16.3	40 20.8	-39.3	16.8	42 15.6	-38.8	17.3
71	33 54.0	-41.3	14.6	35 50.0	-40.8	15.0	37 45.9	-40.4	15.4	39 41.5	-39.9	15.8	41 36.8	-39.3	16.3
72	33 12.7	-41.7	13.7	35 09.2	-41.3	14.1	37 05.5	-40.9	14.4	39 01.6	-40.4	14.8	40 57.5	-39.9	15.2
73	32 31.0	-42.1	12.9	34 27.9	-41.7	13.2	36 24.6	-41.2	13.5	38 21.2	-40.8	13.9	40 17.6	-40.3	14.3
74	31 48.9	-42.3	12.0	33 46.2	-42.0	12.3	35 43.4	-41.6	12.6	37 40.4	-41.2	12.9	39 37.3	-40.8	13.3
75	31 06.6	-42.7	11.2	33 04.2	-42.3	11.5	35 01.8	-42.0	11.7	36 59.2	-41.6	12.0	38 56.5	-41.2	12.4
76	30 23.9	-43.0	10.4	32 21.9	-42.7	10.6	34 19.8	-42.4	10.9	36 17.6	-42.0	11.1	38 15.3	-41.7	11.4
77	29 40.9	-43.3	9.6	31 39.2	-43.0	9.8	33 37.4	-42.7	10.0	35 35.6	-42.5	10.2	37 33.6	-42.1	10.5
78	28 57.6	-43.5	8.8	30 56.2	-43.3	9.0	32 54.7	-43.0	9.2	34 53.1	-42.7	9.4	36 51.5	-42.5	9.6
79	28 14.1	-43.8	8.0	30 12.9	-43.6	8.2	32 11.7	-43.4	8.3	34 10.4	-43.1	8.5	36 09.0	-42.8	8.7
80	27 30.3	-44.1	7.2	29 29.3	-43.8	7.4	31 28.3	-43.7	7.5	33 27.3	-43.5	7.7	35 26.2	-43.3	7.9
81	26 46.2	-44.3	6.5	28 45.5	-44.2	6.6	30 44.6	-43.9	6.7	32 43.8	-43.8	6.9	34 42.9	-43.5	7.0
82	26 01.9	-44.5	5.7	28 01.3	-44.4	5.8	30 00.7	-44.2	5.9	32 00.0	-44.0	6.1	33 59.4	-44.0	6.2
83	25 17.4	-44.8	5.0	27 16.9	-44.6	5.1	29 16.5	-44.5	5.2	31 16.0	-44.4	5.3	33 15.4	-44.2	5.4
84	24 32.6	-44.9	4.2	26 32.3	-44.9	4.3	28 32.0	-44.8	4.4	30 31.6	-44.6	4.5	32 31.2	-44.5	4.6
85	23 47.7	-45.2	3.5	25 47.4	-45.0	3.6	27 47.2	-45.0	3.6	29 47.0	-44.9	3.7	31 46.7	-44.8	3.8
86	23 02.5	-45.4	2.8	25 02.4	-45.3	2.8	27 02.2	-45.2	2.9	29 02.1	-45.2	2.9	31 01.9	-45.1	3.0
87	22 17.1	-45.5	2.1	24 17.1	-45.5	2.1	26 17.0	-45.5	2.2	28 16.9	-45.4	2.2	30 16.8	-45.3	2.2
88	21 31.6	-45.7	1.4	23 31.6	-45.7	1.4	25 31.5	-45.6	1.4	27 31.5	-45.6	1.4	29 31.5	-45.7	1.5
89	20 45.9	-45.9	0.7	22 45.9	-45.9	0.7	24 45.9	-45.9	0.7	26 45.9	-45.9	0.7	28 45.8	-45.8	0.7
90	20 00.0	-46.0	0.0	22 00.0	-46.0	0.0	24 00.0	-46.1	0.0	26 00.0	-46.1	0.0	28 00.0	-46.1	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 40°, 320°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
26	53.8	-44.2	141.4	25	19.7	-45.2	142.0	23	44.8	-46.1	142.5	22	09.2	-47.0	143.1	20	33.0	-47.8	143.5	30
26	09.6	-44.5	142.1	24	34.5	-45.4	142.7	22	58.7	-46.3	143.2	21	22.2	-47.1	143.7	19	45.2	-47.9	144.2	31
25	25.1	-44.7	142.9	23	49.1	-45.7	143.4	22	12.4	-46.5	143.9	20	35.1	-47.3	144.4	18	57.3	-48.1	144.8	32
24	40.4	-45.0	143.6	23	03.4	-45.8	144.1	21	25.9	-46.6	144.6	19	47.8	-47.4	145.0	18	09.2	-48.2	145.4	33
23	55.4	-45.1	144.3	22	17.6	-45.9	144.8	20	39.3	-46.8	145.3	19	00.4	-47.6	145.7	17	21.0	-48.3	146.1	34
23	10.3	-45.3	145.1	21	31.7	-46.2	145.5	19	52.5	-47.0	146.0	18	12.8	-47.7	146.3	16	32.7	-48.4	146.7	35
22	25.0	-45.5	145.8	20	45.5	-46.3	146.2	19	05.5	-47.0	146.6	17	25.1	-47.8	147.0	15	44.3	-48.5	147.3	36
21	39.5	-45.7	146.5	19	59.2	-46.5	146.9	18	18.5	-47.3	147.3	16	37.3	-47.9	147.6	14	55.8	-48.6	147.9	37
20	53.8	-45.9	147.2	19	12.7	-46.6	147.6	17	31.2	-47.3	147.9	15	49.4	-48.0	148.2	14	07.2	-48.7	148.5	38
20	07.9	-46.0	147.9	18	26.1	-46.7	148.2	16	43.9	-47.4	148.6	15	01.4	-48.2	148.9	13	18.5	-48.8	149.1	39
19	21.9	-46.2	148.5	17	39.4	-46.9	148.9	15	56.5	-47.6	149.2	14	13.2	-48.2	149.5	12	29.7	-48.8	149.7	40
18	35.7	-46.3	149.2	16	52.5	-47.0	149.5	15	08.9	-47.7	149.8	13	25.0	-48.3	150.1	11	40.9	-49.0	150.3	41
17	49.4	-46.4	149.9	16	05.5	-47.1	150.2	14	21.2	-47.8	150.5	12	36.7	-48.4	150.7	10	51.9	-49.0	150.9	42
17	03.0	-46.6	150.5	15	18.4	-47.3	150.8	13	33.4	-47.8	151.1	11	48.3	-48.5	151.3	10	02.9	-49.0	151.5	43
16	16.4	-46.7	151.2	14	31.1	-47.3	151.5	12	45.6	-48.0	151.7	10	59.8	-48.5	151.9	9	13.9	-49.1	152.1	44
15	29.7	-46.8	151.9	13	43.8	-47.4	152.1	11	57.6	-48.0	152.3	10	11.3	-48.6	152.5	8	24.8	-49.2	152.6	45
14	42.9	-46.9	152.5	12	56.4	-47.6	152.7	11	09.6	-48.1	152.9	9	22.7	-48.7	153.1	7	35.6	-49.2	153.2	46
13	56.0	-47.0	153.1	12	08.8	-47.6	153.4	10	21.5	-48.2	153.5	8	34.0	-48.7	153.7	6	46.4	-49.3	153.8	47
13	09.0	-47.1	153.8	11	21.2	-47.6	154.0	9	33.3	-48.2	154.1	7	45.3	-48.8	154.3	5	57.1	-49.3	154.4	48
12	21.9	-47.2	154.4	10	33.6	-47.8	154.6	8	45.1	-48.3	154.7	6	56.5	-48.8	154.9	5	07.8	-49.3	155.0	49
11	34.7	-47.3	155.1	9	45.8	-47.8	155.2	7	56.8	-48.3	155.3	6	07.7	-48.9	155.4	4	18.5	-49.3	155.5	50
10	47.4	-47.3	155.7	8	58.0	-47.9	155.8	7	08.5	-48.4	155.9	5	18.9	-48.9	156.0	3	29.2	-49.4	156.1	51
10	00.1	-47.5	156.3	8	10.1	-47.9	156.4	6	20.1	-48.4	156.5	4	30.0	-48.9	156.6	2	39.8	-49.4	156.7	52
9	12.6	-47.4	156.9	7	22.2	-48.0	157.0	5	31.7	-48.5	157.1	3	41.1	-49.0	157.2	1	50.4	-49.4	157.2	53
8	25.2	-47.6	157.5	6	34.2	-48.0	157.6	4	43.2	-48.5	157.7	2	52.1	-48.9	157.8	1	01.0	-49.4	157.8	54
7	37.6	-47.6	158.2	5	46.2	-48.1	158.2	3	54.7	-48.5	158.3	2	03.2	-49.0	158.4	0	11.6	-49.4	158.4	55
6	50.0	-47.6	158.8	4	58.1	-48.1	158.9	3	06.2	-48.6	158.9	1	14.2	-49.0	158.9	0	37.8	+49.4	159.1	56
6	02.4	-47.7	159.4	4	10.0	-48.1	159.5	2	17.6	-48.5	159.5	0	25.2	-48.9	159.5	0	27.2	+49.3	159.5	57
5	14.7	-47.7	160.0	3	21.9	-48.1	160.0	1	29.1	-48.6	160.1	0	23.7	+49.0	159.9	2	16.5	+49.4	159.9	58
4	27.0	-47.8	160.6	2	33.8	-48.2	160.6	0	40.5	-48.5	160.7	1	12.7	+49.0	19.3	3	05.9	+49.4	19.4	59
3	39.2	-47.8	161.2	1	45.6	-48.2	161.2	0	08.0	+48.6	18.7	2	01.7	+48.9	18.8	3	55.3	+49.3	18.8	60
2	51.4	-47.7	161.8	0	57.4	-48.1	161.8	0	56.6	+48.6	18.2	2	50.6	+48.9	18.2	4	44.6	+49.3	18.2	61
2	03.7	-47.9	162.4	0	09.3	-48.2	162.4	1	45.2	+48.5	17.6	3	39.5	+49.0	17.6	5	33.9	+49.3	17.6	62
1	15.8	-47.8	163.0	0	38.9	+48.2	17.0	2	33.7	+48.5	17.0	4	28.5	+48.8	17.0	6	23.2	+49.2	17.1	63
0	28.0	-47.8	163.6	1	27.1	+48.2	16.4	3	22.2	+48.5	16.4	5	17.3	+48.9	16.4	7	12.4	+49.2	16.5	64
0	19.8	+47.8	15.8	2	15.3	+48.1	15.8	4	10.7	+48.5	15.8	6	06.2	+48.8	15.9	8	01.6	+49.1	15.9	65
1	07.6	+47.8	15.2	3	03.4	+48.2	15.2	4	59.2	+48.5	15.2	6	55.0	+48.8	15.3	8	50.7	+49.1	15.3	66
1	55.4	+47.8	14.6	3	51.6	+48.1	14.6	5	47.7	+48.4	14.6	7	43.8	+48.7	14.7	9	39.8	+49.1	14.8	67
2	43.2	+47.8	13.9	4	39.7	+48.0	14.0	6	36.1	+48.4	14.0	8	32.5	+48.7	14.1	10	28.9	+48.9	14.2	68
3	31.0	+47.7	13.3	5	27.7	+48.1	13.4	7	24.5	+48.3	13.4	9	21.2	+48.6	13.5	11	17.8	+48.9	13.6	69
4	18.7	+47.8	12.7	6	15.8	+48.0	12.8	8	12.8	+48.3	12.8	10	09.8	+48.5	12.9	12	06.7	+48.8	13.0	70
5	06.5	+47.6	12.1	7	03.8	+47.9	12.2	9	01.1	+48.2	12.2	10	58.3	+48.5	12.3	12	55.5	+48.8	12.4	71
5	54.1	+47.7	11.5	7	51.7	+47.9	11.6	9	49.3	+48.1	11.6	11	46.8	+48.4	11.7	13	44.3	+48.6	11.8	72
6	41.8	+47.6	10.9	8	39.6	+47.9	11.0	10	37.4	+48.1	11.0	12	35.2	+48.3	11.1	14	32.9	+48.6	11.2	73
7	29.4	+47.6	10.3	9	27.5	+47.7	10.3	11	25.5	+48.0	10.4	13	23.5	+48.2	10.5	15	21.5	+48.4	10.6	74
8	17.0	+47.5	9.7	10	15.2	+47.7	9.7	12	13.5	+47.9	9.8	14	11.7	+48.2	9.9	16	09.9	+48.4	10.0	75
9	04.5	+47.4	9.1	11	02.9	+47.7	9.1	13	01.4	+47.9	9.2	14	59.9	+48.0	9.3	16	58.3	+48.2	9.4	76
9	51.9	+47.4	8.4	11	50.6	+47.5	8.5	13	49.3	+47.7	8.6	15	47.9	+47.9	8.6	17	46.5	+48.1	8.7	77
10	39.3	+47.2	7.8	12	38.1	+47.5	7.9	14	37.0	+47.6	7.9	16	35.8	+47.8	8.0	18	34.6	+48.0	8.1	78
11	26.5	+47.3	7.2	13	25.6	+47.4	7.2	15	24.6	+47.6	7.3	17	23.6	+47.7	7.4	19	22.6	+47.9	7.5	79
12	13.8	+47.1	6.6	14	13.0	+47.2	6.6	16	12.2	+47.4	6.7	18	11.3	+47.6	6.7	20	10.5	+47.7	6.8	80
13	00.9	+47.0	5.9	15	00.2	+47.2	6.0	16	59.6	+47.3	6.0	18	58.9	+47.4	6.1	20	58.2	+47.6	6.2	81
13	47.9	+46.9	5.3	15	47.4	+47.0	5.3	17	46.9	+47.1	5.4	19	46.3	+47.3	5.5	21	45.8	+47.4	5.5	82
14	34.8	+46.9	4.6	16	34.4	+47.0	4.7	18	34.0	+47.1	4.7	20	33.6	+47.2	4.8	22	33.2	+47.2	4.9	83
15	21.7	+46.7	4.0	17	21.4	+46.8	4.0	19	21.1	+46.9	4.1	21	20.8	+46.9	4.1	23	20.4	+47.1	4.2	84
16	08.4	+46.6	3.3	18	08.2	+46.6	3.4	20	08.0	+46.7	3.4	22	07.7	+46.9	3.5	24	07.5	+46.9	3.5	85
16	55.0	+46.4	2.7	18	54.8	+46.6	2.7	20	54.7	+46.6	2.8	22	54.6	+46.6	2.8	24	54.4	+46.7	2.8	86
17	41.4	+46.4	2.0	19	41.4	+46.3	2.0	21	41.3	+46.4	2.1	23	41.2	+46.5	2.1	25	41.1	+46.5	2.1	87
18	27.8	+46.2	1.4	20	27.7	+46.3	1.4	22	27.7	+46.2	1.4	24	27.7	+46.2	1.4	26	27.6	+46.3	1.4	88
19	14.0	+46.0	0.7	21	14.0	+46.0	0.7	23	13.9	+46.1	0.7	25	13.9	+46.1	0.7	27	13.9	+46.1	0.7	89
20	00.0	+45.9	0.0	22	00.0	+45.9	0.0	24	00.0	+45.9	0.0	26	00.0	+45.9	0.0	28	00.0	+45.8	0.0	90
20°			22°			24°			26°			28°								

LATITUDE SAME NAME

L.H.A. 140°, 220°

42°, 318° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	40 03.6	-29.5	49.2	41 20.9	-27.6	50.5	42 36.1	-25.7	51.9	43 48.8	-23.6	53.4	44 59.0	-21.4	55.0
31	39 34.1	-30.1	48.1	40 53.3	-28.3	49.3	42 10.4	-26.5	50.7	43 25.2	-24.4	52.2	44 37.6	-22.4	53.7
32	39 04.0	-30.8	47.0	40 25.0	-29.1	48.2	41 43.9	-27.2	49.5	43 00.8	-25.3	50.9	44 15.2	-23.2	52.4
33	38 33.2	-31.3	45.9	39 55.9	-29.7	47.0	41 16.7	-27.9	48.3	42 35.5	-26.0	49.7	43 52.0	-24.0	51.1
34	38 01.9	-32.0	44.8	39 26.2	-30.3	45.9	40 48.8	-28.6	47.1	42 09.5	-26.9	48.4	43 28.0	-24.9	49.8
35	37 29.9	-32.5	43.7	38 55.9	-31.0	44.8	40 20.2	-29.3	46.0	41 42.6	-27.5	47.2	43 03.1	-25.7	48.6
36	36 57.4	-33.0	42.6	38 24.9	-31.5	43.7	39 50.9	-30.0	44.8	41 15.1	-28.3	46.1	42 37.4	-26.5	47.4
37	36 24.4	-33.7	41.6	37 53.4	-32.2	42.6	39 20.9	-30.6	43.7	40 46.8	-29.0	44.9	42 10.9	-27.2	46.2
38	35 50.7	-34.1	40.6	37 21.2	-32.7	41.6	38 50.3	-31.2	42.6	40 17.8	-29.6	43.7	41 43.7	-28.0	45.0
39	35 16.6	-34.6	39.6	36 48.5	-33.3	40.5	38 19.1	-31.9	41.5	39 48.2	-30.3	42.6	41 15.7	-28.7	43.8
40	34 42.0	-35.1	38.6	36 15.2	-33.7	39.5	37 47.2	-32.4	40.4	39 17.9	-31.0	41.5	40 47.0	-29.4	42.6
41	34 06.9	-35.6	37.6	35 41.5	-34.3	38.4	37 14.8	-32.9	39.4	38 46.9	-31.5	40.4	40 17.6	-30.0	41.5
42	33 31.3	-36.0	36.6	35 07.2	-34.8	37.4	36 41.9	-33.5	38.3	38 15.4	-32.2	39.3	39 47.6	-30.7	40.3
43	32 55.3	-36.4	35.7	34 32.4	-35.3	36.4	36 08.4	-34.1	37.3	37 43.2	-32.7	38.2	39 16.9	-31.3	39.2
44	32 18.9	-36.9	34.7	33 57.1	-35.7	35.5	35 34.3	-34.5	36.3	37 10.5	-33.2	37.2	38 45.6	-32.0	38.1
45	31 42.0	-37.2	33.8	33 21.4	-36.2	34.5	34 59.8	-35.0	35.3	36 37.3	-33.9	36.1	38 13.6	-32.5	37.0
46	31 04.8	-37.7	32.9	32 45.2	-36.6	33.6	34 24.8	-35.5	34.3	36 03.4	-34.3	35.1	37 41.1	-33.1	36.0
47	30 27.1	-38.0	32.0	32 08.6	-37.0	32.6	33 49.3	-36.0	33.3	35 29.1	-34.8	34.1	37 08.0	-33.6	34.9
48	29 49.1	-38.3	31.1	31 31.6	-37.4	31.7	33 13.3	-36.3	32.4	34 54.3	-35.3	33.1	36 34.4	-34.2	33.9
49	29 10.8	-38.7	30.2	30 54.5	-37.8	30.8	32 37.0	-36.8	31.4	34 19.0	-35.8	32.1	36 00.2	-34.7	32.9
50	28 32.1	-39.1	29.3	30 16.4	-38.1	29.9	32 00.2	-37.3	30.5	33 43.2	-36.2	31.1	35 25.5	-35.1	31.9
51	27 53.0	-39.3	28.5	29 38.3	-38.5	29.0	31 22.9	-37.6	29.6	33 07.0	-36.6	30.2	34 50.4	-35.7	30.9
52	27 13.7	-39.7	27.6	28 59.8	-38.9	28.1	30 45.3	-37.9	28.6	32 30.4	-37.1	29.2	34 14.7	-36.1	29.9
53	26 34.0	-40.0	26.8	28 20.9	-39.1	27.2	30 07.4	-38.4	27.7	31 53.3	-37.5	28.3	33 38.6	-36.5	28.9
54	25 54.0	-40.2	25.9	27 41.8	-39.5	26.4	29 29.0	-38.6	26.9	31 15.8	-37.8	27.4	33 02.1	-37.0	28.0
55	25 13.8	-40.5	25.1	27 02.3	-39.8	25.5	28 50.4	-39.1	26.0	30 38.0	-38.2	26.5	32 25.1	-37.3	27.0
56	24 33.3	-40.8	24.3	26 22.5	-40.1	24.7	28 11.3	-39.3	25.1	29 59.8	-38.6	25.6	31 47.8	-37.8	26.1
57	23 52.5	-41.0	23.5	25 42.4	-40.3	23.9	27 32.0	-39.7	24.3	29 21.2	-38.9	24.7	31 10.0	-38.2	25.2
58	23 11.5	-41.3	22.7	25 02.1	-40.6	23.0	26 52.3	-39.9	23.4	28 42.3	-39.3	23.8	30 31.8	-38.5	24.3
59	22 30.2	-41.4	21.9	24 21.5	-40.9	22.2	26 12.4	-40.2	22.6	28 03.0	-39.5	23.0	29 53.3	-38.8	23.4
60	21 48.8	-41.7	21.1	23 40.6	-41.1	21.4	25 32.2	-40.5	21.8	27 23.5	-39.9	22.1	29 14.5	-39.2	22.5
61	21 07.1	-42.0	20.4	22 59.5	-41.4	20.6	24 51.7	-40.8	20.9	26 43.6	-40.2	21.3	28 35.3	-39.6	21.7
62	20 25.1	-42.1	19.6	22 18.1	-41.6	19.8	24 10.9	-41.0	20.1	26 03.4	-40.4	20.5	27 55.7	-39.8	20.8
63	19 43.0	-42.3	18.8	21 36.5	-41.7	19.1	23 29.9	-41.3	19.3	25 23.0	-40.7	19.6	27 15.9	-40.2	20.0
64	19 00.7	-42.4	18.1	20 54.8	-42.0	18.3	22 48.6	-41.5	18.6	24 42.3	-41.0	18.8	26 35.7	-40.4	19.1
65	18 18.3	-42.7	17.3	20 12.8	-42.2	17.5	22 07.1	-41.7	17.8	24 01.3	-41.2	18.0	25 55.3	-40.7	18.3
66	17 35.6	-42.8	16.6	19 30.6	-42.4	16.8	21 25.4	-41.9	17.0	23 20.1	-41.5	17.2	25 14.6	-41.0	17.5
67	16 52.8	-43.0	15.9	18 48.2	-42.6	16.0	20 43.5	-42.2	16.2	22 38.6	-41.7	16.5	24 33.6	-41.2	16.7
68	16 09.8	-43.1	15.1	18 05.6	-42.7	15.3	20 01.3	-42.3	15.5	21 56.9	-41.9	15.7	23 52.4	-41.5	15.9
69	15 26.7	-43.2	14.4	17 22.9	-42.9	14.6	19 19.0	-42.5	14.7	21 15.0	-42.1	14.9	23 10.9	-41.7	15.1
70	14 43.5	-43.4	13.7	16 40.0	-43.0	13.8	18 36.5	-42.7	14.0	20 32.9	-42.3	14.1	22 29.2	-41.9	14.3
71	14 00.1	-43.5	13.0	15 57.0	-43.2	13.1	17 53.8	-42.8	13.2	19 50.6	-42.5	13.4	21 47.3	-42.1	13.6
72	13 16.6	-43.7	12.3	15 13.8	-43.3	12.4	17 11.0	-43.0	12.5	19 08.1	-42.7	12.6	21 05.2	-42.4	12.8
73	12 32.9	-43.7	11.6	14 30.5	-43.5	11.7	16 28.0	-43.2	11.8	18 25.4	-42.8	11.9	20 22.8	-42.5	12.0
74	11 49.2	-43.8	10.9	13 47.0	-43.5	10.9	15 44.8	-43.3	11.0	17 42.6	-43.0	11.2	19 40.3	-42.7	11.3
75	11 05.4	-44.0	10.2	13 03.5	-43.7	10.2	15 01.5	-43.4	10.3	16 59.6	-43.2	10.4	18 57.6	-42.9	10.6
76	10 21.4	-44.0	9.5	12 19.8	-43.8	9.5	14 18.1	-43.5	9.6	16 16.4	-43.3	9.7	18 14.7	-43.1	9.8
77	9 37.4	-44.1	8.8	11 36.0	-43.9	8.8	13 34.6	-43.7	8.9	15 33.1	-43.5	9.0	17 31.6	-43.2	9.1
78	8 53.3	-44.2	8.1	10 52.1	-44.0	8.1	12 50.9	-43.8	8.2	14 49.6	-43.5	8.3	16 48.4	-43.4	8.4
79	8 09.1	-44.2	7.4	10 08.1	-44.1	7.5	12 07.1	-43.9	7.5	14 06.1	-43.8	7.6	16 05.0	-43.5	7.6
80	7 24.9	-44.3	6.7	9 24.0	-44.1	6.8	11 23.2	-44.0	6.8	13 22.3	-43.8	6.9	15 21.5	-43.7	6.9
81	6 40.6	-44.4	6.0	8 39.9	-44.2	6.1	10 39.2	-44.1	6.1	12 38.5	-43.9	6.2	14 37.8	-43.8	6.2
82	5 56.2	-44.4	5.4	7 55.7	-44.3	5.4	9 55.1	-44.1	5.4	11 54.6	-44.1	5.5	13 54.0	-43.9	5.5
83	5 11.8	-44.5	4.7	7 11.4	-44.4	4.7	9 11.0	-44.3	4.7	11 10.5	-44.1	4.8	13 10.1	-44.0	4.8
84	4 27.3	-44.5	4.0	6 27.0	-44.4	4.0	8 26.7	-44.3	4.1	10 26.4	-44.2	4.1	12 26.1	-44.1	4.1
85	3 42.8	-44.5	3.4	5 42.6	-44.4	3.4	7 42.4	-44.4	3.4	9 42.2	-44.3	3.4	11 42.0	-44.2	3.4
86	2 58.3	-44.6	2.7	4 58.2	-44.5	2.7	6 58.0	-44.4	2.7	8 57.9	-44.4	2.7	10 57.8	-44.4	2.7
87	2 13.7	-44.5	2.0	4 13.7	-44.6	2.0	6 13.6	-44.5	2.0	8 13.5	-44.4	2.0	10 13.4	-44.4	2.0
88	1 29.2	-44.6	1.3	3 29.1	-44.5	1.3	5 29.1	-44.5	1.3	7 29.1	-44.5	1.3	9 29.0	-44.4	1.4
89	0 44.6	-44.6	0.7	2 44.6	-44.6	0.7	4 44.6	-44.6	0.7	6 44.6	-44.6	0.7	8 44.6	-44.6	0.7
90	0 00.0	-44.6	0.0	2 00.0	-44.6	0.0	4 00.0	-44.6	0.0	6 00.0	-44.6	0.0	8 00.0	-44.6	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 42°, 318°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
40	03.6	-29.5	130.8	38	44.2	-31.2	132.0	37	23.0	-32.9	133.2	36	00.0	-34.3	134.3	34	35.5	-35.8	135.3	30
39	34.1	-30.1	131.9	38	13.0	-31.8	133.1	36	50.1	-33.3	134.2	35	25.7	-34.9	135.3	33	59.7	-36.3	136.2	31
39	04.0	-30.8	133.0	37	41.2	-32.4	134.2	36	16.8	-33.9	135.3	34	50.8	-35.4	136.3	33	23.4	-36.7	137.2	32
38	33.2	-31.3	134.1	37	08.8	-32.9	135.2	35	42.9	-34.5	136.3	34	15.4	-35.8	137.2	32	46.7	-37.1	138.1	33
38	01.9	-32.0	135.2	36	35.9	-33.5	136.3	35	08.4	-34.9	137.3	33	39.6	-36.2	138.2	32	09.6	-37.6	139.1	34
37	29.9	-32.5	136.3	36	02.4	-33.9	137.3	34	33.5	-35.3	138.3	33	03.4	-36.7	139.2	31	32.0	-37.9	140.0	35
36	57.4	-33.0	137.4	35	28.5	-34.5	138.3	33	58.2	-35.9	139.3	32	26.7	-37.1	140.1	30	54.1	-38.3	140.9	36
36	24.4	-33.7	138.4	34	54.0	-35.0	139.3	33	22.3	-36.2	140.2	28	38.4	-39.3	145.5	26	59.1	-40.2	146.1	37
35	50.7	-34.1	139.4	34	19.0	-35.5	140.3	32	46.1	-36.7	141.2	31	12.1	-37.9	141.9	29	37.1	-39.0	142.7	38
35	16.6	-34.6	140.4	33	43.5	-35.9	141.3	32	09.4	-37.1	142.1	30	34.2	-38.3	142.8	28	58.1	-39.3	143.5	39
34	42.0	-35.1	141.4	33	07.6	-36.3	142.3	31	32.3	-37.6	143.0	29	55.9	-38.6	143.7	28	18.8	-39.7	144.4	40
34	06.9	-35.6	142.4	32	31.3	-36.7	143.2	30	54.7	-37.8	143.9	29	17.3	-38.9	144.6	27	39.1	-40.0	145.2	41
33	31.3	-36.0	143.4	31	54.6	-37.2	144.1	30	16.9	-38.3	144.8	28	38.4	-39.3	145.5	26	59.1	-40.2	146.1	42
32	55.3	-36.4	144.3	31	17.4	-37.6	145.1	29	38.6	-38.6	145.7	27	59.1	-39.6	146.3	26	18.9	-40.6	146.9	43
32	18.9	-36.9	145.3	30	39.8	-37.9	146.0	29	00.0	-38.9	146.6	27	19.5	-39.9	147.2	25	38.3	-40.8	147.7	44
31	42.0	-37.2	146.2	30	01.9	-38.3	146.9	28	21.1	-39.3	147.5	26	39.6	-40.2	148.0	24	57.5	-41.1	148.5	45
31	04.8	-37.7	147.1	29	23.6	-38.6	147.8	27	41.8	-39.6	148.3	25	59.4	-40.5	148.9	24	16.4	-41.3	149.3	46
30	27.1	-38.0	148.0	28	45.0	-39.0	148.6	27	02.2	-39.8	149.2	25	18.9	-40.7	149.7	23	35.1	-41.6	150.1	47
29	49.1	-38.3	148.9	28	06.0	-39.2	149.5	26	22.4	-40.2	150.0	24	38.2	-41.0	150.5	22	53.5	-41.8	150.9	48
29	10.8	-38.7	149.8	27	26.8	-39.6	150.4	25	42.2	-40.4	150.8	23	57.2	-41.3	151.3	22	11.7	-42.0	151.7	49
28	32.1	-39.1	150.7	26	47.2	-39.9	151.2	25	01.8	-40.7	151.7	23	15.9	-41.4	152.1	21	29.7	-42.2	152.5	50
27	53.0	-39.3	151.5	26	07.3	-40.2	152.0	24	21.1	-41.0	152.5	22	34.5	-41.8	152.9	20	47.5	-42.4	153.2	51
27	13.7	-39.7	152.4	25	27.1	-40.5	152.9	23	40.1	-41.2	153.3	21	52.7	-41.9	153.6	20	05.1	-42.7	154.0	52
26	34.0	-40.0	153.2	24	46.6	-40.7	153.7	22	58.9	-41.4	154.1	21	10.8	-42.1	154.4	19	22.4	-42.8	154.7	53
25	54.0	-40.2	154.1	24	05.9	-40.9	154.5	22	17.5	-41.7	154.8	20	28.7	-42.3	155.2	18	39.6	-42.9	155.5	54
25	13.8	-40.5	154.9	23	25.0	-41.3	155.3	21	35.8	-41.9	155.6	19	46.4	-42.6	156.0	17	56.7	-43.2	156.2	55
24	33.3	-40.8	155.7	22	43.7	-41.4	156.1	20	53.9	-42.1	156.4	19	03.8	-42.6	156.7	17	13.5	-43.2	156.9	56
23	52.5	-41.0	156.5	22	02.3	-41.6	156.8	20	11.8	-42.2	157.2	18	21.2	-42.9	157.4	16	30.3	-43.5	157.7	57
23	11.5	-41.3	157.3	21	20.7	-41.9	157.6	19	29.6	-42.5	157.9	17	38.3	-43.0	158.2	15	46.8	-43.6	158.4	58
22	30.2	-41.4	158.1	20	38.8	-42.1	158.4	18	47.1	-42.6	158.7	16	55.3	-43.2	158.9	15	03.2	-43.7	159.1	59
21	48.8	-41.7	158.9	19	56.7	-42.2	159.2	18	04.5	-42.8	159.4	16	12.1	-43.4	159.6	14	19.5	-43.8	159.8	60
21	07.1	-42.0	159.6	19	14.5	-42.5	159.9	17	21.7	-43.0	160.1	15	28.7	-43.4	160.3	13	35.7	-44.0	160.5	61
20	25.1	-42.1	160.4	18	32.0	-42.6	160.7	16	38.7	-43.1	160.9	14	45.3	-43.6	161.0	12	51.7	-44.0	161.2	62
19	43.0	-42.3	161.2	17	49.4	-42.8	161.4	15	55.6	-43.3	161.6	14	01.7	-43.7	161.8	12	07.7	-44.2	161.9	63
19	00.7	-42.4	161.9	17	06.6	-42.9	162.1	15	12.3	-43.4	162.3	13	18.0	-43.9	162.5	11	23.5	-44.3	162.6	64
18	18.3	-42.7	162.7	16	23.7	-43.1	162.9	14	28.9	-43.5	163.0	12	34.1	-43.9	163.2	10	39.2	-44.3	163.3	65
17	35.6	-42.8	163.4	15	40.6	-43.3	163.6	13	45.4	-43.6	163.7	11	50.2	-44.1	163.9	9	54.9	-44.5	164.0	66
16	52.8	-43.0	164.1	14	57.3	-43.3	164.3	13	01.8	-43.8	164.4	11	06.1	-44.1	164.5	9	10.4	-44.5	164.6	67
16	09.8	-43.1	164.9	14	14.0	-43.5	165.0	12	18.0	-43.9	165.1	10	22.0	-44.2	165.2	8	25.9	-44.6	165.3	68
15	26.7	-43.2	165.6	13	30.5	-43.7	165.7	11	34.1	-43.9	165.8	9	37.8	-44.3	165.9	7	41.3	-44.6	166.0	69
14	43.5	-43.4	166.3	12	46.8	-43.7	166.4	10	50.2	-44.1	166.5	8	53.5	-44.4	166.6	6	56.7	-44.7	166.7	70
14	00.1	-43.5	167.0	12	03.1	-43.8	167.1	10	06.1	-44.1	167.2	8	09.1	-44.5	167.3	6	12.0	-44.8	167.3	71
13	16.6	-43.7	167.7	11	19.3	-43.9	167.8	9	22.0	-44.3	167.9	7	24.6	-44.5	168.0	5	27.2	-44.8	168.0	72
12	32.9	-43.7	168.4	10	35.4	-44.1	168.5	8	37.7	-44.3	168.6	6	40.1	-44.6	168.6	4	42.4	-44.8	168.7	73
11	49.2	-43.8	169.1	9	51.3	-44.1	169.2	7	53.4	-44.3	169.3	5	55.5	-44.6	169.3	3	57.6	-44.9	169.3	74
11	05.4	-44.0	169.8	9	07.2	-44.1	169.9	7	09.1	-44.4	169.9	5	10.9	-44.6	170.0	3	12.7	-44.9	170.0	75
10	21.4	-44.0	170.5	8	23.1	-44.3	170.6	6	24.7	-44.5	170.6	4	26.3	-44.7	170.7	2	27.8	-44.9	170.7	76
9	37.4	-44.1	171.2	7	38.8	-44.3	171.3	5	40.2	-44.5	171.3	3	41.6	-44.8	171.3	1	42.9	-44.9	171.3	77
8	53.3	-44.2	171.9	6	54.5	-44.4	171.9	4	55.7	-44.6	172.0	2	56.8	-44.7	172.0	0	58.0	-44.9	172.0	78
8	09.1	-44.2	172.6	6	10.1	-44.4	172.6	4	11.1	-44.6	172.6	2	12.1	-44.8	172.7	0	13.1	-45.0	172.7	79
7	24.9	-44.3	173.3	5	25.7	-44.5	173.3	3	26.5	-44.6	173.3	1	27.3	-44.8	173.3	0	31.9	-44.9	173.3	80
6	40.6	-44.4	174.0	4	41.2	-44.5	174.0	2	41.9	-44.7	174.0	0	42.5	-44.7	174.0	1	16.8	-44.9	174.0	81
5	56.2	-44.4	174.6	3	56.7	-44.5	174.6	1	57.2	-44.6	174.7	0	02.2	+44.8	174.0	2	01.7	+44.9	174.0	82
5	11.8	-44.5	175.3	3	12.2	-44.6	175.3	1	12.6	-44.7	175.3	0	47.0	+44.8	174.0	2	46.6	+44.9	174.0	83
4	27.3	-44.5	176.0	2	27.6	-44.6	176.0	0	27.9	-44.7	176.0	1	31.8	+44.8	174.0	3	31.5	+44.9	174.0	84
3	42.8	-44.5	176.6	1	43.0	-44.6	176.7	0	16.8	+44.6	176.0	2	16.6	+44.7	174.0	4	16.4	+44.8	174.0	85
2	58.3	-44.6	177.3	0	58.4	-44.6	177.3	1	01.4	+44.7	176.0	3	01.3	+44.7	174.0	5	01.2	+44.8	174.0	86
2	13.7	-44.5	178.0	0	13.8	-44.6	178.0	1	46.1	+44.7	176.0	3	46.0	+44.7	174.0	5	46.0	+44.7	174.0	87
1	29.2	-44.6	178.7	0	30.8	+44.6	178.0	2	30.8	+44.6	176.0	4	30.7	+44.7	174.0	6	30.7	+44.7	174.0	88
0	44.6	-44.6	179.3	1	15.4	+44.6	178.0	3	15.4	+44.6	176.0	5	15.4	+44.6	174.0	7	15.4	+44.6	174.0	89
0	00.0	+44.6	180.0	2	00.0	+44.6	180.0	4	00.0	+44.6	180.0	6	00.0	+44.6	180.0	8	00.0	+44.6	180.0	90

LATITUDE SAME NAME

L.H.A. 138°, 222°

42°, 318° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	46 06.4	-19.2	56.7	47 10.7	-16.7	58.5	48 11.7	-14.1	60.4	49 09.2	-11.4	62.4	50 02.9	-8.6	64.5
31	45 47.2	-20.1	55.3	46 54.0	-17.7	57.1	47 57.6	-15.2	58.9	48 57.8	-12.6	60.9	49 54.3	-9.8	62.9
32	45 27.1	-21.0	54.0	46 36.3	-18.8	55.7	47 42.4	-16.4	57.5	48 45.2	-13.8	59.4	49 44.5	-11.1	61.4
33	45 06.1	-22.0	52.7	46 17.5	-19.7	54.3	47 26.0	-17.3	56.1	48 31.4	-14.8	57.9	49 33.4	-12.2	59.9
34	44 44.1	-22.8	51.3	45 57.8	-20.7	52.9	47 08.7	-18.4	54.6	48 16.6	-16.0	56.5	49 21.2	-13.4	58.4
35	44 21.3	-23.7	50.0	45 37.1	-21.6	51.6	46 50.3	-19.4	53.3	48 00.6	-17.0	55.0	49 07.8	-14.5	56.9
36	43 57.6	-24.6	48.8	45 15.5	-22.5	50.3	46 30.9	-20.4	51.9	47 43.6	-18.1	53.6	48 53.3	-15.7	55.4
37	43 33.0	-25.4	47.5	44 53.0	-23.5	49.0	46 10.5	-21.3	50.5	47 25.5	-19.1	52.2	48 37.6	-16.7	54.0
38	43 07.6	-26.2	46.3	44 29.5	-24.3	47.7	45 49.2	-22.3	49.2	47 06.4	-20.1	50.8	48 20.9	-17.9	52.5
39	42 41.4	-26.9	45.0	44 05.2	-25.1	46.4	45 26.9	-23.2	47.8	46 46.3	-21.1	49.4	48 03.0	-18.9	51.1
40	42 14.5	-27.8	43.8	43 40.1	-25.9	45.1	45 03.7	-24.0	46.5	46 25.2	-22.1	48.0	47 44.1	-19.9	49.7
41	41 46.7	-28.4	42.6	43 14.2	-26.8	43.9	44 39.7	-25.0	45.2	46 03.1	-23.0	46.7	47 24.2	-20.9	48.3
42	41 18.3	-29.2	41.4	42 47.4	-27.5	42.7	44 14.7	-25.7	44.0	45 40.1	-23.9	45.4	47 03.3	-21.9	46.9
43	40 49.1	-29.8	40.3	42 19.9	-28.3	41.5	43 49.0	-26.6	42.7	45 16.2	-24.8	44.1	46 41.4	-22.9	45.5
44	40 19.3	-30.5	39.1	41 51.6	-29.0	40.3	43 22.4	-27.4	41.5	44 51.4	-25.6	42.8	46 18.5	-23.8	44.2
45	39 48.8	-31.2	38.0	41 22.6	-29.6	39.1	42 55.0	-28.1	40.2	44 25.8	-26.5	41.5	45 54.7	-24.7	42.8
46	39 17.6	-31.7	36.9	40 53.0	-30.4	37.9	42 26.9	-28.9	39.0	43 59.3	-27.3	40.2	45 30.0	-25.6	41.5
47	38 45.9	-32.4	35.8	40 22.6	-31.0	36.8	41 58.0	-29.6	37.9	43 32.0	-28.1	39.0	45 04.4	-26.4	40.3
48	38 13.5	-32.9	34.7	39 51.6	-31.7	35.7	41 28.4	-30.3	36.7	43 03.9	-28.8	37.8	44 38.0	-27.3	39.0
49	37 40.6	-33.6	33.7	39 19.9	-32.3	34.6	40 58.1	-30.9	35.5	42 35.1	-29.5	36.6	44 10.7	-28.0	37.7
50	37 07.0	-34.0	32.6	38 47.6	-32.9	33.5	40 27.2	-31.7	34.4	42 05.6	-30.3	35.4	43 42.7	-28.9	36.5
51	36 33.0	-34.6	31.6	38 14.7	-33.4	32.4	39 55.5	-32.2	33.3	41 35.3	-31.0	34.3	43 13.8	-29.5	35.3
52	35 58.4	-35.1	30.6	37 41.3	-34.0	31.4	39 23.3	-32.9	32.2	41 04.3	-31.6	33.1	42 44.3	-30.4	34.1
53	35 23.3	-35.5	29.6	37 07.3	-34.5	30.3	38 50.4	-33.4	31.1	40 32.7	-32.3	32.0	42 13.9	-31.0	32.9
54	34 47.8	-36.1	28.6	36 32.8	-35.1	29.3	38 17.0	-34.0	30.1	40 00.4	-32.9	30.9	41 42.9	-31.7	31.8
55	34 11.7	-36.5	27.6	35 57.7	-35.5	28.3	37 43.0	-34.5	29.0	39 27.5	-33.4	29.8	41 11.2	-32.3	30.7
56	33 35.2	-36.9	26.7	35 22.2	-36.1	27.3	37 08.5	-35.1	28.0	38 54.1	-34.1	28.7	40 38.9	-33.0	29.5
57	32 58.3	-37.3	25.7	34 46.1	-36.4	26.3	36 33.4	-35.6	27.0	38 20.0	-34.6	27.7	40 05.9	-33.6	28.5
58	32 21.0	-37.8	24.8	34 09.7	-37.0	25.4	35 57.8	-36.1	26.0	37 45.4	-35.2	26.6	39 32.3	-34.2	27.4
59	31 43.2	-38.1	23.9	33 32.7	-37.3	24.4	35 21.7	-36.5	25.0	37 10.2	-35.6	25.6	38 58.1	-34.7	26.3
60	31 05.1	-38.5	23.0	32 55.4	-37.8	23.5	34 45.2	-37.0	24.0	36 34.6	-36.2	24.6	38 23.4	-35.3	25.3
61	30 26.6	-38.9	22.1	32 17.6	-38.2	22.6	34 08.2	-37.4	23.1	35 58.4	-36.7	23.6	37 48.1	-35.9	24.2
62	29 47.7	-39.2	21.2	31 39.4	-38.5	21.7	33 30.8	-37.9	22.1	35 21.7	-37.1	22.7	37 12.2	-36.3	23.2
63	29 08.5	-39.5	20.4	31 00.9	-38.9	20.8	32 52.9	-38.2	21.2	34 44.6	-37.5	21.7	36 35.9	-36.8	22.2
64	28 29.0	-39.9	19.5	30 22.0	-39.3	19.9	32 14.7	-38.7	20.3	34 07.1	-38.0	20.8	35 59.1	-37.3	21.3
65	27 49.1	-40.2	18.6	29 42.7	-39.6	19.0	31 36.0	-39.0	19.4	33 29.1	-38.4	19.8	35 21.8	-37.7	20.3
66	27 08.9	-40.4	17.8	29 03.1	-39.9	18.1	30 57.0	-39.4	18.5	32 50.7	-38.8	18.9	34 44.1	-38.2	19.3
67	26 28.5	-40.8	17.0	28 23.2	-40.3	17.3	30 17.6	-39.7	17.6	32 11.9	-39.2	18.0	34 05.9	-38.6	18.4
68	25 47.7	-41.0	16.2	27 42.9	-40.5	16.4	29 37.9	-40.1	16.8	31 32.7	-39.5	17.1	33 27.3	-39.0	17.5
69	25 06.7	-41.3	15.4	27 02.4	-40.9	15.6	28 57.8	-40.3	15.9	30 53.2	-39.9	16.2	32 48.3	-39.4	16.6
70	24 25.4	-41.5	14.6	26 21.5	-41.1	14.8	28 17.5	-40.7	15.1	30 13.3	-40.3	15.4	32 08.9	-39.8	15.7
71	23 43.9	-41.8	13.8	25 40.4	-41.4	14.0	27 36.8	-41.0	14.2	29 33.0	-40.5	14.5	31 29.1	-40.1	14.8
72	23 02.1	-42.0	13.0	24 59.0	-41.6	13.2	26 55.8	-41.2	13.4	28 52.5	-40.9	13.7	30 49.0	-40.4	13.9
73	22 20.1	-42.2	12.2	24 17.4	-41.9	12.4	26 14.6	-41.6	12.6	28 11.6	-41.2	12.8	30 08.6	-40.8	13.1
74	21 37.9	-42.4	11.4	23 35.5	-42.1	11.6	25 33.0	-41.8	11.8	27 30.4	-41.4	12.0	29 27.8	-41.1	12.2
75	20 55.5	-42.6	10.7	22 53.4	-42.3	10.8	24 51.2	-42.0	11.0	26 49.0	-41.7	11.2	28 46.7	-41.4	11.4
76	20 12.9	-42.8	9.9	22 11.1	-42.6	10.1	24 09.2	-42.3	10.2	26 07.3	-42.0	10.4	28 05.3	-41.7	10.6
77	19 30.1	-43.0	9.2	21 28.5	-42.7	9.3	23 26.9	-42.5	9.4	25 25.3	-42.3	9.6	27 23.6	-42.0	9.8
78	18 47.1	-43.2	8.5	20 45.8	-43.0	8.6	22 44.4	-42.7	8.7	24 43.0	-42.5	8.8	26 41.6	-42.3	9.0
79	18 03.9	-43.3	7.7	20 02.8	-43.1	7.8	22 01.7	-42.9	7.9	24 00.5	-42.7	8.0	25 59.3	-42.5	8.2
80	17 20.6	-43.5	7.0	19 19.7	-43.3	7.1	21 18.8	-43.2	7.2	23 17.8	-42.9	7.3	25 16.8	-42.7	7.4
81	16 37.1	-43.6	6.3	18 36.4	-43.5	6.3	20 35.6	-43.3	6.4	22 34.9	-43.2	6.5	24 34.1	-43.0	6.6
82	15 53.5	-43.8	5.6	17 52.9	-43.6	5.6	19 52.3	-43.5	5.7	21 51.7	-43.3	5.8	23 51.1	-43.2	5.8
83	15 09.7	-43.9	4.8	17 09.3	-43.8	4.9	19 08.8	-43.6	5.0	21 08.4	-43.6	5.0	23 07.9	-43.4	5.1
84	14 25.8	-44.0	4.1	16 25.5	-43.9	4.2	18 25.2	-43.9	4.2	20 24.8	-43.7	4.3	22 24.5	-43.6	4.3
85	13 41.8	-44.2	3.4	15 41.6	-44.1	3.5	17 41.3	-44.0	3.5	19 41.1	-43.9	3.6	21 40.9	-43.9	3.6
86	12 57.6	-44.2	2.7	14 57.5	-44.2	2.8	16 57.3	-44.1	2.8	18 57.2	-44.1	2.8	20 57.0	-44.0	2.9
87	12 13.4	-44.4	2.1	14 13.3	-44.3	2.1	16 13.2	-44.3	2.1	18 13.1	-44.2	2.1	20 13.0	-44.1	2.1
88	11 29.0	-44.5	1.4	13 29.0	-44.5	1.4	15 28.9	-44.4	1.4	17 28.9	-44.4	1.4	19 28.9	-44.4	1.4
89	10 44.5	-44.5	0.7	12 44.5	-44.5	0.7	14 44.5	-44.5	0.7	16 44.5	-44.5	0.7	18 44.5	-44.5	0.7
90	10 00.0	-44.6	0.0	12 00.0	-44.6	0.0	14 00.0	-44.6	0.0	16 00.0	-44.7	0.0	18 00.0	-44.7	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 42°, 318°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
33	09.6	-37.2	136.2	31	42.4	-38.6	137.1	30	13.9	-39.7	137.9	28	44.4	-40.9	138.6	27	13.8	-42.0	139.3	30
32	32.4	-37.6	137.1	31	03.8	-38.8	138.0	29	34.2	-40.1	138.7	28	03.5	-41.3	139.5	26	31.8	-42.3	140.1	31
31	54.8	-38.0	138.0	30	25.0	-39.3	138.9	28	54.1	-40.4	139.6	27	22.2	-41.5	140.3	25	49.5	-42.6	140.9	32
30	16.8	-38.4	139.0	29	45.7	-39.6	139.7	28	13.7	-40.7	140.4	26	40.7	-41.8	141.1	25	06.9	-42.8	141.7	33
29	38.4	-38.8	139.9	29	06.1	-39.9	140.6	27	33.0	-41.0	141.3	25	58.9	-42.0	141.9	24	24.1	-43.0	142.5	34
29	59.6	-39.1	140.7	28	26.2	-40.2	141.4	26	52.0	-41.3	142.1	25	16.9	-42.3	142.7	23	41.1	-43.2	143.2	35
29	20.5	-39.4	141.6	27	46.0	-40.5	142.3	26	10.7	-41.6	142.9	24	34.6	-42.5	143.5	22	57.9	-43.5	144.0	36
28	41.1	-39.8	142.5	27	05.5	-40.8	143.1	25	29.1	-41.8	143.7	23	52.1	-42.8	144.2	22	14.4	-43.7	144.7	37
28	01.3	-40.1	143.3	26	24.7	-41.1	143.9	24	47.3	-42.1	144.5	23	09.3	-43.0	145.0	21	30.7	-43.8	145.5	38
27	21.2	-40.4	144.2	25	43.6	-41.4	144.7	24	05.2	-42.3	145.3	22	26.3	-43.2	145.8	20	46.9	-44.1	146.2	39
26	40.8	-40.6	145.0	25	02.2	-41.6	145.5	23	22.9	-42.5	146.1	21	43.1	-43.4	146.6	20	02.8	-44.2	146.9	40
26	00.2	-41.0	145.8	24	20.6	-41.9	146.3	22	40.4	-42.7	146.8	20	59.7	-43.5	147.3	19	18.6	-44.4	147.6	41
25	19.2	-41.2	146.6	23	38.7	-42.1	147.1	21	57.7	-43.0	147.6	20	16.2	-43.8	148.0	18	34.2	-44.6	148.4	42
24	38.0	-41.4	147.4	22	56.6	-42.3	147.9	21	14.7	-43.1	148.3	19	32.4	-43.9	148.7	17	49.6	-44.6	149.1	43
23	56.6	-41.7	148.2	22	14.3	-42.5	148.7	20	31.6	-43.3	149.1	18	48.5	-44.1	149.4	17	05.0	-44.9	149.8	44
23	14.9	-41.9	149.0	21	31.8	-42.8	149.4	19	48.3	-43.6	149.8	18	04.4	-44.3	150.2	16	20.1	-45.0	150.5	45
22	33.0	-42.2	149.8	20	49.0	-42.9	150.2	19	04.7	-43.6	150.5	17	20.1	-44.4	150.9	15	35.1	-45.1	151.1	46
21	50.8	-42.4	150.6	20	06.1	-43.1	150.9	18	21.1	-43.9	151.3	16	35.7	-44.6	151.6	14	50.0	-45.2	151.8	47
21	08.4	-42.5	151.3	19	23.0	-43.3	151.7	17	37.2	-44.0	152.0	15	51.1	-44.6	152.3	14	04.8	-45.3	152.5	48
20	25.9	-42.8	152.1	18	39.7	-43.5	152.4	16	53.2	-44.1	152.7	15	06.5	-44.8	153.0	13	19.5	-45.5	153.2	49
19	43.1	-42.9	152.8	17	56.2	-43.6	153.1	16	09.1	-44.3	153.4	14	21.7	-45.0	153.6	12	34.0	-45.6	153.9	50
19	00.2	-43.1	153.6	17	12.6	-43.8	153.8	15	24.8	-44.4	154.1	13	36.7	-45.0	154.3	11	48.5	-45.6	154.5	51
18	17.1	-43.3	154.3	16	28.8	-43.9	154.6	14	40.4	-44.6	154.8	12	51.7	-45.1	155.0	11	02.9	-45.8	155.2	52
17	33.8	-43.4	155.0	15	44.9	-44.0	155.3	13	55.8	-44.6	155.5	12	06.6	-45.3	155.7	10	17.1	-45.8	155.8	53
16	50.4	-43.6	155.7	15	00.9	-44.2	156.0	13	11.2	-44.8	156.2	11	21.3	-45.3	156.3	9	31.3	-45.8	156.5	54
16	06.8	-43.8	156.5	14	16.7	-44.3	156.7	12	26.4	-44.9	156.9	10	36.0	-45.4	157.0	8	45.5	-46.0	157.1	55
15	23.0	-43.8	157.2	13	32.4	-44.5	157.4	11	41.5	-44.9	157.5	9	50.6	-45.5	157.7	7	59.5	-46.0	157.8	56
14	39.2	-44.0	157.9	12	47.9	-44.5	158.1	10	56.6	-45.1	158.2	9	05.1	-45.6	158.3	7	13.5	-46.0	158.4	57
13	55.2	-44.1	158.6	12	03.4	-44.6	158.7	10	11.5	-45.1	158.9	8	19.5	-45.6	159.0	6	27.5	-46.1	159.1	58
13	11.1	-44.3	159.3	11	18.8	-44.7	159.4	9	26.4	-45.2	159.6	7	33.9	-45.7	159.7	5	41.4	-46.2	159.7	59
12	26.8	-44.3	160.0	10	34.1	-44.9	160.1	8	41.2	-45.3	160.2	6	48.2	-45.7	160.3	4	55.2	-46.2	160.4	60
11	42.5	-44.4	160.7	9	49.2	-44.8	160.8	7	55.9	-45.3	160.9	6	02.5	-45.8	161.0	4	09.0	-46.2	161.0	61
10	58.1	-44.5	161.3	9	04.4	-45.0	161.5	7	10.6	-45.4	161.5	5	16.7	-45.8	161.6	3	22.8	-46.2	161.7	62
10	13.6	-44.6	162.0	8	19.4	-45.0	162.1	6	25.2	-45.5	162.2	4	30.9	-45.9	162.3	2	36.6	-46.3	162.3	63
9	29.0	-44.7	162.7	7	34.4	-45.1	162.8	5	39.7	-45.5	162.9	3	45.0	-45.9	162.9	1	50.3	-46.2	162.9	64
8	44.3	-44.8	163.4	6	49.3	-45.2	163.5	4	54.2	-45.5	163.5	2	59.1	-45.9	163.6	1	04.1	-46.3	163.6	65
7	59.5	-44.8	164.0	6	04.1	-45.2	164.1	4	08.7	-45.6	164.2	2	13.2	-45.9	164.2	0	17.8	-46.3	164.2	66
7	14.7	-44.9	164.7	5	18.9	-45.2	164.8	3	23.1	-45.6	164.8	1	27.3	-45.9	164.8	0	28.5	-46.3	15.2	67
6	29.8	-44.9	165.4	4	33.7	-45.3	165.4	2	37.5	-45.6	165.5	0	41.4	-46.0	165.5	1	14.8	-46.3	14.5	68
5	44.9	-45.0	166.1	3	48.4	-45.3	166.1	1	51.9	-45.6	166.1	0	04.6	+45.9	13.9	2	01.1	+46.2	13.9	69
4	59.9	-45.0	166.7	3	03.1	-45.3	166.8	1	06.3	-45.6	166.8	0	50.5	+45.9	13.2	2	47.3	+46.2	13.2	70
4	14.9	-45.0	167.4	2	17.8	-45.3	167.4	0	20.7	-45.7	167.4	1	36.4	+46.0	12.6	3	33.5	+46.3	12.6	71
3	29.9	-45.1	168.0	1	32.5	-45.4	168.1	0	25.0	+45.6	11.9	2	22.4	+45.9	11.9	4	19.8	+46.1	12.0	72
2	44.8	-45.1	168.7	0	47.1	-45.4	168.7	1	10.6	+45.6	11.3	3	08.3	+45.8	11.3	5	05.9	+46.2	11.3	73
1	59.7	-45.1	169.4	0	01.7	-45.3	169.4	1	56.2	+45.6	10.6	3	54.1	+45.9	10.7	5	52.1	+46.1	10.7	74
0	14.6	-45.2	170.0	0	43.6	+45.4	10.0	2	41.8	+45.6	10.0	4	40.0	+45.8	10.0	6	38.2	+46.0	10.0	75
0	29.4	-45.1	170.7	1	29.0	+45.3	9.3	3	27.4	+45.6	9.3	5	25.8	+45.8	9.4	7	24.2	+46.0	9.4	76
0	15.7	+45.1	8.7	2	14.3	+45.4	8.7	4	13.0	+45.5	8.7	6	11.6	+45.7	8.7	8	10.2	+45.9	8.7	77
1	00.8	+45.1	8.0	2	59.7	+45.3	8.0	4	58.5	+45.5	8.0	6	57.3	+45.7	8.1	8	56.1	+45.9	8.1	78
1	45.9	+45.2	7.3	3	45.0	+45.2	7.4	5	44.0	+45.4	7.4	7	43.0	+45.6	7.4	9	42.0	+45.8	7.4	79
2	31.1	+45.0	6.7	4	30.2	+45.3	6.7	6	29.4	+45.4	6.7	8	28.6	+45.5	6.7	10	27.8	+45.7	6.8	80
3	16.1	+45.1	6.0	5	15.5	+45.2	6.0	7	14.8	+45.3	6.1	9	14.1	+45.5	6.1	11	13.5	+45.6	6.1	81
4	01.2	+45.0	5.4	6	00.7	+45.1	5.4	8	00.1	+45.3	5.4	9	59.6	+45.4	5.4	11	59.1	+45.5	5.5	82
4	46.2	+45.0	4.7	6	45.8	+45.1	4.7	8	45.4	+45.2	4.7	10	45.0	+45.3	4.8	12	44.6	+45.4	4.8	83
5	31.2	+45.0	4.0	7	30.9	+45.1	4.0	9	30.6	+45.1	4.1	11	30.3	+45.2	4.1	13	30.0	+45.3	4.1	84
6	16.2	+44.9	3.4	8	16.0	+44.9	3.4	10	15.7	+45.1	3.4	12	15.5	+45.1	3.4	14	15.3	+45.2	3.4	85
7	01.1	+44.8	2.7	9	00.9	+44.9	2.7	11	00.8	+44.9	2.7	13	00.6	+45.1	2.7	15	00.5	+45.1	2.8	86
7	45.9	+44.8	2.0	9	45.8	+44.8	2.0	11	45.7	+44.9	2.0	13	45.7	+44.9	2.1	15	45.6	+44.9	2.1	87
8	30.7	+44.7	1.4	10	30.6	+44.8	1.4	12	30.6	+44.8	1.4	14	30.6	+44.7	1.4	16	30.5	+44.8	1.4	88
9	15.4	+44.6	0.7	11	15.4	+44.6	0.7	13	15.4	+44.6	0.7	15	15.3	+44.7	0.7	17	15.3	+44.7	0.7	89
10	00.0	+44.5	0.0	12	00.0	+44.5	0.0	14	00.0	+44.5	0.0	16	00.0	+44.5	0.0	18	00.0	+44.5	0.0	90

LATITUDE SAME NAME

L.H.A. 138°, 222°

42°, 318° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	50 52.5	-5.6	66.7	51 37.8	-2.6	69.0	52 18.5	+0.6	71.4	52 54.3	+3.8	73.9	53 25.0	+7.2	76.5
31	50 46.9	-7.0	65.1	51 35.2	-3.9	67.4	52 19.1	-0.8	69.8	52 58.1	+2.5	72.2	53 32.2	+5.8	74.8
32	50 39.9	-8.2	63.5	51 31.3	-5.2	65.8	52 18.3	-2.1	68.1	53 00.6	+1.1	70.6	53 38.0	+4.4	73.1
33	50 31.7	-9.4	62.0	51 26.1	-6.6	64.2	52 16.2	-3.5	66.5	53 01.7	-0.3	68.9	53 42.4	+2.9	71.5
34	50 22.3	-10.7	60.4	51 19.5	-7.8	62.6	52 12.7	-4.9	64.9	53 01.4	-1.7	67.3	53 45.3	+1.6	69.8
35	50 11.6	-11.9	58.9	51 11.7	-9.1	61.0	52 07.8	-6.1	63.2	52 59.7	-3.1	65.6	53 46.9	+0.1	68.1
36	49 59.7	-13.1	57.4	51 02.6	-10.3	59.4	52 01.7	-7.5	61.6	52 56.6	-4.5	63.9	53 47.0	-1.3	66.4
37	49 46.6	-14.2	55.8	50 52.3	-11.6	57.9	51 54.2	-8.8	60.0	52 52.1	-5.8	62.3	53 45.7	-2.7	64.7
38	49 32.4	-15.4	54.3	50 40.7	-12.9	56.3	51 45.4	-10.1	58.4	52 46.3	-7.2	60.6	53 43.0	-4.2	63.0
39	49 17.0	-16.5	52.9	50 27.8	-14.0	54.8	51 35.3	-11.4	56.8	52 39.1	-8.6	59.0	53 38.8	-5.6	61.3
40	49 00.5	-17.7	51.4	50 13.8	-15.2	53.3	51 23.9	-12.6	55.2	52 30.5	-9.9	57.4	53 33.2	-6.9	59.6
41	48 42.8	-18.7	49.9	49 58.6	-16.4	51.7	51 11.3	-13.9	53.7	52 20.6	-11.2	55.8	53 26.3	-8.4	58.0
42	48 24.1	-19.8	48.5	49 42.2	-17.5	50.3	50 57.4	-15.0	52.1	52 09.4	-12.4	54.1	53 17.9	-9.7	56.3
43	48 04.3	-20.8	47.1	49 24.7	-18.6	48.8	50 42.4	-16.3	50.6	51 57.0	-13.8	52.6	53 08.2	-11.1	54.7
44	47 43.5	-21.8	45.7	49 06.1	-19.7	47.3	50 26.1	-17.5	49.1	51 43.2	-15.0	51.0	52 57.1	-12.5	53.0
45	47 21.7	-22.8	44.3	48 46.4	-20.8	45.9	50 08.6	-18.5	47.6	51 28.2	-16.3	49.4	52 44.6	-13.7	51.4
46	46 58.9	-23.8	42.9	48 25.6	-21.8	44.5	49 50.1	-19.7	46.1	51 11.9	-17.4	47.9	52 30.9	-15.0	49.8
47	46 35.1	-24.7	41.6	48 03.8	-22.8	43.1	49 30.4	-20.8	44.6	50 54.5	-18.6	46.4	52 15.9	-16.3	48.2
48	46 10.4	-25.6	40.3	47 41.0	-23.8	41.7	49 09.6	-21.9	43.2	50 35.9	-19.8	44.9	51 59.6	-17.5	46.6
49	45 44.8	-26.4	39.0	47 17.2	-24.7	40.3	48 47.7	-22.8	41.8	50 16.1	-20.9	43.4	51 42.1	-18.7	45.1
50	45 18.4	-27.3	37.7	46 52.5	-25.6	39.0	48 24.9	-23.9	40.4	49 55.2	-21.9	41.9	51 23.4	-19.9	43.6
51	44 51.1	-28.1	36.4	46 26.9	-26.6	37.7	48 01.0	-24.9	39.0	49 33.3	-23.0	40.5	51 03.5	-21.1	42.1
52	44 23.0	-28.9	35.2	46 00.3	-27.4	36.4	47 36.1	-25.7	37.7	49 10.3	-24.1	39.1	50 42.4	-22.1	40.6
53	43 54.1	-29.7	34.0	45 32.9	-28.2	35.1	47 10.4	-26.7	36.3	48 46.2	-25.0	37.7	50 20.3	-23.3	39.1
54	43 24.4	-30.4	32.8	45 04.7	-29.1	33.8	46 43.7	-27.6	35.0	48 21.2	-26.0	36.3	49 57.0	-24.2	37.7
55	42 54.0	-31.2	31.6	44 35.6	-29.8	32.6	46 16.1	-28.5	33.7	47 55.2	-27.0	34.9	49 32.8	-25.4	36.3
56	42 22.8	-31.8	30.4	44 05.8	-30.6	31.4	45 47.6	-29.2	32.5	47 28.2	-27.8	33.6	49 07.4	-26.2	34.9
57	41 51.0	-32.5	29.3	43 35.2	-31.4	30.2	45 18.4	-30.1	31.2	47 00.4	-28.7	32.3	48 41.2	-27.3	33.5
58	41 18.5	-33.2	28.2	43 03.8	-32.0	29.0	44 48.3	-30.9	30.0	46 31.7	-29.6	31.0	48 13.9	-28.2	32.2
59	40 45.3	-33.7	27.1	42 31.8	-32.7	27.9	44 17.4	-31.5	28.8	46 02.1	-30.3	29.8	47 45.7	-29.0	30.8
60	40 11.6	-34.4	26.0	41 59.1	-33.4	26.7	43 45.9	-32.4	27.6	45 31.8	-31.2	28.5	47 16.7	-29.9	29.5
61	39 37.2	-34.9	24.9	41 25.7	-34.0	25.6	43 13.5	-32.9	26.4	45 00.6	-31.9	27.3	46 46.8	-30.8	28.3
62	39 02.3	-35.5	23.9	40 51.7	-34.6	24.5	42 40.6	-33.7	25.3	44 28.7	-32.7	26.1	46 16.0	-31.5	27.0
63	38 26.8	-36.1	22.8	40 17.1	-35.2	23.5	42 06.9	-34.3	24.2	43 56.0	-33.3	25.0	45 44.5	-32.4	25.8
64	37 50.7	-36.5	21.8	39 41.9	-35.8	22.4	41 32.6	-35.0	23.1	43 22.7	-34.0	23.8	45 12.1	-33.0	24.6
65	37 14.2	-37.1	20.8	39 06.1	-36.3	21.4	40 57.6	-35.5	22.0	42 48.7	-34.7	22.7	44 39.1	-33.8	23.4
66	36 37.1	-37.5	19.8	38 29.8	-36.8	20.3	40 22.1	-36.1	20.9	42 14.0	-35.3	21.6	44 05.3	-34.5	22.3
67	35 59.6	-38.0	18.9	37 53.0	-37.3	19.3	39 46.0	-36.6	19.9	41 38.7	-35.9	20.5	43 30.8	-35.1	21.1
68	35 21.6	-38.4	17.9	37 15.7	-37.9	18.4	39 09.4	-37.2	18.9	41 02.8	-36.5	19.4	42 55.7	-35.7	20.0
69	34 43.2	-38.9	17.0	36 37.8	-38.3	17.4	38 32.2	-37.7	17.9	40 26.3	-37.1	18.4	42 20.0	-36.4	18.9
70	34 04.3	-39.2	16.0	35 59.5	-38.7	16.4	37 54.5	-38.2	16.9	39 49.2	-37.6	17.3	41 43.6	-36.9	17.9
71	33 25.1	-39.7	15.1	35 20.8	-39.2	15.5	37 16.3	-38.6	15.9	39 11.6	-38.1	16.3	41 06.7	-37.6	16.8
72	32 45.4	-40.0	14.2	34 41.6	-39.5	14.6	36 37.7	-39.1	14.9	38 33.5	-38.6	15.3	40 29.1	-38.0	15.8
73	32 05.4	-40.4	13.4	34 02.1	-40.0	13.7	35 58.6	-39.5	14.0	37 54.9	-39.0	14.4	39 51.1	-38.6	14.8
74	31 25.0	-40.7	12.5	33 22.1	-40.4	12.8	35 19.1	-40.0	13.1	37 15.9	-39.5	13.4	39 12.5	-39.0	13.8
75	30 44.3	-41.1	11.6	32 41.7	-40.7	11.9	34 39.1	-40.3	12.2	36 36.4	-40.0	12.5	38 33.5	-39.6	12.8
76	30 03.2	-41.4	10.8	32 01.0	-41.0	11.0	33 58.8	-40.8	11.3	35 56.4	-40.4	11.5	37 53.9	-40.0	11.8
77	29 21.8	-41.7	9.9	31 20.0	-41.5	10.1	33 18.0	-41.1	10.4	35 16.0	-40.8	10.6	37 13.9	-40.4	10.9
78	28 40.1	-42.0	9.1	30 38.5	-41.7	9.3	32 36.9	-41.4	9.5	34 35.2	-41.1	9.7	36 33.5	-40.9	10.0
79	27 58.1	-42.3	8.3	29 56.8	-42.0	8.5	31 55.5	-41.8	8.7	33 54.1	-41.6	8.8	35 52.6	-41.2	9.1
80	27 15.8	-42.5	7.5	29 14.8	-42.4	7.7	31 13.7	-42.1	7.8	33 12.5	-41.8	8.0	35 11.4	-41.7	8.2
81	26 33.3	-42.8	6.7	28 32.4	-42.6	6.8	30 31.6	-42.5	7.0	32 30.7	-42.3	7.1	34 29.7	-42.0	7.3
82	25 50.5	-43.1	5.9	27 49.8	-42.9	6.0	29 49.1	-42.7	6.2	31 48.4	-42.5	6.3	33 47.7	-42.4	6.4
83	25 07.4	-43.3	5.2	27 06.9	-43.1	5.3	29 06.4	-43.0	5.4	31 05.9	-42.9	5.5	33 05.3	-42.7	5.6
84	24 24.1	-43.5	4.4	26 23.8	-43.4	4.5	28 23.4	-43.3	4.6	30 23.0	-43.1	4.7	32 22.6	-43.0	4.8
85	23 40.6	-43.7	3.7	25 40.4	-43.7	3.7	27 40.1	-43.5	3.8	29 39.9	-43.5	3.8	31 39.6	-43.4	3.9
86	22 56.9	-43.9	2.9	24 56.7	-43.8	3.0	26 56.6	-43.8	3.0	28 56.4	-43.7	3.1	30 56.2	-43.6	3.1
87	22 13.0	-44.2	2.2	24 12.9	-44.1	2.2	26 12.8	-44.1	2.2	28 12.7	-44.0	2.3	30 12.6	-43.9	2.3
88	21 28.8	-44.3	1.4	23 28.8	-44.3	1.5	25 28.7	-44.2	1.5	27 28.7	-44.2	1.5	29 28.7	-44.2	1.5
89	20 44.5	-44.5	0.7	22 44.5	-44.5	0.7	24 44.5	-44.5	0.7	26 44.5	-44.5	0.7	28 44.5	-44.5	0.8
90	20 00.0	-44.7	0.0	22 00.0	-44.7	0.0	24 00.0	-44.7	0.0	26 00.0	-44.7	0.0	28 00.0	-44.7	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 42°, 318°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
25	42.4	-43.1	140.0	24	10.1	-44.1	140.6	22	37.0	-45.0	141.1	21	03.3	-46.0	141.6	19	28.9	-46.8	142.1	30
24	59.3	-43.3	140.7	23	26.0	-44.3	141.3	21	52.0	-45.3	141.8	20	17.3	-46.1	142.3	18	42.1	-47.0	142.7	31
24	16.0	-43.6	141.5	22	41.7	-44.5	142.0	21	06.7	-45.4	142.5	19	31.2	-46.3	143.0	17	55.1	-47.1	143.4	32
23	32.4	-43.8	142.3	21	57.2	-44.7	142.8	20	21.3	-45.5	143.2	18	44.9	-46.4	143.7	17	08.0	-47.2	144.0	33
22	48.6	-43.9	143.0	21	12.5	-44.9	143.5	19	35.8	-45.8	143.9	17	58.5	-46.5	144.3	16	20.8	-47.3	144.7	34
22	04.7	-44.2	143.7	20	27.6	-45.0	144.2	18	50.0	-45.8	144.6	17	12.0	-46.7	145.0	15	33.5	-47.5	145.3	35
21	20.5	-44.4	144.5	19	42.6	-45.2	144.9	18	04.2	-46.1	145.3	16	25.3	-46.8	145.6	14	46.0	-47.5	146.0	36
20	36.1	-44.5	145.2	18	57.4	-45.4	145.6	17	18.1	-46.1	146.0	15	38.5	-46.9	146.3	13	58.5	-47.7	146.6	37
19	51.6	-44.7	145.9	18	12.0	-45.5	146.3	16	32.0	-46.3	146.6	14	51.6	-47.0	146.9	13	10.8	-47.7	147.2	38
19	06.9	-44.9	146.6	17	26.5	-45.7	147.0	15	45.7	-46.4	147.3	14	04.6	-47.2	147.6	12	23.1	-47.8	147.8	39
18	22.0	-45.0	147.3	16	40.8	-45.7	147.6	14	59.3	-46.5	148.0	13	17.4	-47.2	148.2	11	35.3	-47.9	148.4	40
17	37.0	-45.2	148.0	15	55.1	-45.9	148.3	14	12.8	-46.6	148.6	12	30.2	-47.3	148.9	10	47.4	-48.0	149.1	41
16	51.8	-45.3	148.7	15	09.2	-46.1	149.0	13	26.2	-46.8	149.3	11	42.9	-47.4	149.5	9	59.4	-48.0	149.7	42
16	06.5	-45.4	149.4	14	23.1	-46.1	149.7	12	39.4	-46.8	149.9	10	55.5	-47.5	150.1	9	11.4	-48.1	150.3	43
15	21.1	-45.5	150.1	13	37.0	-46.2	150.3	11	52.6	-46.9	150.5	10	08.0	-47.5	150.7	8	23.3	-48.2	150.9	44
14	35.6	-45.7	150.7	12	50.8	-46.4	151.0	11	05.7	-46.9	151.2	9	20.5	-47.6	151.3	7	35.1	-48.3	151.5	45
13	49.9	-45.8	151.4	12	04.4	-46.4	151.6	10	18.8	-47.1	151.8	8	32.9	-47.6	152.0	6	46.9	-48.2	152.1	46
13	04.1	-45.8	152.1	11	18.0	-46.5	152.3	9	31.7	-47.1	152.4	7	45.3	-47.8	152.6	5	58.7	-48.3	152.7	47
12	18.3	-46.0	152.7	10	31.5	-46.6	152.9	8	44.6	-47.2	153.1	6	57.5	-47.7	153.2	5	10.4	-48.3	153.3	48
11	32.3	-46.1	153.4	9	44.9	-46.6	153.5	7	57.4	-47.2	153.7	6	09.8	-47.8	153.8	4	22.1	-48.4	153.9	49
10	46.2	-46.1	154.0	8	58.3	-46.8	154.2	7	10.2	-47.3	154.3	5	22.0	-47.8	154.4	3	33.7	-48.4	154.5	50
10	00.1	-46.2	154.7	8	11.5	-46.7	154.8	6	22.9	-47.3	154.9	4	34.2	-47.9	155.0	2	45.4	-48.4	155.1	51
9	13.9	-46.3	155.3	7	24.8	-46.9	155.5	5	35.6	-47.4	155.5	3	46.3	-47.9	155.6	1	57.0	-48.4	155.7	52
8	27.6	-46.4	156.0	6	37.9	-46.8	156.1	4	48.2	-47.4	156.2	2	58.4	-47.9	156.2	1	08.6	-48.4	156.2	53
7	41.2	-46.4	156.6	5	51.1	-47.0	156.7	4	00.8	-47.4	156.8	2	10.5	-47.9	156.8	0	20.2	-48.4	156.8	54
6	54.8	-46.4	157.3	5	04.1	-46.9	157.3	3	13.4	-47.5	157.4	0	23.6	-48.0	157.4	0	28.2	-48.4	157.4	55
6	08.4	-46.5	157.9	4	17.2	-47.0	158.0	2	25.9	-47.4	158.0	0	34.6	-47.9	158.0	1	16.6	-48.4	158.0	56
5	21.9	-46.6	158.5	3	30.2	-47.0	158.6	1	38.5	-47.5	158.6	0	13.3	-47.9	158.6	0	13.3	-47.9	158.6	57
4	35.3	-46.5	159.2	2	43.2	-47.1	159.2	0	51.0	-47.5	159.2	1	01.2	-48.0	159.2	2	53.4	-48.4	159.2	58
3	48.8	-46.6	159.8	1	56.1	-47.0	159.8	0	03.5	-47.5	159.8	1	49.2	-47.9	159.8	3	41.8	-48.3	159.8	59
3	02.2	-46.7	160.4	1	09.1	-47.1	160.4	0	44.0	-47.5	160.4	2	37.1	-47.9	160.4	4	30.1	-48.3	160.4	60
2	15.5	-46.6	161.1	0	22.0	-47.0	161.1	1	31.5	-47.4	161.1	3	25.0	-47.8	161.1	5	18.4	-48.3	161.1	61
1	28.9	-46.6	161.7	0	25.0	-47.1	161.7	2	18.9	-47.5	161.7	4	12.8	-47.9	161.7	6	06.7	-48.3	161.7	62
0	42.3	-46.7	162.3	1	12.1	-47.0	162.3	3	06.4	-47.4	162.3	5	00.7	-47.8	162.3	6	55.0	-48.1	162.3	63
0	04.4	+46.7	17.1	1	59.1	+47.0	17.1	3	53.8	+47.4	17.1	5	48.5	+47.8	17.1	7	43.1	+48.2	17.1	64
0	51.1	+46.6	16.4	2	46.1	+47.1	16.4	4	41.2	+47.4	16.5	6	36.3	+47.7	16.5	8	31.3	+48.1	16.5	65
1	37.7	+46.6	15.8	3	33.2	+46.9	15.8	5	28.6	+47.3	15.9	7	24.0	+47.7	15.9	9	19.4	+48.0	15.9	66
2	24.3	+46.7	15.2	4	20.1	+47.0	15.2	6	15.9	+47.3	15.2	8	11.7	+47.6	15.3	10	07.4	+48.0	15.4	67
3	11.0	+46.5	14.5	5	07.1	+46.9	14.6	7	03.2	+47.3	14.6	8	59.3	+47.6	14.7	10	55.4	+47.9	14.8	68
3	57.5	+46.6	13.9	5	54.0	+46.9	13.9	7	50.5	+47.2	14.0	9	46.9	+47.5	14.1	11	43.3	+47.8	14.2	69
4	44.1	+46.5	13.3	6	40.9	+46.8	13.3	8	37.7	+47.1	13.4	10	34.4	+47.4	13.5	12	31.1	+47.7	13.6	70
5	30.6	+46.5	12.6	7	27.7	+46.8	12.7	9	24.8	+47.0	12.8	11	21.8	+47.3	12.8	13	18.8	+47.6	12.9	71
6	17.1	+46.5	12.0	8	14.5	+46.7	12.1	10	11.8	+47.0	12.1	12	09.1	+47.3	12.2	14	06.4	+47.5	12.3	72
7	03.6	+46.4	11.4	9	01.2	+46.7	11.4	10	58.8	+46.9	11.5	12	56.4	+47.2	11.6	14	53.9	+47.5	11.7	73
7	50.0	+46.3	10.7	9	47.9	+46.5	10.8	11	45.7	+46.9	10.9	13	43.6	+47.0	10.9	15	41.4	+47.3	11.0	74
8	36.3	+46.3	10.1	10	34.4	+46.5	10.1	12	32.6	+46.7	10.2	14	30.6	+47.0	10.3	16	28.7	+47.2	10.4	75
9	22.6	+46.2	9.4	11	20.9	+46.5	9.5	13	19.3	+46.6	9.6	15	17.6	+46.9	9.7	17	15.9	+47.1	9.8	76
10	08.8	+46.1	8.8	12	07.4	+46.3	8.9	14	05.9	+46.6	8.9	16	04.5	+46.7	9.0	18	03.0	+46.9	9.1	77
10	54.9	+46.1	8.1	12	53.7	+46.2	8.2	14	52.5	+46.4	8.3	16	51.2	+46.6	8.4	18	49.9	+46.8	8.5	78
11	41.0	+45.9	7.5	13	39.9	+46.1	7.6	15	38.9	+46.3	7.6	17	37.8	+46.5	7.7	19	36.7	+46.7	7.8	79
12	26.9	+45.9	6.8	14	26.0	+46.1	6.9	16	25.2	+46.1	7.0	18	24.3	+46.3	7.0	20	23.4	+46.5	7.1	80
13	12.8	+45.7	6.2	15	12.1	+45.9	6.2	17	11.3	+46.1	6.3	19	10.6	+46.2	6.4	21	09.9	+46.3	6.4	81
13	58.5	+45.7	5.5	15	58.0	+45.7	5.6	17	57.4	+45.9	5.6	19	56.8	+46.0	5.7	21	56.2	+46.2	5.8	82
14	44.2	+45.5	4.8	16	43.7	+45.7	4.9	18	43.3	+45.7	4.9	20	42.8	+45.9	5.0	22	42.4	+46.0	5.1	83
15	29.7	+45.4	4.2	17	29.4	+45.5	4.2	19	29.0	+45.6	4.3	21	28.7	+45.7	4.3	23	28.4	+45.8	4.4	84
16	15.1	+45.3	3.5	18	14.9	+45.3	3.5	20	14.6	+45.5	3.6	22	14.4	+45.5	3.6	24	14.2	+45.6	3.7	85
17	00.4	+45.1	2.8	19	00.2	+45.2	2.8	21	00.1	+45.2	2.9	22	59.9	+45.4	2.9	24	59.8	+45.4	3.0	86
17	45.5	+45.0	2.1	19	45.4	+45.1	2.1	21	45.3	+45.1	2.2	23	45.3	+45.1	2.2	25	45.2	+45.1	2.2	87
18	30.5	+44.8	1.4	20	30.5	+44.8	1.4	22	30.4	+44.9	1.4	24	30.4	+44.9	1.5	26	30.3	+45.0	1.5	88
19	15.3	+44.7	0.7	21	15.3	+44.7	0.7	23	15.3	+44.7	0.7	25	15.3	+44.7	0.7	27	15.3	+44.7	0.8	89
20	00.0	+44.5	0.0	22	00.0	+44.5	0.0	24	00.0	+44.5	0.0	26	00.0	+44.5	0.0	28	00.0	+44.5	0.0	90
20°			22°			24°			26°			28°								

LATITUDE SAME NAME

L.H.A. 138°, 222°

44°, 316° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	38 32.0	-27.9	50.3	39 47.7	-26.1	51.5	41 01.2	-24.1	52.9	42 12.5	-22.1	54.3	43 21.2	-19.9	55.8
31	38 04.1	-28.6	49.1	39 21.6	-26.7	50.4	40 37.1	-24.8	51.7	41 50.4	-22.9	53.1	43 01.3	-20.8	54.5
32	37 35.5	-29.2	48.0	38 54.9	-27.5	49.2	40 12.3	-25.6	50.5	41 27.5	-23.6	51.8	42 40.5	-21.5	53.3
33	37 06.3	-29.7	46.9	38 27.4	-28.1	48.1	39 46.7	-26.3	49.3	41 03.9	-24.4	50.6	42 19.0	-22.5	52.0
34	36 36.6	-30.4	45.8	37 59.3	-28.7	46.9	39 20.4	-27.0	48.1	40 39.5	-25.2	49.4	41 56.5	-23.2	50.7
35	36 06.2	-30.9	44.8	37 30.6	-29.3	45.8	38 53.4	-27.7	47.0	40 14.3	-25.8	48.2	41 33.3	-24.0	49.5
36	35 35.3	-31.5	43.7	37 01.3	-29.9	44.7	38 25.7	-28.3	45.8	39 48.5	-26.6	47.0	41 09.3	-24.8	48.3
37	35 03.8	-32.0	42.7	36 31.4	-30.5	43.7	37 57.4	-28.9	44.7	39 21.9	-27.3	45.9	40 44.5	-25.5	47.1
38	34 31.8	-32.5	41.6	36 00.9	-31.1	42.6	37 28.5	-29.6	43.6	38 54.6	-28.0	44.7	40 19.0	-26.2	45.9
39	33 59.3	-33.0	40.6	35 29.8	-31.6	41.5	36 58.9	-30.1	42.5	38 26.6	-28.5	43.6	39 52.8	-27.0	44.7
40	33 26.3	-33.5	39.6	34 58.2	-32.2	40.5	36 28.8	-30.7	41.4	37 58.1	-29.3	42.5	39 25.8	-27.6	43.5
41	32 52.8	-33.9	38.6	34 26.0	-32.6	39.5	35 58.1	-31.3	40.4	37 28.8	-29.8	41.3	38 58.2	-28.3	42.4
42	32 18.9	-34.4	37.7	33 53.4	-33.1	38.5	35 26.8	-31.8	39.3	36 59.0	-30.4	40.3	38 29.9	-28.9	41.3
43	31 44.5	-34.8	36.7	33 20.3	-33.7	37.5	34 55.0	-32.3	38.3	36 28.6	-31.0	39.2	38 01.0	-29.6	40.2
44	31 09.7	-35.3	35.7	32 46.6	-34.0	36.5	34 22.7	-32.9	37.3	35 57.6	-31.5	38.1	37 31.4	-30.1	39.1
45	30 34.4	-35.6	34.8	32 12.6	-34.5	35.5	33 49.8	-33.3	36.3	35 26.1	-32.1	37.1	37 01.3	-30.8	38.0
46	29 58.8	-36.0	33.9	31 38.1	-35.0	34.5	33 16.5	-33.8	35.3	34 54.0	-32.6	36.0	36 30.5	-31.3	36.9
47	29 22.8	-36.5	32.9	31 03.1	-35.3	33.6	32 42.7	-34.3	34.3	34 21.4	-33.1	35.0	35 59.2	-31.9	35.8
48	28 46.3	-36.7	32.0	30 27.8	-35.8	32.6	32 08.4	-34.7	33.3	33 48.3	-33.5	34.0	35 27.3	-32.4	34.8
49	28 09.6	-37.1	31.1	29 52.0	-36.2	31.7	31 33.7	-35.1	32.3	33 14.8	-34.1	33.0	34 54.9	-32.9	33.8
50	27 32.5	-37.5	30.2	29 15.8	-36.5	30.8	30 58.6	-35.5	31.4	32 40.7	-34.5	32.0	34 22.0	-33.4	32.7
51	26 55.0	-37.8	29.4	28 39.3	-36.8	29.9	30 23.1	-35.9	30.4	32 06.2	-34.9	31.1	33 48.6	-33.9	31.7
52	26 17.2	-38.1	28.5	28 02.5	-37.3	29.0	29 47.2	-36.4	29.5	31 31.3	-35.4	30.1	33 14.7	-34.3	30.8
53	25 39.1	-38.3	27.6	27 25.2	-37.5	28.1	29 10.8	-36.6	28.6	30 55.9	-35.8	29.2	32 40.4	-34.8	29.8
54	25 00.8	-38.7	26.8	26 47.7	-37.9	27.2	28 34.2	-37.1	27.7	30 20.1	-36.1	28.2	32 05.6	-35.3	28.8
55	24 22.1	-39.0	25.9	26 09.8	-38.2	26.4	27 57.1	-37.4	26.8	29 44.0	-36.5	27.3	31 30.3	-35.6	27.9
56	23 43.1	-39.2	25.1	25 31.6	-38.5	25.5	27 19.7	-37.7	25.9	29 07.5	-37.0	26.4	30 54.7	-36.1	26.9
57	23 03.9	-39.4	24.3	24 53.1	-38.7	24.6	26 42.0	-38.0	25.1	28 30.5	-37.2	25.5	30 18.7	-36.4	26.0
58	22 24.5	-39.8	23.5	24 14.4	-39.0	23.8	26 04.0	-38.3	24.2	27 53.3	-37.6	24.6	29 42.2	-36.8	25.1
59	21 44.7	-39.9	22.7	23 35.4	-39.3	23.0	25 25.7	-38.6	23.3	27 15.7	-37.9	23.7	29 05.4	-37.2	24.2
60	21 04.8	-40.2	21.9	22 56.1	-39.6	22.2	24 47.1	-38.9	22.5	26 37.8	-38.2	22.9	28 28.2	-37.5	23.3
61	20 24.6	-40.4	21.1	22 16.5	-39.8	21.3	24 08.2	-39.2	21.7	25 59.6	-38.6	22.0	27 50.7	-37.9	22.4
62	19 44.2	-40.5	20.3	21 36.7	-40.0	20.5	23 29.0	-39.4	20.8	25 21.0	-38.8	21.2	27 12.8	-38.2	21.5
63	19 03.7	-40.8	19.5	20 56.7	-40.2	19.7	22 49.6	-39.7	20.0	24 42.2	-39.1	20.3	26 34.6	-38.5	20.6
64	18 22.9	-41.0	18.7	20 16.5	-40.5	18.9	22 09.9	-40.0	19.2	24 03.1	-39.4	19.5	25 56.1	-38.8	19.8
65	17 41.9	-41.1	17.9	19 36.0	-40.7	18.2	21 29.9	-40.1	18.4	23 23.7	-39.6	18.7	25 17.3	-39.1	18.9
66	17 00.8	-41.4	17.2	18 55.3	-40.8	17.4	20 49.8	-40.4	17.6	22 44.1	-39.9	17.8	24 38.2	-39.3	18.1
67	16 19.4	-41.4	16.4	18 14.5	-41.0	16.6	20 09.4	-40.6	16.8	22 04.2	-40.1	17.0	23 58.9	-39.6	17.3
68	15 38.0	-41.7	15.7	17 33.5	-41.3	15.8	19 28.8	-40.7	16.0	21 24.1	-40.3	16.2	23 19.3	-39.9	16.5
69	14 56.3	-41.7	14.9	16 52.2	-41.3	15.1	18 48.1	-41.0	15.2	20 43.8	-40.6	15.4	22 39.4	-40.1	15.7
70	14 14.6	-42.0	14.2	16 10.9	-41.6	14.3	18 07.1	-41.2	14.5	20 03.2	-40.7	14.7	21 59.3	-40.4	14.8
71	13 32.6	-42.0	13.5	15 29.3	-41.7	13.6	17 25.9	-41.3	13.7	19 22.5	-41.0	13.9	21 18.9	-40.5	14.0
72	12 50.6	-42.2	12.7	14 47.6	-41.8	12.8	16 44.6	-41.5	13.0	18 41.5	-41.1	13.1	20 38.4	-40.8	13.3
73	12 08.4	-42.2	12.0	14 05.8	-42.0	12.1	16 03.1	-41.6	12.2	18 00.4	-41.3	12.3	19 57.6	-41.0	12.5
74	11 26.2	-42.4	11.3	13 23.8	-42.0	11.4	15 21.5	-41.8	11.5	17 19.1	-41.5	11.6	19 16.6	-41.2	11.7
75	10 43.8	-42.5	10.5	12 41.8	-42.3	10.6	14 39.7	-42.0	10.7	16 37.6	-41.7	10.8	18 35.4	-41.4	10.9
76	10 01.3	-42.6	9.8	11 59.5	-42.3	9.9	13 57.7	-42.0	10.0	15 55.9	-41.8	10.1	17 54.0	-41.5	10.2
77	9 18.7	-42.6	9.1	11 17.2	-42.4	9.2	13 15.7	-42.2	9.2	15 14.1	-42.0	9.3	17 12.5	-41.7	9.4
78	8 36.1	-42.8	8.4	10 34.8	-42.5	8.4	12 33.5	-42.3	8.5	14 32.1	-42.0	8.6	16 30.8	-41.9	8.7
79	7 53.3	-42.8	7.7	9 52.3	-42.7	7.7	11 51.2	-42.5	7.8	13 50.1	-42.3	7.8	15 48.9	-42.0	7.9
80	7 10.5	-42.8	7.0	9 09.6	-42.7	7.0	11 08.7	-42.5	7.1	13 07.8	-42.3	7.1	15 06.9	-42.2	7.2
81	6 27.7	-43.0	6.3	8 26.9	-42.7	6.3	10 26.2	-42.6	6.3	12 25.5	-42.5	6.4	14 24.7	-42.3	6.4
82	5 44.7	-42.9	5.6	7 44.2	-42.9	5.6	9 43.6	-42.7	5.6	11 43.0	-42.6	5.7	13 42.4	-42.4	5.7
83	5 01.8	-43.1	4.9	7 01.3	-42.9	4.9	9 00.9	-42.8	4.9	11 00.4	-42.6	4.9	13 00.0	-42.6	5.0
84	4 18.7	-43.0	4.2	6 18.4	-43.0	4.2	8 18.1	-42.9	4.2	10 17.8	-42.8	4.2	12 17.4	-42.6	4.3
85	3 35.7	-43.1	3.5	5 35.4	-43.0	3.5	7 35.2	-42.9	3.5	9 35.0	-42.9	3.5	11 34.8	-42.8	3.5
86	2 52.6	-43.1	2.8	4 52.4	-43.0	2.8	6 52.3	-43.0	2.8	8 52.1	-42.9	2.8	10 52.0	-42.9	2.8
87	2 09.5	-43.2	2.1	4 09.4	-43.1	2.1	6 09.3	-43.1	2.1	8 09.2	-43.0	2.1	10 09.1	-42.9	2.1
88	1 26.3	-43.1	1.4	3 26.3	-43.1	1.4	5 26.2	-43.1	1.4	7 26.2	-43.1	1.4	9 26.2	-43.1	1.4
89	0 43.2	-43.2	0.7	2 43.2	-43.2	0.7	4 43.1	-43.1	0.7	6 43.1	-43.1	0.7	8 43.1	-43.1	0.7
90	0 00.0	-43.2	0.0	2 00.0	-43.2	0.0	4 00.0	-43.2	0.0	6 00.0	-43.2	0.0	8 00.0	-43.2	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 44°, 316°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
38	32.0	-27.9	129.7	37	14.3	-29.6	130.9	35	54.8	-31.3	132.0	34	33.7	-32.9	133.1	33	11.0	-34.4	134.0	30
38	04.1	-28.6	130.9	36	44.7	-30.3	132.0	35	23.5	-31.9	133.1	34	00.8	-33.4	134.1	32	36.6	-34.9	135.0	31
37	35.5	-29.2	132.0	36	14.4	-30.8	133.1	34	51.6	-32.3	134.1	33	27.4	-33.9	135.1	32	01.7	-35.2	136.0	32
37	06.3	-29.7	133.1	35	43.6	-31.4	134.1	34	19.3	-32.9	135.1	32	53.5	-34.3	136.1	31	26.5	-35.7	136.9	33
36	36.6	-30.4	134.2	35	12.2	-31.9	135.2	33	46.4	-33.4	136.1	32	19.2	-34.8	137.0	30	50.8	-36.1	137.9	34
36	06.2	-30.9	135.2	34	40.3	-32.4	136.2	33	13.0	-33.9	137.1	31	44.4	-35.2	138.0	30	14.7	-36.5	138.8	35
35	35.3	-31.5	136.3	34	07.9	-32.9	137.2	32	39.1	-34.3	138.1	31	09.2	-35.6	139.0	29	38.2	-36.9	139.7	36
35	03.8	-32.0	137.3	33	35.0	-33.5	138.2	32	04.8	-34.7	139.1	30	33.6	-36.0	139.9	29	01.3	-37.2	140.6	37
34	31.8	-32.5	138.4	33	01.5	-33.8	139.2	31	30.1	-35.2	140.1	29	57.6	-36.4	140.8	28	24.1	-37.6	141.5	38
33	59.3	-33.0	139.4	32	27.7	-34.4	140.2	30	54.9	-35.6	141.0	29	21.2	-36.8	141.7	27	46.5	-37.9	142.4	39
33	26.3	-33.5	140.4	31	53.3	-34.7	141.2	30	19.3	-35.9	141.9	28	44.4	-37.1	142.6	27	08.6	-38.2	143.3	40
32	52.8	-33.9	141.4	31	18.6	-35.2	142.1	29	43.4	-36.4	142.9	28	07.3	-37.5	143.5	26	30.4	-38.5	144.1	41
32	18.9	-34.4	142.3	30	43.4	-35.6	143.1	29	07.0	-36.7	143.8	27	29.8	-37.8	144.4	25	51.9	-38.8	145.0	42
31	44.5	-34.8	143.3	30	07.8	-36.0	144.0	28	30.3	-37.1	144.7	26	52.0	-38.1	145.3	25	13.1	-39.2	145.8	43
31	09.7	-35.3	144.3	29	31.8	-36.3	144.9	27	53.2	-37.4	145.6	26	13.9	-38.4	146.1	24	33.9	-39.3	146.7	44
30	34.4	-35.6	145.2	28	55.5	-36.7	145.9	27	15.8	-37.7	146.5	25	35.5	-38.7	147.0	23	54.6	-39.7	147.5	45
29	58.8	-36.0	146.1	28	18.8	-37.1	146.8	26	38.1	-38.1	147.3	24	56.8	-39.0	147.8	23	14.9	-39.9	148.3	46
29	22.8	-36.5	147.1	27	41.7	-37.4	147.7	26	00.0	-38.3	148.2	24	17.8	-39.3	148.7	22	35.0	-40.1	149.1	47
28	46.3	-36.7	148.0	27	04.3	-37.7	148.5	25	21.7	-38.7	149.0	23	38.5	-39.5	149.5	21	54.9	-40.4	149.9	48
28	09.6	-37.1	148.9	26	26.6	-38.1	149.4	24	43.0	-38.9	149.9	22	59.0	-39.8	150.3	21	14.5	-40.6	150.7	49
27	32.5	-37.5	149.8	25	48.5	-38.3	150.3	24	04.1	-39.2	150.7	22	19.2	-40.0	151.1	20	33.9	-40.8	151.5	50
26	55.0	-37.8	150.6	25	10.2	-38.7	151.1	23	24.9	-39.5	151.5	21	39.2	-40.3	151.9	19	53.1	-41.0	152.3	51
26	17.2	-38.1	151.5	24	31.5	-38.9	152.0	22	45.4	-39.7	152.4	20	58.9	-40.5	152.7	19	12.1	-41.2	153.1	52
25	39.1	-38.3	152.4	23	52.6	-39.2	152.8	22	05.7	-39.9	153.2	20	18.4	-40.6	153.5	18	30.9	-41.4	153.8	53
25	00.8	-38.7	153.2	23	13.4	-39.4	153.6	21	25.8	-40.2	154.0	19	37.8	-40.9	154.3	17	49.5	-41.6	154.6	54
24	22.1	-39.0	154.1	22	34.0	-39.7	154.4	20	45.6	-40.4	154.8	18	56.9	-41.1	155.1	17	07.9	-41.7	155.4	55
23	43.1	-39.2	154.9	21	54.3	-39.9	155.2	20	05.2	-40.6	155.6	18	15.8	-41.2	155.9	16	26.2	-41.9	156.1	56
23	03.9	-39.4	155.7	21	14.4	-40.2	156.1	19	24.6	-40.8	156.4	17	34.6	-41.5	156.6	15	44.3	-42.0	156.9	57
22	24.5	-39.8	156.5	20	34.2	-40.3	156.8	18	43.8	-41.0	157.1	16	53.1	-41.6	157.4	15	02.3	-42.2	157.6	58
21	44.7	-39.9	157.3	19	53.9	-40.6	157.6	18	02.8	-41.2	157.9	16	11.5	-41.7	158.1	14	20.1	-42.3	158.3	59
21	04.8	-40.2	158.1	19	13.3	-40.8	158.4	17	21.6	-41.3	158.7	15	29.8	-41.9	158.9	13	37.8	-42.5	159.1	60
20	24.6	-40.4	158.9	18	32.5	-40.9	159.2	16	40.3	-41.5	159.4	14	47.9	-42.1	159.6	12	55.3	-42.5	159.8	61
19	44.2	-40.5	159.7	17	51.6	-41.1	160.0	15	58.8	-41.7	160.2	14	05.8	-42.1	160.4	12	12.8	-42.7	160.5	62
19	03.7	-40.8	160.5	17	10.5	-41.4	160.7	15	17.1	-41.8	160.9	13	23.7	-42.4	161.1	11	30.1	-42.8	161.2	63
18	22.9	-41.0	161.3	16	29.1	-41.4	161.5	14	35.3	-41.9	161.7	12	41.3	-42.4	161.8	10	47.3	-42.9	161.9	64
17	41.9	-41.1	162.1	15	47.7	-41.6	162.2	13	53.4	-42.1	162.4	11	58.9	-42.5	162.5	10	04.4	-43.0	162.7	65
17	00.8	-41.4	162.8	15	06.1	-41.8	163.0	13	11.3	-42.2	163.1	11	16.4	-42.6	163.3	9	21.4	-43.0	163.4	66
16	19.4	-41.4	163.6	14	24.3	-41.9	163.7	12	29.1	-42.4	163.9	10	33.8	-42.8	164.0	8	38.4	-43.1	164.1	67
15	38.0	-41.7	164.3	13	42.4	-42.1	164.5	11	46.7	-42.4	164.6	9	51.0	-42.8	164.7	7	55.3	-43.2	164.8	68
14	56.3	-41.7	165.1	13	00.3	-42.1	165.2	11	04.3	-42.5	165.3	9	08.2	-42.9	165.4	7	12.1	-43.3	165.5	69
14	14.6	-42.0	165.8	12	18.2	-42.3	165.9	10	21.8	-42.7	166.0	8	25.3	-43.0	166.1	6	28.8	-43.3	166.2	70
13	32.6	-42.0	166.5	11	35.9	-42.4	166.7	9	39.1	-42.7	166.7	7	42.3	-43.0	166.8	5	45.5	-43.4	166.9	71
12	50.6	-42.2	167.3	10	53.5	-42.5	167.4	8	56.4	-42.8	167.4	6	59.3	-43.1	167.5	5	02.1	-43.4	167.6	72
12	08.4	-42.2	168.0	10	11.0	-42.5	168.1	8	13.6	-42.9	168.2	6	16.2	-43.2	168.2	4	18.7	-43.5	168.2	73
11	26.2	-42.4	168.7	9	28.5	-42.7	168.8	7	30.7	-42.9	168.9	5	33.0	-43.2	168.9	3	35.2	-43.5	168.9	74
10	43.8	-42.5	169.5	8	45.8	-42.7	169.5	6	47.8	-43.0	169.6	4	49.8	-43.3	169.6	2	51.7	-43.5	169.6	75
10	01.3	-42.6	170.2	8	03.1	-42.9	170.2	6	04.8	-43.1	170.3	4	06.5	-43.3	170.3	2	08.2	-43.5	170.3	76
9	18.7	-42.6	170.9	7	20.2	-42.8	170.9	5	21.7	-43.1	171.0	3	23.2	-43.3	171.0	1	24.7	-43.5	171.0	77
8	36.1	-42.8	171.6	6	37.4	-43.0	171.6	4	38.6	-43.1	171.7	2	39.9	-43.3	171.7	0	41.2	-43.6	171.7	78
7	53.3	-42.8	172.3	5	54.4	-43.0	172.3	3	55.5	-43.2	172.4	1	56.6	-43.4	172.4	0	02.4	+43.5	7.6	79
7	10.5	-42.8	173.0	5	11.4	-43.0	173.0	3	12.3	-43.2	173.1	1	13.2	-43.4	173.1	0	45.9	+43.6	6.9	80
6	27.7	-43.0	173.7	4	28.4	-43.1	173.7	2	29.1	-43.2	173.8	0	29.8	-43.4	173.8	1	29.5	+43.5	6.2	81
5	44.7	-42.9	174.4	3	45.3	-43.1	174.4	1	45.9	-43.3	174.4	0	13.6	+43.3	5.5	2	13.0	+43.5	5.6	82
5	01.8	-43.1	175.1	3	02.2	-43.1	175.1	1	02.6	-43.2	175.1	0	02.6	-43.2	175.1	2	56.5	+43.5	4.9	83
4	18.7	-43.0	175.8	2	19.1	-43.2	175.8	0	19.4	-43.3	175.8	1	40.3	+43.4	4.2	3	40.0	+43.4	4.2	84
3	35.7	-43.1	176.5	1	35.9	-43.2	176.5	0	23.9	+43.2	3.5	2	23.7	+43.3	3.5	4	23.4	+43.5	3.5	85
2	52.6	-43.1	177.2	0	52.7	-43.2	177.2	1	07.1	+43.3	2.8	3	07.0	+43.3	2.8	5	06.9	+43.3	2.8	86
2	09.5	-43.2	177.9	0	09.5	-43.2	177.9	1	50.4	+43.2	2.1	3	50.3	+43.3	2.1	5	50.2	+43.3	2.1	87
1	26.3	-43.1	178.6	0	33.7	+43.1	1.4	2	33.6	+43.2	1.4	4	33.6	+43.2	1.4	6	33.5	+43.3	1.4	88
0	43.2	-43.2	179.3	1	16.8	+43.2	0.7	3	16.8	+43.2	0.7	5	16.8	+43.2	0.7	7	16.8	+43.2	0.7	89
0	00.0	+43.2	0.0	2	00.0	+43.2	0.0	4	00.0	+43.1	0.0	6	00.0	+43.1	0.0	8	00.0	+43.1	0.0	90

LATITUDE SAME NAME

L.H.A. 136°, 224°

44°, 316° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	44 27.2	-17.6	57.4	45 30.3	-15.2	59.1	46 30.2	-12.6	60.9	47 26.8	-10.0	62.8	48 19.8	-7.3	64.8
31	44 09.6	-18.5	56.1	45 15.1	-16.2	57.8	46 17.6	-13.8	59.5	47 16.8	-11.2	61.4	48 12.5	-8.5	63.3
32	43 51.1	-19.5	54.8	44 58.9	-17.2	56.4	46 03.8	-14.7	58.1	47 05.6	-12.2	59.9	48 04.0	-9.5	61.8
33	43 31.6	-20.3	53.5	44 41.7	-18.0	55.0	45 49.1	-15.8	56.7	46 53.4	-13.3	58.5	47 54.5	-10.8	60.4
34	43 11.3	-21.2	52.2	44 23.7	-19.1	53.7	45 33.3	-16.7	55.3	46 40.1	-14.4	57.1	47 43.7	-11.8	58.9
35	42 50.1	-22.0	50.9	44 04.6	-19.9	52.4	45 16.6	-17.8	54.0	46 25.7	-15.3	55.6	47 31.9	-12.9	57.4
36	42 28.1	-22.8	49.6	43 44.7	-20.8	51.1	44 58.8	-18.6	52.6	46 10.4	-16.4	54.2	47 19.0	-14.0	56.0
37	42 05.3	-23.7	48.4	43 23.9	-21.7	49.8	44 40.2	-19.6	51.3	45 54.0	-17.4	52.9	47 05.0	-15.1	54.6
38	41 41.6	-24.4	47.1	43 02.2	-22.5	48.5	44 20.6	-20.5	49.9	45 36.6	-18.4	51.5	46 49.9	-16.1	53.1
39	41 17.2	-25.2	45.9	42 39.7	-23.4	47.2	44 00.1	-21.4	48.6	45 18.2	-19.3	50.1	46 33.8	-17.1	51.7
40	40 52.0	-26.0	44.7	42 16.3	-24.2	46.0	43 38.7	-22.3	47.3	44 58.9	-20.3	48.8	46 16.7	-18.1	50.3
41	40 26.0	-26.6	43.5	41 52.1	-24.9	44.8	43 16.4	-23.1	46.1	44 38.6	-21.1	47.5	45 58.6	-19.1	49.0
42	39 59.4	-27.4	42.4	41 27.2	-25.7	43.5	42 53.3	-23.9	44.8	44 17.5	-22.1	46.2	45 39.5	-20.1	47.6
43	39 32.0	-28.0	41.2	41 01.5	-26.4	42.3	42 29.4	-24.8	43.5	43 55.4	-22.9	44.9	45 19.4	-21.0	46.3
44	39 04.0	-28.7	40.1	40 35.1	-27.2	41.1	42 04.6	-25.5	42.3	43 32.5	-23.8	43.6	44 58.4	-21.9	44.9
45	38 35.3	-29.4	38.9	40 07.9	-27.8	40.0	41 39.1	-26.2	41.1	43 08.7	-24.6	42.3	44 36.5	-22.8	43.6
46	38 05.9	-29.9	37.8	39 40.1	-28.6	38.8	41 12.9	-27.1	39.9	42 44.1	-25.4	41.1	44 13.7	-23.6	42.3
47	37 36.0	-30.6	36.7	39 11.5	-29.1	37.7	40 45.8	-27.7	38.7	42 18.7	-26.1	39.8	43 50.0	-24.5	41.1
48	37 05.4	-31.2	35.6	38 42.4	-29.9	36.6	40 18.1	-28.4	37.6	41 52.6	-26.9	38.6	43 25.6	-25.4	39.8
49	36 34.2	-31.7	34.6	38 12.5	-30.4	35.5	39 49.7	-29.1	36.4	41 25.7	-27.7	37.4	43 00.2	-26.1	38.5
50	36 02.5	-32.2	33.5	37 42.1	-31.0	34.4	39 20.6	-29.7	35.3	40 58.0	-28.4	36.3	42 34.1	-26.9	37.3
51	35 30.3	-32.8	32.5	37 11.1	-31.7	33.3	38 50.9	-30.4	34.1	40 29.6	-29.0	35.1	42 07.2	-27.6	36.1
52	34 57.5	-33.3	31.5	36 39.4	-32.1	32.2	38 20.5	-31.0	33.0	40 00.6	-29.7	33.9	41 39.6	-28.4	34.9
53	34 24.2	-33.8	30.4	36 07.3	-32.7	31.2	37 49.5	-31.6	32.0	39 30.9	-30.4	32.8	41 11.2	-29.1	33.7
54	33 50.4	-34.3	29.4	35 34.6	-33.3	30.1	37 17.9	-32.1	30.9	39 00.5	-31.0	31.7	40 42.1	-29.8	32.6
55	33 16.1	-34.7	28.5	35 01.3	-33.7	29.1	36 45.8	-32.7	29.8	38 29.5	-31.6	30.6	40 12.3	-30.4	31.4
56	32 41.4	-35.1	27.5	34 27.6	-34.2	28.1	36 13.1	-33.2	28.8	37 57.9	-32.2	29.5	39 41.9	-31.1	30.3
57	32 06.3	-35.6	26.5	33 53.4	-34.7	27.1	35 39.9	-33.8	27.8	37 25.7	-32.7	28.5	39 10.8	-31.6	29.2
58	31 30.7	-36.0	25.6	33 18.7	-35.2	26.1	35 06.1	-34.2	26.7	36 53.0	-33.3	27.4	38 39.2	-32.3	28.1
59	30 54.7	-36.5	24.6	32 43.5	-35.6	25.2	34 31.9	-34.8	25.7	36 19.7	-33.9	26.4	38 06.9	-32.9	27.0
60	30 18.2	-36.7	23.7	32 07.9	-36.0	24.2	33 57.1	-35.2	24.8	35 45.8	-34.3	25.3	37 34.0	-33.4	26.0
61	29 41.5	-37.2	22.8	31 31.9	-36.4	23.3	33 21.9	-35.6	23.8	35 11.5	-34.8	24.3	37 00.6	-34.0	24.9
62	29 04.3	-37.5	21.9	30 55.5	-36.9	22.3	32 46.3	-36.1	22.8	34 36.7	-35.4	23.3	36 26.6	-34.5	23.9
63	28 26.8	-37.9	21.0	30 18.6	-37.2	21.4	32 10.2	-36.5	21.9	34 01.3	-35.7	22.4	35 52.1	-35.0	22.9
64	27 48.9	-38.2	20.1	29 41.4	-37.5	20.5	31 33.7	-36.9	20.9	33 25.6	-36.2	21.4	35 17.1	-35.5	21.9
65	27 10.7	-38.5	19.3	29 03.9	-37.9	19.6	30 56.8	-37.3	20.0	32 49.4	-36.7	20.4	34 41.6	-35.9	20.9
66	26 32.2	-38.8	18.4	28 26.0	-38.3	18.7	30 19.5	-37.7	19.1	32 12.7	-37.0	19.5	34 05.7	-36.4	19.9
67	25 53.4	-39.1	17.6	27 47.7	-38.6	17.9	29 41.8	-38.0	18.2	31 35.7	-37.5	18.6	33 29.3	-36.8	19.0
68	25 14.3	-39.4	16.7	27 09.1	-38.9	17.0	29 03.8	-38.4	17.3	30 58.2	-37.8	17.7	32 52.5	-37.3	18.0
69	24 34.9	-39.7	15.9	26 30.2	-39.2	16.2	28 25.4	-38.7	16.4	30 20.4	-38.2	16.8	32 15.2	-37.7	17.1
70	23 55.2	-39.9	15.1	25 51.0	-39.5	15.3	27 46.7	-39.0	15.6	29 42.2	-38.5	15.9	31 37.5	-38.0	16.2
71	23 15.3	-40.2	14.3	25 11.5	-39.7	14.5	27 07.7	-39.4	14.7	29 03.7	-38.9	15.0	30 59.5	-38.4	15.3
72	22 35.1	-40.4	13.4	24 31.8	-40.0	13.6	26 28.3	-39.6	13.9	28 24.8	-39.2	14.1	30 21.1	-38.8	14.4
73	21 54.7	-40.6	12.6	23 51.8	-40.3	12.8	25 48.7	-39.9	13.0	27 45.6	-39.6	13.3	29 42.3	-39.1	13.5
74	21 14.1	-40.9	11.9	23 11.5	-40.6	12.0	25 08.8	-40.2	12.2	27 06.0	-39.8	12.4	29 03.2	-39.5	12.7
75	20 33.2	-41.1	11.1	22 30.9	-40.7	11.2	24 28.6	-40.4	11.4	26 26.2	-40.1	11.6	28 23.7	-39.7	11.8
76	19 52.1	-41.2	10.3	21 50.2	-41.0	10.4	23 48.2	-40.7	10.6	25 46.1	-40.4	10.8	27 44.0	-40.1	10.9
77	19 10.9	-41.5	9.5	21 09.2	-41.2	9.6	23 07.5	-41.0	9.8	25 05.7	-40.7	9.9	27 03.9	-40.4	10.1
78	18 29.4	-41.6	8.8	20 28.0	-41.4	8.9	22 26.5	-41.1	9.0	24 25.0	-40.9	9.1	26 23.5	-40.7	9.3
79	17 47.8	-41.9	8.0	19 46.6	-41.6	8.1	21 45.4	-41.4	8.2	23 44.1	-41.1	8.3	25 42.8	-40.9	8.5
80	17 05.9	-41.9	7.3	19 05.0	-41.8	7.3	21 04.0	-41.6	7.4	23 03.0	-41.4	7.5	25 01.9	-41.2	7.7
81	16 24.0	-42.2	6.5	18 23.2	-42.0	6.6	20 22.4	-41.8	6.7	22 21.6	-41.7	6.7	24 20.7	-41.4	6.9
82	15 41.8	-42.3	5.8	17 41.2	-42.1	5.8	19 40.6	-42.0	5.9	21 39.9	-41.8	6.0	23 39.3	-41.7	6.1
83	14 59.5	-42.4	5.0	16 59.1	-42.3	5.1	18 58.6	-42.2	5.1	20 58.1	-42.0	5.2	22 57.6	-41.9	5.3
84	14 17.1	-42.6	4.3	16 16.8	-42.5	4.3	18 16.4	-42.3	4.4	20 16.1	-42.3	4.4	22 15.7	-42.1	4.5
85	13 34.5	-42.6	3.6	15 34.3	-42.6	3.6	17 34.1	-42.5	3.6	19 33.8	-42.4	3.7	21 33.6	-42.4	3.7
86	12 51.9	-42.9	2.8	14 51.7	-42.7	2.9	16 51.6	-42.7	2.9	18 51.4	-42.6	2.9	20 51.2	-42.5	3.0
87	12 09.0	-42.9	2.1	14 09.0	-42.9	2.1	16 08.9	-42.8	2.2	18 08.8	-42.8	2.2	20 08.7	-42.7	2.2
88	11 26.1	-43.0	1.4	13 26.1	-43.0	1.4	15 26.1	-43.0	1.4	17 26.0	-42.9	1.5	19 26.0	-42.9	1.5
89	10 43.1	-43.1	0.7	12 43.1	-43.1	0.7	14 43.1	-43.1	0.7	16 43.1	-43.1	0.7	18 43.1	-43.1	0.7
90	10 00.0	-43.2	0.0	12 00.0	-43.2	0.0	14 00.0	-43.2	0.0	16 00.0	-43.2	0.0	18 00.0	-43.2	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 44°, 316°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
31	46.9	-35.8	135.0	30	21.5	-37.2	135.8	28	54.9	-38.5	136.6	27	27.2	-39.7	137.3	25	58.5	-40.9	138.0	30
31	11.1	-36.3	135.9	29	44.3	-37.5	136.7	28	16.4	-38.8	137.5	26	47.5	-40.0	138.2	25	17.6	-41.1	138.8	31
30	34.8	-36.6	136.8	29	06.8	-37.9	137.6	27	37.6	-39.1	138.3	26	07.5	-40.2	139.0	24	36.5	-41.3	139.6	32
29	58.2	-37.0	137.7	28	28.9	-38.3	138.5	26	58.5	-39.4	139.2	25	27.3	-40.5	139.8	23	55.2	-41.6	140.4	33
29	21.2	-37.3	138.6	27	50.6	-38.5	139.4	26	19.1	-39.7	140.0	24	46.8	-40.8	140.6	23	13.6	-41.8	141.2	34
28	43.9	-37.8	139.5	27	12.1	-38.9	140.2	25	39.4	-39.9	140.9	24	06.0	-41.1	141.4	22	31.8	-42.1	142.0	35
28	06.1	-38.0	140.4	26	33.2	-39.2	141.1	24	59.5	-40.3	141.7	23	24.9	-41.2	142.2	21	49.7	-42.2	142.7	36
27	28.1	-38.4	141.3	25	54.0	-39.4	141.9	24	19.2	-40.5	142.5	22	43.7	-41.5	143.0	21	07.5	-42.5	143.5	37
26	49.7	-38.6	142.2	25	14.6	-39.8	142.8	23	38.7	-40.8	143.3	22	02.2	-41.8	143.8	20	25.0	-42.6	144.3	38
26	11.1	-39.0	143.0	24	34.8	-40.0	143.6	22	57.9	-41.0	144.1	21	20.4	-41.9	144.6	19	42.4	-42.9	145.0	39
25	32.1	-39.3	143.9	23	54.8	-40.2	144.4	22	16.9	-41.2	144.9	20	38.5	-42.1	145.3	18	59.5	-43.0	145.8	40
24	52.8	-39.5	144.7	23	14.6	-40.5	145.2	21	35.7	-41.4	145.7	19	56.4	-42.4	146.1	18	16.5	-43.1	146.5	41
24	13.3	-39.8	145.5	22	34.1	-40.8	146.0	20	54.3	-41.7	146.5	19	14.0	-42.5	146.9	17	33.4	-43.4	147.2	42
23	33.5	-40.1	146.3	21	53.3	-41.0	146.8	20	12.6	-41.8	147.2	18	31.5	-42.6	147.6	16	50.0	-43.5	147.9	43
22	53.4	-40.3	147.2	21	12.3	-41.2	147.6	19	30.8	-42.0	148.0	17	48.9	-42.9	148.3	16	06.5	-43.6	148.7	44
22	13.1	-40.5	148.0	20	31.1	-41.4	148.4	18	48.8	-42.3	148.7	17	06.0	-43.0	149.1	15	22.9	-43.8	149.4	45
21	32.6	-40.8	148.7	19	49.7	-41.5	149.1	18	06.5	-42.3	149.5	16	23.0	-43.2	149.8	14	39.1	-43.9	150.1	46
20	51.8	-41.0	149.5	19	08.2	-41.8	149.9	17	24.2	-42.6	150.2	15	39.8	-43.3	150.5	13	55.2	-44.0	150.8	47
20	10.8	-41.2	150.3	18	26.4	-42.0	150.7	16	41.6	-42.7	151.0	14	56.5	-43.4	151.2	13	11.2	-44.1	151.5	48
19	29.6	-41.3	151.1	17	44.4	-42.1	151.4	15	58.9	-42.9	151.7	14	13.1	-43.5	152.0	12	27.1	-44.2	152.2	49
18	48.3	-41.6	151.9	17	02.3	-42.3	152.2	15	16.0	-42.9	152.4	13	29.6	-43.1	152.7	11	42.9	-44.4	152.9	50
18	06.7	-41.7	152.6	16	20.0	-42.4	152.9	14	33.1	-43.2	153.2	12	45.9	-43.8	153.4	10	58.5	-44.4	153.6	51
17	25.0	-42.0	153.4	15	37.6	-42.6	153.6	13	49.9	-43.2	153.9	12	02.1	-43.9	154.1	10	14.1	-44.5	154.2	52
16	43.0	-42.0	154.1	14	55.0	-42.8	154.4	13	06.7	-43.4	154.6	11	18.2	-44.0	154.8	9	29.6	-44.6	154.9	53
16	01.0	-42.2	154.9	14	12.2	-42.8	155.1	12	23.3	-43.5	155.3	10	34.2	-44.1	155.5	8	45.0	-44.7	155.6	54
15	18.8	-42.4	155.6	13	29.4	-43.0	155.8	11	39.8	-43.5	156.0	9	50.1	-44.1	156.1	8	00.3	-44.7	156.3	55
14	36.4	-42.5	156.3	12	46.4	-43.1	156.5	10	56.3	-43.7	156.7	9	06.0	-44.3	156.8	7	15.6	-44.8	156.9	56
13	53.9	-42.6	157.1	12	03.3	-43.2	157.2	10	12.6	-43.8	157.4	8	21.7	-44.3	157.5	6	30.8	-44.8	157.6	57
13	11.3	-42.8	157.8	11	20.1	-43.3	157.9	9	28.8	-43.8	158.1	7	37.4	-44.3	158.2	5	46.0	-44.9	158.3	58
12	28.5	-42.9	158.5	10	36.8	-43.4	158.7	8	45.0	-43.9	158.8	6	53.1	-44.5	158.9	5	01.1	-44.9	159.0	59
11	45.6	-42.9	159.2	9	53.4	-43.5	159.4	8	01.1	-44.0	159.5	6	08.6	-44.4	159.6	4	16.2	-45.0	159.6	60
11	02.7	-43.1	159.9	9	09.9	-43.6	160.1	7	17.1	-44.1	160.2	5	24.2	-44.6	160.2	3	31.2	-45.0	160.3	61
10	19.6	-43.2	160.6	8	26.3	-43.6	160.7	6	33.0	-44.1	160.8	4	39.6	-44.5	160.9	2	46.2	-45.0	160.9	62
9	36.4	-43.2	161.3	7	42.7	-43.7	161.4	5	48.9	-44.1	161.5	3	55.1	-44.6	161.6	2	01.2	-45.0	161.6	63
8	53.2	-43.4	162.0	6	59.0	-43.8	162.1	5	04.8	-44.2	162.2	3	10.5	-44.6	162.2	1	16.2	-45.0	162.3	64
8	09.8	-43.4	162.7	6	15.2	-43.8	162.8	4	20.6	-44.3	162.9	2	25.9	-44.7	162.9	0	31.2	-45.1	162.9	65
7	26.4	-43.4	163.4	5	31.4	-43.9	163.5	3	36.3	-44.2	163.6	1	41.2	-44.6	163.6	0	13.9	+45.0	164.4	66
6	43.0	-43.5	164.1	4	47.5	-43.9	164.2	2	52.1	-44.3	164.2	0	56.6	-44.7	164.2	0	58.9	+45.1	164.2	67
5	59.5	-43.6	164.8	4	03.6	-43.9	164.9	2	07.8	-44.3	164.9	0	11.9	-44.7	164.9	1	44.0	+45.0	164.2	68
5	15.9	-43.6	165.5	3	19.7	-44.0	165.6	1	23.5	-44.3	165.6	0	32.8	+44.6	164.4	2	29.0	+45.0	164.4	69
4	32.3	-43.7	166.2	2	35.7	-44.0	166.2	0	39.2	-44.4	166.3	1	17.4	+44.7	13.7	3	14.0	+44.9	13.8	70
3	48.6	-43.7	166.9	1	51.7	-44.0	166.9	0	05.2	+44.3	13.1	2	02.1	+44.6	13.1	3	58.9	+45.0	13.1	71
3	04.9	-43.7	167.6	1	07.7	-44.0	167.6	0	49.5	+44.3	12.4	2	46.7	+44.6	12.4	4	43.9	+44.9	12.4	72
2	21.2	-43.7	168.3	0	23.7	-44.0	168.3	1	33.8	+44.3	11.7	3	31.3	+44.6	11.7	5	28.8	+44.8	11.8	73
1	37.5	-43.8	169.0	2	18.1	+44.3	11.0	2	18.1	+44.3	11.0	4	15.9	+44.5	11.1	6	13.6	+44.8	11.1	74
0	53.7	-43.8	169.6	1	04.3	+44.1	10.4	3	02.4	+44.2	10.4	5	00.4	+44.5	10.4	6	58.4	+44.8	10.4	75
0	09.9	-43.7	170.3	1	48.4	+44.0	9.7	3	46.6	+44.3	9.7	5	44.9	+44.5	9.7	7	43.2	+44.7	9.8	76
0	33.8	+43.8	9.0	2	32.4	+43.9	9.0	4	30.9	+44.2	9.0	6	29.4	+44.4	9.0	8	27.9	+44.6	9.1	77
1	17.6	+43.7	8.3	3	16.3	+44.0	8.3	5	15.1	+44.1	8.3	7	13.8	+44.3	8.4	9	12.5	+44.5	8.4	78
2	01.3	+43.8	7.6	4	00.3	+43.9	7.6	5	59.2	+44.1	7.7	7	58.1	+44.3	7.7	9	57.0	+44.5	7.7	79
2	45.1	+43.7	6.9	4	44.2	+43.9	7.0	6	43.3	+44.0	7.0	8	42.4	+44.2	7.0	10	41.5	+44.4	7.1	80
3	28.8	+43.6	6.3	5	28.1	+43.8	6.3	7	27.3	+44.0	6.3	9	26.6	+44.1	6.3	11	25.9	+44.2	6.4	81
4	12.4	+43.7	5.6	6	11.9	+43.7	5.6	8	11.3	+43.9	5.6	10	10.7	+44.1	5.6	12	10.1	+44.2	5.7	82
4	56.1	+43.6	4.9	6	55.6	+43.8	4.9	8	55.2	+43.8	4.9	10	54.8	+43.9	4.9	12	54.3	+44.1	5.0	83
5	39.7	+43.5	4.2	7	39.4	+43.6	4.2	9	39.0	+43.8	4.2	11	38.7	+43.8	4.3	13	38.4	+43.9	4.3	84
6	23.2	+43.5	3.5	8	23.0	+43.6	3.5	10	22.8	+43.6	3.5	12	22.5	+43.8	3.6	14	22.3	+43.8	3.6	85
7	06.7	+43.4	2.8	9	06.6	+43.5	2.8	11	06.4	+43.6	2.8	13	06.3	+43.6	2.9	15	06.1	+43.7	2.9	86
7	50.1	+43.4	2.1	9	50.1	+43.4	2.1	11	50.0	+43.4	2.1	13	49.9	+43.5	2.1	15	49.8	+43.6	2.2	87
8	33.5	+43.3	1.4	10	33.5	+43.3	1.4	12	33.4	+43.4	1.4	14	33.4	+43.4	1.4	16	33.4	+43.4	1.4	88
9	16.8	+43.2	0.7	11	16.8	+43.2	0.7	13	16.8	+43.2	0.7	15	16.8	+43.2	0.7	17	16.8	+43.2	0.7	89
10	00.0	+43.1	0.0	12	00.0	+43.1	0.0	14	00.0	+43.1	0.0	16	00.0	+43.1	0.0	18	00.0	+43.1	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 136°, 224°

44°, 316° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	49 08.9	-4.4	66.9	49 53.9	-1.4	69.1	50 34.6	+1.6	71.3	51 10.7	+4.8	73.7	51 42.0	+8.0	76.1
31	49 04.5	-5.7	65.4	49 52.5	-2.7	67.5	50 36.2	+0.3	69.7	51 15.5	+3.4	72.1	51 50.0	+6.7	74.5
32	48 58.8	-6.8	63.8	49 49.8	-4.0	66.0	50 36.5	-0.9	68.2	51 18.9	+2.2	70.5	51 56.7	+5.3	72.9
33	48 52.0	-8.0	62.3	49 45.8	-5.2	64.4	50 35.6	-2.2	66.6	51 21.1	+0.8	68.9	52 02.0	+4.0	71.3
34	48 44.0	-9.2	60.8	49 40.6	-6.4	62.9	50 33.4	-3.5	65.0	51 21.9	-0.5	67.3	52 06.0	+2.6	69.6
35	48 34.8	-10.3	59.3	49 34.2	-7.6	61.3	50 29.9	-4.8	63.5	51 21.4	-1.8	65.7	52 08.6	+1.3	68.0
36	48 24.5	-11.5	57.8	49 26.6	-8.8	59.8	50 25.1	-6.0	61.9	51 19.6	-3.0	64.1	52 09.9	0.0	66.4
37	48 13.0	-12.6	56.4	49 17.8	-10.0	58.3	50 19.1	-7.3	60.3	51 16.6	-4.4	62.5	52 09.9	-1.4	64.7
38	48 00.4	-13.7	54.9	49 07.8	-11.1	56.8	50 11.8	-8.5	58.8	51 12.2	-5.7	60.9	52 08.5	-2.7	63.1
39	47 46.7	-14.8	53.5	48 56.7	-12.4	55.3	50 03.3	-9.7	57.2	51 06.5	-7.0	59.3	52 05.8	-4.1	61.5
40	47 31.9	-15.8	52.0	48 44.3	-13.4	53.8	49 53.6	-10.9	55.7	50 59.5	-8.2	57.7	52 01.7	-5.4	59.9
41	47 16.1	-16.9	50.6	48 30.9	-14.6	52.3	49 42.7	-12.1	54.2	50 51.3	-9.5	56.1	51 56.3	-6.7	58.3
42	46 59.2	-18.0	49.2	48 16.3	-15.7	50.9	49 30.6	-13.3	52.7	50 41.8	-10.8	54.6	51 49.6	-8.1	56.6
43	46 41.2	-18.9	47.8	48 00.6	-16.7	49.4	49 17.3	-14.4	51.2	50 31.0	-11.9	53.0	51 41.5	-9.3	55.0
44	46 22.3	-19.9	46.4	47 43.9	-17.9	48.0	49 02.9	-15.6	49.7	50 19.1	-13.2	51.5	51 32.2	-10.6	53.5
45	46 02.4	-20.9	45.0	47 26.0	-18.8	46.6	48 47.3	-16.7	48.2	50 05.9	-14.4	50.0	51 21.6	-11.9	51.9
46	45 41.5	-21.8	43.7	47 07.2	-19.9	45.2	48 30.6	-17.7	46.8	49 51.5	-15.5	48.5	51 09.7	-13.2	50.3
47	45 19.7	-22.8	42.4	46 47.3	-20.8	43.8	48 12.9	-18.9	45.3	49 36.0	-16.6	47.0	50 56.5	-14.3	48.8
48	44 56.9	-23.6	41.1	46 26.5	-21.8	42.4	47 54.0	-19.8	43.9	49 19.4	-17.8	45.5	50 42.2	-15.6	47.2
49	44 33.3	-24.5	39.8	46 04.7	-22.8	41.1	47 34.2	-20.9	42.5	49 01.6	-18.9	44.0	50 26.6	-16.7	45.7
50	44 08.8	-25.3	38.5	45 41.9	-23.6	39.7	47 13.3	-21.9	41.1	48 42.7	-19.9	42.6	50 09.9	-17.9	44.2
51	43 43.5	-26.2	37.2	45 18.3	-24.6	38.4	46 51.4	-22.8	39.7	48 22.8	-21.0	41.2	49 52.0	-19.0	42.7
52	43 17.3	-26.9	36.0	44 53.7	-25.4	37.1	46 28.6	-23.8	38.4	48 01.8	-22.0	39.8	49 33.0	-20.1	41.2
53	42 50.4	-27.7	34.8	44 28.3	-26.2	35.9	46 04.8	-24.6	37.1	47 39.8	-23.0	38.4	49 12.9	-21.1	39.8
54	42 22.7	-28.5	33.6	44 02.1	-27.1	34.6	45 40.2	-25.6	35.8	47 16.8	-24.0	37.0	48 51.8	-22.2	38.4
55	41 54.2	-29.2	32.4	43 35.0	-27.8	33.4	45 14.6	-26.4	34.5	46 52.8	-24.8	35.7	48 29.6	-23.3	37.0
56	41 25.0	-29.8	31.2	43 07.2	-28.6	32.2	44 48.2	-27.3	33.2	46 28.0	-25.8	34.3	48 06.3	-24.2	35.6
57	40 55.2	-30.6	30.0	42 38.6	-29.4	31.0	44 20.9	-28.0	31.9	46 02.2	-26.7	33.0	47 42.1	-25.2	34.2
58	40 24.6	-31.2	28.9	42 09.2	-30.1	29.8	43 52.9	-28.8	30.7	45 35.5	-27.5	31.7	47 16.9	-26.0	32.9
59	39 53.4	-31.9	27.8	41 39.1	-30.7	28.6	43 24.1	-29.6	29.5	45 08.0	-28.3	30.5	46 50.9	-27.0	31.5
60	39 21.5	-32.4	26.7	41 08.4	-31.4	27.5	42 54.5	-30.4	28.3	44 39.7	-29.2	29.2	46 23.9	-27.9	30.2
61	38 49.1	-33.1	25.6	40 37.0	-32.1	26.3	42 24.1	-31.0	27.1	44 10.5	-29.9	28.0	45 56.0	-28.7	29.0
62	38 16.0	-33.6	24.5	40 04.9	-32.7	25.2	41 53.1	-31.7	26.0	43 40.6	-30.6	26.8	45 27.3	-29.5	27.7
63	37 42.4	-34.2	23.5	39 32.2	-33.3	24.1	41 21.4	-32.4	24.8	43 10.0	-31.4	25.6	44 57.8	-30.3	26.5
64	37 08.2	-34.7	22.5	38 58.9	-33.9	23.1	40 49.0	-33.0	23.7	42 38.6	-32.1	24.5	44 27.5	-31.1	25.3
65	36 33.5	-35.2	21.4	38 25.0	-34.4	22.0	40 16.0	-33.6	22.6	42 06.5	-32.7	23.3	43 56.4	-31.8	24.1
66	35 58.3	-35.7	20.4	37 50.6	-35.0	21.0	39 42.4	-34.2	21.5	41 33.8	-33.4	22.2	43 24.6	-32.5	22.9
67	35 22.6	-36.2	19.4	37 15.6	-35.5	19.9	39 08.2	-34.8	20.5	41 00.4	-34.0	21.1	42 52.1	-33.2	21.7
68	34 46.4	-36.6	18.5	36 40.1	-36.0	18.9	38 33.4	-35.3	19.4	40 26.4	-34.6	20.0	42 18.9	-33.8	20.6
69	34 09.8	-37.1	17.5	36 04.1	-36.5	17.9	37 58.1	-35.9	18.4	39 51.8	-35.2	18.9	41 45.1	-34.5	19.5
70	33 32.7	-37.5	16.6	35 27.6	-37.0	17.0	37 22.2	-36.3	17.4	39 16.6	-35.8	17.9	41 10.6	-35.0	18.4
71	32 55.2	-38.0	15.6	34 50.6	-37.4	16.0	36 45.9	-36.9	16.4	38 40.8	-36.2	16.8	40 35.6	-35.7	17.3
72	32 17.2	-38.3	14.7	34 13.2	-37.8	15.0	36 09.0	-37.3	15.4	38 04.6	-36.8	15.8	39 59.9	-36.2	16.3
73	31 38.9	-38.7	13.8	33 35.4	-38.3	14.1	35 31.7	-37.8	14.5	37 27.8	-37.3	14.8	39 23.7	-36.8	15.2
74	31 00.2	-39.1	12.9	32 57.1	-38.6	13.2	34 53.9	-38.3	13.5	36 50.5	-37.8	13.8	38 46.9	-37.3	14.2
75	30 21.1	-39.4	12.0	32 18.5	-39.1	12.3	34 15.6	-38.6	12.6	36 12.7	-38.2	12.9	38 09.6	-37.8	13.2
76	29 41.7	-39.7	11.2	31 39.4	-39.4	11.4	33 37.0	-39.1	11.6	35 34.5	-38.7	11.9	37 31.8	-38.3	12.2
77	29 02.0	-40.1	10.3	31 00.0	-39.8	10.5	32 57.9	-39.4	10.7	34 55.8	-39.1	11.0	36 53.5	-38.7	11.3
78	28 21.9	-40.4	9.4	30 20.2	-40.1	9.6	32 18.5	-39.8	9.8	34 16.7	-39.5	10.1	36 14.8	-39.2	10.3
79	27 41.5	-40.7	8.6	29 40.1	-40.4	8.8	31 38.7	-40.2	9.0	33 37.2	-39.9	9.2	35 35.6	-39.6	9.4
80	27 00.8	-41.0	7.8	28 59.7	-40.8	7.9	30 58.5	-40.5	8.1	32 57.3	-40.3	8.3	34 56.0	-40.0	8.5
81	26 19.8	-41.2	7.0	28 18.9	-41.0	7.1	30 18.0	-40.8	7.2	32 17.0	-40.6	7.4	34 16.0	-40.4	7.6
82	25 38.6	-41.5	6.2	27 37.9	-41.3	6.3	29 37.2	-41.2	6.4	31 36.4	-41.0	6.5	33 35.6	-40.8	6.7
83	24 57.1	-41.8	5.4	26 56.6	-41.7	5.4	28 56.0	-41.5	5.6	30 55.4	-41.3	5.7	32 54.8	-41.1	5.8
84	24 15.3	-42.0	4.6	26 14.9	-41.9	4.6	28 14.5	-41.7	4.7	30 14.1	-41.6	4.8	32 13.7	-41.5	4.9
85	23 33.3	-42.2	3.8	25 33.0	-42.1	3.8	27 32.8	-42.1	3.9	29 32.5	-42.0	4.0	31 32.2	-41.8	4.1
86	22 51.1	-42.5	3.0	24 50.9	-42.4	3.1	26 50.7	-42.3	3.1	28 50.5	-42.2	3.2	30 50.4	-42.2	3.2
87	22 08.6	-42.7	2.2	24 08.5	-42.6	2.3	26 08.4	-42.5	2.3	28 08.3	-42.5	2.4	30 08.2	-42.4	2.4
88	21 25.9	-42.8	1.5	23 25.9	-42.8	1.5	25 25.9	-42.9	1.5	27 25.8	-42.8	1.6	29 25.8	-42.8	1.6
89	20 43.1	-43.1	0.7	22 43.1	-43.1	0.8	24 43.0	-43.0	0.8	26 43.0	-43.0	0.8	28 43.0	-43.0	0.8
90	20 00.0	-43.3	0.0	22 00.0	-43.3	0.0	24 00.0	-43.3	0.0	26 00.0	-43.3	0.0	28 00.0	-43.3	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 44°, 316°

20°			22°			24°			26°			28°			Dec.	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
24	28.8	-41.9	138.6	22	58.4	-43.0	139.2	21	27.2	-44.0	139.7	19	55.3	-44.9	140.2	30
23	46.9	-42.2	139.4	22	15.4	-43.2	140.0	20	43.2	-44.2	140.5	19	10.4	-45.1	140.9	31
23	04.7	-42.3	140.2	21	32.2	-43.4	140.7	19	59.0	-44.3	141.2	18	25.3	-45.3	141.6	32
22	22.4	-42.6	140.9	20	48.8	-43.5	141.4	19	14.7	-44.5	141.9	17	40.0	-45.4	142.3	33
21	39.8	-42.9	141.7	20	05.3	-43.8	142.2	18	30.2	-44.7	142.6	16	54.6	-45.5	143.0	34
20	56.9	-43.0	142.5	19	21.5	-43.9	142.9	17	45.5	-44.8	143.3	16	09.1	-45.7	143.7	35
20	13.9	-43.2	143.2	18	37.6	-44.1	143.6	17	00.7	-44.9	144.0	15	23.4	-45.8	144.3	36
19	30.7	-43.3	143.9	17	53.5	-44.3	144.3	16	15.8	-45.1	144.7	14	37.6	-45.9	145.0	37
18	47.4	-43.6	144.7	17	09.2	-44.4	145.0	15	30.7	-45.2	145.4	13	51.7	-46.0	145.7	38
18	03.8	-43.7	145.4	16	24.8	-44.5	145.8	14	45.5	-45.4	146.1	13	05.7	-46.1	146.3	39
17	20.1	-43.8	146.1	15	40.3	-44.6	146.4	14	00.1	-45.4	146.7	12	19.6	-46.1	147.0	40
16	36.3	-44.0	146.8	14	55.7	-44.8	147.1	13	14.7	-45.6	147.4	11	33.5	-46.3	147.6	41
15	52.3	-44.2	147.5	14	10.9	-44.9	147.8	12	29.1	-45.6	148.1	10	47.2	-46.4	148.3	42
15	08.1	-44.2	148.2	13	26.0	-45.1	148.5	11	43.5	-45.7	148.7	10	00.8	-46.4	148.9	43
14	23.9	-44.4	148.9	12	40.9	-45.1	149.2	10	57.8	-45.9	149.4	9	14.4	-46.5	149.6	44
13	39.5	-44.5	149.6	11	55.8	-45.2	149.9	10	11.9	-45.9	150.1	8	27.9	-46.7	150.2	45
12	55.0	-44.6	150.3	11	10.6	-45.3	150.5	9	26.0	-45.9	150.7	7	41.3	-46.6	150.9	46
12	10.4	-44.7	151.0	10	25.3	-45.4	151.2	8	40.1	-46.1	151.4	6	40.1	-46.7	151.5	47
11	25.7	-44.8	151.7	9	39.9	-45.4	151.9	7	54.0	-46.1	152.0	6	08.0	-46.7	152.1	48
10	40.9	-44.9	152.4	8	54.5	-45.6	152.5	7	07.9	-46.1	152.7	5	21.3	-46.8	152.8	49
9	56.0	-45.0	153.0	8	08.9	-45.6	153.2	6	21.8	-46.2	153.3	4	34.5	-46.8	153.4	50
9	11.0	-45.0	153.7	7	23.3	-45.6	153.8	5	35.6	-46.3	153.9	3	47.8	-46.9	154.0	51
8	26.0	-45.2	154.4	6	37.7	-45.7	154.5	4	49.3	-46.2	154.6	3	00.9	-46.8	154.6	52
7	40.8	-45.1	155.0	5	52.0	-45.8	155.1	4	03.1	-46.3	155.2	2	14.1	-46.9	155.3	53
6	55.7	-45.3	155.7	5	06.2	-45.7	155.8	3	16.8	-46.4	155.9	1	27.2	-46.8	155.9	54
6	10.4	-45.2	156.4	4	20.5	-45.9	156.4	2	30.4	-46.3	156.5	0	40.4	-46.9	156.5	55
5	25.2	-45.4	157.0	3	34.6	-45.8	157.1	1	44.1	-46.4	157.1	0	06.5	+46.9	22.9	56
4	39.8	-45.3	157.7	2	48.8	-45.9	157.7	0	57.7	-46.3	157.8	0	57.7	-46.3	157.8	57
3	54.5	-45.4	158.3	2	02.9	-45.9	158.4	0	11.4	-46.4	158.4	1	40.2	+46.9	21.6	58
3	09.1	-45.4	159.0	1	17.0	-45.8	159.0	0	35.0	+46.4	21.0	2	27.1	+46.8	21.0	59
2	23.7	-45.5	159.7	0	31.2	-45.9	159.7	1	21.4	+46.3	20.3	3	13.9	+46.8	20.4	60
1	38.2	-45.4	160.3	0	14.7	+45.9	19.7	2	07.7	+46.4	19.7	4	00.7	+46.8	19.7	61
0	52.8	-45.5	161.0	1	00.6	+45.9	19.0	2	54.1	+46.3	19.1	4	47.5	+46.7	19.1	62
0	07.3	-45.4	161.6	1	46.5	+45.9	18.4	3	40.4	+46.3	18.4	5	34.2	+46.7	18.5	63
0	38.1	+45.5	17.7	2	32.4	+45.9	17.7	4	26.7	+46.2	17.8	6	20.9	+46.7	17.8	64
1	23.6	+45.4	17.1	3	18.3	+45.8	17.1	5	12.9	+46.3	17.1	7	07.6	+46.6	17.2	65
2	09.0	+45.4	16.4	4	04.1	+45.8	16.5	5	59.2	+46.1	16.5	7	54.2	+46.5	16.6	66
2	54.4	+45.4	15.8	4	49.9	+45.7	15.8	6	45.3	+46.2	15.9	8	40.7	+46.5	15.9	67
3	39.8	+45.4	15.1	5	35.6	+45.8	15.2	7	31.5	+46.0	15.2	9	27.2	+46.4	15.3	68
4	25.2	+45.3	14.5	6	21.4	+45.6	14.5	8	17.5	+46.0	14.6	10	13.6	+46.4	14.7	69
5	10.5	+45.3	13.8	7	07.0	+45.7	13.9	9	03.5	+46.0	13.9	11	00.0	+46.2	14.0	70
5	55.8	+45.3	13.1	7	52.7	+45.5	13.2	9	49.5	+45.8	13.3	11	46.2	+46.2	13.4	71
6	41.1	+45.1	12.5	8	38.2	+45.5	12.5	10	35.3	+45.8	12.6	12	32.4	+46.1	12.7	72
7	26.2	+45.2	11.8	9	23.7	+45.4	11.9	11	21.1	+45.7	12.0	13	18.5	+46.0	12.0	73
8	11.4	+45.1	11.2	10	09.1	+45.3	11.2	12	06.8	+45.6	11.3	14	04.5	+45.8	11.4	74
8	56.5	+44.9	10.5	10	54.4	+45.3	10.6	12	52.4	+45.5	10.6	14	50.3	+45.8	10.7	75
9	41.4	+45.0	9.8	11	39.7	+45.1	9.9	13	37.9	+45.4	10.0	15	36.1	+45.6	10.0	76
10	26.4	+44.8	9.1	12	24.8	+45.1	9.2	14	23.3	+45.2	9.3	16	21.7	+45.5	9.4	77
11	11.2	+44.7	8.5	13	09.9	+44.9	8.5	15	08.5	+45.2	8.6	17	07.2	+45.3	8.7	78
11	55.9	+44.7	7.8	13	54.8	+44.9	7.8	15	53.7	+45.0	7.9	17	52.5	+45.2	8.0	79
12	40.6	+44.5	7.1	14	39.7	+44.7	7.2	16	38.7	+44.9	7.2	18	37.7	+45.1	7.3	80
13	25.1	+44.4	6.4	15	24.4	+44.5	6.5	17	23.6	+44.7	6.5	19	22.8	+44.9	6.6	81
14	09.5	+44.4	5.7	16	08.9	+44.5	5.8	18	08.3	+44.6	5.8	20	07.7	+44.7	5.9	82
14	53.9	+44.1	5.0	16	53.4	+44.3	5.1	18	52.9	+44.4	5.1	20	52.4	+44.6	5.2	83
15	38.0	+44.1	4.3	17	37.7	+44.1	4.4	19	37.3	+44.3	4.4	21	37.0	+44.3	4.5	84
16	22.1	+43.9	3.6	18	21.8	+44.0	3.7	20	21.6	+44.1	3.7	22	21.3	+44.2	3.8	85
17	06.0	+43.7	2.9	19	05.8	+43.8	2.9	21	05.7	+43.9	3.0	23	05.5	+44.0	3.0	86
17	49.7	+43.6	2.2	19	49.6	+43.7	2.2	21	49.6	+43.6	2.2	23	49.5	+43.7	2.3	87
18	33.3	+43.4	1.5	20	33.3	+43.4	1.5	22	33.2	+43.5	1.5	24	33.2	+43.5	1.5	88
19	16.7	+43.3	0.7	21	16.7	+43.3	0.7	23	16.7	+43.3	0.8	25	16.7	+43.3	0.8	89
20	00.0	+43.1	0.0	22	00.0	+43.1	0.0	24	00.0	+43.0	0.0	26	00.0	+43.0	0.0	90
20°			22°			24°			26°			28°				

LATITUDE SAME NAME

L.H.A. 136°, 224°

46°, 314° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	36 59.0	-26.4	51.2	38 13.2	-24.6	52.5	39 25.2	-22.6	53.7	40 35.0	-20.5	55.1	41 42.4	-18.3	56.6
31	36 32.6	-27.0	50.1	37 48.6	-25.2	51.3	39 02.6	-23.3	52.6	40 14.5	-21.3	53.9	41 24.1	-19.3	55.3
32	36 05.6	-27.6	49.0	37 23.4	-25.9	50.2	38 39.3	-24.0	51.4	39 53.2	-22.1	52.7	41 04.8	-20.0	54.0
33	35 38.0	-28.2	47.9	36 57.5	-26.5	49.0	38 15.3	-24.7	50.2	39 31.1	-22.8	51.4	40 44.8	-20.8	52.8
34	35 09.8	-28.8	46.8	36 31.0	-27.1	47.9	37 50.6	-25.4	49.0	39 08.3	-23.5	50.3	40 24.0	-21.6	51.5
35	34 41.0	-29.4	45.8	36 03.9	-27.7	46.8	37 25.2	-26.0	47.9	38 44.8	-24.3	49.1	40 02.4	-22.4	50.3
36	34 11.6	-29.9	44.7	35 36.2	-28.4	45.7	36 59.2	-26.7	46.8	38 20.5	-24.9	47.9	39 40.0	-23.1	49.1
37	33 41.7	-30.4	43.7	35 07.8	-28.8	44.6	36 32.5	-27.3	45.6	37 55.6	-25.6	46.7	39 16.9	-23.8	47.9
38	33 11.3	-30.9	42.6	34 39.0	-29.5	43.6	36 05.2	-27.9	44.5	37 30.0	-26.3	45.6	38 53.1	-24.6	46.7
39	32 40.4	-31.4	41.6	34 09.5	-30.0	42.5	35 37.3	-28.5	43.4	37 03.7	-26.9	44.5	38 28.5	-25.2	45.6
40	32 09.0	-31.9	40.6	33 39.5	-30.5	41.5	35 08.8	-29.0	42.4	36 36.8	-27.5	43.4	38 03.3	-25.9	44.4
41	31 37.1	-32.3	39.6	33 09.0	-31.0	40.4	34 39.8	-29.6	41.3	36 09.3	-28.1	42.3	37 37.4	-26.5	43.3
42	31 04.8	-32.8	38.6	32 38.0	-31.5	39.4	34 10.2	-30.1	40.2	35 41.2	-28.7	41.2	37 10.9	-27.2	42.1
43	30 32.0	-33.2	37.6	32 06.5	-31.9	38.4	33 40.1	-30.7	39.2	35 12.5	-29.3	40.1	36 43.7	-27.8	41.0
44	29 58.8	-33.6	36.7	31 34.6	-32.4	37.4	33 09.4	-31.1	38.2	34 43.2	-29.8	39.0	36 15.9	-28.5	39.9
45	29 25.2	-34.1	35.7	31 02.2	-32.9	36.4	32 38.3	-31.7	37.2	34 13.4	-30.4	38.0	35 47.4	-28.9	38.8
46	28 51.1	-34.4	34.8	30 29.3	-33.3	35.4	32 06.6	-32.1	36.2	33 43.0	-30.8	36.9	35 18.5	-29.6	37.8
47	28 16.7	-34.8	33.9	29 56.0	-33.7	34.5	31 34.5	-32.6	35.2	33 12.2	-31.4	35.9	34 48.9	-30.1	36.7
48	27 41.9	-35.2	32.9	29 22.3	-34.1	33.5	31 01.9	-33.0	34.2	32 40.8	-31.8	34.9	34 18.8	-30.6	35.6
49	27 06.7	-35.5	32.0	28 48.2	-34.5	32.6	30 28.9	-33.4	33.2	32 09.0	-32.4	33.9	33 48.2	-31.2	34.6
50	26 31.2	-35.8	31.1	28 13.7	-34.9	31.7	29 55.5	-33.8	32.2	31 36.6	-32.7	32.9	33 17.0	-31.6	33.6
51	25 55.4	-36.2	30.2	27 38.8	-35.2	30.7	29 21.7	-34.3	31.3	31 03.9	-33.3	31.9	32 45.4	-32.2	32.6
52	25 19.8	-36.5	29.3	27 03.6	-35.6	29.8	28 47.4	-34.6	30.4	30 30.6	-33.6	30.9	32 13.2	-32.6	31.6
53	24 42.7	-36.8	28.5	26 28.0	-35.9	28.9	28 12.8	-35.0	29.4	29 57.0	-34.0	30.0	31 40.6	-33.0	30.6
54	24 05.9	-37.1	27.6	25 52.1	-36.3	28.0	27 37.8	-35.4	28.5	29 23.0	-34.5	29.0	31 07.9	-33.5	29.6
55	23 28.8	-37.3	26.7	25 15.8	-36.5	27.1	27 02.4	-35.7	27.6	28 48.5	-34.8	28.1	30 34.1	-33.9	28.6
56	22 51.5	-37.7	25.9	24 39.3	-36.9	26.3	26 26.7	-36.1	26.7	28 13.7	-35.2	27.2	30 00.2	-34.3	27.7
57	22 13.8	-37.8	25.0	24 02.4	-37.1	25.4	25 50.6	-36.3	25.8	27 38.5	-35.6	26.2	29 25.9	-34.8	26.7
58	21 36.0	-38.2	24.2	23 25.3	-37.5	24.5	25 14.3	-36.7	24.9	27 02.9	-35.9	25.3	28 51.1	-35.1	25.8
59	20 57.8	-38.4	23.4	22 47.8	-37.7	23.7	24 37.6	-37.0	24.1	26 27.0	-36.3	24.4	28 16.0	-35.4	24.9
60	20 19.4	-38.6	22.6	22 10.1	-37.9	22.9	24 00.6	-37.3	23.2	25 50.7	-36.5	23.6	27 40.6	-35.8	24.0
61	19 40.8	-38.8	21.7	21 32.2	-38.2	22.0	23 23.3	-37.5	22.3	25 14.2	-36.9	22.7	27 04.8	-36.2	23.1
62	19 02.0	-39.0	20.9	20 54.0	-38.4	21.2	22 45.8	-37.8	21.5	24 37.3	-37.2	21.8	26 28.6	-36.5	22.2
63	18 23.0	-39.2	20.1	20 15.6	-38.7	20.4	22 08.0	-38.1	20.6	24 00.1	-37.4	20.9	25 52.1	-36.8	21.3
64	17 43.8	-39.5	19.3	19 36.9	-38.9	19.6	21 29.9	-38.3	19.8	23 22.7	-37.7	20.1	25 15.3	-37.1	20.4
65	17 04.3	-39.6	18.5	18 58.0	-39.1	18.8	20 51.6	-38.6	19.0	22 45.0	-38.0	19.2	24 38.2	-37.5	19.5
66	16 24.7	-39.8	17.8	18 18.9	-39.2	18.0	20 13.0	-38.7	18.2	22 07.0	-38.3	18.4	24 00.7	-37.7	18.7
67	15 44.9	-39.9	17.0	17 39.7	-39.5	17.2	19 34.3	-39.0	17.4	21 28.7	-38.5	17.6	23 23.0	-37.9	17.8
68	15 05.0	-40.1	16.2	17 00.2	-39.7	16.4	18 55.3	-39.2	16.6	20 50.2	-38.7	16.8	22 45.1	-38.3	17.0
69	14 24.9	-40.2	15.4	16 20.5	-39.8	15.6	18 16.1	-39.4	15.8	20 11.5	-38.9	15.9	22 06.8	-38.4	16.2
70	13 44.7	-40.4	14.7	15 40.7	-40.0	14.8	17 36.7	-39.6	15.0	19 32.6	-39.2	15.1	21 28.4	-38.8	15.3
71	13 04.3	-40.6	13.9	15 00.7	-40.1	14.0	16 57.1	-39.8	14.2	18 53.4	-39.4	14.3	20 49.6	-38.9	14.5
72	12 23.7	-40.6	13.2	14 20.6	-40.3	13.3	16 17.3	-39.9	13.4	18 14.0	-39.5	13.5	20 10.7	-39.2	13.7
73	11 43.1	-40.8	12.4	13 40.3	-40.5	12.5	15 37.4	-40.1	12.6	17 34.5	-39.8	12.7	19 31.5	-39.4	12.9
74	11 02.3	-40.8	11.7	12 59.8	-40.5	11.7	14 57.3	-40.2	11.8	16 54.7	-39.9	12.0	18 52.1	-39.6	12.1
75	10 21.5	-41.0	10.9	12 19.3	-40.7	11.0	14 17.1	-40.4	11.1	16 14.8	-40.1	11.2	18 12.5	-39.8	11.3
76	9 40.5	-41.1	10.2	11 38.6	-40.8	10.2	13 36.7	-40.6	10.3	15 34.7	-40.3	10.4	17 32.7	-40.0	10.5
77	8 59.4	-41.2	9.4	10 57.8	-40.9	9.5	12 56.1	-40.6	9.6	14 54.4	-40.4	9.6	16 52.6	-40.1	9.7
78	8 18.2	-41.2	8.7	10 16.9	-41.1	8.7	12 15.5	-40.8	8.8	14 14.0	-40.5	8.9	16 12.6	-40.3	9.0
79	7 37.0	-41.3	8.0	9 35.8	-41.1	8.0	11 34.7	-40.9	8.1	13 33.5	-40.7	8.1	15 32.3	-40.5	8.2
80	6 55.7	-41.4	7.2	8 54.7	-41.2	7.3	10 53.8	-41.0	7.3	12 52.8	-40.8	7.4	14 51.8	-40.6	7.4
81	6 14.3	-41.4	6.5	8 13.5	-41.2	6.5	10 12.8	-41.2	6.6	12 12.0	-41.0	6.6	14 11.2	-40.8	6.7
82	5 32.9	-41.5	5.8	7 32.3	-41.4	5.8	9 31.6	-41.2	5.8	11 31.0	-41.0	5.9	13 30.4	-40.9	5.9
83	4 51.4	-41.6	5.0	6 50.9	-41.4	5.1	8 50.4	-41.2	5.1	10 50.0	-41.2	5.1	12 49.5	-41.0	5.2
84	4 09.8	-41.5	4.3	6 09.5	-41.5	4.3	8 09.2	-41.4	4.4	10 08.8	-41.3	4.4	12 08.5	-41.2	4.4
85	3 28.3	-41.7	3.6	5 28.0	-41.5	3.6	7 27.8	-41.5	3.6	9 27.5	-41.3	3.6	11 27.3	-41.3	3.7
86	2 46.6	-41.6	2.9	4 46.5	-41.6	2.9	6 46.3	-41.5	2.9	8 46.2	-41.4	2.9	10 46.0	-41.3	2.9
87	2 05.0	-41.6	2.2	4 04.9	-41.6	2.2	6 04.8	-41.5	2.2	8 04.8	-41.6	2.2	10 04.7	-41.5	2.2
88	1 23.4	-41.7	1.4	3 23.3	-41.6	1.4	5 23.3	-41.6	1.4	7 23.2	-41.6	1.5	9 23.2	-41.6	1.5
89	0 41.7	-41.7	0.7	2 41.7	-41.7	0.7	4 41.7	-41.7	0.7	6 41.6	-41.6	0.7	8 41.6	-41.6	0.7
90	0 00.0	-41.7	0.0	2 00.0	-41.7	0.0	4 00.0	-41.7	0.0	6 00.0	-41.7	0.0	8 00.0	-41.7	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 46°, 314°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
36	59.0	-26.4	128.8	35	43.0	-28.2	129.9	34	25.2	-29.9	131.0	33	05.7	-31.5	132.0	31	44.7	-33.0	132.9	30
36	32.6	-27.0	129.9	35	14.8	-28.7	131.0	33	55.3	-30.4	132.0	32	34.2	-31.9	133.0	31	11.7	-33.4	133.9	31
36	05.6	-27.6	131.0	34	46.1	-29.3	132.0	33	24.9	-30.9	133.0	32	02.3	-32.4	134.0	30	38.3	-33.8	134.8	32
35	38.0	-28.2	132.1	34	16.8	-29.9	133.1	32	54.0	-31.4	134.1	31	29.9	-32.9	135.0	30	04.5	-34.3	135.8	33
35	09.8	-28.8	133.2	33	46.9	-30.4	134.2	32	22.6	-31.9	135.1	30	57.0	-33.3	135.9	29	30.2	-34.7	136.7	34
34	41.0	-29.4	134.2	33	16.5	-30.8	135.2	31	50.7	-32.3	136.1	29	31.1	-33.6	141.6	25	56.7	-36.8	142.2	40
34	11.6	-29.9	135.3	32	45.7	-31.4	136.2	31	18.4	-32.8	137.1	29	50.0	-34.2	137.9	28	20.5	-35.5	138.6	36
33	41.7	-30.4	136.3	32	14.3	-31.9	137.2	30	45.6	-33.2	138.0	29	15.8	-34.5	138.8	27	45.0	-35.7	139.5	37
33	11.3	-30.9	137.4	31	42.4	-32.3	138.2	30	12.4	-33.7	139.0	28	41.3	-34.9	139.7	27	09.3	-36.2	140.4	38
32	40.4	-31.4	138.4	31	10.1	-32.7	139.2	29	38.7	-34.0	140.0	28	06.4	-35.3	140.7	26	33.1	-36.4	141.3	39
32	09.0	-31.9	139.4	30	37.4	-33.2	140.2	29	04.7	-34.4	140.9	27	31.1	-35.6	141.6	25	56.7	-36.8	142.2	40
31	37.1	-32.3	140.4	30	04.2	-33.6	141.1	28	30.3	-34.9	141.8	26	55.5	-36.0	142.5	25	19.9	-37.1	143.1	41
31	04.8	-32.8	141.4	29	30.6	-34.1	142.1	27	55.4	-35.2	142.8	26	19.5	-36.3	143.4	24	42.8	-37.4	144.0	42
30	32.0	-33.2	142.4	28	56.5	-34.4	143.0	27	20.2	-35.5	143.7	25	43.2	-36.6	144.3	24	05.4	-37.6	144.8	43
29	58.8	-33.6	143.3	28	22.1	-34.7	144.0	26	44.7	-35.9	144.6	25	06.6	-37.0	145.1	23	27.8	-38.0	145.7	44
29	25.2	-34.1	144.3	27	47.4	-35.2	144.9	26	08.8	-36.2	145.5	24	29.6	-37.2	146.0	22	49.8	-38.2	146.5	45
28	51.1	-34.4	145.2	27	12.2	-35.5	145.8	25	32.6	-36.5	146.4	23	52.4	-37.5	146.9	22	11.6	-38.4	147.3	46
28	16.7	-34.8	146.1	26	36.7	-35.8	146.7	24	56.1	-36.8	147.2	23	14.9	-37.8	147.7	21	33.2	-38.7	148.2	47
27	41.9	-35.2	147.1	26	00.9	-36.2	147.6	24	19.3	-37.2	148.1	22	37.1	-38.0	148.6	20	54.5	-39.0	149.0	48
27	06.7	-35.5	148.0	25	24.7	-36.5	148.5	23	42.1	-37.4	149.0	21	59.1	-38.3	149.4	20	15.5	-39.1	149.8	49
26	31.2	-35.8	148.9	24	48.2	-36.8	149.4	23	04.7	-37.7	149.8	21	31.1	-38.6	150.2	19	36.4	-39.4	150.6	50
25	55.4	-36.2	149.8	24	11.4	-37.0	150.2	22	27.0	-37.9	150.7	20	42.2	-38.8	151.1	18	57.0	-39.5	151.4	51
25	19.2	-36.5	150.7	23	34.4	-37.4	151.1	21	49.1	-38.2	151.5	20	03.4	-38.9	151.9	18	17.5	-39.8	152.2	52
24	42.7	-36.8	151.5	22	57.0	-37.6	152.0	21	10.9	-38.4	152.3	19	24.5	-39.3	152.7	17	37.7	-40.0	153.0	53
24	05.9	-37.1	152.4	22	19.4	-37.9	152.8	20	32.5	-38.7	153.2	18	45.2	-39.4	153.5	16	57.7	-40.1	153.8	54
23	28.8	-37.3	153.3	21	41.5	-38.1	153.6	19	53.8	-38.9	154.0	18	05.8	-39.6	154.3	16	17.6	-40.3	154.5	55
22	51.5	-37.7	154.1	21	03.4	-38.4	154.5	19	14.9	-39.1	154.8	17	26.2	-39.7	155.1	15	37.3	-40.4	155.3	56
22	13.8	-37.8	155.0	20	25.0	-38.6	155.3	18	35.8	-39.3	155.6	16	46.5	-40.0	155.8	14	56.9	-40.7	156.1	57
21	36.0	-38.2	155.8	19	46.4	-38.9	156.1	17	56.5	-39.5	156.4	16	06.5	-40.1	156.6	14	16.2	-40.7	156.8	58
20	57.8	-38.4	156.6	19	07.5	-39.0	156.9	17	17.0	-39.6	157.2	15	26.4	-40.3	157.4	13	35.5	-40.9	157.6	59
20	19.4	-38.6	157.4	18	28.5	-39.2	157.7	16	37.4	-39.9	158.0	14	46.1	-40.5	158.2	12	54.6	-41.0	158.3	60
19	40.8	-38.8	158.3	17	49.3	-39.5	158.5	15	57.5	-40.0	158.7	14	05.6	-40.6	158.9	12	13.6	-41.2	159.1	61
19	02.0	-39.0	159.1	17	09.8	-39.6	159.3	15	17.5	-40.2	159.5	13	25.0	-40.7	159.7	11	32.4	-41.2	159.8	62
18	23.0	-39.2	159.9	16	30.2	-39.8	160.1	14	37.3	-40.3	160.3	12	44.3	-40.8	160.4	10	51.2	-41.4	160.6	63
17	43.8	-39.5	160.7	15	50.4	-39.9	160.9	13	57.0	-40.4	161.0	12	03.5	-41.0	161.2	10	09.8	-41.4	161.3	64
17	04.3	-39.6	161.5	15	10.5	-40.1	161.6	13	16.6	-40.7	161.8	11	22.5	-41.1	161.9	9	28.4	-41.6	162.0	65
16	24.7	-39.8	162.2	14	30.4	-40.3	162.4	12	35.9	-40.7	162.6	10	41.4	-41.2	162.7	8	46.8	-41.6	162.8	66
15	44.9	-39.9	163.0	13	50.1	-40.4	163.2	11	55.2	-40.8	163.3	10	00.2	-41.2	163.4	8	05.2	-41.7	163.5	67
15	05.0	-40.1	163.8	13	09.7	-40.5	163.9	11	14.4	-41.0	164.1	9	19.0	-41.4	164.2	7	23.5	-41.8	164.2	68
14	24.9	-40.2	164.6	12	29.2	-40.7	164.7	10	33.4	-41.0	164.8	8	37.6	-41.5	164.9	6	41.7	-41.8	165.0	69
13	44.7	-40.4	165.3	11	48.5	-40.7	165.4	9	52.4	-41.2	165.5	7	56.1	-41.5	165.6	5	59.9	-41.9	165.7	70
13	04.3	-40.6	166.1	11	07.8	-40.9	166.2	9	11.2	-41.2	166.3	7	14.6	-41.6	166.3	5	18.0	-42.0	166.4	71
12	23.7	-40.6	166.8	10	26.9	-41.0	166.9	8	30.0	-41.4	167.0	6	33.0	-41.7	167.1	4	36.0	-41.9	167.1	72
11	43.1	-40.8	167.6	9	45.9	-41.1	167.7	7	48.6	-41.4	167.7	5	51.3	-41.7	167.8	3	54.1	-42.1	167.8	73
11	02.3	-40.8	168.3	9	04.8	-41.2	168.4	7	07.2	-41.5	168.5	5	09.6	-41.7	168.5	3	12.0	-42.0	168.5	74
10	21.5	-41.0	169.1	8	23.6	-41.2	169.2	6	25.7	-41.5	169.2	4	27.9	-41.8	169.2	2	30.0	-42.1	169.3	75
9	40.5	-41.1	169.8	7	42.4	-41.4	169.9	5	44.2	-41.6	169.9	3	46.1	-41.9	170.0	1	47.9	-42.1	170.0	76
8	59.4	-41.2	170.6	7	01.0	-41.4	170.6	5	02.6	-41.6	170.7	3	04.2	-41.9	170.7	1	05.8	-42.1	170.7	77
8	18.2	-41.2	171.3	6	19.6	-41.4	171.3	4	21.0	-41.7	171.4	2	22.3	-41.9	171.4	0	23.7	-42.1	171.4	78
7	37.0	-41.3	172.0	5	38.2	-41.6	172.1	3	39.3	-41.7	172.1	1	40.4	-41.9	172.1	0	18.4	+42.1	7.9	79
6	55.7	-41.4	172.8	4	56.6	-41.5	172.8	2	57.6	-41.8	172.8	0	58.5	-41.9	172.8	1	00.5	+42.1	7.2	80
6	14.3	-41.4	173.5	4	15.1	-41.6	173.5	2	15.8	-41.7	173.5	0	16.6	-41.9	173.5	1	42.6	+42.1	6.5	81
5	32.9	-41.5	174.2	3	33.5	-41.7	174.2	1	34.1	-41.8	174.3	0	25.3	+41.9	5.7	2	24.7	+42.1	5.8	82
4	51.4	-41.6	175.0	2	51.8	-41.6	175.0	0	52.3	-41.8	175.0	1	07.2	+41.9	5.0	3	06.8	+42.0	5.0	83
4	09.8	-41.5	175.7	2	10.2	-41.7	175.7	0	10.5	-41.8	175.7	1	49.1	+41.9	4.3	3	48.8	+42.0	4.3	84
3	28.3	-41.7	176.4	1	28.5	-41.7	176.4	0	31.3	+41.7	3.6	2	31.0	+41.9	3.6	4	30.8	+41.9	3.6	85
2	46.6	-41.6	177.1	0	46.8	-41.7	177.1	1	13.0	+41.8	2.9	3	12.9	+41.8	2.9	5	12.7	+41.9	2.9	86
2	05.0	-41.6	177.8	0	05.1	-41.7	177.8	1	54.8	+41.8	2.2	3	54.7	+41.8	2.2	5	54.6	+41.9	2.2	87
1	23.4	-41.7	178.6	0	36.6	+41.7	1.4	2	36.6	+41.7	1.4	4	36.5	+41.8	1.4	6	36.5	+41.8	1.4	88
0	41.7	-41.7	179.3	1	18.3	+41.7	0.7	3	18.3	+41.7	0.7	5	18.3	+41.7	0.7	7	18.3	+41.7	0.7	89
0	00.0	+41.7	0.0	2	00.0	+41.7	0.0	4	00.0	+41.7	0.0	6	00.0	+41.6	0.0	8	00.0	+41.6	0.0	90

LATITUDE SAME NAME

L.H.A. 134°, 226°

46°, 314° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	42 47.2	-16.1	58.1	43 49.2	-13.7	59.7	44 48.2	-11.2	61.4	45 44.0	-8.7	63.2	46 36.4	-6.0	65.1
31	42 31.1	-17.0	56.8	43 35.5	-14.7	58.4	44 37.0	-12.3	60.0	45 35.3	-9.7	61.8	46 30.4	-7.1	63.6
32	42 14.1	-17.9	55.5	43 20.8	-15.6	57.0	44 24.7	-13.3	58.6	45 25.6	-10.8	60.4	46 23.3	-8.2	62.2
33	41 56.2	-18.7	54.2	43 05.2	-16.6	55.7	44 11.4	-14.2	57.3	45 14.8	-11.8	59.0	46 15.1	-9.3	60.7
34	41 37.5	-19.6	52.9	42 48.6	-17.4	54.4	43 57.2	-15.2	55.9	45 03.0	-12.8	57.6	46 05.8	-10.3	59.3
35	41 17.9	-20.4	51.7	42 31.2	-18.3	53.1	43 42.0	-16.1	54.6	44 50.2	-13.8	56.2	45 55.5	-11.4	57.9
36	40 57.5	-21.1	50.4	42 12.9	-19.1	51.8	43 25.9	-17.0	53.3	44 36.4	-14.8	54.8	45 44.1	-12.4	56.5
37	40 36.4	-22.0	49.2	41 53.8	-20.0	50.5	43 08.9	-17.9	51.9	44 21.6	-15.7	53.5	45 31.7	-13.4	55.1
38	40 14.4	-22.7	48.0	41 33.8	-20.9	49.3	42 51.0	-18.8	50.6	44 05.9	-16.7	52.1	45 18.3	-14.4	53.7
39	39 51.7	-23.5	46.7	41 12.9	-21.6	48.0	42 32.2	-19.7	49.3	43 49.2	-17.6	50.8	45 03.9	-15.5	52.3
40	39 28.2	-24.2	45.5	40 51.3	-22.4	46.8	42 12.5	-20.5	48.1	43 31.6	-18.5	49.5	44 48.4	-16.3	51.0
41	39 04.0	-24.9	44.4	40 28.9	-23.1	45.5	41 52.0	-21.3	46.8	43 13.1	-19.3	48.2	44 32.1	-17.4	49.6
42	38 39.1	-25.6	43.2	40 05.8	-23.9	44.3	41 30.7	-22.1	45.6	42 53.8	-20.3	46.9	44 14.7	-18.2	48.3
43	38 13.5	-26.3	42.0	39 41.9	-24.7	43.1	41 08.6	-22.9	44.3	42 33.5	-21.1	45.6	43 56.5	-19.2	46.9
44	37 47.2	-26.9	40.9	39 17.2	-25.3	42.0	40 45.7	-23.7	43.1	42 12.4	-21.9	44.3	43 37.3	-20.0	45.6
45	37 20.3	-27.5	39.8	38 51.9	-26.1	40.8	40 22.0	-24.5	41.9	41 50.5	-22.7	43.1	43 17.3	-21.0	44.3
46	36 52.8	-28.2	38.7	38 25.8	-26.7	39.6	39 57.5	-25.1	40.7	41 27.8	-23.5	41.8	42 56.3	-21.7	43.0
47	36 24.6	-28.8	37.6	37 59.1	-27.3	38.5	39 32.4	-25.9	39.5	41 04.3	-24.3	40.6	42 34.6	-22.6	41.8
48	35 55.8	-29.3	36.5	37 31.8	-28.0	37.4	39 06.5	-26.5	38.3	40 40.0	-25.1	39.4	42 12.0	-23.5	40.5
49	35 26.5	-29.9	35.4	37 03.8	-28.6	36.3	38 40.0	-27.3	37.2	40 14.9	-25.7	38.2	41 48.5	-24.2	39.3
50	34 56.6	-30.5	34.3	36 35.2	-29.2	35.2	38 12.7	-27.8	36.0	39 49.2	-26.5	37.0	41 24.3	-24.9	38.1
51	34 26.1	-31.0	33.3	36 06.0	-29.8	34.1	37 44.9	-28.5	34.9	39 22.7	-27.2	35.8	40 59.4	-25.8	36.9
52	33 55.1	-31.5	32.3	35 36.2	-30.4	33.0	37 16.4	-29.2	33.8	38 55.5	-27.8	34.7	40 33.6	-26.4	35.7
53	33 23.6	-32.0	31.2	35 05.8	-30.9	31.9	36 47.2	-29.7	32.7	38 27.7	-28.5	33.6	40 07.2	-27.2	34.5
54	32 51.6	-32.5	30.2	34 34.9	-31.4	30.9	36 17.5	-30.3	31.6	37 59.2	-29.1	32.4	39 40.0	-27.8	33.3
55	32 19.1	-32.9	29.2	34 03.5	-31.9	29.9	35 47.2	-30.8	30.6	37 30.1	-29.7	31.3	39 12.2	-28.5	32.2
56	31 46.2	-33.4	28.2	33 31.6	-32.4	28.9	35 16.4	-31.4	29.5	37 00.4	-30.3	30.2	38 43.7	-29.2	31.0
57	31 12.8	-33.8	27.3	32 59.2	-32.9	27.8	34 45.0	-31.9	28.5	36 30.1	-30.9	29.2	38 14.5	-29.8	29.9
58	30 39.0	-34.3	26.3	32 26.3	-33.4	26.9	34 13.1	-32.5	27.5	35 59.2	-31.4	28.1	37 44.7	-30.3	28.8
59	30 04.7	-34.7	25.3	31 52.9	-33.8	25.9	33 40.6	-32.9	26.4	35 27.8	-32.0	27.1	37 14.4	-31.0	27.7
60	29 30.0	-35.0	24.4	31 19.1	-34.2	24.9	33 07.7	-33.4	25.4	34 55.8	-32.5	26.0	36 43.4	-31.6	26.7
61	28 55.0	-35.4	23.5	30 44.9	-34.7	23.9	32 34.3	-33.8	24.4	34 23.3	-33.0	25.0	36 11.8	-32.1	25.6
62	28 19.6	-35.8	22.6	30 10.2	-35.0	23.0	32 00.5	-34.3	23.5	33 50.3	-33.4	24.0	35 39.7	-32.6	24.6
63	27 43.8	-36.2	21.7	29 35.2	-35.5	22.1	31 26.2	-34.7	22.5	33 16.9	-34.0	23.0	35 07.1	-33.1	23.5
64	27 07.6	-36.5	20.8	28 59.7	-35.8	21.1	30 51.5	-35.2	21.6	32 42.9	-34.4	22.0	34 34.0	-33.7	22.5
65	26 31.1	-36.8	19.9	28 23.9	-36.2	20.2	30 16.3	-35.5	20.6	32 08.5	-34.8	21.0	34 00.3	-34.1	21.5
66	25 54.3	-37.1	19.0	27 47.7	-36.6	19.3	29 40.8	-35.9	19.7	31 33.7	-35.3	20.1	33 26.2	-34.6	20.5
67	25 17.2	-37.4	18.1	27 11.1	-36.8	18.4	29 04.9	-36.3	18.8	30 58.4	-35.7	19.1	32 51.6	-35.0	19.5
68	24 39.8	-37.8	17.2	26 34.3	-37.2	17.5	28 28.6	-36.7	17.9	30 22.7	-36.1	18.2	32 16.6	-35.5	18.6
69	24 02.0	-38.0	16.4	25 57.1	-37.5	16.7	27 51.9	-36.9	17.0	29 46.6	-36.4	17.3	31 41.1	-35.9	17.6
70	23 24.0	-38.3	15.5	25 19.6	-37.9	15.8	27 15.0	-37.4	16.1	29 10.2	-36.8	16.4	31 05.2	-36.3	16.7
71	22 45.7	-38.5	14.7	24 41.7	-38.1	14.9	26 37.6	-37.6	15.2	28 33.4	-37.2	15.5	30 28.9	-36.6	15.8
72	22 07.2	-38.8	13.9	24 03.6	-38.3	14.1	26 00.0	-38.0	14.3	27 56.2	-37.5	14.6	29 52.3	-37.1	14.9
73	21 28.4	-39.0	13.1	23 25.3	-38.7	13.2	25 22.0	-38.2	13.5	27 18.7	-37.9	13.7	29 15.2	-37.4	13.9
74	20 49.4	-39.3	12.2	22 46.6	-38.9	12.4	24 43.8	-38.6	12.6	26 40.8	-38.1	12.8	28 37.8	-37.8	13.1
75	20 10.1	-39.4	11.4	22 07.7	-39.1	11.6	24 05.2	-38.8	11.8	26 02.7	-38.5	12.0	28 00.0	-38.1	12.2
76	19 30.7	-39.7	10.6	21 28.6	-39.4	10.8	23 26.4	-39.0	10.9	25 24.2	-38.7	11.1	27 21.9	-38.4	11.3
77	18 51.0	-39.9	9.8	20 49.2	-39.6	10.0	22 47.4	-39.4	10.1	24 45.5	-39.1	10.3	26 43.5	-38.7	10.4
78	18 11.1	-40.1	9.1	20 09.6	-39.8	9.2	22 08.0	-39.5	9.3	24 06.4	-39.3	9.4	26 04.8	-39.0	9.6
79	17 31.0	-40.2	8.3	19 29.8	-40.1	8.4	21 28.5	-39.8	8.5	23 27.1	-39.5	8.6	25 25.8	-39.3	8.7
80	16 50.8	-40.5	7.5	18 49.7	-40.2	7.6	20 48.7	-40.0	7.7	22 47.6	-39.8	7.8	24 46.5	-39.6	7.9
81	16 10.3	-40.6	6.7	18 09.5	-40.4	6.8	20 08.7	-40.3	6.9	22 07.8	-40.1	7.0	24 06.9	-39.9	7.1
82	15 29.7	-40.7	6.0	17 29.1	-40.6	6.0	19 28.4	-40.4	6.1	21 27.7	-40.2	6.2	23 27.0	-40.1	6.3
83	14 49.0	-40.9	5.2	16 48.5	-40.8	5.3	18 48.0	-40.6	5.3	20 47.5	-40.5	5.4	22 46.9	-40.3	5.5
84	14 08.1	-41.0	4.4	16 07.7	-40.9	4.5	18 07.4	-40.9	4.5	20 07.0	-40.7	4.6	22 06.6	-40.6	4.7
85	13 27.1	-41.2	3.7	15 26.8	-41.1	3.7	17 26.5	-40.9	3.8	19 26.3	-40.9	3.8	21 26.0	-40.8	3.9
86	12 45.9	-41.3	2.9	14 45.7	-41.2	3.0	16 45.6	-41.2	3.0	18 45.4	-41.1	3.0	20 45.2	-41.0	3.1
87	12 04.6	-41.4	2.2	14 04.5	-41.4	2.2	16 04.4	-41.3	2.2	18 04.3	-41.3	2.3	20 04.2	-41.2	2.3
88	11 23.2	-41.6	1.5	13 23.1	-41.5	1.5	15 23.1	-41.5	1.5	17 23.0	-41.4	1.5	19 23.0	-41.4	1.5
89	10 41.6	-41.6	0.7	12 41.6	-41.6	0.7	14 41.6	-41.6	0.7	16 41.6	-41.6	0.8	18 41.6	-41.6	0.8
90	10 00.0	-41.7	0.0	12 00.0	-41.7	0.0	14 00.0	-41.7	0.0	16 00.0	-41.8	0.0	18 00.0	-41.8	0.0

LATITUDE CONTRARY NAME

L.H.A. 46°, 314°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
30	22.4	-34.5	133.8	28	58.7	-35.8	134.6	27	33.9	-37.1	135.4	26	08.0	-38.4	136.1	24	41.1	-39.6	136.7	30
29	47.9	-34.8	134.7	28	22.9	-36.2	135.5	26	56.8	-37.5	136.2	25	29.6	-38.7	136.9	24	01.5	-39.9	137.5	31
29	13.1	-35.3	135.7	27	46.7	-36.5	136.4	26	19.3	-37.8	137.1	24	50.9	-39.0	137.8	23	21.6	-40.1	138.4	32
28	37.8	-35.6	136.6	27	10.2	-36.9	137.3	25	41.5	-38.1	138.0	24	11.9	-39.3	138.6	22	41.5	-40.4	139.2	33
28	02.2	-35.9	137.5	26	33.3	-37.2	138.2	25	03.4	-38.4	138.8	23	32.6	-39.5	139.4	22	01.1	-40.6	140.0	34
27	26.3	-36.3	138.4	25	56.1	-37.6	139.1	24	25.0	-38.7	139.7	22	53.1	-39.8	140.2	21	20.5	-40.8	140.8	35
26	50.0	-36.7	139.3	25	18.5	-37.8	139.9	23	46.3	-38.9	140.5	22	13.3	-40.0	141.0	20	39.7	-41.0	141.5	36
26	13.3	-37.0	140.2	24	40.7	-38.1	140.8	23	07.4	-39.2	141.3	21	33.3	-40.2	141.9	19	58.7	-41.3	142.3	37
25	36.3	-37.2	141.1	24	02.6	-38.4	141.6	22	28.2	-39.5	142.2	20	53.1	-40.5	142.6	19	17.4	-41.4	143.1	38
24	59.1	-37.6	141.9	23	24.2	-38.6	142.5	21	48.7	-39.6	143.0	20	12.6	-40.6	143.4	18	36.0	-41.6	143.9	39
24	21.5	-37.9	142.8	22	45.6	-38.9	143.3	21	09.1	-39.9	143.8	19	32.0	-40.9	144.2	17	54.4	-41.8	144.6	40
23	43.6	-38.1	143.6	22	06.7	-39.2	144.1	20	29.2	-40.2	144.6	18	51.1	-41.0	145.0	17	12.6	-42.0	145.4	41
23	05.5	-38.4	144.5	21	27.5	-39.4	144.9	19	49.0	-40.3	145.4	18	10.1	-41.3	145.8	16	30.6	-42.1	146.1	42
22	27.1	-38.7	145.3	20	48.1	-39.6	145.8	19	08.7	-40.5	146.2	17	28.8	-41.4	146.5	15	48.5	-42.2	146.9	43
21	48.4	-38.9	146.1	20	08.5	-39.8	146.6	18	28.2	-40.8	146.9	16	47.4	-41.6	147.3	15	06.3	-42.4	147.6	44
21	09.5	-39.1	146.9	19	28.7	-40.0	147.3	17	47.4	-40.9	147.7	16	05.8	-41.7	148.0	14	23.9	-42.6	148.3	45
20	30.4	-39.4	147.8	18	48.7	-40.3	148.1	17	06.5	-41.0	148.5	15	24.1	-41.9	148.8	13	41.3	-42.7	149.0	46
19	51.0	-39.6	148.6	18	08.4	-40.4	148.9	16	25.5	-41.3	149.2	14	42.2	-42.0	149.5	12	58.6	-42.7	149.8	47
19	11.4	-39.8	149.4	17	28.0	-40.6	149.7	15	44.2	-41.4	150.0	14	00.2	-42.2	150.3	12	15.9	-42.9	150.5	48
18	31.6	-39.9	150.2	16	47.4	-40.8	150.5	15	02.8	-41.5	150.7	13	18.0	-42.3	151.0	11	33.0	-43.0	151.2	49
17	51.7	-40.2	150.9	16	06.6	-40.9	151.2	14	21.3	-41.7	151.5	12	35.7	-42.4	151.7	10	50.0	-43.1	151.9	50
17	11.5	-40.3	151.7	15	25.7	-41.1	152.0	13	39.6	-41.8	152.2	11	53.3	-42.5	152.4	10	06.9	-43.2	152.6	51
16	31.2	-40.5	152.5	14	44.6	-41.2	152.7	12	57.8	-41.9	153.0	11	10.8	-42.6	153.2	9	23.7	-43.3	153.3	52
15	50.7	-40.7	153.3	14	03.4	-41.4	153.5	12	15.9	-42.1	153.7	10	28.2	-42.7	153.9	8	40.4	-43.3	154.0	53
15	10.0	-40.8	154.0	13	22.0	-41.5	154.2	11	33.8	-42.1	154.4	9	45.5	-42.8	154.6	7	57.1	-43.5	154.7	54
14	29.2	-41.0	154.8	12	40.5	-41.6	155.0	10	51.7	-42.3	155.2	9	02.7	-42.9	155.3	7	13.6	-43.6	155.4	55
13	48.2	-41.1	155.5	11	58.9	-41.8	155.7	10	09.4	-42.3	155.9	8	19.8	-42.9	156.0	6	30.2	-43.6	156.1	56
13	07.1	-41.3	156.3	11	17.1	-41.8	156.5	9	27.1	-42.5	156.6	7	36.9	-43.0	156.7	5	46.6	-43.6	156.8	57
12	25.8	-41.3	157.0	10	35.3	-42.0	157.2	8	44.6	-42.5	157.3	6	53.9	-43.1	157.4	5	03.0	-43.6	157.5	58
11	44.5	-41.5	157.8	9	53.3	-42.0	157.9	8	02.1	-42.6	158.0	6	10.8	-43.2	158.1	4	19.4	-43.7	158.2	59
11	03.0	-41.6	158.5	9	11.3	-42.1	158.6	7	19.5	-42.6	158.7	5	27.6	-43.1	158.8	3	35.7	-43.7	158.9	60
10	21.4	-41.6	159.2	8	29.2	-42.2	159.4	6	36.9	-42.8	159.4	4	44.5	-43.3	159.5	2	52.0	-43.7	159.6	61
9	39.8	-41.8	160.0	7	47.0	-42.3	160.1	5	54.1	-42.7	160.2	4	01.2	-43.2	160.2	2	08.3	-43.7	160.2	62
8	58.0	-41.9	160.7	7	04.7	-42.3	160.8	5	11.4	-42.9	160.9	3	18.0	-43.3	160.9	1	24.6	-43.8	160.9	63
8	16.1	-41.9	161.4	6	22.4	-42.4	161.5	4	28.5	-42.8	161.6	2	34.7	-43.3	161.6	0	40.8	-43.7	161.6	64
7	34.2	-42.0	162.1	5	40.0	-42.5	162.2	3	45.7	-42.9	162.3	1	51.4	-43.4	162.3	0	02.9	+43.8	162.3	65
6	52.2	-42.1	162.9	4	57.5	-42.5	162.9	3	02.8	-42.9	163.0	1	08.0	-43.3	163.0	0	46.7	+43.8	163.0	66
6	10.1	-42.1	163.6	4	15.0	-42.5	163.6	2	19.9	-43.0	163.7	0	24.7	-43.3	163.7	1	30.5	+43.7	163.7	67
5	28.0	-42.2	164.3	3	32.5	-42.6	164.3	1	36.9	-42.9	164.4	0	18.6	+43.4	163.6	2	14.2	+43.7	163.6	68
4	45.8	-42.2	165.0	2	49.9	-42.6	165.0	0	54.0	-43.0	165.1	0	02.0	+43.3	163.0	2	57.9	+43.7	163.0	69
4	03.6	-42.3	165.7	2	07.3	-42.6	165.7	0	11.0	-43.0	165.8	1	45.3	+43.3	163.2	3	41.6	+43.7	163.2	70
3	21.3	-42.2	166.4	1	24.7	-42.6	166.5	0	32.0	+42.9	163.5	2	28.6	+43.3	163.6	4	25.3	+43.6	163.6	71
2	39.1	-42.4	167.1	0	42.1	-42.7	167.2	1	14.9	+43.0	162.8	3	11.9	+43.3	162.9	5	08.9	+43.6	162.9	72
1	56.7	-42.3	167.9	0	00.6	+42.6	162.1	1	57.9	+42.9	162.1	3	55.2	+43.2	162.2	5	52.5	+43.5	162.2	73
1	14.4	-42.3	168.6	0	43.2	+42.6	161.4	2	40.8	+42.9	161.4	4	38.4	+43.2	161.5	6	36.0	+43.5	161.5	74
0	32.1	-42.4	169.3	1	25.8	+42.6	160.7	3	23.7	+42.9	160.7	5	21.6	+43.2	160.8	7	19.5	+43.4	160.8	75
0	10.3	+42.3	170.0	2	08.4	+42.6	160.0	4	06.6	+42.9	160.0	6	04.8	+43.1	160.1	8	02.9	+43.3	160.1	76
0	52.6	+42.4	9.3	2	51.0	+42.6	9.3	4	49.5	+42.8	9.3	6	47.9	+43.0	9.4	8	46.2	+43.3	9.4	77
1	35.0	+42.3	8.6	3	33.6	+42.5	8.6	5	32.3	+42.7	8.6	7	30.9	+42.9	8.7	9	29.5	+43.2	8.7	78
2	17.3	+42.3	7.9	4	16.1	+42.5	7.9	6	15.0	+42.7	7.9	8	13.8	+42.9	8.0	10	12.7	+43.1	8.0	79
2	59.6	+42.3	7.2	4	58.6	+42.5	7.2	6	57.7	+42.6	7.2	8	56.7	+42.8	7.3	10	55.8	+43.0	7.3	80
3	41.9	+42.2	6.5	5	41.1	+42.4	6.5	7	40.3	+42.6	6.5	9	39.5	+42.8	6.6	11	38.8	+42.8	6.6	81
4	24.1	+42.2	5.8	6	23.5	+42.3	5.8	8	22.9	+42.5	5.8	10	22.3	+42.6	5.8	12	21.6	+42.8	5.9	82
5	06.3	+42.2	5.0	7	05.8	+42.3	5.1	9	05.4	+42.4	5.1	11	04.9	+42.5	5.1	13	04.4	+42.7	5.2	83
5	48.5	+42.1	4.3	7	48.1	+42.2	4.4	9	47.8	+42.3	4.4	11	47.4	+42.4	4.4	13	47.1	+42.5	4.4	84
6	30.6	+42.0	3.6	8	30.3	+42.1	3.6	10	30.1	+42.2	3.7	12	29.8	+42.3	3.7	14	29.6	+42.4	3.7	85
7	12.6	+42.0	2.9	9	12.4	+42.1	2.9	11	12.3	+42.1	2.9	13	12.1	+42.2	3.0	15	12.0	+42.2	3.0	86
7	54.6	+41.9	2.2	9	54.5	+41.9	2.2	11	54.4	+42.0	2.2	13	54.3	+42.0	2.2	15	54.2	+42.1	2.2	87
8	36.5	+41.8	1.5	10	36.4	+41.9	1.5	12	36.4	+41.9	1.5	14	36.3	+41.9	1.5	16	36.3	+41.9	1.5	88
9	18.3	+41.7	0.7	11	18.3	+41.7	0.7	13	18.3	+41.7	0.7	15	18.2	+41.8	0.7	17	18.2	+41.8	0.8	89
10	00.0	+41.6	0.0	12	00.0	+41.6	0.0	14	00.0	+41.6	0.0	16	00.0	+41.6	0.0	18	00.0	+41.6	0.0	90

LATITUDE SAME NAME

L.H.A. 134°, 226°

46°, 314° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	47 25.1	-3.2	67.0	48 10.0	-0.4	69.1	48 50.8	+2.6	71.2	49 27.3	+5.6	73.4	49 59.3	+8.7	75.7
31	47 21.9	-4.4	65.6	48 09.6	-1.5	67.6	48 53.4	+1.4	69.7	49 32.9	+4.4	71.9	50 08.0	+7.5	74.1
32	47 17.5	-5.5	64.1	48 08.1	-2.7	66.1	48 54.8	+0.2	68.2	49 37.3	+3.2	70.3	50 15.5	+6.2	72.6
33	47 12.0	-6.6	62.6	48 05.4	-3.9	64.6	48 55.0	-1.1	66.6	49 40.5	+1.9	68.8	50 21.7	+5.0	71.0
34	47 05.4	-7.7	61.2	48 01.5	-5.0	63.1	48 53.9	-2.2	65.1	49 42.4	+0.7	67.2	50 26.7	+3.7	69.5
35	46 57.7	-8.9	59.7	47 56.5	-6.2	61.6	48 51.7	-3.4	63.6	49 43.1	-0.5	65.7	50 30.4	+2.5	67.9
36	46 48.8	-9.9	58.3	47 50.3	-7.3	60.1	48 48.3	-4.6	62.1	49 42.6	-1.8	64.2	50 32.9	+1.2	66.3
37	46 38.9	-11.0	56.8	47 43.0	-8.5	58.6	48 43.7	-5.8	60.6	49 40.8	-3.0	62.6	50 34.1	-0.1	64.8
38	46 27.9	-12.1	55.4	47 34.5	-9.5	57.2	48 37.9	-6.9	59.1	49 37.8	-4.2	61.1	50 34.0	-1.4	63.2
39	46 15.8	-13.1	54.0	47 25.0	-10.7	55.7	48 31.0	-8.1	57.6	49 33.6	-5.4	59.5	50 32.6	-2.6	61.6
40	46 02.7	-14.1	52.6	47 14.3	-11.8	54.3	48 22.9	-9.3	56.1	49 28.2	-6.7	58.0	50 30.0	-3.9	60.0
41	45 48.6	-15.1	51.2	47 02.5	-12.8	52.8	48 13.6	-10.4	54.6	49 21.5	-7.8	56.5	50 26.1	-5.2	58.5
42	45 33.5	-16.2	49.8	46 49.7	-13.9	51.4	48 03.2	-11.6	53.1	49 13.7	-9.1	54.9	50 20.9	-6.4	56.9
43	45 17.3	-17.1	48.4	46 35.8	-15.0	50.0	47 51.6	-12.6	51.6	49 04.6	-10.2	53.4	50 14.5	-7.6	55.3
44	45 00.2	-18.1	47.0	46 20.8	-16.0	48.6	47 39.0	-13.8	50.2	48 54.4	-11.4	51.9	50 06.9	-8.9	53.8
45	44 42.1	-19.0	45.7	46 04.8	-16.9	47.2	47 25.2	-14.8	48.7	48 43.0	-12.5	50.4	49 58.0	-10.1	52.3
46	44 23.1	-19.9	44.4	45 47.9	-18.0	45.8	47 10.4	-15.9	47.3	48 30.5	-13.7	49.0	49 47.9	-11.3	50.7
47	44 03.2	-20.9	43.0	45 29.9	-18.9	44.4	46 54.5	-16.9	45.9	48 16.8	-14.7	47.5	49 36.6	-12.5	49.2
48	43 42.3	-21.7	41.7	45 11.0	-19.9	43.1	46 37.6	-17.9	44.5	48 02.1	-15.9	46.0	49 24.1	-13.6	47.7
49	43 20.6	-22.5	40.5	44 51.1	-20.8	41.7	46 19.7	-18.9	43.1	47 46.2	-16.9	44.6	49 10.5	-14.8	46.2
50	42 58.1	-23.4	39.2	44 30.3	-21.7	40.4	46 00.8	-19.9	41.7	47 29.3	-18.0	43.2	48 55.7	-15.9	44.7
51	42 34.7	-24.2	37.9	44 08.6	-22.6	39.1	45 40.9	-20.9	40.4	47 11.3	-19.0	41.8	48 39.8	-17.0	43.3
52	42 10.5	-25.0	36.7	43 46.0	-23.4	37.8	45 20.0	-21.7	39.0	46 52.3	-19.9	40.4	48 22.8	-18.1	41.8
53	41 45.5	-25.7	35.5	43 22.6	-24.3	36.6	44 58.3	-22.7	37.7	46 32.4	-21.0	39.0	48 04.7	-19.1	40.4
54	41 19.8	-26.5	34.3	42 58.3	-25.1	35.3	44 35.6	-23.6	36.4	46 11.4	-21.9	37.6	47 45.6	-20.2	39.0
55	40 53.3	-27.3	33.1	42 33.2	-25.8	34.1	44 12.0	-24.4	35.1	45 49.5	-22.9	36.3	47 25.4	-21.2	37.6
56	40 26.0	-27.9	31.9	42 07.4	-26.6	32.8	43 47.6	-25.2	33.9	45 26.6	-23.7	35.0	47 04.2	-22.1	36.2
57	39 58.1	-28.6	30.7	41 40.8	-27.4	31.6	43 22.4	-26.1	32.6	45 02.9	-24.7	33.7	46 42.1	-23.1	34.8
58	39 29.5	-29.3	29.6	41 13.4	-28.1	30.5	42 56.3	-26.8	31.4	44 38.2	-25.4	32.4	46 19.0	-24.1	33.5
59	39 00.2	-29.9	28.5	40 45.3	-28.8	29.3	42 29.5	-27.6	30.2	44 12.8	-26.3	31.1	45 54.9	-24.9	32.2
60	38 30.3	-30.5	27.4	40 16.5	-29.5	28.1	42 01.9	-28.3	29.0	43 46.5	-27.2	29.9	45 30.0	-25.8	30.9
61	37 59.8	-31.2	26.3	39 47.0	-30.1	27.0	41 33.6	-29.1	27.8	43 19.3	-27.9	28.6	45 04.2	-26.7	29.6
62	37 28.6	-31.7	25.2	39 16.9	-30.8	25.9	41 04.5	-29.7	26.6	42 51.4	-28.6	27.4	44 37.5	-27.5	28.3
63	36 56.9	-32.3	24.1	38 46.1	-31.3	24.8	40 34.8	-30.4	25.5	42 22.8	-29.4	26.2	44 10.0	-28.2	27.1
64	36 24.6	-32.8	23.1	38 14.8	-32.0	23.7	40 04.4	-31.1	24.3	41 53.4	-30.1	25.1	43 41.8	-29.1	25.9
65	35 51.8	-33.4	22.0	37 42.8	-32.6	22.6	39 33.3	-31.7	23.2	41 23.3	-30.8	23.9	43 12.7	-29.8	24.7
66	35 18.4	-33.9	21.0	37 10.2	-33.1	21.5	39 01.6	-32.3	22.1	40 52.5	-31.4	22.8	42 42.9	-30.5	23.5
67	34 44.5	-34.3	20.0	36 37.1	-33.6	20.5	38 29.3	-32.9	21.0	40 21.1	-32.1	21.6	42 12.4	-31.2	22.3
68	34 10.2	-34.9	19.0	36 03.5	-34.2	19.5	37 56.4	-33.4	20.0	39 49.0	-32.7	20.5	41 41.2	-31.9	21.2
69	33 35.3	-35.2	18.0	35 29.3	-34.6	18.5	37 23.0	-34.0	18.9	39 16.3	-33.3	19.5	41 09.3	-32.6	20.0
70	33 00.1	-35.8	17.1	34 54.7	-35.2	17.5	36 49.0	-34.5	17.9	38 43.0	-33.8	18.4	40 36.7	-33.1	18.9
71	32 24.3	-36.1	16.1	34 19.5	-35.6	16.5	36 14.5	-35.1	16.9	38 09.2	-34.5	17.3	40 03.6	-33.8	17.8
72	31 48.2	-36.6	15.2	33 43.9	-36.1	15.5	35 39.4	-35.5	15.9	37 34.7	-34.9	16.3	39 29.8	-34.4	16.7
73	31 11.6	-37.0	14.2	33 07.8	-36.5	14.5	35 03.9	-36.0	14.9	36 59.8	-35.5	15.3	38 55.4	-34.9	15.7
74	30 34.6	-37.3	13.3	32 31.3	-36.9	13.6	34 27.9	-36.5	13.9	36 24.3	-36.0	14.3	38 20.5	-35.5	14.6
75	29 57.3	-37.7	12.4	31 54.4	-37.3	12.7	33 51.4	-36.9	13.0	35 48.3	-36.5	13.3	37 45.0	-36.0	13.6
76	29 19.6	-38.1	11.5	31 17.1	-37.7	11.7	33 14.5	-37.3	12.0	35 11.8	-36.9	12.3	37 09.0	-36.5	12.6
77	28 41.5	-38.4	10.6	30 39.4	-38.1	10.8	32 37.2	-37.7	11.1	34 34.9	-37.3	11.3	36 32.5	-37.0	11.6
78	28 03.1	-38.8	9.8	30 01.3	-38.4	9.9	31 59.5	-38.2	10.2	33 57.6	-37.8	10.4	35 55.5	-37.4	10.6
79	27 24.3	-39.0	8.9	29 22.9	-38.8	9.1	31 21.3	-38.5	9.2	33 19.8	-38.3	9.5	35 18.1	-37.9	9.7
80	26 45.3	-39.4	8.0	28 44.1	-39.1	8.2	30 42.8	-38.8	8.4	32 41.5	-38.6	8.5	34 40.2	-38.3	8.7
81	26 05.9	-39.6	7.2	28 05.0	-39.5	7.3	30 04.0	-39.2	7.5	32 02.9	-38.9	7.6	34 01.9	-38.8	7.8
82	25 26.3	-39.9	6.4	27 25.5	-39.7	6.5	29 24.8	-39.6	6.6	31 24.0	-39.4	6.7	33 23.1	-39.1	6.9
83	24 46.4	-40.2	5.5	26 45.8	-40.0	5.6	28 45.2	-39.9	5.7	30 44.6	-39.7	5.9	32 44.0	-39.6	6.0
84	24 06.2	-40.5	4.7	26 05.8	-40.4	4.8	28 05.3	-40.1	4.9	30 04.9	-40.1	5.0	32 04.4	-39.9	5.1
85	23 25.7	-40.7	3.9	25 25.4	-40.5	4.0	27 25.2	-40.5	4.1	29 24.8	-40.3	4.1	31 24.5	-40.2	4.2
86	22 45.0	-40.9	3.1	24 44.9	-40.9	3.2	26 44.7	-40.8	3.2	28 44.5	-40.7	3.3	30 44.3	-40.6	3.3
87	22 04.1	-41.1	2.3	24 04.0	-41.1	2.4	26 03.9	-41.0	2.4	28 03.8	-41.0	2.4	30 03.7	-40.9	2.5
88	21 23.0	-41.4	1.5	23 22.9	-41.3	1.6	25 22.9	-41.3	1.6	27 22.8	-41.3	1.6	29 22.8	-41.3	1.7
89	20 41.6	-41.6	0.8	22 41.6	-41.6	0.8	24 41.6	-41.6	0.8	26 41.5	-41.5	0.8	28 41.5	-41.5	0.8
90	20 00.0	-41.8	0.0	22 00.0	-41.8	0.0	24 00.0	-41.8	0.0	26 00.0	-41.8	0.0	28 00.0	-41.8	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 46°, 314°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
23	13.3	-40.7	137.3	21	44.7	-41.8	137.9	20	15.4	-43.0	138.4	18	45.3	-43.9	138.9	17	14.6	-44.9	139.3	30
22	32.6	-41.0	138.1	21	02.9	-42.1	138.6	19	32.4	-43.1	139.1	18	01.4	-44.1	139.6	16	29.7	-45.0	140.0	31
21	51.6	-41.2	138.9	20	20.8	-42.3	139.4	18	49.3	-43.2	139.9	17	17.3	-44.2	140.3	15	44.7	-45.1	140.7	32
20	10.4	-41.5	139.7	19	38.5	-42.4	140.2	18	06.1	-43.5	140.6	16	33.1	-44.4	141.0	14	59.6	-45.3	141.4	33
19	47.3	-41.9	141.2	18	56.1	-42.7	140.9	17	22.6	-43.5	141.3	15	48.7	-44.5	141.7	14	14.3	-45.4	142.0	34
18	23.4	-42.2	142.7	18	13.4	-42.8	141.7	16	39.1	-43.8	142.0	15	04.2	-44.6	142.4	13	28.9	-45.4	142.7	35
17	41.2	-42.3	143.5	17	30.6	-42.9	142.4	15	55.3	-43.8	142.8	14	19.6	-44.8	143.1	12	43.5	-45.6	143.4	36
16	16.3	-42.6	145.0	16	47.7	-43.2	143.1	15	11.5	-44.1	143.5	13	34.8	-44.8	143.8	11	57.9	-45.7	144.0	37
15	33.7	-42.9	145.7	16	04.5	-43.2	143.8	14	27.4	-44.1	144.2	12	50.0	-45.0	144.5	11	12.2	-45.8	144.7	38
14	50.8	-42.9	146.4	15	21.3	-43.4	144.6	13	43.3	-44.2	144.9	12	05.0	-45.0	145.1	10	26.4	-45.8	145.4	39
13	07.9	-43.1	147.1	14	37.9	-43.6	145.3	12	59.1	-44.4	145.6	11	20.0	-45.2	145.8	9	40.6	-45.9	146.0	40
12	24.8	-43.2	147.9	13	54.3	-43.6	146.0	12	14.7	-44.4	146.3	10	34.8	-45.2	146.5	8	54.7	-46.0	146.7	41
11	41.6	-43.3	148.6	13	10.7	-43.8	146.7	11	30.3	-44.6	146.9	9	49.6	-45.3	147.1	8	08.7	-46.1	147.3	42
10	58.3	-43.5	149.3	12	26.9	-43.9	147.4	10	45.7	-44.6	147.6	9	04.3	-45.4	147.8	7	22.6	-46.1	148.0	43
9	14.8	-43.5	150.0	11	43.0	-43.9	148.1	10	01.1	-44.8	148.3	8	18.9	-45.5	148.5	6	36.5	-46.2	148.6	44
8	31.3	-43.6	150.7	10	59.1	-44.1	148.8	9	16.3	-44.8	149.0	7	33.4	-45.5	149.1	5	50.0	-46.3	149.2	45
7	47.7	-43.7	151.4	10	15.0	-44.2	149.5	8	31.5	-44.8	149.7	6	47.9	-45.6	149.8	5	04.1	-46.2	149.9	46
6	04.0	-43.8	152.1	9	30.8	-44.2	150.2	7	46.7	-45.0	150.3	6	02.3	-45.6	150.4	4	17.9	-46.3	150.5	47
5	20.2	-43.8	152.8	8	46.6	-44.3	150.9	7	01.7	-45.0	151.0	5	16.7	-45.6	151.1	3	31.6	-46.3	151.2	48
4	36.4	-43.9	153.5	8	02.3	-44.4	151.5	6	16.7	-45.0	151.7	4	31.1	-45.7	151.7	2	45.3	-46.3	151.8	49
3	52.5	-44.0	154.1	7	17.9	-44.4	152.2	5	31.7	-45.1	152.3	3	45.4	-45.7	152.4	1	59.0	-46.3	152.4	50
2	08.5	-44.0	154.8	6	33.5	-44.5	152.9	4	46.6	-45.1	153.0	2	59.7	-45.8	153.0	1	12.7	-46.3	153.1	51
1	24.5	-44.1	155.5	5	49.0	-44.6	153.6	4	01.5	-45.2	153.6	2	13.9	-45.7	153.7	0	26.4	-46.4	153.7	52
0	40.4	-44.1	156.2	5	04.4	-44.6	154.2	3	16.3	-45.2	154.3	1	28.2	-45.8	154.3	0	20.0	+46.3	25.7	53
0	56.3	-44.2	156.9	4	19.8	-44.6	154.9	2	31.1	-45.2	155.0	0	42.4	-45.8	155.0	1	06.3	+46.4	25.0	54
0	15.4	-44.3	160.3	3	35.2	-44.6	155.6	1	45.9	-45.2	155.6	0	03.4	+45.7	24.4	1	52.7	+46.3	24.4	55
0	28.9	+44.2	19.1	2	50.6	-44.7	156.3	1	00.7	-45.2	156.3	0	49.1	+45.8	23.7	2	39.0	+46.3	23.7	56
1	13.1	+44.2	18.4	2	05.9	-44.7	156.9	0	15.5	-45.2	156.9	1	34.9	+45.8	23.1	3	25.3	+46.3	23.1	57
1	57.3	+44.2	17.7	1	21.2	-44.7	157.6	0	29.7	+45.2	22.4	2	20.7	+45.7	22.4	4	11.6	+46.2	22.5	58
2	41.5	+44.1	17.0	0	36.5	-44.7	158.3	1	14.9	+45.3	21.8	3	06.4	+45.7	21.8	4	57.8	+46.2	21.8	59
3	25.6	+44.1	16.4	0	08.2	+44.7	21.1	2	00.2	+45.1	21.1	3	52.1	+45.7	21.1	5	44.0	+46.2	21.2	60
4	09.7	+44.1	15.7	0	52.9	+44.7	20.4	2	45.3	+45.2	20.4	4	37.8	+45.6	20.5	6	30.2	+46.1	20.5	61
4	53.8	+44.1	15.0	1	37.6	+44.7	19.7	3	30.5	+45.2	19.8	5	23.4	+45.6	19.8	7	16.3	+46.0	19.9	62
5	37.9	+44.0	14.3	2	22.3	+44.6	19.1	4	15.7	+45.1	19.1	6	09.0	+45.6	19.2	8	02.3	+46.0	19.3	63
6	21.9	+44.0	13.6	3	06.9	+44.7	18.4	5	00.8	+45.1	18.5	6	54.6	+45.5	18.5	8	48.3	+46.0	18.6	64
7	05.9	+43.9	12.9	3	51.6	+44.6	17.7	5	45.9	+45.0	17.8	7	40.1	+45.4	17.9	9	34.3	+45.8	18.0	65
7	49.8	+43.8	12.3	4	36.2	+44.5	17.1	6	30.9	+45.0	17.1	8	25.5	+45.4	17.2	10	20.1	+45.8	17.3	66
8	33.6	+43.8	11.6	5	20.7	+44.6	16.4	7	15.9	+44.9	16.5	9	10.9	+45.3	16.5	11	05.9	+45.7	16.6	67
9	17.4	+43.6	10.9	6	05.3	+44.4	15.7	8	00.8	+44.8	15.8	9	56.2	+45.2	15.9	11	51.6	+45.6	16.0	68
10	01.0	+43.6	10.2	6	49.7	+44.5	15.0	8	45.6	+44.8	15.1	10	41.4	+45.2	15.2	12	37.2	+45.5	15.3	69
10	44.6	+43.5	9.5	7	34.2	+44.3	14.4	9	30.4	+44.7	14.4	11	26.6	+45.0	14.5	13	22.7	+45.4	14.6	70
11	28.1	+43.4	8.8	8	18.5	+44.3	13.7	10	15.1	+44.6	13.8	12	11.6	+45.0	13.9	14	08.1	+45.3	14.0	71
12	11.5	+43.3	8.1	9	02.8	+44.2	13.0	10	59.7	+44.5	13.1	12	56.6	+44.8	13.2	14	53.4	+45.1	13.3	72
12	54.8	+43.2	7.4	9	47.0	+44.1	12.3	11	44.2	+44.5	12.4	13	41.4	+44.7	12.5	15	38.5	+45.1	12.6	73
13	38.0	+43.0	6.6	10	31.1	+44.1	11.6	12	28.7	+44.3	11.7	14	26.1	+44.7	11.8	16	23.6	+44.9	11.9	74
14	21.0	+42.9	5.9	11	15.2	+43.9	10.9	13	13.0	+44.2	11.0	15	10.8	+44.4	11.1	17	08.5	+44.7	11.2	75
15	03.9	+42.8	5.2	11	59.1	+43.9	10.2	13	57.2	+44.1	10.3	15	55.2	+44.4	10.4	17	53.2	+44.6	10.5	76
15	46.7	+42.6	4.5	12	43.0	+43.7	9.5	14	41.3	+44.0	9.6	16	39.6	+44.2	9.7	18	37.8	+44.5	9.8	77
16	29.3	+42.5	3.7	13	26.7	+43.6	8.8	15	25.3	+43.8	8.9	17	23.8	+44.0	9.0	19	22.3	+44.3	9.1	78
17	11.8	+42.3	3.0	14	10.3	+43.5	8.1	16	09.1	+43.7	8.2	18	07.8	+43.9	8.3	20	06.6	+44.1	8.4	79
17	54.1	+42.2	2.3	14	53.8	+43.3	7.4	16	52.8	+43.5	7.5	18	51.7	+43.8	7.6	20	50.7	+43.9	7.7	80
18	36.3	+41.9	1.5	15	37.1	+43.3	6.7	17	36.3	+43.4	6.8	19	35.5	+43.5	6.9	21	34.6	+43.7	7.0	81
19	18.2	+41.8	0.8	16	20.4	+43.0	6.0	18	19.7	+43.2	6.1	20	19.0	+43.4	6.1	22	18.3	+43.5	6.2	82
20	00.0	+41.6	0.0	17	03.4	+42.9	5.3	19	02.9	+43.0	5.3	21	02.4	+43.2	5.4	23	01.8	+43.4	5.5	83
				17	46.3	+42.8	4.5	19	45.9	+42.9	4.6	21	45.6	+42.9	4.6	23	45.2	+43.0	4.7	84
				18	29.1	+42.5	3.8	20	28.8	+42.7	3.8	22	28.5	+42.8	3.9	24	28.2	+42.9	3.9	85
				19	11.6	+42.4	3.0	21	11.5	+42.4	3.1	23	11.3	+42.5	3.1	25	11.1	+42.6	3.2	86
				19	54.0	+42.2	2.3	21	53.9	+42.3	2.3	23	53.8	+42.3	2.4	25	53.7	+42.4	2.4	87
				20	36.2	+42.0	1.5	22	36.2	+42.0	1.6	24	36.1	+42.1	1.6	26	36.1	+42.1	1.6	88
				21	18.2	+41.8	0.8	23	18.2	+41.8	0.8	25	18.2	+41.8	0.8	27	18.2	+41.8	0.8	89
				22	00.0	+41.6	0.0	24	00.0	+41.6	0.0	26	00.0	+41.5	0.0	28	00.0	+41.5	0.0	90
20°			22°			24°			26°			28°								

LATITUDE SAME NAME

L.H.A. 134°, 226°

48°, 312° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	35 24.9	-25.0	52.2	36 37.5	-23.0	53.3	37 48.2	-21.1	54.5	38 56.7	-19.1	55.8	40 02.9	-16.9	57.2
31	34 59.9	-25.5	51.0	36 14.5	-23.8	52.2	37 27.1	-21.8	53.4	38 37.6	-19.8	54.6	39 46.0	-17.8	56.0
32	34 34.4	-26.2	49.9	35 50.7	-24.3	51.0	37 05.3	-22.5	52.2	38 17.8	-20.5	53.4	39 28.2	-18.5	54.7
33	34 08.2	-26.7	48.9	35 26.4	-25.0	49.9	36 42.8	-23.2	51.0	37 57.3	-21.3	52.2	39 09.7	-19.2	53.5
34	33 41.5	-27.2	47.8	35 01.4	-25.6	48.8	36 19.6	-23.8	49.9	37 36.0	-22.0	51.0	38 50.5	-20.1	52.3
35	33 14.3	-27.8	46.7	34 35.8	-26.1	47.7	35 55.8	-24.5	48.7	37 14.0	-22.6	49.9	38 30.4	-20.7	51.1
36	32 46.5	-28.3	45.6	34 09.7	-26.8	46.6	35 31.3	-25.0	47.6	36 51.4	-23.3	48.7	38 09.7	-21.5	49.9
37	32 18.2	-28.9	44.6	33 42.9	-27.3	45.5	35 06.3	-25.7	46.5	36 28.1	-24.0	47.6	37 48.2	-22.2	48.7
38	31 49.3	-29.3	43.6	33 15.6	-27.8	44.5	34 40.6	-26.3	45.4	36 04.1	-24.6	46.4	37 26.0	-22.9	47.5
39	31 20.0	-29.8	42.5	32 47.8	-28.4	43.4	34 14.3	-26.8	44.3	35 39.5	-25.3	45.3	37 03.1	-23.5	46.4
40	30 50.2	-30.3	41.5	32 19.4	-28.8	42.4	33 47.5	-27.4	43.2	35 14.2	-25.8	44.2	36 39.6	-24.3	45.2
41	30 19.9	-30.8	40.5	31 50.6	-29.4	41.3	33 20.1	-27.9	42.2	34 48.4	-26.4	43.1	36 15.3	-24.8	44.1
42	29 49.1	-31.1	39.5	31 21.2	-29.9	40.3	32 52.2	-28.5	41.1	34 22.0	-27.0	42.0	35 50.5	-25.5	42.9
43	29 18.0	-31.7	38.6	30 51.3	-30.3	39.3	32 23.7	-29.0	40.1	33 55.0	-27.6	40.9	35 25.0	-26.1	41.8
44	28 46.3	-32.0	37.6	30 21.0	-30.8	38.3	31 54.7	-29.5	39.0	33 27.4	-28.1	39.8	34 58.9	-26.6	40.7
45	28 14.3	-32.4	36.6	29 50.2	-31.2	37.3	31 25.2	-29.9	38.0	32 59.3	-28.6	38.8	34 32.3	-27.3	39.6
46	27 41.9	-32.8	35.7	29 19.0	-31.6	36.3	30 55.3	-30.4	37.0	32 30.7	-29.2	37.7	34 05.0	-27.8	38.6
47	27 09.1	-33.2	34.7	28 47.4	-32.1	35.3	30 24.9	-30.9	36.0	32 01.5	-29.6	36.7	33 37.2	-28.3	37.5
48	26 35.9	-33.5	33.8	28 15.3	-32.5	34.4	29 54.0	-31.3	35.0	31 31.9	-30.2	35.7	33 08.9	-28.9	36.4
49	26 02.4	-33.9	32.9	27 42.8	-32.8	33.4	29 22.7	-31.8	34.0	31 01.7	-30.6	34.7	32 40.0	-29.4	35.4
50	25 28.5	-34.3	31.9	27 10.0	-33.2	32.5	28 50.9	-32.1	33.0	30 31.1	-31.0	33.7	32 10.6	-29.9	34.4
51	24 54.2	-34.5	31.0	26 36.8	-33.6	31.5	28 18.8	-32.6	32.1	30 00.1	-31.5	32.7	31 40.7	-30.3	33.3
52	24 19.7	-34.9	30.1	26 03.2	-33.9	30.6	27 46.2	-32.9	31.1	29 28.6	-31.9	31.7	31 10.4	-30.9	32.3
53	23 44.8	-35.2	29.2	25 29.3	-34.3	29.7	27 13.3	-33.4	30.2	28 56.7	-32.3	30.7	30 39.5	-31.3	31.3
54	23 09.6	-35.5	28.4	24 55.0	-34.6	28.8	26 39.9	-33.7	29.3	28 24.4	-32.8	29.8	30 08.2	-31.7	30.3
55	22 34.1	-35.7	27.5	24 20.4	-34.9	27.9	26 06.2	-34.0	28.3	27 51.6	-33.1	28.8	29 36.5	-32.2	29.4
56	21 58.4	-36.0	26.6	23 45.5	-35.2	27.0	25 32.2	-34.4	27.4	27 18.5	-33.5	27.9	29 04.3	-32.5	28.4
57	21 22.4	-36.3	25.8	23 10.3	-35.5	26.1	24 57.8	-34.7	26.5	26 45.0	-33.8	27.0	28 31.8	-33.0	27.4
58	20 46.1	-36.6	24.9	22 34.8	-35.8	25.2	24 23.1	-35.0	25.6	26 11.2	-34.2	26.0	27 58.8	-33.4	26.5
59	20 09.5	-36.7	24.1	21 59.0	-36.1	24.4	23 48.1	-35.3	24.7	25 37.0	-34.6	25.1	27 25.4	-33.7	25.5
60	19 32.8	-37.0	23.2	21 22.9	-36.3	23.5	23 12.8	-35.6	23.8	25 02.4	-34.8	24.2	26 51.7	-34.1	24.6
61	18 55.8	-37.3	22.4	20 46.6	-36.6	22.7	22 37.2	-35.9	23.0	24 27.6	-35.2	23.3	26 17.6	-34.4	23.7
62	18 18.5	-37.4	21.6	20 10.0	-36.8	21.8	22 01.3	-36.1	22.1	23 52.4	-35.5	22.4	25 43.2	-34.8	22.8
63	17 41.1	-37.7	20.7	19 33.2	-37.0	21.0	21 25.2	-36.5	21.2	23 16.9	-35.8	21.5	25 08.4	-35.1	21.9
64	17 03.4	-37.8	19.9	18 56.2	-37.3	20.1	20 48.7	-36.6	20.4	22 41.1	-36.0	20.7	24 33.3	-35.4	21.0
65	16 25.6	-38.0	19.1	18 18.9	-37.5	19.3	20 12.1	-36.9	19.6	22 05.1	-36.4	19.8	23 57.9	-35.8	20.1
66	15 47.6	-38.2	18.3	17 41.4	-37.6	18.5	19 35.2	-37.2	18.7	21 28.7	-36.5	19.0	23 22.1	-36.0	19.2
67	15 09.4	-38.4	17.5	17 03.8	-37.9	17.7	18 58.0	-37.3	17.9	20 52.2	-36.9	18.1	22 46.1	-36.3	18.4
68	14 31.0	-38.5	16.7	16 25.9	-38.1	16.9	18 20.7	-37.6	17.1	20 15.3	-37.1	17.3	22 09.8	-36.5	17.5
69	13 52.5	-38.7	15.9	15 47.8	-38.2	16.1	17 43.1	-37.8	16.2	19 38.2	-37.3	16.4	21 33.3	-36.8	16.6
70	13 13.8	-38.8	15.1	15 09.6	-38.4	15.3	17 05.3	-38.0	15.4	19 00.9	-37.5	15.6	20 56.5	-37.1	15.8
71	12 35.0	-39.0	14.4	14 31.2	-38.6	14.5	16 27.3	-38.1	14.6	18 23.4	-37.7	14.8	20 19.4	-37.3	15.0
72	11 56.0	-39.1	13.6	13 52.6	-38.7	13.7	15 49.2	-38.3	13.8	17 45.7	-38.0	14.0	19 42.1	-37.5	14.1
73	11 16.9	-39.2	12.8	13 13.9	-38.9	12.9	15 10.9	-38.5	13.0	17 07.7	-38.1	13.1	19 04.6	-37.8	13.3
74	10 37.7	-39.3	12.0	12 35.0	-38.9	12.1	14 32.4	-38.7	12.2	16 29.6	-38.3	12.3	18 26.8	-38.0	12.5
75	9 58.4	-39.4	11.3	11 56.1	-39.2	11.3	13 53.7	-38.8	11.4	15 51.3	-38.5	11.5	17 48.8	-38.1	11.7
76	9 19.0	-39.6	10.5	11 16.9	-39.2	10.6	13 14.9	-39.0	10.6	15 12.8	-38.7	10.7	17 10.7	-38.4	10.8
77	8 39.4	-39.6	9.7	10 37.7	-39.4	9.8	12 35.9	-39.1	9.9	14 34.1	-38.8	9.9	16 32.3	-38.5	10.0
78	7 59.8	-39.7	9.0	9 58.3	-39.4	9.0	11 56.8	-39.2	9.1	13 55.3	-38.9	9.2	15 53.8	-38.7	9.2
79	7 20.1	-39.8	8.2	9 18.9	-39.6	8.3	11 17.6	-39.3	8.3	13 16.4	-39.2	8.4	15 15.1	-38.9	8.5
80	6 40.3	-39.8	7.5	8 39.3	-39.6	7.5	10 38.3	-39.5	7.5	12 37.2	-39.2	7.6	14 36.2	-39.1	7.7
81	6 00.5	-39.9	6.7	7 59.7	-39.7	6.7	9 58.8	-39.5	6.8	11 58.0	-39.4	6.8	13 57.1	-39.1	6.9
82	5 20.6	-40.0	6.0	7 20.0	-39.9	6.0	9 19.3	-39.7	6.0	11 18.6	-39.5	6.1	13 18.0	-39.4	6.1
83	4 40.6	-40.0	5.2	6 40.1	-39.8	5.2	8 39.6	-39.7	5.3	10 39.1	-39.6	5.3	12 38.6	-39.4	5.3
84	4 00.6	-40.0	4.5	6 00.3	-40.0	4.5	7 59.9	-39.8	4.5	9 59.5	-39.7	4.5	11 59.2	-39.6	4.6
85	3 20.6	-40.1	3.7	5 20.3	-39.9	3.7	7 20.1	-39.9	3.7	9 19.8	-39.8	3.8	11 19.6	-39.7	3.8
86	2 40.5	-40.1	3.0	4 40.4	-40.1	3.0	6 40.2	-40.0	3.0	8 40.0	-39.9	3.0	10 39.9	-39.9	3.0
87	2 00.4	-40.1	2.2	4 00.3	-40.1	2.2	6 00.2	-40.0	2.2	8 00.1	-39.9	2.3	10 00.0	-39.9	2.3
88	1 20.3	-40.2	1.5	3 20.2	-40.1	1.5	5 20.2	-40.1	1.5	7 20.2	-40.1	1.5	9 20.1	-40.0	1.5
89	0 40.1	-40.1	0.7	2 40.1	-40.1	0.7	4 40.1	-40.1	0.7	6 40.1	-40.1	0.7	8 40.1	-40.1	0.8
90	0 00.0	-40.1	0.0	2 00.0	-40.2	0.0	4 00.0	-40.2	0.0	6 00.0	-40.2	0.0	8 00.0	-40.2	0.0

LATITUDE CONTRARY NAME

L.H.A. 48°, 312°

0°			2°			4°			6°			8°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
35	24.9	-25.0	127.8	34	10.3	-26.7	128.9	32	54.1	-28.4	130.0	31	36.2	-30.0	130.9	30	16.9	-31.6	131.8	30
34	59.9	-25.5	129.0	33	43.6	-27.3	130.0	32	25.7	-29.0	131.0	31	06.2	-30.5	131.9	29	45.3	-32.0	132.8	31
34	34.4	-26.2	130.1	33	16.3	-27.8	131.1	31	56.7	-29.4	132.0	30	35.7	-31.0	132.9	29	13.3	-32.5	133.8	32
34	08.2	-26.7	131.1	32	48.5	-28.3	132.1	31	27.3	-30.0	133.1	30	04.7	-31.5	133.9	28	40.8	-32.9	134.7	33
33	41.5	-27.2	132.2	32	20.2	-28.9	133.2	30	57.3	-30.3	134.1	29	33.2	-31.8	134.9	28	07.9	-33.2	135.7	34
33	14.3	-27.8	133.3	31	51.3	-29.4	134.2	30	27.0	-30.9	135.1	29	01.4	-32.3	135.9	27	34.7	-33.6	136.6	35
32	46.5	-28.3	134.4	31	21.9	-29.8	135.2	29	56.1	-31.3	136.1	28	29.1	-32.7	136.8	27	01.1	-34.0	137.6	36
32	18.2	-28.9	135.4	30	52.1	-30.3	136.3	29	24.8	-31.7	137.1	27	56.4	-33.0	137.8	26	27.1	-34.4	138.5	37
31	49.3	-29.3	136.4	30	21.8	-30.8	137.3	28	53.1	-32.1	138.0	27	23.4	-33.5	138.7	25	52.7	-34.7	139.4	38
31	20.0	-29.8	137.5	29	51.0	-31.2	138.3	28	21.0	-32.6	139.0	26	49.9	-33.8	139.7	25	18.0	-35.0	140.3	39
30	50.2	-30.3	138.5	29	19.8	-31.6	139.2	27	48.4	-32.9	139.9	26	16.1	-34.1	140.6	24	43.0	-35.3	141.2	40
30	19.9	-30.8	139.5	28	48.2	-32.1	140.2	27	15.5	-33.3	140.9	25	42.0	-34.5	141.5	24	07.7	-35.6	142.1	41
29	49.1	-31.1	140.5	28	16.1	-32.4	141.2	26	42.2	-33.6	141.8	25	07.5	-34.8	142.4	23	32.1	-36.0	143.0	42
29	18.0	-31.7	141.4	27	43.7	-32.9	142.1	26	08.6	-34.1	142.7	24	32.7	-35.2	143.3	22	56.1	-36.2	143.8	43
28	46.3	-32.0	142.4	27	10.8	-33.2	143.1	25	34.5	-34.3	143.7	23	57.5	-35.4	144.2	22	19.9	-36.5	144.7	44
28	14.3	-32.4	143.4	26	37.6	-33.6	144.0	25	00.2	-34.7	144.6	24	22.1	-35.7	145.1	21	43.4	-36.7	145.6	45
27	41.9	-32.8	144.3	26	04.0	-33.9	144.9	24	25.5	-35.0	145.5	22	46.4	-36.0	146.0	21	06.7	-37.0	146.4	46
27	09.1	-33.2	145.3	25	30.1	-34.2	145.8	23	50.5	-35.3	146.4	22	10.4	-36.3	146.8	20	29.7	-37.3	147.2	47
26	35.9	-33.5	146.2	24	55.9	-34.6	146.7	23	15.2	-35.6	147.2	21	34.1	-36.6	147.7	19	52.4	-37.4	148.1	48
26	02.4	-33.9	147.1	24	21.3	-34.9	147.6	22	39.6	-35.8	148.1	20	57.5	-36.8	148.5	19	15.0	-37.7	148.9	49
25	28.5	-34.3	148.1	23	46.4	-35.2	148.5	22	03.8	-36.2	149.0	20	20.7	-37.0	149.4	18	37.3	-37.9	149.7	50
24	54.2	-34.5	149.0	23	11.2	-35.5	149.4	21	27.6	-36.4	149.8	19	43.7	-37.3	150.2	17	59.4	-38.1	150.5	51
24	19.7	-34.9	149.9	22	35.7	-35.8	150.3	20	51.2	-36.6	150.7	19	06.4	-37.5	151.0	17	21.3	-38.3	151.4	52
23	44.8	-35.2	150.8	21	59.9	-36.1	151.2	20	14.6	-36.9	151.5	18	28.9	-37.7	151.9	16	43.0	-38.5	152.2	53
23	09.6	-35.5	151.6	21	23.8	-36.3	152.0	19	37.7	-37.1	152.4	17	51.2	-37.9	152.7	16	04.5	-38.7	153.0	54
22	34.1	-35.7	152.5	20	47.5	-36.5	152.9	19	00.6	-37.4	153.2	17	13.3	-38.1	153.5	15	25.8	-38.8	153.8	55
21	58.4	-36.0	153.4	20	11.0	-36.9	153.7	18	23.2	-37.6	154.0	16	35.2	-38.3	154.3	14	47.0	-39.0	154.5	56
21	22.4	-36.3	154.2	19	34.1	-37.0	154.6	17	45.6	-37.7	154.8	15	56.9	-38.5	155.1	14	08.0	-39.2	155.3	57
20	46.1	-36.6	155.1	18	57.1	-37.3	155.4	17	07.9	-38.0	155.7	15	18.4	-38.6	155.9	13	28.8	-39.3	156.1	58
20	09.5	-36.7	155.9	18	19.8	-37.4	156.2	16	29.9	-38.1	156.5	14	39.8	-38.8	156.7	12	49.5	-39.4	156.9	59
19	32.8	-37.0	156.8	17	42.4	-37.7	157.0	15	51.8	-38.3	157.3	14	01.0	-38.9	157.5	12	10.1	-39.6	157.7	60
18	55.8	-37.3	157.6	17	04.7	-37.9	157.9	15	13.5	-38.5	158.1	13	22.1	-39.1	158.3	11	30.5	-39.6	158.4	61
18	18.5	-37.4	158.4	16	26.8	-38.0	158.7	14	35.0	-38.7	158.9	12	43.0	-39.2	159.0	10	50.9	-39.8	159.2	62
17	41.1	-37.7	159.3	15	48.8	-38.3	159.5	13	56.3	-38.8	159.7	12	03.8	-39.4	159.8	10	11.1	-39.9	160.0	63
17	03.4	-37.8	160.1	15	10.5	-38.4	160.3	13	17.5	-38.9	160.4	11	24.4	-39.5	160.6	9	31.2	-40.0	160.7	64
16	25.6	-38.0	160.9	14	32.1	-38.5	161.1	12	38.6	-39.1	161.2	10	44.9	-39.6	161.4	8	51.2	-40.1	161.5	65
15	47.6	-38.2	161.7	13	53.6	-38.7	161.9	11	59.5	-39.2	162.0	10	05.3	-39.7	162.1	8	11.1	-40.2	162.2	66
15	09.4	-38.4	162.5	13	14.9	-38.9	162.6	11	20.3	-39.3	162.8	9	25.6	-39.7	162.9	7	30.9	-40.2	163.0	67
14	31.0	-38.5	163.3	12	36.0	-39.0	163.4	10	41.0	-39.5	163.5	8	45.9	-39.9	163.6	6	50.7	-40.3	163.7	68
13	52.5	-38.7	164.1	11	57.0	-39.1	164.2	10	01.5	-39.5	164.3	8	06.0	-40.0	164.4	6	10.4	-40.4	164.5	69
13	13.8	-38.8	164.9	11	17.9	-39.2	165.0	9	22.0	-39.7	165.1	7	26.0	-40.0	165.1	5	30.0	-40.4	165.2	70
12	35.0	-39.0	165.6	10	38.7	-39.4	165.7	8	42.3	-39.7	165.8	6	46.0	-40.1	165.9	4	49.6	-40.5	165.9	71
11	56.0	-39.1	166.4	9	59.3	-39.4	166.5	8	02.6	-39.8	166.6	6	05.9	-40.2	166.6	4	09.1	-40.5	166.7	72
11	16.9	-39.2	167.2	9	19.9	-39.6	167.3	7	22.8	-39.9	167.3	5	25.7	-40.2	167.4	3	28.6	-40.6	167.4	73
10	37.7	-39.3	168.0	8	40.3	-39.6	168.0	6	42.9	-39.9	168.1	4	45.5	-40.3	168.1	2	48.0	-40.5	168.2	74
9	58.4	-39.4	168.7	8	00.7	-39.7	168.8	6	03.0	-40.1	168.8	4	05.2	-40.3	168.9	2	07.5	-40.6	168.9	75
9	19.0	-39.6	169.5	7	21.0	-39.9	169.6	5	22.9	-40.0	169.6	3	24.9	-40.3	169.6	1	26.9	-40.7	169.6	76
8	39.4	-39.6	170.3	6	41.1	-39.8	170.3	4	42.9	-40.2	170.3	2	44.6	-40.4	170.4	0	46.2	-40.6	170.4	77
7	59.8	-39.7	171.0	6	01.3	-40.0	171.1	4	02.7	-40.1	171.1	2	04.2	-40.4	171.1	0	05.6	-40.6	171.1	78
7	20.1	-39.8	171.8	5	21.3	-39.9	171.8	3	22.6	-40.2	171.8	1	23.8	-40.4	171.8	0	35.0	+40.6	8.2	79
6	40.3	-39.8	172.5	4	41.4	-40.1	172.6	2	42.4	-40.3	172.6	0	43.4	-40.4	172.6	1	15.6	+40.6	7.4	80
6	00.5	-39.9	173.3	4	01.3	-40.0	173.3	2	02.1	-40.2	173.3	0	03.0	-40.5	173.3	1	56.2	+40.6	6.7	81
5	20.6	-40.0	174.0	3	21.3	-40.2	174.1	1	21.9	-40.3	174.1	0	37.5	+40.4	5.9	2	36.8	+40.6	5.9	82
4	40.6	-40.0	174.8	2	41.1	-40.1	174.8	0	41.6	-40.2	174.8	1	17.9	+40.4	5.2	3	17.4	+40.5	5.2	83
4	00.6	-40.0	175.5	2	01.0	-40.1	175.5	0	01.4	-40.3	175.5	1	58.3	+40.3	4.5	3	57.9	+40.5	4.5	84
3	20.6	-40.1	176.3	1	20.9	-40.2	176.3	0	38.9	+40.3	3.7	2	38.6	+40.4	3.7	4	38.4	+40.4	3.7	85
2	40.5	-40.1	177.0	0	40.7	-40.2	177.0	1	19.2	+40.2	3.0	3	19.0	+40.3	3.0	5	18.8	+40.4	3.0	86
2	00.4	-40.1	177.8	0	00.5	-40.2	177.8	1	59.4	+40.2	2.2	3	59.3	+40.3	2.2	5	59.2	+40.4	2.2	87
1	20.3	-40.2	178.5	0	39.7	+40.1	1.5	2	39.6	+40.2	1.5	4	39.6	+40.2	1.5	6	39.6	+40.2	1.5	88
0	40.1	-40.1	179.3	1	19.8	+40.2	0.7	3	19.8	+40.2	0.7	5	19.8	+40.2	0.7	7	19.8	+40.2	0.7	89
0	00.0	+40.1	0.0	2	00.0	+40.1	0.0	4	00.0	+40.1	0.0	6	00.0	+40.1	0.0	8	00.0	+40.1	0.0	90
0°			2°			4°			6°			8°								

LATITUDE SAME NAME

L.H.A. 132°, 228°

48°, 312° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	41 06.6	-14.7	58.7	42 07.6	-12.3	60.2	43 05.8	-9.9	61.8	44 00.9	-7.4	63.5	44 52.8	-4.8	65.3
31	40 51.9	-15.5	57.4	41 55.3	-13.3	58.9	42 55.9	-10.9	60.5	43 53.5	-8.4	62.1	44 48.0	-5.8	63.9
32	40 36.4	-16.4	56.1	41 42.0	-14.1	57.6	42 45.0	-11.8	59.1	43 45.1	-9.4	60.7	44 42.2	-6.9	62.5
33	40 20.0	-17.2	54.8	41 27.9	-15.1	56.3	42 33.2	-12.8	57.8	43 35.7	-10.3	59.4	44 35.3	-7.8	61.1
34	40 02.8	-18.0	53.6	41 12.8	-15.8	55.0	42 20.4	-13.6	56.5	43 25.4	-11.3	58.0	44 27.5	-8.9	59.7
35	39 44.8	-18.8	52.3	40 57.0	-16.7	53.7	42 06.8	-14.5	55.1	43 14.1	-12.3	56.7	44 18.6	-9.9	58.3
36	39 26.0	-19.6	51.1	40 40.3	-17.6	52.4	41 52.3	-15.5	53.8	43 01.8	-13.2	55.3	44 08.7	-10.9	56.9
37	39 06.4	-20.3	49.9	40 22.7	-18.3	51.2	41 36.8	-16.2	52.5	42 48.6	-14.1	54.0	43 57.8	-11.8	55.5
38	38 46.1	-21.0	48.7	40 04.4	-19.2	49.9	41 20.6	-17.2	51.3	42 34.5	-15.0	52.7	43 46.0	-12.8	54.2
39	38 25.1	-21.8	47.5	39 45.2	-19.9	48.7	41 03.4	-17.9	50.0	42 19.5	-15.9	51.4	43 33.2	-13.7	52.8
40	38 03.3	-22.5	46.3	39 25.3	-20.7	47.5	40 45.5	-18.8	48.7	42 03.6	-16.8	50.1	43 19.5	-14.7	51.5
41	37 40.8	-23.2	45.1	39 04.6	-21.4	46.3	40 26.7	-19.6	47.5	41 46.8	-17.6	48.8	43 04.8	-15.6	50.2
42	37 17.6	-23.8	44.0	38 43.2	-22.2	45.1	40 07.1	-20.4	46.2	41 29.2	-18.5	47.5	42 49.2	-16.5	48.8
43	36 53.8	-24.6	42.8	38 21.0	-22.8	43.9	39 46.7	-21.1	45.0	41 10.7	-19.3	46.2	42 32.7	-17.4	47.5
44	36 29.2	-25.1	41.7	37 58.2	-23.6	42.7	39 25.6	-21.9	43.8	40 51.4	-20.2	45.0	42 15.3	-18.2	46.2
45	36 04.1	-25.8	40.5	37 34.6	-24.2	41.5	39 03.7	-22.6	42.6	40 31.2	-20.9	43.7	41 57.1	-19.1	45.0
46	35 38.3	-26.4	39.4	37 10.4	-24.9	40.4	38 41.1	-23.4	41.4	40 10.3	-21.6	42.5	41 38.0	-20.0	43.7
47	35 11.9	-27.0	38.3	36 45.5	-25.6	39.2	38 17.7	-24.0	40.2	39 48.7	-22.5	41.3	41 18.0	-20.7	42.4
48	34 44.9	-27.5	37.2	36 19.9	-26.2	38.1	37 53.7	-24.7	39.1	39 26.2	-23.2	40.1	40 57.3	-21.5	41.2
49	34 17.4	-28.2	36.2	35 53.7	-26.8	37.0	37 29.0	-25.4	37.9	39 03.0	-23.8	38.9	40 35.8	-22.4	39.9
50	33 49.2	-28.6	35.1	35 26.9	-27.3	35.9	37 03.6	-26.0	36.8	38 39.2	-24.6	37.7	40 13.4	-23.0	38.7
51	33 20.6	-29.2	34.0	34 59.6	-28.0	34.8	36 37.6	-26.7	35.6	38 14.6	-25.3	36.5	39 50.4	-23.8	37.5
52	32 51.4	-29.7	33.0	34 31.6	-28.5	33.7	36 10.9	-27.2	34.5	37 49.3	-25.9	35.4	39 26.6	-24.6	36.3
53	32 21.7	-30.2	32.0	34 03.1	-29.1	32.7	35 43.7	-27.9	33.4	37 23.4	-26.6	34.3	39 02.0	-25.2	35.2
54	31 51.5	-30.7	30.9	33 51.0	-29.6	31.6	35 15.8	-28.4	32.3	36 56.8	-27.2	33.1	38 36.8	-26.0	34.0
55	31 20.8	-31.2	29.9	33 04.4	-30.1	30.6	34 47.4	-29.0	31.3	36 29.6	-27.9	32.0	38 10.8	-26.5	32.8
56	30 49.6	-31.6	28.9	32 34.3	-30.6	29.5	34 18.4	-29.5	30.2	36 01.7	-28.4	30.9	37 44.3	-27.3	31.7
57	30 18.0	-32.0	28.0	32 03.7	-31.0	28.5	33 48.9	-30.1	29.2	35 33.3	-29.0	29.8	37 17.0	-27.8	30.6
58	29 46.0	-32.5	27.0	31 32.7	-31.6	27.5	33 18.8	-30.6	28.1	35 04.3	-29.5	28.8	36 49.2	-28.5	29.5
59	29 13.5	-32.9	26.0	31 01.1	-32.0	26.5	32 48.2	-31.1	27.1	34 34.8	-30.2	27.7	36 20.7	-29.1	28.4
60	28 40.6	-33.3	25.1	30 29.1	-32.5	25.5	32 17.1	-31.5	26.1	34 04.6	-30.6	26.7	35 51.6	-29.6	27.3
61	28 07.3	-33.7	24.1	29 56.6	-32.8	24.6	31 45.6	-32.1	25.1	33 34.0	-31.1	25.6	35 22.0	-30.3	26.2
62	27 33.6	-34.0	23.2	29 23.8	-33.3	23.6	31 13.5	-32.4	24.1	33 02.9	-31.7	24.6	34 51.7	-30.7	25.2
63	26 59.6	-34.4	22.2	28 50.5	-33.7	22.7	30 41.1	-32.9	23.1	32 31.2	-32.1	23.6	34 21.0	-31.3	24.1
64	26 25.2	-34.8	21.3	28 16.8	-34.0	21.7	30 08.2	-33.4	22.1	31 59.1	-32.5	22.6	33 49.7	-31.7	23.1
65	25 50.4	-35.1	20.4	27 42.8	-34.5	20.8	29 34.8	-33.7	21.2	31 26.6	-33.1	21.6	33 18.0	-32.3	22.1
66	25 15.3	-35.4	19.5	27 08.3	-34.8	19.9	29 01.1	-34.2	20.2	30 53.5	-33.4	20.6	32 45.7	-32.8	21.1
67	24 39.9	-35.7	18.6	26 33.5	-35.1	18.9	28 26.9	-34.5	19.3	30 20.1	-33.9	19.7	32 12.9	-33.2	20.1
68	24 04.2	-36.0	17.8	25 58.4	-35.5	18.0	27 52.4	-34.9	18.4	29 46.2	-34.3	18.7	31 39.7	-33.6	19.1
69	23 28.2	-36.3	16.9	25 22.9	-35.7	17.1	27 17.5	-35.2	17.4	29 11.9	-34.7	17.8	31 06.1	-34.1	18.1
70	22 51.9	-36.6	16.0	24 47.2	-36.1	16.3	26 42.3	-35.6	16.5	28 37.2	-35.0	16.8	30 32.0	-34.5	17.2
71	22 15.3	-36.9	15.2	24 11.1	-36.4	15.4	26 06.7	-35.9	15.6	28 02.2	-35.5	15.9	29 57.5	-34.9	16.2
72	21 38.4	-37.1	14.3	23 34.7	-36.7	14.5	25 30.8	-36.3	14.7	27 26.7	-35.7	15.0	29 22.6	-35.3	15.3
73	21 01.3	-37.4	13.5	22 58.0	-37.0	13.6	24 54.5	-36.5	13.9	26 51.0	-36.1	14.1	28 47.3	-35.7	14.4
74	20 23.9	-37.6	12.6	22 21.0	-37.2	12.8	24 18.0	-36.9	13.0	26 14.9	-36.5	13.2	28 11.6	-36.0	13.4
75	19 46.3	-37.8	11.8	21 43.8	-37.5	11.9	23 41.1	-37.1	12.1	25 38.4	-36.7	12.3	27 35.6	-36.4	12.5
76	19 08.5	-38.0	11.0	21 06.3	-37.7	11.1	23 04.0	-37.4	11.3	25 01.7	-37.1	11.4	26 59.2	-36.7	11.6
77	18 30.5	-38.3	10.2	20 28.6	-38.0	10.3	22 26.6	-37.7	10.4	24 24.6	-37.4	10.6	26 22.5	-37.0	10.8
78	17 52.2	-38.5	9.3	19 50.6	-38.2	9.5	21 48.9	-37.9	9.6	23 47.2	-37.6	9.7	25 45.5	-37.3	9.9
79	17 13.7	-38.6	8.5	19 12.4	-38.4	8.6	21 11.0	-38.1	8.7	23 09.6	-37.9	8.9	25 08.2	-37.7	9.0
80	16 35.1	-38.8	7.7	18 34.0	-38.6	7.8	20 32.9	-38.4	7.9	22 31.7	-38.2	8.0	24 30.5	-37.9	8.2
81	15 56.3	-39.0	6.9	17 55.4	-38.8	7.0	19 54.5	-38.6	7.1	21 53.5	-38.4	7.2	23 52.6	-38.2	7.3
82	15 17.3	-39.2	6.2	17 16.6	-39.0	6.2	19 15.9	-38.9	6.3	21 15.1	-38.6	6.4	23 14.4	-38.5	6.5
83	14 38.1	-39.3	5.4	16 37.6	-39.2	5.4	18 37.0	-39.0	5.5	20 36.5	-38.9	5.6	22 35.9	-38.7	5.6
84	13 58.8	-39.5	4.6	15 58.4	-39.4	4.6	17 58.0	-39.2	4.7	19 57.6	-39.1	4.7	21 57.2	-39.0	4.8
85	13 19.3	-39.6	3.8	15 19.0	-39.5	3.9	17 18.8	-39.4	3.9	19 18.5	-39.3	3.9	21 18.2	-39.2	4.0
86	12 39.7	-39.7	3.0	14 39.5	-39.6	3.1	16 39.4	-39.6	3.1	18 39.2	-39.5	3.1	20 39.0	-39.4	3.2
87	12 00.0	-39.9	2.3	13 59.9	-39.9	2.3	15 59.8	-39.8	2.3	17 59.7	-39.7	2.3	19 59.6	-39.7	2.4
88	11 20.1	-40.0	1.5	13 20.0	-39.9	1.5	15 20.0	-39.9	1.5	17 20.0	-39.9	1.6	19 19.9	-39.8	1.6
89	10 40.1	-40.1	0.8	12 40.1	-40.1	0.8	14 40.1	-40.1	0.8	16 40.1	-40.1	0.8	18 40.1	-40.1	0.8
90	10 00.0	-40.2	0.0	12 00.0	-40.2	0.0	14 00.0	-40.2	0.0	16 00.0	-40.2	0.0	18 00.0	-40.2	0.0

LATITUDE CONTRARY NAME

L.H.A. 48°, 312°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
28 56.3	-33.1	132.7	27 34.3	-34.5	133.4	26 11.2	-35.8	134.2	24 47.1	-37.2	134.9	23 22.0	-38.4	135.5	30
28 23.2	-33.5	133.6	26 59.8	-34.9	134.4	25 35.4	-36.2	135.1	24 09.9	-37.4	135.7	22 43.6	-38.7	136.3	31
27 49.7	-33.9	134.6	26 24.9	-35.2	135.3	24 59.2	-36.5	135.9	23 32.5	-37.8	136.6	22 04.9	-38.9	137.1	32
27 15.8	-34.2	135.5	25 49.7	-35.5	136.2	24 22.7	-36.8	136.8	22 54.7	-38.0	137.4	21 26.0	-39.2	138.0	33
26 41.6	-34.6	136.4	25 14.2	-35.9	137.1	23 45.9	-37.1	137.7	22 16.7	-38.2	138.3	20 46.8	-39.4	138.8	34
26 07.0	-35.0	137.3	24 38.3	-36.2	138.0	23 08.8	-37.4	138.5	21 38.5	-38.6	139.1	20 07.4	-39.6	139.6	35
25 32.0	-35.2	138.2	24 02.1	-36.4	138.8	22 31.4	-37.6	139.4	20 59.9	-38.7	139.9	19 27.8	-39.8	140.4	36
24 56.8	-35.6	139.1	23 25.7	-36.8	139.7	21 53.8	-37.9	140.2	20 21.2	-39.0	140.7	18 48.0	-40.0	141.2	37
24 21.2	-35.9	140.0	22 48.9	-37.0	140.6	21 15.9	-38.1	141.1	19 42.2	-39.2	141.5	18 08.0	-40.2	142.0	38
23 45.3	-36.2	140.9	22 11.9	-37.3	141.4	20 37.8	-38.4	141.9	19 03.0	-39.4	142.3	17 27.8	-40.4	142.7	39
23 09.1	-36.4	141.7	21 34.6	-37.6	142.3	19 59.4	-38.6	142.7	18 23.6	-39.5	143.1	16 47.4	-40.6	143.5	40
22 32.7	-36.8	142.6	20 57.0	-37.8	143.1	19 20.8	-38.8	143.5	17 44.1	-39.8	143.9	16 06.8	-40.7	144.3	41
21 55.9	-36.9	143.5	20 19.2	-38.0	143.9	18 42.0	-39.0	144.3	17 04.3	-40.0	144.7	15 26.1	-40.9	145.0	42
21 19.0	-37.3	144.3	19 41.2	-38.2	144.7	18 03.0	-39.2	145.1	16 24.3	-40.1	145.5	14 45.2	-41.0	145.8	43
20 41.7	-37.5	145.1	19 03.0	-38.5	145.6	17 23.8	-39.4	145.9	15 44.2	-40.3	146.3	14 04.2	-41.1	146.6	44
20 04.2	-37.7	146.0	18 24.5	-38.6	146.4	16 44.4	-39.6	146.7	15 03.9	-40.5	147.0	13 23.1	-41.3	147.3	45
19 26.5	-38.0	146.8	17 45.9	-38.9	147.2	16 04.8	-39.7	147.5	14 23.4	-40.5	147.8	12 41.8	-41.5	148.1	46
18 48.5	-38.1	147.6	17 07.0	-39.1	148.0	15 25.1	-39.9	148.3	13 42.9	-40.8	148.6	12 00.3	-41.8	148.8	47
18 10.4	-38.4	148.4	16 27.9	-39.2	148.8	14 45.2	-40.1	149.1	13 02.1	-40.8	149.3	11 18.8	-41.6	149.5	48
17 32.0	-38.5	149.2	15 48.7	-39.4	149.6	14 05.1	-40.2	149.8	12 21.3	-41.0	150.1	10 37.2	-41.8	150.3	49
16 53.5	-38.8	150.1	15 09.3	-39.5	150.3	13 24.9	-40.3	150.6	11 40.3	-41.1	150.8	9 55.4	-41.8	151.0	50
16 14.7	-38.9	150.8	14 29.8	-39.7	151.1	12 44.6	-40.5	151.3	10 59.2	-41.2	151.5	9 13.6	-41.9	151.7	51
15 35.8	-39.1	151.6	13 50.1	-39.9	151.9	12 04.1	-40.6	152.1	10 18.0	-41.3	152.3	8 31.7	-42.0	152.4	52
14 56.7	-39.2	152.4	13 10.2	-40.0	152.7	11 23.5	-40.7	152.9	9 36.7	-41.4	153.0	7 49.7	-42.1	153.2	53
14 17.5	-39.4	153.2	12 30.2	-40.1	153.4	10 42.8	-40.8	153.6	8 55.3	-41.5	153.8	7 07.6	-42.2	153.9	54
13 38.1	-39.6	154.0	11 50.1	-40.2	154.2	10 02.0	-40.9	154.4	8 13.8	-41.6	154.5	6 25.4	-42.3	154.6	55
12 58.5	-39.7	154.8	11 09.9	-40.4	154.9	9 21.1	-41.0	155.1	7 32.2	-41.6	155.2	5 43.2	-42.2	155.3	56
12 18.8	-39.8	155.5	10 29.5	-40.4	155.7	8 40.1	-41.1	155.8	6 50.6	-41.7	155.9	5 01.0	-42.3	156.0	57
11 39.0	-39.9	156.3	9 49.1	-40.6	156.4	7 59.0	-41.1	156.6	6 08.9	-41.8	156.7	4 18.7	-42.4	156.7	58
10 59.1	-40.1	157.1	9 08.5	-40.6	157.2	7 17.9	-41.3	157.3	5 27.1	-41.8	157.4	3 36.3	-42.4	157.4	59
10 19.0	-40.1	157.8	8 27.9	-40.8	157.9	6 36.6	-41.3	158.0	4 45.3	-41.9	158.1	2 53.9	-42.4	158.2	60
9 38.9	-40.3	158.6	7 47.1	-40.8	158.7	5 55.3	-41.3	158.8	4 03.4	-41.8	158.8	2 11.5	-42.4	158.9	61
8 58.6	-40.3	159.3	7 06.3	-40.8	159.4	5 14.0	-41.4	159.5	3 21.6	-42.0	159.5	1 29.1	-42.4	159.6	62
8 18.3	-40.4	160.1	6 25.5	-41.0	160.2	4 32.6	-41.5	160.2	2 39.6	-41.9	160.3	0 46.7	-42.5	160.3	63
7 37.9	-40.5	160.8	5 44.5	-41.0	160.9	3 51.1	-41.5	160.9	1 57.7	-42.0	161.0	0 04.2	-42.4	161.0	64
6 57.4	-40.6	161.6	5 03.5	-41.0	161.6	3 09.6	-41.5	161.7	1 15.7	-42.0	161.7	0 38.2	+42.5	161.7	65
6 16.8	-40.6	162.3	4 22.5	-41.1	162.4	2 28.1	-41.5	162.4	0 33.7	-42.0	162.4	1 20.7	+42.4	162.4	66
5 36.2	-40.7	163.0	3 41.4	-41.1	163.1	1 46.6	-41.6	163.1	0 08.3	+41.9	162.9	2 03.1	+42.4	162.9	67
4 55.5	-40.7	163.8	3 00.3	-41.2	163.8	1 05.0	-41.6	163.8	0 50.2	+42.0	162.2	2 45.5	+42.4	162.2	68
4 14.8	-40.8	164.5	2 19.1	-41.2	164.5	0 23.4	-41.5	164.6	1 32.2	+42.0	165.5	3 27.9	+42.3	165.5	69
3 34.0	-40.8	165.2	1 37.9	-41.2	165.3	0 18.1	+41.6	14.7	2 14.2	+41.9	14.7	4 10.2	+42.3	14.8	70
2 53.2	-40.9	166.0	0 56.7	-41.2	166.0	0 59.7	+41.6	14.0	2 56.1	+41.9	14.0	4 52.5	+42.3	14.1	71
2 12.3	-40.8	166.7	0 15.5	-41.2	166.7	1 41.3	+41.5	13.3	3 38.0	+41.9	13.3	5 34.8	+42.2	13.3	72
1 31.5	-40.9	167.4	0 25.7	+41.2	12.5	2 22.8	+41.5	12.6	4 19.9	+41.9	12.6	6 17.0	+42.2	12.6	73
0 50.6	-40.9	168.2	1 06.9	+41.2	11.8	3 04.3	+41.5	11.8	5 01.8	+41.8	11.9	6 59.2	+42.1	11.9	74
0 09.7	-40.9	168.9	1 48.1	+41.1	11.1	3 45.8	+41.5	11.1	5 43.6	+41.7	11.1	7 41.3	+42.0	11.2	75
0 31.2	+40.9	10.4	2 29.2	+41.2	10.4	4 27.3	+41.4	10.4	6 25.3	+41.7	10.4	8 23.3	+41.9	10.5	76
1 12.1	+40.8	9.6	3 10.4	+41.1	9.6	5 08.7	+41.3	9.7	7 07.0	+41.6	9.7	9 05.2	+41.9	9.7	77
1 52.9	+40.9	8.9	3 51.5	+41.1	8.9	5 50.0	+41.4	8.9	7 48.6	+41.5	9.0	9 47.1	+41.8	9.0	78
2 33.8	+40.8	8.2	4 32.6	+41.0	8.2	6 31.4	+41.2	8.2	8 30.1	+41.5	8.2	10 28.9	+41.6	8.3	79
3 14.6	+40.8	7.4	5 13.6	+41.0	7.4	7 12.6	+41.2	7.5	9 11.6	+41.3	7.5	11 10.5	+41.6	7.6	80
3 55.4	+40.8	6.7	5 54.6	+40.9	6.7	7 53.8	+41.1	6.7	9 52.9	+41.3	6.8	11 52.1	+41.4	6.8	81
4 36.2	+40.7	6.0	6 35.5	+40.9	6.0	8 34.9	+41.0	6.0	10 34.2	+41.2	6.0	12 33.5	+41.4	6.1	82
5 16.9	+40.6	5.2	7 16.4	+40.8	5.2	9 15.9	+40.9	5.3	11 15.4	+41.0	5.3	13 14.9	+41.1	5.3	83
5 57.5	+40.6	4.5	7 57.2	+40.7	4.5	9 56.8	+40.8	4.5	11 56.4	+41.0	4.6	13 56.0	+41.1	4.6	84
6 38.1	+40.6	3.7	8 37.9	+40.6	3.8	10 37.6	+40.7	3.8	12 37.4	+40.8	3.8	14 37.1	+40.9	3.8	85
7 18.7	+40.4	3.0	9 18.5	+40.5	3.0	11 18.3	+40.6	3.0	13 18.2	+40.6	3.1	15 18.0	+40.8	3.1	86
7 59.1	+40.4	2.3	9 59.0	+40.5	2.3	11 58.9	+40.5	2.3	13 58.8	+40.6	2.3	15 58.8	+40.5	2.3	87
8 39.5	+40.3	1.5	10 39.5	+40.3	1.5	12 39.4	+40.4	1.5	14 39.4	+40.4	1.5	16 39.3	+40.5	1.6	88
9 19.8	+40.2	0.8	11 19.8	+40.2	0.8	13 19.8	+40.2	0.8	15 19.8	+40.2	0.8	17 19.8	+40.2	0.8	89
10 00.0	+40.1	0.0	12 00.0	+40.1	0.0	14 00.0	+40.1	0.0	16 00.0	+40.1	0.0	18 00.0	+40.1	0.0	90
10°			12°			14°			16°			18°			

LATITUDE SAME NAME

L.H.A. 132°, 228°

48°, 312° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	45 41.3	-2.1	67.1	46 26.1	+0.7	69.0	47 07.1	+3.5	71.0	47 44.0	+6.5	73.1	48 16.7	+9.5	75.3
31	45 39.2	-3.2	65.7	46 26.8	-0.4	67.6	47 10.6	+2.4	69.6	47 50.5	+5.3	71.6	48 26.2	+8.3	73.8
32	45 36.0	-4.2	64.3	46 26.4	-1.5	66.1	47 13.0	+1.3	68.1	47 55.8	+4.2	70.1	48 34.5	+7.1	72.3
33	45 31.8	-5.3	62.8	46 24.9	-2.7	64.7	47 14.3	+0.2	66.6	48 00.0	+3.0	68.7	48 41.6	+5.9	70.8
34	45 26.5	-6.4	61.4	46 22.2	-3.7	63.2	47 14.5	-1.0	65.2	48 03.0	+1.8	67.2	48 47.5	+4.8	69.3
35	45 20.1	-7.3	60.0	46 18.5	-4.8	61.8	47 13.5	-2.1	63.7	48 04.8	+0.7	65.7	48 52.3	+3.6	67.7
36	45 12.8	-8.5	58.6	46 13.7	-5.9	60.4	47 11.4	-3.2	62.2	48 05.5	-0.5	64.2	48 55.9	+2.3	66.2
37	45 04.3	-9.4	57.2	46 07.8	-6.9	58.9	47 08.2	-4.4	60.7	48 05.0	-1.6	62.7	48 58.2	+1.2	64.7
38	44 54.9	-10.5	55.8	46 00.9	-8.0	57.5	47 03.8	-5.5	59.3	48 03.4	-2.8	61.2	48 59.4	0.0	63.2
39	44 44.4	-11.5	54.4	45 52.9	-9.1	56.1	46 58.3	-6.6	57.8	48 00.6	-4.0	59.7	48 59.4	-1.3	61.7
40	44 32.9	-12.4	53.0	45 43.8	-10.2	54.6	46 51.7	-7.6	56.4	47 56.6	-5.1	58.2	48 58.1	-2.4	60.1
41	44 20.5	-13.5	51.6	45 33.6	-11.1	53.2	46 44.1	-8.8	54.9	47 51.5	-6.3	56.7	48 55.7	-3.6	58.6
42	44 07.0	-14.4	50.3	45 22.5	-12.2	51.8	46 35.3	-9.9	53.5	47 45.2	-7.4	55.2	48 52.1	-4.9	57.1
43	43 52.6	-15.3	48.9	45 10.3	-13.2	50.4	46 25.4	-10.9	52.0	47 37.8	-8.5	53.8	48 47.2	-6.0	55.6
44	43 37.3	-16.3	47.6	44 57.1	-14.2	49.1	46 14.5	-12.0	50.6	47 29.3	-9.7	52.3	48 41.2	-7.2	54.1
45	43 21.0	-17.2	46.3	44 42.9	-15.2	47.7	46 02.5	-13.0	49.2	47 19.6	-10.7	50.8	48 34.0	-8.3	52.6
46	43 03.8	-18.0	45.0	44 27.7	-16.1	46.3	45 49.5	-14.0	47.8	47 08.9	-11.9	49.4	48 25.7	-9.6	51.1
47	42 45.8	-19.0	43.7	44 11.6	-17.0	45.0	45 35.5	-15.1	46.4	46 57.0	-12.9	47.9	48 16.1	-10.6	49.6
48	42 26.8	-19.8	42.4	43 54.6	-18.0	43.6	45 20.4	-16.0	45.0	46 44.1	-14.0	46.5	48 05.5	-11.8	48.1
49	42 07.0	-20.7	41.1	43 36.6	-18.9	42.3	45 04.4	-17.0	43.7	46 30.1	-15.0	45.1	47 53.7	-12.9	46.6
50	41 46.3	-21.4	39.8	43 17.7	-19.8	41.0	44 47.4	-18.0	42.3	46 15.1	-16.0	43.7	47 40.8	-14.0	45.2
51	41 24.9	-22.3	38.6	42 57.9	-20.6	39.7	44 29.4	-18.9	41.0	45 59.1	-17.0	42.3	47 26.8	-15.0	43.8
52	41 02.6	-23.1	37.3	42 37.3	-21.5	38.4	44 10.5	-19.8	39.6	45 42.1	-18.0	40.9	47 11.8	-16.1	42.3
53	40 39.5	-23.8	36.1	42 15.8	-22.3	37.2	43 50.7	-20.7	38.3	45 24.1	-19.0	39.6	46 55.7	-17.2	40.9
54	40 15.7	-24.5	34.9	41 53.5	-23.1	35.9	43 30.0	-21.5	37.0	45 05.1	-19.9	38.2	46 38.5	-18.1	39.5
55	39 51.2	-25.3	33.7	41 30.4	-23.9	34.7	43 08.5	-22.5	35.7	44 45.2	-20.9	36.9	46 20.4	-19.2	38.1
56	39 25.9	-26.0	32.5	41 06.5	-24.6	33.5	42 46.0	-23.2	34.5	44 24.3	-21.7	35.6	46 01.2	-20.1	36.8
57	38 59.9	-26.7	31.4	40 41.9	-25.4	32.3	42 22.8	-24.0	33.2	44 02.6	-22.6	34.3	45 41.1	-21.1	35.4
58	38 33.2	-27.3	30.2	40 16.5	-26.2	31.1	41 58.8	-24.9	32.0	43 40.0	-23.5	33.0	45 20.0	-22.0	34.1
59	38 05.9	-28.0	29.1	39 50.3	-26.8	29.9	41 33.9	-25.6	30.8	43 16.5	-24.3	31.7	44 58.0	-22.8	32.8
60	37 37.9	-28.6	28.0	39 23.5	-27.5	28.7	41 08.3	-26.3	29.6	42 52.2	-25.1	30.5	44 35.2	-23.8	31.4
61	37 09.3	-29.2	26.9	38 56.0	-28.2	27.6	40 42.0	-27.1	28.4	42 27.1	-25.8	29.2	44 11.4	-24.6	30.2
62	36 40.1	-29.8	25.8	38 27.8	-28.8	26.5	40 14.9	-27.7	27.2	42 01.3	-26.7	28.0	43 46.8	-25.5	28.9
63	36 10.3	-30.4	24.7	37 59.0	-29.4	25.3	39 47.2	-28.5	26.0	41 34.6	-27.4	26.8	43 21.3	-26.2	27.6
64	35 39.9	-30.9	23.6	37 29.6	-30.1	24.2	39 18.7	-29.1	24.9	41 07.2	-28.1	25.6	42 55.1	-27.1	26.4
65	35 09.0	-31.5	22.6	36 59.5	-30.6	23.2	38 49.6	-29.7	23.8	40 39.1	-28.8	24.5	42 28.0	-27.7	25.2
66	34 37.5	-32.0	21.6	36 28.9	-31.2	22.1	38 19.9	-30.4	22.7	40 10.3	-29.4	23.3	42 00.3	-28.6	24.0
67	34 05.5	-32.5	20.5	35 57.7	-31.8	21.0	37 49.5	-31.0	21.6	39 40.9	-30.2	22.2	41 31.7	-29.2	22.8
68	33 33.0	-33.0	19.5	35 25.9	-32.3	20.0	37 18.5	-31.5	20.5	39 10.7	-30.7	21.0	41 02.5	-29.9	21.7
69	33 00.0	-33.5	18.5	34 53.6	-32.8	18.9	36 47.0	-32.1	19.4	38 40.0	-31.4	19.9	40 32.6	-30.6	20.5
70	32 26.5	-33.9	17.5	34 20.8	-33.3	17.9	36 14.9	-32.7	18.4	38 08.6	-32.0	18.9	40 02.0	-31.3	19.4
71	31 52.6	-34.3	16.6	33 47.5	-33.8	16.9	35 42.2	-33.2	17.3	37 36.6	-32.5	17.8	39 30.7	-31.8	18.3
72	31 18.3	-34.8	15.6	33 13.7	-34.2	15.9	35 09.0	-33.7	16.3	37 04.1	-33.1	16.7	38 58.9	-32.5	17.2
73	30 43.5	-35.2	14.6	32 39.5	-34.7	15.0	34 35.3	-34.1	15.3	36 31.0	-33.7	15.7	38 26.4	-33.1	16.1
74	30 08.3	-35.6	13.7	32 04.8	-35.1	14.0	34 01.2	-34.7	14.3	35 57.3	-34.1	14.7	37 53.3	-33.6	15.0
75	29 32.7	-36.0	12.8	31 29.7	-35.6	13.0	33 26.5	-35.1	13.3	35 23.2	-34.7	13.6	37 19.7	-34.1	14.0
76	28 56.7	-36.3	11.9	30 54.1	-35.9	12.1	32 51.4	-35.6	12.4	34 48.5	-35.1	12.6	36 45.6	-34.7	13.0
77	28 20.4	-36.7	10.9	30 18.2	-36.4	11.2	32 15.8	-35.9	11.4	34 13.4	-35.6	11.7	36 10.9	-35.2	12.0
78	27 43.7	-37.1	10.1	29 41.8	-36.7	10.2	31 39.9	-36.4	10.5	33 37.8	-36.0	10.7	35 35.7	-35.7	11.0
79	27 06.6	-37.3	9.2	29 05.1	-37.1	9.3	31 03.5	-36.8	9.5	33 01.8	-36.5	9.7	35 00.0	-36.1	10.0
80	26 29.3	-37.7	8.3	28 28.0	-37.4	8.4	30 26.7	-37.2	8.6	32 25.3	-36.9	8.8	34 23.9	-36.7	9.0
81	25 51.6	-38.0	7.4	27 50.6	-37.8	7.6	29 49.5	-37.5	7.7	31 48.4	-37.3	7.9	33 47.2	-37.0	8.0
82	25 13.6	-38.3	6.6	27 12.8	-38.1	6.7	29 12.0	-37.9	6.8	31 11.1	-37.7	6.9	33 10.2	-37.5	7.1
83	24 35.3	-38.6	5.7	26 34.7	-38.4	5.8	28 34.1	-38.3	5.9	30 33.4	-38.0	6.0	32 32.7	-37.8	6.2
84	23 56.7	-38.8	4.9	25 56.3	-38.7	5.0	27 55.8	-38.5	5.0	29 55.4	-38.4	5.1	31 54.9	-38.3	5.3
85	23 17.9	-39.1	4.0	25 17.6	-39.0	4.1	27 17.3	-38.9	4.2	29 17.0	-38.8	4.3	31 16.6	-38.6	4.3
86	22 38.8	-39.3	3.2	24 38.6	-39.3	3.3	26 38.4	-39.2	3.3	28 38.2	-39.1	3.4	30 38.0	-39.0	3.5
87	21 59.5	-39.6	2.4	23 59.3	-39.5	2.4	25 59.2	-39.4	2.5	27 59.1	-39.4	2.5	29 59.0	-39.3	2.6
88	21 19.9	-39.9	1.6	23 19.8	-39.8	1.6	25 19.8	-39.8	1.6	27 19.7	-39.7	1.7	29 19.7	-39.7	1.7
89	20 40.0	-40.0	0.8	22 40.0	-40.0	0.8	24 40.0	-40.0	0.8	26 40.0	-40.0	0.8	28 40.0	-40.0	0.8
90	20 00.0	-40.3	0.0	22 00.0	-40.3	0.0	24 00.0	-40.3	0.0	26 00.0	-40.3	0.0	28 00.0	-40.3	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 48°, 312°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
21 56.0	-39.6	136.1	20 29.2	-40.8	136.6	19 01.6	-41.8	137.1	17 33.4	-42.9	137.5	16 04.6	-43.9	138.0	30
21 16.4	-39.9	136.9	19 48.4	-40.9	137.4	18 19.8	-42.0	137.9	16 50.5	-43.0	138.3	15 20.7	-44.1	138.7	31
20 36.5	-40.0	137.7	19 07.5	-41.2	138.2	17 37.8	-42.2	138.6	16 07.5	-43.2	139.0	14 36.6	-44.1	139.4	32
19 56.5	-40.3	138.5	18 26.3	-41.3	138.9	16 55.6	-42.4	139.3	15 24.3	-43.4	139.7	13 52.5	-44.3	140.1	33
19 16.2	-40.5	139.3	17 45.0	-41.5	139.7	16 13.2	-42.5	140.1	14 40.9	-43.4	140.4	13 08.2	-44.4	140.8	34
18 35.7	-40.6	140.0	17 03.5	-41.7	140.4	15 30.7	-42.6	140.8	13 57.5	-43.6	141.2	12 23.8	-44.5	141.4	35
17 55.1	-40.9	140.8	16 21.8	-41.8	141.2	14 48.1	-42.8	141.5	13 13.9	-43.7	141.9	11 39.3	-44.6	142.1	36
17 14.2	-41.0	141.6	15 40.0	-42.0	141.9	14 05.3	-42.9	142.3	12 30.2	-43.8	142.6	10 54.7	-44.6	142.8	37
16 33.2	-41.2	142.3	14 58.0	-42.1	142.7	13 22.4	-43.1	143.0	11 46.4	-44.0	143.3	10 10.1	-44.8	143.5	38
15 52.0	-41.3	143.1	14 15.9	-42.3	143.4	12 39.3	-43.1	143.7	11 02.4	-44.0	144.0	9 25.3	-44.9	144.2	39
15 10.7	-41.5	143.9	13 33.6	-42.4	144.2	11 56.2	-43.3	144.4	10 18.4	-44.1	144.6	8 40.4	-44.9	144.8	40
14 29.2	-41.6	144.6	12 51.2	-42.5	144.9	11 12.9	-43.3	145.1	9 34.3	-44.1	145.3	7 55.5	-44.9	145.5	41
13 47.6	-41.8	145.3	12 08.7	-42.6	145.6	10 29.6	-43.5	145.8	8 50.2	-44.3	146.0	7 10.6	-45.1	146.2	42
13 05.8	-41.9	146.1	11 26.1	-42.7	146.3	9 46.1	-43.5	146.5	8 05.9	-44.3	146.7	6 25.5	-45.1	146.8	43
12 23.9	-42.0	146.8	10 43.4	-42.8	147.0	9 02.6	-43.6	147.2	7 21.6	-44.4	147.4	5 40.4	-45.1	147.5	44
11 41.9	-42.1	147.5	10 00.6	-43.0	147.8	8 19.0	-43.7	147.9	6 37.2	-44.6	148.1	4 55.3	-45.2	148.2	45
10 59.8	-42.2	148.3	9 17.6	-43.0	148.5	7 35.3	-43.8	148.6	5 52.8	-44.5	148.7	4 10.1	-45.2	148.8	46
10 17.6	-42.3	149.0	8 34.6	-43.0	149.2	6 51.5	-43.8	149.3	5 08.3	-44.5	149.4	3 24.9	-45.2	149.5	47
9 35.3	-42.4	149.7	7 51.6	-43.2	149.9	6 07.7	-43.8	150.0	4 23.8	-44.6	150.1	2 39.7	-45.2	150.1	48
8 52.9	-42.5	150.4	7 08.4	-43.2	150.6	5 23.9	-43.9	150.7	3 39.2	-44.6	150.8	1 54.5	-45.3	150.8	49
8 10.4	-42.6	151.1	6 25.2	-43.2	151.3	4 40.0	-44.0	151.4	2 54.6	-44.6	151.4	1 09.2	-45.3	151.5	50
7 27.8	-42.6	151.9	5 42.0	-43.3	152.0	3 56.0	-44.0	152.0	2 10.0	-44.7	152.1	0 23.9	-45.3	152.1	51
6 45.2	-42.7	152.6	4 58.7	-43.4	152.7	3 12.0	-44.0	152.7	1 25.3	-44.6	152.8	0 21.4	+45.2	27.2	52
6 02.5	-42.7	153.3	4 15.3	-43.4	153.4	2 28.0	-44.0	153.4	0 40.7	-44.7	153.4	1 06.6	+45.3	26.6	53
5 19.8	-42.8	154.0	3 31.9	-43.4	154.0	1 44.0	-44.1	154.1	0 04.0	+44.6	25.9	1 51.9	+45.2	25.9	54
4 37.0	-42.8	154.7	2 48.5	-43.5	154.7	0 59.9	-44.0	154.8	0 48.6	+44.6	25.2	2 37.1	+45.3	25.3	55
3 54.2	-42.9	155.4	2 05.0	-43.4	155.4	0 15.9	-44.1	155.4	1 33.2	+44.7	24.6	3 22.4	+45.2	24.6	56
3 11.3	-42.9	156.1	1 21.6	-43.5	156.1	0 28.2	+44.0	23.9	2 17.9	+44.6	23.9	4 07.6	+45.1	23.9	57
2 28.4	-42.9	156.8	0 38.1	-43.5	156.8	1 12.2	+44.0	23.2	3 02.5	+44.6	23.2	4 52.7	+45.2	23.3	58
1 45.5	-43.0	157.5	0 05.4	+43.5	22.5	1 56.2	+44.1	22.5	3 47.1	+44.5	22.6	5 37.9	+45.1	22.6	59
1 02.5	-42.9	158.2	0 48.9	+43.4	21.8	2 40.3	+44.0	21.8	4 31.6	+44.6	21.9	6 23.0	+45.0	22.0	60
0 19.6	-43.0	158.9	1 32.3	+43.5	21.1	3 24.3	+43.9	21.2	5 16.2	+44.4	21.2	7 08.0	+45.0	21.3	61
0 23.4	+42.9	20.4	2 15.8	+43.4	20.4	4 08.2	+44.0	20.5	6 00.6	+44.5	20.5	7 53.0	+44.9	20.6	62
1 06.3	+42.9	19.7	2 59.2	+43.5	19.7	4 52.2	+43.9	19.8	6 45.1	+44.3	19.9	8 37.9	+44.8	20.0	63
1 49.2	+42.9	19.0	3 42.7	+43.3	19.1	5 36.1	+43.8	19.1	7 29.4	+44.3	19.2	9 22.7	+44.8	19.3	64
2 32.1	+42.9	18.3	4 26.0	+43.4	18.4	6 19.9	+43.8	18.4	8 13.7	+44.6	18.5	10 07.5	+44.6	18.6	65
3 15.0	+42.9	17.6	5 09.4	+43.3	17.7	7 03.7	+43.7	17.7	8 58.0	+44.2	17.8	10 52.2	+44.6	17.9	66
3 57.9	+42.8	16.9	5 52.7	+43.2	17.0	7 47.4	+43.7	17.0	9 42.2	+44.0	17.1	11 36.8	+44.5	17.2	67
4 40.7	+42.8	16.2	6 35.9	+43.2	16.3	8 31.1	+43.6	16.3	10 26.2	+44.0	16.4	12 21.3	+44.4	16.6	68
5 23.5	+42.8	15.5	7 19.1	+43.2	15.6	9 14.7	+43.5	15.7	11 10.2	+43.9	15.8	13 05.7	+44.3	15.9	69
6 06.3	+42.6	14.8	8 02.3	+43.0	14.9	9 58.2	+43.4	15.0	11 54.1	+43.8	15.1	13 50.0	+44.1	15.2	70
6 48.9	+42.7	14.1	8 45.3	+43.0	14.2	10 41.6	+43.4	14.3	12 37.9	+43.7	14.4	14 34.1	+44.1	14.5	71
7 31.6	+42.5	13.4	9 28.3	+42.9	13.5	11 25.0	+43.2	13.5	13 21.6	+43.6	13.7	15 18.2	+43.9	13.8	72
8 14.1	+42.5	12.7	10 11.2	+42.8	12.8	12 08.2	+43.1	12.8	14 05.2	+43.4	12.9	16 02.1	+43.8	13.1	73
8 56.6	+42.4	12.0	10 54.0	+42.7	12.0	12 51.3	+43.0	12.1	14 48.6	+43.3	12.2	16 45.9	+43.6	12.4	74
9 39.0	+42.3	11.3	11 36.7	+42.6	11.3	13 34.3	+42.9	11.4	15 31.9	+43.2	11.5	17 29.5	+43.4	11.6	75
10 21.3	+42.2	10.5	12 19.3	+42.4	10.6	14 17.2	+42.7	10.7	16 15.1	+43.0	10.8	18 12.9	+43.3	10.9	76
11 03.5	+42.1	9.8	13 01.7	+42.4	9.9	14 59.9	+42.7	10.0	16 58.1	+42.9	10.1	18 56.2	+43.2	10.2	77
11 45.6	+42.0	9.1	13 44.1	+42.2	9.2	15 42.6	+42.4	9.2	17 41.0	+42.7	9.3	19 39.4	+42.9	9.4	78
12 27.6	+41.9	8.3	14 26.3	+42.1	8.4	16 25.0	+42.3	8.5	18 23.7	+42.5	8.6	20 22.3	+42.8	8.7	79
13 09.5	+41.7	7.6	15 08.4	+42.0	7.7	17 07.3	+42.2	7.8	19 06.2	+42.4	7.8	21 05.1	+42.5	7.9	80
13 51.2	+41.7	6.9	15 50.4	+41.8	6.9	17 49.5	+41.9	7.0	19 48.6	+42.1	7.1	21 47.6	+42.4	7.2	81
14 32.9	+41.4	6.1	16 32.2	+41.6	6.2	18 31.4	+41.8	6.3	20 30.7	+42.0	6.3	22 30.0	+42.1	6.4	82
15 14.3	+41.4	5.4	17 13.8	+41.5	5.4	19 13.2	+41.7	5.5	21 12.7	+41.7	5.5	23 12.1	+41.9	5.7	83
15 55.7	+41.1	4.6	17 55.3	+41.2	4.7	19 54.9	+41.4	4.7	21 54.4	+41.6	4.8	23 54.0	+41.7	4.9	84
16 36.8	+41.0	3.9	18 36.5	+41.1	3.9	20 36.3	+41.2	4.0	22 36.0	+41.3	4.0	24 35.7	+41.4	4.1	85
17 17.8	+40.9	3.1	19 17.6	+40.9	3.1	21 17.5	+40.9	3.2	23 17.3	+41.0	3.2	25 17.1	+41.1	3.3	86
17 58.7	+40.6	2.3	19 58.5	+40.8	2.4	21 58.4	+40.8	2.4	23 58.3	+40.9	2.4	25 58.2	+40.9	2.5	87
18 39.3	+40.4	1.6	20 39.3	+40.4	1.6	22 39.2	+40.5	1.6	24 39.2	+40.5	1.6	26 39.1	+40.6	1.7	88
19 19.7	+40.3	0.8	21 19.7	+40.3	0.8	23 19.7	+40.3	0.8	25 19.7	+40.3	0.8	27 19.7	+40.3	0.8	89
20 00.0	+40.0	0.0	22 00.0	+40.0	0.0	24 00.0	+40.0	0.0	26 00.0	+40.0	0.0	28 00.0	+40.0	0.0	90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 132°, 228°

50°, 310° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	33 49.6	-23.6	53.0	35 00.9	-21.7	54.1	36 10.2	-19.6	55.3	37 17.6	-17.7	56.5	38 22.6	-15.5	57.8
31	33 26.0	-24.0	51.9	34 39.2	-22.2	53.0	35 50.6	-20.4	54.1	36 59.9	-18.3	55.3	38 07.1	-16.3	56.6
32	33 02.0	-24.7	50.8	34 17.0	-22.9	51.8	35 30.2	-21.0	52.9	36 41.6	-19.1	54.1	37 50.8	-17.0	55.4
33	32 37.3	-25.2	49.7	33 54.1	-23.5	50.7	35 09.2	-21.7	51.8	36 22.5	-19.8	52.9	37 33.8	-17.8	54.1
34	32 12.1	-25.8	48.6	33 30.6	-24.0	49.6	34 47.5	-22.2	50.7	36 02.7	-20.4	51.8	37 16.0	-18.5	52.9
35	31 46.3	-26.3	47.6	33 06.6	-24.7	48.5	34 25.3	-22.9	49.5	35 42.3	-21.1	50.6	36 57.5	-19.2	51.7
36	31 20.0	-26.8	46.5	32 41.9	-25.2	47.4	34 02.4	-23.5	48.4	35 21.2	-21.7	49.5	36 38.3	-19.9	50.6
37	30 53.2	-27.2	45.5	32 16.7	-25.7	46.4	33 38.9	-24.1	47.3	34 59.5	-22.4	48.3	36 18.4	-20.6	49.4
38	30 26.0	-27.8	44.4	31 51.0	-26.2	45.3	33 14.8	-24.7	46.2	34 37.1	-23.0	47.2	35 57.8	-21.2	48.2
39	29 58.2	-28.3	43.4	31 24.8	-26.8	44.2	32 50.1	-25.2	45.1	34 14.1	-23.6	46.1	35 36.6	-21.9	47.1
40	29 29.9	-28.7	42.4	30 58.0	-27.3	43.2	32 24.9	-25.8	44.0	33 50.5	-24.2	45.0	35 14.7	-22.6	45.9
41	29 01.2	-29.1	41.4	30 30.7	-27.7	42.1	31 59.1	-26.3	43.0	33 26.3	-24.8	43.9	34 52.1	-23.1	44.8
42	28 32.1	-29.6	40.4	30 03.0	-28.3	41.1	31 32.8	-26.8	41.9	33 01.5	-25.3	42.8	34 29.0	-23.8	43.7
43	28 02.5	-30.0	39.4	29 34.7	-28.7	40.1	31 06.0	-27.3	40.9	32 36.2	-25.9	41.7	34 05.2	-24.4	42.6
44	27 32.5	-30.5	38.4	29 06.0	-29.1	39.1	30 38.7	-27.8	39.8	32 10.3	-26.4	40.6	33 40.8	-24.9	41.5
45	27 02.0	-30.8	37.5	28 36.9	-29.6	38.1	30 10.9	-28.3	38.8	31 43.9	-26.9	39.6	33 15.9	-25.5	40.4
46	26 31.2	-31.2	36.5	28 07.3	-30.0	37.1	29 42.6	-28.8	37.8	31 17.0	-27.5	38.5	32 50.4	-26.1	39.3
47	26 00.0	-31.5	35.5	27 37.3	-30.4	36.1	29 13.8	-29.1	36.8	30 49.5	-27.9	37.5	32 24.3	-26.6	38.2
48	25 28.5	-32.0	34.6	27 06.9	-30.8	35.2	28 44.7	-29.7	35.8	30 21.6	-28.4	36.4	31 57.7	-27.1	37.2
49	24 56.5	-32.2	33.7	26 36.1	-31.2	34.2	28 15.0	-30.0	34.8	29 53.2	-28.9	35.4	31 30.6	-27.7	36.1
50	24 24.3	-32.6	32.7	26 04.9	-31.5	33.2	27 45.0	-30.5	33.8	29 24.3	-29.3	34.4	31 02.9	-28.1	35.1
51	23 51.7	-33.0	31.8	25 33.4	-32.0	32.3	27 14.5	-30.9	32.8	28 55.0	-29.8	33.4	30 34.8	-28.6	34.1
52	23 18.7	-33.2	30.9	25 01.4	-32.2	31.4	26 43.6	-31.2	31.9	28 25.2	-30.1	32.4	30 06.2	-29.1	33.0
53	22 45.5	-33.6	30.0	24 29.2	-32.6	30.4	26 12.4	-31.6	30.9	27 55.1	-30.6	31.4	29 37.1	-29.5	32.0
54	22 11.9	-33.8	29.1	23 56.6	-33.0	29.5	25 40.8	-32.0	30.0	27 24.5	-31.0	30.5	29 07.6	-30.0	31.0
55	21 38.1	-34.1	28.2	23 23.6	-33.2	28.6	25 08.8	-32.4	29.0	26 53.5	-31.4	29.5	28 37.6	-30.4	30.0
56	21 04.0	-34.4	27.3	22 50.4	-33.6	27.7	24 36.4	-32.6	28.1	26 22.1	-31.8	28.6	28 07.2	-30.8	29.1
57	20 29.6	-34.7	26.4	22 16.8	-33.8	26.8	24 03.8	-33.0	27.2	25 50.3	-32.1	27.6	27 36.4	-31.2	28.1
58	19 54.9	-34.9	25.6	21 43.0	-34.1	25.9	23 30.8	-33.4	26.3	25 18.2	-32.5	26.7	27 05.2	-31.6	27.1
59	19 20.0	-35.2	24.7	21 08.9	-34.4	25.0	22 57.4	-33.6	25.4	24 45.7	-32.8	25.8	26 33.6	-32.0	26.2
60	18 44.8	-35.4	23.9	20 34.5	-34.7	24.1	22 23.8	-33.9	24.5	24 12.9	-33.2	24.8	26 01.6	-32.3	25.2
61	18 09.4	-35.6	23.0	19 59.8	-34.9	23.3	21 49.9	-34.2	23.6	23 39.7	-33.4	23.9	25 29.3	-32.7	24.3
62	17 33.8	-35.8	22.2	19 24.9	-35.2	22.4	21 15.7	-34.5	22.7	23 06.3	-33.8	23.0	24 56.6	-33.1	23.4
63	16 58.0	-36.0	21.3	18 49.7	-35.4	21.6	20 41.2	-34.7	21.8	22 32.5	-34.1	22.1	24 23.5	-33.3	22.4
64	16 22.0	-36.2	20.5	18 14.3	-35.6	20.7	20 06.5	-35.0	21.0	21 58.4	-34.3	21.2	23 50.2	-33.7	21.5
65	15 45.8	-36.4	19.7	17 38.7	-35.8	19.9	19 31.5	-35.3	20.1	21 24.1	-34.6	20.3	23 16.5	-34.0	20.6
66	15 09.4	-36.6	18.8	17 02.9	-36.1	19.0	18 56.2	-35.4	19.2	20 49.5	-34.9	19.5	22 42.5	-34.3	19.7
67	14 32.8	-36.8	18.0	16 26.8	-36.2	18.2	18 20.8	-35.7	18.4	20 14.6	-35.2	18.6	22 08.2	-34.6	18.9
68	13 56.0	-36.9	17.2	15 50.6	-36.4	17.4	17 45.1	-35.9	17.5	19 39.4	-35.4	17.7	21 33.6	-34.8	18.0
69	13 19.1	-37.1	16.4	15 14.2	-36.6	16.5	17 09.2	-36.2	16.7	19 04.0	-35.6	16.9	20 58.8	-35.1	17.1
70	12 42.0	-37.2	15.6	14 37.6	-36.8	15.7	16 33.0	-36.3	15.9	18 28.4	-35.8	16.0	20 23.7	-35.4	16.2
71	12 04.8	-37.4	14.8	14 00.8	-37.0	14.9	15 56.7	-36.5	15.0	17 52.6	-36.1	15.2	19 48.3	-35.6	15.4
72	11 27.4	-37.5	14.0	13 23.8	-37.1	14.1	15 20.2	-36.7	14.2	17 16.5	-36.3	14.4	19 12.7	-35.8	14.5
73	10 49.9	-37.6	13.2	12 46.7	-37.2	13.3	14 43.5	-36.8	13.4	16 40.2	-36.5	13.5	18 36.9	-36.1	13.7
74	10 12.3	-37.7	12.4	12 09.5	-37.4	12.5	14 06.7	-37.1	12.6	16 03.7	-36.6	12.7	18 00.8	-36.3	12.8
75	9 34.6	-37.8	11.6	11 32.1	-37.5	11.7	13 29.6	-37.2	11.8	15 27.1	-36.9	11.9	17 24.5	-36.5	12.0
76	8 56.8	-38.0	10.8	10 54.6	-37.6	10.9	12 52.4	-37.3	11.0	14 50.2	-37.0	11.1	16 48.0	-36.7	11.2
77	8 18.8	-38.0	10.0	10 17.0	-37.8	10.1	12 15.1	-37.4	10.2	14 13.2	-37.2	10.2	16 11.3	-36.9	10.3
78	7 40.8	-38.1	9.2	9 39.2	-37.8	9.3	11 37.7	-37.6	9.4	13 36.0	-37.3	9.4	15 34.4	-37.1	9.5
79	7 02.7	-38.2	8.5	9 01.4	-38.0	8.5	11 00.1	-37.8	8.6	12 58.7	-37.5	8.6	14 57.3	-37.2	8.7
80	6 24.5	-38.2	7.7	8 23.4	-38.0	7.7	10 22.3	-37.8	7.8	12 21.2	-37.6	7.8	14 20.1	-37.4	7.9
81	5 46.3	-38.4	6.9	7 45.4	-38.1	6.9	9 44.5	-37.9	7.0	11 43.6	-37.7	7.0	13 42.7	-37.6	7.1
82	5 07.9	-38.3	6.1	7 07.3	-38.3	6.2	9 06.6	-38.1	6.2	11 05.9	-37.9	6.2	13 05.1	-37.7	6.3
83	4 29.6	-38.4	5.4	6 29.0	-38.2	5.4	8 28.5	-38.1	5.4	10 28.0	-38.0	5.4	12 27.4	-37.8	5.5
84	3 51.2	-38.5	4.6	5 50.8	-38.4	4.6	7 50.4	-38.2	4.6	9 50.0	-38.1	4.7	11 49.6	-38.0	4.7
85	3 12.7	-38.5	3.8	5 12.4	-38.4	3.8	7 12.2	-38.3	3.9	9 11.9	-38.2	3.9	11 11.6	-38.1	3.9
86	2 34.2	-38.5	3.1	4 34.0	-38.4	3.1	6 33.9	-38.4	3.1	8 33.7	-38.3	3.1	10 33.5	-38.2	3.1
87	1 55.7	-38.6	2.3	3 55.6	-38.5	2.3	5 55.5	-38.5	2.3	7 55.4	-38.4	2.3	9 55.3	-38.3	2.3
88	1 17.1	-38.5	1.5	3 17.1	-38.5	1.5	5 17.0	-38.5	1.5	7 17.0	-38.5	1.5	9 17.0	-38.5	1.6
89	0 38.6	-38.6	0.8	2 38.6	-38.6	0.8	4 38.5	-38.5	0.8	6 38.5	-38.5	0.8	8 38.5	-38.5	0.8
90	0 00.0	-38.6	0.0	2 00.0	-38.6	0.0	4 00.0	-38.6	0.0	6 00.0	-38.6	0.0	8 00.0	-38.6	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 50°, 310°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
33 49.6	-23.6	127.0	32 36.5	-25.4	128.0	31 21.7	-27.0	129.0	30 05.4	-28.7	129.9	28 47.7	-30.3	130.8	30
33 26.0	-24.0	128.1	32 11.1	-25.8	129.1	30 54.7	-27.6	130.1	29 36.7	-29.1	131.0	28 17.4	-30.7	131.8	31
33 02.0	-24.7	129.2	31 45.3	-26.4	130.2	30 27.1	-28.0	131.1	29 07.6	-29.6	132.0	27 46.7	-31.1	132.8	32
32 37.3	-25.2	130.3	31 18.9	-26.8	131.2	29 59.1	-28.4	132.1	28 38.0	-30.0	132.9	27 15.6	-31.4	133.7	33
32 12.1	-25.8	131.4	30 52.1	-27.4	132.3	29 30.7	-29.0	133.1	28 08.0	-30.4	133.9	26 44.2	-31.9	134.7	34
31 46.3	-26.3	132.4	30 24.7	-27.9	133.3	29 01.7	-29.4	134.1	27 37.6	-30.9	134.9	26 12.3	-32.3	135.6	35
31 20.0	-26.8	133.5	29 56.8	-28.3	134.3	28 32.3	-29.8	135.1	27 06.7	-31.2	135.9	25 40.1	-32.6	136.6	36
30 53.2	-27.2	134.5	29 28.5	-28.8	135.4	28 02.5	-30.2	136.1	26 35.5	-31.6	136.8	25 07.5	-32.9	137.5	37
30 26.0	-27.8	135.6	28 59.7	-29.3	136.4	27 32.3	-30.6	137.1	26 03.9	-32.0	137.8	24 34.6	-33.3	138.4	38
29 58.2	-28.3	136.6	28 30.4	-29.6	137.4	27 01.7	-31.1	138.1	25 31.9	-32.3	138.7	24 01.3	-33.5	139.3	39
29 29.9	-28.7	137.6	28 00.8	-30.1	138.3	26 30.6	-31.4	139.0	24 59.6	-32.5	139.5	23 27.8	-33.9	140.2	40
29 01.2	-29.1	138.6	27 30.7	-30.5	139.3	25 59.2	-31.7	140.0	24 26.9	-33.0	140.6	22 53.9	-34.2	141.1	41
28 32.1	-29.6	139.6	27 00.2	-30.9	140.3	25 27.5	-32.2	140.9	23 53.9	-33.3	141.5	22 19.7	-34.5	142.0	42
28 02.5	-30.0	140.6	26 29.3	-31.3	141.2	24 55.3	-32.5	141.8	23 20.6	-33.6	142.4	21 45.2	-34.7	142.9	43
27 32.5	-30.5	141.6	25 58.0	-31.6	142.2	24 22.8	-32.8	142.8	22 47.0	-34.0	143.3	21 10.5	-35.1	143.8	44
27 02.0	-30.8	142.5	25 26.4	-32.0	143.1	23 50.0	-33.1	143.7	22 13.0	-34.2	144.2	20 35.4	-35.3	144.6	45
26 31.2	-31.2	143.5	24 54.4	-32.3	144.1	23 16.9	-33.4	144.6	21 38.8	-34.5	145.1	20 00.1	-35.5	145.5	46
26 00.0	-31.5	144.5	24 22.1	-32.7	145.0	22 43.5	-33.8	145.5	21 04.3	-34.8	146.0	19 24.6	-35.8	146.4	47
25 28.5	-32.0	145.4	23 49.4	-33.0	145.9	22 09.7	-34.0	146.4	20 29.5	-35.0	146.8	18 48.8	-36.0	147.2	48
24 56.5	-32.2	146.3	23 16.4	-33.3	146.8	21 35.7	-34.4	147.3	19 54.5	-35.3	147.7	18 12.8	-36.2	148.1	49
24 24.3	-32.6	147.3	22 43.1	-33.7	147.7	21 01.3	-34.5	148.2	19 19.2	-35.5	148.5	17 36.6	-36.4	148.9	50
23 51.7	-33.0	148.2	22 09.4	-33.9	148.6	20 26.8	-34.9	149.0	18 43.7	-35.8	149.4	17 00.2	-36.6	149.7	51
23 18.7	-33.2	149.1	21 35.5	-34.2	149.5	19 51.9	-35.1	149.9	18 07.9	-36.0	150.2	16 23.6	-36.9	150.6	52
22 45.5	-33.6	150.0	21 01.3	-34.4	150.4	19 16.8	-35.3	150.8	17 31.9	-36.2	151.1	15 46.7	-37.0	151.4	53
22 11.9	-33.8	150.9	20 26.9	-34.7	151.3	18 41.5	-35.6	151.6	16 55.7	-36.4	151.9	15 09.7	-37.2	152.2	54
21 38.1	-34.1	151.8	19 52.2	-35.0	152.1	18 05.9	-35.8	152.5	16 19.0	-36.5	152.8	14 32.5	-37.3	153.0	55
21 04.0	-34.4	152.7	19 17.2	-35.2	153.0	17 30.1	-36.0	153.3	15 42.8	-36.8	153.6	13 55.2	-37.5	153.8	56
20 29.6	-34.7	153.6	18 42.0	-35.5	153.9	16 54.1	-36.2	154.1	15 06.0	-36.9	154.4	13 17.7	-37.7	154.6	57
19 54.9	-34.9	154.4	18 06.5	-35.6	154.7	16 17.9	-36.4	155.0	14 29.1	-37.2	155.2	12 40.0	-37.8	155.4	58
19 20.0	-35.2	155.3	17 30.9	-35.9	155.6	15 41.5	-36.6	155.8	13 51.9	-37.2	156.0	12 02.2	-37.9	156.2	59
18 44.8	-35.4	156.1	16 55.0	-36.1	156.4	15 04.9	-36.7	156.6	13 14.7	-37.4	156.8	11 24.3	-38.1	157.0	60
18 09.4	-35.6	157.0	16 18.9	-36.3	157.2	14 28.2	-37.0	157.4	12 37.3	-37.6	157.6	10 46.2	-38.2	157.8	61
17 33.8	-35.8	157.8	15 42.6	-36.5	158.1	13 51.2	-37.1	158.3	11 59.7	-37.7	158.4	10 08.0	-38.3	158.6	62
16 58.0	-36.0	158.7	15 06.1	-36.6	158.9	13 14.1	-37.2	159.1	11 22.0	-37.8	159.2	9 29.7	-38.3	159.4	63
16 22.0	-36.2	159.5	14 29.5	-36.8	159.7	12 36.9	-37.4	159.9	10 44.2	-38.0	160.0	8 51.4	-38.5	160.1	64
15 45.8	-36.4	160.3	13 52.7	-37.0	160.5	11 59.5	-37.5	160.7	10 06.2	-38.0	160.8	8 12.9	-38.6	160.9	65
15 09.4	-36.6	161.2	13 15.7	-37.1	161.3	11 22.0	-37.7	161.5	9 28.2	-38.2	161.6	7 34.3	-38.7	161.7	66
14 32.8	-36.8	162.0	12 38.6	-37.3	162.1	10 44.3	-37.7	162.3	8 50.0	-38.3	162.4	6 55.6	-38.7	162.5	67
13 56.0	-36.9	162.8	12 01.3	-37.4	162.9	10 06.6	-37.9	163.1	8 11.7	-38.3	163.1	6 16.9	-38.8	163.2	68
13 19.1	-37.1	163.6	11 23.9	-37.5	163.7	9 28.7	-38.0	163.8	7 33.4	-38.4	163.9	5 38.1	-38.9	164.0	69
12 42.0	-37.2	164.4	10 46.4	-37.7	164.5	8 50.7	-38.1	164.6	6 55.0	-38.5	164.7	4 59.2	-38.9	164.8	70
12 04.8	-37.4	165.2	10 08.7	-37.8	165.3	8 12.6	-38.2	165.4	6 16.5	-38.6	165.5	4 20.3	-39.0	165.5	71
11 27.4	-37.5	166.0	9 30.9	-37.8	166.1	7 34.4	-38.2	166.2	5 37.9	-38.6	166.2	3 41.3	-39.0	166.3	72
10 49.9	-37.6	166.8	8 53.1	-38.0	166.9	6 56.2	-38.4	167.0	4 59.3	-38.7	167.0	3 02.3	-39.0	167.0	73
10 12.3	-37.7	167.6	8 15.1	-38.1	167.7	6 17.8	-38.4	167.7	4 20.6	-38.8	167.8	2 23.3	-39.1	167.8	74
9 34.6	-37.8	168.4	7 37.0	-38.1	168.5	5 39.4	-38.4	168.5	3 41.8	-38.7	168.5	1 44.2	-39.0	168.6	75
8 56.8	-38.0	169.2	6 58.9	-38.2	169.2	5 01.0	-38.5	169.3	3 03.1	-38.8	169.3	1 05.2	-39.1	169.3	76
8 18.8	-38.0	170.0	6 20.7	-38.3	170.0	4 22.5	-38.6	170.0	2 24.3	-38.9	170.1	0 26.1	-39.1	170.1	77
7 40.8	-38.1	170.8	5 42.4	-38.4	170.8	3 43.9	-38.6	170.8	1 45.4	-38.8	170.8	0 13.0	+39.1	9.2	78
7 02.7	-38.2	171.5	5 04.0	-38.4	171.6	3 05.3	-38.6	171.6	1 06.6	-38.9	171.6	0 52.1	+39.1	8.4	79
6 24.5	-38.2	172.3	4 25.6	-38.5	172.3	2 26.7	-38.7	172.3	0 27.7	-38.8	172.4	1 31.2	+39.1	7.6	80
5 46.3	-38.4	173.1	3 47.1	-38.5	173.1	1 48.0	-38.7	173.1	0 11.1	+38.9	6.9	2 10.3	+39.0	6.9	81
5 07.9	-38.3	173.9	3 08.6	-38.5	173.9	1 09.3	-38.7	173.9	0 50.0	+38.8	6.1	2 49.3	+39.0	6.1	82
4 29.6	-38.4	174.6	2 30.1	-38.6	174.6	0 30.6	-38.7	174.6	1 28.8	+38.9	5.4	3 28.3	+39.0	5.4	83
3 51.2	-38.5	175.4	1 51.5	-38.5	175.4	0 08.1	+38.7	4.6	2 07.7	+38.8	4.6	4 07.3	+38.9	4.6	84
3 12.7	-38.5	176.2	1 13.0	-38.6	176.2	0 46.8	+38.7	3.8	2 46.5	+38.8	3.8	4 46.2	+38.9	3.8	85
2 34.2	-38.5	176.9	0 34.4	-38.6	176.9	1 25.5	+38.6	3.1	3 25.3	+38.7	3.1	5 25.1	+38.8	3.1	86
1 55.7	-38.6	177.7	0 04.2	+38.6	2.3	2 04.1	+38.7	2.3	4 04.0	+38.7	2.3	6 03.9	+38.8	2.3	87
1 17.1	-38.5	178.5	0 42.8	+38.6	1.5	2 42.8	+38.6	1.5	4 42.7	+38.7	1.5	6 42.7	+38.7	1.5	88
0 38.6	+38.6	179.2	1 21.4	+38.6	0.8	3 21.4	+38.6	0.8	5 21.4	+38.6	0.8	7 21.4	+38.6	0.8	89
0 00.0	+38.6	0.0	2 00.0	+38.6	0.0	4 00.0	+38.5	0.0	6 00.0	+38.5	0.0	8 00.0	+38.5	0.0	90

LATITUDE SAME NAME

L.H.A. 130°, 230°

50°, 310° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	39 25.4	-13.3	59.2	40 25.5	-11.0	60.6	41 23.0	-8.6	62.2	42 17.6	-6.2	63.7	43 09.1	-3.6	65.4
31	39 12.1	-14.2	57.9	40 14.5	-11.8	59.3	41 14.4	-9.6	60.8	42 11.4	-7.1	62.4	43 05.5	-4.6	64.0
32	38 57.9	-14.9	56.7	40 02.7	-12.8	58.1	41 04.8	-10.4	59.5	42 04.3	-8.0	61.1	43 00.9	-5.6	62.7
33	38 43.0	-15.7	55.4	39 49.9	-13.5	56.8	40 54.4	-11.3	58.2	41 56.3	-9.0	59.7	42 55.3	-6.5	61.3
34	38 27.3	-16.5	54.2	39 36.4	-14.4	55.5	40 43.1	-12.1	56.9	41 47.3	-9.8	58.4	42 48.8	-7.5	60.0
35	38 10.8	-17.2	53.0	39 22.0	-15.1	54.3	40 31.0	-13.1	55.6	41 37.5	-10.8	57.1	42 41.3	-8.4	58.6
36	37 53.6	-18.0	51.8	39 06.9	-16.0	53.0	40 17.9	-13.8	54.3	41 26.7	-11.7	55.8	42 32.9	-9.4	57.3
37	37 35.6	-18.7	50.5	38 50.9	-16.8	51.8	40 04.1	-14.7	53.1	41 15.0	-12.5	54.5	42 23.5	-10.3	55.9
38	37 16.9	-19.4	49.3	38 34.1	-17.5	50.5	39 49.4	-15.5	51.8	41 02.5	-13.4	53.2	42 13.2	-11.2	54.6
39	36 57.5	-20.1	48.2	38 16.6	-18.2	49.3	39 33.9	-16.3	50.6	40 49.1	-14.3	51.9	42 02.0	-12.1	53.3
40	36 37.4	-20.9	47.0	37 58.4	-19.0	48.1	39 17.6	-17.1	49.3	40 34.8	-15.1	50.6	41 49.9	-13.1	52.0
41	36 16.5	-21.4	45.8	37 39.4	-19.8	46.9	39 00.5	-17.9	48.1	40 19.7	-16.0	49.3	41 36.8	-13.9	50.7
42	35 55.1	-22.2	44.7	37 19.6	-20.4	45.7	38 42.6	-18.7	46.8	40 03.7	-16.7	48.1	41 22.9	-14.8	49.4
43	35 32.9	-22.8	43.5	36 59.2	-21.1	44.5	38 23.9	-19.4	45.6	39 47.0	-17.6	46.8	41 08.1	-15.6	48.1
44	35 10.1	-23.4	42.4	36 38.1	-21.8	43.4	38 04.5	-20.1	44.4	39 29.4	-18.3	45.6	40 52.5	-16.5	46.8
45	34 46.7	-24.0	41.3	36 16.3	-22.5	42.2	37 44.4	-20.8	43.2	39 11.1	-19.2	44.3	40 36.0	-17.3	45.5
46	34 22.7	-24.7	40.1	35 53.8	-23.1	41.1	37 23.6	-21.6	42.1	38 51.9	-19.8	43.1	40 18.7	-18.1	44.3
47	33 58.0	-25.2	39.0	35 30.7	-23.8	39.9	37 02.0	-22.2	40.9	38 32.1	-20.6	41.9	40 00.6	-18.9	43.0
48	33 32.8	-25.8	38.0	35 06.9	-24.4	38.8	36 39.8	-22.9	39.7	38 11.5	-21.4	40.7	39 41.7	-19.7	41.8
49	33 07.0	-26.3	36.9	34 42.5	-25.0	37.7	36 16.9	-23.5	38.6	37 50.1	-22.0	39.5	39 22.0	-20.4	40.5
50	32 40.7	-26.9	35.8	34 17.5	-25.5	36.6	35 53.4	-24.2	37.4	37 28.1	-22.7	38.3	39 01.6	-21.2	39.3
51	32 13.8	-27.4	34.7	33 52.0	-26.2	35.5	35 29.2	-24.8	36.3	37 05.4	-23.4	37.2	38 40.4	-22.0	38.1
52	31 46.4	-27.9	33.7	33 25.8	-26.7	34.4	35 04.4	-25.4	35.2	36 42.0	-24.1	36.0	38 18.4	-22.6	36.9
53	31 18.5	-28.4	32.7	32 59.1	-27.2	33.3	34 39.0	-26.0	34.1	36 17.9	-24.7	34.9	37 55.8	-23.3	35.8
54	30 50.1	-28.9	31.6	32 31.9	-27.8	32.3	34 13.0	-26.6	33.0	35 53.2	-25.3	33.8	37 32.5	-24.1	34.6
55	30 21.2	-29.4	30.6	32 04.1	-28.2	31.2	33 46.4	-27.1	31.9	35 27.9	-26.0	32.6	37 08.4	-24.6	33.4
56	29 51.8	-29.8	29.6	31 35.9	-28.8	30.2	33 19.3	-27.7	30.8	35 01.9	-26.5	31.5	36 43.8	-25.4	32.3
57	29 22.0	-30.2	28.6	31 07.1	-29.3	29.2	32 51.6	-28.2	29.8	34 35.4	-27.1	30.5	36 18.4	-25.9	31.2
58	28 51.8	-30.7	27.6	30 37.8	-29.7	28.1	32 23.4	-28.8	28.7	34 08.3	-27.7	29.4	35 52.5	-26.6	30.1
59	28 21.1	-31.1	26.6	30 08.1	-30.2	27.1	31 54.6	-29.2	27.7	33 40.6	-28.2	28.3	35 25.9	-27.1	29.0
60	27 50.0	-31.5	25.7	29 37.9	-30.6	26.1	31 25.4	-29.7	26.7	33 12.4	-28.8	27.2	34 58.8	-27.8	27.9
61	27 18.5	-31.9	24.7	29 07.3	-31.1	25.2	30 55.7	-30.2	25.7	32 43.6	-29.3	26.2	34 31.0	-28.3	26.8
62	26 46.6	-32.3	23.8	28 36.2	-31.4	24.2	30 25.5	-30.6	24.6	32 14.3	-29.7	25.2	34 02.7	-28.8	25.7
63	26 14.3	-32.6	22.8	28 04.8	-31.9	23.2	29 54.9	-31.1	23.7	31 44.6	-30.3	24.1	33 33.9	-29.4	24.7
64	25 41.7	-33.0	21.9	27 32.9	-32.3	22.3	29 23.8	-31.5	22.7	31 14.3	-30.7	23.1	33 04.5	-29.9	23.6
65	25 08.7	-33.4	21.0	27 00.6	-32.6	21.3	28 52.3	-32.0	21.7	30 43.6	-31.2	22.1	32 34.6	-30.4	22.6
66	24 35.3	-33.6	20.0	26 28.0	-33.0	20.4	28 20.3	-32.3	20.7	30 12.4	-31.6	21.1	32 04.2	-30.9	21.6
67	24 01.7	-34.0	19.1	25 55.0	-33.4	19.4	27 48.0	-32.7	19.8	29 40.8	-32.1	20.2	31 33.3	-31.4	20.6
68	23 27.7	-34.3	18.2	25 21.6	-33.7	18.5	27 15.3	-33.1	18.8	29 08.7	-32.4	19.2	31 01.9	-31.8	19.6
69	22 53.4	-34.6	17.3	24 47.9	-34.0	17.6	26 42.2	-33.5	17.9	28 36.3	-32.9	18.2	30 30.1	-32.2	18.6
70	22 18.8	-34.8	16.5	24 13.9	-34.4	16.7	26 08.7	-33.8	17.0	28 03.4	-33.3	17.3	29 57.9	-32.7	17.6
71	21 44.0	-35.2	15.6	23 39.5	-34.7	15.8	25 34.9	-34.2	16.1	27 30.1	-33.6	16.3	29 25.2	-33.1	16.6
72	21 08.8	-35.4	14.7	23 04.8	-34.9	14.9	25 00.7	-34.4	15.1	26 56.5	-34.0	15.4	28 52.1	-33.5	15.7
73	20 33.4	-35.6	13.8	22 29.9	-35.3	14.0	24 26.3	-34.8	14.2	26 22.5	-34.3	14.5	28 18.6	-33.8	14.7
74	19 57.8	-36.0	13.0	21 54.6	-35.5	13.2	23 51.5	-35.2	13.3	25 48.2	-34.7	13.6	27 44.8	-34.3	13.8
75	19 21.8	-36.1	12.1	21 19.1	-35.8	12.3	23 16.3	-35.4	12.5	25 13.5	-35.0	12.7	27 10.5	-34.6	12.9
76	18 45.7	-36.4	11.3	20 43.3	-36.0	11.4	22 40.9	-35.7	11.6	24 38.5	-35.4	11.8	26 35.9	-35.0	12.0
77	18 09.3	-36.6	10.4	20 07.3	-36.3	10.6	22 05.2	-35.9	10.7	24 03.1	-35.6	10.9	26 00.9	-35.3	11.1
78	17 32.7	-36.8	9.6	19 31.0	-36.5	9.7	21 29.3	-36.2	9.9	23 27.5	-35.9	10.0	25 25.6	-35.6	10.2
79	16 55.9	-36.9	8.8	18 54.5	-36.7	8.9	20 53.1	-36.5	9.0	22 51.6	-36.2	9.1	24 50.0	-35.9	9.3
80	16 19.0	-37.2	8.0	18 17.8	-37.0	8.1	20 16.6	-36.7	8.2	22 15.4	-36.5	8.3	24 14.1	-36.2	8.4
81	15 41.8	-37.4	7.2	17 40.8	-37.1	7.2	19 39.9	-37.0	7.3	21 38.9	-36.8	7.4	23 37.9	-36.6	7.5
82	15 04.4	-37.5	6.3	17 03.7	-37.4	6.4	19 02.9	-37.2	6.5	21 02.1	-37.0	6.6	23 01.3	-36.8	6.7
83	14 26.9	-37.7	5.5	16 26.3	-37.5	5.6	18 25.7	-37.4	5.6	20 25.1	-37.2	5.7	22 24.5	-37.0	5.8
84	13 49.2	-37.9	4.7	15 48.8	-37.8	4.8	17 48.3	-37.6	4.8	19 47.9	-37.4	4.9	21 47.5	-37.4	4.9
85	13 11.3	-38.0	3.9	15 11.0	-37.9	4.0	17 10.7	-37.7	4.0	19 10.5	-37.7	4.1	21 10.1	-37.5	4.1
86	12 33.3	-38.1	3.1	14 33.1	-38.0	3.2	16 33.0	-38.0	3.2	18 32.8	-37.9	3.2	20 32.6	-37.8	3.3
87	11 55.2	-38.3	2.3	13 55.1	-38.2	2.4	15 55.0	-38.2	2.4	17 54.9	-38.1	2.4	19 54.8	-38.1	2.4
88	11 16.9	-38.4	1.6	13 16.9	-38.4	1.6	15 16.8	-38.3	1.6	17 16.8	-38.3	1.6	19 16.7	-38.2	1.6
89	10 38.5	-38.5	0.8	12 38.5	-38.5	0.8	14 38.5	-38.5	0.8	16 38.5	-38.5	0.8	18 38.5	-38.5	0.8
90	10 00.0	-38.6	0.0	12 00.0	-38.6	0.0	14 00.0	-38.6	0.0	16 00.0	-38.7	0.0	18 00.0	-38.7	0.0

LATITUDE CONTRARY NAME

L.H.A. 50°, 310°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
27 28.6 -31.8 131.6	26 08.3 -33.2 132.4	24 46.9 -34.6 133.1	23 24.5 -35.9 133.7	22 01.1 -37.2 134.3	30										
26 56.8 -32.1 132.6	25 35.1 -33.6 133.3	24 12.3 -34.9 134.0	22 48.6 -36.3 134.6	21 23.9 -37.5 135.2	31										
26 24.7 -32.5 133.5	25 01.5 -33.9 134.2	23 37.4 -35.2 134.8	22 12.3 -36.5 135.4	20 46.4 -37.7 136.0	32										
25 52.2 -32.9 134.4	24 27.6 -34.2 135.1	23 02.2 -35.5 135.7	21 35.8 -36.7 136.3	20 08.7 -37.9 136.8	33										
25 19.3 -33.2 135.4	23 53.4 -34.5 136.0	22 26.7 -35.8 136.6	20 59.1 -37.0 137.1	19 30.8 -38.2 137.6	34										
24 46.1 -33.6 136.3	23 18.9 -34.9 136.9	21 50.9 -36.1 137.5	20 22.1 -37.3 138.0	18 52.6 -38.4 138.5	35										
24 12.5 -33.9 137.2	22 44.0 -35.1 137.8	21 14.8 -36.3 138.3	19 44.8 -37.5 138.8	18 14.2 -38.6 139.3	36										
23 38.6 -34.2 138.1	22 08.9 -35.4 138.7	20 38.5 -36.6 139.2	19 07.3 -37.7 139.6	17 35.6 -38.8 140.1	37										
23 04.4 -34.4 139.0	21 33.5 -35.7 139.5	20 01.9 -36.8 140.0	18 29.6 -37.9 140.5	16 56.8 -39.0 140.9	38										
22 30.0 -34.8 139.9	20 57.8 -35.9 140.4	19 25.1 -37.1 140.9	17 51.7 -38.1 141.3	16 17.8 -39.1 141.7	39										
21 55.2 -35.1 140.8	20 21.9 -36.2 141.2	18 48.0 -37.2 141.7	17 13.6 -38.3 142.1	15 38.7 -39.3 142.5	40										
21 20.1 -35.3 141.6	19 45.7 -36.4 142.1	18 10.8 -37.5 142.5	16 35.3 -38.5 142.9	14 59.4 -39.5 143.2	41										
20 44.8 -35.6 142.5	19 09.3 -36.6 142.9	17 33.3 -37.7 143.3	15 56.8 -38.7 143.7	14 19.9 -39.6 144.0	42										
20 09.2 -35.8 143.4	18 32.7 -36.9 143.8	16 55.6 -37.9 144.2	15 18.1 -38.8 144.5	13 40.3 -39.8 144.8	43										
19 33.4 -36.1 144.2	17 55.8 -37.1 144.6	16 17.7 -38.0 145.0	14 39.3 -39.0 145.3	13 00.5 -39.9 145.6	44										
18 57.3 -36.3 145.1	17 18.7 -37.3 145.4	15 39.7 -38.2 145.8	14 00.3 -39.1 146.1	12 20.6 -40.0 146.3	45										
18 21.0 -36.5 145.9	16 41.4 -37.4 146.3	15 01.5 -38.4 146.6	13 21.2 -39.3 146.8	11 40.6 -40.2 147.1	46										
17 44.5 -36.7 146.7	16 04.0 -37.7 147.1	14 23.1 -38.6 147.4	12 41.9 -39.5 147.8	11 00.4 -40.3 147.8	47										
17 07.8 -37.0 147.6	15 26.3 -37.8 147.9	13 44.5 -38.7 148.2	12 02.4 -39.5 148.4	10 20.1 -40.3 148.6	48										
16 30.8 -37.1 148.4	14 48.5 -38.0 148.7	13 05.8 -38.8 148.9	11 22.9 -39.7 149.2	9 39.8 -40.5 149.3	49										
15 53.7 -37.3 149.2	14 10.5 -38.2 149.5	12 27.0 -39.0 149.7	10 43.2 -39.9 149.9	8 59.3 -40.6 150.1	50										
15 16.4 -37.5 150.0	13 32.3 -38.3 150.3	11 48.0 -39.1 150.5	10 03.5 -39.9 150.7	8 18.7 -40.6 150.8	51										
14 38.9 -37.6 150.8	12 54.0 -38.4 151.1	11 08.9 -39.2 151.3	9 23.6 -40.0 151.4	7 38.1 -40.7 151.6	52										
14 01.3 -37.8 151.6	12 15.6 -38.6 151.9	10 29.7 -39.4 152.0	8 43.6 -40.1 152.2	6 57.4 -40.8 152.3	53										
13 23.5 -38.0 152.4	11 37.0 -38.7 152.6	9 50.3 -39.4 152.8	8 03.5 -40.1 153.0	6 16.6 -40.8 153.1	54										
12 45.5 -38.1 153.2	10 58.3 -38.8 153.4	9 10.9 -39.5 153.6	7 23.4 -40.2 153.7	5 35.8 -40.0 153.8	55										
12 07.4 -38.2 154.0	10 19.5 -39.0 154.2	8 31.4 -39.7 154.3	6 43.2 -40.3 154.4	4 54.8 -40.9 154.5	56										
11 29.2 -38.4 154.8	9 40.5 -39.0 155.0	7 51.7 -39.7 155.1	6 02.9 -40.4 155.2	4 13.9 -41.0 155.3	57										
10 50.8 -38.4 155.6	9 01.5 -39.1 155.7	7 12.0 -39.7 155.8	5 22.5 -40.4 155.9	3 32.9 -41.0 156.0	58										
10 12.4 -38.6 156.4	8 22.4 -39.3 156.5	6 32.3 -39.9 156.6	4 42.1 -40.5 156.7	2 51.9 -41.1 156.7	59										
9 33.8 -38.7 157.1	7 43.1 -39.3 157.3	5 52.4 -39.9 157.4	4 01.6 -40.4 157.4	2 10.8 -41.0 157.5	60										
8 55.1 -38.8 157.9	7 03.8 -39.3 158.0	5 12.5 -39.9 158.1	3 21.2 -40.6 158.2	1 29.8 -41.1 158.2	61										
8 16.3 -38.9 158.7	6 24.5 -39.5 158.8	4 32.6 -40.0 158.9	2 40.6 -40.5 158.9	0 48.7 -41.1 158.9	62										
7 37.4 -38.9 159.5	5 45.0 -39.5 159.5	3 52.6 -40.1 159.6	2 00.1 -40.6 159.6	0 07.6 -41.1 159.6	63										
6 58.5 -39.1 160.2	5 05.5 -39.5 160.3	3 12.5 -40.1 160.3	1 19.5 -40.6 160.4	0 33.5 +41.1 19.6	64										
6 19.4 -39.1 161.0	4 26.0 -39.6 161.1	2 32.4 -40.1 161.1	0 38.9 -40.6 161.1	1 14.6 +41.1 18.9	65										
5 40.3 -39.1 161.8	3 46.4 -39.7 161.8	1 52.3 -40.1 161.8	0 01.7 +40.6 18.2	1 55.7 +41.1 18.2	66										
5 01.2 -39.2 162.5	3 06.7 -39.7 162.6	1 12.2 -40.1 162.6	0 42.3 +40.6 17.4	2 36.8 +41.0 17.4	67										
4 22.0 -39.3 163.3	2 27.0 -39.7 163.3	0 32.1 -40.1 163.3	1 22.9 +40.5 16.7	3 17.8 +41.0 16.7	68										
3 42.7 -39.3 164.0	1 47.3 -39.7 164.1	0 08.0 +40.2 15.9	2 03.4 +40.6 15.9	3 58.8 +41.0 16.0	69										
3 03.4 -39.3 164.8	1 07.6 -39.7 164.8	0 48.2 +40.1 15.2	2 44.0 +40.5 15.2	4 39.8 +40.9 15.2	70										
2 24.1 -39.4 165.5	0 27.9 -39.7 165.6	1 28.3 +40.1 14.4	3 24.5 +40.5 14.5	5 20.7 +40.9 14.5	71										
1 44.7 -39.3 166.3	0 11.8 +39.8 13.7	2 08.4 +40.1 13.7	4 05.0 +40.5 13.7	6 01.6 +40.8 13.8	72										
1 05.4 -39.4 167.1	0 51.6 +39.7 12.9	2 48.5 +40.1 13.0	4 45.5 +40.4 13.0	6 42.4 +40.7 13.0	73										
0 26.0 -39.4 167.8	1 31.3 +39.7 12.2	3 28.6 +40.0 12.2	5 25.9 +40.3 12.2	7 23.1 +40.7 12.3	74										
0 13.4 +39.4 11.4	2 11.0 +39.7 11.4	4 08.6 +40.0 11.5	6 06.2 +40.3 11.5	8 03.8 +40.6 11.6	75										
0 52.8 +39.3 10.7	2 50.7 +39.6 10.7	4 48.6 +39.9 10.7	6 46.5 +40.2 10.8	8 44.4 +40.5 10.8	76										
1 32.1 +39.4 9.9	3 30.3 +39.7 9.9	5 28.5 +39.9 10.0	7 26.7 +40.2 10.0	9 24.9 +40.4 10.1	77										
2 11.5 +39.3 9.2	4 10.0 +39.5 9.2	6 08.4 +39.8 9.2	8 06.9 +40.0 9.3	10 05.3 +40.3 9.3	78										
2 50.8 +39.3 8.4	4 49.5 +39.6 8.4	6 48.2 +39.8 8.5	8 46.9 +40.0 8.5	10 45.6 +40.2 8.6	79										
3 30.1 +39.3 7.7	5 29.1 +39.4 7.7	7 28.0 +39.6 7.7	9 26.9 +39.9 7.8	11 25.8 +40.1 7.8	80										
4 09.4 +39.2 6.9	6 08.5 +39.4 6.9	8 07.6 +39.6 7.0	10 06.8 +39.7 7.0	12 05.9 +39.9 7.0	81										
4 48.6 +39.2 6.1	6 47.9 +39.4 6.2	8 47.2 +39.5 6.2	10 46.5 +39.7 6.2	12 45.8 +39.8 6.3	82										
5 27.8 +39.1 5.4	7 27.3 +39.2 5.4	9 26.7 +39.4 5.4	11 26.2 +39.5 5.5	13 25.6 +39.7 5.5	83										
6 06.9 +39.1 4.6	8 06.5 +39.2 4.6	10 06.1 +39.3 4.7	12 05.7 +39.4 4.7	14 05.3 +39.6 4.7	84										
6 46.0 +38.9 3.9	8 45.7 +39.1 3.9	10 45.4 +39.2 3.9	12 45.1 +39.3 3.9	14 44.9 +39.3 4.0	85										
7 24.9 +38.9 3.1	9 24.8 +38.9 3.1	11 24.6 +39.0 3.1	13 24.4 +39.1 3.1	15 24.2 +39.2 3.2	86										
8 03.8 +38.9 2.3	10 03.7 +38.9 2.3	12 03.6 +39.0 2.3	14 03.5 +39.0 2.4	16 03.4 +39.1 2.4	87										
8 42.7 +38.7 1.5	10 42.6 +38.8 1.6	12 42.6 +38.8 1.6	14 42.5 +38.8 1.6	16 42.5 +38.8 1.6	88										
9 21.4 +38.6 0.8	11 21.4 +38.6 0.8	13 21.4 +38.6 0.8	15 21.3 +38.7 0.8	17 21.3 +38.7 0.8	89										
10 00.0 +38.5 0.0	12 00.0 +38.5 0.0	14 00.0 +38.5 0.0	16 00.0 +38.5 0.0	18 00.0 +38.5 0.0	90										
10°	12°	14°	16°	18°											

LATITUDE SAME NAME

L.H.A. 130°, 230°

50°, 310° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	43 57.4	-1.0	67.2	44 42.2	+1.7	69.0	45 23.4	+4.5	70.9	46 00.9	+7.3	72.8	46 34.4	+10.1	74.8
31	43 56.4	-2.0	65.8	44 43.9	+0.7	67.6	45 27.9	+3.4	69.4	46 08.2	+6.2	71.4	46 44.5	+9.1	73.4
32	43 54.4	-3.0	64.4	44 44.6	-0.4	66.2	45 31.3	+2.4	68.0	46 14.4	+5.2	69.9	46 53.6	+8.0	71.9
33	43 51.4	-4.0	63.0	44 44.2	-1.4	64.7	45 33.7	+1.3	66.6	46 19.6	+4.0	68.5	47 01.6	+6.9	70.5
34	43 47.4	-5.0	61.6	44 42.8	-2.4	63.3	45 35.0	+0.2	65.2	46 23.6	+3.0	67.0	47 08.5	+5.8	69.0
35	43 42.4	-6.0	60.2	44 40.4	-3.5	61.9	45 35.2	-0.8	63.7	46 26.6	+1.9	65.6	47 14.3	+4.7	67.6
36	43 36.4	-7.0	58.9	44 36.9	-4.5	60.5	45 34.4	-1.9	62.3	46 28.5	+0.7	64.1	47 19.0	+3.5	66.1
37	43 29.4	-8.0	57.5	44 32.4	-5.5	59.1	45 32.5	-3.0	60.9	46 29.2	-0.3	62.7	47 22.5	+2.4	64.6
38	43 21.4	-8.9	56.1	44 26.9	-6.5	57.7	45 29.5	-4.1	59.4	46 28.9	-1.5	61.2	47 24.9	+1.2	63.1
39	43 12.5	-9.9	54.8	44 20.4	-7.6	56.3	45 25.4	-5.1	58.0	46 27.4	-2.5	59.8	47 26.1	+0.1	61.7
40	43 02.6	-10.8	53.4	44 12.8	-8.5	55.0	45 20.3	-6.1	56.6	46 24.9	-3.7	58.3	47 26.2	-1.0	60.2
41	42 51.8	-11.8	52.1	44 04.3	-9.5	53.6	45 14.2	-7.2	55.2	46 21.2	-4.7	56.9	47 25.2	-2.2	58.7
42	42 40.0	-12.7	50.7	43 54.8	-10.6	52.2	45 07.0	-8.2	53.8	46 16.5	-5.8	55.4	47 23.0	-3.3	57.2
43	42 27.3	-13.6	49.4	43 44.2	-11.4	50.8	44 58.8	-9.3	52.4	46 10.7	-6.9	54.0	47 19.7	-4.4	55.7
44	42 13.7	-14.5	48.1	43 32.8	-12.5	49.5	44 49.5	-10.2	51.0	46 03.8	-8.0	52.6	47 15.3	-5.6	54.3
45	41 59.2	-15.4	46.8	43 20.3	-13.4	48.1	44 39.3	-11.3	49.6	45 55.8	-9.0	51.2	47 09.7	-6.6	52.8
46	41 43.8	-16.3	45.5	43 06.9	-14.3	46.8	44 28.0	-12.2	48.2	45 46.8	-10.1	49.7	47 03.1	-7.8	51.4
47	41 27.5	-17.1	44.2	42 52.6	-15.2	45.5	44 15.8	-13.3	46.8	45 36.7	-11.1	48.3	46 55.3	-8.9	49.9
48	41 10.4	-17.9	42.9	42 37.4	-16.1	44.2	44 02.5	-14.2	45.5	45 25.6	-12.1	46.9	46 46.4	-10.0	48.5
49	40 52.5	-18.8	41.7	42 21.3	-17.0	42.8	43 48.3	-15.1	44.1	45 13.5	-13.2	45.5	46 36.4	-11.0	47.0
50	40 33.7	-19.6	40.4	42 04.3	-17.9	41.6	43 33.2	-16.0	42.8	45 00.3	-14.1	44.1	46 25.4	-12.1	45.6
51	40 14.1	-20.4	39.2	41 46.4	-18.7	40.3	43 17.2	-17.0	41.5	44 46.2	-15.1	42.8	46 13.3	-13.2	44.2
52	39 53.7	-21.1	37.9	41 27.7	-19.6	39.0	43 00.2	-17.9	40.2	44 31.1	-16.1	41.4	46 00.1	-14.1	42.8
53	39 32.6	-21.9	36.7	41 08.1	-20.3	37.7	42 42.3	-18.7	38.9	44 15.0	-17.0	40.1	45 46.0	-15.2	41.4
54	39 10.7	-22.6	35.5	40 47.5	-21.2	36.5	42 23.6	-19.6	37.6	43 58.0	-18.0	38.7	45 30.8	-16.2	40.0
55	38 48.1	-23.4	34.3	40 26.6	-21.9	35.3	42 04.0	-20.5	36.3	43 40.0	-18.8	37.4	45 14.6	-17.2	38.6
56	38 24.7	-24.0	33.1	40 04.7	-22.7	34.0	41 43.5	-21.2	35.0	43 21.2	-19.8	36.1	44 57.4	-18.1	37.3
57	38 00.7	-24.8	32.0	39 42.0	-23.4	32.8	41 22.3	-22.1	33.8	43 01.4	-20.6	34.8	44 39.3	-19.0	35.9
58	37 35.9	-25.3	30.8	39 18.6	-24.2	31.6	41 00.2	-22.8	32.5	42 40.8	-21.4	33.5	44 20.3	-20.0	34.6
59	37 10.6	-26.1	29.7	38 54.4	-24.9	30.5	40 37.4	-23.6	31.3	42 19.4	-22.3	32.3	44 00.3	-20.8	33.3
60	36 44.5	-26.7	28.6	38 29.5	-25.5	29.3	40 13.8	-24.4	30.1	41 57.1	-23.1	31.0	43 39.5	-21.8	32.0
61	36 17.8	-27.3	27.4	38 04.0	-26.2	28.1	39 49.4	-25.1	28.9	41 34.0	-23.8	29.8	43 17.7	-22.5	30.7
62	35 50.5	-27.8	26.3	37 37.8	-26.9	27.0	39 24.3	-25.7	27.7	41 10.2	-24.7	28.5	42 55.2	-23.5	29.4
63	35 22.7	-28.5	25.2	37 10.9	-27.5	25.9	38 58.6	-26.5	26.6	40 45.5	-25.3	27.3	42 31.7	-24.2	28.2
64	34 54.2	-29.0	24.2	36 43.4	-28.1	24.8	38 32.1	-27.1	25.4	40 20.2	-26.2	26.1	42 07.5	-25.0	26.9
65	34 25.2	-29.6	23.1	36 15.3	-28.7	23.7	38 05.0	-27.8	24.3	39 54.0	-26.8	25.0	41 42.5	-25.8	25.7
66	33 55.6	-30.1	22.1	35 46.6	-29.3	22.6	37 37.2	-28.4	23.2	39 27.2	-27.5	23.8	41 16.7	-26.5	24.5
67	33 25.5	-30.6	21.0	35 17.3	-29.8	21.5	37 08.8	-29.1	22.1	38 59.7	-28.1	22.7	40 50.2	-27.2	23.3
68	32 54.9	-31.1	20.0	34 47.5	-30.4	20.5	36 39.7	-29.6	21.0	38 31.6	-28.8	21.5	40 23.0	-28.0	22.1
69	32 23.8	-31.6	19.0	34 17.1	-30.9	19.4	36 10.1	-30.2	19.9	38 02.8	-29.5	20.4	39 55.0	-28.6	21.0
70	31 52.2	-32.1	18.0	33 46.2	-31.5	18.4	35 39.9	-30.7	18.8	37 33.3	-30.0	19.3	39 26.4	-29.3	19.8
71	31 20.1	-32.5	17.0	33 14.7	-31.9	17.4	35 09.2	-31.3	17.8	37 03.3	-30.6	18.2	38 57.1	-29.9	18.7
72	30 47.6	-33.0	16.0	32 42.8	-32.4	16.3	34 37.9	-31.9	16.7	36 32.7	-31.2	17.1	38 27.2	-30.6	17.6
73	30 14.6	-33.4	15.0	32 10.4	-32.8	15.3	34 06.0	-32.3	15.7	36 01.5	-31.8	16.1	37 56.6	-31.1	16.5
74	29 41.2	-33.8	14.1	31 37.6	-33.4	14.4	33 33.7	-32.8	14.7	35 29.7	-32.3	15.0	37 25.5	-31.7	15.4
75	29 07.4	-34.2	13.1	31 04.2	-33.7	13.4	33 00.9	-33.3	13.7	34 57.4	-32.8	14.0	36 53.8	-32.3	14.4
76	28 33.2	-34.5	12.2	30 30.5	-34.2	12.4	32 27.6	-33.7	12.7	34 24.6	-33.3	13.0	36 21.5	-32.9	13.3
77	27 58.7	-35.0	11.3	29 56.3	-34.6	11.5	31 53.9	-34.2	11.7	33 51.3	-33.8	12.0	35 48.6	-33.3	12.3
78	27 23.7	-35.3	10.3	29 21.7	-34.9	10.5	31 19.7	-34.6	10.7	33 17.5	-34.2	11.0	35 15.3	-33.9	11.2
79	26 48.4	-35.6	9.4	28 46.8	-35.4	9.6	30 45.1	-35.1	9.8	32 43.3	-34.7	10.0	34 41.4	-34.3	10.2
80	26 12.8	-36.0	8.5	28 11.4	-35.7	8.7	30 10.0	-35.4	8.9	32 08.6	-35.2	9.0	34 07.1	-34.9	9.2
81	25 36.8	-36.3	7.6	27 35.7	-36.0	7.8	29 34.6	-35.8	7.9	31 33.4	-35.5	8.1	33 32.2	-35.3	8.3
82	25 00.5	-36.6	6.8	26 59.7	-36.4	6.9	28 58.8	-36.2	7.0	30 57.9	-36.0	7.1	32 56.9	-35.7	7.3
83	24 23.9	-36.9	5.9	26 23.3	-36.7	6.0	28 22.6	-36.5	6.1	30 21.9	-36.3	6.2	32 21.2	-36.2	6.3
84	23 47.0	-37.2	5.0	25 46.6	-37.1	5.1	27 46.1	-36.9	5.2	29 45.6	-36.8	5.3	31 45.0	-36.5	5.4
85	23 09.8	-37.4	4.2	25 09.5	-37.3	4.2	27 09.2	-37.2	4.3	29 08.8	-37.1	4.4	31 08.5	-37.0	4.5
86	22 32.4	-37.7	3.3	24 32.2	-37.7	3.4	26 32.0	-37.6	3.4	28 31.7	-37.4	3.5	30 31.5	-37.3	3.6
87	21 54.7	-38.0	2.5	23 54.5	-37.9	2.5	25 54.4	-37.8	2.6	27 54.3	-37.8	2.6	29 54.2	-37.7	2.7
88	21 16.7	-38.2	1.6	23 16.6	-38.2	1.7	25 16.6	-38.2	1.7	27 16.5	-38.1	1.7	29 16.5	-38.1	1.8
89	20 38.5	-38.5	0.8	22 38.4	-38.4	0.8	24 38.4	-38.4	0.8	26 38.4	-38.4	0.9	28 38.4	-38.4	0.9
90	20 00.0	-38.7	0.0	22 00.0	-38.7	0.0	24 00.0	-38.7	0.0	26 00.0	-38.7	0.0	28 00.0	-38.7	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 50°, 310°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
20 36.9	-38.5	134.9	19 11.9	-39.7	135.4	17 46.1	-40.8	135.8	16 19.7	-41.9	136.3	14 52.7	-42.9	136.7	30
19 58.4	-38.6	135.7	18 32.2	-39.8	136.2	17 05.3	-40.9	136.6	15 37.8	-42.0	137.0	14 09.8	-43.1	137.4	31
19 19.8	-38.9	136.5	17 52.4	-40.0	137.0	16 24.4	-41.1	137.4	14 55.8	-42.1	137.8	13 26.7	-43.1	138.1	32
18 40.9	-39.1	137.3	17 12.4	-40.3	137.7	15 43.3	-41.3	138.1	14 13.7	-42.3	138.5	12 43.6	-43.3	138.8	33
18 01.8	-39.3	138.1	16 32.1	-40.3	138.5	15 02.0	-41.4	138.9	13 31.4	-42.5	139.2	12 00.3	-43.4	139.5	34
17 22.5	-39.5	138.9	15 51.8	-40.6	139.3	14 20.6	-41.6	139.6	12 48.9	-42.5	139.9	11 16.9	-43.5	140.2	35
16 43.0	-39.7	139.7	15 11.2	-40.7	140.0	13 39.0	-41.7	140.4	12 06.4	-42.7	140.7	10 33.4	-43.6	140.9	36
16 03.3	-39.8	140.5	14 30.5	-40.8	140.8	12 57.3	-41.8	141.1	11 23.7	-42.7	141.4	9 49.8	-43.7	141.6	37
15 23.5	-40.0	141.2	13 49.7	-41.0	141.6	12 15.5	-41.9	141.8	10 41.0	-42.9	142.1	9 06.1	-43.7	142.3	38
14 43.5	-40.2	142.0	13 08.7	-41.1	142.3	11 33.6	-42.1	142.6	9 58.1	-42.9	142.8	8 22.4	-43.8	143.0	39
14 03.3	-40.3	142.8	12 27.6	-41.2	143.1	10 51.5	-42.1	143.3	9 15.2	-43.1	143.5	7 38.6	-43.9	143.7	40
13 23.0	-40.4	143.5	11 46.4	-41.4	143.8	10 09.4	-42.3	144.0	8 32.1	-43.1	144.2	6 54.7	-44.0	144.4	41
12 42.6	-40.5	144.3	11 05.0	-41.4	144.5	9 27.1	-42.3	144.8	7 49.0	-43.1	144.9	6 10.7	-44.1	145.1	42
12 02.1	-40.7	145.1	10 23.6	-41.6	145.3	8 44.8	-42.4	145.5	7 05.9	-43.3	145.6	5 26.7	-44.0	145.8	43
11 21.4	-40.8	145.8	9 42.0	-41.6	146.0	8 02.4	-42.5	146.2	6 22.6	-43.3	146.3	4 42.7	-44.1	146.4	44
10 40.6	-40.9	146.5	9 00.4	-41.8	146.7	7 19.9	-42.5	146.9	5 39.3	-43.3	147.0	3 58.6	-44.1	147.1	45
9 59.7	-41.0	147.3	8 18.6	-41.8	147.5	6 37.4	-42.6	147.6	4 56.0	-43.4	147.7	3 14.5	-44.2	147.8	46
9 18.7	-41.1	148.0	7 36.8	-41.9	148.2	5 54.8	-42.7	148.3	4 12.6	-43.4	148.4	2 30.3	-44.1	148.5	47
8 37.6	-41.2	148.8	6 54.9	-41.9	148.9	5 12.1	-42.7	149.0	3 29.2	-43.5	149.1	1 46.2	-44.2	149.1	48
7 56.4	-41.2	149.5	6 13.0	-42.0	149.6	4 29.4	-42.8	149.7	2 45.7	-43.5	149.8	1 02.0	-44.2	149.8	49
7 15.2	-41.3	150.2	5 31.0	-42.1	150.4	3 46.6	-42.8	150.4	2 02.2	-43.5	150.5	0 17.8	-44.2	150.5	50
6 33.9	-41.4	151.0	4 48.9	-42.1	151.1	3 03.8	-42.8	151.1	1 18.7	-43.5	151.2	0 26.4	+44.2	28.8	51
5 52.5	-41.4	151.7	4 06.8	-42.1	151.8	2 21.0	-42.8	151.8	0 35.2	-43.5	151.9	1 10.6	+44.2	28.1	52
5 11.1	-41.5	152.4	3 24.7	-42.2	152.5	1 38.2	-42.9	152.5	0 08.3	+43.5	27.5	1 54.8	+44.1	27.5	53
4 29.6	-41.6	153.1	2 42.5	-42.2	153.2	0 55.3	-42.8	153.2	0 51.8	+43.5	26.8	2 38.9	+44.2	26.8	54
3 48.0	-41.5	153.9	2 00.3	-42.2	153.9	0 12.5	-42.9	153.9	1 35.3	+43.5	26.1	3 23.1	+44.1	26.1	55
3 06.5	-41.6	154.6	1 18.1	-42.3	154.6	0 30.4	+42.8	25.4	2 18.8	+43.5	25.4	4 07.2	+44.1	25.4	56
2 24.9	-41.6	155.3	0 35.8	-42.2	155.3	1 13.2	+42.9	24.7	3 02.3	+43.4	24.7	4 51.3	+44.0	24.8	57
1 43.3	-41.7	156.0	0 06.4	+42.2	24.0	1 56.1	+42.8	24.0	3 45.7	+43.4	24.0	5 35.3	+44.0	24.1	58
1 01.6	-41.6	156.8	0 48.6	+42.3	23.2	2 38.9	+42.8	23.3	4 29.1	+43.4	23.3	6 19.3	+43.9	23.4	59
0 20.0	-41.7	157.5	1 30.9	+42.2	22.5	3 21.7	+42.8	22.6	5 12.5	+43.3	22.6	7 03.2	+43.9	22.7	60
0 21.7	+41.6	21.8	2 13.1	+42.2	21.8	4 04.5	+42.7	21.9	5 55.8	+43.3	21.9	7 47.1	+43.8	22.0	61
1 03.3	+41.6	21.1	2 55.3	+42.1	21.1	4 47.2	+42.7	21.2	6 39.1	+43.2	21.2	8 30.9	+43.7	21.3	62
1 44.9	+41.7	20.4	3 37.4	+42.2	20.4	5 29.9	+42.6	20.4	7 22.3	+43.2	20.5	9 14.6	+43.7	20.6	63
2 26.6	+41.6	19.6	4 19.6	+42.1	19.7	6 12.5	+42.6	19.7	8 05.5	+43.0	19.8	9 58.3	+43.6	19.9	64
3 08.2	+41.5	18.9	5 01.7	+42.0	19.0	6 55.1	+42.5	19.0	8 48.5	+43.0	19.1	10 41.9	+43.4	19.2	65
3 49.7	+41.5	18.2	5 43.7	+42.0	18.2	7 37.6	+42.5	18.3	9 31.5	+42.9	18.4	11 25.3	+43.4	18.5	66
4 31.2	+41.5	17.5	6 25.7	+41.9	17.5	8 20.1	+42.4	17.6	10 14.4	+42.9	17.7	12 08.7	+43.3	17.8	67
5 12.7	+41.5	16.7	7 07.6	+41.9	16.8	9 02.5	+42.3	16.9	10 57.3	+42.7	17.0	12 52.0	+43.1	17.1	68
5 54.2	+41.3	16.0	7 49.5	+41.8	16.1	9 44.8	+42.2	16.2	11 40.0	+42.6	16.3	13 35.1	+43.1	16.4	69
6 35.5	+41.4	15.3	8 31.3	+41.7	15.4	10 27.0	+42.1	15.5	12 22.6	+42.5	15.6	14 18.2	+42.9	15.7	70
7 16.9	+41.2	14.6	9 13.0	+41.6	14.6	11 09.1	+42.0	14.7	13 05.1	+42.4	14.8	15 01.1	+42.7	15.0	71
7 58.1	+41.2	13.8	9 54.6	+41.5	13.9	11 51.1	+41.9	14.0	13 47.5	+42.2	14.1	15 43.8	+42.6	14.2	72
8 39.3	+41.1	13.1	10 36.1	+41.5	13.2	12 33.0	+41.7	13.3	14 29.7	+42.1	13.4	16 26.4	+42.5	13.5	73
9 20.4	+40.9	12.4	11 17.6	+41.3	12.4	13 14.7	+41.7	12.5	15 11.8	+42.0	12.6	17 08.9	+42.3	12.8	74
10 01.3	+40.9	11.6	11 58.9	+41.2	11.7	13 56.4	+41.5	11.8	15 53.8	+41.8	11.9	17 51.2	+42.1	12.0	75
10 42.2	+40.8	10.9	12 40.1	+41.0	10.9	14 37.9	+41.3	11.0	16 35.6	+41.7	11.1	18 33.3	+42.0	11.3	76
11 23.0	+40.7	10.1	13 21.1	+41.0	10.2	15 19.2	+41.2	10.3	17 17.3	+41.5	10.4	19 15.3	+41.7	10.5	77
12 03.7	+40.5	9.4	14 02.1	+40.8	9.4	16 00.4	+41.1	9.5	17 58.8	+41.3	9.6	19 57.0	+41.6	9.8	78
12 44.2	+40.5	8.6	14 42.9	+40.6	8.7	16 41.5	+40.9	8.8	18 40.1	+41.1	8.9	20 38.6	+41.4	9.0	79
13 24.7	+40.3	7.9	15 23.5	+40.5	7.9	17 22.4	+40.7	8.0	19 21.2	+40.9	8.1	21 20.0	+41.1	8.2	80
14 05.0	+40.1	7.1	16 04.0	+40.4	7.2	18 03.1	+40.5	7.2	20 02.1	+40.7	7.3	22 01.1	+40.9	7.4	81
14 45.1	+40.0	6.3	16 44.4	+40.1	6.4	18 43.6	+40.3	6.5	20 42.8	+40.5	6.5	22 42.0	+40.7	6.6	82
15 25.1	+39.8	5.6	17 24.5	+40.0	5.6	19 23.9	+40.2	5.7	21 23.3	+40.3	5.8	23 22.7	+40.5	5.8	83
16 04.9	+39.7	4.8	18 04.5	+39.8	4.8	20 04.1	+39.9	4.9	22 03.6	+40.1	5.0	24 03.2	+40.1	5.0	84
16 44.6	+39.4	4.0	18 44.3	+39.6	4.0	20 44.0	+39.7	4.1	22 43.7	+39.8	4.2	24 43.3	+39.9	4.2	85
17 24.0	+39.3	3.2	19 23.9	+39.3	3.2	21 23.7	+39.4	3.3	23 23.5	+39.5	3.3	25 23.2	+39.7	3.4	86
18 03.3	+39.1	2.4	20 03.2	+39.2	2.4	22 03.1	+39.2	2.5	24 03.0	+39.3	2.5	26 02.9	+39.3	2.6	87
18 42.4	+38.9	1.6	20 42.4	+38.9	1.6	22 42.3	+39.0	1.7	24 42.3	+39.0	1.7	26 42.2	+39.1	1.7	88
19 21.3	+38.7	0.8	21 21.3	+38.7	0.8	23 21.3	+38.7	0.8	25 21.3	+38.7	0.8	27 21.3	+38.7	0.9	89
20 00.0	+38.5	0.0	22 00.0	+38.4	0.0	24 00.0	+38.4	0.0	26 00.0	+38.4	0.0	28 00.0	+38.4	0.0	90

LATITUDE SAME NAME

L.H.A. 130°, 230°

52°, 308° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	32 13.2	-22.1	53.8	33 23.3	-20.3	54.8	34 31.5	-18.3	55.9	35 37.7	-16.3	57.1	36 41.8	-14.2	58.3
31	31 51.1	-22.7	52.7	33 03.0	-20.8	53.7	34 13.2	-19.0	54.8	35 21.4	-16.9	55.9	36 27.6	-14.9	57.1
32	31 28.4	-23.2	51.6	32 42.2	-21.4	52.6	33 54.2	-19.5	53.6	35 04.5	-17.6	54.7	36 12.7	-15.6	55.9
33	31 05.2	-23.7	50.5	32 20.8	-22.0	51.5	33 34.7	-20.2	52.5	34 46.9	-18.3	53.6	35 57.1	-16.3	54.7
34	30 41.5	-24.3	49.4	31 58.8	-22.6	50.4	33 14.5	-20.8	51.4	34 28.6	-19.0	52.4	35 40.8	-17.0	53.5
35	30 17.2	-24.8	48.4	31 36.2	-23.1	49.3	32 53.7	-21.4	50.2	34 09.6	-19.5	51.3	35 23.8	-17.7	52.4
36	29 52.4	-25.3	47.3	31 13.1	-23.7	48.2	32 32.3	-21.9	49.1	33 50.1	-20.2	50.1	35 06.1	-18.3	51.2
37	29 27.1	-25.8	46.3	30 49.4	-24.2	47.1	32 10.4	-22.6	48.0	33 29.9	-20.9	49.0	34 47.8	-19.0	50.0
38	29 01.3	-26.2	45.2	30 25.2	-24.7	46.1	31 47.8	-23.1	46.9	33 09.0	-21.4	47.9	34 28.8	-19.7	48.9
39	28 35.1	-26.7	44.2	30 00.5	-25.2	45.0	31 24.7	-23.6	45.9	32 47.6	-22.0	46.8	34 09.1	-20.3	47.7
40	28 08.4	-27.2	43.2	29 35.3	-25.7	44.0	31 01.1	-24.2	44.8	32 25.6	-22.5	45.7	33 48.8	-20.9	46.6
41	27 41.2	-27.5	42.2	29 09.6	-26.1	42.9	30 36.9	-24.6	43.7	32 03.1	-23.2	44.6	33 27.9	-21.5	45.5
42	27 13.7	-28.1	41.2	28 43.5	-26.7	41.9	30 12.3	-25.2	42.7	31 39.9	-23.6	43.5	33 06.4	-22.1	44.4
43	26 45.6	-28.4	40.2	28 16.8	-27.0	40.9	29 47.1	-25.7	41.6	31 16.3	-24.2	42.4	32 44.3	-22.7	43.2
44	26 17.2	-28.8	39.2	27 49.8	-27.5	39.9	29 21.4	-26.1	40.6	30 52.1	-24.8	41.3	32 21.6	-23.3	42.1
45	25 48.4	-29.2	38.2	27 22.3	-28.0	38.9	28 55.3	-26.7	39.5	30 27.3	-25.2	40.3	31 58.3	-23.8	41.1
46	25 19.2	-29.6	37.3	26 54.3	-28.3	37.9	28 28.6	-27.0	38.5	30 02.1	-25.8	39.2	31 34.5	-24.3	40.0
47	24 49.6	-29.9	36.3	26 26.0	-28.8	36.9	28 01.6	-27.5	37.5	29 36.3	-26.2	38.2	31 10.2	-24.9	38.9
48	24 19.7	-30.3	35.4	25 57.2	-29.1	35.9	27 34.1	-28.0	36.5	29 10.1	-26.7	37.1	30 45.3	-25.4	37.8
49	23 49.4	-30.7	34.4	25 28.1	-29.6	34.9	27 06.1	-28.4	35.5	28 43.4	-27.1	36.1	30 19.1	-25.8	36.8
50	23 18.7	-31.0	33.5	24 58.5	-29.9	34.0	26 37.7	-28.7	34.5	28 16.3	-27.6	35.1	29 54.1	-26.4	35.8
51	22 47.7	-31.2	32.5	24 28.6	-30.2	33.0	26 09.0	-29.2	33.5	27 48.7	-28.1	34.1	29 27.7	-26.9	34.7
52	22 16.5	-31.7	31.6	23 58.4	-30.6	32.1	25 39.8	-29.5	32.6	27 20.6	-28.4	33.1	29 00.8	-27.3	33.7
53	21 44.8	-31.9	30.7	23 27.8	-30.9	31.1	25 10.3	-30.0	31.6	26 52.2	-28.9	32.1	28 33.5	-27.7	32.7
54	21 12.9	-32.2	29.8	22 56.9	-31.3	30.2	24 40.3	-30.2	30.6	26 23.3	-29.2	31.1	28 05.8	-28.2	31.7
55	20 40.7	-32.5	28.9	22 25.6	-31.6	29.3	24 10.1	-30.7	29.7	25 54.1	-29.7	30.2	27 37.6	-28.7	30.7
56	20 08.2	-32.7	28.0	21 54.0	-31.8	28.4	23 39.4	-30.9	28.8	25 24.4	-30.0	29.2	27 08.9	-29.0	29.7
57	19 35.5	-33.0	27.1	21 22.2	-32.2	27.4	23 08.5	-31.3	27.8	24 54.4	-30.4	28.2	26 39.9	-29.4	28.7
58	19 02.5	-33.3	26.2	20 50.0	-32.5	26.5	22 37.2	-31.6	26.9	24 24.0	-30.7	27.3	26 10.5	-29.9	27.7
59	18 29.2	-33.5	25.3	20 17.5	-32.7	25.6	22 05.6	-31.9	26.0	23 53.3	-31.1	26.4	25 40.6	-30.2	26.8
60	17 55.7	-33.7	24.5	19 44.8	-33.0	24.7	21 33.7	-32.2	25.1	23 22.2	-31.4	25.4	25 10.4	-30.6	25.8
61	17 22.0	-34.0	23.6	19 11.8	-33.2	23.9	21 01.5	-32.5	24.2	22 50.8	-31.7	24.5	24 39.8	-30.9	24.9
62	16 48.0	-34.2	22.7	18 38.6	-33.5	23.0	20 29.0	-32.8	23.3	22 19.1	-32.1	23.6	24 08.9	-31.3	23.9
63	16 13.8	-34.3	21.9	18 05.1	-33.7	22.1	19 56.2	-33.1	22.4	21 47.0	-32.3	22.7	23 37.6	-31.6	23.0
64	15 39.5	-34.6	21.0	17 31.4	-34.0	21.2	19 23.1	-33.2	21.5	21 14.7	-32.6	21.8	23 06.0	-31.9	22.1
65	15 04.9	-34.8	20.2	16 57.4	-34.1	20.4	18 49.9	-33.6	20.6	20 42.1	-32.9	20.9	22 34.1	-32.2	21.1
66	14 30.1	-34.9	19.3	16 23.3	-34.4	19.5	18 16.3	-33.8	19.7	20 09.2	-33.2	20.0	22 01.9	-32.5	20.2
67	13 55.2	-35.1	18.5	15 48.9	-34.6	18.7	17 42.5	-34.0	18.9	19 36.0	-33.4	19.1	21 29.4	-32.9	19.3
68	13 20.1	-35.3	17.7	15 14.3	-34.7	17.8	17 08.5	-34.2	18.0	19 02.6	-33.7	18.2	20 56.5	-33.1	18.4
69	12 44.8	-35.5	16.8	14 39.6	-34.9	17.0	16 34.3	-34.4	17.1	18 28.9	-33.9	17.3	20 23.4	-33.3	17.5
70	12 09.3	-35.5	16.0	14 04.7	-35.2	16.1	15 59.9	-34.6	16.3	17 55.0	-34.1	16.5	19 50.1	-33.7	16.6
71	11 33.8	-35.8	15.2	13 29.5	-35.2	15.3	15 25.3	-34.9	15.4	17 20.9	-34.4	15.6	19 16.4	-33.9	15.8
72	10 58.0	-35.8	14.4	12 54.3	-35.5	14.5	14 50.4	-35.0	14.6	16 46.5	-34.6	14.7	18 42.5	-34.1	14.9
73	10 22.2	-36.0	13.5	12 18.8	-35.5	13.6	14 15.4	-35.2	13.8	16 11.9	-34.7	13.9	18 08.4	-34.3	14.0
74	9 46.2	-36.1	12.7	11 43.3	-35.8	12.8	13 40.2	-35.3	12.9	15 37.2	-35.0	13.0	17 34.1	-34.6	13.2
75	9 10.1	-36.2	11.9	11 07.5	-35.8	12.0	13 04.9	-35.5	12.1	15 02.2	-35.1	12.2	16 59.5	-34.8	12.3
76	8 33.9	-36.3	11.1	10 31.7	-36.0	11.2	12 29.4	-35.7	11.3	14 27.1	-35.4	11.4	16 24.7	-35.0	11.5
77	7 57.6	-36.3	10.3	9 55.7	-36.1	10.4	11 53.7	-35.8	10.4	13 51.7	-35.5	10.5	15 49.7	-35.2	10.6
78	7 21.3	-36.5	9.5	9 19.6	-36.2	9.6	11 17.9	-35.9	9.6	13 16.2	-35.6	9.7	15 14.5	-35.4	9.8
79	6 44.8	-36.6	8.7	8 43.4	-36.3	8.7	10 42.0	-36.1	8.8	12 40.6	-35.8	8.9	14 39.1	-35.5	8.9
80	6 08.2	-36.6	7.9	8 07.1	-36.4	7.9	10 05.9	-36.2	8.0	12 04.8	-36.0	8.0	14 03.6	-35.8	8.1
81	5 31.6	-36.7	7.1	7 30.7	-36.5	7.1	9 29.7	-36.2	7.2	11 28.8	-36.1	7.2	13 27.8	-35.9	7.3
82	4 54.9	-36.7	6.3	6 54.2	-36.6	6.3	8 53.5	-36.4	6.4	10 52.7	-36.2	6.4	12 51.9	-36.0	6.5
83	4 18.2	-36.8	5.5	6 17.6	-36.6	5.5	8 17.1	-36.5	5.6	10 16.5	-36.4	5.6	12 15.9	-36.2	5.6
84	3 41.4	-36.8	4.7	5 41.0	-36.7	4.7	7 40.6	-36.6	4.8	9 40.1	-36.4	4.8	11 39.7	-36.3	4.8
85	3 04.6	-36.9	3.9	5 04.3	-36.8	4.0	7 04.0	-36.7	4.0	9 03.7	-36.6	4.0	11 03.4	-36.5	4.0
86	2 27.7	-36.9	3.2	4 27.5	-36.8	3.2	6 27.3	-36.7	3.2	8 27.1	-36.6	3.2	10 26.9	-36.5	3.2
87	1 50.8	-36.9	2.4	3 50.7	-36.9	2.4	5 50.6	-36.8	2.4	7 50.5	-36.8	2.4	9 50.4	-36.7	2.4
88	1 13.9	-37.0	1.6	3 13.8	-36.9	1.6	5 13.8	-36.9	1.6	7 13.7	-36.8	1.6	9 13.7	-36.8	1.6
89	0 36.9	-36.9	0.8	2 36.9	-36.9	0.8	4 36.9	-36.9	0.8	6 36.9	-36.9	0.8	8 36.9	-36.9	0.8
90	0 00.0	-36.9	0.0	2 00.0	-36.9	0.0	4 00.0	-37.0	0.0	6 00.0	-37.0	0.0	8 00.0	-37.0	0.0

LATITUDE CONTRARY NAME

L.H.A. 52°, 308°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
32	13.2	-22.1 126.2	31	01.5	-24.0 127.2	29	48.1	-25.6 128.1	28	33.3	-27.4 129.0	27	17.0	-28.9 129.8	30
31	51.1	-22.7 127.3	30	37.5	-24.4 128.3	29	22.5	-26.2 129.2	28	05.9	-27.7 130.0	26	48.1	-29.3 130.8	31
31	28.4	-23.2 128.4	30	13.1	-24.9 129.3	28	56.3	-26.6 130.2	27	38.2	-28.2 131.0	26	18.8	-29.7 131.8	32
31	05.2	-23.7 129.5	29	48.2	-25.5 130.4	28	29.7	-27.0 131.2	27	10.0	-28.6 132.0	25	49.1	-30.1 132.8	33
30	41.5	-24.3 130.6	29	22.7	-25.9 131.4	28	02.7	-27.5 132.3	26	41.4	-29.0 133.0	25	19.0	-30.5 133.7	34
30	17.2	-24.8 131.6	28	56.8	-26.4 132.5	27	35.2	-28.0 133.3	26	12.4	-29.4 134.0	24	48.5	-30.8 134.7	35
29	52.4	-25.3 132.7	28	30.4	-26.8 133.5	27	07.2	-28.3 134.3	25	43.0	-29.8 135.0	24	17.7	-31.2 135.6	36
29	27.1	-25.8 133.7	28	03.6	-27.3 134.5	26	38.9	-28.8 135.2	25	13.2	-30.2 135.9	23	46.5	-31.5 136.6	37
29	01.3	-26.2 134.8	27	36.3	-27.8 135.5	26	10.1	-29.1 136.2	24	43.0	-30.5 136.9	23	15.0	-31.8 137.5	38
28	35.1	-26.7 135.8	27	08.5	-28.1 136.5	25	41.0	-29.5 137.2	24	12.5	-30.9 137.8	22	43.2	-32.2 138.4	39
28	08.4	-27.2 136.8	26	40.4	-28.6 137.5	25	11.5	-29.9 138.2	23	41.6	-31.2 138.8	22	11.0	-32.4 139.3	40
27	41.2	-27.5 137.8	26	11.8	-28.9 138.5	24	41.6	-30.3 139.1	23	10.4	-31.5 139.7	21	38.6	-32.8 140.2	41
27	13.7	-28.1 138.8	25	42.9	-29.3 139.5	24	11.3	-30.6 140.1	22	38.9	-31.8 140.6	21	05.8	-33.0 141.1	42
26	45.6	-28.4 139.8	25	13.6	-29.7 140.4	23	40.7	-31.0 141.0	22	07.1	-32.2 141.5	20	32.8	-33.3 142.0	43
26	17.2	-28.8 140.8	24	43.9	-30.1 141.4	23	09.7	-31.3 141.9	21	34.9	-32.4 142.4	19	59.5	-33.6 142.9	44
25	48.4	-29.2 141.8	24	13.8	-30.4 142.3	22	38.4	-31.5 142.9	21	02.5	-32.7 143.3	19	25.9	-33.8 143.8	45
25	19.2	-29.6 142.7	23	43.4	-30.8 143.3	22	06.9	-31.9 143.8	20	29.8	-33.0 144.2	18	52.1	-34.0 144.7	46
24	49.6	-29.9 143.7	23	12.6	-31.1 144.2	21	35.0	-32.2 144.7	19	56.8	-34.3 145.1	18	18.1	-34.3 145.5	47
24	19.7	-30.3 144.6	22	41.5	-31.4 145.1	21	02.8	-32.5 145.6	19	23.5	-33.5 146.0	17	43.8	-34.5 146.4	48
23	49.4	-30.7 145.6	22	10.1	-31.7 146.1	20	30.3	-32.8 146.5	18	50.0	-33.8 146.9	17	09.3	-34.8 147.2	49
23	18.7	-31.0 146.5	21	38.4	-32.1 147.0	19	57.5	-33.0 147.4	18	16.2	-33.9 147.8	16	34.5	-34.9 148.1	50
22	47.7	-31.2 147.5	21	06.3	-32.3 147.9	19	24.5	-33.3 148.3	17	42.2	-34.2 148.6	15	59.6	-35.2 148.9	51
22	16.5	-31.7 148.4	20	34.0	-32.5 148.8	18	51.2	-33.5 149.2	17	08.0	-34.5 149.5	15	24.4	-35.3 149.8	52
21	44.8	-31.9 149.3	20	01.5	-32.9 149.7	18	17.7	-33.8 150.0	16	33.5	-34.6 150.3	14	49.1	-35.5 150.6	53
21	12.9	-32.2 150.2	19	28.6	-33.1 150.6	17	43.9	-34.0 150.9	15	58.9	-34.9 151.2	14	13.6	-35.7 151.5	54
20	40.7	-32.5 151.1	18	55.5	-33.4 151.5	17	09.9	-34.2 151.8	15	24.0	-35.0 152.0	13	37.9	-35.8 152.3	55
20	08.2	-32.7 152.0	18	22.1	-33.6 152.3	16	35.7	-34.4 152.6	14	49.0	-35.2 152.9	13	02.1	-36.0 153.1	56
19	35.5	-33.0 152.9	17	48.5	-33.8 153.2	16	01.3	-34.6 153.5	14	13.8	-35.4 153.7	12	26.1	-36.2 153.9	57
19	02.5	-33.3 153.8	17	14.7	-34.1 154.1	15	26.7	-34.9 154.3	13	38.4	-35.6 154.6	11	49.9	-36.2 154.7	58
18	29.2	-33.5 154.7	16	40.6	-34.2 154.9	14	51.8	-35.0 155.2	13	02.8	-35.7 155.4	11	13.7	-36.5 155.6	59
17	55.7	-33.7 155.5	16	06.4	-34.5 155.8	14	16.8	-35.1 156.0	12	27.1	-35.9 156.2	10	37.2	-36.5 156.4	60
17	22.0	-34.0 156.4	15	31.9	-34.7 156.6	13	41.7	-35.4 156.8	11	51.2	-36.0 157.0	10	00.7	-36.7 157.2	61
16	48.0	-34.2 157.3	14	57.2	-34.8 157.5	13	06.3	-35.5 157.7	11	15.2	-36.1 157.8	9	24.0	-36.7 158.0	62
16	13.8	-34.3 158.1	14	22.4	-35.0 158.3	12	30.8	-35.6 158.5	10	39.1	-36.3 158.7	8	47.3	-36.9 158.8	63
15	39.5	-34.6 159.0	13	47.4	-35.2 159.2	11	55.2	-35.8 159.3	10	02.8	-36.3 159.5	8	10.4	-36.9 159.6	64
15	04.9	-34.8 159.8	13	12.2	-35.4 160.0	11	19.4	-36.0 160.1	9	26.5	-36.5 160.3	7	33.5	-37.1 160.4	65
14	30.1	-34.9 160.7	12	36.8	-35.5 160.8	10	43.4	-36.0 161.0	8	50.0	-36.6 161.1	6	56.4	-37.1 161.2	66
13	55.2	-35.1 161.5	12	01.3	-35.6 161.7	10	07.4	-36.2 161.8	8	13.4	-36.7 161.9	6	19.3	-37.2 162.0	67
13	20.1	-35.3 162.3	11	25.7	-35.8 162.5	9	31.2	-36.3 162.6	7	36.7	-36.8 162.7	5	42.1	-37.3 162.7	68
12	44.8	-35.5 163.2	10	49.9	-35.9 163.3	8	54.9	-36.4 163.4	6	59.9	-36.9 163.5	5	04.8	-37.3 163.5	69
12	09.3	-35.5 164.0	10	14.0	-36.1 164.1	8	18.5	-36.5 164.2	6	23.0	-36.9 164.3	4	27.5	-37.3 164.3	70
11	33.8	-35.8 164.8	9	37.9	-36.1 164.9	7	42.0	-36.5 165.0	5	46.1	-37.0 165.1	3	50.2	-37.5 165.1	71
10	58.0	-35.8 165.6	9	01.8	-36.3 165.7	7	05.5	-36.7 165.8	5	09.1	-37.0 165.8	3	12.7	-37.4 165.9	72
10	22.2	-36.0 166.5	8	25.5	-36.3 166.5	6	28.8	-36.7 166.6	4	32.1	-37.2 166.6	2	35.3	-37.5 166.7	73
9	46.2	-36.1 167.3	7	49.2	-36.5 167.3	5	52.1	-36.8 167.4	3	54.9	-37.1 167.4	1	57.8	-37.5 167.4	74
9	10.1	-36.2 168.1	7	12.7	-36.5 168.1	5	15.3	-36.9 168.2	3	17.8	-37.2 168.2	1	20.3	-37.5 168.2	75
8	33.9	-36.3 168.9	6	36.2	-36.6 168.9	4	38.4	-36.9 169.0	2	40.6	-37.2 169.0	0	42.8	-37.5 169.0	76
7	57.6	-36.3 169.7	5	59.6	-36.7 169.7	4	01.5	-37.0 169.8	2	03.4	-37.2 169.8	0	05.3	-37.5 169.8	77
7	21.3	-36.5 170.5	5	22.9	-36.7 170.5	3	24.5	-37.0 170.6	1	26.2	-37.3 170.6	0	32.2	+37.5 170.6	78
6	44.8	-36.6 171.3	4	46.2	-36.8 171.3	2	47.5	-37.0 171.3	0	48.9	-37.3 171.4	0	09.7	+37.5 171.4	79
6	08.2	-36.6 172.1	4	09.4	-36.9 172.1	2	10.5	-37.1 172.1	0	11.6	-37.2 172.1	1	47.2	+37.5 172.1	80
5	31.6	-36.7 172.9	3	32.5	-36.9 172.9	1	33.4	-37.0 172.9	0	25.6	+37.3 172.9	2	24.7	+37.5 172.9	81
4	54.9	-36.7 173.7	2	55.6	-36.9 173.7	0	56.4	-37.1 173.7	1	02.9	+37.3 173.7	3	02.2	+37.4 173.7	82
4	18.2	-36.8 174.5	2	18.7	-36.9 174.5	0	19.3	-37.1 174.5	1	40.2	+37.2 174.5	3	39.6	+37.4 174.5	83
3	41.4	-36.8 175.3	1	41.8	-37.0 175.3	0	17.8	+37.1 175.3	2	17.4	+37.2 175.3	4	17.0	+37.3 175.3	84
3	04.6	-36.9 176.1	1	04.8	-36.9 176.1	0	54.9	+37.1 176.1	2	54.6	+37.2 176.1	4	54.3	+37.3 176.1	85
2	27.7	-36.9 176.8	0	27.9	-37.0 176.8	1	32.0	+37.0 176.8	3	31.8	+37.1 176.8	5	31.6	+37.2 176.8	86
1	50.8	-36.9 177.6	0	09.1	+37.0 177.6	2	09.0	+37.0 177.6	4	08.9	+37.1 177.6	6	08.8	+37.1 177.6	87
1	13.9	-37.0 178.4	0	46.1	+37.0 178.4	2	46.0	+37.0 178.4	4	46.0	+37.0 178.4	6	45.9	+37.1 178.4	88
0	36.9	-36.9 179.2	1	23.1	+36.9 179.2	3	23.0	+37.0 179.2	5	23.0	+37.0 179.2	7	23.0	+37.0 179.2	89
0	00.0	+36.9 0.0	2	00.0	+36.9 0.0	4	00.0	+36.9 0.0	6	00.0	+36.9 0.0	8	00.0	+36.9 0.0	90
0°			2°			4°			6°			8°			

LATITUDE SAME NAME

L.H.A. 128°, 232°

52°, 308° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	37 43.6	-11.9	59.6	38 43.1	-9.8	61.0	39 39.9	-7.4	62.4	40 34.0	-4.9	63.9	41 25.3	-2.5	65.5
31	37 31.7	-12.8	58.4	38 33.3	-10.5	59.7	39 32.5	-8.2	61.2	40 29.1	-5.9	62.6	41 22.8	-3.4	64.2
32	37 18.9	-13.5	57.2	38 22.8	-11.3	58.5	39 24.3	-9.1	59.9	40 23.2	-6.7	61.3	41 19.4	-4.3	62.9
33	37 05.4	-14.3	55.9	38 11.5	-12.1	57.2	39 15.2	-9.9	58.6	40 16.5	-7.6	60.0	41 15.1	-5.2	61.5
34	36 51.1	-15.0	54.7	37 59.4	-12.9	56.0	39 05.3	-10.7	57.3	40 08.9	-8.5	58.7	41 09.9	-6.1	60.2
35	36 36.1	-15.7	53.5	37 46.5	-13.7	54.8	38 54.6	-11.5	56.1	40 00.4	-9.3	57.4	41 03.8	-7.1	58.9
36	36 20.4	-16.4	52.3	37 32.8	-14.5	53.5	38 43.1	-12.4	54.8	39 51.1	-10.2	56.1	40 56.7	-7.9	57.6
37	36 04.0	-17.2	51.1	37 18.3	-15.1	52.3	38 30.7	-13.1	53.5	39 40.9	-11.0	54.9	40 48.8	-8.8	56.3
38	35 46.8	-17.8	49.9	37 03.2	-16.0	51.1	38 17.6	-14.0	52.3	39 29.9	-11.9	53.6	40 40.0	-9.7	54.9
39	35 29.0	-18.5	48.8	36 47.2	-16.6	49.9	38 03.6	-14.7	51.1	39 18.0	-12.6	52.3	40 30.3	-10.6	53.7
40	35 10.5	-19.2	47.6	36 30.6	-17.4	48.7	37 48.9	-15.4	49.8	39 05.4	-13.5	51.1	40 19.7	-11.4	52.4
41	34 51.3	-19.8	46.4	36 13.2	-18.0	47.5	37 33.5	-16.3	48.6	38 51.9	-14.3	49.8	40 08.3	-12.3	51.1
42	34 31.5	-20.5	45.3	35 55.2	-18.8	46.3	37 17.2	-16.9	47.4	38 37.6	-15.1	48.6	39 56.0	-13.1	49.8
43	34 11.0	-21.0	44.2	35 36.4	-19.4	45.1	37 00.3	-17.7	46.2	38 22.5	-15.8	47.3	39 42.9	-13.9	48.5
44	33 50.0	-21.8	43.0	35 17.0	-20.1	44.0	36 42.6	-18.4	45.0	38 06.7	-16.6	46.1	39 29.0	-14.7	47.3
45	33 28.2	-22.3	41.9	34 56.9	-20.7	42.8	36 24.2	-19.1	43.8	37 50.1	-17.4	44.9	39 14.3	-15.6	46.0
46	33 05.9	-22.8	40.8	34 36.2	-21.4	41.7	36 05.1	-19.7	42.6	37 32.7	-18.1	43.7	38 58.7	-16.3	44.8
47	32 43.1	-23.5	39.7	34 14.8	-22.0	40.6	35 45.4	-20.5	41.5	37 14.6	-18.8	42.5	38 42.4	-17.1	43.5
48	32 19.6	-24.0	38.6	33 52.8	-22.6	39.4	35 24.9	-21.1	40.3	36 55.8	-19.5	41.3	38 25.3	-17.9	42.3
49	31 55.6	-24.6	37.5	33 30.2	-23.1	38.3	35 03.8	-21.7	39.2	36 36.3	-20.2	40.1	38 07.4	-18.6	41.1
50	31 31.0	-25.1	36.5	33 07.1	-23.8	37.2	34 42.1	-22.3	38.0	36 16.1	-20.9	38.9	37 48.8	-19.3	39.9
51	31 05.9	-25.6	35.4	32 43.3	-24.3	36.1	34 19.8	-23.0	36.9	35 55.2	-21.6	37.8	37 29.5	-20.1	38.7
52	30 40.3	-26.1	34.3	32 19.0	-24.9	35.0	33 56.8	-23.6	35.8	35 33.6	-22.2	36.6	37 09.4	-20.8	37.5
53	30 14.2	-26.6	33.3	31 54.1	-25.4	34.0	33 33.2	-24.1	34.7	35 11.4	-22.8	35.5	36 48.6	-21.4	36.3
54	29 47.6	-27.1	32.3	31 28.7	-26.0	32.9	33 09.1	-24.8	33.6	34 48.6	-23.5	34.3	36 27.2	-22.1	35.2
55	29 20.5	-27.6	31.2	31 02.7	-26.4	31.8	32 44.3	-25.3	32.5	34 25.1	-24.0	33.2	36 05.1	-22.8	34.0
56	28 52.9	-28.0	30.2	30 36.3	-26.9	30.8	32 19.0	-25.8	31.4	34 01.1	-24.7	32.1	35 42.3	-23.4	32.9
57	28 24.9	-28.5	29.2	30 09.4	-27.5	29.8	31 53.2	-26.3	30.4	33 36.4	-25.2	31.0	35 18.9	-24.1	31.7
58	27 56.4	-28.8	28.2	29 41.9	-27.9	28.7	31 26.9	-26.9	29.3	33 11.2	-25.8	29.9	34 54.8	-24.6	30.6
59	27 27.6	-29.3	27.2	29 14.0	-28.3	27.7	31 00.0	-27.4	28.3	32 45.4	-26.3	28.9	34 30.2	-25.3	29.5
60	26 58.3	-29.8	26.2	28 45.7	-28.8	26.7	30 32.6	-27.8	27.2	32 19.1	-26.9	27.8	34 04.9	-25.8	28.4
61	26 28.5	-30.0	25.3	28 16.9	-29.3	25.7	30 04.8	-28.4	26.2	31 52.2	-27.4	26.7	33 39.1	-26.4	27.3
62	25 58.5	-30.5	24.3	27 47.6	-29.6	24.7	29 36.4	-28.7	25.2	31 24.8	-27.9	25.7	33 12.7	-26.9	26.2
63	25 28.0	-30.9	23.3	27 18.0	-30.1	23.7	29 07.7	-29.3	24.2	30 56.9	-28.4	24.7	32 45.8	-27.5	25.2
64	24 57.1	-31.2	22.4	26 47.9	-30.4	22.8	28 38.4	-29.7	23.2	30 28.5	-28.8	23.6	32 18.3	-28.0	24.1
65	24 25.9	-31.5	21.5	26 17.5	-30.9	21.8	28 08.7	-30.0	22.2	29 59.7	-29.3	22.6	31 50.3	-28.5	23.1
66	23 54.4	-31.9	20.5	25 46.6	-31.2	20.9	27 38.7	-30.5	21.2	29 30.4	-29.8	21.6	31 21.8	-29.0	22.0
67	23 22.5	-32.2	19.6	25 15.4	-31.5	19.9	27 08.2	-30.9	20.2	29 00.6	-30.2	20.6	30 52.8	-29.5	21.0
68	22 50.3	-32.5	18.7	24 43.9	-31.9	19.0	26 37.3	-31.3	19.3	28 30.4	-30.6	19.6	30 23.3	-29.9	20.0
69	22 17.8	-32.8	17.8	24 12.0	-32.3	18.0	26 06.0	-31.7	18.3	27 59.8	-31.1	18.7	29 53.4	-30.4	19.0
70	21 45.0	-33.2	16.9	23 39.7	-32.6	17.1	25 34.3	-32.0	17.4	27 28.7	-31.4	17.7	29 23.0	-30.9	18.0
71	21 11.8	-33.3	16.0	23 07.1	-32.8	16.2	25 02.3	-32.4	16.4	26 57.3	-31.8	16.7	28 52.1	-31.2	17.0
72	20 38.5	-33.7	15.1	22 34.3	-33.2	15.3	24 29.9	-32.6	15.5	26 25.5	-32.2	15.8	28 20.9	-31.7	16.1
73	20 04.8	-33.9	14.2	22 01.1	-33.5	14.4	23 57.3	-33.1	14.6	25 53.3	-32.5	14.8	27 49.2	-32.0	15.1
74	19 30.9	-34.2	13.3	21 27.6	-33.8	13.5	23 24.2	-33.3	13.7	25 20.8	-32.9	13.9	27 17.2	-32.4	14.1
75	18 56.7	-34.4	12.5	20 53.8	-34.0	12.6	22 50.9	-33.7	12.8	24 47.9	-33.3	13.0	26 44.8	-32.9	13.2
76	18 22.3	-34.7	11.6	20 19.8	-34.3	11.7	22 17.2	-33.9	11.9	24 14.6	-33.5	12.1	26 11.9	-33.1	12.3
77	17 47.6	-34.9	10.7	19 45.5	-34.6	10.9	21 43.3	-34.2	11.0	23 41.1	-33.9	11.2	25 38.8	-33.5	11.3
78	17 12.7	-35.1	9.9	19 10.9	-34.8	10.0	21 09.1	-34.5	10.1	23 07.2	-34.2	10.3	25 05.3	-33.9	10.4
79	16 37.6	-35.2	9.0	18 36.1	-35.0	9.1	20 34.6	-34.7	9.2	22 33.0	-34.4	9.4	24 31.4	-34.2	9.5
80	16 02.4	-35.5	8.2	18 01.1	-35.2	8.3	19 59.9	-35.1	8.4	21 58.6	-34.8	8.5	23 57.2	-34.5	8.6
81	15 26.9	-35.7	7.3	17 25.9	-35.5	7.4	19 24.8	-35.2	7.5	21 23.8	-35.0	7.6	23 22.7	-34.8	7.7
82	14 51.2	-35.9	6.5	16 50.4	-35.7	6.6	18 49.6	-35.5	6.7	20 48.8	-35.3	6.7	22 47.9	-35.0	6.8
83	14 15.3	-36.0	5.7	16 14.7	-35.8	5.7	18 14.1	-35.7	5.8	20 13.5	-35.5	5.9	22 12.9	-35.4	6.0
84	13 39.3	-36.2	4.9	15 38.9	-36.1	4.9	17 38.4	-35.9	5.0	19 38.0	-35.8	5.0	21 37.5	-35.6	5.1
85	13 03.1	-36.3	4.0	15 02.8	-36.2	4.1	17 02.5	-36.1	4.1	19 02.2	-36.0	4.2	21 01.9	-35.9	4.2
86	12 26.8	-36.5	3.2	14 26.6	-36.4	3.3	16 26.4	-36.3	3.3	18 26.2	-36.3	3.3	20 26.0	-36.2	3.4
87	11 50.3	-36.7	2.4	13 50.2	-36.6	2.4	15 50.1	-36.6	2.5	17 49.9	-36.4	2.5	19 49.8	-36.4	2.5
88	11 13.6	-36.7	1.6	13 13.6	-36.7	1.6	15 13.5	-36.6	1.6	17 13.5	-36.7	1.6	19 13.4	-36.6	1.7
89	10 36.9	-36.9	0.8	12 36.9	-36.9	0.8	14 36.9	-36.9	0.8	16 36.8	-36.8	0.8	18 36.8	-36.8	0.8
90	10 00.0	-37.0	0.0	12 00.0	-37.0	0.0	14 00.0	-37.0	0.0	16 00.0	-37.0	0.0	18 00.0	-37.0	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 52°, 308°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
25 59.6	-30.5	130.6	24 40.9	-32.0	131.3	23 21.1	-33.3	132.0	22 00.4	-34.8	132.6	20 38.7	-36.1	133.2	30
25 29.1	-30.8	131.6	24 08.9	-32.2	132.2	22 47.8	-33.7	132.9	21 25.6	-35.0	133.5	20 02.6	-36.3	134.0	31
24 58.3	-31.2	132.5	23 36.7	-32.6	133.2	22 14.1	-34.0	133.8	20 50.6	-35.3	134.4	19 26.3	-36.5	134.9	32
24 27.1	-31.6	133.4	23 04.1	-33.0	134.1	21 40.1	-34.2	134.7	20 15.3	-35.5	135.2	18 49.8	-36.7	135.7	33
23 55.5	-31.8	134.4	22 31.1	-33.2	135.0	21 05.9	-34.5	135.6	19 39.8	-35.7	136.1	18 13.1	-37.0	136.5	34
23 23.7	-32.2	135.3	21 57.9	-33.5	135.9	20 31.4	-34.8	136.4	19 04.1	-36.0	136.9	17 36.1	-37.2	137.4	35
22 51.5	-32.5	136.2	21 24.4	-33.8	136.8	19 56.6	-35.0	137.3	18 28.1	-36.3	137.8	16 58.9	-37.4	138.2	36
22 19.0	-32.8	137.1	20 50.6	-34.0	137.7	19 21.6	-35.3	138.2	17 51.8	-36.4	138.6	16 21.5	-37.5	139.0	37
21 46.2	-33.1	138.0	20 16.6	-34.4	138.5	18 46.3	-35.5	139.0	17 15.4	-36.6	139.4	15 44.0	-37.8	139.8	38
21 13.1	-33.4	138.9	19 42.2	-34.5	139.4	18 10.8	-35.7	139.9	16 38.8	-36.9	140.3	15 06.2	-37.9	140.6	39
20 39.7	-33.7	139.8	19 07.7	-34.9	140.3	17 35.1	-36.0	140.7	16 01.9	-37.0	141.1	14 28.3	-38.0	141.4	40
20 06.0	-33.9	140.7	18 32.8	-35.0	141.1	16 59.1	-36.1	141.5	15 24.9	-37.2	141.9	13 50.3	-38.3	142.2	41
19 32.1	-34.2	141.6	17 57.8	-35.3	142.0	16 23.0	-36.4	142.4	14 47.7	-37.4	142.7	13 12.0	-38.3	143.0	42
18 57.9	-34.4	142.5	17 22.5	-35.5	142.9	15 46.6	-36.5	143.2	14 10.3	-37.5	143.5	12 33.7	-38.5	143.8	43
18 23.5	-34.6	143.3	16 47.0	-35.7	143.7	15 10.1	-36.7	144.0	13 32.8	-37.7	144.3	11 55.2	-38.7	144.6	44
17 48.9	-34.9	144.2	16 11.3	-35.8	144.5	14 33.4	-36.9	144.9	12 55.1	-37.8	145.1	11 16.5	-38.0	145.4	45
17 14.0	-35.1	145.0	15 35.5	-36.1	145.4	13 56.5	-37.0	145.7	12 17.3	-38.0	145.9	10 37.8	-38.9	146.2	46
16 38.9	-35.3	145.9	14 59.4	-36.3	146.2	13 19.5	-37.2	146.5	11 39.3	-38.1	146.7	9 58.9	-39.4	146.9	47
16 03.6	-35.4	146.7	14 23.1	-36.4	147.0	12 42.3	-37.3	147.3	11 01.2	-38.2	147.5	9 19.9	-39.1	147.7	48
15 28.2	-35.7	147.6	13 46.7	-36.6	147.8	12 05.0	-37.5	148.1	10 23.0	-38.3	148.3	8 40.8	-39.1	148.5	49
14 52.5	-35.9	148.4	13 10.1	-36.7	148.7	11 27.5	-37.6	148.9	9 44.7	-38.5	149.1	8 01.7	-39.3	149.2	50
14 16.6	-36.0	149.2	12 33.4	-36.9	149.5	10 49.9	-37.7	149.7	9 06.2	-38.5	149.9	7 22.4	-39.3	150.0	51
13 40.6	-36.2	150.0	11 56.5	-37.0	150.3	10 12.2	-37.8	150.5	8 27.7	-38.6	150.6	6 43.1	-39.4	150.8	52
13 04.4	-36.3	150.9	11 19.5	-37.2	151.1	9 34.4	-38.0	151.3	7 49.1	-38.7	151.4	6 03.7	-39.5	151.5	53
12 28.1	-36.5	151.7	10 42.3	-37.2	151.9	8 56.4	-38.0	152.0	7 10.4	-38.8	152.2	5 24.2	-39.5	152.3	54
11 51.6	-36.6	152.5	10 05.1	-37.4	152.7	8 18.4	-38.1	152.8	6 31.6	-38.9	152.9	4 44.7	-39.6	153.0	55
11 15.0	-36.8	153.3	9 27.7	-37.5	153.5	7 40.3	-38.3	153.6	5 52.7	-38.9	153.7	4 05.1	-39.6	153.8	56
10 38.2	-36.9	154.1	8 50.2	-37.6	154.3	7 02.0	-38.2	154.4	5 13.8	-39.0	154.5	3 25.5	-39.7	154.5	57
10 01.3	-37.0	154.9	8 12.6	-37.7	155.0	6 23.8	-38.4	155.2	4 34.8	-39.0	155.2	2 45.8	-39.6	155.3	58
9 24.3	-37.0	155.7	7 34.9	-37.7	155.8	5 45.4	-38.4	155.9	3 55.8	-39.1	156.0	2 06.2	-39.7	156.0	59
8 47.3	-37.2	156.5	6 57.2	-37.9	156.6	5 07.0	-38.5	156.7	3 16.7	-39.1	156.8	1 26.5	-39.8	156.8	60
8 10.1	-37.3	157.3	6 19.3	-37.9	157.4	4 28.5	-38.5	157.5	2 37.6	-39.1	157.5	0 46.7	-39.7	157.5	61
7 32.8	-37.4	158.1	5 41.4	-38.0	158.2	3 50.0	-38.6	158.2	1 58.5	-39.1	158.3	0 07.0	-39.7	158.3	62
6 55.4	-37.5	158.9	5 03.4	-38.0	159.0	3 11.4	-38.6	159.0	1 19.4	-39.2	159.0	0 32.7	+39.7	21.0	63
6 17.9	-37.5	159.7	4 25.4	-38.1	159.7	2 32.8	-38.6	159.8	0 40.2	-39.2	159.8	1 12.4	+39.7	20.2	64
5 40.4	-37.6	160.4	3 47.3	-38.1	160.5	1 54.2	-38.7	160.5	0 01.0	-39.1	160.5	1 52.1	+39.7	19.5	65
5 02.8	-37.6	161.2	3 09.2	-38.2	161.3	1 15.5	-38.6	161.3	0 38.1	+39.2	18.7	2 31.8	+39.7	18.7	66
4 25.2	-37.7	162.0	2 31.0	-38.2	162.0	0 36.9	-38.7	162.1	1 17.3	+39.2	17.9	3 11.5	+39.6	18.0	67
3 47.5	-37.8	162.8	1 52.8	-38.2	162.8	0 01.8	+38.7	17.2	1 56.5	+39.1	17.2	3 51.1	+39.6	17.2	68
3 09.7	-37.7	163.6	1 14.6	-38.2	163.6	0 40.5	+38.6	16.4	2 35.6	+39.1	16.4	4 30.7	+39.5	16.5	69
2 32.0	-37.8	164.3	0 36.4	-38.2	164.4	1 19.1	+38.7	15.6	3 14.7	+39.1	15.7	5 10.2	+39.5	15.7	70
1 54.2	-37.8	165.1	0 01.8	+38.2	14.9	1 57.8	+38.6	14.9	3 53.8	+39.0	14.9	5 49.7	+39.4	14.9	71
1 16.4	-37.9	165.9	0 40.0	+38.2	14.1	2 36.4	+38.6	14.1	4 32.8	+39.0	14.1	6 29.1	+39.4	14.2	72
0 38.5	-37.8	166.7	1 18.2	+38.2	13.3	3 15.0	+38.6	13.3	5 11.8	+38.9	13.4	7 08.5	+39.3	13.4	73
0 00.7	-37.9	167.5	1 56.4	+38.2	12.6	3 53.6	+38.5	12.6	5 50.7	+38.8	12.6	7 47.8	+39.2	12.7	74
0 37.2	+37.8	11.8	2 34.6	+38.2	11.8	4 32.1	+38.5	11.8	6 29.5	+38.8	11.8	8 27.0	+39.1	11.9	75
1 15.0	+37.8	11.0	3 12.8	+38.1	11.0	5 10.6	+38.4	11.0	7 08.3	+38.8	11.1	9 06.1	+39.0	11.1	76
1 52.8	+37.8	10.2	3 50.9	+38.1	10.2	5 49.0	+38.3	10.3	7 47.1	+38.6	10.3	9 45.1	+38.9	10.4	77
2 30.6	+37.8	9.4	4 29.0	+38.0	9.5	6 27.3	+38.3	9.5	8 25.7	+38.5	9.5	10 24.0	+38.8	9.6	78
3 08.4	+37.7	8.7	5 07.0	+38.0	8.7	7 05.6	+38.2	8.7	9 04.2	+38.5	8.8	11 02.8	+38.7	8.8	79
3 46.1	+37.7	7.9	5 45.0	+37.9	7.9	7 43.8	+38.2	7.9	9 42.7	+38.3	8.0	11 41.5	+38.6	8.0	80
4 23.8	+37.7	7.1	6 22.9	+37.8	7.1	8 22.0	+38.0	7.2	10 21.0	+38.2	7.2	12 20.1	+38.4	7.2	81
5 01.5	+37.5	6.3	7 00.7	+37.8	6.3	9 00.0	+37.9	6.4	10 59.2	+38.1	6.4	12 58.5	+38.3	6.5	82
5 39.0	+37.6	5.5	7 38.5	+37.7	5.6	9 37.9	+37.8	5.6	11 37.3	+38.0	5.6	13 36.8	+38.1	5.7	83
6 16.6	+37.4	4.8	8 16.2	+37.5	4.8	10 15.7	+37.7	4.8	12 15.3	+37.8	4.8	14 14.9	+37.9	4.9	84
6 54.0	+37.4	4.0	8 53.7	+37.5	4.0	10 53.4	+37.6	4.0	12 53.1	+37.7	4.0	14 52.8	+37.8	4.1	85
7 31.4	+37.3	3.2	9 31.2	+37.4	3.2	11 31.0	+37.5	3.2	13 30.8	+37.6	3.2	15 30.6	+37.7	3.3	86
8 08.7	+37.2	2.4	10 08.6	+37.3	2.4	12 08.5	+37.3	2.4	14 08.4	+37.4	2.4	16 08.3	+37.4	2.5	87
8 45.9	+37.1	1.6	10 45.9	+37.1	1.6	12 45.8	+37.2	1.6	14 45.8	+37.2	1.6	16 45.7	+37.3	1.6	88
9 23.0	+37.0	0.8	11 23.0	+37.0	0.8	13 23.0	+37.0	0.8	15 23.0	+37.0	0.8	17 23.0	+37.0	0.8	89
10 00.0	+36.9	0.0	12 00.0	+36.9	0.0	14 00.0	+36.9	0.0	16 00.0	+36.8	0.0	18 00.0	+36.8	0.0	90
10°			12°			14°			16°			18°			

LATITUDE SAME NAME

L.H.A. 128°, 232°

52°, 308° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	42 13.5	0.0	67.2	42 58.4	+2.7	68.9	43 39.9	+5.4	70.6	44 17.9	+8.2	72.5	44 52.2	+10.9	74.4
31	42 13.5	-0.8	65.8	43 01.1	+1.7	67.5	43 45.3	+4.4	69.3	44 26.1	+7.1	71.1	45 03.1	+9.9	73.0
32	42 12.7	-1.8	64.5	43 02.8	+0.8	66.1	43 49.7	+3.4	67.9	44 33.2	+6.1	69.7	45 13.0	+8.9	71.6
33	42 10.9	-2.8	63.1	43 03.6	-0.2	64.8	43 53.1	+2.4	66.5	44 39.3	+5.1	68.3	45 21.9	+7.8	70.2
34	42 08.1	-3.7	61.8	43 03.4	-1.2	63.4	43 55.5	+1.4	65.1	44 44.4	+4.0	66.9	45 29.7	+6.8	68.7
35	42 04.4	-4.6	60.4	43 02.2	-2.2	62.0	43 56.9	+0.4	63.7	44 48.4	+3.0	65.5	45 36.5	+5.7	67.3
36	41 59.8	-5.6	59.1	43 00.0	-3.1	60.7	43 57.3	-0.6	62.3	44 51.4	+2.0	64.1	45 42.2	+4.6	65.9
37	41 54.2	-6.5	57.7	42 56.9	-4.2	59.3	43 56.7	-1.7	60.9	44 53.4	+0.9	62.7	45 46.8	+3.6	64.5
38	41 47.7	-7.5	56.4	42 52.7	-5.0	57.9	43 55.0	-2.6	59.5	44 54.3	-0.1	61.2	45 50.4	+2.5	63.0
39	41 40.2	-8.3	55.1	42 47.7	-6.1	56.6	43 52.4	-3.7	58.2	44 54.2	-1.2	59.8	45 52.9	+1.4	61.6
40	41 31.9	-9.3	53.7	42 41.6	-7.0	55.2	43 48.7	-4.6	56.8	44 53.0	-2.2	58.4	45 54.3	+0.4	60.2
41	41 22.6	-10.1	52.4	42 34.6	-8.0	53.9	43 44.1	-5.7	55.4	44 50.8	-3.2	57.0	45 54.7	-0.8	58.7
42	41 12.5	-11.1	51.1	42 26.6	-8.8	52.5	43 38.4	-6.6	54.0	44 47.6	-4.3	55.6	45 53.9	-1.8	57.3
43	41 01.4	-11.9	49.8	42 17.8	-9.9	51.2	43 31.8	-7.6	52.6	44 43.3	-5.3	54.2	45 52.1	-2.9	55.9
44	40 49.5	-12.8	48.5	42 07.9	-10.7	49.9	43 24.2	-8.6	51.3	44 38.0	-6.3	52.8	45 49.2	-4.0	54.4
45	40 36.7	-13.6	47.2	41 57.2	-11.6	48.5	43 15.6	-9.6	49.9	44 31.7	-7.4	51.4	45 45.2	-5.0	53.0
46	40 23.1	-14.5	45.9	41 45.6	-12.6	47.2	43 06.0	-10.5	48.6	44 24.3	-8.3	50.0	45 40.2	-6.1	51.6
47	40 08.6	-15.3	44.7	41 33.0	-13.4	45.9	42 55.5	-11.4	47.2	44 16.0	-9.4	48.6	45 34.1	-7.2	50.1
48	39 53.3	-16.2	43.4	41 19.6	-14.3	44.6	42 44.1	-12.4	45.9	44 06.6	-10.3	47.3	45 26.9	-8.2	48.7
49	39 37.1	-16.9	42.2	41 05.3	-15.2	43.3	42 31.7	-13.3	44.5	43 56.3	-11.4	45.9	45 18.7	-9.2	47.3
50	39 20.2	-17.7	40.9	40 50.1	-16.0	42.0	42 18.4	-14.2	43.2	43 44.9	-12.2	44.5	45 09.5	-10.3	45.9
51	39 02.5	-18.5	39.7	40 34.1	-16.8	40.8	42 04.2	-15.0	41.9	43 32.7	-13.3	43.2	44 59.2	-11.3	44.5
52	38 44.0	-19.2	38.5	40 17.3	-17.7	39.5	41 49.2	-16.0	40.6	43 19.4	-14.1	41.8	44 47.9	-12.2	43.1
53	38 24.8	-20.0	37.2	39 59.6	-18.4	38.2	41 33.2	-16.8	39.3	43 05.3	-15.1	40.5	44 35.7	-13.3	41.8
54	38 04.8	-20.7	36.0	39 41.2	-19.2	37.0	41 16.4	-17.7	38.0	42 50.2	-16.0	39.2	44 22.4	-14.2	40.4
55	37 44.1	-21.5	34.9	39 22.0	-20.0	35.8	40 58.7	-18.5	36.8	42 34.2	-16.9	37.9	44 08.2	-15.2	39.0
56	37 22.6	-22.1	33.7	39 02.0	-20.8	34.6	40 40.2	-19.3	35.5	42 17.3	-17.8	36.6	43 53.0	-16.2	37.7
57	37 00.5	-22.8	32.5	38 41.2	-21.4	33.4	40 20.9	-20.0	34.3	41 59.5	-18.6	35.3	43 36.8	-17.0	36.4
58	36 37.7	-23.4	31.4	38 19.8	-22.2	32.2	40 00.9	-20.9	33.0	41 40.9	-19.5	34.0	43 19.8	-18.0	35.0
59	36 14.3	-24.2	30.2	37 57.6	-22.9	31.0	39 40.0	-21.6	31.8	41 21.4	-20.2	32.7	43 01.8	-18.8	33.7
60	35 50.1	-24.7	29.1	37 34.7	-23.6	29.8	39 18.4	-22.4	30.6	41 01.2	-21.1	31.5	42 43.0	-19.7	32.4
61	35 25.4	-25.3	28.0	37 11.1	-24.3	28.7	38 56.0	-23.1	29.4	40 40.1	-21.9	30.2	42 23.3	-20.6	31.1
62	35 00.1	-26.0	26.8	36 46.8	-24.9	27.5	38 32.9	-23.8	28.2	40 18.2	-22.6	29.0	42 02.7	-21.3	29.9
63	34 34.1	-26.5	25.8	36 21.9	-25.5	26.4	38 09.1	-24.5	27.1	39 55.6	-23.4	27.8	41 41.4	-22.2	28.6
64	34 07.6	-27.1	24.7	35 56.4	-26.2	25.3	37 44.6	-25.2	25.9	39 32.2	-24.1	26.6	41 19.2	-23.0	27.4
65	33 40.5	-27.7	23.6	35 30.2	-26.8	24.1	37 19.4	-25.8	24.8	39 08.1	-24.8	25.4	40 56.2	-23.8	26.2
66	33 12.8	-28.2	22.5	35 03.4	-27.3	23.1	36 53.6	-26.4	23.6	38 43.3	-25.5	24.3	40 32.4	-24.5	24.9
67	32 44.6	-28.7	21.5	34 36.1	-27.9	22.0	36 27.2	-27.1	22.5	38 17.8	-26.2	23.1	40 07.9	-25.2	23.7
68	32 15.9	-29.2	20.4	34 08.2	-28.5	20.9	36 00.1	-27.7	21.4	37 51.6	-26.8	22.0	39 42.7	-26.0	22.6
69	31 46.7	-29.7	19.4	33 39.7	-29.0	19.8	35 32.4	-28.2	20.3	37 24.8	-27.5	20.8	39 16.7	-26.6	21.4
70	31 17.0	-30.2	18.4	33 10.7	-29.5	18.8	35 04.2	-28.9	19.2	36 57.3	-28.1	19.7	38 50.1	-27.3	20.2
71	30 46.8	-30.7	17.4	32 41.2	-30.0	17.7	34 35.3	-29.3	18.2	36 29.2	-28.7	18.6	38 22.8	-28.0	19.1
72	30 16.1	-31.1	16.4	32 11.2	-30.6	16.7	34 06.0	-29.9	17.1	36 00.5	-29.2	17.5	37 54.8	-28.6	18.0
73	29 45.0	-31.5	15.4	31 40.6	-31.0	15.7	33 36.1	-30.5	16.1	35 31.3	-29.9	16.4	37 26.2	-29.2	16.9
74	29 13.5	-32.0	14.4	31 09.6	-31.4	14.7	33 05.6	-30.9	15.0	35 01.4	-30.4	15.4	36 57.0	-29.8	15.8
75	28 41.5	-32.3	13.4	30 38.2	-31.9	13.7	32 34.7	-31.5	14.0	34 31.0	-30.9	14.3	36 27.2	-30.4	14.7
76	28 09.2	-32.8	12.5	30 06.3	-32.4	12.7	32 03.2	-31.9	13.0	34 00.1	-31.4	13.3	35 56.8	-30.9	13.6
77	27 36.4	-33.2	11.5	29 33.9	-32.7	11.8	31 31.3	-32.3	12.0	33 28.7	-32.0	12.3	35 25.9	-31.5	12.6
78	27 03.2	-33.5	10.6	29 01.2	-33.2	10.8	30 59.0	-32.8	11.0	32 56.7	-32.4	11.3	34 54.4	-32.1	11.5
79	26 29.7	-33.9	9.7	28 28.0	-33.6	9.8	30 26.2	-33.2	10.0	32 24.3	-32.9	10.3	34 22.3	-32.5	10.5
80	25 55.8	-34.2	8.8	27 54.4	-33.9	8.9	29 53.0	-33.7	9.1	31 51.4	-33.3	9.3	33 49.8	-33.0	9.5
81	25 21.6	-34.5	7.8	27 20.5	-34.3	8.0	29 19.3	-34.0	8.1	31 18.1	-33.8	8.3	33 16.8	-33.5	8.5
82	24 47.1	-34.9	6.9	26 46.2	-34.7	7.1	28 45.3	-34.5	7.2	30 44.3	-34.2	7.3	32 43.3	-34.0	7.5
83	24 12.2	-35.2	6.0	26 11.5	-35.0	6.1	28 10.8	-34.8	6.3	30 10.1	-34.6	6.4	32 09.3	-34.4	6.5
84	23 37.0	-35.5	5.2	25 36.5	-35.3	5.2	27 36.0	-35.2	5.3	29 35.5	-35.0	5.4	31 34.9	-34.8	5.5
85	23 01.5	-35.7	4.3	25 01.2	-35.7	4.3	27 00.8	-35.5	4.4	29 00.5	-35.4	4.5	31 00.1	-35.2	4.6
86	22 25.8	-36.1	3.4	24 25.5	-35.9	3.5	26 25.3	-35.8	3.5	28 25.1	-35.8	3.6	30 24.9	-35.7	3.7
87	21 49.7	-36.3	2.5	23 49.6	-36.3	2.6	25 49.5	-36.2	2.6	27 49.3	-36.1	2.7	29 49.2	-36.0	2.7
88	21 13.4	-36.6	1.7	23 13.3	-36.5	1.7	25 13.3	-36.5	1.7	27 13.2	-36.4	1.8	29 13.2	-36.4	1.8
89	20 36.8	-36.8	0.8	22 36.8	-36.8	0.9	24 36.8	-36.8	0.9	26 36.8	-36.8	0.9	28 36.8	-36.8	0.9
90	20 00.0	-37.1	0.0	22 00.0	-37.1	0.0	24 00.0	-37.1	0.0	26 00.0	-37.1	0.0	28 00.0	-37.1	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 52°, 308°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
19	16.2	-37.3	133.7	17	52.9	-38.5	134.2	16	28.9	-39.7	134.6	15	04.3	-40.8	135.0	13	39.2	-42.0	135.4	30
18	38.9	-37.6	134.5	17	14.4	-38.8	135.0	15	49.2	-39.9	135.4	14	23.5	-41.0	135.8	12	57.2	-42.1	136.1	31
18	01.3	-37.7	135.4	16	35.6	-38.9	135.8	15	09.3	-40.0	136.2	13	42.5	-41.2	136.5	12	15.1	-42.2	136.9	32
17	23.6	-38.0	136.2	15	56.7	-39.1	136.6	14	29.3	-40.2	137.0	13	01.3	-41.2	137.3	11	32.9	-42.3	137.6	33
16	45.6	-38.1	137.0	15	17.6	-39.2	137.4	13	49.1	-40.4	137.7	12	20.1	-41.4	138.0	10	50.6	-42.4	138.3	34
16	07.5	-38.3	137.8	14	38.4	-39.5	138.2	13	08.7	-40.4	138.5	11	38.7	-41.5	138.8	10	08.2	-42.4	139.0	35
15	29.2	-38.5	138.6	13	58.9	-39.5	138.9	12	28.3	-40.6	139.2	10	57.2	-41.6	139.5	9	25.8	-42.6	139.7	36
14	50.7	-38.7	139.4	13	19.4	-39.7	139.7	11	47.7	-40.8	140.0	10	15.6	-41.7	140.2	8	43.2	-42.7	140.5	37
14	12.0	-38.8	140.2	12	39.7	-39.8	140.5	11	06.9	-40.8	140.7	9	33.9	-41.8	141.0	8	00.5	-42.7	141.2	38
13	33.2	-38.9	141.0	11	59.9	-40.0	141.2	10	26.1	-40.9	141.5	8	52.1	-41.9	141.7	7	17.8	-42.8	141.9	39
12	54.3	-39.1	141.7	11	19.9	-40.1	142.0	9	45.2	-41.0	142.2	8	10.3	-41.9	142.4	6	35.0	-42.9	142.6	40
12	15.2	-39.2	142.5	10	39.8	-40.1	142.8	9	04.2	-41.1	143.0	7	28.3	-42.1	143.1	5	52.1	-42.9	143.3	41
11	36.0	-39.3	143.3	9	59.7	-40.3	143.5	8	23.1	-41.2	143.7	6	46.2	-42.1	143.9	5	09.2	-42.9	144.0	42
10	56.7	-39.5	144.1	9	19.4	-40.4	144.3	7	41.9	-41.3	144.4	6	04.1	-42.1	144.6	4	26.3	-43.0	144.7	43
10	17.2	-39.6	144.8	8	39.0	-40.5	145.0	7	00.6	-41.4	145.2	5	22.0	-42.2	145.3	3	43.3	-43.0	145.4	44
9	37.6	-39.6	145.6	7	58.5	-40.5	145.8	6	19.2	-41.4	145.9	4	39.8	-42.2	146.0	3	00.3	-43.0	146.1	45
8	58.0	-39.8	146.3	7	18.0	-40.6	146.5	5	37.8	-41.4	146.6	3	57.6	-42.3	146.7	2	17.2	-43.1	146.8	46
8	18.2	-39.8	147.1	6	37.4	-40.7	147.2	4	56.4	-41.5	147.4	3	15.3	-42.3	147.4	1	34.1	-43.0	147.5	47
7	38.4	-39.9	147.9	5	56.7	-40.7	148.0	4	14.9	-41.5	148.1	2	33.0	-42.3	148.1	0	51.1	-43.1	148.2	48
6	58.5	-40.0	148.6	5	16.0	-40.8	148.7	3	33.4	-41.6	148.8	1	50.7	-42.4	148.9	0	08.0	-43.1	148.9	49
6	18.5	-40.1	149.4	4	35.2	-40.9	149.5	2	51.8	-41.6	149.5	1	08.3	-42.3	149.6	0	35.1	+43.1	30.4	50
5	38.4	-40.1	150.1	3	54.3	-40.8	150.2	2	10.2	-41.6	150.2	0	26.0	-42.4	150.3	1	18.2	+43.1	29.7	51
4	58.3	-40.2	150.9	3	13.5	-40.9	150.9	1	28.6	-41.7	151.0	0	16.4	+42.3	29.0	2	01.3	+43.1	29.0	52
4	18.1	-40.2	151.6	2	32.6	-41.0	151.7	0	46.9	-41.6	151.7	0	58.7	+42.4	28.3	2	44.4	+43.0	28.3	53
3	37.9	-40.2	152.3	1	51.6	-40.9	152.4	0	05.3	-41.7	152.4	1	41.1	+42.3	27.6	3	27.4	+43.0	27.6	54
2	57.7	-40.3	153.1	1	10.7	-41.0	153.1	0	36.4	+41.6	26.9	2	23.4	+42.3	26.9	4	10.4	+43.0	26.9	55
2	17.4	-40.3	153.8	0	29.7	-41.0	153.9	1	18.0	+41.6	26.2	3	05.7	+42.3	26.2	4	53.4	+42.9	26.2	56
1	37.1	-40.3	154.6	0	11.3	+40.9	25.4	1	59.6	+41.6	25.4	3	48.0	+42.2	25.5	5	36.3	+42.9	25.5	57
0	56.8	-40.3	155.3	0	52.2	+41.0	24.7	2	41.2	+41.6	24.7	4	30.2	+42.2	24.8	6	19.2	+42.8	24.8	58
0	16.5	-40.3	156.1	1	33.2	+40.9	24.0	3	22.8	+41.6	24.0	5	12.4	+42.2	24.1	7	02.0	+42.7	24.1	59
0	23.8	+40.4	23.2	2	14.1	+40.9	23.2	4	04.4	+41.5	23.3	5	54.6	+42.1	23.3	7	44.7	+42.7	23.4	60
1	04.2	+40.3	22.5	2	55.0	+40.9	22.5	4	45.9	+41.5	22.5	6	36.7	+42.0	22.6	8	27.4	+42.6	22.7	61
1	44.5	+40.3	21.7	3	35.9	+40.9	21.8	5	27.4	+41.4	21.8	7	18.7	+42.0	21.9	9	10.0	+42.6	22.0	62
2	24.8	+40.2	21.0	4	16.8	+40.8	21.0	6	08.8	+41.3	21.1	8	00.7	+41.9	21.2	9	52.6	+42.4	21.3	63
3	05.0	+40.3	20.2	4	57.6	+40.8	20.3	6	50.1	+41.3	20.4	8	42.6	+41.8	20.5	10	35.0	+42.3	20.6	64
3	45.3	+40.2	19.5	5	38.4	+40.7	19.6	7	31.4	+41.2	19.6	9	24.4	+41.7	19.7	11	17.3	+42.2	19.9	65
4	25.5	+40.1	18.8	6	19.1	+40.6	18.8	8	12.6	+41.2	18.9	10	06.1	+41.7	19.0	11	59.5	+42.2	19.1	66
5	05.6	+40.1	18.0	6	59.7	+40.6	18.1	8	53.8	+41.0	18.2	10	47.8	+41.5	18.3	12	41.7	+42.0	18.4	67
5	45.7	+40.1	17.3	7	40.3	+40.5	17.3	9	34.8	+41.0	17.4	11	29.3	+41.4	17.5	13	23.7	+41.8	17.7	68
6	25.8	+39.9	16.5	8	20.8	+40.4	16.6	10	15.8	+40.8	16.7	12	10.7	+41.3	16.8	14	05.5	+41.8	16.9	69
7	05.7	+39.9	15.8	9	01.2	+40.3	15.8	10	56.6	+40.8	15.9	12	52.0	+41.1	16.0	14	47.3	+41.6	16.2	70
7	45.6	+39.9	15.0	9	41.5	+40.3	15.1	11	37.4	+40.6	15.2	13	33.1	+41.1	15.3	15	28.9	+41.4	15.4	71
8	25.5	+39.7	14.3	10	21.8	+40.1	14.3	12	18.0	+40.5	14.4	14	14.2	+40.9	14.5	16	10.3	+41.3	14.7	72
9	05.2	+39.6	13.5	11	01.9	+40.0	13.6	12	58.5	+40.4	13.7	14	55.1	+40.7	13.8	16	51.6	+41.1	13.9	73
9	44.8	+39.6	12.7	11	41.9	+39.9	12.8	13	38.9	+40.2	12.9	15	35.8	+40.6	13.0	17	32.7	+40.9	13.2	74
10	24.4	+39.4	12.0	12	21.8	+39.7	12.1	14	19.1	+40.1	12.2	16	16.4	+40.4	12.3	18	13.6	+40.8	12.4	75
11	03.8	+39.3	11.2	13	01.5	+39.6	11.3	14	59.2	+39.9	11.4	16	56.8	+40.2	11.5	18	54.4	+40.5	11.6	76
11	43.1	+39.2	10.4	13	41.1	+39.5	10.5	15	39.1	+39.8	10.6	17	37.0	+40.1	10.7	19	34.9	+40.4	10.8	77
12	22.3	+39.1	9.7	14	20.6	+39.3	9.7	16	18.9	+39.6	9.8	18	17.1	+39.9	9.9	20	15.3	+40.1	10.1	78
13	01.4	+38.9	8.9	14	59.9	+39.2	9.0	16	58.5	+39.4	9.0	18	57.0	+39.6	9.1	20	55.4	+39.9	9.3	79
13	40.3	+38.8	8.1	15	39.1	+39.0	8.2	17	37.9	+39.2	8.3	19	36.6	+39.5	8.4	21	35.3	+39.7	8.5	80
14	19.1	+38.6	7.3	16	18.1	+38.8	7.4	18	17.1	+39.0	7.5	20	16.1	+39.2	7.6	22	15.0	+39.5	7.7	81
14	57.7	+38.5	6.5	16	56.9	+38.7	6.6	18	56.1	+38.8	6.7	20	55.3	+39.0	6.7	22	54.5	+39.2	6.8	82
15	36.2	+38.2	5.7	17	35.6	+38.4	5.8	19	34.9	+38.6	5.9	21	34.3	+38.8	5.9	23	33.7	+38.9	6.0	83
16	14.4	+38.1	4.9	18	14.0	+38.2	5.0	20	13.5	+38.4	5.0	22	13.1	+38.5	5.1	24	12.6	+38.6	5.2	84
16	52.5	+37.9	4.1	18	52.2	+38.0	4.2	20	51.9	+38.1	4.2	22	51.6	+38.2	4.3	24	51.2	+38.4	4.3	85
17	30.4	+37.8	3.3	19	30.2	+37.8	3.3	21	30.0	+37.9	3.4	23	29.8	+38.0	3.4	25	29.6	+38.1	3.5	86
18	08.2	+37.5	2.5	20	08.0	+37.6	2.5	22	07.9	+37.7	2.6	24	07.8	+37.7	2.6	26	07.7	+37.7	2.6	87
18	45.7	+37.2	1.7	20	45.6	+37.3	1.7	22	45.6	+37.3	1.7	24	45.5	+37.4	1.7	26	45.4	+37.5	1.8	88
19	22.9	+37.1	0.8	21	22.9	+37.1	0.8	23	22.9	+37.1	0.9	25	22.9	+37.1	0.9	27	22.9	+37.1	0.9	89
20	00.0	+36.8	0.0	22	00.0	+36.8	0.0	24	00.0	+36.8	0.0	26	00.0	+36.8	0.0	28	00.0	+36.8	0.0	90

LATITUDE SAME NAME

L.H.A. 128°, 232°

54°, 306° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	30 36.0	-20.8	54.5	31 44.8	-18.8	55.5	32 52.0	-17.0	56.5	33 57.2	-14.9	57.6	35 00.4	-12.8	58.8
31	30 15.2	-21.3	53.4	31 26.0	-19.5	54.4	32 35.0	-17.5	55.4	33 42.3	-15.6	56.5	34 47.6	-13.6	57.6
32	29 53.9	-21.8	52.3	31 06.5	-20.0	53.3	32 17.5	-18.2	54.3	33 26.7	-16.2	55.3	34 34.0	-14.2	56.4
33	29 32.1	-22.3	51.2	30 46.5	-20.6	52.2	31 59.3	-18.7	53.1	33 10.5	-16.9	54.2	34 19.8	-14.9	55.2
34	29 09.8	-22.9	50.2	30 25.9	-21.1	51.1	31 40.6	-19.4	52.0	32 53.6	-17.5	53.0	34 04.9	-15.5	54.1
35	28 46.9	-23.3	49.1	30 04.8	-21.6	50.0	31 21.2	-19.9	50.9	32 36.1	-18.1	51.9	33 49.4	-16.2	52.9
36	28 23.6	-23.8	48.1	29 43.2	-22.2	48.9	31 01.3	-20.4	49.8	32 18.0	-18.6	50.7	33 33.2	-16.9	51.8
37	27 59.8	-24.2	47.0	29 21.0	-22.7	47.8	30 40.9	-21.0	48.7	31 59.4	-19.3	49.6	33 16.3	-17.5	50.6
38	27 35.6	-24.8	46.0	28 58.3	-23.1	46.8	30 19.9	-21.6	47.6	31 40.1	-19.9	48.5	32 58.8	-18.1	49.5
39	27 10.8	-25.1	45.0	28 35.2	-23.7	45.7	29 58.3	-22.0	46.5	31 20.2	-20.4	47.4	32 40.7	-18.7	48.3
40	26 45.7	-25.6	44.0	28 11.5	-24.1	44.7	29 36.3	-22.6	45.5	30 59.8	-21.0	46.3	32 22.0	-19.3	47.2
41	26 20.1	-26.1	42.9	27 47.4	-24.6	43.6	29 13.7	-23.1	44.4	30 38.8	-21.5	45.2	32 02.7	-19.8	46.1
42	25 54.0	-26.4	41.9	27 22.8	-25.0	42.6	28 50.6	-23.5	43.3	30 17.3	-22.0	44.1	31 42.9	-20.5	45.0
43	25 27.6	-26.8	40.9	26 57.8	-25.5	41.6	28 27.1	-24.1	42.3	29 55.3	-22.6	43.1	31 22.4	-21.0	43.9
44	25 00.8	-27.3	40.4	26 32.3	-25.9	40.6	28 03.0	-24.5	41.3	29 32.7	-23.0	42.0	31 01.4	-21.6	42.8
45	24 33.5	-27.6	39.0	26 06.4	-26.3	39.6	27 38.5	-25.0	40.2	29 09.7	-23.6	40.9	30 39.8	-22.1	41.7
46	24 05.9	-28.0	38.0	25 40.1	-26.7	38.6	27 13.5	-25.4	39.2	28 46.1	-24.1	39.9	30 17.7	-22.7	40.6
47	23 37.9	-28.3	37.0	25 13.4	-27.1	37.6	26 48.1	-25.8	38.2	28 22.0	-24.5	38.8	29 55.3	-23.1	39.5
48	23 09.6	-28.7	36.1	24 46.3	-27.5	36.6	26 22.3	-26.3	37.2	27 57.5	-25.0	37.8	29 31.9	-23.7	38.5
49	22 40.9	-29.0	35.1	24 18.8	-27.9	35.6	25 56.0	-26.7	36.2	27 32.5	-25.4	36.8	29 08.2	-24.1	37.4
50	22 11.9	-29.3	34.2	23 50.9	-28.2	34.7	25 29.3	-27.0	35.2	27 07.1	-25.9	35.8	28 44.1	-24.6	36.4
51	21 42.6	-29.7	33.2	23 22.7	-28.6	33.7	25 02.3	-27.5	34.2	26 41.2	-26.3	34.7	28 19.5	-25.1	35.3
52	21 12.9	-29.9	32.3	22 54.1	-28.9	32.7	24 34.8	-27.8	33.2	26 14.9	-26.7	33.7	27 54.3	-25.6	34.3
53	20 43.0	-30.3	31.4	22 25.2	-29.2	31.8	24 07.0	-28.2	32.2	25 48.2	-27.1	32.7	27 28.8	-26.0	33.3
54	20 12.7	-30.5	30.4	21 56.0	-29.6	30.8	23 38.8	-28.6	31.3	25 21.1	-27.5	31.7	27 02.8	-26.4	32.3
55	19 42.2	-30.9	29.5	21 26.4	-29.9	29.9	23 10.2	-28.9	30.3	24 53.6	-27.9	30.8	26 36.4	-26.8	31.3
56	19 11.3	-31.1	28.6	20 56.5	-30.2	29.0	22 41.3	-29.3	29.4	24 25.7	-28.3	29.8	26 09.6	-27.3	30.3
57	18 40.2	-31.3	27.7	20 26.3	-30.5	28.0	22 12.0	-29.5	28.4	23 57.4	-28.6	28.8	25 42.3	-27.7	29.3
58	18 08.9	-31.6	26.8	19 55.8	-30.7	27.1	21 42.5	-29.9	27.5	23 28.8	-29.0	27.9	25 14.6	-28.0	28.3
59	17 37.3	-31.8	25.9	19 25.1	-31.0	26.2	21 12.6	-30.2	26.5	22 59.8	-29.3	26.9	24 46.6	-28.4	27.3
60	17 05.5	-32.1	25.0	18 54.1	-31.3	25.3	20 42.4	-30.5	25.6	22 30.5	-29.7	26.0	24 18.2	-28.8	26.3
61	16 33.4	-32.3	24.2	18 22.8	-31.6	24.4	20 11.9	-30.7	24.7	22 00.8	-30.0	25.0	23 49.4	-29.2	25.4
62	16 01.1	-32.5	23.3	17 51.2	-31.7	23.5	19 41.2	-31.1	23.8	21 30.8	-30.2	24.1	23 20.2	-29.4	24.4
63	15 28.6	-32.7	22.4	17 19.5	-32.1	22.6	19 10.1	-31.3	22.9	21 00.6	-30.6	23.2	22 50.8	-29.9	23.5
64	14 55.9	-32.9	21.5	16 47.4	-32.2	21.7	18 38.8	-31.5	22.0	20 30.0	-30.9	22.2	22 20.9	-30.1	22.5
65	14 23.0	-33.1	20.7	16 15.2	-32.5	20.9	18 07.3	-31.9	21.1	19 59.1	-31.1	21.3	21 50.8	-30.4	21.6
66	13 49.9	-33.3	19.8	15 42.7	-32.6	20.0	17 35.4	-32.0	20.2	19 28.0	-31.4	20.4	21 20.4	-30.8	20.7
67	13 16.6	-33.4	19.0	15 10.1	-32.9	19.1	17 03.4	-32.3	19.3	18 56.6	-31.7	19.5	20 49.6	-31.1	19.8
68	12 43.2	-33.6	18.1	14 37.2	-33.0	18.3	16 31.1	-32.5	18.4	18 24.9	-31.9	18.6	20 18.5	-31.3	18.9
69	12 09.6	-33.8	17.3	14 04.2	-33.3	17.4	15 58.6	-32.7	17.6	17 53.0	-32.2	17.7	19 47.2	-31.6	17.9
70	11 35.8	-33.9	16.4	13 30.9	-33.4	16.5	15 25.9	-32.9	16.7	17 20.8	-32.4	16.9	19 15.6	-31.9	17.0
71	11 01.9	-34.0	15.6	12 57.5	-33.6	15.7	14 53.0	-33.1	15.8	16 48.4	-32.6	16.0	18 43.7	-32.1	16.1
72	10 27.9	-34.2	14.7	12 23.9	-33.7	14.8	14 19.9	-33.3	15.0	16 15.8	-32.8	15.1	18 11.6	-32.3	15.3
73	9 53.7	-34.3	13.9	11 50.2	-33.9	14.0	13 46.6	-33.5	14.1	15 43.0	-33.1	14.2	17 39.3	-32.7	14.4
74	9 19.4	-34.4	13.1	11 16.3	-34.0	13.1	13 13.1	-33.6	13.2	15 09.9	-33.2	13.4	17 06.6	-32.8	13.5
75	8 45.0	-34.5	12.2	10 42.3	-34.2	12.3	12 39.5	-33.8	12.4	14 36.7	-33.4	12.5	16 33.8	-33.0	12.6
76	8 10.5	-34.6	11.4	10 08.1	-34.3	11.5	12 05.7	-33.9	11.5	14 03.3	-33.6	11.6	16 00.8	-33.3	11.7
77	7 35.9	-34.7	10.6	9 33.8	-34.4	10.6	11 31.8	-34.1	10.7	13 29.7	-33.8	10.8	15 27.5	-33.4	10.9
78	7 01.2	-34.8	9.8	8 59.4	-34.5	9.8	10 57.7	-34.3	9.9	12 55.9	-34.0	9.9	14 54.1	-33.7	10.0
79	6 26.4	-34.9	8.9	8 24.9	-34.6	9.0	10 23.4	-34.3	9.0	12 21.9	-34.1	9.1	14 20.4	-33.8	9.2
80	5 51.5	-35.0	8.1	7 50.3	-34.7	8.2	9 49.1	-34.5	8.2	11 47.8	-34.2	8.3	13 46.6	-34.0	8.3
81	5 16.5	-35.0	7.3	7 15.6	-34.8	7.3	9 14.6	-34.6	7.4	11 13.6	-34.4	7.4	13 12.6	-34.2	7.5
82	4 41.5	-35.0	6.5	6 40.8	-34.9	6.5	8 40.0	-34.7	6.5	10 39.2	-34.5	6.6	12 38.4	-34.3	6.6
83	4 06.5	-35.2	5.7	6 05.9	-35.0	5.7	8 05.3	-34.8	5.7	10 04.7	-34.7	5.7	12 04.1	-34.5	5.8
84	3 31.3	-35.1	4.9	5 30.9	-35.0	4.9	7 30.5	-34.9	4.9	9 30.0	-34.7	4.9	11 29.6	-34.6	5.0
85	2 56.2	-35.2	4.0	4 55.9	-35.1	4.1	6 55.6	-35.0	4.1	8 55.3	-34.9	4.1	10 55.0	-34.8	4.1
86	2 21.0	-35.2	3.2	4 20.8	-35.1	3.2	6 20.6	-35.0	3.3	8 20.4	-35.0	3.3	10 20.2	-34.9	3.3
87	1 45.8	-35.3	2.4	3 45.7	-35.2	2.4	5 45.6	-35.2	2.4	7 45.4	-35.0	2.4	9 45.3	-35.0	2.5
88	1 10.5	-35.2	1.6	3 10.5	-35.2	1.6	5 10.4	-35.2	1.6	7 10.4	-35.2	1.6	9 10.3	-35.1	1.6
89	0 35.3	-35.3	0.8	2 35.3	-35.3	0.8	4 35.2	-35.2	0.8	6 35.2	-35.2	0.8	8 35.2	-35.2	0.8
90	0 00.0	-35.3	0.0	2 00.0	-35.3	0.0	4 00.0	-35.3	0.0	6 00.0	-35.3	0.0	8 00.0	-35.3	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 54°, 306°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
30 36.0 -20.8 125.5	29 25.5 -22.6 126.4	28 13.4 -24.3 127.3	27 00.0 -26.0 128.2	25 45.2 -27.6 128.9	30										
30 15.2 -21.3 126.6	29 02.9 -23.1 127.5	27 49.1 -24.7 128.4	26 34.0 -26.4 129.2	25 17.6 -28.0 129.9	31										
29 53.9 -21.8 127.7	28 39.8 -23.5 128.6	27 24.4 -25.3 129.4	26 07.6 -26.9 130.2	24 49.6 -28.4 130.9	32										
29 32.1 -22.3 128.8	28 16.3 -24.0 129.6	26 59.1 -25.6 130.4	25 40.7 -27.2 131.2	24 21.2 -28.8 131.9	33										
29 09.8 -22.9 129.8	27 52.3 -24.5 130.6	26 33.5 -26.1 131.4	25 13.5 -27.6 132.1	23 52.4 -29.1 132.8	34										
28 46.9 -23.3 130.9	27 27.8 -25.0 131.7	26 07.4 -26.5 132.4	24 45.9 -28.0 133.1	23 23.3 -29.4 133.8	35										
28 23.6 -23.8 131.9	27 02.8 -25.3 132.7	25 40.9 -26.9 133.4	24 17.9 -28.4 134.1	22 53.9 -29.8 134.7	36										
27 59.8 -24.2 133.0	26 37.5 -25.9 133.7	25 14.0 -27.3 134.4	23 49.5 -28.7 135.1	22 24.1 -30.1 135.7	37										
27 35.6 -24.8 134.0	26 11.6 -26.2 134.7	24 46.7 -27.7 135.4	23 20.8 -29.1 136.0	21 54.0 -30.4 136.6	38										
27 10.8 -25.1 135.0	25 45.4 -26.6 135.7	24 19.0 -28.0 136.4	22 51.7 -29.4 137.0	21 23.6 -30.7 137.5	39										
26 45.7 -25.6 136.0	25 18.8 -27.1 136.7	23 51.0 -28.4 137.3	22 22.3 -29.7 137.9	20 52.9 -31.1 138.4	40										
26 20.1 -26.1 137.1	24 51.7 -27.4 137.7	23 22.6 -28.8 138.3	21 52.6 -30.1 138.9	20 21.8 -31.3 139.4	41										
25 54.0 -26.4 138.1	24 24.3 -27.8 138.7	22 53.8 -29.1 139.3	21 22.5 -30.3 139.8	19 50.5 -31.5 140.3	42										
25 27.6 -26.8 139.1	23 56.5 -28.1 139.7	22 24.7 -29.4 140.2	20 52.2 -30.7 140.7	19 19.0 -31.9 141.2	43										
25 00.8 -27.3 140.0	23 28.4 -28.5 140.6	21 55.3 -29.8 141.1	20 21.5 -30.9 141.6	18 47.1 -32.1 142.1	44										
24 33.5 -27.6 141.0	22 59.9 -28.9 141.6	21 25.5 -30.0 142.1	19 50.6 -31.3 142.5	18 15.0 -32.3 143.0	45										
24 05.9 -28.0 142.0	22 31.0 -29.2 142.5	20 55.5 -30.4 143.0	19 19.3 -31.4 143.4	17 42.7 -32.6 143.8	46										
23 37.9 -28.3 143.0	22 01.8 -29.5 143.5	20 25.1 -30.6 143.9	18 47.9 -31.8 144.3	17 10.1 -32.8 144.7	47										
23 09.6 -28.7 143.9	21 32.3 -29.8 144.4	19 54.5 -31.0 144.8	18 16.1 -32.0 145.2	16 37.3 -33.0 145.6	48										
22 40.9 -29.0 144.9	21 02.5 -30.1 145.3	19 23.5 -31.1 145.8	17 44.1 -32.2 146.1	16 04.3 -33.3 146.5	49										
22 11.9 -29.3 145.8	20 32.4 -30.4 146.3	18 52.4 -31.5 146.7	17 11.9 -32.5 147.0	15 31.0 -33.4 147.3	50										
21 42.6 -29.7 146.8	20 02.0 -30.7 147.2	18 20.9 -31.7 147.6	16 39.4 -32.6 147.9	14 57.6 -33.6 148.2	51										
21 12.9 -29.9 147.7	19 31.3 -31.0 148.1	17 49.2 -32.0 148.5	16 06.8 -32.9 148.8	14 24.0 -33.8 149.1	52										
20 43.0 -30.3 148.6	19 00.3 -31.2 149.0	17 17.2 -32.1 149.3	15 33.9 -33.1 149.6	13 50.2 -34.0 149.9	53										
20 12.7 -30.5 149.6	18 29.1 -31.5 149.9	16 45.1 -32.4 150.2	15 00.8 -33.3 150.5	13 16.2 -34.2 150.8	54										
19 42.2 -30.9 150.5	17 57.6 -31.8 150.8	16 12.7 -32.7 151.1	14 27.5 -33.5 151.4	12 42.0 -34.3 151.6	55										
19 11.3 -31.1 151.4	17 25.8 -31.9 151.7	15 40.0 -32.8 152.0	13 54.0 -33.7 152.2	12 07.7 -34.4 152.4	56										
18 40.2 -31.3 152.3	16 53.9 -32.2 152.6	15 07.2 -33.0 152.8	13 20.3 -33.8 153.1	11 33.3 -34.7 153.3	57										
18 08.9 -31.6 153.2	16 21.7 -32.4 153.5	14 34.2 -33.2 153.7	12 46.5 -34.0 153.9	10 58.6 -34.7 154.1	58										
17 37.3 -31.8 154.1	15 49.3 -32.7 154.3	14 01.0 -33.4 154.6	12 12.5 -34.1 154.8	10 23.9 -34.9 154.9	59										
17 05.5 -32.1 155.0	15 16.6 -32.8 155.2	13 27.6 -33.6 155.4	11 38.4 -34.3 155.6	9 49.0 -35.0 155.8	60										
16 33.4 -32.3 155.8	14 43.8 -33.0 156.1	12 54.0 -33.7 156.3	11 04.1 -34.4 156.4	9 14.0 -35.1 156.6	61										
16 01.1 -32.5 156.7	14 10.8 -33.2 156.9	12 20.3 -33.9 157.1	10 29.7 -34.6 157.3	8 38.9 -35.2 157.4	62										
15 28.6 -32.7 157.6	13 37.6 -33.4 157.8	11 46.4 -34.0 158.0	9 55.1 -34.7 158.1	8 03.7 -35.3 158.2	63										
14 55.9 -32.9 158.5	13 04.2 -33.5 158.6	11 12.4 -34.2 158.8	9 20.4 -34.7 158.9	7 28.4 -35.4 159.0	64										
14 23.0 -33.1 159.3	12 30.7 -33.7 159.5	10 38.2 -34.3 159.6	8 45.7 -34.3 159.8	6 53.0 -35.4 159.9	65										
13 49.9 -33.3 160.2	11 57.0 -33.9 160.3	10 03.9 -34.4 160.5	8 10.8 -35.0 160.6	6 17.6 -35.6 160.7	66										
13 16.6 -33.4 161.0	11 23.1 -34.0 161.2	9 29.5 -34.6 161.3	7 35.8 -35.1 161.4	5 42.0 -35.6 161.5	67										
12 43.2 -33.6 161.9	10 49.1 -34.1 162.0	8 54.9 -34.6 162.1	7 00.7 -35.2 162.2	5 06.4 -35.7 162.3	68										
12 09.6 -33.8 162.7	10 15.0 -34.3 162.9	8 20.3 -34.8 163.0	6 25.5 -35.2 163.0	4 30.7 -35.7 163.1	69										
11 35.8 -33.9 163.6	9 40.7 -34.4 163.7	7 45.5 -34.9 163.8	5 50.3 -35.4 163.9	3 55.0 -35.8 163.9	70										
11 01.9 -34.0 164.4	9 06.3 -34.5 164.5	7 10.6 -34.9 164.6	5 14.9 -35.4 164.7	3 19.2 -35.8 164.7	71										
10 27.9 -34.2 165.3	8 31.8 -34.6 165.4	6 35.7 -35.0 165.4	4 39.5 -35.4 165.5	2 43.4 -35.9 165.5	72										
9 53.7 -34.3 166.1	7 57.2 -34.7 166.2	6 00.7 -35.1 166.2	4 04.1 -35.5 166.3	2 07.5 -35.8 166.3	73										
9 19.4 -34.4 166.9	7 22.5 -34.8 167.0	5 25.6 -35.2 167.1	3 28.6 -35.5 167.1	1 31.7 -35.9 167.1	74										
8 45.0 -34.5 167.8	6 47.7 -34.8 167.8	4 50.4 -35.2 167.9	2 53.1 -35.6 167.9	0 55.8 -35.9 167.9	75										
8 10.5 -34.6 168.6	6 12.9 -35.0 168.6	4 15.2 -35.3 168.7	2 17.5 -35.6 168.7	0 19.9 -36.0 168.7	76										
7 35.9 -34.7 169.4	5 37.9 -35.0 169.5	3 39.9 -35.3 169.5	1 41.9 -35.6 169.5	0 16.1 +35.9 10.5	77										
7 01.2 -34.8 170.2	5 02.9 -35.1 170.3	3 04.6 -35.3 170.3	1 06.3 -35.6 170.3	0 52.0 +35.9 9.7	78										
6 26.4 -34.9 171.1	4 27.8 -35.1 171.1	2 29.3 -35.4 171.1	0 30.7 -35.6 171.1	1 27.9 +35.8 8.9	79										
5 51.5 -35.0 171.9	3 52.7 -35.2 171.9	1 53.9 -35.4 171.9	0 04.9 +35.7 8.1	2 03.7 +35.9 8.1	80										
5 16.5 -35.0 172.7	3 17.5 -35.2 172.7	1 18.5 -35.4 172.7	0 40.6 +35.6 7.3	2 39.6 +35.8 7.3	81										
4 41.5 -35.0 173.5	2 42.3 -35.2 173.5	0 43.1 -35.5 173.5	1 16.2 +35.6 6.5	3 15.4 +35.8 6.5	82										
4 06.5 -35.2 174.3	2 07.1 -35.3 174.3	0 07.6 -35.4 174.3	1 51.8 +35.6 5.7	3 51.2 +35.7 5.7	83										
3 31.3 -35.1 175.1	1 31.8 -35.3 175.1	0 27.8 +35.4 4.9	2 27.4 +35.5 4.9	4 26.9 +35.7 4.9	84										
2 56.2 -35.2 176.0	0 56.5 -35.3 176.0	1 03.2 +35.4 4.0	3 02.9 +35.5 4.0	5 02.6 +35.6 4.1	85										
2 21.0 -35.2 176.8	0 21.2 -35.3 176.8	1 38.6 +35.4 3.2	3 38.4 +35.5 3.2	5 38.2 +35.6 3.3	86										
1 45.8 -35.3 177.6	0 14.1 +35.3 2.4	2 14.0 +35.4 2.4	4 13.9 +35.4 2.4	6 13.8 +35.5 2.4	87										
1 10.5 -35.2 178.4	0 49.4 +35.3 1.6	2 49.4 +35.3 1.6	4 49.3 +35.4 1.6	6 49.3 +35.4 1.6	88										
0 35.3 -35.3 179.2	1 24.7 +35.3 0.8	3 24.7 +35.3 0.8	5 24.7 +35.3 0.8	7 24.7 +35.3 0.8	89										
0 00.0 +35.3 0.0	2 00.0 +35.3 0.0	4 00.0 +35.2 0.0	6 00.0 +35.2 0.0	8 00.0 +35.2 0.0	90										
0°	2°	4°	6°	8°											

LATITUDE SAME NAME

L.H.A. 126°, 234°

54°, 306° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	36 01.5	-10.7	60.0	37 00.2	-8.4	61.3	37 56.6	-6.2	62.7	38 50.3	-3.7	64.1	39 41.4	-1.4	65.6
31	35 50.8	-11.4	58.8	36 51.8	-9.2	60.1	37 50.4	-6.9	61.4	38 46.6	-4.7	62.8	39 40.0	-2.2	64.3
32	35 39.4	-12.2	57.6	36 42.6	-10.0	58.8	37 43.5	-7.8	60.2	38 41.9	-5.4	61.5	39 37.8	-3.1	63.0
33	35 27.2	-12.8	56.4	36 32.6	-10.8	57.6	37 35.7	-8.6	58.9	38 36.5	-6.3	60.3	39 34.7	-4.0	61.7
34	35 14.4	-13.6	55.2	36 21.8	-11.5	56.4	37 27.1	-9.3	57.7	38 30.2	-7.1	59.0	39 30.7	-4.8	60.4
35	35 00.8	-14.2	54.0	36 10.3	-12.2	55.2	37 17.8	-10.1	56.4	38 23.1	-8.0	57.7	39 25.9	-5.6	59.1
36	34 46.6	-15.0	52.8	35 58.1	-12.9	54.0	37 07.7	-10.9	55.2	38 15.1	-8.7	56.5	39 20.3	-6.6	57.8
37	34 31.6	-15.6	51.7	35 45.2	-13.7	52.8	36 56.8	-11.6	53.9	38 06.4	-9.6	55.2	39 13.7	-7.3	56.5
38	34 16.0	-16.2	50.5	35 31.5	-14.3	51.6	36 45.2	-12.4	52.7	37 56.8	-10.3	53.9	39 06.4	-8.2	55.2
39	33 59.8	-17.0	49.3	35 17.2	-15.1	50.4	36 32.8	-13.2	51.5	37 46.5	-11.1	52.7	38 58.2	-9.1	54.0
40	33 42.8	-17.5	48.2	35 02.1	-15.8	49.2	36 19.6	-13.8	50.3	37 35.4	-11.9	51.5	38 49.1	-9.8	52.7
41	33 25.3	-18.2	47.0	34 46.3	-16.4	48.0	36 05.8	-14.6	49.1	37 23.5	-12.7	50.2	38 39.3	-10.7	51.4
42	33 07.1	-18.8	45.9	34 29.9	-17.1	46.8	35 51.2	-15.3	47.9	37 10.8	-13.4	49.0	38 28.6	-11.4	50.2
43	32 48.3	-19.4	44.7	34 12.8	-17.7	45.7	35 35.9	-16.0	46.7	36 57.4	-14.2	47.8	38 17.2	-12.3	48.9
44	32 28.9	-20.1	43.6	33 55.1	-18.4	44.5	35 19.9	-16.7	45.5	36 43.2	-14.9	46.6	38 04.9	-13.0	47.7
45	32 08.8	-20.5	42.5	33 36.7	-19.0	43.4	35 03.2	-17.3	44.3	36 28.3	-15.6	45.3	37 51.9	-13.9	46.4
46	31 48.3	-21.2	41.4	33 17.7	-19.6	42.2	34 45.9	-18.0	43.2	36 12.7	-16.3	44.1	37 38.0	-14.5	45.2
47	31 27.1	-21.7	40.3	32 58.1	-20.3	41.1	34 27.9	-18.7	42.0	35 56.4	-17.1	43.0	37 23.5	-15.4	44.0
48	31 05.4	-22.3	39.2	32 37.8	-20.8	40.0	34 09.2	-19.3	40.9	35 39.3	-17.7	41.8	37 08.1	-16.1	42.8
49	30 43.1	-22.8	38.1	32 17.0	-21.4	38.9	33 49.9	-20.0	39.7	35 21.6	-18.4	40.6	36 52.0	-16.7	41.6
50	30 20.3	-23.3	37.1	31 55.6	-22.0	37.8	33 29.9	-20.5	38.6	35 03.2	-19.1	39.4	36 35.3	-17.6	40.4
51	29 57.0	-23.9	36.0	31 33.6	-22.5	36.7	33 09.4	-21.2	37.5	34 44.1	-19.7	38.3	36 17.7	-18.2	39.2
52	29 33.1	-24.3	34.9	31 11.1	-23.1	35.6	32 48.2	-21.7	36.3	34 24.4	-20.4	37.1	35 59.5	-18.9	38.0
53	29 08.8	-24.8	33.9	30 48.0	-23.6	34.5	32 26.5	-22.3	35.2	34 04.0	-20.9	36.0	35 40.6	-19.5	36.8
54	28 44.0	-25.3	32.8	30 24.4	-24.1	33.5	32 04.2	-22.9	34.1	33 43.1	-21.6	34.9	35 21.1	-20.3	35.7
55	28 18.7	-25.8	31.8	30 00.3	-24.6	32.4	31 41.3	-23.4	33.0	33 21.5	-22.2	33.7	35 00.8	-20.9	34.5
56	27 52.9	-26.2	30.8	29 35.7	-25.1	31.4	31 17.9	-24.0	32.0	32 59.3	-22.8	32.6	34 39.9	-21.5	33.4
57	27 26.7	-26.6	29.8	29 10.6	-25.6	30.3	30 53.9	-24.5	30.9	32 36.5	-23.3	31.5	34 18.4	-22.1	32.2
58	27 00.1	-27.1	28.8	28 45.0	-26.1	29.3	30 29.4	-25.0	29.8	32 13.2	-23.9	30.4	33 56.3	-22.8	31.1
59	26 33.0	-27.5	27.8	28 18.9	-26.5	28.2	30 04.4	-25.5	28.8	31 49.3	-24.5	29.4	33 33.5	-23.3	30.0
60	26 05.5	-27.9	26.8	27 52.4	-26.9	27.2	29 38.9	-26.0	27.7	31 24.8	-24.9	28.3	33 10.2	-23.9	28.9
61	25 37.6	-28.3	25.8	27 25.5	-27.4	26.2	29 12.9	-26.5	26.7	30 59.9	-25.5	27.2	32 46.3	-24.5	27.8
62	25 09.3	-28.6	24.8	26 58.1	-27.8	25.2	28 46.4	-26.9	25.7	30 34.4	-26.0	26.2	32 21.8	-25.0	26.7
63	24 40.7	-29.1	23.8	26 30.3	-28.2	24.2	28 19.5	-27.4	24.7	30 08.4	-26.5	25.1	31 56.8	-25.6	25.6
64	24 11.6	-29.4	22.9	26 02.1	-28.7	23.2	27 52.1	-27.8	23.7	29 41.9	-27.0	24.1	31 31.2	-26.1	24.6
65	23 42.2	-29.7	21.9	25 33.4	-29.0	22.3	27 24.3	-28.2	22.7	29 14.9	-27.4	23.1	31 05.1	-26.6	23.5
66	23 12.5	-30.1	21.0	25 04.4	-29.3	21.3	26 56.1	-28.6	21.7	28 47.5	-27.9	22.1	30 38.5	-27.1	22.5
67	22 42.4	-30.4	20.0	24 35.1	-29.8	20.3	26 27.5	-29.1	20.7	28 19.6	-28.3	21.0	30 11.4	-27.5	21.5
68	22 12.0	-30.7	19.1	24 05.3	-30.1	19.4	25 58.4	-29.4	19.7	27 51.3	-28.8	20.0	29 43.9	-28.1	20.4
69	21 41.3	-31.0	18.2	23 35.2	-30.4	18.4	25 29.0	-29.8	18.7	27 22.5	-29.2	19.1	29 15.8	-28.5	19.4
70	21 10.3	-31.4	17.3	23 04.8	-30.8	17.5	24 59.2	-30.2	17.8	26 53.3	-29.5	18.1	28 47.3	-28.9	18.4
71	20 38.9	-31.6	16.3	22 34.0	-31.0	16.6	24 29.0	-30.6	16.8	26 23.8	-30.0	17.1	28 18.4	-29.4	17.4
72	20 07.3	-31.8	15.4	22 03.0	-31.4	15.6	23 58.4	-30.8	15.9	25 53.8	-30.4	16.1	27 49.0	-29.8	16.4
73	19 35.5	-32.2	14.5	21 31.6	-31.7	14.7	23 27.6	-31.3	14.9	25 23.4	-30.7	15.2	27 19.2	-30.2	15.4
74	19 03.3	-32.4	13.6	20 59.9	-32.0	13.8	22 56.3	-31.5	14.0	24 52.7	-31.0	14.2	26 49.0	-30.6	14.5
75	18 30.9	-32.7	12.8	20 27.9	-32.3	12.9	22 24.8	-31.8	13.1	24 21.7	-31.5	13.3	26 18.4	-31.0	13.5
76	17 58.2	-32.9	11.9	19 55.6	-32.5	12.0	21 53.0	-32.2	12.2	23 50.2	-31.7	12.4	25 47.4	-31.3	12.6
77	17 25.3	-33.1	11.0	19 23.1	-32.8	11.1	21 20.8	-32.4	11.3	23 18.5	-32.1	11.4	25 16.1	-31.7	11.6
78	16 52.2	-33.3	10.1	18 50.3	-33.0	10.2	20 48.4	-32.7	10.4	22 46.4	-32.4	10.5	24 44.4	-32.1	10.7
79	16 18.9	-33.6	9.3	18 17.3	-33.3	9.4	20 15.7	-33.0	9.5	22 14.0	-32.7	9.6	24 12.3	-32.4	9.7
80	15 45.3	-33.7	8.4	17 44.0	-33.5	8.5	19 42.7	-33.3	8.6	21 41.3	-33.0	8.7	23 39.9	-32.7	8.8
81	15 11.6	-34.0	7.5	17 10.5	-33.7	7.6	19 09.4	-33.5	7.7	21 08.3	-33.2	7.8	23 07.2	-33.0	7.9
82	14 37.6	-34.1	6.7	16 36.8	-34.0	6.7	18 35.9	-33.7	6.8	20 35.1	-33.6	6.9	22 34.2	-33.3	7.0
83	14 03.5	-34.4	5.8	16 02.8	-34.1	5.9	18 02.2	-34.0	6.0	20 01.5	-33.8	6.0	22 00.9	-33.6	6.1
84	13 29.1	-34.4	5.0	15 28.7	-34.4	5.0	17 28.2	-34.2	5.1	19 27.7	-34.0	5.1	21 27.3	-33.9	5.2
85	12 54.7	-34.7	4.1	14 54.3	-34.5	4.2	16 54.0	-34.4	4.2	18 53.7	-34.3	4.3	20 53.4	-34.2	4.3
86	12 20.0	-34.8	3.3	14 19.8	-34.7	3.3	16 19.6	-34.6	3.4	18 19.4	-34.5	3.4	20 19.2	-34.4	3.5
87	11 45.2	-34.9	2.5	13 45.1	-34.9	2.5	15 45.0	-34.8	2.5	17 44.9	-34.8	2.5	19 44.8	-34.7	2.6
88	11 10.3	-35.1	1.6	13 10.2	-35.0	1.7	15 10.2	-35.0	1.7	17 10.1	-34.9	1.7	19 10.1	-34.9	1.7
89	10 35.2	-35.2	0.8	12 35.2	-35.2	0.8	14 35.2	-35.2	0.8	16 35.2	-35.2	0.8	18 35.2	-35.2	0.9
90	10 00.0	-35.3	0.0	12 00.0	-35.3	0.0	14 00.0	-35.4	0.0	16 00.0	-35.4	0.0	18 00.0	-35.4	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 54°, 306°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
24	29.2	-29.2	129.7	23	12.1	-30.7	130.3	21	53.9	-32.2	131.0	20	34.7	-33.5	131.5	19	14.7	-34.9	132.1	30
24	00.0	-29.5	130.6	22	41.4	-31.0	131.3	21	21.7	-32.4	131.9	20	01.2	-33.8	132.4	18	39.8	-35.1	132.9	31
23	30.5	-29.9	131.6	22	10.4	-31.4	132.2	20	49.3	-32.7	132.8	19	27.4	-34.0	133.3	18	04.7	-35.3	133.8	32
23	00.6	-30.2	132.5	21	39.0	-31.6	133.1	20	16.6	-33.0	133.7	18	53.4	-34.3	134.2	17	29.4	-35.6	134.7	33
22	30.4	-30.5	133.4	21	07.4	-31.9	134.0	19	43.6	-33.2	134.6	18	19.1	-34.6	135.0	16	53.8	-35.8	135.5	34
21	59.9	-30.9	134.4	20	35.5	-32.2	134.9	19	10.4	-33.5	135.4	17	44.5	-34.7	135.9	16	18.0	-35.9	136.3	35
21	29.0	-31.1	135.3	20	03.3	-32.4	135.8	18	36.9	-33.7	136.3	17	09.8	-35.0	136.8	15	42.1	-36.2	137.2	36
20	57.9	-31.5	136.2	19	30.9	-32.8	136.7	18	03.2	-34.0	137.2	16	34.8	-35.2	137.6	15	05.9	-36.3	138.0	37
20	26.4	-31.7	137.1	18	58.1	-32.9	137.6	17	29.2	-34.2	138.1	15	59.6	-35.3	138.5	14	29.6	-36.5	138.8	38
19	54.7	-32.0	138.0	18	25.2	-33.3	138.5	16	55.0	-34.4	138.9	15	24.3	-35.6	139.3	13	53.1	-36.7	139.6	39
19	22.7	-32.2	138.9	17	51.9	-33.4	139.4	16	20.6	-34.6	139.8	14	48.7	-35.7	140.1	13	16.4	-36.8	140.4	40
18	50.5	-32.5	139.8	17	18.5	-33.7	140.2	15	46.0	-34.8	140.6	14	13.0	-35.9	141.0	12	39.6	-37.0	141.3	41
18	18.0	-32.8	140.7	16	44.8	-33.9	141.1	15	11.2	-35.0	141.5	13	37.1	-36.1	141.8	12	02.6	-37.1	142.1	42
17	45.2	-33.0	141.6	16	10.9	-34.1	142.0	14	36.2	-35.2	142.3	13	01.0	-36.2	142.6	11	25.5	-37.2	142.9	43
17	12.2	-33.2	142.5	15	36.8	-34.3	142.8	14	01.0	-35.3	143.1	12	24.8	-36.4	143.4	10	48.3	-37.4	143.7	44
16	39.0	-33.4	143.3	15	02.5	-34.5	143.7	13	25.7	-35.6	144.0	11	10.9	-36.5	144.2	10	10.9	-37.4	144.5	45
16	05.6	-33.7	144.2	14	28.0	-34.6	144.5	12	50.1	-35.6	144.8	11	11.9	-36.6	145.0	9	33.5	-37.6	145.3	46
15	31.9	-33.8	145.1	13	53.4	-34.9	145.4	12	14.5	-35.8	145.6	10	35.3	-36.8	145.9	9	56.9	-37.7	146.0	47
14	58.1	-34.0	145.9	13	18.5	-35.0	146.2	11	38.7	-36.0	146.4	9	58.5	-36.8	146.7	8	18.2	-37.8	146.8	48
14	24.1	-34.2	146.8	12	43.5	-35.1	147.0	11	02.7	-36.1	147.3	9	21.7	-37.0	147.5	7	40.4	-37.8	147.6	49
13	49.9	-34.4	147.6	12	08.4	-35.3	147.9	10	26.6	-36.2	148.1	8	44.7	-37.1	148.3	7	02.6	-38.0	148.4	50
13	15.5	-34.6	148.5	11	33.1	-35.5	148.7	9	50.4	-36.3	148.9	8	07.6	-37.2	149.0	6	24.6	-38.0	149.2	51
12	40.9	-34.7	149.3	10	57.6	-35.5	149.5	9	14.1	-36.4	149.7	7	30.4	-37.2	149.8	5	46.6	-38.1	150.0	52
12	06.2	-34.8	150.1	10	22.1	-35.7	150.3	8	37.7	-36.5	150.5	6	53.2	-37.4	150.6	5	08.5	-38.1	150.7	53
11	31.4	-35.0	151.0	9	46.4	-35.9	151.1	8	01.2	-36.6	151.3	6	15.8	-37.4	151.4	4	30.4	-38.2	151.5	54
10	56.4	-35.2	151.8	9	10.5	-35.9	152.0	7	24.6	-36.8	152.1	5	48.4	-37.5	152.2	3	52.2	-38.2	152.3	55
10	21.2	-35.2	152.6	8	34.6	-36.0	152.8	6	47.8	-36.7	152.9	5	01.0	-37.5	153.0	3	14.0	-38.2	153.1	56
9	46.0	-35.4	153.4	7	58.6	-36.1	153.6	6	11.1	-36.9	153.7	4	23.5	-37.6	153.8	2	35.8	-38.3	153.8	57
9	10.6	-35.5	154.3	7	22.5	-36.2	154.4	5	34.2	-36.9	154.5	3	45.9	-37.6	154.6	1	57.5	-38.3	154.6	58
8	35.1	-35.5	155.1	6	46.3	-36.3	155.2	4	57.3	-37.0	155.3	3	08.3	-37.7	155.3	1	19.2	-38.3	155.4	59
7	59.6	-35.7	155.9	6	10.0	-36.4	156.0	4	20.3	-37.0	156.1	2	30.6	-37.7	156.1	0	40.9	-38.3	156.1	60
7	23.9	-35.8	156.7	5	33.6	-36.4	156.8	3	43.3	-37.1	156.9	1	52.9	-37.7	156.9	0	02.6	-38.4	156.9	61
6	48.1	-35.8	157.5	4	57.2	-36.5	157.6	3	06.2	-37.1	157.6	1	15.2	-37.7	157.7	0	35.8	-38.3	22.3	62
6	12.3	-36.0	158.3	4	20.7	-36.5	158.4	2	29.1	-37.1	158.4	0	37.5	-37.7	158.5	1	14.1	+38.3	21.6	63
5	36.3	-36.0	159.1	3	44.2	-36.6	159.2	1	52.0	-37.1	159.2	0	00.2	+37.7	20.8	1	52.4	+38.3	20.8	64
5	00.3	-36.0	159.9	3	07.6	-36.6	160.0	1	14.9	-37.2	160.0	0	37.9	+37.7	20.0	2	30.7	+38.2	20.0	65
4	24.3	-36.1	160.7	2	31.0	-36.6	160.8	0	37.7	-37.2	160.8	1	15.6	+37.7	19.2	3	08.9	+38.2	19.2	66
3	48.2	-36.1	161.5	1	54.4	-36.7	161.6	0	00.5	-37.1	161.6	1	53.3	+37.7	18.4	3	47.1	+38.2	18.5	67
3	12.1	-36.2	162.3	1	17.7	-36.7	162.4	0	36.6	+37.2	17.6	2	31.0	+37.6	17.7	4	25.3	+38.2	17.7	68
2	35.9	-36.2	163.1	0	41.0	-36.6	163.1	1	13.8	+37.2	16.9	3	08.6	+37.7	16.9	5	03.5	+38.0	16.9	69
1	59.7	-36.3	163.9	0	04.4	-36.7	163.9	1	51.0	+37.1	16.1	3	46.3	+37.5	16.1	5	41.5	+38.1	16.1	70
1	23.4	-36.2	164.7	0	32.3	+36.7	15.3	2	28.1	+37.1	15.3	4	23.8	+37.6	15.3	6	19.6	+37.9	15.4	71
0	47.2	-36.3	165.5	1	09.0	+36.7	14.5	3	05.2	+37.0	14.5	5	01.4	+37.4	14.5	6	57.5	+37.9	14.6	72
0	10.9	-36.2	166.3	1	45.7	+36.6	13.7	3	42.2	+37.1	13.7	5	38.8	+37.4	13.8	7	35.4	+37.8	13.8	73
0	25.3	+36.3	12.9	2	22.3	+36.6	12.9	4	19.3	+36.9	12.9	6	16.2	+37.4	13.0	8	13.2	+37.6	13.0	74
1	01.6	+36.2	12.1	2	58.9	+36.6	12.1	4	56.2	+37.0	12.1	6	53.6	+37.2	12.2	8	50.8	+37.6	12.2	75
1	37.8	+36.2	11.3	3	35.5	+36.5	11.3	5	33.2	+36.8	11.3	7	30.8	+37.2	11.4	9	28.4	+37.5	11.4	76
2	14.0	+36.2	10.5	4	12.0	+36.5	10.5	6	10.0	+36.8	10.5	8	08.0	+37.1	10.6	10	05.9	+37.4	10.7	77
2	50.2	+36.2	9.7	4	48.5	+36.5	9.7	6	46.8	+36.7	9.8	8	45.1	+36.9	9.8	10	43.3	+37.3	9.9	78
3	26.4	+36.1	8.9	5	25.0	+36.3	8.9	7	23.5	+36.6	9.0	9	22.0	+36.9	9.0	11	20.6	+37.1	9.1	79
4	02.5	+36.1	8.1	6	01.3	+36.3	8.1	8	00.1	+36.6	8.2	9	58.9	+36.8	8.2	11	57.7	+37.0	8.3	80
4	38.6	+36.0	7.3	6	37.6	+36.3	7.3	8	36.7	+36.4	7.4	10	35.7	+36.6	7.4	12	34.7	+36.8	7.5	81
5	14.6	+36.0	6.5	7	13.9	+36.1	6.5	9	13.1	+36.3	6.5	11	12.3	+36.5	6.6	13	11.5	+36.7	6.6	82
5	50.6	+35.9	5.7	7	50.0	+36.1	5.7	9	49.4	+36.2	5.7	11	48.8	+36.4	5.8	13	48.2	+36.5	5.8	83
6	26.5	+35.8	4.9	8	26.1	+35.9	4.9	10	25.6	+36.1	4.9	12	25.2	+36.2	5.0	14	24.7	+36.4	5.0	84
7	02.3	+35.7	4.1	9	02.0	+35.9	4.1	11	01.7	+36.0	4.1	13	01.4	+36.1	4.2	15	01.1	+36.1	4.2	85
7	38.0	+35.7	3.3	9	37.9	+35.7	3.3	11	37.7	+35.8	3.3	13	37.5	+35.9	3.3	15	37.2	+36.0	3.4	86
8	13.7	+35.5	2.5	10	13.6	+35.6	2.5	12	13.5	+35.6	2.5	14	13.4	+35.7	2.5	16	13.2	+35.8	2.5	87
8	49.2	+35.5	1.6	10	49.2	+35.5	1.6	12	49.1	+35.5	1.7	14	49.1	+35.5	1.7	16	49.0	+35.6	1.7	88
9	24.7	+35.3	0.8	11	24.7	+35.3	0.8	13	24.6	+35.4	0.8	15	24.6	+35.4	0.8	17	24.6	+35.4	0.8	89
10	00.0	+35.2	0.0	12	00.0	+35.2	0.0	14	00.0	+35.2	0.0	16	00.0	+35.2	0.0	18	00.0	+35.2	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 126°, 234°

54°, 306° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	40 29.5	+1.2	67.1	41 14.7	+3.7	68.7	41 56.6	+6.3	70.4	42 35.2	+8.9	72.1	43 10.3	+11.6	73.9
31	40 30.7	+0.2	65.8	41 18.4	+2.7	67.4	42 02.9	+5.4	69.0	42 44.1	+8.0	70.8	43 21.9	+10.7	72.5
32	40 30.9	-0.6	64.5	41 21.1	+1.9	66.1	42 08.3	+4.4	67.7	42 52.1	+7.1	69.4	43 32.6	+9.7	71.2
33	40 30.3	-1.6	63.2	41 23.0	+0.9	64.7	42 12.7	+3.4	66.4	42 59.2	+6.0	68.1	43 42.3	+8.7	69.8
34	40 28.7	-2.4	61.9	41 23.9	0.0	63.4	42 16.1	+2.6	65.0	43 05.2	+5.1	66.7	43 51.0	+7.8	68.4
35	40 26.3	-3.4	60.5	41 23.9	-0.9	62.1	42 18.7	+1.5	63.7	43 10.3	+4.2	65.3	43 58.8	+6.7	67.1
36	40 22.9	-4.2	59.2	41 23.0	-1.9	60.7	42 20.2	+0.6	62.3	43 14.5	+3.1	64.0	44 05.5	+5.8	65.7
37	40 18.7	-5.1	57.9	41 21.1	-2.7	59.4	42 20.8	-0.3	61.0	43 17.6	+2.2	62.6	44 11.3	+4.7	64.3
38	40 13.6	-6.0	56.6	41 18.4	-3.7	58.1	42 20.5	-1.3	59.6	43 19.8	+1.1	61.2	44 16.0	+3.7	62.9
39	40 07.6	-6.8	55.3	41 14.7	-4.6	56.7	42 19.2	-2.2	58.2	43 20.9	+0.2	59.8	44 19.7	+2.7	61.5
40	40 00.8	-7.7	54.0	41 10.1	-5.5	55.4	42 17.0	-3.2	56.9	43 21.1	-0.8	58.5	44 22.4	+1.7	60.1
41	39 53.1	-8.6	52.7	41 04.6	-6.4	54.1	42 13.8	-4.2	55.5	43 20.3	-1.8	57.1	44 24.1	+0.6	58.7
42	39 44.5	-9.4	51.4	40 58.2	-7.3	52.8	42 09.6	-5.1	54.2	43 18.5	-2.8	55.7	44 24.7	-0.3	57.3
43	39 35.1	-10.3	50.2	40 50.9	-8.2	51.5	42 04.5	-6.0	52.9	43 15.7	-3.7	54.3	44 24.4	-1.4	55.9
44	39 24.8	-11.1	48.9	40 42.7	-9.1	50.2	41 58.5	-7.0	51.5	43 12.0	-4.8	53.0	44 23.0	-2.5	54.5
45	39 13.7	-12.0	47.6	40 33.6	-9.9	48.8	41 51.5	-7.8	50.2	43 07.2	-5.7	51.6	44 20.5	-3.4	53.1
46	39 01.7	-12.7	46.3	40 23.7	-10.8	47.6	41 43.7	-8.8	48.9	43 01.5	-6.6	50.2	44 17.1	-4.5	51.7
47	38 49.0	-13.5	45.1	40 12.9	-11.7	46.3	41 34.9	-9.7	47.5	42 54.9	-7.7	48.9	44 12.6	-5.4	50.3
48	38 35.5	-14.4	43.8	40 01.2	-12.5	45.0	41 25.2	-10.6	46.2	42 47.2	-8.6	47.5	44 07.2	-6.5	48.9
49	38 21.1	-15.1	42.6	39 48.7	-13.4	43.7	41 14.6	-11.5	44.9	42 38.6	-9.5	46.2	44 00.7	-7.5	47.6
50	38 06.0	-15.9	41.4	39 35.3	-14.1	42.4	41 03.1	-12.4	43.6	42 29.1	-10.5	44.8	43 53.2	-8.5	46.2
51	37 50.1	-16.6	40.1	39 21.2	-15.0	41.2	40 50.7	-13.2	42.3	42 18.6	-11.4	43.5	43 44.7	-9.4	44.8
52	37 33.5	-17.4	38.9	39 06.2	-15.8	39.9	40 37.5	-14.1	41.0	42 07.2	-12.3	42.2	43 35.3	-10.4	43.4
53	37 16.1	-18.1	37.7	38 50.4	-16.5	38.7	40 23.4	-14.9	39.7	41 54.9	-13.2	40.9	43 24.9	-11.4	42.1
54	36 58.0	-18.8	36.5	38 33.9	-17.3	37.5	40 08.5	-15.7	38.5	41 41.7	-14.0	39.6	43 13.5	-12.3	40.7
55	36 39.2	-19.5	35.3	38 16.6	-18.1	36.2	39 52.8	-16.6	37.2	41 27.7	-15.0	38.3	43 01.2	-13.3	39.4
56	36 19.7	-20.2	34.2	37 58.5	-18.8	35.0	39 36.2	-17.4	36.0	41 12.7	-15.8	37.0	42 47.9	-14.2	38.1
57	35 59.5	-20.9	33.0	37 39.7	-19.6	33.8	39 18.8	-18.1	34.7	40 56.9	-16.6	35.7	42 33.7	-15.0	36.7
58	35 38.6	-21.5	31.8	37 20.1	-20.2	32.6	39 00.7	-18.9	33.5	40 40.3	-17.5	34.4	42 18.7	-16.0	35.4
59	35 17.1	-22.2	30.7	36 59.9	-21.0	31.4	38 41.8	-19.6	32.3	40 22.8	-18.3	33.2	42 02.7	-16.9	34.1
60	34 54.9	-22.8	29.6	36 38.9	-21.6	30.3	38 22.2	-20.4	31.1	40 04.5	-19.1	31.9	41 45.8	-17.6	32.8
61	34 32.1	-23.4	28.4	36 17.3	-22.3	29.1	38 01.8	-21.1	29.9	39 45.4	-19.8	30.7	41 28.2	-18.6	31.6
62	34 08.7	-24.0	27.3	35 55.0	-22.9	28.0	37 40.7	-21.9	28.7	39 25.6	-20.7	29.5	41 09.6	-19.4	30.3
63	33 44.7	-24.6	26.2	35 32.1	-23.6	26.8	37 18.8	-22.5	27.5	39 04.9	-21.3	28.2	40 50.2	-20.1	29.0
64	33 20.1	-25.2	25.1	35 08.5	-24.2	25.7	36 56.3	-23.1	26.3	38 43.6	-22.1	27.0	40 30.1	-21.0	27.8
65	32 54.9	-25.7	24.0	34 44.3	-24.8	24.6	36 33.2	-23.9	25.2	38 21.5	-22.9	25.9	40 09.1	-21.7	26.6
66	32 29.2	-26.3	23.0	34 19.5	-25.4	23.5	36 09.3	-24.5	24.1	37 58.6	-23.5	24.7	39 47.4	-22.5	25.4
67	32 02.9	-26.7	21.9	33 54.1	-26.0	22.4	35 44.8	-25.1	22.9	37 35.1	-24.2	23.5	39 24.9	-23.2	24.2
68	31 36.2	-27.3	20.8	33 28.1	-26.5	21.3	35 19.7	-25.7	21.8	37 10.9	-24.8	22.4	39 01.7	-24.0	23.0
69	31 08.9	-27.9	19.8	33 01.6	-27.1	20.2	34 54.0	-26.3	20.7	36 46.1	-25.5	21.2	38 37.7	-24.6	21.8
70	30 41.0	-28.2	18.8	32 34.5	-27.6	19.2	34 27.7	-26.9	19.6	36 20.6	-26.1	20.1	38 13.1	-25.3	20.6
71	30 12.8	-28.8	17.7	32 06.9	-28.1	18.1	34 00.8	-27.4	18.5	35 54.5	-26.8	19.0	37 47.8	-26.0	19.5
72	29 44.0	-29.2	16.7	31 38.8	-28.6	17.1	33 33.4	-28.0	17.5	35 27.7	-27.3	17.9	37 21.8	-26.6	18.3
73	29 14.8	-29.7	15.7	31 10.2	-29.1	16.0	33 05.4	-28.5	16.4	35 00.4	-27.9	16.8	36 55.2	-27.3	17.2
74	28 45.1	-30.1	14.7	30 41.1	-29.6	15.0	32 36.9	-29.0	15.4	34 32.5	-28.5	15.7	36 27.9	-27.8	16.1
75	28 15.0	-30.5	13.8	30 11.5	-30.0	14.0	32 07.9	-29.6	14.3	34 04.0	-29.0	14.6	36 00.1	-28.5	15.0
76	27 44.5	-30.9	12.8	29 41.5	-30.5	13.0	31 38.3	-30.0	13.3	33 35.0	-29.5	13.6	35 31.6	-29.0	13.9
77	27 13.6	-31.4	11.8	29 11.0	-30.9	12.0	31 08.3	-30.5	12.3	33 05.5	-30.1	12.5	35 02.6	-29.6	12.8
78	26 42.2	-31.7	10.9	28 40.1	-31.4	11.1	30 37.8	-31.0	11.3	32 35.4	-30.5	11.5	34 33.0	-30.2	11.8
79	26 10.5	-32.0	9.9	28 08.7	-31.7	10.1	30 06.8	-31.4	10.3	32 04.9	-31.1	10.5	34 02.8	-30.6	10.7
80	25 38.5	-32.4	9.0	27 37.0	-32.1	9.1	29 35.4	-31.8	9.3	31 33.8	-31.5	9.5	33 32.2	-31.2	9.7
81	25 06.1	-32.8	8.0	27 04.9	-32.6	8.2	29 03.6	-32.2	8.3	31 02.3	-31.9	8.5	33 01.0	-31.7	8.7
82	24 33.3	-33.1	7.1	26 32.3	-32.8	7.2	28 31.4	-32.7	7.4	30 30.4	-32.4	7.5	32 29.3	-32.1	7.7
83	24 00.2	-33.5	6.2	25 59.5	-33.3	6.3	27 58.7	-33.0	6.4	29 58.0	-32.9	6.5	31 57.2	-32.6	6.7
84	23 26.7	-33.7	5.3	25 26.2	-33.5	5.4	27 25.7	-33.4	5.5	29 25.1	-33.2	5.6	31 24.6	-33.1	5.7
85	22 53.0	-34.0	4.4	24 52.7	-34.0	4.5	26 52.3	-33.8	4.5	28 51.9	-33.6	4.6	30 51.5	-33.5	4.7
86	22 19.0	-34.4	3.5	24 18.7	-34.2	3.6	26 18.5	-34.1	3.6	28 18.3	-34.1	3.7	30 18.0	-33.9	3.7
87	21 44.6	-34.6	2.6	23 44.5	-34.5	2.7	25 44.4	-34.5	2.7	27 44.2	-34.4	2.7	29 44.1	-34.3	2.8
88	21 10.0	-34.9	1.7	23 10.0	-34.9	1.8	25 09.9	-34.8	1.8	27 09.8	-34.7	1.8	29 09.8	-34.7	1.9
89	20 35.1	-35.1	0.9	22 35.1	-35.1	0.9	24 35.1	-35.1	0.9	26 35.1	-35.1	0.9	28 35.1	-35.1	0.9
90	20 00.0	-35.4	0.0	22 00.0	-35.4	0.0	24 00.0	-35.4	0.0	26 00.0	-35.4	0.0	28 00.0	-35.4	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 54°, 306°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
17 53.9 -36.2 132.6	16 32.3 -37.4 133.0	15 10.1 -38.7 133.5	13 47.3 -39.9 133.8	12 23.9 -40.9 134.2	30										
17 17.7 -36.4 133.4	15 54.9 -37.7 133.9	14 31.4 -38.8 134.2	13 07.4 -39.9 134.6	11 43.0 -41.1 134.9	31										
16 41.3 -36.6 134.3	15 17.2 -37.8 134.7	13 52.6 -39.0 135.0	12 27.5 -40.1 135.4	11 01.9 -41.2 135.7	32										
16 04.7 -36.8 135.1	14 39.4 -37.9 135.5	13 13.6 -39.1 135.8	11 47.4 -40.3 136.1	10 20.7 -41.3 136.4	33										
15 27.9 -37.0 135.9	14 01.5 -38.2 136.3	12 34.5 -39.2 136.6	11 07.1 -40.3 136.9	9 39.4 -41.4 137.1	34										
14 50.9 -37.1 136.7	13 23.3 -38.2 137.1	11 55.3 -39.4 137.4	10 28.8 -40.5 137.6	8 58.0 -41.5 137.9	35										
14 13.8 -37.3 137.5	12 45.1 -38.5 137.9	11 15.9 -39.5 138.1	9 46.3 -40.5 138.4	8 16.5 -41.6 138.6	36										
13 36.5 -37.5 138.3	12 06.6 -38.5 138.6	10 36.4 -39.6 138.9	9 05.8 -40.6 139.1	7 34.9 -41.6 139.3	37										
12 59.0 -37.6 139.1	11 28.1 -38.7 139.4	9 56.8 -39.7 139.7	8 25.2 -40.8 139.9	6 53.3 -41.7 140.0	38										
12 21.4 -37.7 139.9	10 49.4 -38.8 140.2	9 17.1 -39.8 140.4	7 44.4 -40.8 140.6	6 11.6 -41.8 140.8	39										
11 43.7 -37.9 140.7	10 10.6 -38.9 141.0	8 37.3 -39.9 141.2	7 03.6 -40.8 141.4	5 29.5 -41.8 141.5	40										
11 05.8 -38.0 141.5	9 31.7 -39.0 141.7	7 57.4 -40.0 141.9	6 22.8 -41.0 142.1	4 48.0 -41.8 142.2	41										
10 27.8 -38.1 142.3	8 52.7 -39.1 142.5	7 17.4 -40.1 142.7	5 41.8 -40.9 142.8	4 06.2 -41.9 142.9	42										
9 49.7 -38.2 143.1	8 13.6 -39.2 143.3	6 37.3 -40.1 143.4	5 00.9 -41.1 143.6	3 24.3 -42.0 143.6	43										
9 11.5 -38.3 143.9	7 34.4 -39.2 144.0	5 57.2 -40.2 144.2	4 19.8 -41.1 144.3	2 42.3 -41.9 144.4	44										
8 33.2 -38.5 144.7	6 55.2 -39.4 144.8	5 17.0 -40.2 144.9	3 38.7 -41.1 145.0	2 00.4 -42.0 145.1	45										
7 54.7 -38.5 145.4	6 15.8 -39.4 145.6	4 36.8 -40.3 145.7	2 57.6 -41.1 145.8	1 18.4 -42.0 145.8	46										
7 16.2 -38.5 146.2	5 36.4 -39.4 146.3	3 56.5 -40.3 146.4	2 16.5 -41.2 146.5	0 36.4 -42.0 146.5	47										
6 37.7 -38.7 147.0	4 57.0 -39.5 147.1	3 16.2 -40.4 147.2	1 35.3 -41.1 147.2	0 05.6 +41.9 32.8	48										
5 59.0 -38.7 147.7	4 17.5 -39.6 147.8	2 35.8 -40.3 147.9	0 54.2 -41.2 147.9	0 47.5 +42.0 32.1	49										
5 20.3 -38.8 148.5	3 37.9 -39.6 148.6	1 55.5 -40.4 148.6	0 13.0 -41.2 148.7	1 29.5 +41.8 31.3	50										
4 41.5 -38.8 149.3	2 58.3 -39.6 149.3	1 15.1 -40.5 149.4	0 28.2 +41.2 30.6	2 11.5 +41.9 30.6	51										
4 02.7 -38.9 150.0	2 18.7 -39.7 150.1	0 34.6 -40.4 150.1	1 09.4 +41.2 29.9	2 53.4 +42.0 29.9	52										
3 23.8 -38.9 150.8	1 39.0 -39.6 150.9	0 05.8 +40.4 29.1	1 50.6 +41.1 29.2	3 35.4 +41.8 29.2	53										
2 44.9 -38.9 151.6	0 59.4 -39.7 151.6	0 46.2 +40.4 28.4	2 31.7 +41.2 28.4	4 17.2 +41.9 28.5	54										
2 06.0 -39.0 152.3	0 19.7 -39.7 152.4	1 26.6 +40.4 27.7	3 12.9 +41.1 27.7	4 59.1 +41.8 27.8	55										
1 27.0 -38.9 153.1	0 20.0 +39.7 26.9	2 07.0 +40.4 26.9	3 54.0 +41.0 27.0	5 40.9 +41.7 27.0	56										
0 48.1 -39.0 153.9	0 59.7 +39.6 26.1	2 47.4 +40.3 26.2	4 35.0 +41.0 26.2	6 22.6 +41.7 26.3	57										
0 09.1 -39.0 154.6	1 39.3 +39.7 25.4	3 27.7 +40.3 25.4	5 16.0 +41.0 25.5	7 04.3 +41.6 25.6	58										
0 29.9 +39.0 24.6	2 19.0 +39.6 24.6	4 08.0 +40.3 24.7	5 57.0 +40.9 24.8	7 45.9 +41.6 24.9	59										
1 08.9 +38.9 23.9	2 58.6 +39.6 23.9	4 48.3 +40.2 23.9	6 37.9 +40.9 24.0	8 27.5 +41.4 24.1	60										
1 47.8 +39.0 23.1	3 38.2 +39.5 23.1	5 28.5 +40.2 23.2	7 18.8 +40.7 23.3	9 08.9 +41.4 23.4	61										
2 26.8 +38.9 22.3	4 17.7 +39.6 22.4	6 08.7 +40.1 22.5	7 59.5 +40.7 22.6	9 50.3 +41.3 22.7	62										
3 05.7 +38.9 21.6	4 57.3 +39.4 21.6	6 48.8 +40.0 21.7	8 40.2 +40.6 21.8	10 31.6 +41.2 21.9	63										
3 44.6 +38.8 20.8	5 36.7 +39.4 20.9	7 28.8 +40.0 21.0	9 20.8 +40.5 21.1	11 12.8 +41.0 21.2	64										
4 23.4 +38.8 20.1	6 16.1 +39.3 20.1	8 08.8 +39.8 20.2	10 01.3 +40.4 20.3	11 53.8 +41.0 20.5	65										
5 02.2 +38.7 19.3	6 55.4 +39.3 19.4	8 48.6 +39.8 19.5	10 41.7 +40.3 19.6	12 34.8 +40.8 19.7	66										
5 40.9 +38.7 18.5	7 34.7 +39.2 18.6	9 28.4 +39.7 18.7	11 22.0 +40.2 18.8	13 15.6 +40.7 19.0	67										
6 19.6 +38.6 17.8	8 13.9 +39.1 17.8	10 08.1 +39.6 17.9	12 02.2 +40.1 18.1	13 56.3 +40.5 18.2	68										
6 58.2 +38.6 17.0	8 53.0 +39.0 17.1	10 47.7 +39.4 17.2	12 42.3 +39.9 17.3	14 36.8 +40.4 17.4	69										
7 36.8 +38.4 16.2	9 32.0 +38.9 16.3	11 27.1 +39.4 16.4	13 22.2 +39.8 16.5	15 17.2 +40.3 16.7	70										
8 15.2 +38.4 15.4	10 10.9 +38.8 15.5	12 06.5 +39.2 15.6	14 02.0 +39.7 15.8	15 57.5 +40.0 15.9	71										
8 53.6 +38.3 14.7	10 49.7 +38.7 14.7	12 45.7 +39.1 14.9	14 41.7 +39.5 15.0	16 37.5 +39.9 15.1	72										
9 31.9 +38.1 13.9	11 28.4 +38.5 14.0	13 24.8 +38.9 14.1	15 21.2 +39.3 14.2	17 17.4 +39.8 14.3	73										
10 10.0 +38.1 13.1	12 06.9 +38.4 13.2	14 03.7 +38.8 13.3	16 00.5 +39.1 13.4	17 57.2 +39.5 13.6	74										
10 48.1 +37.9 12.3	12 45.3 +38.3 12.4	14 42.5 +38.6 12.5	16 39.6 +39.0 12.6	18 36.7 +39.3 12.8	75										
11 26.0 +37.8 11.5	13 23.6 +38.1 11.6	15 21.1 +38.5 11.7	17 18.6 +38.8 11.8	19 16.0 +39.1 12.0	76										
12 03.8 +37.7 10.7	14 01.7 +38.0 10.8	15 59.6 +38.3 10.9	17 57.4 +38.6 11.0	19 55.1 +38.9 11.2	77										
12 41.5 +37.5 9.9	14 39.7 +37.8 10.0	16 37.9 +38.0 10.1	18 36.0 +38.4 10.2	20 34.0 +38.7 10.3	78										
13 19.0 +37.4 9.1	15 17.5 +37.6 9.2	17 15.9 +37.9 9.3	19 14.4 +38.1 9.4	21 12.7 +38.5 9.5	79										
13 56.4 +37.2 8.3	15 55.1 +37.5 8.4	17 53.8 +37.7 8.5	19 52.5 +38.0 8.6	21 51.2 +38.1 8.7	80										
14 33.6 +37.1 7.5	16 32.6 +37.3 7.6	18 31.5 +37.5 7.7	20 30.5 +37.6 7.8	22 29.3 +38.0 7.9	81										
15 10.7 +36.9 6.7	17 09.9 +37.0 6.8	19 09.0 +37.3 6.8	21 08.1 +37.5 6.9	23 07.3 +37.6 7.0	82										
15 47.6 +36.7 5.9	17 46.9 +36.9 5.9	19 46.3 +37.0 6.0	21 45.6 +37.2 6.1	23 44.9 +37.4 6.2	83										
16 24.3 +36.4 5.1	18 23.8 +36.6 5.1	20 23.3 +36.8 5.2	22 22.8 +36.9 5.2	24 22.3 +37.1 5.3	84										
17 00.7 +36.3 4.2	19 00.4 +36.4 4.3	21 00.1 +36.5 4.3	22 59.7 +36.7 4.4	24 59.4 +36.8 4.5	85										
17 37.0 +36.1 3.4	19 36.8 +36.2 3.4	21 36.6 +36.3 3.5	23 36.4 +36.3 3.5	25 36.2 +36.4 3.6	86										
18 13.1 +35.9 2.6	20 13.0 +35.9 2.6	22 12.9 +36.0 2.6	24 12.7 +36.1 2.7	26 12.6 +36.2 2.7	87										
18 49.0 +35.6 1.7	20 48.9 +35.7 1.7	22 48.9 +35.7 1.8	24 48.8 +35.8 1.8	26 48.8 +35.8 1.8	88										
19 24.6 +35.4 0.9	21 24.6 +35.4 0.9	23 24.6 +35.4 0.9	25 24.6 +35.4 0.9	27 24.6 +35.4 0.9	89										
20 00.0 +35.1 0.0	22 00.0 +35.1 0.0	24 00.0 +35.1 0.0	26 00.0 +35.1 0.0	28 00.0 +35.1 0.0	90										
20°	22°	24°	26°	28°											

LATITUDE SAME NAME

L.H.A. 126°, 234°

56°, 304° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	28 57.9	-19.4	55.1	30 05.7	-17.6	56.1	31 11.8	-15.6	57.1	32 16.1	-13.6	58.1	33 18.5	-11.5	59.2
31	28 38.5	-20.0	54.1	29 48.1	-18.1	55.0	30 56.2	-16.2	55.9	32 02.5	-14.3	57.0	33 07.0	-12.2	58.0
32	28 18.5	-20.4	53.0	29 30.0	-18.6	53.9	30 40.0	-16.8	54.8	31 48.2	-14.8	55.8	32 54.8	-12.9	56.9
33	27 58.1	-21.0	51.9	29 11.4	-19.2	52.8	30 23.2	-17.4	53.7	31 33.4	-15.5	54.7	32 41.9	-13.5	55.7
34	27 37.1	-21.4	50.9	28 52.2	-19.7	51.7	30 05.8	-17.9	52.6	31 17.9	-16.0	53.5	32 28.4	-14.1	54.6
35	27 15.7	-21.8	49.8	28 32.5	-20.2	50.6	29 47.9	-18.4	51.5	31 01.9	-16.6	52.4	32 14.3	-14.8	53.4
36	26 53.9	-22.4	48.8	28 12.3	-20.7	49.6	29 29.5	-19.0	50.4	30 45.3	-17.2	51.3	31 59.5	-15.4	52.3
37	26 31.5	-22.8	47.7	27 51.6	-21.1	48.5	29 10.5	-19.5	49.3	30 28.1	-17.8	50.2	31 44.1	-15.9	51.1
38	26 08.7	-23.2	46.7	27 30.5	-21.7	47.4	28 51.0	-20.0	48.2	30 10.3	-18.3	49.1	31 28.2	-16.6	50.0
39	25 45.5	-23.7	45.7	27 08.8	-22.1	46.4	28 31.0	-20.5	47.2	29 52.0	-18.9	48.0	31 11.6	-17.1	48.9
40	25 21.8	-24.0	44.7	26 46.7	-22.6	45.3	28 10.5	-21.0	46.1	29 33.1	-19.4	46.9	30 54.5	-17.8	47.7
41	24 57.8	-24.5	43.6	26 24.1	-23.0	44.3	27 49.5	-21.5	45.0	29 13.7	-19.9	45.8	30 36.7	-18.2	46.6
42	24 33.3	-24.9	42.6	26 01.1	-23.4	43.3	27 28.0	-22.0	44.0	28 53.8	-20.4	44.7	30 18.5	-18.9	45.5
43	24 08.4	-25.3	41.6	25 37.7	-23.9	42.3	27 06.0	-22.4	42.9	28 33.4	-21.0	43.7	29 59.6	-19.4	44.4
44	23 43.1	-25.6	40.6	25 13.8	-24.3	41.2	26 43.6	-22.9	41.9	28 12.4	-21.4	42.6	29 40.2	-19.9	43.3
45	23 17.5	-26.0	39.7	24 49.5	-24.7	40.2	26 20.7	-23.3	40.9	27 51.0	-21.9	41.5	29 20.3	-20.4	42.3
46	22 51.5	-26.4	38.7	24 24.8	-25.1	39.2	25 57.4	-23.8	39.8	27 29.1	-22.4	40.5	28 59.9	-21.0	41.2
47	22 25.1	-26.7	37.7	23 59.7	-25.5	38.2	25 33.6	-24.2	38.8	27 06.7	-22.8	39.4	28 38.9	-21.4	40.1
48	21 58.4	-27.1	36.7	23 34.2	-25.8	37.2	25 09.4	-24.6	37.8	26 43.9	-23.3	38.4	28 17.5	-21.9	39.0
49	21 31.3	-27.3	35.8	23 08.4	-26.2	36.3	24 44.8	-25.0	36.8	26 20.6	-23.8	37.4	27 55.6	-22.5	38.0
50	21 04.0	-27.7	34.8	22 42.2	-26.6	35.3	24 19.8	-25.3	35.8	25 56.8	-24.1	36.3	27 33.1	-22.9	36.9
51	20 36.3	-28.1	33.9	22 15.6	-26.9	34.3	23 54.5	-25.8	34.8	25 32.7	-24.6	35.3	27 10.2	-23.3	35.9
52	20 08.2	-28.3	32.9	21 48.7	-27.2	33.4	23 28.7	-26.1	33.8	25 08.1	-25.0	34.3	26 46.9	-23.8	34.9
53	19 39.9	-28.6	32.0	21 21.5	-27.6	32.4	23 02.6	-26.5	32.8	24 43.1	-25.3	33.3	26 23.1	-24.2	33.8
54	19 11.3	-28.8	31.1	20 53.9	-27.8	31.4	22 36.1	-26.9	31.9	24 17.8	-25.8	32.3	25 58.9	-24.7	32.8
55	18 42.5	-29.2	30.1	20 26.1	-28.2	30.5	22 09.2	-27.1	30.9	23 52.0	-26.1	31.3	25 34.2	-25.0	31.8
56	18 13.3	-29.4	29.2	19 57.9	-28.5	29.6	21 42.1	-27.5	29.9	23 25.9	-26.6	30.3	25 09.2	-25.5	30.8
57	17 43.9	-29.7	28.3	19 29.4	-28.8	28.6	21 14.6	-27.9	29.0	22 59.3	-26.8	29.4	24 43.7	-25.9	29.8
58	17 14.2	-29.9	27.4	19 00.6	-29.0	27.7	20 46.7	-28.1	28.0	22 32.5	-27.2	28.4	24 17.8	-26.2	28.8
59	16 44.3	-30.1	26.5	18 31.6	-29.3	26.8	20 18.6	-28.5	27.1	22 05.3	-27.6	27.4	23 51.6	-26.6	27.8
60	16 14.2	-30.4	25.6	18 02.3	-29.6	25.8	19 50.1	-28.7	26.1	21 37.7	-27.9	26.5	23 25.0	-27.0	26.9
61	15 43.8	-30.6	24.7	17 32.7	-29.8	24.9	19 21.4	-29.0	25.2	21 09.8	-28.1	25.5	22 58.0	-27.4	25.9
62	15 13.2	-30.8	23.8	17 02.9	-30.1	24.0	18 52.4	-29.3	24.3	20 41.7	-28.5	24.6	22 30.6	-27.7	24.9
63	14 42.4	-31.0	22.9	16 32.8	-30.2	23.1	18 23.1	-29.5	23.4	20 13.2	-28.8	23.6	22 02.9	-28.0	24.0
64	14 11.4	-31.2	22.0	16 02.6	-30.6	22.2	17 53.6	-29.9	22.5	19 44.4	-29.1	22.7	21 34.9	-28.3	23.0
65	13 40.2	-31.4	21.1	15 32.0	-30.7	21.3	17 23.7	-30.0	21.5	19 15.3	-29.4	21.8	21 06.6	-28.7	22.1
66	13 08.8	-31.6	20.3	15 01.3	-30.9	20.4	16 53.7	-30.3	20.6	18 45.9	-29.6	20.9	20 37.9	-28.9	21.1
67	12 37.2	-31.7	19.4	14 30.4	-31.2	19.5	16 23.4	-30.5	19.7	18 16.3	-29.9	19.9	20 09.0	-29.3	20.2
68	12 05.5	-31.9	18.5	13 59.2	-31.3	18.7	15 52.9	-30.8	18.8	17 46.4	-30.2	19.0	19 39.7	-29.5	19.3
69	11 33.6	-32.0	17.7	13 27.9	-31.5	17.8	15 22.1	-30.9	17.9	17 16.2	-30.4	18.1	19 10.2	-29.8	18.3
70	11 01.6	-32.2	16.8	12 56.4	-31.7	16.9	14 51.2	-31.2	17.1	16 45.8	-30.6	17.2	18 40.4	-30.1	17.4
71	10 29.4	-32.4	15.9	12 24.7	-31.8	16.0	14 20.0	-31.3	16.2	16 15.2	-30.8	16.3	18 10.3	-30.3	16.5
72	9 57.0	-32.4	15.1	11 52.9	-32.0	15.2	13 48.7	-31.6	15.3	15 44.4	-31.1	15.4	17 40.0	-30.6	15.6
73	9 24.6	-32.6	14.2	11 20.9	-32.2	14.3	13 17.1	-31.7	14.4	15 13.3	-31.3	14.5	17 09.4	-30.8	14.7
74	8 52.0	-32.7	13.4	10 48.7	-32.3	13.5	12 45.4	-31.9	13.6	14 42.0	-31.4	13.7	16 38.6	-31.0	13.8
75	8 19.3	-32.8	12.5	10 16.4	-32.4	12.6	12 13.5	-32.0	12.7	14 10.6	-31.7	12.8	16 07.6	-31.3	12.9
76	7 46.5	-32.9	11.7	9 44.0	-32.6	11.7	11 41.5	-32.2	11.8	13 38.9	-31.8	11.9	15 36.3	-31.5	12.0
77	7 13.6	-33.0	10.8	9 11.4	-32.6	10.9	11 09.3	-32.4	11.0	13 07.1	-32.1	11.0	15 04.8	-31.7	11.1
78	6 40.6	-33.1	10.0	8 38.8	-32.8	10.0	10 36.9	-32.5	10.1	12 35.0	-32.2	10.2	14 33.1	-31.8	10.3
79	6 07.5	-33.2	9.2	8 06.0	-32.9	9.2	10 04.4	-32.6	9.2	12 02.8	-32.3	9.3	14 01.3	-32.1	9.4
80	5 34.3	-33.2	8.3	7 33.1	-33.0	8.4	9 31.8	-32.7	8.4	11 30.5	-32.5	8.4	13 29.2	-32.3	8.5
81	5 01.1	-33.3	7.5	7 00.1	-33.1	7.5	8 59.1	-32.9	7.5	10 58.0	-32.6	7.6	12 56.9	-32.4	7.6
82	4 27.8	-33.3	6.6	6 27.0	-33.2	6.7	8 26.2	-33.0	6.7	10 25.4	-32.8	6.7	12 24.5	-32.5	6.8
83	3 54.5	-33.4	5.8	5 53.8	-33.2	5.8	7 53.2	-33.1	5.9	9 52.6	-32.9	5.9	11 52.0	-32.8	5.9
84	3 21.1	-33.5	5.0	5 20.6	-33.3	5.0	7 20.1	-33.1	5.0	9 19.7	-33.0	5.0	11 19.2	-32.9	5.1
85	2 47.6	-33.5	4.1	4 47.3	-33.4	4.2	6 47.0	-33.3	4.2	8 46.7	-33.2	4.2	10 46.3	-33.0	4.2
86	2 14.1	-33.5	3.3	4 13.9	-33.4	3.3	6 13.7	-33.3	3.3	8 13.5	-33.2	3.3	10 13.3	-33.1	3.4
87	1 40.6	-33.5	2.5	3 40.5	-33.5	2.5	5 40.4	-33.4	2.5	7 40.3	-33.4	2.5	9 40.2	-33.3	2.5
88	1 07.1	-33.5	1.7	3 07.0	-33.5	1.7	5 07.0	-33.5	1.7	7 06.9	-33.4	1.7	9 06.9	-33.4	1.7
89	0 33.6	-33.6	0.8	2 33.5	-33.5	0.8	4 33.5	-33.5	0.8	6 33.5	-33.5	0.8	8 33.5	-33.5	0.8
90	0 00.0	-33.6	0.0	2 00.0	-33.6	0.0	4 00.0	-33.6	0.0	6 00.0	-33.6	0.0	8 00.0	-33.6	0.0

LATITUDE CONTRARY NAME

L.H.A. 56°, 304°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
28 57.9	-19.4	124.9	27 48.6	-21.3	125.7	26 37.8	-23.0	126.6	25 25.6	-24.7	127.3	24 12.2	-26.3	128.1	30
28 38.5	-20.0	125.9	27 27.3	-21.7	126.8	26 14.8	-23.5	127.6	25 00.9	-25.1	128.4	23 45.9	-26.7	129.1	31
28 18.5	-20.4	127.0	27 05.6	-22.2	127.8	25 51.3	-23.8	128.6	24 35.8	-25.5	129.4	23 19.2	-27.1	130.0	32
27 58.1	-21.0	128.1	26 43.4	-22.6	128.9	25 27.5	-24.3	129.6	24 10.3	-25.8	130.3	22 52.1	-27.4	131.0	33
27 37.1	-21.4	129.1	26 20.8	-23.1	129.9	25 03.2	-24.7	130.7	23 44.5	-26.3	131.3	22 24.7	-27.8	132.0	34
27 15.7	-21.8	130.2	25 57.7	-23.5	130.9	24 38.5	-25.1	131.7	23 18.2	-26.6	132.3	21 56.9	-28.0	132.9	35
26 53.9	-22.4	131.2	25 34.2	-24.0	132.0	24 13.4	-25.5	132.7	22 51.6	-27.0	133.3	21 28.9	-28.5	133.9	36
26 31.5	-22.8	132.3	25 10.2	-24.3	133.0	23 47.9	-25.8	133.6	22 24.6	-27.3	134.3	21 00.4	-28.7	134.8	37
26 08.7	-23.2	133.3	24 45.9	-24.8	134.0	23 22.1	-26.3	134.6	21 57.3	-27.6	135.2	20 31.7	-29.0	135.8	38
25 45.5	-23.7	134.3	24 21.1	-25.1	135.0	22 55.8	-26.5	135.6	21 29.7	-28.0	136.2	20 02.7	-29.3	136.7	39
25 21.8	-24.0	135.3	23 56.0	-25.5	136.0	22 29.3	-27.0	136.6	21 01.7	-28.3	137.1	19 33.4	-29.6	137.6	40
24 57.8	-24.5	136.4	23 30.5	-25.9	137.0	22 02.3	-27.2	137.5	20 33.4	-28.6	138.1	19 03.8	-29.9	138.5	41
24 33.3	-24.9	137.4	23 04.6	-26.3	138.0	21 35.1	-27.6	138.5	20 04.8	-28.8	139.0	18 33.9	-30.1	139.5	42
24 08.4	-25.3	138.4	22 38.3	-26.6	138.9	21 07.5	-27.9	139.5	19 36.0	-29.2	139.9	18 03.8	-30.4	140.4	43
23 43.1	-25.6	139.4	22 11.7	-26.9	139.9	20 39.6	-28.3	140.4	19 06.8	-29.5	140.9	17 33.4	-30.6	141.3	44
23 17.5	-26.0	140.3	21 44.8	-27.3	140.9	20 11.3	-28.5	141.3	18 37.3	-29.7	141.8	17 02.8	-30.9	142.2	45
22 51.5	-26.4	141.3	21 17.5	-27.6	141.8	19 42.8	-28.8	142.3	18 07.6	-29.9	142.7	16 31.9	-31.1	143.1	46
22 25.1	-26.7	142.3	20 49.9	-28.0	142.8	19 14.0	-29.1	143.2	17 37.7	-30.2	143.6	16 00.8	-31.3	144.0	47
21 58.4	-27.1	143.3	20 21.9	-28.2	143.7	18 44.9	-29.3	144.1	17 07.5	-30.5	144.5	15 29.5	-31.5	144.9	48
21 31.3	-27.3	144.2	19 53.7	-28.5	144.7	18 15.6	-29.6	145.1	16 37.0	-30.7	145.4	14 58.0	-31.7	145.7	49
21 04.0	-27.7	145.2	19 25.2	-28.8	145.6	17 46.0	-29.9	146.0	16 06.3	-30.9	146.3	14 33.4	-31.9	146.6	50
20 36.3	-28.1	146.1	18 56.4	-29.1	146.5	17 16.1	-30.1	146.9	15 35.4	-31.1	147.2	13 54.4	-32.1	147.5	51
20 08.2	-28.3	147.1	18 27.3	-29.3	147.4	16 46.0	-30.4	147.8	15 04.3	-31.4	148.1	13 22.3	-32.3	148.4	52
19 39.9	-28.6	148.0	17 58.0	-29.6	148.4	16 15.6	-30.6	148.7	14 32.9	-31.5	149.0	12 50.0	-32.5	149.2	53
19 11.3	-28.8	148.9	17 28.4	-29.9	149.3	15 45.0	-30.8	149.6	14 01.4	-31.7	149.9	12 17.5	-32.6	150.1	54
18 42.5	-29.2	149.9	16 58.5	-30.1	150.2	15 14.2	-31.0	150.5	13 29.7	-31.9	150.7	11 44.9	-32.8	150.9	55
18 13.3	-29.4	150.8	16 28.4	-30.3	151.1	14 43.2	-31.2	151.4	12 57.8	-32.1	151.6	11 12.1	-32.9	151.8	56
17 43.9	-29.7	151.7	15 58.1	-30.6	152.0	14 12.0	-31.4	152.2	12 25.7	-32.2	152.5	10 39.2	-33.0	152.6	57
17 14.2	-29.9	152.6	15 27.5	-30.7	152.9	13 40.6	-31.6	153.1	11 53.5	-32.4	153.3	10 06.2	-33.2	153.5	58
16 44.3	-30.1	153.5	14 56.8	-31.0	153.8	13 09.0	-31.7	154.0	11 21.1	-32.5	154.2	9 33.0	-33.3	154.3	59
16 14.2	-30.4	154.4	14 25.8	-31.1	154.7	12 37.3	-32.0	154.9	10 48.6	-32.7	155.0	8 59.7	-33.4	155.2	60
15 43.8	-30.6	155.3	13 54.7	-31.4	155.5	12 05.3	-32.0	155.7	10 15.9	-32.8	155.9	8 26.3	-33.5	156.0	61
15 13.2	-30.8	156.2	13 23.3	-31.5	156.4	11 33.3	-32.3	156.6	9 43.1	-33.0	156.7	7 52.8	-33.7	156.9	62
14 42.4	-31.0	157.1	12 51.8	-31.7	157.3	11 01.0	-32.4	157.5	9 10.1	-33.0	157.6	7 19.1	-33.7	157.7	63
14 11.4	-31.2	158.0	12 20.1	-31.9	158.2	10 28.6	-32.5	158.3	8 37.1	-33.2	158.4	6 45.4	-33.8	158.5	64
13 40.2	-31.4	158.9	11 48.2	-32.0	159.0	9 56.1	-32.7	159.2	8 03.9	-33.3	159.3	6 11.6	-33.8	159.4	65
13 08.8	-31.6	159.7	11 16.2	-32.2	159.9	9 23.4	-32.7	160.0	7 30.6	-33.3	160.1	5 37.8	-34.0	160.2	66
12 37.2	-31.7	160.6	10 44.0	-32.3	160.7	8 50.7	-32.9	160.9	6 57.3	-33.5	161.0	5 03.8	-34.0	161.0	67
12 05.5	-31.9	161.5	10 11.7	-32.5	161.6	8 17.8	-33.0	161.7	6 23.8	-33.5	161.8	4 29.8	-34.1	161.8	68
11 33.6	-32.0	162.3	9 39.2	-32.6	162.5	7 44.8	-33.1	162.6	5 50.3	-33.6	162.6	3 55.7	-34.1	162.7	69
11 01.6	-32.2	163.2	9 06.6	-32.6	163.3	7 11.7	-33.2	163.4	5 16.7	-33.7	163.5	3 21.6	-34.1	163.5	70
10 29.4	-32.4	164.1	8 34.0	-32.9	164.2	6 38.5	-33.3	164.2	4 43.0	-33.7	164.3	2 47.5	-34.2	164.3	71
9 57.0	-32.4	164.9	8 01.1	-32.9	165.0	6 05.2	-33.3	165.1	4 09.3	-33.8	165.1	2 13.3	-34.2	165.1	72
9 24.6	-32.6	165.8	7 28.2	-33.0	165.8	5 31.9	-33.5	165.9	3 35.5	-33.9	165.9	1 39.1	-34.3	166.0	73
8 52.0	-32.7	166.6	6 55.2	-33.1	166.7	4 58.4	-33.4	166.7	3 01.6	-33.8	166.8	1 04.8	-34.2	166.8	74
8 19.3	-32.8	167.5	6 22.1	-33.1	167.5	4 25.0	-33.6	167.6	2 27.8	-33.9	167.6	0 30.6	-34.3	167.6	75
7 46.5	-32.9	168.3	5 49.0	-33.3	168.4	3 51.4	-33.6	168.4	1 53.9	-34.0	168.4	0 03.7	+34.3	11.6	76
7 13.6	-33.0	169.2	5 15.7	-33.3	169.2	3 17.8	-33.6	169.2	1 19.9	-33.9	169.2	0 38.0	+34.2	10.7	77
6 40.6	-33.1	170.0	4 42.4	-33.4	170.0	2 44.2	-33.7	170.1	0 46.0	-33.9	170.1	1 12.2	+34.2	9.9	78
6 07.5	-33.2	170.8	4 09.0	-33.4	170.9	2 10.5	-33.6	170.9	0 12.1	-34.0	170.9	1 46.4	+34.2	9.1	79
5 34.3	-33.2	171.7	3 35.6	-33.5	171.7	1 36.9	-33.8	171.7	0 21.9	+33.9	8.3	2 20.6	+34.2	8.3	80
5 01.1	-33.3	172.5	3 02.1	-33.5	172.5	1 03.1	-33.7	172.5	0 55.8	+34.0	7.5	2 54.8	+34.2	7.5	81
4 27.8	-33.3	173.4	2 28.6	-33.5	173.4	0 29.4	-33.7	173.4	1 29.8	+33.9	6.6	3 29.0	+34.1	6.6	82
3 54.5	-33.4	174.2	1 55.1	-33.6	174.2	0 04.3	+33.7	5.8	2 03.7	+33.9	5.8	4 03.1	+34.0	5.8	83
3 21.1	-33.5	175.0	1 21.5	-33.6	175.0	0 38.0	+33.8	5.0	2 37.6	+33.8	5.0	4 37.1	+34.0	5.0	84
2 47.6	-33.5	175.9	0 47.9	-33.6	175.9	1 11.8	+33.7	4.1	3 11.4	+33.9	4.1	5 11.1	+34.0	4.2	85
2 14.1	-33.5	176.7	0 14.3	-33.6	176.7	1 45.5	+33.7	3.3	3 45.3	+33.7	3.3	5 45.1	+33.8	3.3	86
1 40.6	-33.5	177.5	0 19.3	+33.6	2.5	2 19.2	+33.6	2.5	4 19.0	+33.8	2.5	6 18.9	+33.8	2.5	87
1 07.1	-33.5	178.3	0 52.9	+33.5	1.7	2 52.8	+33.6	1.7	4 52.8	+33.6	1.7	6 52.7	+33.7	1.7	88
0 33.6	-33.6	179.2	1 26.4	+33.6	0.8	3 26.4	+33.6	0.8	5 26.4	+33.6	0.8	7 26.4	+33.6	0.8	89
0 00.0	+33.6	0.0	2 00.0	+33.5	0.0	4 00.0	+33.5	0.0	6 00.0	+33.5	0.0	8 00.0	+33.5	0.0	90

LATITUDE SAME NAME

L.H.A. 124°, 236°

56°, 304° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	34 18.9	-9.4	60.4	35 17.1	-7.2	61.6	36 13.0	-4.9	62.9	37 06.5	-2.6	64.2	37 57.5	-0.3	65.6
31	34 09.5	-10.1	59.2	35 09.9	-8.0	60.4	36 08.1	-5.8	61.6	37 03.9	-3.5	62.9	37 57.2	-1.1	64.3
32	33 59.4	-10.8	58.0	35 01.9	-8.6	59.2	36 02.3	-6.5	60.4	37 00.4	-4.2	61.7	37 56.1	-1.9	63.1
33	33 48.6	-11.5	56.8	34 53.3	-9.4	58.0	35 55.8	-7.2	59.2	36 56.2	-5.0	60.4	37 54.2	-2.7	61.8
34	33 37.1	-12.2	55.6	34 43.9	-10.1	56.8	35 48.6	-8.0	57.9	36 51.2	-5.8	59.2	37 51.5	-3.6	60.5
35	33 24.9	-12.8	54.4	34 33.8	-10.8	55.6	35 40.6	-8.7	56.7	36 45.4	-6.6	58.0	37 47.9	-4.3	59.3
36	33 12.1	-13.4	53.3	34 23.0	-11.5	54.4	35 31.9	-9.4	55.5	36 38.8	-7.3	56.7	37 43.6	-5.2	58.0
37	32 58.7	-14.2	52.1	34 11.5	-12.2	53.2	35 22.5	-10.2	54.3	36 31.5	-8.1	55.5	37 38.4	-5.9	56.7
38	32 44.5	-14.7	51.0	33 59.3	-12.8	52.0	35 12.3	-10.9	53.1	36 23.4	-8.9	54.2	37 32.5	-6.8	55.5
39	32 29.8	-15.4	49.8	33 46.5	-13.6	50.8	35 01.4	-11.6	51.9	36 14.5	-9.6	53.0	37 25.7	-7.5	54.2
40	32 14.4	-15.9	48.7	33 32.9	-14.1	49.6	34 49.8	-12.3	50.7	36 04.9	-10.3	51.8	37 18.2	-8.3	53.0
41	31 58.5	-16.6	47.5	33 18.8	-14.9	48.5	34 37.5	-13.0	49.5	35 54.6	-11.1	50.6	37 09.9	-9.1	51.7
42	31 41.9	-17.2	46.4	33 03.9	-15.4	47.3	34 24.5	-13.6	48.3	35 43.5	-11.8	49.4	37 00.8	-9.9	50.5
43	31 24.7	-17.8	45.3	32 48.5	-16.1	46.2	34 10.9	-14.4	47.1	35 31.7	-12.5	48.2	36 50.9	-10.6	49.3
44	31 06.9	-18.3	44.2	32 32.4	-16.7	45.0	33 56.5	-15.0	46.0	35 19.2	-13.2	47.0	36 40.3	-11.4	48.0
45	30 48.6	-18.9	43.0	32 15.7	-17.3	43.9	33 41.5	-15.6	44.8	35 06.0	-14.0	45.8	36 28.9	-12.1	46.8
46	30 29.7	-19.5	41.9	31 58.4	-17.9	42.8	33 25.9	-16.3	43.6	34 52.0	-14.6	44.6	36 16.8	-12.9	45.6
47	30 10.2	-20.0	40.8	31 40.5	-18.5	41.6	33 09.6	-17.0	42.5	34 37.4	-15.3	43.4	36 03.9	-13.6	44.4
48	29 50.2	-20.5	39.8	31 22.0	-19.1	40.5	32 52.6	-17.5	41.3	34 22.1	-15.9	42.2	35 50.3	-14.3	43.2
49	29 29.7	-21.1	38.7	31 02.9	-19.6	39.4	32 35.1	-18.2	40.2	34 06.2	-16.7	41.1	35 36.0	-15.0	42.0
50	29 08.6	-21.5	37.6	30 43.3	-20.2	38.3	32 16.9	-18.7	39.1	33 49.5	-17.2	39.9	35 21.0	-15.7	40.8
51	28 47.1	-22.1	36.5	30 23.1	-20.8	37.2	31 58.2	-19.4	38.0	33 32.3	-17.9	38.8	35 05.3	-16.4	39.6
52	28 25.0	-22.6	35.5	30 02.3	-21.2	36.1	31 38.8	-19.9	36.8	33 14.4	-18.5	37.6	34 48.9	-17.0	38.4
53	28 02.4	-23.0	34.4	29 41.1	-21.8	35.1	31 18.9	-20.5	35.7	32 55.9	-19.2	36.5	34 31.9	-17.8	37.3
54	27 39.4	-23.5	33.4	29 19.3	-22.3	34.0	30 58.4	-21.0	34.6	32 36.7	-19.7	35.3	34 14.1	-18.3	36.1
55	27 15.9	-23.9	32.3	28 57.0	-22.8	32.9	30 37.4	-21.6	33.5	32 17.0	-20.3	34.2	33 55.8	-19.0	35.0
56	26 52.0	-24.4	31.3	28 34.2	-23.3	31.9	30 15.8	-22.1	32.5	31 56.7	-20.9	33.1	33 36.8	-19.7	33.8
57	26 27.6	-24.9	30.3	28 10.9	-23.7	30.8	29 53.7	-22.7	31.4	31 35.8	-21.5	32.0	33 17.1	-20.2	32.7
58	26 02.7	-25.2	29.3	27 47.2	-24.3	29.8	29 31.0	-23.1	30.3	31 14.3	-22.0	30.9	32 56.9	-20.8	31.6
59	25 37.5	-25.7	28.3	27 22.9	-24.8	28.7	29 07.9	-23.6	29.3	30 52.3	-22.6	29.8	32 36.1	-21.4	30.5
60	25 11.8	-26.0	27.3	26 58.3	-25.1	27.7	28 44.3	-24.1	28.2	30 29.7	-23.0	28.8	32 14.7	-22.0	29.3
61	24 45.8	-26.5	26.3	26 33.2	-25.6	26.7	28 20.2	-24.6	27.2	30 06.7	-23.6	27.7	31 52.7	-22.6	28.2
62	24 19.3	-26.8	25.3	26 07.6	-25.9	25.7	27 55.6	-25.1	26.1	29 43.1	-24.1	26.6	31 30.1	-23.1	27.2
63	23 52.5	-27.2	24.3	25 41.7	-26.4	24.7	27 30.5	-25.5	25.1	29 19.0	-24.6	25.6	31 07.0	-23.7	26.1
64	23 25.3	-27.6	23.3	25 15.3	-26.8	23.7	27 05.0	-25.9	24.1	28 54.4	-25.1	24.5	30 43.3	-24.1	25.0
65	22 57.7	-27.9	22.4	24 48.5	-27.1	22.7	26 39.1	-26.4	23.1	28 29.3	-25.5	23.5	30 19.2	-24.7	23.9
66	22 29.8	-28.3	21.4	24 21.4	-27.5	21.7	26 12.7	-26.8	22.1	28 03.8	-26.0	22.5	29 54.5	-25.2	22.9
67	22 01.5	-28.6	20.5	23 53.9	-27.9	20.8	25 45.9	-27.1	21.1	27 37.8	-26.5	21.4	29 29.3	-25.6	21.8
68	21 32.9	-28.9	19.5	23 26.0	-28.3	19.8	25 18.8	-27.6	20.1	27 11.3	-26.8	20.4	29 03.7	-26.2	20.8
69	21 04.0	-29.2	18.6	22 57.7	-28.6	18.8	24 51.2	-27.9	19.1	26 44.5	-27.3	19.4	28 37.5	-26.6	19.8
70	20 34.8	-29.5	17.6	22 29.1	-28.9	17.9	24 23.3	-28.4	18.1	26 17.2	-27.7	18.4	28 10.9	-27.0	18.8
71	20 05.3	-29.8	16.7	22 00.2	-29.2	16.9	23 54.9	-28.6	17.2	25 49.5	-28.1	17.4	27 43.9	-27.5	17.8
72	19 35.5	-30.0	15.8	21 31.0	-29.6	16.0	23 26.3	-29.1	16.2	25 21.4	-28.5	16.5	27 16.4	-27.9	16.8
73	19 05.5	-30.4	14.9	21 01.4	-29.9	15.1	22 57.2	-29.3	15.3	24 52.9	-28.8	15.5	26 48.5	-28.3	15.8
74	18 35.1	-30.6	14.0	20 31.5	-30.1	14.1	22 27.9	-29.7	14.3	24 24.1	-29.2	14.5	26 20.2	-28.8	14.8
75	18 04.5	-30.9	13.0	20 01.4	-30.5	13.2	21 58.2	-30.1	13.4	23 54.9	-29.6	13.6	25 51.4	-29.1	13.8
76	17 33.6	-31.1	12.1	19 30.9	-30.7	12.3	21 28.1	-30.3	12.4	23 25.3	-29.9	12.6	25 22.3	-29.5	12.8
77	17 02.5	-31.3	11.2	19 00.2	-31.0	11.4	20 57.8	-30.6	11.5	22 55.4	-30.3	11.7	24 52.8	-29.8	11.9
78	16 31.2	-31.6	10.4	18 29.2	-31.2	10.5	20 27.2	-30.9	10.6	22 25.1	-30.5	10.7	24 23.0	-30.2	10.9
79	15 59.6	-31.7	9.5	17 58.0	-31.5	9.6	19 56.3	-31.2	9.7	21 54.6	-30.9	9.8	23 52.8	-30.6	10.0
80	15 27.9	-32.0	8.6	17 26.5	-31.7	8.7	19 25.1	-31.4	8.8	21 23.7	-31.2	8.9	23 22.2	-30.9	9.0
81	14 55.9	-32.2	7.7	16 54.8	-32.0	7.8	18 53.7	-31.8	7.9	20 52.5	-31.5	8.0	22 51.3	-31.2	8.1
82	14 23.7	-32.4	6.8	16 22.8	-32.2	6.9	18 21.9	-31.9	7.0	20 21.0	-31.7	7.1	22 20.1	-31.5	7.2
83	13 51.3	-32.6	6.0	15 50.6	-32.3	6.0	17 50.0	-32.2	6.1	19 49.3	-32.0	6.2	21 48.6	-31.8	6.2
84	13 18.7	-32.7	5.1	15 18.3	-32.6	5.2	17 17.8	-32.5	5.2	19 17.3	-32.3	5.3	21 16.8	-32.2	5.3
85	12 46.0	-32.9	4.2	14 45.7	-32.8	4.3	16 45.3	-32.6	4.3	18 45.0	-32.5	4.4	20 44.6	-32.4	4.4
86	12 13.1	-33.1	3.4	14 12.9	-33.0	3.4	16 12.7	-32.9	3.5	18 12.5	-32.8	3.5	20 12.2	-32.6	3.5
87	11 40.0	-33.2	2.5	13 39.9	-33.1	2.6	15 39.8	-33.1	2.6	17 39.7	-33.0	2.6	19 39.6	-33.0	2.6
88	11 06.8	-33.3	1.7	13 06.8	-33.3	1.7	15 06.7	-33.2	1.7	17 06.7	-33.3	1.7	19 06.6	-33.2	1.8
89	10 33.5	-33.5	0.8	12 33.5	-33.5	0.8	14 33.5	-33.5	0.9	16 33.4	-33.4	0.9	18 33.4	-33.4	0.9
90	10 00.0	-33.6	0.0	12 00.0	-33.6	0.0	14 00.0	-33.6	0.0	16 00.0	-33.7	0.0	18 00.0	-33.7	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 56°, 304°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
22 57.6	-27.9	128.8	21 42.0	-29.5	129.4	20 25.3	-30.9	130.0	19 07.7	-32.3	130.5	17 49.3	-33.7	131.0	30
22 29.7	-28.2	129.7	21 12.5	-29.7	130.3	19 54.4	-31.2	130.9	18 35.4	-32.6	131.4	17 15.6	-34.0	131.9	31
22 01.5	-28.6	130.7	20 42.8	-30.1	131.3	19 23.2	-31.5	131.8	18 02.8	-32.9	132.3	16 41.6	-34.1	132.8	32
21 32.9	-28.9	131.6	20 12.7	-30.3	132.2	18 51.7	-31.7	132.7	17 29.9	-33.0	133.2	16 07.5	-34.4	133.6	33
21 04.0	-29.2	132.6	19 42.4	-30.6	133.1	18 20.0	-32.0	133.6	16 56.9	-33.3	134.1	15 33.1	-34.6	134.5	34
20 34.8	-29.5	133.5	19 11.8	-30.9	134.0	17 48.0	-32.2	134.5	16 23.6	-33.5	134.9	14 58.5	-34.8	135.3	35
20 05.3	-29.8	134.4	18 40.9	-31.2	134.9	17 15.8	-32.5	135.4	15 50.1	-33.8	135.8	14 23.7	-34.9	136.2	36
19 35.5	-30.1	135.3	18 09.7	-31.4	135.8	16 43.3	-32.6	136.3	15 16.3	-33.9	136.7	13 48.8	-35.1	137.0	37
19 05.4	-30.4	136.3	17 38.3	-31.6	136.7	16 10.7	-32.9	137.1	14 42.4	-34.1	137.5	13 13.7	-35.3	137.8	38
18 35.0	-30.6	137.2	17 06.7	-31.9	137.6	15 37.8	-33.1	138.0	14 08.3	-34.2	138.4	12 38.4	-35.4	138.7	39
18 04.4	-30.8	138.1	16 34.8	-32.1	138.5	15 04.7	-33.3	138.9	13 34.1	-34.5	139.2	12 03.0	-35.6	139.5	40
17 33.6	-31.1	139.0	16 02.7	-32.3	139.4	14 31.4	-33.5	139.7	12 59.6	-34.6	140.0	11 27.4	-35.7	140.3	41
17 02.5	-31.4	139.9	15 30.4	-32.5	140.3	13 57.9	-33.6	140.6	12 25.0	-34.7	140.9	10 51.7	-35.8	141.1	42
16 31.1	-31.5	140.8	14 57.9	-32.7	141.1	13 24.3	-33.8	141.4	11 50.3	-34.9	141.7	10 15.9	-36.0	142.0	43
15 59.6	-31.8	141.7	14 25.2	-32.9	142.0	12 50.5	-34.0	142.3	11 15.4	-35.1	142.6	9 39.9	-36.0	142.8	44
15 27.8	-32.0	142.5	13 52.3	-33.1	142.9	12 16.5	-34.2	143.1	10 40.3	-35.1	143.4	9 03.9	-36.2	143.6	45
14 55.8	-32.2	143.4	13 19.2	-33.2	143.7	11 42.3	-34.2	144.0	10 05.2	-35.3	144.2	8 27.7	-36.3	144.4	46
14 23.6	-32.4	144.3	12 46.0	-33.4	144.6	11 08.1	-34.5	144.8	9 29.9	-35.4	145.0	7 51.4	-36.3	145.2	47
13 51.2	-32.5	145.2	12 12.6	-33.6	145.4	10 33.6	-34.5	145.6	8 54.5	-35.6	145.8	7 15.1	-36.5	146.0	48
13 18.7	-32.8	146.0	11 39.0	-33.7	146.3	9 59.1	-34.7	146.5	8 18.9	-35.6	146.7	6 38.6	-36.5	146.8	49
12 45.9	-32.9	146.9	11 05.3	-33.9	147.1	9 24.4	-34.8	147.3	7 43.3	-36.2	147.5	6 02.1	-36.6	147.6	50
12 13.0	-33.0	147.7	10 31.4	-34.0	148.0	8 49.6	-34.9	148.1	7 07.6	-36.8	148.3	5 25.5	-36.7	148.4	51
11 40.0	-33.2	148.6	9 57.4	-34.1	148.8	8 14.7	-35.0	149.0	6 31.8	-36.8	149.1	4 48.8	-36.7	149.2	52
11 06.8	-33.4	149.4	9 23.3	-34.2	149.6	7 39.7	-35.1	149.8	5 56.0	-36.0	149.9	4 12.1	-36.8	150.0	53
10 33.4	-33.5	150.3	8 49.1	-34.4	150.5	7 04.6	-35.2	150.6	5 20.0	-36.0	150.7	3 35.3	-36.8	150.8	54
9 59.9	-33.6	151.1	8 14.7	-34.4	151.3	6 29.4	-35.2	151.4	4 44.0	-36.0	151.5	2 58.5	-36.8	151.6	55
9 26.3	-33.7	152.0	7 40.3	-34.5	152.1	5 54.2	-35.3	152.2	4 08.0	-36.1	152.3	2 21.7	-36.9	152.4	56
8 52.6	-33.9	152.8	7 05.8	-34.7	152.9	5 18.9	-35.4	153.0	3 31.9	-36.2	153.1	1 44.8	-36.9	153.1	57
8 18.7	-33.9	153.6	6 31.1	-34.7	153.8	4 43.5	-35.5	153.8	2 55.7	-36.2	153.9	1 07.9	-36.9	153.9	58
7 44.8	-34.1	154.5	5 56.4	-34.7	154.6	4 08.0	-35.5	154.7	2 19.5	-36.2	154.7	0 31.0	-36.9	154.7	59
7 10.7	-34.1	155.3	5 21.7	-34.9	155.4	3 32.5	-35.5	155.5	1 43.3	-36.2	155.5	0 05.9	+36.9	24.5	60
6 36.6	-34.2	156.1	4 46.8	-34.9	156.2	2 57.0	-35.6	156.3	1 07.1	-36.2	156.3	0 42.8	+36.9	23.7	61
6 02.4	-34.3	157.0	4 11.9	-34.9	157.0	2 21.4	-35.6	157.1	0 30.9	-36.3	157.1	1 19.7	+36.8	22.9	62
5 28.1	-34.4	157.8	3 37.0	-35.0	157.8	1 45.8	-35.6	157.9	0 05.4	+36.2	22.1	1 56.5	+36.9	22.1	63
4 53.7	-34.4	158.6	3 02.0	-35.1	158.7	1 10.2	-35.7	158.7	0 41.6	+36.2	21.3	2 33.4	+36.8	21.3	64
4 19.3	-34.5	159.4	2 26.9	-35.0	159.5	0 34.5	-35.6	159.5	1 17.8	+36.3	20.5	3 10.2	+36.8	20.5	65
3 44.8	-34.5	160.2	1 51.9	-35.1	160.3	0 01.1	+35.6	19.7	1 54.1	+36.2	19.7	3 47.0	+36.8	19.8	66
3 10.3	-34.5	161.1	1 16.8	-35.1	161.1	0 36.7	+35.7	18.9	2 30.3	+36.1	18.9	4 23.8	+36.7	19.0	67
2 35.8	-34.6	161.9	0 41.7	-35.1	161.9	1 12.4	+35.6	18.1	3 06.4	+36.2	18.1	5 00.5	+36.6	18.2	68
2 01.2	-34.6	162.7	0 06.6	-35.1	162.7	1 48.0	+35.6	17.3	3 42.6	+36.1	17.3	5 37.1	+36.6	17.4	69
1 26.6	-34.7	163.5	0 28.5	+35.1	16.5	2 23.6	+35.6	16.5	4 18.7	+36.0	16.5	6 13.7	+36.5	16.6	70
0 51.9	-34.6	164.3	1 03.6	+35.1	15.7	2 59.2	+35.5	15.7	4 54.7	+36.0	15.7	6 50.2	+36.4	15.8	71
0 17.3	-34.7	165.2	1 38.7	+35.1	14.9	3 34.7	+35.5	14.9	5 30.7	+35.9	14.9	7 26.6	+36.4	15.0	72
0 17.4	+34.6	14.0	2 13.8	+35.0	14.0	4 10.2	+35.4	14.1	6 06.6	+35.8	14.1	8 03.0	+36.2	14.2	73
0 52.0	+34.6	13.2	2 48.8	+35.0	13.2	4 45.6	+35.4	13.3	6 42.4	+35.8	13.3	8 39.2	+36.1	13.4	74
1 26.6	+34.7	12.4	3 23.8	+35.0	12.4	5 21.0	+35.4	12.4	7 18.2	+35.7	12.5	9 15.3	+36.1	12.6	75
2 01.3	+34.5	11.6	3 58.8	+34.9	11.6	5 56.4	+35.2	11.6	7 53.9	+35.6	11.7	9 51.4	+35.9	11.7	76
2 35.8	+34.6	10.8	4 33.7	+34.9	10.8	6 31.6	+35.2	10.8	8 29.5	+35.4	10.9	10 27.3	+35.8	10.9	77
3 10.4	+34.5	9.9	5 08.6	+34.8	10.0	7 06.8	+35.1	10.0	9 04.9	+35.4	10.1	11 03.1	+35.7	10.1	78
3 44.9	+34.5	9.1	5 43.4	+34.7	9.1	7 41.9	+35.0	9.2	9 40.3	+35.3	9.2	11 38.8	+35.5	9.3	79
4 19.4	+34.4	8.3	6 18.1	+34.7	8.3	8 16.9	+34.9	8.4	10 15.6	+35.1	8.4	12 14.3	+35.4	8.5	80
4 53.8	+34.4	7.5	6 52.8	+34.6	7.5	8 51.8	+34.7	7.5	10 50.7	+35.0	7.6	12 49.7	+35.2	7.6	81
5 28.2	+34.3	6.7	7 27.4	+34.4	6.7	9 26.5	+34.7	6.7	11 25.7	+34.9	6.8	13 24.9	+35.0	6.8	82
6 02.5	+34.2	5.8	8 01.8	+34.4	5.9	10 01.2	+34.6	5.9	12 00.6	+34.7	5.9	13 59.9	+34.9	6.0	83
6 36.7	+34.1	5.0	8 36.2	+34.3	5.0	10 35.8	+34.4	5.1	12 35.3	+34.5	5.1	14 34.8	+34.7	5.1	84
7 10.8	+34.1	4.2	9 10.5	+34.2	4.2	11 10.2	+34.2	4.2	13 09.8	+34.4	4.3	15 09.5	+34.5	4.3	85
7 44.9	+33.9	3.3	9 44.7	+34.0	3.4	11 44.4	+34.2	3.4	13 44.2	+34.3	3.4	15 44.0	+34.3	3.4	86
8 18.8	+33.9	2.5	10 18.7	+33.9	2.5	12 18.6	+33.9	2.5	14 18.5	+34.0	2.6	16 18.3	+34.1	2.6	87
8 52.7	+33.7	1.7	10 52.6	+33.8	1.7	12 52.5	+33.9	1.7	14 52.5	+33.8	1.7	16 52.4	+33.9	1.7	88
9 26.4	+33.6	0.8	11 26.4	+33.6	0.8	13 26.4	+33.6	0.9	15 26.3	+33.7	0.9	17 26.3	+33.7	0.9	89
10 00.0	+33.5	0.0	12 00.0	+33.5	0.0	14 00.0	+33.5	0.0	16 00.0	+33.4	0.0	18 00.0	+33.4	0.0	90

LATITUDE SAME NAME

L.H.A. 124°, 236°

56°, 304° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	38 45.7	+2.1	67.0	39 31.1	+4.6	68.5	40 13.4	+7.2	70.1	40 52.7	+9.7	71.7	41 28.6	+12.4	73.4
31	38 47.8	+1.4	65.8	39 35.7	+3.8	67.3	40 20.6	+6.3	68.8	41 02.4	+8.9	70.4	41 41.0	+11.4	72.1
32	38 49.2	+0.4	64.5	39 39.5	+2.9	66.0	40 26.9	+5.4	67.5	41 11.3	+7.9	69.1	41 52.4	+10.6	70.8
33	38 49.6	-0.3	63.2	39 42.4	+2.0	64.7	40 32.3	+4.5	66.2	41 19.2	+7.1	67.8	42 03.0	+9.6	69.4
34	38 49.3	-1.3	61.9	39 44.4	+1.2	63.4	40 36.8	+3.7	64.9	41 26.3	+6.1	66.5	42 12.6	+8.7	68.1
35	38 48.0	-2.0	60.6	39 45.6	+0.3	62.1	40 40.5	+2.7	63.6	41 32.4	+5.2	65.1	42 21.3	+7.8	66.8
36	38 46.0	-2.9	59.3	39 45.9	-0.6	60.8	40 43.2	+1.8	62.2	41 37.6	+4.3	63.8	42 29.1	+6.8	65.4
37	38 43.1	-3.7	58.1	39 45.3	-1.4	59.5	40 45.0	+0.9	60.9	41 41.9	+3.4	62.5	42 35.9	+5.9	64.1
38	38 39.4	-4.6	56.8	39 43.9	-2.3	58.2	40 45.9	+0.1	59.6	41 45.3	+2.4	61.1	42 41.8	+4.9	62.7
39	38 34.8	-5.4	55.5	39 41.6	-3.2	56.9	40 46.0	-0.9	58.3	41 47.7	+1.5	59.8	42 46.7	+3.9	61.4
40	38 29.4	-6.2	54.2	39 38.4	-4.0	55.6	40 45.1	-1.8	57.0	41 49.2	+0.6	58.4	42 50.6	+3.0	60.0
41	38 23.2	-7.1	53.0	39 34.4	-4.9	54.3	40 43.3	-2.7	55.6	41 49.8	-0.4	57.1	42 53.6	+2.0	58.7
42	38 16.1	-7.8	51.7	39 29.5	-5.8	53.0	40 40.6	-3.6	54.3	41 49.4	-1.3	55.8	42 55.6	+1.0	57.3
43	38 08.3	-8.7	50.4	39 23.7	-6.6	51.7	40 37.0	-4.4	53.0	41 48.1	-2.3	54.4	42 56.6	+0.1	55.9
44	37 59.6	-9.4	49.2	39 17.1	-7.4	50.4	40 32.6	-5.4	51.7	41 45.8	-3.2	53.1	42 56.7	-1.0	54.6
45	37 50.2	-10.3	47.9	39 09.7	-8.3	49.1	40 27.2	-6.2	50.4	41 42.6	-4.1	51.7	42 55.7	-1.9	53.2
46	37 39.9	-11.0	46.7	39 01.4	-9.1	47.8	40 21.0	-7.2	49.1	41 38.5	-5.0	50.4	42 53.8	-2.8	51.8
47	37 28.9	-11.8	45.4	38 52.3	-10.0	46.6	40 13.8	-8.0	47.8	41 33.5	-6.0	49.1	42 51.0	-3.8	50.5
48	37 17.1	-12.6	44.2	38 42.3	-10.7	45.3	40 05.8	-8.8	46.5	41 27.5	-6.9	47.7	42 47.2	-4.8	49.1
49	37 04.5	-13.3	43.0	38 31.6	-11.6	44.0	39 57.0	-9.7	45.2	41 20.6	-7.7	46.4	42 42.4	-5.8	47.7
50	36 51.2	-14.1	41.8	38 20.0	-12.4	42.8	39 47.3	-10.6	43.9	41 12.9	-8.7	45.1	42 36.6	-6.7	46.4
51	36 37.1	-14.8	40.5	38 07.6	-13.1	41.5	39 36.7	-11.4	42.6	41 04.2	-9.6	43.8	42 29.9	-7.7	45.0
52	36 22.3	-15.5	39.3	37 54.5	-13.9	40.3	39 25.3	-12.2	41.4	40 54.6	-10.5	42.5	42 22.2	-8.6	43.7
53	36 06.8	-16.2	38.1	37 40.6	-14.7	39.1	39 13.1	-13.1	40.1	40 44.1	-11.3	41.2	42 13.6	-9.5	42.4
54	35 50.6	-17.0	37.0	37 25.9	-15.4	37.9	39 00.0	-13.8	38.8	40 32.8	-12.2	39.9	42 04.1	-10.4	41.0
55	35 33.6	-17.6	35.8	37 10.5	-16.2	36.6	38 46.2	-14.7	37.6	40 20.6	-13.0	38.6	41 53.7	-11.4	39.7
56	35 16.0	-18.3	34.6	36 54.3	-16.9	35.4	38 31.5	-15.4	36.3	40 07.6	-13.9	37.3	41 42.3	-12.2	38.4
57	34 57.7	-18.9	33.4	36 37.4	-17.6	34.2	38 16.1	-16.2	35.1	39 53.7	-14.7	36.1	41 30.1	-13.1	37.1
58	34 38.8	-19.6	32.3	36 19.8	-18.3	33.0	37 59.9	-16.9	33.9	39 39.0	-15.5	34.8	41 17.0	-14.0	35.8
59	34 19.2	-20.3	31.1	36 01.5	-19.0	31.9	37 43.0	-17.7	32.7	39 23.5	-16.3	33.5	41 03.0	-14.9	34.5
60	33 58.9	-20.8	30.0	35 42.5	-19.7	30.7	37 25.3	-18.5	31.5	39 07.2	-17.1	32.3	40 48.1	-15.7	33.2
61	33 38.1	-21.5	28.9	35 22.8	-20.3	29.5	37 06.8	-19.1	30.3	38 50.1	-17.9	31.1	40 32.4	-16.5	31.9
62	33 16.6	-22.1	27.7	35 02.5	-21.0	28.4	36 47.7	-19.8	29.1	38 32.2	-18.6	29.8	40 15.9	-17.4	30.7
63	32 54.5	-22.6	26.6	34 41.5	-21.6	27.2	36 27.9	-20.6	27.9	38 13.6	-19.4	28.6	39 58.5	-18.1	29.4
64	32 31.9	-23.3	25.5	34 19.9	-22.3	26.1	36 07.3	-21.1	26.7	37 54.2	-20.1	27.4	39 40.4	-19.0	28.2
65	32 08.6	-23.7	24.4	33 57.6	-22.8	25.0	35 46.2	-21.9	25.6	37 34.1	-20.8	26.2	39 21.4	-19.7	26.9
66	31 44.9	-24.4	23.4	33 34.8	-23.4	23.9	35 24.3	-22.5	24.4	37 13.3	-21.5	25.1	39 01.7	-20.5	25.7
67	31 20.5	-24.8	22.3	33 11.4	-24.0	22.8	35 01.8	-23.1	23.3	36 51.8	-22.2	23.9	38 41.2	-21.2	24.5
68	30 55.7	-25.4	21.2	32 47.4	-24.6	21.7	34 38.7	-23.7	22.2	36 29.6	-22.9	22.7	38 20.0	-21.9	23.3
69	30 30.3	-25.9	20.2	32 22.8	-25.1	20.6	34 15.0	-24.4	21.1	36 06.7	-23.5	21.6	37 58.1	-22.6	22.1
70	30 04.4	-26.3	19.1	31 57.7	-25.7	19.5	33 50.6	-24.9	20.0	35 43.2	-24.1	20.4	37 35.5	-23.3	21.0
71	29 38.1	-26.9	18.1	31 32.0	-26.2	18.5	33 25.7	-25.5	18.9	35 19.1	-24.8	19.3	37 12.2	-24.0	19.8
72	29 11.2	-27.3	17.1	31 05.8	-26.7	17.4	33 00.2	-26.0	17.8	34 54.3	-25.3	18.2	36 48.2	-24.7	18.7
73	28 43.9	-27.8	16.0	30 39.1	-27.2	16.4	32 34.2	-26.6	16.7	34 29.0	-26.0	17.1	36 23.5	-25.2	17.5
74	28 16.1	-28.2	15.0	30 11.9	-27.6	15.3	32 07.6	-27.1	15.7	34 03.0	-26.5	16.0	35 58.3	-25.9	16.4
75	27 47.9	-28.6	14.0	29 44.3	-28.2	14.3	31 40.5	-27.6	14.6	33 36.5	-27.1	14.9	35 32.4	-26.5	15.3
76	27 19.3	-29.1	13.0	29 16.1	-28.6	13.3	31 12.9	-28.2	13.6	33 09.4	-27.6	13.9	35 05.9	-27.1	14.2
77	26 50.2	-29.4	12.1	28 47.5	-29.0	12.3	30 44.7	-28.6	12.5	32 41.8	-28.1	12.8	34 38.8	-27.7	13.1
78	26 20.8	-29.9	11.1	28 18.5	-29.5	11.3	30 16.1	-29.0	11.5	32 13.7	-28.7	11.8	34 11.1	-28.2	12.0
79	25 50.9	-30.2	10.1	27 49.0	-29.8	10.3	29 47.1	-29.6	10.5	31 45.0	-29.1	10.7	33 42.9	-28.8	11.0
80	25 20.7	-30.6	9.2	27 19.2	-30.3	9.3	29 17.5	-29.9	9.5	31 15.9	-29.7	9.7	33 14.1	-29.3	9.9
81	24 50.1	-30.9	8.2	26 48.9	-30.7	8.4	28 47.6	-30.4	8.5	30 46.2	-30.1	8.7	32 44.8	-29.8	8.9
82	24 19.2	-31.3	7.3	26 18.2	-31.1	7.4	28 17.2	-30.9	7.5	30 16.1	-30.6	7.7	32 15.0	-30.3	7.8
83	23 47.9	-31.7	6.3	25 47.1	-31.4	6.4	27 46.3	-31.2	6.6	29 45.5	-31.0	6.7	31 44.7	-30.8	6.8
84	23 16.2	-31.9	5.4	25 15.7	-31.8	5.5	27 15.1	-31.6	5.6	29 14.5	-31.4	5.7	31 13.9	-31.2	5.8
85	22 44.3	-32.3	4.5	24 43.9	-32.1	4.6	26 43.5	-32.0	4.6	28 43.1	-31.8	4.7	30 42.7	-31.7	4.8
86	22 12.0	-32.6	3.6	24 11.8	-32.5	3.6	26 11.5	-32.3	3.7	28 11.3	-32.3	3.8	30 11.0	-32.1	3.8
87	21 39.4	-32.8	2.7	23 39.3	-32.8	2.7	25 39.2	-32.8	2.8	27 39.0	-32.6	2.8	29 38.9	-32.6	2.9
88	21 06.6	-33.2	1.8	23 06.5	-33.1	1.8	25 06.4	-33.0	1.8	27 06.4	-33.0	1.9	29 06.3	-32.9	1.9
89	20 33.4	-33.4	0.9	22 33.4	-33.4	0.9	24 33.4	-33.4	0.9	26 33.4	-33.4	0.9	28 33.4	-33.4	0.9
90	20 00.0	-33.7	0.0	22 00.0	-33.7	0.0	24 00.0	-33.7	0.0	26 00.0	-33.7	0.0	28 00.0	-33.7	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 56°, 304°

20°			22°			24°			26°			28°			Dec.	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
16	30.2	-35.1	131.5	15	10.3	-36.4	131.9	13	49.8	-37.6	132.3	12	28.7	-38.8	132.7	30
15	55.1	-35.3	132.4	14	33.9	-36.5	132.8	13	12.2	-37.8	133.1	11	49.9	-39.0	133.4	31
15	19.8	-35.5	133.2	13	57.4	-36.7	133.6	12	34.4	-37.9	133.9	11	10.9	-39.1	134.2	32
14	44.3	-35.6	134.0	13	20.7	-36.9	134.4	11	56.5	-38.1	134.7	10	31.8	-39.2	135.0	33
14	08.7	-35.8	134.9	12	43.8	-37.0	135.2	11	18.4	-38.1	135.5	9	52.6	-39.3	135.8	34
13	32.9	-36.0	135.7	12	06.8	-37.2	136.0	10	40.3	-38.3	136.3	9	13.3	-39.4	136.5	35
12	56.9	-36.1	136.5	11	29.6	-37.2	136.8	10	02.0	-38.4	137.1	8	33.9	-39.4	137.3	36
12	20.8	-36.3	137.3	10	52.4	-37.4	137.6	9	23.6	-38.5	137.8	7	54.5	-39.6	138.1	37
11	44.5	-36.4	138.1	10	15.0	-37.6	138.4	8	45.1	-38.6	138.6	7	14.9	-39.7	138.8	38
11	08.1	-36.5	139.0	9	37.4	-37.6	139.2	8	06.5	-38.7	139.4	6	35.2	-39.7	139.6	39
10	31.6	-36.7	139.8	8	59.8	-37.7	140.0	7	27.8	-38.8	140.2	5	55.5	-39.8	140.3	40
9	54.9	-36.8	140.6	8	22.1	-37.8	140.8	6	49.0	-38.8	140.9	5	15.8	-39.9	141.1	41
9	18.1	-36.8	141.4	7	44.3	-37.9	141.6	6	10.2	-38.9	141.7	4	35.9	-39.9	141.8	42
8	41.3	-37.0	142.2	7	06.4	-38.0	142.3	5	31.3	-39.0	142.5	3	56.0	-39.9	142.6	43
8	04.3	-37.1	143.0	6	28.4	-38.1	143.1	4	52.3	-39.0	143.2	3	16.1	-39.9	143.3	44
7	27.2	-37.2	143.8	5	50.3	-38.1	143.9	4	13.3	-39.0	144.0	2	36.2	-40.0	144.1	45
6	50.0	-37.2	144.5	5	12.2	-38.2	144.7	3	34.3	-39.1	144.8	1	56.2	-40.0	144.8	46
6	12.8	-37.3	145.3	4	34.0	-38.2	145.4	2	55.2	-39.2	145.5	1	16.2	-40.0	145.6	47
5	35.5	-37.4	146.1	3	55.8	-38.3	146.2	2	16.0	-39.1	146.3	0	36.2	-40.0	146.3	48
4	58.1	-37.4	146.9	3	17.5	-38.3	147.0	1	36.9	-39.2	147.0	0	03.8	+40.0	32.9	49
4	20.7	-37.5	147.7	2	39.2	-38.3	147.8	0	57.7	-39.2	147.8	0	43.8	+40.0	32.2	50
3	43.2	-37.5	148.5	2	00.9	-38.3	148.5	0	18.5	-39.1	148.6	1	23.8	+40.0	31.5	51
3	05.7	-37.5	149.3	1	22.6	-38.4	149.3	0	20.6	+39.2	30.7	2	03.8	+40.0	30.7	52
2	28.2	-37.6	150.0	0	44.2	-38.4	150.1	0	59.8	+39.2	29.9	2	43.8	+39.9	30.0	53
1	50.6	-37.6	150.8	0	05.8	-38.4	150.8	1	39.0	+39.1	29.2	3	23.7	+39.9	29.2	54
1	13.0	-37.6	151.6	0	32.6	+38.3	28.4	2	18.1	+39.2	28.4	4	03.6	+39.9	28.5	55
0	35.4	-37.6	152.4	1	10.9	+38.4	27.6	2	57.3	+39.0	27.7	4	43.5	+39.8	27.7	56
0	02.2	+37.7	26.8	1	49.3	+38.3	26.9	3	36.3	+39.1	26.9	5	23.3	+39.8	27.0	57
0	39.9	+37.6	26.1	2	27.6	+38.4	26.1	4	15.4	+39.0	26.1	6	03.1	+39.7	26.2	58
1	17.5	+37.6	25.3	3	06.0	+38.2	25.3	4	54.4	+39.0	25.4	6	42.8	+39.6	25.5	59
1	55.1	+37.5	24.5	3	44.2	+38.3	24.5	5	33.4	+38.9	24.6	7	22.4	+39.6	24.7	60
2	32.6	+37.6	23.7	4	22.5	+38.2	23.8	6	12.3	+38.8	23.8	8	02.0	+39.4	23.9	61
3	10.2	+37.5	22.9	5	00.7	+38.1	23.0	6	51.1	+38.8	23.1	8	41.4	+39.4	23.2	62
3	47.7	+37.5	22.2	5	38.8	+38.1	22.2	7	29.9	+38.6	22.3	9	20.8	+39.3	22.4	63
4	25.2	+37.4	21.4	6	16.9	+38.0	21.4	8	08.5	+38.6	21.5	10	00.1	+39.2	21.7	64
5	02.6	+37.3	20.6	6	54.9	+37.9	20.7	8	47.1	+38.5	20.8	10	39.3	+39.1	20.9	65
5	39.9	+37.3	19.8	7	32.8	+37.9	19.9	9	25.6	+38.4	20.0	11	18.4	+38.9	20.1	66
6	17.2	+37.3	19.0	8	10.7	+37.7	19.1	10	04.0	+38.3	19.2	11	57.3	+38.8	19.3	67
6	54.5	+37.1	18.2	8	48.4	+37.7	18.3	10	42.3	+38.2	18.4	12	36.1	+38.7	18.6	68
7	31.6	+37.1	17.4	9	26.1	+37.5	17.5	11	20.5	+38.0	17.6	13	14.8	+38.5	17.8	69
8	08.7	+37.0	16.6	10	03.6	+37.5	16.7	11	58.5	+37.9	16.8	13	53.3	+38.4	17.0	70
8	45.7	+36.8	15.8	10	41.1	+37.3	15.9	12	36.4	+37.8	16.1	14	31.7	+38.2	16.2	71
9	22.5	+36.8	15.0	11	18.4	+37.2	15.1	13	14.2	+37.6	15.3	15	09.9	+38.1	15.4	72
9	59.3	+36.6	14.2	11	55.6	+37.0	14.3	13	51.8	+37.5	14.5	15	48.0	+37.8	14.6	73
10	35.9	+36.6	13.4	12	32.6	+36.9	13.5	14	29.3	+37.3	13.7	16	25.8	+37.7	13.8	74
11	12.5	+36.4	12.6	13	09.5	+36.8	12.7	15	06.6	+37.1	12.8	17	03.5	+37.5	13.0	75
11	48.9	+36.2	11.8	13	46.3	+36.6	11.9	15	43.7	+36.9	12.0	17	41.0	+37.3	12.2	76
12	25.1	+36.1	11.0	14	22.9	+36.4	11.1	16	20.6	+36.8	11.2	18	18.3	+37.1	11.3	77
13	01.2	+36.0	10.2	14	59.3	+36.3	10.3	16	57.4	+36.5	10.4	18	55.4	+36.8	10.5	78
13	37.2	+35.8	9.4	15	35.6	+36.0	9.5	17	33.9	+36.3	9.6	19	32.2	+36.6	9.7	79
14	13.0	+35.6	8.5	16	11.6	+35.9	8.6	18	10.2	+36.2	8.7	20	08.8	+36.4	8.8	80
14	48.6	+35.4	7.7	16	47.5	+35.6	7.8	18	46.4	+35.9	7.9	20	45.2	+36.1	8.0	81
15	24.0	+35.3	6.9	17	23.1	+35.5	6.9	19	22.3	+35.6	7.0	21	21.3	+35.9	7.1	82
15	59.3	+35.0	6.0	17	58.6	+35.2	6.1	19	57.9	+35.4	6.2	21	57.2	+35.6	6.3	83
16	34.3	+34.9	5.2	18	33.8	+35.0	5.2	20	33.3	+35.2	5.3	22	32.8	+35.3	5.4	84
17	09.2	+34.6	4.3	19	08.8	+34.8	4.4	21	08.5	+34.8	4.4	23	08.1	+35.0	4.5	85
17	43.8	+34.4	3.5	19	43.6	+34.5	3.5	21	43.3	+34.7	3.6	23	43.1	+34.7	3.6	86
18	18.2	+34.2	2.6	20	18.1	+34.2	2.7	22	18.0	+34.3	2.7	24	17.8	+34.4	2.7	87
18	52.4	+33.9	1.8	20	52.3	+34.0	1.8	22	52.3	+34.0	1.8	24	52.2	+34.1	1.8	88
19	26.3	+33.7	0.9	21	26.3	+33.7	0.9	23	26.3	+33.7	0.9	25	26.3	+33.7	0.9	89
20	00.0	+33.4	0.0	22	00.0	+33.4	0.0	24	00.0	+33.4	0.0	26	00.0	+33.4	0.0	90

LATITUDE SAME NAME

L.H.A. 124°, 236°

58°, 302° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	27 19.1	-18.2	55.8	28 25.8	-16.2	56.6	29 31.0	-14.3	57.6	30 34.5	-12.3	58.5	31 36.2	-10.3	59.6
31	27 00.9	-18.6	54.7	28 09.6	-16.8	55.5	29 16.7	-14.9	56.4	30 22.2	-13.0	57.4	31 25.9	-10.9	58.4
32	26 42.3	-19.1	53.6	27 52.8	-17.3	54.5	29 01.8	-15.4	55.3	30 09.2	-13.5	56.3	31 15.0	-11.5	57.3
33	26 23.2	-19.6	52.6	27 35.5	-17.8	53.4	28 46.4	-16.0	54.2	29 55.7	-14.1	55.2	31 03.5	-12.2	56.1
34	26 03.6	-20.0	51.5	27 17.7	-18.3	52.3	28 30.4	-16.5	53.1	29 41.6	-14.6	54.0	30 51.3	-12.7	55.0
35	25 43.6	-20.4	50.5	26 59.4	-18.8	51.2	28 13.9	-17.0	52.0	29 27.0	-15.2	52.9	30 38.6	-13.4	53.8
36	25 23.2	-20.9	49.4	26 40.6	-19.2	50.2	27 56.9	-17.5	51.0	29 11.8	-15.8	51.8	30 25.2	-13.9	52.7
37	25 02.3	-21.4	48.4	26 21.4	-19.7	49.1	27 39.4	-18.1	49.9	28 56.0	-16.3	50.7	30 11.3	-14.5	51.6
38	24 40.9	-21.7	47.3	26 01.7	-20.2	48.0	27 21.3	-18.5	48.8	28 39.7	-16.8	49.6	29 56.8	-15.0	50.5
39	24 19.2	-22.2	46.3	25 41.5	-20.6	47.0	27 02.8	-19.0	47.7	28 22.9	-17.3	48.5	29 41.8	-15.6	49.3
40	23 57.0	-22.6	45.3	25 20.9	-21.0	46.0	26 43.8	-19.5	46.7	28 05.6	-17.9	47.4	29 26.2	-16.2	48.2
41	23 34.4	-22.9	44.3	24 59.9	-21.5	44.9	26 24.3	-19.9	45.6	27 47.7	-18.3	46.3	29 10.0	-16.7	47.1
42	23 11.5	-23.3	43.3	24 38.4	-21.9	43.9	26 04.4	-20.4	44.6	27 29.4	-18.8	45.3	28 53.3	-17.3	46.0
43	22 48.2	-23.7	42.3	24 16.5	-22.3	42.9	25 44.0	-20.8	43.5	27 10.6	-19.4	44.2	28 36.0	-17.7	44.9
44	22 24.5	-24.1	41.3	23 54.2	-22.7	41.9	25 23.2	-21.3	42.5	26 51.2	-19.8	43.1	28 18.3	-18.3	43.9
45	22 00.4	-24.4	40.3	23 31.5	-23.0	40.8	25 01.9	-21.7	41.4	26 31.4	-20.2	42.1	28 00.0	-18.8	42.8
46	21 36.0	-24.8	39.3	23 08.5	-23.5	39.8	24 40.2	-22.1	40.4	26 11.2	-20.8	41.0	27 41.2	-19.2	41.7
47	21 11.2	-25.1	38.3	22 45.0	-23.8	38.8	24 18.1	-22.5	39.4	25 50.4	-21.1	40.0	27 22.0	-19.8	40.6
48	20 46.1	-25.5	37.4	22 21.2	-24.2	37.8	23 55.6	-22.9	38.4	25 29.3	-21.6	38.9	27 02.2	-20.2	39.6
49	20 20.6	-25.7	36.4	21 57.0	-24.6	36.9	23 32.7	-23.4	37.4	25 07.7	-22.0	37.9	26 42.0	-20.7	38.5
50	19 54.9	-26.1	35.4	21 32.4	-24.9	35.9	23 09.3	-23.6	36.4	24 45.7	-22.5	36.9	26 21.3	-21.2	37.5
51	19 28.8	-26.3	34.5	21 07.5	-25.2	34.9	22 45.7	-24.1	35.4	24 23.2	-22.8	35.9	26 00.1	-21.6	36.4
52	19 02.5	-26.7	33.5	20 42.3	-25.6	33.9	22 21.6	-24.4	34.4	24 00.4	-23.3	34.9	25 38.5	-22.0	35.4
53	18 35.8	-26.9	32.6	20 16.7	-25.8	33.0	21 57.2	-24.8	33.4	23 37.1	-23.6	33.9	25 16.5	-22.5	34.4
54	18 08.9	-27.2	31.6	19 50.9	-26.2	32.0	21 32.4	-25.1	32.4	23 13.5	-24.0	32.8	24 54.0	-22.9	33.3
55	17 41.7	-27.5	30.7	19 24.7	-26.5	31.0	21 07.3	-25.4	31.4	22 49.5	-24.4	31.9	24 31.1	-23.2	32.3
56	17 14.2	-27.7	29.8	18 58.2	-26.7	30.1	20 41.9	-25.8	30.5	22 25.1	-24.8	30.9	24 07.9	-23.7	31.3
57	16 46.5	-28.0	28.8	18 31.5	-27.1	29.2	20 16.1	-26.1	29.5	22 00.3	-25.1	29.9	23 44.2	-24.1	30.3
58	16 18.5	-28.2	27.9	18 04.4	-27.3	28.2	19 50.0	-26.4	28.5	21 35.2	-25.4	28.9	23 20.1	-24.4	29.3
59	15 50.3	-28.4	27.0	17 37.1	-27.6	27.3	19 23.6	-26.7	27.6	21 09.8	-25.8	27.9	22 55.7	-24.9	28.3
60	15 21.9	-28.7	26.1	17 09.5	-27.8	26.3	18 56.9	-26.9	26.6	20 44.0	-26.0	27.0	22 30.8	-25.1	27.3
61	14 53.2	-28.9	25.2	16 41.7	-28.1	25.4	18 30.0	-27.3	25.7	20 18.0	-26.4	26.0	22 05.7	-25.6	26.3
62	14 24.3	-29.1	24.3	16 13.6	-28.3	24.5	18 02.7	-27.5	24.8	19 51.6	-26.7	25.0	21 40.1	-25.8	25.4
63	13 55.2	-29.2	23.4	15 45.3	-28.5	23.6	17 35.2	-27.8	23.8	19 24.9	-27.0	24.1	21 14.3	-26.2	24.4
64	13 26.0	-29.5	22.5	15 16.8	-28.8	22.7	17 07.4	-28.0	22.9	18 57.9	-27.3	23.1	20 48.1	-26.5	23.4
65	12 56.5	-29.7	21.6	14 48.0	-29.0	21.8	16 39.4	-28.3	22.0	18 30.6	-27.6	22.2	20 21.6	-26.9	22.5
66	12 26.8	-29.8	20.7	14 19.0	-29.2	20.9	16 11.1	-28.5	21.0	18 03.0	-27.8	21.3	19 54.7	-27.1	21.5
67	11 57.0	-30.0	19.8	13 49.8	-29.3	20.0	15 42.6	-28.8	20.1	17 35.2	-28.1	20.3	19 27.6	-27.4	20.6
68	11 27.0	-30.2	18.9	13 20.5	-29.6	19.1	15 13.8	-28.9	19.2	17 07.1	-28.4	19.4	19 00.2	-27.7	19.6
69	10 56.8	-30.3	18.0	12 50.9	-29.7	18.2	14 44.9	-29.2	18.3	16 38.7	-28.5	18.5	18 32.5	-28.0	18.7
70	10 26.5	-30.4	17.2	12 21.2	-30.0	17.3	14 15.7	-29.4	17.4	16 10.2	-28.9	17.6	18 04.5	-28.3	17.8
71	9 56.1	-30.6	16.3	11 51.2	-30.0	16.4	13 46.3	-29.5	16.5	15 41.3	-29.0	16.7	17 36.2	-28.5	16.8
72	9 25.5	-30.7	15.4	11 21.2	-30.3	15.5	13 16.8	-29.8	15.6	15 12.3	-29.3	15.8	17 07.7	-28.7	15.9
73	8 54.8	-30.9	14.5	10 50.9	-30.4	14.6	12 47.0	-29.9	14.7	14 43.0	-29.4	14.9	16 39.0	-29.0	15.0
74	8 23.9	-30.9	13.7	10 20.5	-30.5	13.7	12 17.1	-30.1	13.8	14 13.6	-29.7	14.0	16 10.0	-29.3	14.1
75	7 53.0	-31.1	12.8	9 50.0	-30.7	12.9	11 47.0	-30.3	13.0	13 43.9	-29.9	13.1	15 40.7	-29.4	13.2
76	7 21.9	-31.1	11.9	9 19.3	-30.8	12.0	11 16.7	-30.4	12.1	13 14.0	-30.0	12.2	15 11.3	-29.7	12.3
77	6 50.8	-31.3	11.1	8 48.5	-30.9	11.1	10 46.3	-30.6	11.2	12 44.0	-30.3	11.3	14 41.6	-29.9	11.4
78	6 19.5	-31.3	10.2	8 17.6	-31.0	10.3	10 15.7	-30.7	10.3	12 13.7	-30.4	10.4	14 11.7	-30.0	10.5
79	5 48.2	-31.4	9.4	7 46.6	-31.1	9.4	9 45.0	-30.9	9.4	11 43.3	-30.5	9.5	13 41.7	-30.3	9.6
80	5 16.8	-31.5	8.5	7 15.5	-31.3	8.5	9 14.1	-30.9	8.6	11 12.8	-30.7	8.6	13 11.4	-30.4	8.7
81	4 45.3	-31.5	7.7	6 44.2	-31.3	7.7	8 43.2	-31.1	7.7	10 42.1	-30.9	7.8	12 41.0	-30.7	7.8
82	4 13.8	-31.6	6.8	6 12.9	-31.4	6.8	8 12.1	-31.2	6.8	10 11.2	-31.0	6.9	12 10.3	-30.8	6.9
83	3 42.2	-31.7	5.9	5 41.5	-31.5	6.0	7 40.9	-31.3	6.0	9 40.2	-31.1	6.0	11 39.5	-30.9	6.1
84	3 10.5	-31.7	5.1	5 10.0	-31.5	5.1	7 09.6	-31.4	5.1	9 09.1	-31.3	5.2	11 08.6	-31.1	5.2
85	2 38.8	-31.7	4.2	4 38.5	-31.6	4.3	6 38.2	-31.5	4.3	8 37.8	-31.3	4.3	10 37.5	-31.2	4.3
86	2 07.1	-31.7	3.4	4 06.9	-31.7	3.4	6 06.7	-31.6	3.4	8 06.5	-31.5	3.4	10 06.3	-31.4	3.4
87	1 35.4	-31.8	2.5	3 35.2	-31.7	2.5	5 35.1	-31.6	2.6	7 35.0	-31.6	2.6	9 34.9	-31.5	2.6
88	1 03.6	-31.8	1.7	3 03.5	-31.7	1.7	5 03.5	-31.7	1.7	7 03.4	-31.6	1.7	9 03.4	-31.7	1.7
89	0 31.8	-31.8	0.8	2 31.8	-31.8	0.8	4 31.8	-31.8	0.9	6 31.8	-31.8	0.9	8 31.7	-31.7	0.9
90	0 00.0	-31.8	0.0	2 00.0	-31.8	0.0	4 00.0	-31.8	0.0	6 00.0	-31.8	0.0	8 00.0	-31.8	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 58°, 302°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
27 19.1 -18.2 124.2	26 10.8 -19.9 125.1	25 01.2 -21.7 125.9	23 50.3 -23.5 126.6	22 38.1 -25.0 127.3	30										
27 00.9 -18.6 125.3	25 50.9 -20.4 126.1	24 39.5 -22.2 126.9	23 26.8 -23.8 127.6	22 13.1 -25.5 128.3	31										
26 42.3 -19.1 126.4	25 30.5 -20.9 127.2	24 17.3 -22.5 127.9	23 03.0 -24.1 128.6	21 47.6 -25.7 129.2	32										
26 23.2 -19.6 127.4	25 09.6 -21.3 128.2	23 54.8 -22.9 128.9	22 38.9 -24.6 129.6	21 21.9 -26.1 130.2	33										
26 03.6 -20.0 128.5	24 48.3 -21.7 129.2	23 31.9 -23.4 129.9	22 14.3 -24.9 130.6	20 55.8 -26.4 131.2	34										
25 43.6 -20.4 129.5	24 26.6 -22.1 130.3	23 08.5 -23.7 130.9	21 49.4 -25.2 131.6	20 29.4 -26.8 132.1	35										
25 23.2 -20.9 130.6	24 04.5 -22.5 131.3	22 44.8 -24.0 131.9	21 24.2 -25.6 132.5	20 02.6 -27.0 133.1	36										
25 02.3 -21.4 131.6	23 42.0 -22.9 132.3	22 20.8 -24.5 132.9	20 58.6 -25.9 133.5	19 35.6 -27.4 134.0	37										
24 40.9 -21.7 132.7	23 19.1 -23.3 133.3	21 56.3 -24.7 133.9	20 32.7 -26.2 134.5	19 08.2 -27.6 135.0	38										
24 19.2 -22.2 133.7	22 55.8 -23.6 134.3	21 31.6 -25.2 134.9	20 06.5 -26.6 135.4	18 40.6 -27.9 135.9	39										
23 57.0 -22.6 134.7	22 32.2 -24.1 135.3	21 06.4 -25.4 135.9	19 39.9 -26.8 136.4	18 12.7 -28.2 136.9	40										
23 34.4 -22.9 135.7	22 08.1 -24.4 136.3	20 41.0 -25.8 136.8	19 13.1 -27.1 137.3	17 44.5 -28.4 137.8	41										
23 11.5 -23.3 136.7	21 43.7 -24.7 137.3	20 15.2 -26.1 137.8	18 46.0 -27.4 138.3	17 16.1 -28.7 138.7	42										
22 48.2 -23.7 137.7	21 19.0 -25.1 138.3	19 49.1 -26.4 138.8	18 18.6 -27.7 139.2	16 47.4 -28.9 139.6	43										
22 24.5 -24.1 138.7	20 53.9 -25.4 139.2	19 22.7 -26.7 139.7	17 50.9 -28.0 140.1	16 18.5 -29.2 140.5	44										
22 00.4 -24.4 139.7	20 28.5 -25.7 140.2	18 56.0 -27.0 140.7	17 22.9 -28.2 141.1	15 49.3 -29.6 141.4	45										
21 36.0 -24.8 140.7	20 02.8 -26.0 141.2	18 29.0 -27.2 141.6	16 54.7 -28.4 142.0	15 19.9 -29.6 142.3	46										
21 11.2 -25.1 141.7	19 36.8 -26.4 142.1	18 01.8 -27.6 142.5	16 26.3 -28.7 142.9	14 50.3 -29.8 143.3	47										
20 46.1 -25.5 142.6	19 10.4 -26.6 143.1	17 34.2 -27.7 143.5	15 57.6 -28.9 143.8	14 20.5 -30.0 144.1	48										
20 20.6 -25.7 143.6	18 43.8 -26.9 144.0	17 06.5 -28.1 144.4	15 28.7 -29.2 144.7	13 50.5 -30.2 145.0	49										
19 54.9 -26.1 144.6	18 16.9 -27.2 145.0	16 38.4 -28.3 145.3	14 59.5 -29.3 145.6	13 20.3 -30.4 145.9	50										
19 28.8 -26.3 145.5	17 49.7 -27.5 145.9	16 10.1 -28.5 146.2	14 30.2 -29.6 146.5	12 49.9 -30.6 146.8	51										
19 02.5 -26.7 146.5	17 22.2 -27.7 146.8	15 41.6 -28.8 147.2	14 00.6 -29.7 147.4	12 19.3 -30.7 147.7	52										
18 35.8 -26.9 147.4	16 54.5 -27.9 147.8	15 12.8 -28.9 148.1	13 30.9 -30.0 148.3	11 48.6 -30.9 148.6	53										
18 08.9 -27.2 148.4	16 26.6 -28.2 148.7	14 43.9 -29.2 149.0	13 00.9 -30.1 149.2	11 17.7 -31.1 149.4	54										
17 41.7 -27.5 149.3	15 58.4 -28.5 149.6	14 14.7 -29.4 149.9	12 30.8 -30.3 150.1	10 46.6 -31.2 150.3	55										
17 14.2 -27.7 150.2	15 29.9 -28.7 150.5	13 45.3 -29.6 150.8	12 00.5 -30.5 151.0	10 15.4 -31.3 151.2	56										
16 46.5 -28.0 151.2	15 01.2 -28.8 151.4	13 15.7 -29.7 151.7	11 30.0 -30.6 151.9	9 44.1 -31.5 152.1	57										
16 18.5 -28.2 152.1	14 32.4 -29.1 152.3	12 46.0 -30.0 152.6	10 59.4 -30.8 152.8	9 12.6 -31.6 152.9	58										
15 50.3 -28.4 153.0	14 03.3 -29.3 153.2	12 16.0 -30.1 153.4	10 28.6 -30.9 153.6	8 41.0 -31.7 153.8	59										
15 21.9 -28.7 153.9	13 34.0 -29.5 154.1	11 45.9 -30.3 154.3	9 57.7 -31.1 154.5	8 09.3 -31.8 154.6	60										
14 53.2 -28.9 154.8	13 04.5 -29.7 155.0	11 15.6 -30.4 155.2	9 26.6 -31.2 155.4	7 37.5 -31.9 155.5	61										
14 24.3 -29.1 155.7	12 34.8 -29.8 155.9	10 45.2 -30.6 156.1	8 55.4 -31.3 156.2	7 05.6 -32.0 156.3	62										
13 55.2 -29.2 156.6	12 05.0 -30.0 156.8	10 14.6 -30.7 157.0	8 24.1 -31.4 157.1	6 33.6 -32.1 157.2	63										
13 26.0 -29.5 157.5	11 35.0 -30.2 157.7	9 43.9 -30.8 157.8	7 52.7 -31.5 158.0	6 01.5 -32.2 158.0	64										
12 56.5 -29.7 158.4	11 04.8 -30.3 158.6	9 13.1 -31.0 158.7	7 21.2 -31.6 158.8	5 29.3 -32.3 158.9	65										
12 26.8 -29.8 159.3	10 34.5 -30.5 159.5	8 42.1 -31.1 159.6	6 49.6 -31.7 159.7	4 57.0 -32.3 159.7	66										
11 57.0 -30.0 160.2	10 04.0 -30.6 160.3	8 11.0 -31.2 160.4	6 17.9 -31.8 160.5	4 24.7 -32.3 160.6	67										
11 27.0 -30.2 161.1	9 33.4 -30.7 161.2	7 39.8 -31.3 161.3	5 46.1 -31.9 161.4	3 52.4 -32.5 161.4	68										
10 56.8 -30.3 162.0	9 02.7 -30.9 162.1	7 08.5 -31.4 162.2	5 14.2 -31.9 162.2	3 19.9 -32.4 162.3	69										
10 26.5 -30.4 162.8	8 31.8 -30.9 162.9	6 37.1 -31.5 163.0	4 42.3 -32.0 163.1	2 47.5 -32.5 163.1	70										
9 56.1 -30.6 163.7	8 00.9 -31.1 163.8	6 05.6 -31.6 163.9	4 10.3 -32.0 163.9	2 15.0 -32.5 164.0	71										
9 25.5 -30.7 164.6	7 29.8 -31.2 164.7	5 34.0 -31.6 164.7	3 38.3 -32.1 164.8	1 42.5 -32.6 164.8	72										
8 54.8 -30.9 165.5	6 58.6 -31.3 165.5	5 02.4 -31.7 165.6	3 06.2 -32.2 165.6	1 09.9 -32.6 165.6	73										
8 23.9 -30.9 166.3	6 27.3 -31.3 166.4	4 30.7 -31.8 166.4	2 34.0 -32.2 166.5	0 37.3 -32.5 166.5	74										
7 53.0 -31.1 167.2	5 56.0 -31.5 167.3	3 58.9 -31.8 167.3	2 01.8 -32.2 167.3	0 04.8 -32.6 167.3	75										
7 21.9 -31.1 168.1	5 24.5 -31.5 168.1	3 27.1 -31.9 168.1	1 29.6 -32.2 168.2	0 27.8 +32.6 11.8	76										
6 50.8 -31.3 168.9	4 53.0 -31.6 169.0	2 55.2 -31.9 169.0	0 57.4 -32.2 169.0	1 00.4 +32.5 11.0	77										
6 19.5 -31.3 169.8	4 21.4 -31.6 169.8	2 23.3 -31.9 169.8	0 25.2 -32.2 169.8	1 32.9 +32.6 10.2	78										
5 48.2 -31.4 170.6	3 49.8 -31.7 170.7	1 51.4 -32.0 170.7	0 07.0 +32.3 9.3	2 05.5 +32.5 9.3	79										
5 16.8 -31.5 171.5	3 18.1 -31.7 171.5	1 19.4 -32.0 171.5	0 39.3 +32.2 8.5	2 38.0 +32.4 8.5	80										
4 45.3 -31.5 172.3	2 46.4 -31.8 172.4	0 47.4 -32.0 172.4	1 11.5 +32.2 7.6	3 10.4 +32.5 7.6	81										
4 13.8 -31.6 173.2	2 14.6 -31.8 173.2	0 15.4 -31.9 173.2	1 43.7 +32.2 6.8	3 42.9 +32.4 6.8	82										
3 42.2 -31.7 174.1	1 42.8 -31.8 174.1	0 16.5 +32.0 5.9	2 15.9 +32.2 5.9	4 15.3 +32.3 5.9	83										
3 10.5 -31.7 174.9	1 11.0 -31.8 174.9	0 48.5 +32.0 5.1	2 48.1 +32.1 5.1	4 47.6 +32.3 5.1	84										
2 38.8 -31.7 175.8	0 39.2 -31.9 175.8	1 20.5 +32.0 4.2	3 20.2 +32.1 4.2	5 19.9 +32.2 4.3	85										
2 07.1 -31.7 176.6	0 07.3 -31.8 176.6	1 52.5 +31.9 3.4	3 52.3 +32.0 3.4	5 52.1 +32.1 3.4	86										
1 35.4 -31.8 177.5	0 24.5 +31.9 2.5	2 24.4 +31.9 2.5	4 24.3 +32.0 2.6	6 24.2 +32.0 2.6	87										
1 03.6 -31.8 178.3	0 56.4 +31.8 1.7	2 56.3 +31.9 1.7	4 56.3 +31.9 1.7	6 56.2 +32.0 1.7	88										
0 31.8 -31.8 179.2	1 28.2 +31.8 0.8	3 28.2 +31.8 0.8	5 28.2 +31.8 0.9	7 28.2 +31.8 0.9	89										
0 00.0 +31.8 0.0	2 00.0 +31.8 0.0	4 00.0 +31.8 0.0	6 00.0 +31.8 0.0	8 00.0 +31.7 0.0	90										

LATITUDE SAME NAME

L.H.A. 122°, 238°

58°, 302° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	32 36.0	-8.2	60.7	33 33.8	-6.1	61.8	34 29.4	-3.9	63.0	35 22.7	-1.6	64.3	36 13.6	+0.7	65.6
31	32 27.8	-8.8	59.5	33 27.7	-6.7	60.6	34 25.5	-4.5	61.8	35 21.1	-2.3	63.0	36 14.3	0.0	64.3
32	32 19.0	-9.5	58.3	33 21.0	-7.4	59.4	34 21.0	-5.2	60.6	35 18.8	-3.0	61.8	36 14.3	-0.7	63.1
33	32 09.5	-10.2	57.2	33 13.6	-8.1	58.2	34 15.8	-6.0	59.4	35 15.8	-3.8	60.6	36 13.6	-1.5	61.8
34	31 59.3	-10.8	56.0	33 05.5	-8.7	57.1	34 09.8	-6.7	58.2	35 12.0	-4.5	59.4	36 12.1	-2.3	60.6
35	31 48.5	-11.4	54.8	32 56.8	-9.4	55.9	34 03.1	-7.3	57.0	35 07.5	-5.2	58.1	36 09.8	-3.1	59.4
36	31 37.1	-12.0	53.7	32 47.4	-10.1	54.7	33 55.8	-8.1	55.8	35 02.3	-6.0	56.9	36 06.7	-3.8	58.1
37	31 25.1	-12.6	52.5	32 37.3	-10.7	53.5	33 47.7	-8.7	54.6	34 56.3	-6.7	55.7	36 02.9	-4.6	56.9
38	31 12.5	-13.3	51.4	32 26.6	-11.4	52.4	33 39.0	-9.4	53.4	34 49.6	-7.4	54.5	35 58.3	-5.3	55.7
39	30 59.2	-13.8	50.2	32 15.2	-12.0	51.2	33 29.6	-10.1	52.2	34 42.2	-8.1	53.3	35 53.0	-6.1	54.4
40	30 45.4	-14.4	49.1	32 03.2	-12.6	50.0	33 19.5	-10.8	51.0	34 34.1	-8.8	52.1	35 46.9	-6.8	53.2
41	30 31.0	-15.0	48.0	31 50.6	-13.2	48.9	33 08.7	-11.4	49.9	34 25.3	-9.5	50.9	35 40.1	-7.6	52.0
42	30 16.0	-15.6	46.9	31 37.4	-13.9	47.7	32 57.3	-12.0	48.7	34 15.8	-10.3	49.7	35 32.5	-8.3	50.8
43	30 00.4	-16.2	45.7	31 23.5	-14.5	46.6	32 45.3	-12.8	47.5	34 05.5	-10.9	48.5	35 24.2	-9.0	49.5
44	29 44.2	-16.6	44.6	31 09.0	-15.0	45.5	32 32.5	-13.3	46.4	33 54.6	-11.5	47.3	35 15.2	-9.7	48.3
45	29 27.6	-17.3	43.5	30 54.0	-15.7	44.3	32 19.2	-14.0	45.2	33 43.1	-12.3	46.1	35 05.5	-10.5	47.1
46	29 10.3	-17.8	42.4	30 38.3	-16.2	43.2	32 05.2	-14.6	44.1	33 30.8	-12.9	45.0	34 55.0	-11.2	45.9
47	28 52.5	-18.3	41.3	30 22.1	-16.8	42.1	31 50.6	-15.2	42.9	33 17.9	-13.6	43.8	34 43.8	-11.8	44.7
48	28 34.2	-18.8	40.3	30 05.3	-17.3	41.0	31 35.4	-15.8	41.8	33 04.3	-14.2	42.6	34 32.0	-12.6	43.5
49	28 15.4	-19.3	39.2	29 48.0	-17.9	39.9	31 19.6	-16.4	40.6	32 50.1	-14.9	41.5	34 19.4	-13.3	42.4
50	27 56.1	-19.8	38.1	29 30.1	-18.4	38.8	31 03.2	-17.0	39.5	32 35.2	-15.5	40.3	34 06.1	-13.9	41.2
51	27 36.3	-20.3	37.0	29 11.7	-19.0	37.7	30 46.2	-17.6	38.4	32 19.7	-16.1	39.2	33 52.2	-14.5	40.0
52	27 16.0	-20.8	36.0	28 52.7	-19.4	36.6	30 28.6	-18.1	37.3	32 03.6	-16.7	38.0	33 37.7	-15.3	38.8
53	26 55.2	-21.2	34.9	28 33.3	-20.0	35.5	30 10.5	-18.7	36.2	31 46.9	-17.3	36.9	33 22.4	-15.9	37.7
54	26 34.0	-21.7	33.9	28 13.3	-20.5	34.5	29 51.8	-19.2	35.1	31 29.6	-17.9	35.8	33 06.5	-16.5	36.5
55	26 12.3	-22.2	32.8	27 52.8	-21.0	33.4	29 32.6	-19.7	34.0	31 11.7	-18.4	34.7	32 50.0	-17.1	35.4
56	25 50.1	-22.6	31.8	27 31.8	-21.4	32.3	29 12.9	-20.3	32.9	30 53.3	-19.0	33.5	32 32.9	-17.7	34.2
57	25 27.5	-23.0	30.8	27 10.4	-21.9	31.3	28 52.6	-20.7	31.8	30 34.3	-19.6	32.4	32 15.2	-18.4	33.1
58	25 04.5	-23.4	29.7	26 48.5	-22.4	30.2	28 31.9	-21.3	30.8	30 14.7	-20.2	31.3	31 56.8	-18.9	32.0
59	24 41.1	-23.8	28.7	26 26.1	-22.8	29.2	28 10.6	-21.8	29.7	29 54.5	-20.6	30.3	31 37.9	-19.5	30.9
60	24 17.3	-24.3	27.7	26 03.3	-23.3	28.2	27 48.8	-22.2	28.6	29 33.9	-21.2	29.2	31 18.4	-20.1	29.8
61	23 53.0	-24.6	26.7	25 40.0	-23.7	27.1	27 26.6	-22.7	27.6	29 12.7	-21.7	28.1	30 58.3	-20.7	28.7
62	23 28.4	-25.0	25.7	25 16.3	-24.1	26.1	27 03.9	-23.2	26.6	28 51.0	-22.2	27.0	30 37.6	-21.1	27.6
63	23 03.4	-25.3	24.7	24 52.2	-24.5	25.1	26 40.7	-23.6	25.5	28 28.8	-22.7	26.0	30 16.5	-21.8	26.5
64	22 38.1	-25.8	23.8	24 27.7	-24.9	24.1	26 17.1	-24.0	24.5	28 06.1	-23.1	24.9	29 54.7	-22.2	25.4
65	22 12.3	-26.0	22.8	24 02.8	-25.2	23.1	25 53.1	-24.5	23.5	27 43.0	-23.7	23.9	29 32.5	-22.7	24.3
66	21 46.3	-26.4	21.8	23 37.6	-25.7	22.1	25 28.6	-24.9	22.5	27 19.3	-24.0	22.8	29 09.8	-23.3	23.3
67	21 19.9	-26.8	20.8	23 11.9	-26.0	21.1	25 03.7	-25.3	21.5	26 55.3	-24.6	21.8	28 46.5	-23.7	22.2
68	20 53.1	-27.0	19.9	22 45.9	-26.4	20.2	24 38.4	-25.7	20.5	26 30.7	-24.9	20.8	28 22.8	-24.2	21.2
69	20 26.1	-27.4	18.9	22 19.5	-26.7	19.2	24 12.7	-26.0	19.5	26 05.8	-25.4	19.8	27 58.6	-24.7	20.1
70	19 58.7	-27.7	18.0	21 52.8	-27.1	18.2	23 46.7	-26.5	18.5	25 40.4	-25.8	18.8	27 33.9	-25.1	19.1
71	19 31.0	-27.9	17.0	21 25.7	-27.4	17.3	23 20.2	-26.8	17.5	25 14.6	-26.2	17.8	27 08.8	-25.6	18.1
72	19 03.1	-28.3	16.1	20 58.3	-27.7	16.3	22 53.4	-27.1	16.5	24 48.4	-26.6	16.8	26 43.2	-26.0	17.1
73	18 34.8	-28.5	15.2	20 30.6	-28.0	15.4	22 26.3	-27.5	15.6	24 21.8	-27.0	15.8	26 17.2	-26.4	16.1
74	18 06.3	-28.7	14.2	20 02.6	-28.3	14.4	21 58.8	-27.9	14.6	23 54.8	-27.3	14.8	25 50.8	-26.8	15.1
75	17 37.6	-29.1	13.3	19 34.3	-28.6	13.5	21 30.9	-28.1	13.6	23 27.5	-27.7	13.8	25 24.0	-27.2	14.1
76	17 08.5	-29.3	12.4	19 05.7	-28.9	12.5	21 02.8	-28.5	12.7	22 59.8	-28.0	12.9	24 56.8	-27.6	13.1
77	16 39.2	-29.5	11.5	18 36.8	-29.1	11.6	20 34.3	-28.7	11.8	22 31.8	-28.4	11.9	24 29.2	-28.0	12.1
78	16 09.7	-29.7	10.6	18 07.7	-29.4	10.7	20 05.6	-29.1	10.8	22 03.4	-28.7	11.0	24 01.2	-28.4	11.1
79	15 40.0	-30.0	9.7	17 38.3	-29.7	9.8	19 36.5	-29.4	9.9	21 34.7	-29.0	10.0	23 32.8	-28.7	10.2
80	15 10.0	-30.2	8.8	17 08.6	-29.9	8.9	19 07.1	-29.6	9.0	21 05.7	-29.4	9.1	23 04.1	-29.0	9.2
81	14 39.8	-30.3	7.9	16 38.7	-30.2	8.0	18 37.5	-29.9	8.0	20 36.3	-29.6	8.1	22 35.1	-29.4	8.3
82	14 09.5	-30.6	7.0	16 08.5	-30.3	7.1	18 07.6	-30.1	7.1	20 06.7	-29.9	7.2	22 05.7	-29.7	7.3
83	13 38.9	-30.8	6.1	15 38.2	-30.6	6.2	17 37.5	-30.4	6.2	19 36.8	-30.2	6.3	21 36.0	-30.0	6.4
84	13 08.1	-30.9	5.2	15 07.6	-30.8	5.3	17 07.1	-30.6	5.3	19 06.6	-30.5	5.4	21 06.0	-30.3	5.5
85	12 37.2	-31.2	4.3	14 36.8	-31.0	4.4	16 36.5	-30.9	4.4	18 36.1	-30.7	4.5	20 35.7	-30.6	4.5
86	12 06.0	-31.2	3.5	14 05.8	-31.2	3.5	16 05.6	-31.1	3.5	18 05.4	-31.0	3.6	20 05.1	-30.9	3.6
87	11 34.8	-31.5	2.6	13 34.6	-31.3	2.6	15 34.5	-31.3	2.6	17 34.4	-31.3	2.7	19 34.2	-31.1	2.7
88	11 03.3	-31.6	1.7	13 03.3	-31.6	1.7	15 03.2	-31.5	1.8	17 03.1	-31.4	1.8	19 03.1	-31.4	1.8
89	10 31.7	-31.7	0.9	12 31.7	-31.7	0.9	14 31.7	-31.7	0.9	16 31.7	-31.7	0.9	18 31.7	-31.7	0.9
90	10 00.0	-31.9	0.0	12 00.0	-31.9	0.0	14 00.0	-31.9	0.0	16 00.0	-31.9	0.0	18 00.0	-31.9	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 58°, 302°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
21	24.9	-26.6	127.9	20	10.7	-28.2	128.5	18	55.5	-29.7	129.1	17	39.5	-31.2	129.6	16	22.6	-32.6	130.0	30
20	58.3	-27.0	128.9	19	42.5	-28.6	129.5	18	25.8	-30.0	130.0	17	08.3	-31.5	130.5	15	50.0	-32.8	130.9	31
20	31.3	-27.3	129.8	19	13.9	-28.8	130.4	17	55.8	-30.3	130.9	16	36.8	-31.6	131.4	15	17.2	-33.0	131.8	32
20	04.0	-27.7	130.8	18	45.1	-29.0	131.3	17	25.5	-30.5	131.8	16	05.2	-31.9	132.3	14	44.2	-33.2	132.7	33
19	36.3	-27.9	131.7	18	16.1	-29.4	132.2	16	55.0	-30.7	132.7	15	33.3	-32.1	133.1	14	11.0	-33.4	133.5	34
19	08.4	-28.1	132.7	17	46.7	-29.6	133.2	16	24.3	-30.9	133.6	15	01.2	-32.2	134.0	13	37.6	-33.6	134.4	35
18	40.3	-28.5	133.6	17	17.1	-29.8	134.1	15	53.4	-31.2	134.5	14	29.0	-32.5	134.9	13	04.0	-33.7	135.2	36
18	11.8	-28.7	134.5	16	47.3	-30.1	135.0	15	22.2	-31.4	135.4	13	56.5	-32.6	135.7	12	30.3	-33.9	136.1	37
17	43.1	-29.0	135.4	16	17.2	-30.3	135.9	14	50.8	-31.6	136.3	13	23.9	-32.9	136.6	11	56.4	-34.0	136.9	38
17	14.1	-29.2	136.4	15	46.9	-30.5	136.8	14	19.2	-31.7	137.1	12	51.0	-33.0	137.5	11	22.4	-34.2	137.8	39
16	44.9	-29.5	137.3	15	16.4	-30.7	137.7	13	47.5	-32.0	138.0	12	18.0	-33.2	138.3	10	48.2	-34.3	138.6	40
16	15.4	-29.7	138.2	14	45.7	-31.0	138.6	13	15.5	-32.1	138.9	11	44.9	-33.3	139.2	10	13.9	-34.4	139.4	41
15	45.7	-29.9	139.1	14	14.7	-31.1	139.4	12	43.4	-32.3	139.8	11	11.6	-33.5	140.0	9	39.5	-34.6	140.3	42
15	15.8	-30.2	140.0	13	43.6	-31.3	140.3	12	11.1	-32.5	140.6	10	38.1	-33.5	140.9	9	04.9	-34.7	141.1	43
14	45.6	-30.3	140.9	13	12.3	-31.5	141.2	11	38.6	-32.6	141.5	10	04.6	-33.8	141.7	8	30.2	-34.8	141.9	44
14	15.3	-30.6	141.8	12	40.8	-31.7	142.1	11	06.0	-32.8	142.3	9	30.8	-33.8	142.6	7	55.4	-34.8	142.7	45
13	44.7	-30.7	142.7	12	09.1	-31.8	142.9	10	33.2	-32.9	143.2	8	57.0	-33.9	143.4	7	20.6	-35.0	143.6	46
13	14.0	-30.9	143.5	11	37.3	-32.0	143.8	10	00.3	-33.0	144.0	8	23.1	-34.1	144.2	6	45.6	-35.0	144.4	47
12	43.1	-31.1	144.4	11	05.3	-32.1	144.7	9	27.3	-33.2	144.9	7	49.0	-34.1	145.1	6	10.6	-35.1	145.2	48
12	12.0	-31.3	145.3	10	33.2	-32.3	145.5	8	54.1	-33.2	145.7	7	14.9	-34.3	145.9	5	35.5	-35.2	146.0	49
11	40.7	-31.4	146.2	10	00.9	-32.4	146.4	8	20.9	-33.4	146.6	6	40.6	-34.3	146.7	5	00.3	-35.3	146.8	50
11	09.3	-31.5	147.0	9	28.5	-32.5	147.2	7	47.5	-33.5	147.4	6	06.3	-34.4	147.5	4	25.0	-35.4	147.6	51
10	37.8	-31.7	147.9	8	56.0	-32.6	148.1	7	14.0	-33.5	148.2	5	31.9	-34.4	148.4	3	49.7	-35.3	148.4	52
10	06.1	-31.9	148.8	8	23.4	-32.8	148.9	6	40.5	-33.7	149.1	4	57.5	-34.5	149.2	3	14.4	-35.4	149.3	53
9	34.2	-31.9	149.6	7	50.6	-32.8	149.8	6	06.8	-33.7	149.9	4	23.0	-34.6	150.0	2	39.0	-35.4	150.1	54
9	02.3	-32.1	150.5	7	17.8	-33.0	150.6	5	33.1	-33.8	150.7	3	48.4	-34.6	150.8	2	03.6	-35.5	150.9	55
8	30.2	-32.2	151.3	6	44.8	-33.0	151.5	4	59.3	-33.8	151.6	3	13.8	-34.7	151.6	1	28.1	-35.4	151.7	56
7	58.0	-32.3	152.2	6	11.8	-33.1	152.3	4	25.5	-33.9	152.4	2	39.1	-34.7	152.5	0	52.7	-35.5	152.5	57
7	25.7	-32.4	153.1	5	38.7	-33.2	153.2	3	51.6	-34.0	153.2	2	04.4	-34.7	153.3	0	17.2	-35.5	153.3	58
6	53.3	-32.5	153.9	5	05.5	-33.2	154.0	3	17.6	-34.0	154.1	1	29.7	-34.7	154.1	0	18.3	+35.4	25.9	59
6	20.8	-32.5	154.7	4	32.3	-33.3	154.8	2	43.6	-34.0	154.9	0	55.0	-34.8	154.9	1	29.2	+35.4	24.3	60
5	48.3	-32.7	155.6	3	59.0	-33.4	155.7	2	09.6	-34.1	155.7	0	20.2	-34.7	155.7	1	04.6	+35.4	23.5	61
5	15.6	-32.7	156.4	3	25.6	-33.4	156.5	1	35.5	-34.0	156.5	0	14.5	+34.8	23.5	2	40.0	+35.4	22.7	62
4	42.9	-32.8	157.3	2	52.2	-33.4	157.3	1	01.5	-34.1	157.4	0	49.3	+34.7	22.6	2	04.0	+35.4	22.7	63
4	10.1	-32.8	158.1	2	18.8	-33.5	158.2	0	27.4	-34.1	158.2	1	24.0	+34.7	21.8	3	15.4	+35.3	21.9	64
3	37.3	-32.9	159.0	1	45.3	-33.5	159.0	0	06.7	+34.1	21.0	1	58.7	+34.7	21.0	3	50.7	+35.3	21.1	65
3	04.4	-32.9	159.8	1	11.8	-33.5	159.8	0	40.8	+34.1	20.2	2	33.4	+34.7	20.2	4	26.0	+35.3	20.2	66
2	31.5	-32.9	160.6	0	38.3	-33.5	160.6	1	14.9	+34.1	19.4	3	08.1	+34.6	19.4	5	01.3	+35.2	19.4	67
1	58.6	-33.0	161.5	0	04.8	-33.5	161.5	1	49.0	+34.0	18.5	3	42.7	+34.6	18.6	5	36.5	+35.1	18.6	68
1	25.6	-33.0	162.3	0	28.7	+33.5	17.7	2	23.0	+34.0	17.7	4	17.3	+34.5	17.7	6	11.6	+35.0	17.8	69
0	52.6	-32.9	163.1	1	02.2	+33.5	16.9	2	57.0	+34.0	16.9	4	51.8	+34.5	16.9	6	46.6	+35.0	17.0	70
0	19.7	-33.0	164.0	1	35.7	+33.5	16.0	3	31.0	+33.9	16.1	5	26.3	+34.4	16.1	7	21.6	+34.9	16.2	71
0	13.3	+33.0	15.2	2	09.2	+33.4	15.2	4	04.9	+33.9	15.2	6	00.7	+34.3	15.3	7	56.5	+34.7	15.3	72
0	46.3	+33.0	14.4	2	42.6	+33.4	14.4	4	38.8	+33.9	14.4	6	35.0	+34.3	14.5	8	31.2	+34.7	14.5	73
1	19.3	+33.0	13.5	3	16.0	+33.4	13.5	5	12.7	+33.7	13.6	7	09.3	+34.2	13.6	9	05.9	+34.6	13.7	74
1	52.3	+32.9	12.7	3	49.4	+33.3	12.7	5	46.4	+33.7	12.7	7	43.5	+34.0	12.8	9	40.5	+34.4	12.9	75
2	25.2	+33.0	11.8	4	22.7	+33.2	11.9	6	20.1	+33.6	11.9	8	17.5	+34.0	12.0	10	14.9	+34.3	12.0	76
2	58.2	+32.8	11.0	4	55.9	+33.2	11.0	6	53.7	+33.5	11.1	8	51.5	+33.8	11.1	10	49.2	+34.2	11.2	77
3	31.0	+32.9	10.2	5	29.1	+33.2	10.2	7	27.2	+33.5	10.2	9	25.3	+33.8	10.3	11	23.4	+34.0	10.4	78
4	03.9	+32.8	9.3	6	02.3	+33.0	9.4	8	00.7	+33.3	9.4	9	59.1	+33.6	9.5	11	57.4	+33.9	9.5	79
4	36.7	+32.7	8.5	6	35.3	+33.0	8.5	8	34.0	+33.2	8.6	10	32.7	+33.4	8.6	12	31.3	+33.7	8.7	80
5	09.4	+32.6	7.7	7	08.3	+32.9	7.7	9	07.2	+33.1	7.7	11	06.1	+33.4	7.8	13	05.0	+33.6	7.8	81
5	42.0	+32.6	6.8	7	41.2	+32.8	6.8	9	40.3	+33.0	6.9	11	39.5	+33.1	6.9	13	38.6	+33.4	7.0	82
6	14.6	+32.5	6.0	8	14.0	+32.6	6.0	10	13.3	+32.8	6.0	12	12.6	+33.0	6.1	14	12.0	+33.1	6.1	83
6	47.1	+32.4	5.1	8	46.6	+32.6	5.1	10	46.1	+32.7	5.2	12	45.6	+32.9	5.2	14	45.1	+33.1	5.3	84
7	19.5	+32.3	4.3	9	19.2	+32.4	4.3	11	18.8	+32.6	4.3	13	18.5	+32.7	4.4	15	18.2	+32.8	4.4	85
7	51.8	+32.3	3.4	9	51.6	+32.3	3.4	11	51.4	+32.4	3.5	13	51.2	+32.5	3.5	15	51.0	+32.6	3.5	86
8	24.1	+32.1	2.6	10	23.9	+32.2	2.6	12	23.8	+32.2	2.6	14	23.7	+32.3	2.6	16	23.6	+32.3	2.7	87
8	56.2	+31.9	1.7	10	56.1	+32.0	1.7	12	56.0	+32.1	1.7	14	56.0	+32.1	1.8	16	55.9	+32.2	1.8	88
9	28.1	+31.9	0.9	11	28.1	+31.9	0.9	13	28.1	+31.9	0.9	15	28.1	+31.9	0.9	17	28.1	+31.9	0.9	89
10	00.0	+31.7	0.0	12	00.0	+31.7	0.0	14	00.0	+31.7	0.0	16	00.0	+31.7	0.0	18	00.0	+31.7	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 122°, 238°

58°, 302° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	37 01.9	+3.2	66.9	37 47.6	+5.6	68.3	38 30.4	+8.1	69.8	39 10.4	+10.5	71.3	39 47.2	+13.1	72.9
31	37 05.1	+2.3	65.7	37 53.2	+4.7	67.1	38 38.5	+7.2	68.5	39 20.9	+9.7	70.1	40 00.3	+12.2	71.6
32	37 07.4	+1.6	64.4	37 57.9	+4.0	65.8	38 45.7	+6.4	67.3	39 30.6	+8.9	68.8	40 12.5	+11.4	70.3
33	37 09.0	+0.8	63.2	38 01.9	+3.1	64.5	38 52.1	+5.5	66.0	39 39.5	+8.0	67.5	40 23.9	+10.5	69.1
34	37 09.8	0.0	61.9	38 05.0	+2.3	63.3	38 57.6	+4.7	64.7	39 47.5	+7.1	66.2	40 34.4	+9.7	67.8
35	37 09.8	-0.8	60.7	38 07.3	+1.5	62.0	39 02.3	+3.9	63.4	39 54.6	+6.3	64.9	40 44.1	+8.7	66.5
36	37 09.0	-1.6	59.4	38 08.8	+0.7	60.7	39 06.2	+3.0	62.1	40 00.9	+5.4	63.6	40 52.8	+7.9	65.2
37	37 07.4	-2.4	58.1	38 09.5	-0.1	59.5	39 09.2	+2.2	60.9	40 06.3	+4.6	62.3	41 00.7	+7.0	63.8
38	37 05.0	-3.2	56.9	38 09.4	-1.0	58.2	39 11.4	+1.3	59.6	40 10.9	+3.6	61.0	41 07.7	+6.0	62.5
39	37 01.8	-4.0	55.6	38 08.4	-1.8	56.9	39 12.7	+0.5	58.3	40 14.5	+2.8	59.7	41 13.7	+5.2	61.2
40	36 57.8	-4.7	54.4	38 06.6	-2.6	55.7	39 13.2	-0.4	57.0	40 17.3	+1.9	58.4	41 18.9	+4.2	59.9
41	36 53.1	-5.6	53.1	38 04.0	-3.4	54.4	39 12.8	-1.3	55.7	40 19.2	+1.0	57.1	41 23.1	+3.4	58.5
42	36 47.5	-6.3	51.9	38 00.6	-4.3	53.1	39 11.5	-2.1	54.4	40 20.2	+0.1	55.8	41 26.5	+2.4	57.2
43	36 41.2	-7.1	50.7	37 56.3	-5.0	51.9	39 09.4	-2.9	53.1	40 20.3	-0.8	54.5	41 28.9	+1.4	55.9
44	36 34.1	-7.8	49.4	37 51.3	-5.9	50.6	39 06.5	-3.8	51.8	40 19.5	-1.6	53.1	41 30.3	+0.6	54.5
45	36 26.3	-8.6	48.2	37 45.4	-6.7	49.3	39 02.7	-4.7	50.5	40 17.9	-2.6	51.8	41 30.9	-0.4	53.2
46	36 17.7	-9.4	47.0	37 38.7	-7.4	48.1	38 58.0	-5.5	49.3	40 15.3	-3.4	50.5	41 30.5	-1.3	51.9
47	36 08.3	-10.1	45.7	37 31.3	-8.3	46.8	38 52.5	-6.3	48.0	40 11.9	-4.3	49.2	41 29.2	-2.2	50.5
48	35 58.2	-10.8	44.5	37 23.0	-9.0	45.6	38 46.2	-7.2	46.7	40 07.6	-5.2	47.9	41 27.0	-3.2	49.2
49	35 47.4	-11.6	43.3	37 14.0	-9.8	44.3	38 39.0	-7.9	45.4	40 02.4	-6.1	46.6	41 23.8	-4.0	47.9
50	35 35.8	-12.2	42.1	37 04.2	-10.6	43.1	38 31.1	-8.8	44.2	39 56.3	-6.9	45.3	41 19.8	-5.0	46.5
51	35 23.6	-13.0	40.9	36 53.6	-11.3	41.9	38 22.3	-9.6	42.9	39 49.4	-7.8	44.0	41 14.8	-5.9	45.2
52	35 10.6	-13.7	39.7	36 42.3	-12.1	40.6	38 12.7	-10.5	41.6	39 41.6	-8.7	42.7	41 08.9	-6.8	43.9
53	34 56.9	-14.4	38.5	36 30.2	-12.8	39.4	38 02.2	-11.2	40.4	39 32.9	-9.5	41.4	41 02.1	-7.7	42.6
54	34 42.5	-15.1	37.3	36 17.4	-13.6	38.2	37 51.0	-11.9	39.1	39 23.4	-10.3	40.2	40 54.4	-8.6	41.3
55	34 27.4	-15.7	36.2	36 03.8	-14.3	37.0	37 39.1	-12.8	37.9	39 13.1	-11.1	38.9	40 45.8	-9.5	40.0
56	34 11.7	-16.4	35.0	35 49.5	-15.0	35.8	37 26.3	-13.5	36.7	39 02.0	-12.0	37.6	40 36.3	-10.3	38.7
57	33 55.3	-17.1	33.8	35 34.5	-15.7	34.6	37 12.8	-14.3	35.4	38 50.0	-12.8	36.4	40 26.0	-11.2	37.4
58	33 38.2	-17.7	32.7	35 18.8	-16.4	33.4	36 58.5	-15.0	34.2	38 37.2	-13.6	35.1	40 14.8	-12.1	36.1
59	33 20.5	-18.3	31.5	35 02.4	-17.0	32.2	36 43.5	-15.7	33.0	38 23.6	-14.3	33.9	40 02.7	-12.9	34.8
60	33 02.2	-18.9	30.4	34 45.4	-17.8	31.1	36 27.8	-16.5	31.8	38 09.3	-15.2	32.6	39 49.8	-13.7	33.5
61	32 43.3	-19.6	29.3	34 27.6	-18.3	29.9	36 11.3	-17.2	30.6	37 54.1	-15.9	31.4	39 36.1	-14.5	32.2
62	32 23.7	-20.1	28.1	34 09.3	-19.1	28.8	35 54.1	-17.8	29.4	37 38.2	-16.6	30.2	39 21.6	-15.4	31.0
63	32 03.6	-20.7	27.0	33 50.2	-19.6	27.6	35 36.3	-18.6	28.3	37 21.6	-17.4	29.0	39 06.2	-16.2	29.7
64	31 42.9	-21.3	25.9	33 30.6	-20.3	26.5	35 17.7	-19.2	27.1	37 04.2	-18.1	27.8	38 50.0	-16.9	28.5
65	31 21.6	-21.8	24.8	33 10.3	-20.8	25.4	34 58.5	-19.9	25.9	36 46.1	-18.8	26.6	38 33.1	-17.7	27.3
66	30 59.8	-22.4	23.7	32 49.5	-21.5	24.2	34 38.6	-20.5	24.8	36 27.3	-19.5	25.4	38 15.4	-18.4	26.1
67	30 37.4	-22.9	22.6	32 28.0	-22.1	23.1	34 18.1	-21.1	23.6	36 07.8	-20.2	24.2	37 57.0	-19.2	24.8
68	30 14.5	-23.4	21.6	32 05.9	-22.6	22.0	33 57.0	-21.8	22.5	35 47.6	-20.8	23.1	37 37.8	-19.9	23.6
69	29 51.1	-23.9	20.5	31 43.3	-23.1	20.9	33 35.2	-22.3	21.4	35 26.8	-21.5	21.9	37 17.9	-20.6	22.5
70	29 27.2	-24.5	19.5	31 20.2	-23.7	19.9	33 12.9	-22.9	20.3	35 05.3	-22.2	20.8	36 57.3	-21.3	21.3
71	29 02.7	-24.9	18.4	30 56.5	-24.3	18.8	32 50.0	-23.6	19.2	34 43.1	-22.7	19.6	36 36.0	-22.0	20.1
72	28 37.8	-25.4	17.4	30 32.2	-24.7	17.7	32 26.4	-24.0	18.1	34 20.4	-23.4	18.5	36 14.0	-22.6	19.0
73	28 12.4	-25.8	16.3	30 07.5	-25.2	16.7	32 02.4	-24.7	17.0	33 57.0	-24.0	17.4	35 51.4	-23.3	17.8
74	27 46.6	-26.3	15.3	29 42.3	-25.8	15.6	31 37.7	-25.1	15.9	33 33.0	-24.5	16.3	35 28.1	-23.9	16.7
75	27 20.3	-26.7	14.3	29 16.5	-26.2	14.6	31 12.6	-25.7	14.9	33 08.5	-25.1	15.2	35 04.2	-24.5	15.6
76	26 53.6	-27.2	13.3	28 50.3	-26.7	13.5	30 46.9	-26.2	13.8	32 43.4	-25.7	14.1	34 39.7	-25.2	14.4
77	26 26.4	-27.5	12.3	28 23.6	-27.1	12.5	30 20.7	-26.7	12.8	32 17.7	-26.2	13.0	34 14.5	-25.7	13.3
78	25 58.9	-28.0	11.3	27 56.5	-27.6	11.5	29 54.0	-27.1	11.7	31 51.5	-26.7	12.0	33 48.8	-26.3	12.3
79	25 30.9	-28.3	10.3	27 28.9	-28.0	10.5	29 26.9	-27.6	10.7	31 24.8	-27.3	10.9	33 22.5	-26.8	11.2
80	25 02.6	-28.8	9.4	27 00.9	-28.4	9.5	28 59.3	-28.1	9.7	30 57.5	-27.7	9.9	32 55.7	-27.4	10.1
81	24 33.8	-29.1	8.4	26 32.5	-28.8	8.5	28 31.2	-28.5	8.7	30 29.8	-28.2	8.9	32 28.3	-27.9	9.0
82	24 04.7	-29.4	7.4	26 03.7	-29.2	7.5	28 02.7	-29.0	7.7	30 01.6	-28.7	7.8	32 00.4	-28.4	8.0
83	23 35.3	-29.8	6.5	25 34.5	-29.6	6.6	27 33.7	-29.4	6.7	29 32.9	-29.2	6.8	31 32.0	-28.9	7.0
84	23 05.5	-30.2	5.5	25 04.9	-29.9	5.6	27 04.3	-29.8	5.7	29 03.7	-29.6	5.8	31 03.1	-29.4	5.9
85	22 35.3	-30.4	4.6	24 35.0	-30.4	4.7	26 34.5	-30.1	4.7	28 34.1	-30.0	4.8	30 33.7	-29.9	4.9
86	22 04.9	-30.8	3.7	24 04.6	-30.6	3.7	26 04.4	-30.6	3.8	28 04.1	-30.4	3.8	30 03.8	-30.3	3.9
87	21 34.1	-31.1	2.7	23 34.0	-31.0	2.8	25 33.8	-30.9	2.8	27 33.7	-30.9	2.9	29 33.5	-30.7	2.9
88	21 03.0	-31.3	1.8	23 03.0	-31.4	1.8	25 02.9	-31.3	1.9	27 02.8	-31.2	1.9	29 02.8	-31.2	1.9
89	20 31.7	-31.7	0.9	22 31.6	-31.6	0.9	24 31.6	-31.6	0.9	26 31.6	-31.6	0.9	28 31.6	-31.6	1.0
90	20 00.0	-31.9	0.0	22 00.0	-31.9	0.0	24 00.0	-32.0	0.0	26 00.0	-32.0	0.0	28 00.0	-32.0	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 58°, 302°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
15 05.0 -33.9 130.5	13 46.8 -35.3 130.9	12 28.0 -36.6 131.2	11 08.7 -37.8 131.5	9 48.9 -39.0 131.8	30										
14 31.1 -34.2 131.3	13 11.5 -35.4 131.7	11 51.4 -36.7 132.0	10 30.9 -38.0 132.3	9 09.9 -39.2 132.6	31										
13 56.9 -34.3 132.2	12 36.1 -35.6 132.5	11 14.7 -36.9 132.8	9 52.9 -38.1 133.1	8 30.7 -39.2 133.3	32										
13 22.6 -34.5 133.0	12 00.5 -35.8 133.4	10 37.8 -36.9 133.6	9 14.8 -38.1 133.9	7 51.5 -39.4 134.1	33										
12 48.1 -34.7 133.9	11 24.7 -35.9 134.2	10 00.9 -37.1 134.4	8 36.7 -38.3 134.7	7 12.1 -39.4 134.9	34										
12 13.4 -34.8 134.7	10 48.8 -36.0 135.0	9 23.8 -37.2 135.2	7 58.4 -38.3 135.5	6 32.7 -39.4 135.6	35										
11 38.6 -34.9 135.5	10 12.8 -36.2 135.8	8 46.6 -37.3 136.0	7 20.1 -38.5 136.2	5 53.3 -39.6 136.4	36										
11 03.7 -35.1 136.4	9 36.6 -36.2 136.6	8 09.3 -37.4 136.8	6 41.6 -38.5 137.0	5 13.7 -39.7 137.1	37										
10 28.6 -35.2 137.2	9 00.4 -36.4 137.4	7 31.9 -37.5 137.6	6 03.1 -38.5 137.8	4 34.2 -39.7 137.9	38										
9 53.4 -35.4 138.0	8 24.0 -36.4 138.2	6 54.4 -37.6 138.4	5 24.6 -38.7 138.5	3 54.5 -39.6 138.7	39										
9 18.0 -35.4 138.8	7 47.6 -36.6 139.0	6 16.8 -37.6 139.2	4 45.9 -38.8 139.3	3 14.9 -39.7 139.4	40										
8 42.6 -35.6 139.6	7 11.0 -36.6 139.8	5 39.2 -37.7 140.0	4 07.3 -38.8 140.1	2 35.2 -39.8 140.2	41										
8 07.0 -35.6 140.5	6 34.4 -36.7 140.6	5 01.5 -37.7 140.8	3 28.5 -38.7 140.8	1 55.4 -39.7 140.9	42										
7 31.4 -35.7 141.3	5 57.7 -36.8 141.4	4 23.8 -37.8 141.5	2 49.8 -38.8 141.6	1 15.7 -39.8 141.7	43										
6 55.7 -35.9 142.1	5 20.9 -36.8 142.2	3 46.0 -37.8 142.3	2 11.0 -38.8 142.4	0 35.9 -39.7 142.4	44										
6 19.8 -35.8 142.9	4 44.1 -36.9 143.0	3 08.2 -37.9 143.1	1 32.2 -38.9 143.1	0 03.8 -39.8 36.8	45										
5 44.0 -36.0 143.7	4 07.2 -37.0 143.8	2 30.3 -37.9 143.9	0 53.4 -38.9 143.9	0 43.6 -39.8 36.1	46										
5 08.0 -36.0 144.5	3 30.2 -36.9 144.6	1 52.4 -37.9 144.6	0 14.5 -38.8 144.7	1 23.4 -39.7 35.3	47										
4 32.0 -36.1 145.3	2 53.3 -37.0 145.4	1 14.5 -37.9 145.4	0 24.3 -38.9 34.6	2 03.1 -39.7 34.6	48										
3 55.9 -36.1 146.1	2 16.3 -37.1 146.2	0 36.6 -38.0 146.2	1 03.2 -38.8 33.8	2 42.8 -39.7 33.8	49										
3 19.8 -36.2 146.9	1 39.2 -37.0 147.0	0 01.4 -37.9 33.0	1 42.0 -38.8 33.0	3 22.5 -39.8 33.1	50										
2 43.6 -36.2 147.7	1 02.2 -37.1 147.7	0 39.3 -37.9 32.3	2 20.8 -38.8 32.3	4 02.2 -39.6 32.3	51										
2 07.4 -36.2 148.5	0 25.1 -37.1 148.5	1 17.2 -38.0 31.5	2 59.6 -38.7 31.5	4 41.8 -39.6 31.6	52										
1 31.2 -36.2 149.3	0 12.0 -37.0 30.7	1 55.2 -37.9 30.7	3 38.3 -38.7 30.8	5 21.4 -39.5 30.8	53										
0 55.0 -36.3 150.1	0 49.0 -37.1 29.9	2 33.1 -37.8 29.9	4 17.0 -38.7 30.0	6 00.9 -39.5 30.1	54										
0 18.7 -36.2 150.9	1 26.1 -37.0 29.1	3 10.9 -37.9 29.2	4 55.7 -38.6 29.2	6 40.4 -39.3 29.3	55										
0 17.5 -36.2 28.3	2 03.1 -37.1 28.3	3 48.8 -37.7 28.4	5 34.3 -38.5 28.5	7 19.7 -39.4 28.6	56										
0 53.7 -36.3 27.5	2 40.2 -37.0 27.5	4 26.5 -37.8 27.6	6 12.8 -38.5 27.7	7 59.1 -39.2 27.8	57										
1 30.0 -36.2 26.7	3 17.2 -36.9 26.8	5 04.3 -37.7 26.8	6 51.3 -38.4 26.9	8 38.3 -39.1 27.0	58										
2 06.2 -36.2 25.9	3 54.1 -36.9 26.0	5 42.0 -37.6 26.0	7 29.7 -38.4 26.1	9 17.4 -39.0 26.3	59										
2 42.4 -36.1 25.1	4 31.0 -36.9 25.2	6 19.6 -37.5 25.3	8 08.1 -38.2 25.4	9 56.4 -39.0 25.5	60										
3 18.5 -36.2 24.3	5 07.9 -36.8 24.4	6 57.1 -37.5 24.5	8 46.3 -38.1 24.6	10 35.4 -38.8 24.7	61										
3 54.7 -36.0 23.5	5 44.7 -36.7 23.6	7 34.6 -37.4 23.7	9 24.4 -38.1 23.8	11 14.2 -38.7 23.9	62										
4 30.7 -36.1 22.7	6 21.4 -36.7 22.8	8 12.0 -37.3 22.9	10 02.5 -37.9 23.0	11 52.9 -38.5 23.2	63										
5 06.8 -35.9 21.9	6 58.1 -36.5 22.0	8 49.3 -37.2 22.1	10 40.4 -37.8 22.2	12 31.4 -38.5 22.4	64										
5 42.7 -35.9 21.1	7 34.6 -36.5 21.2	9 26.5 -37.1 21.3	11 18.2 -37.7 21.4	13 09.9 -38.2 21.6	65										
6 18.6 -35.8 20.3	8 11.1 -36.4 20.4	10 03.6 -36.9 20.5	11 55.9 -37.6 20.6	13 48.1 -38.2 20.8	66										
6 54.4 -35.8 19.5	8 47.5 -36.3 19.6	10 40.5 -36.9 19.7	12 33.5 -37.4 19.8	14 26.3 -37.9 20.0	67										
7 30.2 -35.6 18.7	9 23.8 -36.2 18.8	11 17.4 -36.7 18.9	13 10.9 -37.2 19.0	15 04.2 -37.8 19.2	68										
8 05.8 -35.6 17.9	10 00.0 -36.1 18.0	11 54.1 -36.6 18.1	13 48.1 -37.1 18.2	15 42.0 -37.7 18.4	69										
8 41.4 -35.4 17.1	10 36.1 -35.9 17.2	12 30.7 -36.4 17.3	14 25.2 -37.0 17.4	16 19.7 -37.4 17.6	70										
9 16.8 -35.4 16.2	11 12.0 -35.8 16.3	13 07.1 -36.3 16.5	15 02.2 -36.7 16.6	16 57.1 -37.2 16.8	71										
9 52.2 -35.2 15.4	11 47.8 -35.7 15.5	13 43.4 -36.1 15.7	15 38.9 -36.6 15.8	17 34.3 -37.1 16.0	72										
10 27.4 -35.1 14.6	12 23.5 -35.5 14.7	14 19.5 -36.0 14.8	16 15.5 -36.4 15.0	18 11.4 -36.8 15.1	73										
11 02.5 -34.9 13.8	12 59.0 -35.4 13.9	14 55.5 -35.7 14.0	16 51.9 -36.1 14.1	18 48.2 -36.6 14.3	74										
11 37.4 -34.8 12.9	13 34.4 -35.1 13.0	15 31.2 -35.6 13.2	17 28.0 -36.0 13.3	19 24.8 -36.3 13.5	75										
12 12.2 -34.7 12.1	14 09.5 -35.1 12.2	16 06.8 -35.4 12.3	18 04.0 -35.8 12.5	20 01.1 -36.2 12.6	76										
12 46.9 -34.5 11.3	14 44.6 -34.8 11.4	16 42.2 -35.2 11.5	18 39.8 -35.5 11.6	20 37.3 -35.8 11.8	77										
13 21.4 -34.3 10.4	15 19.4 -34.7 10.5	17 17.4 -34.9 10.6	19 15.3 -35.3 10.8	21 13.1 -35.6 10.9	78										
13 55.7 -34.2 9.6	15 54.1 -34.4 9.7	17 52.3 -34.8 9.8	19 50.6 -35.0 9.9	21 48.7 -35.4 10.0	79										
14 29.9 -34.0 8.7	16 28.5 -34.2 8.8	18 27.1 -34.5 8.9	20 25.6 -34.8 9.0	22 24.1 -35.0 9.2	80										
15 03.9 -33.8 7.9	17 02.7 -34.1 8.0	19 01.6 -34.2 8.1	21 00.4 -34.5 8.2	22 59.1 -34.8 8.3	81										
15 37.7 -33.6 7.0	17 36.8 -33.8 7.1	19 35.8 -34.0 7.2	21 34.9 -34.2 7.3	23 33.9 -34.4 7.4	82										
16 11.3 -33.3 6.2	18 10.6 -33.5 6.2	20 09.8 -33.8 6.3	22 09.1 -33.9 6.4	24 08.3 -34.2 6.5	83										
16 44.6 -33.2 5.3	18 44.1 -33.3 5.4	20 43.6 -33.5 5.4	22 43.0 -33.7 5.5	24 42.5 -33.8 5.6	84										
17 17.8 -32.9 4.4	19 17.4 -33.1 4.5	21 17.1 -33.2 4.5	23 16.7 -33.3 4.6	25 16.3 -33.5 4.7	85										
17 50.7 -32.7 3.6	19 50.5 -32.8 3.6	21 50.3 -32.9 3.7	23 50.0 -33.0 3.7	25 49.8 -33.1 3.8	86										
18 23.4 -32.5 2.7	20 23.3 -32.5 2.7	22 23.2 -32.6 2.8	24 23.0 -32.7 2.8	26 22.9 -32.7 2.8	87										
18 55.9 -32.2 1.8	20 55.8 -32.3 1.8	22 55.8 -32.2 1.8	24 55.7 -32.3 1.9	26 55.6 -32.4 1.9	88										
19 28.1 -31.9 0.9	21 28.1 -31.9 0.9	23 28.0 -32.0 0.9	25 28.0 -32.0 0.9	27 28.0 -32.0 1.0	89										
20 00.0 -31.7 0.0	22 00.0 -31.6 0.0	24 00.0 -31.6 0.0	26 00.0 -31.6 0.0	28 00.0 -31.6 0.0	90										

LATITUDE SAME NAME

L.H.A. 122°, 238°

60°, 300° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	25 39.5	-16.8	56.3	26 45.4	-15.0	57.1	27 49.7	-13.0	58.0	28 52.5	-11.1	58.9	29 53.6	-9.1	59.9
31	25 22.7	-17.4	55.2	26 30.4	-15.5	56.0	27 36.7	-13.6	56.9	28 41.4	-11.7	57.8	29 44.5	-9.7	58.8
32	25 05.3	-17.7	54.2	26 14.9	-16.0	55.0	27 23.1	-14.2	55.8	28 29.7	-12.2	56.7	29 34.8	-10.2	57.6
33	24 47.6	-18.3	53.1	25 58.9	-16.4	53.9	27 08.9	-14.6	54.7	28 17.5	-12.7	55.6	29 24.6	-10.8	56.5
34	24 29.3	-18.6	52.1	25 42.5	-16.9	52.8	26 54.3	-15.1	53.6	28 04.8	-13.3	54.5	29 13.8	-11.4	55.4
35	24 10.7	-19.1	51.0	25 25.6	-17.4	51.8	26 39.2	-15.6	52.5	27 51.5	-13.8	53.4	29 02.4	-12.0	54.2
36	23 51.6	-19.5	50.0	25 08.2	-17.8	50.7	26 23.6	-16.1	51.5	27 37.7	-14.3	52.3	28 50.4	-12.5	53.1
37	23 32.1	-19.9	49.0	24 50.4	-18.3	49.7	26 07.5	-16.6	50.4	27 23.4	-14.9	51.2	28 37.9	-13.0	52.0
38	23 12.2	-20.3	47.9	24 32.1	-18.7	48.6	25 50.9	-17.0	49.3	27 08.5	-15.3	50.1	28 24.9	-13.6	50.9
39	22 51.9	-20.6	46.9	24 13.4	-19.1	47.6	25 33.9	-17.5	48.3	26 53.2	-15.8	49.0	28 11.3	-14.1	49.8
40	22 31.3	-21.1	45.9	23 54.3	-19.5	46.5	25 16.4	-18.0	47.2	26 37.4	-16.4	47.9	27 57.2	-14.6	48.7
41	22 10.2	-21.4	44.9	23 34.8	-20.0	45.5	24 58.4	-18.4	46.1	26 21.0	-16.8	46.8	27 42.6	-15.2	47.6
42	21 48.8	-21.8	43.9	23 14.8	-20.3	44.5	24 40.0	-18.8	45.1	26 04.2	-17.2	45.8	27 27.4	-15.6	46.5
43	21 27.0	-22.2	42.9	22 54.5	-20.7	43.4	24 21.2	-19.3	44.0	25 47.0	-17.8	44.7	27 11.8	-16.2	45.4
44	21 04.8	-22.5	41.9	22 33.8	-21.2	42.4	24 01.9	-19.6	43.0	25 29.2	-18.1	43.6	26 55.6	-16.7	44.3
45	20 42.3	-22.9	40.9	22 12.6	-21.4	41.4	23 42.3	-20.1	42.0	25 11.1	-18.7	42.6	26 38.9	-17.1	43.2
46	20 19.4	-23.1	39.9	21 51.2	-21.9	40.4	23 22.2	-20.5	40.9	24 52.4	-19.1	41.5	26 21.8	-17.6	42.2
47	19 56.3	-23.5	38.9	21 32.3	-22.2	39.4	23 01.7	-20.9	39.9	24 33.3	-19.5	40.5	26 04.2	-18.1	41.1
48	19 32.8	-23.8	37.9	21 07.1	-22.5	38.4	22 40.8	-21.2	38.9	24 13.8	-19.9	39.5	25 46.1	-18.5	40.1
49	19 09.0	-24.2	37.0	20 44.6	-22.9	37.4	22 19.6	-21.7	37.9	23 53.9	-20.3	38.4	25 27.6	-19.0	39.0
50	18 44.8	-24.4	36.0	20 21.7	-23.3	36.4	21 57.9	-22.0	36.9	23 33.6	-20.7	37.4	25 08.6	-19.4	37.9
51	18 20.4	-24.7	35.0	19 58.4	-23.5	35.4	21 35.9	-22.3	35.9	23 12.9	-21.2	36.4	24 49.2	-19.9	36.9
52	17 55.7	-25.0	34.1	19 34.9	-23.9	34.5	21 13.6	-22.7	34.9	22 51.7	-21.5	35.4	24 29.3	-20.3	35.9
53	17 30.7	-25.2	33.1	19 11.0	-24.2	33.5	20 50.9	-23.1	33.9	22 30.2	-21.9	34.3	24 09.0	-20.7	34.8
54	17 05.4	-25.6	32.2	18 46.8	-24.4	32.5	20 27.8	-23.4	32.9	22 08.3	-22.2	33.3	23 48.3	-21.1	33.8
55	16 39.9	-25.7	31.2	18 22.4	-24.8	31.6	20 04.4	-23.7	31.9	21 46.1	-22.7	32.3	23 27.2	-21.5	32.8
56	16 14.2	-26.1	30.3	17 57.6	-25.0	30.6	19 40.7	-24.0	31.0	21 23.4	-22.9	31.3	23 05.7	-21.9	31.8
57	15 48.1	-26.2	29.4	17 32.6	-25.3	29.6	19 16.7	-24.3	30.0	21 00.5	-23.4	30.3	22 43.3	-22.3	30.8
58	15 21.9	-26.5	28.4	17 07.3	-25.6	28.7	18 52.4	-24.6	29.0	20 37.1	-23.6	29.4	22 21.5	-22.6	29.8
59	14 55.4	-26.7	27.5	16 41.7	-25.8	27.8	18 27.8	-25.0	28.0	20 13.5	-24.0	28.4	21 58.9	-23.0	28.8
60	14 28.7	-27.0	26.6	16 15.9	-26.1	26.8	18 02.8	-25.2	27.1	19 49.5	-24.3	27.4	21 35.9	-23.4	27.8
61	14 01.7	-27.1	25.6	15 49.8	-26.3	25.9	17 37.6	-25.4	26.1	19 25.2	-24.6	26.4	21 12.5	-23.7	26.8
62	13 34.6	-27.4	24.7	15 23.5	-26.6	24.9	17 12.2	-25.8	25.2	19 00.6	-24.9	25.5	20 48.8	-24.0	25.8
63	13 07.2	-27.5	23.8	14 56.9	-26.8	24.0	16 46.4	-26.0	24.2	18 35.7	-25.1	24.5	20 24.8	-24.4	24.8
64	12 39.7	-27.8	22.9	14 30.1	-27.0	23.1	16 20.4	-26.2	23.3	18 10.6	-25.5	23.6	20 00.4	-24.6	23.8
65	12 11.9	-27.9	22.0	14 03.1	-27.2	22.2	15 54.2	-26.5	22.4	17 45.1	-25.8	22.6	19 35.8	-25.0	22.9
66	11 44.0	-28.0	21.1	13 35.9	-27.4	21.2	15 27.7	-26.7	21.4	17 19.3	-26.0	21.7	19 10.8	-25.3	21.9
67	11 16.0	-28.3	20.2	13 08.5	-27.6	20.3	15 01.0	-26.9	20.5	16 53.3	-26.2	20.7	18 45.5	-25.6	20.9
68	10 47.7	-28.4	19.3	12 40.9	-27.7	19.4	14 34.1	-27.2	19.6	16 27.1	-26.6	19.8	18 19.9	-25.9	20.0
69	10 19.3	-28.5	18.4	12 13.2	-28.0	18.5	14 06.9	-27.4	18.7	16 00.5	-26.7	18.8	17 54.0	-26.1	19.0
70	9 50.8	-28.7	17.5	11 45.2	-28.1	17.6	13 39.5	-27.5	17.7	15 33.8	-27.0	17.9	17 27.9	-26.4	18.1
71	9 22.1	-28.8	16.6	11 17.1	-28.3	16.7	13 12.0	-27.8	16.8	15 06.8	-27.2	17.0	17 01.5	-26.7	17.1
72	8 53.3	-28.9	15.7	10 48.8	-28.5	15.8	12 44.2	-27.9	15.9	14 39.6	-27.5	16.1	16 34.8	-26.9	16.2
73	8 24.4	-29.1	14.8	10 20.3	-28.6	14.9	12 16.3	-28.2	15.0	14 12.1	-27.6	15.1	16 07.9	-27.1	15.3
74	7 55.3	-29.2	13.9	9 51.7	-28.7	14.0	11 48.1	-28.2	14.1	13 44.5	-27.9	14.2	15 40.8	-27.4	14.4
75	7 26.1	-29.2	13.1	9 23.0	-28.8	13.1	11 19.9	-28.5	13.2	13 16.6	-28.0	13.3	15 13.4	-27.6	13.4
76	6 56.9	-29.4	12.2	8 54.1	-29.0	12.2	10 51.4	-28.6	12.3	12 48.6	-28.2	12.4	14 45.8	-27.8	12.5
77	6 27.5	-29.5	11.3	8 25.1	-29.1	11.4	10 22.8	-28.8	11.4	12 20.4	-28.4	11.5	14 18.0	-28.1	11.6
78	5 58.0	-29.5	10.4	7 56.0	-29.2	10.5	9 54.0	-28.9	10.5	11 52.0	-28.6	10.6	13 49.9	-28.2	10.7
79	5 28.5	-29.6	9.6	7 26.8	-29.3	9.6	9 25.1	-29.0	9.6	11 23.4	-28.7	9.7	13 21.7	-28.4	9.8
80	4 58.9	-29.7	8.7	6 57.5	-29.5	8.7	8 56.1	-29.2	8.8	10 54.7	-28.9	8.8	12 53.3	-28.7	8.9
81	4 29.2	-29.8	7.8	6 28.0	-29.5	7.8	8 26.9	-29.3	7.9	10 25.8	-29.1	7.9	12 24.6	-28.8	8.0
82	3 59.4	-29.8	6.9	5 58.5	-29.6	7.0	7 57.6	-29.3	7.0	9 56.7	-29.1	7.0	11 55.8	-28.9	7.1
83	3 29.6	-29.8	6.1	5 28.9	-29.6	6.1	7 28.3	-29.5	6.1	9 27.6	-29.3	6.1	11 26.9	-29.2	6.2
84	2 59.8	-29.9	5.2	4 59.3	-29.8	5.2	6 58.8	-29.6	5.2	8 58.3	-29.5	5.3	10 57.7	-29.2	5.3
85	2 29.9	-30.0	4.3	4 29.5	-29.8	4.3	6 29.2	-29.7	4.4	8 28.8	-29.5	4.4	10 28.5	-29.5	4.4
86	1 59.9	-29.9	3.5	3 59.7	-29.9	3.5	5 59.5	-29.8	3.5	7 59.3	-29.7	3.5	9 59.0	-29.5	3.5
87	1 30.0	-30.0	2.6	3 29.8	-29.9	2.6	5 29.7	-29.8	2.6	7 29.6	-29.8	2.6	9 29.5	-29.7	2.6
88	1 00.0	-30.0	1.7	2 59.9	-29.9	1.7	4 59.9	-29.9	1.7	6 59.8	-29.8	1.7	8 59.8	-29.9	1.8
89	0 30.0	-30.0	0.9	2 30.0	-30.0	0.9	4 30.0	-30.0	0.9	6 30.0	-30.0	0.9	8 29.9	-29.9	0.9
90	0 00.0	-30.0	0.0	2 00.0	-30.0	0.0	4 00.0	-30.0	0.0	6 00.0	-30.0	0.0	8 00.0	-30.1	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 60°, 300°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
25 39.5	-16.8	123.7	24 32.3	-18.7	124.5	23 23.7	-20.4	125.2	22 14.0	-22.2	125.9	21 03.1	-23.8	126.5	30
25 22.7	-17.4	124.8	24 13.6	-19.1	125.5	23 03.3	-20.9	126.2	21 51.8	-22.5	126.9	20 39.3	-24.2	127.5	31
25 05.3	-17.7	125.8	23 54.5	-19.5	126.5	22 42.4	-21.2	127.2	21 29.3	-22.9	127.9	20 15.1	-24.5	128.5	32
24 47.6	-18.3	126.9	23 35.0	-20.0	127.6	22 21.2	-21.6	128.2	21 06.4	-23.2	128.9	19 50.6	-24.8	129.5	33
24 29.3	-18.6	127.9	23 15.0	-20.3	128.6	21 59.6	-22.0	129.3	20 43.2	-23.6	129.9	19 25.8	-25.1	130.4	34
24 10.7	-19.1	129.0	22 54.7	-20.7	129.6	21 37.6	-22.3	130.3	20 19.6	-23.9	130.8	19 00.7	-25.4	131.4	35
23 51.6	-19.5	130.0	22 34.0	-21.1	130.6	21 15.3	-22.7	131.3	19 55.7	-24.2	131.8	18 35.3	-25.7	132.3	36
23 32.1	-19.9	131.0	22 12.9	-21.5	131.7	20 52.6	-23.0	132.2	19 31.5	-24.5	132.8	18 09.6	-26.0	133.3	37
23 12.2	-20.3	132.1	21 51.4	-21.9	132.7	20 29.6	-23.4	133.2	19 07.0	-24.8	133.8	17 43.6	-26.2	134.2	38
22 51.9	-20.6	133.1	21 29.5	-22.2	133.7	20 06.2	-23.6	134.2	18 42.2	-25.1	134.7	17 17.4	-26.5	135.2	39
22 31.3	-21.1	134.1	21 07.3	-22.5	134.7	19 42.6	-24.0	135.2	18 17.1	-25.4	135.7	16 50.9	-26.8	136.1	40
22 10.2	-21.4	135.1	20 44.8	-22.9	135.7	19 18.6	-24.3	136.2	17 51.7	-25.7	136.6	16 24.1	-27.0	137.1	41
21 48.8	-21.8	136.1	20 21.9	-23.2	136.6	18 54.3	-24.6	137.1	17 26.0	-26.0	137.6	15 57.1	-27.2	138.0	42
21 27.0	-22.2	137.1	19 58.7	-23.6	137.6	18 29.7	-24.9	138.1	17 00.0	-26.2	138.5	15 29.9	-27.5	138.9	43
21 04.8	-22.5	138.1	19 35.1	-23.9	138.6	18 04.8	-25.2	139.1	16 33.8	-26.4	139.5	15 02.4	-27.7	139.8	44
20 42.3	-22.9	139.1	19 11.2	-24.1	139.6	17 39.6	-25.5	140.0	16 07.4	-26.7	140.4	14 34.7	-27.9	140.7	45
20 19.4	-23.1	140.1	18 47.1	-24.5	140.5	17 14.1	-25.7	141.0	15 40.7	-26.9	141.3	14 06.8	-28.1	141.7	46
19 56.3	-23.5	141.1	18 22.6	-24.7	141.5	16 48.4	-25.9	141.9	15 13.8	-27.2	142.3	13 38.7	-28.4	142.6	47
19 32.8	-23.8	142.1	17 57.9	-25.1	142.5	16 22.5	-26.3	142.8	14 46.6	-27.4	143.2	13 10.3	-28.5	143.5	48
19 09.0	-24.2	143.0	17 32.8	-25.3	143.4	15 56.2	-26.4	143.8	14 19.2	-27.6	144.1	12 41.8	-28.6	144.4	49
18 44.8	-24.4	144.0	17 07.5	-25.6	144.4	15 29.8	-26.7	144.7	13 51.6	-27.8	145.0	12 13.2	-28.9	145.3	50
18 20.4	-24.7	145.0	16 41.9	-25.8	145.3	15 03.1	-26.9	145.6	13 23.8	-27.9	145.9	11 44.3	-29.0	146.2	51
17 55.7	-25.0	145.9	16 16.1	-26.1	146.3	14 36.2	-27.2	146.6	12 55.9	-28.2	146.8	11 15.3	-29.2	147.1	52
17 30.7	-25.2	146.9	15 50.0	-26.3	147.2	14 09.0	-27.3	147.5	12 27.7	-28.4	147.7	10 46.1	-29.4	148.0	53
17 05.5	-25.6	147.8	15 23.7	-26.5	148.1	13 41.7	-27.6	148.4	11 59.3	-28.5	148.6	10 16.7	-29.5	148.8	54
16 39.9	-25.7	148.8	14 57.2	-26.8	149.1	13 14.1	-27.7	149.3	11 30.8	-28.7	149.5	9 47.2	-29.6	149.7	55
16 14.2	-26.1	149.7	14 30.4	-27.0	150.0	12 46.4	-28.0	150.2	11 02.1	-28.9	150.4	9 17.6	-29.7	150.6	56
15 48.1	-26.2	150.6	14 03.4	-27.2	150.9	12 18.4	-28.1	151.1	10 33.2	-29.0	151.3	8 47.9	-29.9	151.5	57
15 21.9	-26.5	151.6	13 36.2	-27.4	151.8	11 50.3	-28.3	152.0	10 04.2	-29.1	152.2	8 18.0	-30.0	152.4	58
14 55.4	-26.7	152.5	13 08.8	-27.6	152.7	11 22.0	-28.4	152.9	9 35.1	-29.3	153.1	7 48.0	-30.1	153.2	59
14 28.7	-27.0	153.4	12 41.2	-27.8	153.7	10 53.6	-28.6	153.8	9 05.8	-29.4	154.0	7 17.9	-30.2	154.1	60
14 01.7	-27.1	154.4	12 13.4	-27.9	154.6	10 25.0	-28.8	154.7	8 36.4	-29.5	154.9	6 47.7	-30.3	155.0	61
13 34.6	-27.4	155.3	11 45.5	-28.1	155.5	9 56.2	-28.8	155.6	8 06.9	-29.7	155.8	6 17.4	-30.3	155.9	62
13 07.2	-27.5	156.2	11 17.4	-28.3	156.4	9 27.4	-29.1	156.5	7 37.2	-29.7	156.6	5 47.1	-30.5	156.7	63
12 39.7	-27.8	157.1	10 49.1	-28.5	157.3	8 58.3	-29.1	157.4	7 07.5	-29.8	157.5	5 16.6	-30.5	157.6	64
12 11.9	-27.9	158.0	10 20.6	-28.6	158.2	8 29.2	-29.3	158.3	6 37.7	-30.0	158.4	4 46.1	-30.6	158.5	65
11 44.0	-28.0	158.9	9 52.0	-28.7	159.1	7 59.9	-29.4	159.2	6 07.7	-30.0	159.3	4 15.5	-30.7	159.3	66
11 16.0	-28.3	159.8	9 23.3	-28.9	159.9	7 30.5	-29.5	160.0	5 37.7	-30.1	160.1	3 44.8	-30.7	160.2	67
10 47.7	-28.4	160.7	8 54.4	-29.0	160.8	7 01.0	-29.5	160.9	5 07.6	-30.2	161.0	3 14.1	-30.7	161.0	68
10 19.3	-28.5	161.6	8 25.4	-29.1	161.7	6 31.5	-29.7	161.8	4 37.4	-30.2	161.9	2 43.4	-30.8	161.9	69
9 50.8	-28.7	162.5	7 56.3	-29.2	162.6	6 01.8	-29.8	162.7	4 07.2	-30.3	162.7	2 12.6	-30.8	162.8	70
9 22.1	-28.8	163.4	7 27.1	-29.3	163.5	5 32.0	-29.8	163.5	3 36.9	-30.3	163.6	1 41.8	-30.8	163.6	71
8 53.3	-28.9	164.3	6 57.8	-29.5	164.4	5 02.2	-29.9	164.4	3 06.6	-30.4	164.5	1 11.0	-30.9	164.5	72
8 24.4	-29.1	165.2	6 28.3	-29.5	165.2	4 32.3	-30.0	165.3	2 36.2	-30.4	165.3	0 40.1	-30.8	165.3	73
7 55.3	-29.2	166.1	5 58.8	-29.6	166.1	4 02.3	-30.0	166.2	2 05.8	-30.4	166.2	0 09.3	-30.9	166.2	74
7 26.1	-29.2	166.9	5 29.2	-29.7	167.0	3 32.3	-30.1	167.0	1 35.4	-30.5	167.0	0 21.6	+30.8	13.0	75
6 56.9	-29.4	167.8	4 59.5	-29.7	167.9	3 02.2	-30.1	167.9	1 04.9	-30.5	167.9	0 52.4	+30.9	12.1	76
6 27.5	-29.5	168.7	4 29.8	-29.8	168.7	2 32.1	-30.1	168.8	0 34.4	-30.5	168.8	1 23.3	+30.8	11.2	77
5 58.0	-29.5	169.6	4 00.0	-29.9	169.6	2 02.0	-30.2	169.6	0 03.9	-30.5	169.6	1 54.1	+30.8	10.4	78
5 28.5	-29.6	170.4	3 30.1	-29.9	170.5	1 31.8	-30.2	170.5	0 26.6	+30.4	9.5	2 24.9	+30.8	9.5	79
4 58.9	-29.7	171.3	3 00.2	-29.9	171.3	1 01.6	-30.2	171.3	0 57.0	+30.5	8.7	2 55.7	+30.7	8.7	80
4 29.2	-29.8	172.2	2 30.3	-30.0	172.2	0 31.4	-30.2	172.2	1 27.5	+30.5	7.8	3 26.4	+30.7	7.8	81
3 59.4	-29.8	173.1	2 00.3	-30.0	173.1	0 01.2	-30.3	173.1	1 58.0	+30.4	6.9	3 57.1	+30.6	6.9	82
3 29.6	-29.8	173.9	1 30.3	-30.1	173.9	0 29.1	+30.2	6.1	2 28.4	+30.4	6.1	4 27.7	+30.6	6.1	83
2 59.8	-29.9	174.8	1 00.2	-30.0	174.8	0 59.3	+30.2	5.2	2 58.8	+30.3	5.2	4 58.3	+30.5	5.2	84
2 29.9	-30.0	175.7	0 30.2	-30.1	175.7	1 29.5	+30.1	4.3	3 29.1	+30.3	4.3	5 28.8	+30.4	4.3	85
1 59.9	-29.9	176.5	0 00.1	-30.0	176.5	1 59.6	+30.2	3.5	3 59.4	+30.3	3.5	5 59.2	+30.3	3.5	86
1 30.0	-30.0	177.4	0 29.9	+30.1	2.6	2 29.8	+30.1	2.6	4 29.7	+30.1	2.6	6 29.5	+30.3	2.6	87
1 00.0	-30.0	178.3	1 00.0	+30.0	1.7	2 59.9	+30.1	1.7	4 59.8	+30.2	1.7	6 59.8	+30.1	1.7	88
0 30.0	-30.0	179.1	1 30.0	+30.0	0.9	3 30.0	+30.0	0.9	5 30.0	+30.0	0.9	7 29.9	+30.1	0.9	89
0 00.0	+30.0	0.0	2 00.0	+30.0	0.0	4 00.0	+30.0	0.0	6 00.0	+30.0	0.0	8 00.0	+29.9	0.0	90

LATITUDE SAME NAME

L.H.A. 120°, 240°

60°, 300° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	30 52.9	-7.0	60.9	31 50.2	-4.8	62.0	32 45.6	-2.7	63.1	33 38.7	-0.4	64.3	34 29.7	+1.8	65.5
31	30 45.9	-7.7	59.8	31 45.4	-5.6	60.8	32 42.9	-3.4	61.9	33 38.3	-1.2	63.1	34 31.5	+1.1	64.3
32	30 38.2	-8.2	58.6	31 39.8	-6.1	59.6	32 39.5	-4.0	60.7	33 37.1	-1.8	61.9	34 32.6	+0.4	63.1
33	30 30.0	-8.8	57.5	31 33.7	-6.8	58.5	32 35.5	-4.7	59.5	33 35.3	-2.6	60.7	34 33.0	-0.4	61.9
34	30 21.2	-9.5	56.3	31 26.9	-7.5	57.3	32 30.8	-5.4	58.4	33 32.7	-3.2	59.5	34 32.6	-1.1	60.6
35	30 11.7	-10.0	55.2	31 19.4	-8.0	56.1	32 25.4	-6.0	57.2	33 29.5	-4.0	58.3	34 31.5	-1.8	59.4
36	30 01.7	-10.6	54.0	31 11.4	-8.7	55.0	32 19.4	-6.7	56.0	33 25.5	-4.6	57.1	34 29.7	-2.5	58.2
37	29 51.1	-11.2	52.9	31 02.7	-9.3	53.8	32 12.7	-7.3	54.8	33 20.9	-5.3	55.9	34 27.2	-3.2	57.0
38	29 39.9	-11.8	51.8	30 53.4	-9.9	52.7	32 05.4	-8.0	53.7	33 15.6	-6.0	54.7	34 24.0	-3.9	55.8
39	29 28.1	-12.3	50.6	30 43.5	-10.5	51.5	31 57.4	-8.6	52.5	33 09.6	-6.6	53.5	34 20.1	-4.7	54.6
40	29 15.8	-12.9	49.5	30 33.0	-11.1	50.4	31 48.8	-9.3	51.3	33 03.0	-7.4	52.3	34 15.4	-5.3	53.4
41	29 02.9	-13.5	48.4	30 21.9	-11.7	49.2	31 39.5	-9.8	50.2	32 55.6	-8.0	51.1	34 10.1	-6.1	52.2
42	28 49.4	-14.0	47.3	30 10.2	-12.3	48.1	31 29.7	-10.5	49.0	32 47.6	-8.6	50.0	34 04.0	-6.8	51.0
43	28 35.4	-14.5	46.2	29 57.9	-12.8	47.0	31 19.2	-11.2	47.9	32 39.0	-9.4	48.8	33 57.2	-7.4	49.8
44	28 20.9	-15.1	45.1	29 45.1	-13.4	45.9	31 08.0	-11.7	46.7	32 29.6	-9.9	47.6	33 49.8	-8.2	48.6
45	28 05.8	-15.6	44.0	29 31.7	-14.0	44.7	30 56.3	-12.3	45.6	32 19.7	-10.6	46.4	33 41.6	-8.8	47.4
46	27 50.2	-16.1	42.9	29 17.7	-14.6	43.6	30 44.0	-13.0	44.4	32 09.1	-11.3	45.3	33 32.8	-9.5	46.2
47	27 34.1	-16.6	41.8	29 03.1	-15.1	42.5	30 31.0	-13.5	43.3	31 57.8	-11.9	44.1	33 23.3	-10.2	45.0
48	27 17.5	-17.1	40.7	28 48.0	-15.6	41.4	30 17.5	-14.1	42.2	31 45.9	-12.5	43.0	33 13.1	-10.8	43.8
49	27 00.4	-17.6	39.6	28 32.4	-16.1	40.3	30 03.4	-14.6	41.0	31 33.4	-13.1	41.8	33 02.3	-11.5	42.7
50	26 42.8	-18.1	38.5	28 16.3	-16.7	39.2	29 48.8	-15.3	39.9	31 20.3	-13.7	40.7	32 50.8	-12.2	41.5
51	26 24.7	-18.5	37.5	27 59.6	-17.2	38.1	29 33.5	-15.7	38.8	31 06.6	-14.3	39.5	32 38.6	-12.8	40.3
52	26 06.2	-19.0	36.4	27 42.4	-17.7	37.0	29 17.8	-16.4	37.7	30 52.3	-14.9	38.4	32 25.8	-13.4	39.2
53	25 47.2	-19.5	35.4	27 24.7	-18.2	36.0	29 01.4	-16.8	36.6	30 37.4	-15.5	37.3	32 12.4	-14.1	38.0
54	25 27.7	-19.9	34.3	27 06.5	-18.7	34.9	28 44.6	-17.4	35.5	30 21.9	-16.1	36.2	31 58.3	-14.6	36.9
55	25 07.8	-20.3	33.3	26 47.8	-19.1	33.8	28 27.2	-17.9	34.4	30 05.8	-16.6	35.0	31 43.7	-15.3	35.7
56	24 47.5	-20.8	32.2	26 28.7	-19.6	32.8	28 09.3	-18.4	33.3	29 49.2	-17.2	33.9	31 28.4	-15.9	34.6
57	24 26.7	-21.2	31.2	26 09.1	-20.1	31.7	27 50.9	-19.0	32.2	29 32.0	-17.7	32.8	31 12.5	-16.5	33.5
58	24 05.5	-21.6	30.2	25 49.0	-20.5	30.7	27 31.9	-19.4	31.2	29 14.3	-18.2	31.7	30 56.0	-17.0	32.3
59	23 43.9	-22.0	29.2	25 28.5	-21.0	29.6	27 12.5	-19.9	30.1	28 56.1	-18.8	30.6	30 39.0	-17.6	31.2
60	23 21.9	-22.4	28.1	25 07.5	-21.4	28.6	26 52.6	-20.3	29.0	28 37.3	-19.3	29.6	30 21.4	-18.2	30.1
61	22 59.5	-22.8	27.1	24 46.1	-21.8	27.5	26 32.3	-20.8	28.0	28 18.0	-19.8	28.5	30 03.2	-18.7	29.0
62	22 36.7	-23.1	26.1	24 24.3	-22.2	26.5	26 11.5	-21.3	26.9	27 58.2	-20.3	27.4	29 44.5	-19.2	27.9
63	22 13.6	-23.5	25.1	24 02.1	-22.7	25.5	25 50.2	-21.7	25.9	27 37.9	-20.7	26.3	29 25.3	-19.8	26.8
64	21 50.1	-23.9	24.1	23 39.4	-23.0	24.5	25 28.5	-22.2	24.9	27 17.2	-21.3	25.3	29 05.5	-20.3	25.8
65	21 26.2	-24.2	23.2	23 16.4	-23.4	23.5	25 06.3	-22.5	23.8	26 55.9	-21.7	24.2	28 45.2	-20.8	24.7
66	21 02.0	-24.5	22.2	22 53.0	-23.8	22.5	24 43.8	-23.0	22.8	26 34.2	-22.1	23.2	28 24.4	-21.3	23.6
67	20 37.5	-24.9	21.2	22 29.2	-24.1	21.5	24 20.8	-23.4	21.8	26 12.1	-22.6	22.2	28 03.1	-21.8	22.5
68	20 12.6	-25.2	20.2	22 05.1	-24.5	20.5	23 57.4	-23.8	20.8	25 49.5	-23.1	21.1	27 41.3	-22.3	21.5
69	19 47.4	-25.5	19.3	21 40.6	-24.8	19.5	23 33.6	-24.1	19.8	25 26.4	-23.4	20.1	27 19.0	-22.7	20.4
70	19 21.9	-25.8	18.3	21 15.8	-25.2	18.5	23 09.5	-24.6	18.8	25 03.0	-23.9	19.1	26 56.3	-23.2	19.4
71	18 56.1	-26.1	17.3	20 50.6	-25.5	17.6	22 44.9	-24.9	17.8	24 39.1	-24.3	18.1	26 33.1	-23.7	18.4
72	18 30.0	-26.4	16.4	20 25.1	-25.8	16.6	22 20.0	-25.2	16.8	24 14.8	-24.7	17.1	26 09.4	-24.0	17.3
73	18 03.6	-26.6	15.4	19 59.3	-26.2	15.6	21 54.8	-25.6	15.8	23 50.1	-25.0	16.1	25 45.4	-24.5	16.3
74	17 37.0	-26.9	14.5	19 33.1	-26.4	14.7	21 29.2	-26.0	14.9	23 25.1	-25.4	15.1	25 20.9	-24.9	15.3
75	17 10.1	-27.2	13.6	19 06.7	-26.7	13.7	21 03.2	-26.2	13.9	22 59.7	-25.8	14.1	24 56.0	-25.3	14.3
76	16 42.9	-27.4	12.6	18 40.0	-27.0	12.8	20 37.0	-26.6	12.9	22 33.9	-26.2	13.1	24 30.7	-25.7	13.3
77	16 15.5	-27.7	11.7	18 13.0	-27.3	11.8	20 10.4	-26.9	12.0	22 07.7	-26.5	12.1	24 05.0	-26.1	12.3
78	15 47.8	-27.9	10.8	17 45.7	-27.6	10.9	19 43.5	-27.2	11.0	21 41.2	-26.8	11.2	23 38.9	-26.4	11.3
79	15 19.9	-28.1	9.9	17 18.1	-27.8	10.0	19 16.3	-27.5	10.1	21 14.4	-27.1	10.2	23 12.5	-26.8	10.4
80	14 51.8	-28.3	9.0	16 50.3	-28.0	9.0	18 48.8	-27.7	9.1	20 47.3	-27.5	9.3	22 45.7	-27.2	9.4
81	14 23.5	-28.6	8.0	16 22.3	-28.3	8.1	18 21.1	-28.1	8.2	20 19.8	-27.8	8.3	22 18.5	-27.5	8.4
82	13 54.9	-28.7	7.1	15 54.0	-28.5	7.2	17 53.0	-28.3	7.3	19 52.0	-28.0	7.4	21 51.0	-27.8	7.5
83	13 26.2	-29.0	6.2	15 25.5	-28.8	6.3	17 24.7	-28.5	6.4	19 24.0	-28.4	6.4	21 23.2	-28.1	6.5
84	12 57.2	-29.1	5.3	14 56.7	-29.0	5.4	16 56.2	-28.8	5.4	18 55.6	-28.6	5.5	20 55.1	-28.5	5.6
85	12 28.1	-29.3	4.4	14 27.7	-29.1	4.5	16 27.4	-29.1	4.5	18 27.0	-28.9	4.6	20 26.6	-28.7	4.6
86	11 58.8	-29.5	3.5	13 58.6	-29.4	3.6	15 58.3	-29.2	3.6	17 58.1	-29.2	3.6	19 57.9	-29.1	3.7
87	11 29.3	-29.6	2.7	13 29.2	-29.5	2.7	15 29.1	-29.5	2.7	17 28.9	-29.4	2.7	19 28.8	-29.3	2.8
88	10 59.7	-29.8	1.8	12 59.7	-29.8	1.8	14 59.6	-29.7	1.8	16 59.5	-29.6	1.8	18 59.5	-29.6	1.8
89	10 29.9	-29.9	0.9	12 29.9	-29.9	0.9	14 29.9	-29.9	0.9	16 29.9	-29.9	0.9	18 29.9	-29.9	0.9
90	10 00.0	-30.1	0.0	12 00.0	-30.1	0.0	14 00.0	-30.1	0.0	16 00.0	-30.1	0.0	18 00.0	-30.1	0.0

LATITUDE CONTRARY NAME

L.H.A. 60°, 300°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
19 51.2	-25.5	127.1	18 38.3	-27.0	127.7	17 24.5	-28.5	128.2	16 10.0	-30.1	128.7	14 54.6	-31.4	129.1	30
19 25.7	-25.7	128.1	18 11.3	-27.3	128.6	16 56.0	-28.8	129.1	15 39.9	-30.2	129.6	14 23.2	-31.7	130.0	31
19 00.0	-26.1	129.0	17 44.0	-27.6	129.6	16 27.2	-29.1	130.0	15 09.7	-30.5	130.5	13 51.5	-31.9	130.8	32
18 33.9	-26.3	130.0	17 16.4	-27.8	130.5	15 58.1	-29.2	130.9	14 39.2	-30.7	131.3	13 19.6	-32.0	131.7	33
18 07.6	-26.6	130.9	16 48.6	-28.1	131.4	15 28.9	-29.5	131.8	14 08.5	-30.8	132.2	12 47.6	-32.2	132.6	34
17 41.0	-26.9	131.9	16 20.5	-28.3	132.3	14 59.4	-29.7	132.7	13 37.7	-31.1	133.1	12 15.4	-32.4	133.5	35
17 14.1	-27.1	132.8	15 52.2	-28.5	133.2	14 29.7	-29.9	133.6	13 06.6	-31.2	134.0	11 43.0	-32.5	134.3	36
16 47.0	-27.4	133.7	15 23.7	-28.8	134.2	13 59.8	-30.1	134.5	12 35.4	-31.4	134.9	11 10.5	-32.7	135.2	37
16 19.6	-27.6	134.7	14 54.9	-29.0	135.1	13 29.7	-30.3	135.4	12 04.0	-31.6	135.7	10 37.8	-32.8	136.0	38
15 52.0	-27.9	135.6	14 25.9	-29.1	136.0	12 59.4	-30.5	136.3	11 32.4	-31.7	136.6	10 05.0	-32.9	136.9	39
15 24.1	-28.1	136.5	13 56.8	-29.4	136.9	12 28.9	-30.6	137.2	11 00.7	-31.9	137.5	9 32.1	-33.1	137.7	40
14 56.0	-28.3	137.4	13 27.4	-29.6	137.8	11 58.3	-30.8	138.1	10 28.8	-32.0	138.3	8 59.0	-33.2	138.6	41
14 27.7	-28.5	138.3	12 57.8	-29.7	138.7	11 27.5	-30.9	139.0	9 56.8	-32.1	139.2	8 25.8	-33.2	139.4	42
13 59.2	-28.7	139.3	12 28.1	-30.0	139.6	10 56.6	-31.2	139.8	9 24.7	-32.3	140.1	7 52.6	-33.4	140.3	43
13 30.5	-28.9	140.2	11 58.1	-30.1	140.4	10 25.4	-31.2	140.7	8 52.4	-32.3	140.9	7 19.2	-33.5	141.1	44
13 01.6	-29.1	141.1	11 28.0	-30.2	141.3	9 54.2	-31.4	141.6	8 20.7	-32.5	141.8	6 45.7	-33.6	141.9	45
12 32.5	-29.3	142.0	10 57.8	-30.4	142.2	9 22.8	-31.5	142.4	7 47.6	-32.6	142.6	6 12.1	-33.6	142.8	46
12 03.2	-29.5	142.8	10 27.4	-30.6	143.1	8 51.3	-31.6	143.3	7 15.0	-32.7	143.5	5 38.5	-33.7	143.6	47
11 33.7	-29.6	143.7	9 56.8	-30.6	144.0	8 19.7	-31.7	144.2	6 42.3	-32.7	144.3	5 04.8	-33.8	144.4	48
11 04.1	-29.7	144.6	9 26.2	-30.8	144.8	7 48.0	-31.9	145.0	6 09.6	-32.9	145.1	4 31.0	-33.8	145.3	49
10 34.4	-29.9	145.5	8 55.4	-31.0	145.7	7 16.1	-31.9	145.9	5 36.7	-32.9	146.0	3 52.6	-33.9	146.1	50
10 04.5	-30.1	146.4	8 24.4	-31.0	146.6	6 44.2	-32.0	146.7	5 03.8	-33.0	146.8	3 23.3	-33.9	146.9	51
9 34.4	-30.2	147.3	7 53.4	-31.2	147.4	6 12.2	-32.1	147.6	4 30.8	-33.0	147.7	2 49.4	-34.0	147.7	52
9 04.2	-30.3	148.1	7 22.2	-31.2	148.3	5 40.1	-32.2	148.4	3 57.8	-33.1	148.5	2 15.4	-33.9	148.6	53
8 33.9	-30.4	149.0	6 51.0	-31.4	149.2	5 07.9	-32.2	149.3	3 24.7	-33.1	149.3	1 41.5	-34.0	149.4	54
8 03.5	-30.5	149.9	6 19.6	-31.4	150.0	4 35.7	-32.3	150.1	2 51.6	-33.2	150.2	1 07.5	-34.1	150.2	55
7 33.0	-30.6	150.8	5 48.2	-31.5	150.9	4 03.4	-32.4	151.0	2 18.4	-33.2	151.0	0 33.4	-34.0	151.0	56
7 02.4	-30.8	151.6	5 16.7	-31.6	151.7	3 31.0	-32.4	151.8	1 45.2	-33.2	151.8	0 00.6	+34.0	28.1	57
6 31.6	-30.8	152.5	4 45.1	-31.6	152.6	2 58.6	-32.4	152.6	1 12.0	-33.2	152.7	0 34.6	+34.0	27.3	58
6 00.8	-30.9	153.4	4 13.5	-31.7	153.4	2 26.2	-32.5	153.5	0 38.8	-33.3	153.5	1 08.6	+34.0	26.5	59
5 29.9	-31.0	154.2	3 41.8	-31.7	154.3	1 53.7	-32.5	154.3	0 05.5	-33.2	154.3	1 42.6	+34.0	25.7	60
4 58.9	-31.0	155.1	3 10.1	-31.8	155.1	1 21.2	-32.5	155.2	0 27.7	+33.3	24.8	2 16.6	+34.0	24.8	61
4 27.9	-31.1	155.9	2 38.3	-31.8	156.0	0 48.7	-32.5	156.0	1 01.0	+33.2	24.0	2 50.6	+33.9	24.0	62
3 56.8	-31.2	156.8	2 06.5	-31.9	156.8	0 16.2	-32.6	156.8	1 34.2	+33.2	23.2	3 24.5	+33.9	23.2	63
3 25.6	-31.2	157.6	1 34.6	-31.8	157.7	0 16.4	+32.5	22.3	2 07.4	+33.2	22.3	3 58.4	+33.8	22.4	64
2 54.4	-31.2	158.5	1 02.8	-31.9	158.5	0 48.9	+32.5	21.5	2 40.6	+33.1	21.5	4 32.2	+33.0	21.5	65
2 23.2	-31.3	159.4	0 30.9	-31.9	159.4	1 21.4	+32.5	20.6	3 13.7	+33.1	20.7	5 06.0	+33.7	20.7	66
1 51.9	-31.3	160.2	0 01.0	+31.9	19.8	1 53.9	+32.5	19.8	3 46.8	+33.1	19.8	5 39.7	+33.6	19.9	67
1 20.6	-31.3	161.1	0 32.9	+31.9	18.9	2 26.4	+32.4	18.9	4 19.9	+33.0	19.0	6 13.3	+33.6	19.0	68
0 49.3	-31.3	161.9	1 04.8	+31.8	18.1	2 58.8	+32.4	18.1	4 52.9	+32.9	18.1	6 46.9	+33.4	18.2	69
0 18.0	-31.3	162.8	1 36.6	+31.9	17.2	3 31.2	+32.4	17.3	5 25.8	+32.9	17.3	7 20.3	+33.4	17.4	70
0 13.3	+31.4	16.4	2 08.5	+31.8	16.4	4 03.6	+32.3	16.4	5 58.7	+32.8	16.5	7 53.7	+33.3	16.5	71
0 44.7	+31.3	15.5	2 40.3	+31.7	15.5	4 35.9	+32.2	15.6	6 31.5	+32.7	15.6	8 27.0	+33.2	15.7	72
1 16.0	+31.3	14.7	3 12.0	+31.8	14.7	5 08.1	+32.2	14.7	7 04.2	+32.6	14.8	9 00.2	+33.0	14.9	73
1 47.3	+31.2	13.8	3 43.8	+31.7	13.8	5 40.3	+32.1	13.9	7 36.8	+32.5	13.9	9 33.2	+33.0	14.0	74
2 18.5	+31.3	13.0	4 15.5	+31.6	13.0	6 12.4	+32.0	13.0	8 09.3	+32.4	13.1	10 06.2	+32.8	13.2	75
2 49.8	+31.2	12.1	4 47.1	+31.6	12.1	6 44.4	+31.9	12.2	8 41.7	+32.3	12.2	10 39.0	+32.6	12.3	76
3 21.0	+31.1	11.3	5 18.7	+31.5	11.3	7 16.3	+31.9	11.3	9 14.0	+32.2	11.4	11 11.6	+32.5	11.5	77
3 52.1	+31.2	10.4	5 50.2	+31.4	10.4	7 48.2	+31.7	10.5	9 46.2	+32.0	10.5	11 44.1	+32.4	10.6	78
4 23.3	+31.0	9.5	6 21.6	+31.3	9.6	8 19.9	+31.6	9.6	10 18.2	+31.9	9.7	12 16.5	+32.2	9.7	79
4 54.3	+31.0	8.7	6 52.9	+31.3	8.7	8 51.5	+31.5	8.8	10 50.1	+31.8	8.8	12 48.7	+32.0	8.9	80
5 25.3	+30.9	7.8	7 24.2	+31.1	7.9	9 23.0	+31.4	7.9	11 21.9	+31.6	7.9	13 20.7	+31.9	8.0	81
5 56.2	+30.8	7.0	7 55.3	+31.0	7.0	9 54.4	+31.3	7.0	11 53.5	+31.5	7.1	13 52.6	+31.7	7.1	82
6 27.0	+30.8	6.1	8 26.3	+31.0	6.1	10 25.7	+31.1	6.2	12 25.0	+31.2	6.2	14 24.3	+31.4	6.3	83
6 57.8	+30.6	5.2	8 57.3	+30.8	5.3	10 56.8	+30.9	5.3	12 56.2	+31.2	5.3	14 55.7	+31.3	5.4	84
7 28.4	+30.6	4.4	9 28.1	+30.6	4.4	11 27.7	+30.8	4.4	13 27.4	+30.9	4.5	15 27.0	+31.1	4.5	85
7 59.0	+30.4	3.5	9 58.7	+30.6	3.5	11 58.5	+30.7	3.5	13 58.3	+30.7	3.6	15 58.1	+30.8	3.6	86
8 29.4	+30.3	2.6	10 29.3	+30.4	2.6	12 29.2	+30.4	2.7	14 29.0	+30.6	2.7	16 28.9	+30.6	2.7	87
8 59.7	+30.2	1.8	10 59.7	+30.2	1.8	12 59.6	+30.3	1.8	14 59.6	+30.3	1.8	16 59.5	+30.4	1.8	88
9 29.9	+30.1	0.9	11 29.9	+30.1	0.9	13 29.9	+30.1	0.9	15 29.9	+30.1	0.9	17 29.9	+30.1	0.9	89
10 00.0	+29.9	0.0	12 00.0	+29.9	0.0	14 00.0	+29.9	0.0	16 00.0	+29.9	0.0	18 00.0	+29.9	0.0	90

LATITUDE SAME NAME

L.H.A. 120°, 240°

60°, 300° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	35 18.2	+4.2	66.8	36 04.3	+6.5	68.1	36 47.7	+8.9	69.5	37 28.3	+11.4	70.9	38 06.1	+13.8	72.4
31	35 22.4	+3.3	65.6	36 10.8	+5.7	66.9	36 56.6	+8.1	68.2	37 39.7	+10.5	69.7	38 19.9	+13.0	71.1
32	35 25.7	+2.7	64.3	36 16.5	+5.0	65.6	37 04.7	+7.3	67.0	37 50.2	+9.8	68.4	38 32.9	+12.2	69.9
33	35 28.4	+1.9	63.1	36 21.5	+4.2	64.4	37 12.0	+6.6	65.8	38 00.0	+8.9	67.2	38 45.1	+11.4	68.6
34	35 30.3	+1.2	61.9	36 25.7	+3.4	63.2	37 18.6	+5.8	64.5	38 08.9	+8.2	65.9	38 56.5	+10.5	67.4
35	35 31.5	+0.4	60.7	36 29.1	+2.7	61.9	37 24.4	+4.9	63.3	38 17.1	+7.3	64.7	39 07.0	+9.8	66.1
36	35 31.9	-0.4	59.4	36 31.8	+1.9	60.7	37 29.3	+4.2	62.0	38 24.4	+6.5	63.4	39 16.8	+8.9	64.8
37	35 31.5	-1.0	58.2	36 33.7	+1.1	59.4	37 33.5	+3.4	60.7	38 30.9	+5.7	62.1	39 25.7	+8.1	63.6
38	35 30.5	-1.9	57.0	36 34.8	+0.3	58.2	37 36.9	+2.6	59.5	38 36.6	+4.9	60.8	39 33.8	+7.2	62.3
39	35 28.6	-2.5	55.7	36 35.1	-0.4	56.9	37 39.5	+1.7	58.2	38 41.5	+4.0	59.6	39 41.0	+6.3	61.0
40	35 26.1	-3.4	54.5	36 34.7	-1.2	55.7	37 41.2	+1.0	57.0	38 45.5	+3.2	58.3	39 47.3	+5.5	59.7
41	35 22.7	-4.0	53.3	36 33.5	-2.0	54.5	37 42.2	+0.2	55.7	38 48.7	+2.3	57.0	39 52.8	+4.6	58.4
42	35 18.7	-4.8	52.1	36 31.5	-2.7	53.2	37 42.4	-0.7	54.4	38 51.0	+1.6	55.7	39 57.4	+3.8	57.1
43	35 13.9	-5.5	50.8	36 28.8	-3.6	52.0	37 41.7	-1.5	53.2	38 52.6	+0.6	54.4	40 01.2	+2.9	55.8
44	35 08.4	-6.3	49.6	36 25.2	-4.3	50.7	37 40.2	-2.3	51.9	38 53.2	-0.2	53.2	40 04.1	+2.0	54.5
45	35 02.1	-7.0	48.4	36 20.9	-5.1	49.5	37 37.9	-3.0	50.6	38 53.0	-1.0	51.9	40 06.1	+1.1	53.2
46	34 55.1	-7.7	47.2	36 15.8	-5.8	48.3	37 34.9	-3.9	49.4	38 52.0	-1.8	50.6	40 07.2	+0.2	51.9
47	34 47.4	-8.4	46.0	36 10.0	-6.6	47.0	37 31.0	-4.7	48.1	38 50.2	-2.8	49.3	40 07.4	-0.7	50.6
48	34 39.0	-9.1	44.8	36 03.4	-7.3	45.8	37 26.3	-5.5	46.9	38 47.4	-3.5	48.0	40 06.7	-1.5	49.3
49	34 29.9	-9.9	43.6	35 56.1	-8.1	44.6	37 20.8	-6.3	45.6	38 43.9	-4.4	46.7	40 05.2	-2.4	48.0
50	34 20.0	-10.5	42.4	35 48.0	-8.8	43.3	37 14.5	-7.0	44.4	38 39.5	-5.2	45.5	40 02.8	-3.3	46.7
51	34 09.5	-11.2	41.2	35 39.2	-9.6	42.1	37 07.5	-7.9	43.1	38 34.3	-6.0	44.2	39 59.5	-4.2	45.3
52	33 58.3	-11.9	40.0	35 29.6	-10.3	40.9	36 59.6	-8.6	41.9	38 28.3	-6.9	42.9	39 55.3	-5.0	44.0
53	33 46.4	-12.6	38.8	35 19.3	-11.0	39.7	36 51.0	-9.4	40.6	38 21.4	-7.7	41.7	39 50.3	-5.9	42.7
54	33 33.8	-13.2	37.7	35 08.3	-11.7	38.5	36 41.6	-10.1	39.4	38 13.7	-8.5	40.4	39 44.4	-6.8	41.5
55	33 20.6	-13.9	36.5	34 56.6	-12.4	37.3	36 31.5	-10.9	38.2	38 05.2	-9.3	39.1	39 37.6	-7.6	40.2
56	33 06.7	-14.5	35.3	34 44.2	-13.1	36.1	36 20.6	-11.6	37.0	37 55.9	-10.1	37.9	39 30.0	-8.5	38.9
57	32 52.2	-15.1	34.2	34 31.1	-13.8	34.9	36 09.0	-12.4	35.7	37 45.8	-10.8	36.6	39 21.5	-9.3	37.6
58	32 37.1	-15.8	33.0	34 17.3	-14.5	33.7	35 56.6	-13.1	34.5	37 35.0	-11.7	35.4	39 12.2	-10.1	36.3
59	32 21.3	-16.4	31.9	34 02.8	-15.1	32.6	35 43.5	-13.8	33.3	37 23.3	-12.4	34.2	39 02.1	-11.0	35.0
60	32 04.9	-17.0	30.7	33 47.7	-15.8	31.4	35 29.7	-14.5	32.1	37 10.9	-13.2	32.9	38 51.1	-11.8	33.8
61	31 47.9	-17.6	29.6	33 31.9	-16.5	30.2	35 15.2	-15.2	30.9	36 57.7	-13.9	31.7	38 39.3	-12.5	32.5
62	31 30.3	-18.2	28.5	33 15.4	-17.0	29.1	35 00.0	-15.9	29.8	36 43.8	-14.7	30.5	38 26.8	-13.4	31.3
63	31 12.1	-18.8	27.4	32 58.4	-17.7	27.9	34 44.1	-16.6	28.6	36 29.1	-15.4	29.3	38 13.4	-14.2	30.0
64	30 53.3	-19.3	26.3	32 40.7	-18.3	26.8	34 27.5	-17.2	27.4	36 13.7	-16.1	28.1	37 59.2	-14.9	28.8
65	30 34.0	-19.9	25.2	32 22.4	-18.9	25.7	34 10.3	-17.9	26.3	35 57.6	-16.8	26.9	37 44.3	-15.7	27.6
66	30 14.1	-20.4	24.1	32 03.5	-19.5	24.6	33 52.4	-18.5	25.1	35 40.8	-17.5	25.7	37 28.6	-16.4	26.4
67	29 53.7	-20.9	23.0	31 44.0	-20.1	23.4	33 33.9	-19.2	24.0	35 23.3	-18.2	24.5	37 12.2	-17.1	25.1
68	29 32.8	-21.5	21.9	31 23.9	-20.6	22.3	33 14.7	-19.7	22.8	35 05.1	-18.8	23.4	36 55.1	-17.9	23.9
69	29 11.3	-22.0	20.8	31 03.3	-21.2	21.2	32 55.0	-20.4	21.7	34 46.3	-19.5	22.2	36 37.2	-18.6	22.7
70	28 49.3	-22.4	19.8	30 42.1	-21.7	20.2	32 34.6	-20.9	20.6	34 26.8	-20.1	21.0	36 18.6	-19.3	21.6
71	28 26.9	-23.0	18.7	30 20.4	-22.3	19.1	32 13.7	-21.6	19.5	34 06.7	-20.8	19.9	35 59.3	-19.9	20.4
72	28 03.9	-23.4	17.7	29 58.1	-22.7	18.0	31 52.1	-22.0	18.4	33 45.9	-21.4	18.8	35 39.4	-20.7	19.2
73	27 40.5	-23.9	16.6	29 35.4	-23.3	16.9	31 30.1	-22.7	17.3	33 24.5	-22.0	17.7	35 18.7	-21.2	18.1
74	27 16.6	-24.4	15.6	29 12.1	-23.8	15.9	31 07.4	-23.2	16.2	33 02.5	-22.5	16.5	34 57.5	-21.9	16.9
75	26 52.2	-24.8	14.6	28 48.3	-24.3	14.8	30 44.2	-23.7	15.1	32 40.0	-23.2	15.4	34 35.6	-22.6	15.8
76	26 27.4	-25.2	13.5	28 24.0	-24.7	13.8	30 20.5	-24.2	14.0	32 16.8	-23.7	14.3	34 13.0	-23.1	14.7
77	26 02.2	-25.6	12.5	27 59.3	-25.2	12.7	29 56.3	-24.7	13.0	31 53.1	-24.2	13.3	33 49.9	-23.8	13.6
78	25 36.6	-26.1	11.5	27 34.1	-25.6	11.7	29 31.6	-25.3	11.9	31 28.9	-24.8	12.2	33 26.1	-24.3	12.5
79	25 10.5	-26.4	10.5	27 08.5	-26.1	10.7	29 06.3	-25.7	10.9	31 04.1	-25.3	11.1	33 01.8	-24.9	11.4
80	24 44.1	-26.9	9.5	26 42.4	-26.5	9.7	28 40.6	-26.1	9.9	30 38.8	-25.8	10.1	32 36.9	-25.4	10.3
81	24 17.2	-27.2	8.5	26 15.9	-26.9	8.7	28 14.5	-26.6	8.8	30 13.0	-26.3	9.0	32 11.5	-26.0	9.2
82	23 50.0	-27.6	7.6	25 49.0	-27.4	7.7	27 47.9	-27.1	7.8	29 46.7	-26.8	8.0	31 45.5	-26.5	8.1
83	23 22.4	-27.9	6.6	25 21.6	-27.7	6.7	27 20.8	-27.5	6.8	29 19.9	-27.2	7.0	31 19.0	-27.0	7.1
84	22 54.5	-28.3	5.6	24 53.9	-28.1	5.7	26 53.3	-27.9	5.8	28 52.7	-27.7	5.9	30 52.0	-27.5	6.1
85	22 26.2	-28.6	4.7	24 25.8	-28.4	4.8	26 25.4	-28.3	4.8	28 25.0	-28.2	4.9	30 24.5	-28.0	5.0
86	21 57.6	-28.9	3.7	23 57.4	-28.9	3.8	25 57.1	-28.7	3.9	27 56.8	-28.6	3.9	29 56.5	-28.4	4.0
87	21 28.7	-29.3	2.8	23 28.5	-29.1	2.8	25 28.4	-29.1	2.9	27 28.2	-29.0	2.9	29 28.1	-29.0	3.0
88	20 59.4	-29.5	1.9	22 59.4	-29.6	1.9	24 59.3	-29.5	1.9	26 59.2	-29.4	1.9	28 59.1	-29.3	2.0
89	20 29.9	-29.9	0.9	22 29.8	-29.8	0.9	24 29.8	-29.8	1.0	26 29.8	-29.8	1.0	28 29.8	-29.8	1.0
90	20 00.0	-30.1	0.0	22 00.0	-30.2	0.0	24 00.0	-30.2	0.0	26 00.0	-30.2	0.0	28 00.0	-30.2	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 60°, 300°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
13 38.6	-32.8	129.5	12 22.0	-34.2	129.8	11 04.9	-35.6	130.2	9 47.3	-36.9	130.4	8 29.2	-38.1	130.7	30
13 05.8	-33.1	130.3	11 47.8	-34.4	130.7	10 29.3	-35.7	131.0	9 10.4	-36.9	131.2	7 51.1	-38.1	131.5	31
12 32.7	-33.2	131.2	11 13.4	-34.5	131.5	9 53.6	-35.8	131.8	8 33.5	-37.1	132.0	7 13.0	-38.3	132.2	32
11 59.5	-33.4	132.1	10 38.9	-34.7	132.4	9 17.8	-35.9	132.6	7 56.4	-37.1	132.8	6 34.7	-38.3	133.0	33
11 26.1	-33.5	132.9	10 04.2	-34.8	133.2	8 41.9	-36.0	133.4	7 19.3	-37.3	133.6	5 56.4	-38.4	133.8	34
10 52.6	-33.6	133.7	9 29.4	-34.9	134.0	8 05.9	-36.1	134.2	6 42.0	-37.3	134.4	5 18.0	-38.5	134.6	35
10 19.0	-33.8	134.6	8 54.5	-35.0	134.8	7 29.8	-36.2	135.0	6 04.7	-37.3	135.2	4 39.5	-38.5	135.3	36
9 45.2	-33.9	135.4	8 19.5	-35.1	135.7	6 53.6	-36.3	135.8	5 27.4	-37.5	136.0	4 01.0	-38.6	136.1	37
9 11.3	-34.0	136.3	7 44.4	-35.2	136.5	6 17.3	-36.4	136.6	4 49.9	-37.4	136.8	3 22.4	-38.6	136.9	38
8 37.3	-34.2	137.1	7 09.2	-35.3	137.3	5 40.9	-36.4	137.4	4 12.5	-37.6	137.6	2 43.8	-38.6	137.6	39
8 03.1	-34.2	137.9	6 33.9	-35.3	138.1	5 04.5	-36.5	138.2	3 34.9	-37.6	138.3	2 05.2	-38.6	138.4	40
7 28.9	-34.3	138.8	5 58.6	-35.5	138.9	4 28.0	-36.5	139.0	2 57.4	-37.7	139.1	1 26.6	-38.7	139.2	41
6 54.6	-34.4	139.6	5 23.1	-35.5	139.7	3 51.5	-36.6	139.8	2 19.7	-37.6	139.9	0 47.9	-38.6	139.9	42
6 20.2	-34.5	140.4	4 47.6	-35.5	140.5	3 14.9	-36.6	140.6	1 42.1	-37.6	140.7	0 09.3	-38.7	140.7	43
5 45.7	-34.5	141.2	4 12.1	-35.6	141.3	2 38.3	-36.6	141.4	1 04.5	-37.7	141.5	0 29.4	+38.7	38.5	44
5 11.2	-34.7	142.1	3 36.5	-35.7	142.2	2 01.7	-36.7	142.2	0 26.8	-37.7	142.2	1 08.1	+38.6	37.8	45
4 36.5	-34.6	142.9	3 00.8	-35.7	143.0	1 25.0	-36.7	143.0	0 10.9	+37.6	37.0	1 46.7	+38.6	37.0	46
4 01.9	-34.8	143.7	2 25.1	-35.7	143.8	0 48.3	-36.7	143.8	0 48.5	+37.7	36.2	2 25.3	+38.6	36.2	47
3 27.1	-34.7	144.5	1 49.4	-35.7	144.6	0 11.6	-36.7	144.6	1 26.2	+37.6	35.4	3 03.9	+38.6	35.5	48
2 52.4	-34.8	145.3	1 13.7	-35.8	145.4	0 25.1	+36.7	34.6	2 03.8	+37.6	34.6	3 42.5	+38.5	34.7	49
2 17.6	-34.9	146.1	0 37.9	-35.8	146.2	1 01.8	+36.7	33.8	2 41.4	+37.6	33.9	4 21.0	+38.5	33.9	50
1 42.7	-34.8	147.0	0 02.1	-35.7	147.0	1 38.5	+36.6	33.0	3 19.0	+37.6	33.1	4 59.5	+38.5	33.2	51
1 07.9	-34.9	147.8	0 33.6	+35.8	32.2	2 15.1	+36.7	32.2	3 56.6	+37.5	32.3	5 38.0	+38.5	32.4	52
0 33.0	-34.8	148.6	1 09.4	+35.7	31.4	2 51.8	+36.6	31.5	4 34.1	+37.4	31.5	6 16.3	+38.3	31.6	53
0 01.8	+34.9	30.6	1 45.1	+35.7	30.6	3 28.4	+36.5	30.7	5 11.5	+37.4	30.7	6 54.6	+38.3	30.8	54
0 36.7	+34.9	29.8	2 20.8	+35.7	29.8	4 04.9	+36.5	29.9	5 48.9	+37.4	30.0	7 32.9	+38.3	30.1	55
1 11.6	+34.8	29.0	2 56.5	+35.7	29.0	4 41.4	+36.5	29.1	6 26.3	+37.2	29.2	8 11.0	+38.1	29.3	56
1 46.4	+34.8	28.2	3 32.2	+35.6	28.2	5 17.9	+36.4	28.3	7 03.5	+37.2	28.4	8 49.1	+37.9	28.5	57
2 21.2	+34.8	27.3	4 07.8	+35.6	27.4	5 54.3	+36.3	27.5	7 40.7	+37.1	27.6	9 27.0	+37.9	27.7	58
2 56.0	+34.8	26.5	4 43.4	+35.5	26.6	6 30.6	+36.3	26.7	8 17.8	+37.0	26.8	10 04.9	+37.7	26.9	59
3 30.8	+34.7	25.7	5 18.9	+35.4	25.8	7 06.9	+36.2	25.9	8 54.8	+36.9	26.0	10 42.6	+37.6	26.1	60
4 05.5	+34.7	24.9	5 54.3	+35.4	25.0	7 43.1	+36.0	25.1	9 31.7	+36.8	25.2	11 20.2	+37.5	25.4	61
4 40.2	+34.6	24.1	6 29.7	+35.3	24.2	8 19.1	+36.0	24.3	10 08.5	+36.8	24.4	11 57.7	+37.4	24.6	62
5 14.8	+34.5	23.3	7 05.0	+35.2	23.3	8 55.1	+35.9	23.5	10 45.2	+36.5	23.6	12 35.1	+37.2	23.8	63
5 49.3	+34.5	22.4	7 40.2	+35.1	22.5	9 31.0	+35.8	22.6	11 21.7	+36.4	22.8	13 12.3	+37.0	23.0	64
6 23.8	+34.4	21.6	8 15.3	+35.0	21.7	10 06.8	+35.6	21.8	11 58.1	+36.3	22.0	13 49.3	+36.9	22.1	65
6 58.2	+34.3	20.8	8 50.3	+35.0	20.9	10 42.4	+35.5	21.0	12 34.4	+36.1	21.2	14 26.2	+36.8	21.3	66
7 32.5	+34.2	20.0	9 25.3	+34.8	20.1	11 17.9	+35.4	20.2	13 10.5	+36.0	20.3	15 03.0	+36.5	20.5	67
8 06.7	+34.1	19.1	10 00.1	+34.6	19.2	11 53.3	+35.3	19.4	13 46.5	+35.8	19.5	15 39.5	+36.4	19.7	68
8 40.8	+34.0	18.3	10 34.7	+34.6	18.4	12 28.6	+35.0	18.5	14 22.3	+35.6	18.7	16 15.9	+36.2	18.9	69
9 14.8	+33.9	17.5	11 09.3	+34.4	17.6	13 03.6	+35.0	17.7	14 57.9	+35.5	17.9	16 52.1	+35.9	18.0	70
9 48.7	+33.8	16.6	11 43.7	+34.2	16.7	13 38.6	+34.7	16.9	15 33.4	+35.2	17.0	17 28.0	+35.8	17.2	71
10 22.5	+33.6	15.8	12 17.9	+34.1	15.9	14 13.3	+34.6	16.0	16 08.6	+35.1	16.2	18 03.8	+35.6	16.3	72
10 56.1	+33.5	14.9	12 52.0	+34.0	15.1	14 47.9	+34.4	15.2	16 43.7	+34.8	15.3	18 39.4	+35.3	15.5	73
11 29.6	+33.4	14.1	13 26.0	+33.8	14.2	15 22.3	+34.2	14.3	17 18.5	+34.7	14.5	19 14.7	+35.0	14.6	74
12 03.0	+33.2	13.2	13 59.8	+33.6	13.4	15 56.5	+34.0	13.5	17 53.2	+34.4	13.6	19 49.7	+34.9	13.8	75
12 36.2	+33.0	12.4	14 33.4	+33.4	12.5	16 30.5	+33.8	12.6	18 27.6	+34.1	12.8	20 24.6	+34.5	12.9	76
13 09.2	+32.9	11.5	15 06.8	+33.2	11.6	17 04.3	+33.5	11.8	19 01.7	+34.0	11.9	20 59.1	+34.3	12.0	77
13 42.1	+32.7	10.7	15 40.0	+33.0	10.8	17 37.8	+33.4	10.9	19 35.7	+33.6	11.0	21 33.4	+34.0	11.2	78
14 14.8	+32.5	9.8	16 13.0	+32.8	9.9	18 11.2	+33.1	10.0	20 09.3	+33.4	10.1	22 07.4	+33.8	10.3	79
14 47.3	+32.3	8.9	16 45.8	+32.6	9.0	18 44.3	+32.8	9.1	20 42.7	+33.2	9.3	22 41.2	+33.4	9.4	80
15 19.6	+32.0	8.1	17 18.4	+32.3	8.2	19 17.1	+32.6	8.3	21 15.9	+32.8	8.4	23 14.6	+33.1	8.5	81
15 51.6	+31.9	7.2	17 50.7	+32.1	7.3	19 49.7	+32.3	7.4	21 48.7	+32.6	7.5	23 47.7	+32.8	7.6	82
16 23.5	+31.7	6.3	18 22.8	+31.8	6.4	20 22.0	+32.1	6.5	22 21.3	+32.2	6.6	24 20.5	+32.4	6.7	83
16 55.2	+31.4	5.4	18 54.6	+31.6	5.5	20 54.1	+31.8	5.6	22 53.5	+32.0	5.6	24 52.9	+32.1	5.7	84
17 26.6	+31.2	4.5	19 26.2	+31.4	4.6	21 25.9	+31.4	4.7	23 25.5	+31.6	4.7	25 25.0	+31.8	4.8	85
17 57.8	+31.0	3.6	19 57.6	+31.0	3.7	21 57.3	+31.2	3.7	23 57.1	+31.2	3.8	25 56.8	+31.4	3.9	86
18 28.8	+30.6	2.7	20 28.6	+30.8	2.8	22 28.5	+30.8	2.8	24 28.3	+30.9	2.9	26 28.2	+31.0	2.9	87
18 59.4	+30.5	1.8	20 59.4	+30.4	1.9	22 59.3	+30.5	1.9	24 59.2	+30.6	1.9	26 59.2	+30.6	1.9	88
19 29.9	+30.1	0.9	21 29.8	+30.2	0.9	23 29.8	+30.2	0.9	25 29.8	+30.2	1.0	27 29.8	+30.2	1.0	89
20 00.0	+29.9	0.0	22 00.0	+29.8	0.0	24 00.0	+29.8	0.0	26 00.0	+29.8	0.0	28 00.0	+29.8	0.0	90
						24°			26°						

LATITUDE SAME NAME

L.H.A. 120°, 240°

62°, 298° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	23 59.4	-15.6	56.8	25 04.4	-13.8	57.6	26 08.0	-11.9	58.4	27 10.1	-9.9	59.3	28 10.6	-7.8	60.2
31	23 43.8	-16.1	55.8	24 50.6	-14.2	56.5	25 56.1	-12.3	57.3	27 00.2	-10.4	58.2	28 02.8	-8.5	59.0
32	23 27.7	-16.5	54.7	24 36.4	-14.7	55.4	25 43.8	-12.8	56.2	26 49.8	-10.9	57.0	27 54.3	-9.0	57.9
33	23 11.2	-16.9	53.7	24 21.7	-15.1	54.4	25 31.0	-13.3	55.1	26 38.9	-11.5	55.9	27 45.3	-9.5	56.8
34	22 54.3	-17.3	52.6	24 06.6	-15.6	53.3	25 17.7	-13.8	54.1	26 27.4	-11.9	54.8	27 35.8	-10.0	55.7
35	22 37.0	-17.7	51.6	23 51.0	-16.0	52.3	25 03.9	-14.3	53.0	26 15.5	-12.4	53.8	27 25.8	-10.6	54.6
36	22 19.3	-18.1	50.6	23 35.0	-16.4	51.2	24 49.6	-14.6	51.9	26 03.1	-13.0	52.7	27 15.2	-11.1	53.5
37	22 01.2	-18.5	49.5	23 18.6	-16.8	50.2	24 35.0	-15.2	50.8	25 50.1	-13.4	51.6	27 04.1	-11.7	52.4
38	21 42.7	-18.8	48.5	23 01.8	-17.3	49.1	24 19.8	-15.6	49.8	25 36.7	-13.9	50.5	26 52.4	-12.1	51.3
39	21 23.9	-19.2	47.5	22 44.5	-17.6	48.1	24 04.2	-16.0	48.7	25 22.8	-14.3	49.4	26 40.3	-12.6	50.2
40	21 04.7	-19.6	46.5	22 26.9	-18.0	47.0	23 48.2	-16.4	47.7	25 08.5	-14.8	48.3	26 27.7	-13.1	49.1
41	20 45.1	-20.0	45.4	22 08.9	-18.5	46.0	23 31.8	-16.9	46.6	24 53.7	-15.3	47.3	26 14.6	-13.7	48.0
42	20 25.1	-20.2	44.4	21 50.4	-18.8	45.0	23 14.9	-17.3	45.6	24 38.4	-15.7	46.2	26 00.9	-14.1	46.9
43	20 04.9	-20.7	43.4	21 31.6	-19.1	44.0	22 57.6	-17.7	44.5	24 22.7	-16.2	45.2	25 46.8	-14.6	45.8
44	19 44.2	-20.9	42.4	21 12.5	-19.6	42.9	22 39.9	-18.1	43.5	24 06.5	-16.6	44.1	25 32.2	-15.0	44.7
45	19 23.3	-21.3	41.4	20 52.9	-19.9	41.9	22 21.8	-18.5	42.5	23 49.9	-17.0	43.0	25 17.2	-15.5	43.7
46	19 02.0	-21.6	40.5	20 33.0	-20.2	40.9	22 03.3	-18.8	41.4	23 32.9	-17.4	42.0	25 01.7	-16.0	42.6
47	18 40.4	-21.9	39.5	20 12.8	-20.6	39.9	21 44.5	-19.3	40.4	23 15.5	-17.9	41.0	24 45.7	-16.4	41.5
48	18 18.5	-22.2	38.5	19 52.2	-20.9	38.9	21 25.2	-19.6	39.4	22 57.6	-18.2	39.9	24 29.3	-16.9	40.5
49	17 56.3	-22.5	37.5	19 31.3	-21.3	37.9	21 05.6	-19.9	38.4	22 39.4	-18.7	38.9	24 12.3	-17.3	39.4
50	17 33.8	-22.7	36.5	19 10.0	-21.5	36.9	20 45.7	-20.4	37.4	22 20.7	-19.0	37.9	23 55.1	-17.7	38.4
51	17 11.1	-23.1	35.6	18 48.5	-21.9	35.9	20 25.3	-20.6	36.4	22 01.7	-19.4	36.8	23 37.4	-18.1	37.3
52	16 48.0	-23.3	34.6	18 26.6	-22.2	35.0	20 04.7	-21.0	35.4	21 42.3	-19.8	35.8	23 19.3	-18.5	36.3
53	16 24.7	-23.6	33.6	18 04.4	-22.5	34.0	19 43.7	-21.3	34.4	21 22.5	-20.2	34.8	23 00.8	-19.0	35.3
54	16 01.1	-23.8	32.7	17 41.9	-22.7	33.0	19 22.4	-21.7	33.4	21 02.3	-20.5	33.8	22 41.8	-19.3	34.2
55	15 37.3	-24.1	31.7	17 19.2	-23.1	32.0	19 00.7	-22.0	32.4	20 41.8	-20.8	32.8	22 22.5	-19.7	33.2
56	15 13.2	-24.3	30.8	16 56.1	-23.3	31.1	18 38.7	-22.2	31.4	20 21.0	-21.2	31.8	22 02.8	-20.1	32.2
57	14 48.9	-24.6	29.8	16 32.8	-23.5	30.1	18 16.5	-22.6	30.4	19 59.8	-21.6	30.8	21 42.7	-20.5	31.2
58	14 24.3	-24.7	28.9	16 09.3	-23.9	29.2	17 53.9	-22.8	29.5	19 38.2	-21.8	29.8	21 22.2	-20.8	30.2
59	13 59.6	-25.0	27.9	15 45.4	-24.0	28.2	17 31.1	-23.2	28.5	19 16.4	-22.2	28.8	21 01.4	-21.2	29.2
60	13 34.6	-25.2	27.0	15 21.4	-24.4	27.2	17 07.9	-23.4	27.5	18 54.2	-22.5	27.8	20 40.2	-21.6	28.2
61	13 09.4	-25.4	26.1	14 57.0	-24.5	26.3	16 44.5	-23.7	26.6	18 31.7	-22.8	26.8	20 18.6	-21.8	27.2
62	12 44.0	-25.6	25.1	14 32.5	-24.8	25.4	16 20.8	-23.9	25.6	18 08.9	-23.0	25.9	19 56.8	-22.2	26.2
63	12 18.4	-25.8	24.2	14 07.7	-25.0	24.4	15 56.9	-24.2	24.6	17 45.9	-23.4	24.9	19 34.6	-22.5	25.2
64	11 52.6	-26.0	23.3	13 42.7	-25.2	23.5	15 32.7	-24.4	23.7	17 22.5	-23.6	23.9	19 12.1	-22.8	24.2
65	11 26.6	-26.1	22.4	13 17.5	-25.4	22.5	15 08.3	-24.7	22.7	16 58.9	-23.9	23.0	18 49.3	-23.2	23.2
66	11 00.5	-26.3	21.5	12 52.1	-25.6	21.6	14 43.6	-24.9	21.8	16 35.0	-24.2	22.0	18 26.1	-23.4	22.2
67	10 34.2	-26.5	20.5	12 26.5	-25.8	20.7	14 18.7	-25.1	20.9	16 10.8	-24.4	21.1	18 02.7	-23.7	21.3
68	10 07.7	-26.6	19.6	12 00.7	-25.9	19.8	13 53.6	-25.3	19.9	15 46.4	-24.7	20.1	17 39.0	-24.0	20.3
69	9 41.1	-26.7	18.7	11 34.8	-26.2	18.8	13 28.3	-25.6	19.0	15 21.7	-24.9	19.2	17 15.0	-24.3	19.3
70	9 14.4	-26.9	17.8	11 08.6	-26.3	17.9	13 02.7	-25.7	18.1	14 56.8	-25.2	18.2	16 50.7	-24.5	18.4
71	8 47.5	-27.0	16.9	10 42.3	-26.5	17.0	12 37.0	-25.9	17.1	14 31.6	-25.3	17.3	16 26.2	-24.8	17.4
72	8 20.5	-27.1	16.0	10 15.8	-26.6	16.1	12 11.1	-26.1	16.2	14 06.3	-25.6	16.3	16 01.4	-25.1	16.5
73	7 53.4	-27.3	15.1	9 49.2	-26.8	15.2	11 45.0	-26.3	15.3	13 40.7	-25.8	15.4	15 36.3	-25.2	15.5
74	7 26.1	-27.4	14.2	9 22.4	-26.9	14.3	11 18.7	-26.5	14.4	13 14.9	-26.0	14.5	15 11.1	-25.6	14.6
75	6 58.7	-27.4	13.3	8 55.5	-27.0	13.4	10 52.2	-26.6	13.5	12 48.9	-26.2	13.6	14 45.5	-25.7	13.7
76	6 31.3	-27.6	12.4	8 28.5	-27.2	12.5	10 25.6	-26.7	12.5	12 22.7	-26.3	12.6	14 19.8	-25.9	12.7
77	6 03.7	-27.6	11.5	8 01.3	-27.3	11.6	9 58.9	-27.0	11.6	11 56.4	-26.6	11.7	13 53.9	-26.2	11.8
78	5 36.1	-27.7	10.6	7 34.0	-27.4	10.7	9 31.9	-27.0	10.7	11 29.8	-26.7	10.8	13 27.7	-26.4	10.9
79	5 08.4	-27.8	9.7	7 06.6	-27.5	9.8	9 04.9	-27.2	9.8	11 03.1	-26.9	9.9	13 01.3	-26.6	10.0
80	4 40.6	-27.9	8.8	6 39.1	-27.6	8.9	8 37.7	-27.3	8.9	10 36.2	-27.0	9.0	12 34.7	-26.7	9.0
81	4 12.7	-27.9	8.0	6 11.5	-27.6	8.0	8 10.4	-27.5	8.0	10 09.2	-27.2	8.1	12 08.0	-26.9	8.1
82	3 44.8	-28.0	7.1	5 43.9	-27.8	7.1	7 42.9	-27.5	7.1	9 42.0	-27.3	7.2	11 41.1	-27.1	7.2
83	3 16.8	-28.0	6.2	5 16.1	-27.8	6.2	7 15.4	-27.7	6.2	9 14.7	-27.5	6.3	11 14.0	-27.3	6.3
84	2 48.8	-28.1	5.3	4 48.3	-28.0	5.3	6 47.7	-27.7	5.3	8 47.2	-27.6	5.4	10 46.7	-27.4	5.4
85	2 20.7	-28.1	4.4	4 20.3	-27.9	4.4	6 20.0	-27.9	4.4	8 19.6	-27.7	4.5	10 19.3	-27.6	4.5
86	1 52.6	-28.1	3.5	3 52.4	-28.1	3.5	5 52.1	-27.9	3.5	7 51.9	-27.8	3.6	9 51.7	-27.7	3.6
87	1 24.5	-28.2	2.6	3 24.3	-28.0	2.7	5 24.2	-28.0	2.7	7 24.1	-27.9	2.7	9 24.0	-27.9	2.7
88	0 56.3	-28.1	1.8	2 56.3	-28.1	1.8	4 56.2	-28.1	1.8	6 56.2	-28.1	1.8	8 56.1	-28.0	1.8
89	0 28.2	-28.2	0.9	2 28.2	-28.2	0.9	4 28.1	-28.1	0.9	6 28.1	-28.1	0.9	8 28.1	-28.1	0.9
90	0 00.0	-28.2	0.0	2 00.0	-28.2	0.0	4 00.0	-28.2	0.0	6 00.0	-28.2	0.0	8 00.0	-28.2	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 62°, 298°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
23 59.4	-15.6	123.2	22 53.1	-17.5	123.9	21 45.5	-19.2	124.6	20 36.9	-21.0	125.2	19 27.2	-22.6	125.8	30
23 43.8	-16.1	124.2	22 35.6	-17.8	124.9	21 26.3	-19.6	125.6	20 15.9	-21.2	126.2	19 04.6	-23.0	126.8	31
23 27.7	-16.5	125.3	22 17.8	-18.3	126.0	21 06.7	-19.9	126.6	19 54.7	-21.6	127.2	18 41.6	-23.2	127.8	32
23 11.2	-16.9	126.3	21 59.5	-18.6	127.0	20 46.8	-20.3	127.6	19 33.1	-22.0	128.2	18 18.4	-23.5	128.7	33
22 54.3	-17.3	127.4	21 40.9	-19.0	128.0	20 26.5	-20.6	128.6	19 11.1	-22.2	129.2	17 54.9	-23.8	129.7	34
22 37.0	-17.7	128.4	21 21.9	-19.3	129.0	20 05.9	-21.0	129.6	18 48.9	-22.6	130.2	17 31.1	-24.1	130.7	35
22 19.3	-18.1	129.4	21 02.6	-19.8	130.1	19 44.9	-21.3	130.6	18 26.3	-22.8	131.2	17 07.0	-24.4	131.6	36
22 01.2	-18.5	130.5	20 42.8	-20.0	131.1	19 23.6	-21.7	131.6	18 03.5	-23.2	132.1	16 42.6	-24.6	132.6	37
21 42.7	-18.8	131.5	20 22.8	-20.4	132.1	19 01.9	-21.9	132.6	17 40.3	-23.4	133.1	16 18.0	-24.9	133.5	38
21 23.9	-19.2	132.5	20 02.4	-20.8	133.1	18 40.0	-22.3	133.6	17 16.9	-23.7	134.1	15 53.1	-25.1	134.5	39
21 04.7	-19.6	133.5	19 41.6	-21.1	134.1	18 17.7	-22.5	134.6	16 53.2	-24.0	135.0	15 28.0	-25.4	135.4	40
20 45.1	-20.0	134.6	19 20.5	-21.4	135.1	17 55.2	-22.8	135.5	16 29.2	-24.2	136.0	15 02.6	-25.5	136.4	41
20 25.1	-20.2	135.6	18 59.1	-21.7	136.1	17 32.4	-23.2	136.5	16 05.0	-24.5	136.9	14 37.1	-25.9	137.3	42
20 04.9	-20.7	136.6	18 37.4	-22.0	137.0	17 09.2	-23.4	137.5	15 40.5	-24.7	137.9	14 11.2	-26.0	138.2	43
19 44.2	-20.9	137.6	18 15.4	-22.4	138.0	16 45.8	-23.6	138.4	15 15.8	-25.0	138.8	13 45.2	-26.2	139.2	44
19 23.3	-21.3	138.6	17 53.0	-22.6	139.0	16 22.2	-23.9	139.4	14 50.8	-25.2	139.8	13 19.0	-26.3	140.1	45
19 02.0	-21.6	139.5	17 30.4	-22.9	140.0	15 58.3	-24.2	140.4	14 25.6	-25.4	140.7	12 52.5	-26.6	141.0	46
18 40.4	-21.9	140.5	17 07.5	-23.2	140.9	15 34.1	-24.4	141.3	14 00.2	-25.6	141.6	12 25.9	-26.8	141.9	47
18 18.5	-22.2	141.5	16 44.3	-23.4	141.9	15 09.7	-24.7	142.3	13 34.6	-25.9	142.6	11 59.1	-27.0	142.8	48
17 56.3	-22.5	142.5	16 20.9	-23.7	142.9	14 45.0	-24.9	143.2	13 08.7	-26.0	143.5	11 32.1	-27.2	143.8	49
17 33.8	-22.7	143.5	15 57.2	-24.0	143.8	14 20.1	-25.1	144.1	12 42.7	-26.2	144.4	11 04.9	-27.3	144.7	50
17 11.1	-23.1	144.4	15 33.2	-24.2	144.8	13 55.0	-25.3	145.1	12 15.6	-26.4	145.3	10 37.6	-27.5	145.6	51
16 48.0	-23.3	145.4	15 09.0	-24.4	145.7	13 29.7	-25.5	146.0	11 50.1	-26.6	146.3	10 10.1	-27.6	146.5	52
16 24.7	-23.6	146.4	14 44.6	-24.7	146.7	13 04.2	-25.7	146.9	11 23.5	-26.8	147.2	9 42.5	-27.8	147.4	53
16 01.1	-23.8	147.3	14 19.9	-24.8	147.6	12 38.5	-26.0	147.9	10 56.7	-26.9	148.1	9 14.7	-27.9	148.3	54
15 37.3	-24.1	148.3	13 55.1	-25.1	148.5	12 12.5	-26.0	148.8	10 29.8	-27.1	149.0	8 46.8	-28.0	149.2	55
15 13.2	-24.3	149.2	13 30.0	-25.4	149.5	11 46.5	-26.3	149.7	10 02.7	-27.2	149.9	8 18.8	-28.1	150.1	56
14 48.9	-24.6	150.2	13 04.6	-25.5	150.4	11 20.2	-26.5	150.6	9 35.5	-27.4	150.8	7 50.7	-28.3	151.0	57
14 24.3	-24.7	151.1	12 39.1	-25.7	151.3	10 53.7	-26.6	151.5	9 08.1	-27.4	151.7	7 22.4	-28.4	151.8	58
13 59.6	-25.0	152.1	12 13.4	-25.8	152.3	10 27.1	-26.7	152.5	8 40.7	-27.7	152.6	6 54.0	-28.4	152.7	59
13 34.6	-25.2	153.0	11 47.6	-26.1	153.2	10 00.4	-26.9	153.4	8 13.0	-27.7	153.5	6 25.6	-28.6	153.6	60
13 09.4	-25.4	153.9	11 21.5	-26.2	154.1	9 33.5	-27.1	154.3	7 45.3	-27.9	154.4	5 57.0	-28.6	154.5	61
12 44.0	-25.6	154.9	10 55.3	-26.4	155.0	9 06.4	-27.2	155.2	7 17.4	-27.9	155.3	5 28.4	-28.7	155.4	62
12 18.4	-25.8	155.8	10 28.9	-26.6	155.9	8 39.2	-27.3	156.1	6 49.5	-28.1	156.2	4 59.7	-28.8	156.3	63
11 52.6	-26.0	156.7	10 02.3	-26.7	156.9	8 11.9	-27.4	157.0	6 21.4	-28.1	157.1	4 30.9	-28.9	157.2	64
11 26.6	-26.1	157.6	9 35.6	-26.8	157.8	7 44.5	-27.6	157.9	5 53.3	-28.2	158.0	4 02.0	-28.9	158.0	65
11 00.5	-26.3	158.5	9 08.8	-27.0	158.7	7 16.9	-27.6	158.8	5 25.1	-28.4	158.9	3 33.1	-28.9	158.9	66
10 34.2	-26.5	159.5	8 41.8	-27.1	159.6	6 49.3	-27.7	159.7	4 56.7	-28.3	159.7	3 04.2	-29.0	159.8	67
10 07.7	-26.6	160.4	8 14.7	-27.2	160.5	6 21.6	-27.9	160.6	4 28.4	-28.5	160.6	2 35.2	-29.1	160.7	68
9 41.1	-26.7	161.3	7 47.5	-27.4	161.4	5 53.7	-27.9	161.5	3 59.9	-28.5	161.5	2 06.1	-29.1	161.5	69
9 14.4	-26.9	162.2	7 20.1	-27.4	162.3	5 25.8	-28.0	162.3	3 31.4	-28.5	162.4	1 37.0	-29.0	162.4	70
8 47.5	-27.0	163.1	6 52.7	-27.6	163.2	4 57.8	-28.1	163.2	3 02.9	-28.6	163.3	1 08.0	-29.1	163.3	71
8 20.5	-27.1	164.0	6 25.1	-27.6	164.1	4 29.7	-28.1	164.1	2 34.3	-28.6	164.1	0 38.9	-29.2	164.2	72
7 53.4	-27.3	164.9	5 57.5	-27.7	165.0	4 01.6	-28.2	165.0	2 05.7	-28.7	165.0	0 09.7	-29.1	165.0	73
7 26.1	-27.4	165.8	5 29.8	-27.8	165.8	3 33.4	-28.2	165.9	1 37.0	-28.7	165.9	0 19.4	+29.1	166.0	74
6 58.7	-27.4	166.7	5 02.0	-27.9	166.7	3 05.2	-28.3	166.8	1 08.3	-28.7	166.8	0 48.5	+29.1	166.8	75
6 31.3	-27.6	167.6	4 34.1	-28.0	167.6	2 36.9	-28.4	167.7	0 39.6	-28.7	167.7	1 17.6	+29.1	167.7	76
6 03.7	-27.6	168.5	4 06.1	-28.0	168.5	2 08.5	-28.3	168.5	0 10.9	-28.7	168.5	1 46.7	+29.0	168.5	77
5 36.1	-27.7	169.4	3 38.1	-28.0	169.4	1 40.2	-28.4	169.4	0 17.8	+28.7	169.4	2 15.7	+29.1	169.4	78
5 08.4	-27.8	170.3	3 10.1	-28.1	170.3	1 11.8	-28.4	170.3	0 46.5	+28.7	170.3	2 44.8	+28.9	170.3	79
4 40.6	-27.9	171.2	2 42.0	-28.1	171.2	0 43.4	-28.4	171.2	1 15.2	+28.6	171.2	3 13.7	+29.0	171.2	80
4 12.7	-27.9	172.0	2 13.9	-28.2	172.1	0 15.0	-28.4	172.1	1 43.8	+28.7	172.1	3 42.7	+28.9	172.1	81
3 44.8	-28.0	172.9	1 45.7	-28.2	172.9	0 13.4	+28.4	172.9	2 12.5	+28.6	172.9	4 11.6	+28.8	172.9	82
3 16.8	-28.0	173.8	1 17.5	-28.2	173.8	0 41.8	+28.4	173.8	2 41.1	+28.6	173.8	4 40.4	+28.8	173.8	83
2 48.8	-28.1	174.7	0 49.3	-28.2	174.7	1 10.2	+28.4	174.7	3 09.7	+28.5	174.7	5 09.2	+28.7	174.7	84
2 20.7	-28.1	175.6	0 21.1	-28.3	175.6	1 38.6	+28.3	175.6	3 38.2	+28.5	175.6	5 37.9	+28.6	175.6	85
1 52.6	-28.1	176.5	0 07.2	+28.2	176.5	2 06.9	+28.4	176.5	4 06.7	+28.4	176.5	6 06.5	+28.5	176.5	86
1 24.5	-28.2	177.4	0 35.4	+28.2	177.4	2 35.3	+28.3	177.4	4 35.1	+28.4	177.4	6 35.0	+28.4	177.4	87
0 56.3	-28.1	178.2	1 03.6	+28.2	178.2	3 03.6	+28.2	178.2	5 03.5	+28.3	178.2	7 03.4	+28.4	178.2	88
0 28.2	-28.2	179.1	1 31.8	+28.2	179.1	3 31.8	+28.2	179.1	5 31.8	+28.2	179.1	7 31.8	+28.2	179.1	89
0 00.0	+28.2	0.0	2 00.0	+28.2	0.0	4 00.0	+28.1	0.0	6 00.0	+28.1	0.0	8 00.0	+28.1	0.0	90

LATITUDE SAME NAME

L.H.A. 118°, 242°

62°, 298° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	29 09.5	-5.9	61.1	30 06.5	-3.7	62.1	31 01.7	-1.6	63.2	31 54.8	+0.6	64.3	32 45.9	+2.8	65.4
31	29 03.6	-6.4	60.0	30 02.8	-4.3	61.0	31 00.1	-2.2	62.0	31 55.4	0.0	63.1	32 48.7	+2.1	64.2
32	28 57.2	-7.0	58.8	29 58.5	-5.0	59.8	30 57.9	-2.9	60.8	31 55.4	-0.7	61.9	32 50.8	+1.5	63.0
33	28 50.2	-7.5	57.7	29 53.5	-5.5	58.7	30 55.0	-3.5	59.7	31 54.7	-1.4	60.7	32 52.3	+0.8	61.8
34	28 42.7	-8.1	56.6	29 48.0	-6.2	57.5	30 51.5	-4.0	58.5	31 53.3	-2.0	59.6	32 53.1	+0.2	60.7
35	28 34.6	-8.7	55.4	29 41.8	-6.7	56.4	30 47.5	-4.8	57.3	31 51.3	-2.7	58.4	32 53.3	-0.6	59.5
36	28 25.9	-9.2	54.3	29 35.1	-7.3	55.2	30 42.7	-5.3	56.2	31 48.6	-3.3	57.2	32 52.7	-1.2	58.3
37	28 16.7	-9.8	53.2	29 27.8	-7.9	54.1	30 37.4	-6.0	55.0	31 45.3	-3.9	56.0	32 51.5	-1.9	57.1
38	28 06.9	-10.3	52.1	29 19.9	-8.5	52.9	30 31.4	-6.5	53.9	31 41.4	-4.6	54.9	32 49.6	-2.6	55.9
39	27 56.6	-10.9	51.0	29 11.4	-9.0	51.8	30 24.9	-7.2	52.7	31 36.8	-5.3	53.7	32 47.0	-3.3	54.7
40	27 45.7	-11.4	49.8	29 02.4	-9.6	50.7	30 17.7	-7.7	51.6	31 31.5	-5.8	52.5	32 43.7	-3.9	53.5
41	27 34.3	-11.9	48.7	28 52.8	-10.2	49.6	30 10.0	-8.4	50.4	31 25.7	-6.5	51.3	32 39.8	-4.6	52.3
42	27 22.4	-12.5	47.6	28 42.6	-10.7	48.4	30 01.6	-9.0	49.3	31 19.2	-7.2	50.2	32 35.2	-5.2	51.1
43	27 09.9	-12.9	46.5	28 31.9	-11.3	47.3	29 52.6	-9.5	48.1	31 12.0	-7.7	49.0	32 30.0	-5.9	50.0
44	26 57.0	-13.5	45.4	28 20.6	-11.8	46.2	29 43.1	-10.1	47.0	31 04.3	-8.4	47.9	32 24.1	-6.6	48.8
45	26 43.5	-14.0	44.3	28 08.8	-12.4	45.1	29 33.0	-10.8	45.9	30 55.9	-9.0	46.7	32 17.5	-7.2	47.6
46	26 29.5	-14.4	43.3	27 56.4	-12.9	44.0	29 22.2	-11.2	44.7	30 46.9	-9.6	45.6	32 10.3	-7.9	46.4
47	26 15.1	-14.9	42.2	27 43.5	-13.4	42.9	29 11.0	-11.9	43.6	30 37.3	-10.2	44.4	32 02.4	-8.5	45.3
48	26 00.2	-15.5	41.1	27 30.1	-13.9	41.8	28 59.1	-12.4	42.5	30 27.1	-10.8	43.3	31 53.9	-9.2	44.1
49	25 44.7	-15.9	40.0	27 16.2	-14.4	40.7	28 46.7	-12.9	41.4	30 16.3	-11.4	42.1	31 44.7	-9.8	42.9
50	25 28.8	-16.3	39.0	27 01.8	-15.0	39.6	28 33.8	-13.5	40.3	30 04.9	-12.0	41.0	31 34.9	-10.4	41.8
51	25 12.5	-16.8	37.9	26 46.8	-15.4	38.5	28 20.3	-14.0	39.1	29 52.9	-12.5	39.9	31 24.5	-11.0	40.6
52	24 55.7	-17.3	36.8	26 31.4	-15.9	37.4	28 06.3	-14.6	38.0	29 40.4	-13.2	38.7	31 13.5	-11.7	39.5
53	24 38.4	-17.7	35.8	26 15.5	-16.5	36.3	27 51.7	-15.0	36.9	29 27.2	-13.6	37.6	31 01.8	-12.2	38.3
54	24 20.7	-18.1	34.7	25 59.0	-16.8	35.3	27 36.7	-15.6	35.9	29 13.6	-14.3	36.5	30 49.6	-12.8	37.2
55	24 02.6	-18.5	33.7	25 42.2	-17.4	34.2	27 21.1	-16.1	34.8	28 59.3	-14.8	35.4	30 36.8	-13.5	36.0
56	23 44.1	-19.0	32.6	25 24.8	-17.8	33.1	27 05.0	-16.6	33.7	28 44.5	-15.3	34.3	30 23.3	-14.0	34.9
57	23 25.1	-19.4	31.6	25 07.0	-18.2	32.1	26 48.4	-17.0	32.6	28 29.2	-15.8	33.2	30 09.3	-14.6	33.8
58	23 05.7	-19.7	30.6	24 48.8	-18.7	31.0	26 31.4	-17.6	31.5	28 13.4	-16.4	32.1	29 54.7	-15.1	32.7
59	22 46.0	-20.2	29.5	24 30.1	-19.1	30.0	26 13.8	-18.0	30.5	27 57.0	-16.9	31.0	29 39.6	-15.8	31.6
60	22 25.8	-20.5	28.5	24 11.0	-19.5	28.9	25 55.8	-18.5	29.4	27 40.1	-17.4	29.9	29 23.8	-16.2	30.4
61	22 05.3	-21.0	27.5	23 51.5	-20.0	27.9	25 37.3	-18.9	28.3	27 22.7	-17.9	28.8	29 07.6	-16.8	29.3
62	21 44.3	-21.3	26.5	23 31.5	-20.3	26.9	25 18.4	-19.4	27.3	27 04.8	-18.4	27.7	28 50.8	-17.4	28.2
63	21 23.0	-21.6	25.5	23 11.2	-20.7	25.9	24 59.0	-19.8	26.2	26 46.4	-18.8	26.7	28 33.4	-17.8	27.2
64	21 01.4	-22.0	24.5	22 50.5	-21.2	24.8	24 39.2	-20.2	25.2	26 27.6	-19.3	25.6	28 15.6	-18.4	26.1
65	20 39.4	-22.3	23.5	22 29.3	-21.5	23.8	24 19.0	-20.7	24.2	26 08.3	-19.8	24.6	27 57.2	-18.8	25.0
66	20 17.1	-22.7	22.5	22 07.8	-21.9	22.8	23 58.3	-21.1	23.1	25 48.5	-20.2	23.5	27 38.4	-19.4	23.9
67	19 54.4	-23.0	21.5	21 45.9	-22.2	21.8	23 37.2	-21.4	22.1	25 28.3	-20.7	22.5	27 19.0	-19.8	22.8
68	19 31.4	-23.3	20.5	21 23.7	-22.6	20.8	23 15.8	-21.9	21.1	25 07.6	-21.1	21.4	26 59.2	-20.3	21.8
69	19 08.1	-23.6	19.6	21 01.1	-22.9	19.8	22 53.9	-22.2	20.1	24 46.5	-21.5	20.4	26 38.9	-20.8	20.7
70	18 44.5	-23.9	18.6	20 38.2	-23.3	18.8	22 31.7	-22.6	19.1	24 25.0	-22.0	19.4	26 18.1	-21.3	19.7
71	18 20.6	-24.2	17.6	20 14.9	-23.6	17.8	22 09.1	-23.0	18.1	24 03.0	-22.3	18.3	25 56.8	-21.6	18.6
72	17 56.4	-24.5	16.7	19 51.3	-23.9	16.9	21 46.1	-23.4	17.1	23 40.7	-22.7	17.3	25 35.2	-22.1	17.6
73	17 31.9	-24.8	15.7	19 27.4	-24.3	15.9	21 22.7	-23.6	16.1	23 18.0	-23.2	16.3	25 13.1	-22.6	16.6
74	17 07.1	-25.0	14.8	19 03.1	-24.5	14.9	20 59.1	-24.1	15.1	22 54.8	-23.4	15.3	24 50.5	-22.9	15.6
75	16 42.1	-25.3	13.8	18 38.6	-24.8	14.0	20 35.0	-24.3	14.1	22 31.4	-23.9	14.3	24 27.6	-23.4	14.5
76	16 16.8	-25.5	12.9	18 13.8	-25.1	13.0	20 10.7	-24.7	13.2	22 07.5	-24.2	13.3	24 04.2	-23.7	13.5
77	15 51.3	-25.8	11.9	17 48.7	-25.4	12.0	19 46.0	-25.0	12.2	21 43.3	-24.6	12.3	23 40.5	-24.2	12.5
78	15 25.5	-26.0	11.0	17 23.3	-25.7	11.1	19 21.0	-25.3	11.2	21 18.7	-24.9	11.4	23 16.3	-24.5	11.5
79	14 59.5	-26.3	10.0	16 57.6	-25.9	10.1	18 55.7	-25.5	10.3	20 53.8	-25.2	10.4	22 51.8	-24.9	10.5
80	14 33.2	-26.4	9.1	16 31.7	-26.2	9.2	18 30.2	-25.9	9.3	20 28.6	-25.6	9.4	22 26.9	-25.2	9.5
81	14 06.8	-26.7	8.2	16 05.5	-26.4	8.3	18 04.3	-26.2	8.4	20 03.0	-25.9	8.5	22 01.7	-25.6	8.6
82	13 40.1	-26.9	7.3	15 39.1	-26.6	7.3	17 38.1	-26.4	7.4	19 37.1	-26.1	7.5	21 36.1	-25.9	7.6
83	13 13.2	-27.0	6.3	15 12.5	-26.9	6.4	17 11.7	-26.6	6.5	19 11.0	-26.5	6.5	21 10.2	-26.3	6.6
84	12 46.2	-27.3	5.4	14 45.6	-27.1	5.5	16 45.1	-27.0	5.5	18 44.5	-26.8	5.6	20 43.9	-26.6	5.7
85	12 18.9	-27.5	4.5	14 18.5	-27.3	4.6	16 18.1	-27.1	4.6	18 17.7	-27.0	4.6	20 17.3	-26.8	4.7
86	11 51.4	-27.6	3.6	13 51.2	-27.5	3.6	15 51.0	-27.4	3.7	17 50.7	-27.3	3.7	19 50.5	-27.2	3.8
87	11 23.8	-27.8	2.7	13 23.7	-27.7	2.7	15 23.6	-27.7	2.7	17 23.4	-27.5	2.8	19 23.3	-27.5	2.8
88	10 56.0	-27.9	1.8	12 56.0	-27.9	1.8	14 55.9	-27.8	1.8	16 55.9	-27.9	1.8	18 55.8	-27.8	1.9
89	10 28.1	-28.1	0.9	12 28.1	-28.1	0.9	14 28.1	-28.1	0.9	16 28.0	-28.0	0.9	18 28.0	-28.0	0.9
90	10 00.0	-28.2	0.0	12 00.0	-28.3	0.0	14 00.0	-28.3	0.0	16 00.0	-28.3	0.0	18 00.0	-28.3	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 62°, 298°

10°			12°			14°			16°			18°			Dec.	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
18	16.5	-24.3	126.4	17	04.9	-25.8	126.9	15	52.5	-27.4	127.3	14	39.3	-28.9	127.8	30
17	52.2	-24.5	127.3	16	39.1	-26.1	127.8	15	25.1	-27.6	128.3	14	10.4	-29.1	128.7	31
17	27.7	-24.8	128.3	16	13.0	-26.4	128.8	14	57.5	-27.9	129.2	13	41.3	-29.3	129.6	32
17	02.9	-25.1	129.2	15	46.6	-26.6	129.7	14	29.6	-28.0	130.1	13	12.0	-29.5	130.5	33
16	37.8	-25.3	130.2	15	20.0	-26.8	130.6	14	01.6	-28.3	131.0	12	42.5	-29.6	131.4	34
16	12.5	-25.6	131.1	14	53.2	-27.0	131.5	13	33.3	-28.4	131.9	12	12.9	-29.9	132.3	35
15	46.9	-25.8	132.1	14	26.2	-27.3	132.5	13	04.9	-28.7	132.8	11	43.0	-30.0	133.2	36
15	21.1	-26.1	133.0	13	58.9	-27.4	133.4	12	36.2	-28.8	133.7	11	13.0	-30.1	134.0	37
14	55.0	-26.3	133.9	13	31.5	-27.7	134.3	12	07.4	-29.0	134.6	10	42.9	-30.3	134.9	38
14	28.7	-26.5	134.9	13	03.8	-27.8	135.2	11	38.4	-29.2	135.5	10	12.6	-30.5	135.8	39
14	02.2	-26.7	135.8	12	36.0	-28.1	136.1	11	09.2	-29.3	136.4	9	42.1	-30.5	136.7	40
13	35.5	-26.9	136.7	12	07.9	-28.2	137.0	10	39.9	-29.4	137.3	9	11.6	-30.7	137.5	41
13	08.6	-27.1	137.6	11	39.7	-28.3	137.9	10	10.5	-29.6	138.2	8	40.9	-30.9	138.5	42
12	41.5	-27.3	138.6	11	11.4	-28.6	138.8	9	40.9	-29.8	139.1	8	10.0	-30.9	139.3	43
12	14.2	-27.5	139.5	10	42.8	-28.7	139.7	9	11.1	-29.9	140.0	7	39.1	-31.0	140.1	44
11	46.7	-27.6	140.4	10	14.1	-28.8	140.6	8	41.2	-30.0	140.8	7	08.1	-31.1	141.0	45
11	19.1	-27.8	141.3	9	45.3	-29.0	141.5	8	11.2	-30.1	141.7	6	37.0	-31.3	141.9	46
10	51.3	-28.0	142.2	9	16.3	-29.1	142.4	7	41.1	-30.2	142.6	6	05.7	-31.3	142.7	47
10	23.3	-28.1	143.1	8	47.2	-29.2	143.3	7	10.9	-30.3	143.5	5	34.4	-31.3	143.6	48
9	55.2	-28.3	144.0	8	18.0	-29.3	144.2	6	40.6	-30.4	144.3	5	03.1	-31.5	144.4	49
9	26.9	-28.4	144.9	7	48.7	-29.5	145.0	6	10.2	-30.5	145.2	4	31.6	-31.5	145.3	50
8	58.5	-28.5	145.8	7	19.2	-29.5	145.9	5	39.7	-30.5	146.1	4	00.1	-31.5	146.2	51
8	30.0	-28.7	146.7	6	49.7	-29.7	146.8	5	09.2	-30.7	146.9	3	28.6	-31.6	147.0	52
8	01.3	-28.7	147.5	6	20.0	-29.7	147.7	4	38.5	-30.7	147.8	2	57.0	-31.7	147.9	53
7	32.6	-28.9	148.4	5	50.3	-29.8	148.6	4	07.8	-30.7	148.6	2	25.3	-31.6	148.7	54
7	03.7	-28.9	149.3	5	20.5	-29.9	149.4	3	37.1	-30.8	149.5	1	53.7	-31.7	149.6	55
6	34.8	-29.1	150.2	4	50.6	-30.0	150.3	3	06.3	-30.8	150.4	1	22.0	-31.7	150.4	56
6	05.7	-29.2	151.1	4	20.6	-30.0	151.2	2	35.5	-30.9	151.2	0	50.3	-31.8	151.3	57
5	36.5	-29.2	152.0	3	50.6	-30.1	152.0	2	04.6	-30.9	152.1	0	18.5	-31.7	152.1	58
5	07.3	-29.3	152.8	3	20.5	-30.1	152.9	1	33.7	-30.9	152.9	0	13.2	+31.7	27.0	59
4	38.0	-29.3	153.7	2	50.4	-30.1	153.8	1	02.8	-31.0	153.8	0	44.9	+31.7	26.2	60
4	08.7	-29.5	154.6	2	20.3	-30.2	154.6	0	31.8	-30.9	154.7	1	16.6	+31.7	25.4	61
3	39.2	-29.4	155.5	1	50.1	-30.2	155.5	0	00.9	-31.0	155.5	0	00.9	-31.0	155.5	62
3	09.8	-29.5	156.3	1	19.9	-30.3	156.4	0	30.1	+30.9	23.6	2	20.0	+31.7	23.7	63
2	40.3	-29.6	157.2	0	49.6	-30.2	157.2	1	01.0	+30.9	22.8	2	51.7	+31.6	22.8	64
2	10.7	-29.6	158.1	0	19.4	-30.3	158.1	1	31.9	+30.9	21.9	3	23.3	+31.5	22.0	65
1	41.1	-29.6	158.9	0	10.9	+30.2	21.0	2	02.8	+30.9	21.1	3	54.8	+31.5	21.1	66
1	11.5	-29.6	159.8	0	41.1	+30.2	20.2	2	33.7	+30.9	20.2	4	26.3	+31.5	20.2	67
0	41.9	-29.6	160.7	1	11.3	+30.2	19.3	3	04.6	+30.8	19.3	4	57.8	+31.4	19.4	68
0	12.3	-29.6	161.6	1	41.5	+30.2	18.5	3	35.4	+30.7	18.5	5	29.2	+31.3	18.5	69
0	17.3	+29.7	17.6	2	11.7	+30.2	17.6	4	06.1	+30.7	17.6	6	00.5	+31.2	17.7	70
0	47.0	+29.6	16.7	2	41.9	+30.1	16.7	4	36.8	+30.7	16.8	6	31.7	+31.1	16.8	71
1	16.6	+29.6	15.8	3	12.0	+30.1	15.9	5	07.5	+30.5	15.9	7	02.8	+31.1	16.0	72
1	46.2	+29.6	15.0	3	42.1	+30.0	15.0	5	38.0	+30.5	15.0	7	33.9	+30.9	15.1	73
2	15.8	+29.5	14.1	4	12.1	+30.0	14.1	6	08.5	+30.4	14.2	8	04.8	+30.9	14.2	74
2	45.3	+29.5	13.2	4	42.1	+29.9	13.3	6	38.9	+30.3	13.3	8	35.7	+30.7	13.4	75
3	14.8	+29.5	12.4	5	12.0	+29.9	12.4	7	09.2	+30.2	12.4	9	06.4	+30.6	12.5	76
3	44.3	+29.4	11.5	5	41.9	+29.7	11.5	7	39.4	+30.2	11.6	9	37.0	+30.5	11.6	77
4	13.7	+29.3	10.6	6	11.6	+29.7	10.6	8	09.6	+30.0	10.7	10	07.5	+30.3	10.7	78
4	43.0	+29.3	9.7	6	41.3	+29.6	9.8	8	39.6	+29.8	9.8	10	37.8	+30.2	9.9	79
5	12.3	+29.2	8.9	7	10.9	+29.5	8.9	9	09.4	+29.8	8.9	11	08.0	+30.0	9.0	80
5	41.5	+29.2	8.0	7	40.4	+29.3	8.0	9	39.2	+29.6	8.1	11	38.0	+29.9	8.1	81
6	10.7	+29.0	7.1	8	09.7	+29.3	7.1	10	08.8	+29.5	7.2	12	07.9	+29.7	7.2	82
6	39.7	+29.0	6.2	8	39.0	+29.1	6.2	10	38.3	+29.3	6.3	12	37.6	+29.5	6.3	83
7	08.7	+28.8	5.3	9	08.1	+29.0	5.4	11	07.6	+29.2	5.4	13	07.1	+29.3	5.4	84
7	37.5	+28.8	4.5	9	37.1	+28.9	4.5	11	36.8	+29.0	4.5	13	36.4	+29.1	4.5	85
8	06.3	+28.6	3.6	10	06.0	+28.7	3.6	12	05.8	+28.8	3.6	14	05.5	+29.0	3.6	86
8	34.9	+28.5	2.7	10	34.7	+28.6	2.7	12	34.6	+28.7	2.7	14	34.5	+28.7	2.7	87
9	03.4	+28.4	1.8	11	03.3	+28.4	1.8	13	03.3	+28.4	1.8	15	03.2	+28.5	1.8	88
9	31.8	+28.2	0.9	11	31.7	+28.3	0.9	13	31.7	+28.3	0.9	15	31.7	+28.3	0.9	89
10	00.0	+28.1	0.0	12	00.0	+28.1	0.0	14	00.0	+28.1	0.0	16	00.0	+28.0	0.0	90
10°			12°			14°			16°			18°				

LATITUDE SAME NAME

L.H.A. 118°, 242°

62°, 298° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	33 34.7	+5.1	66.6	34 21.1	+7.4	67.8	35 05.1	+9.8	69.1	35 46.5	+12.1	70.5	36 25.3	+14.5	71.9
31	33 39.8	+4.4	65.4	34 28.5	+6.7	66.6	35 14.9	+9.0	67.9	35 58.6	+11.4	69.3	36 39.8	+13.7	70.6
32	33 44.2	+3.7	64.2	34 35.2	+6.0	65.4	35 23.9	+8.3	66.7	36 10.0	+10.7	68.1	36 53.5	+13.1	69.4
33	33 47.9	+3.0	63.0	34 41.2	+5.3	64.2	35 32.2	+7.5	65.5	36 20.7	+9.9	66.8	37 06.6	+12.2	68.2
34	33 50.9	+2.3	61.8	34 46.5	+4.5	63.0	35 39.7	+6.8	64.3	36 30.6	+9.1	65.6	37 18.8	+11.5	67.0
35	33 53.2	+1.6	60.6	34 51.0	+3.8	61.8	35 46.5	+6.1	63.1	36 39.7	+8.4	64.4	37 30.3	+10.7	65.7
36	33 54.8	+0.9	59.4	34 54.8	+3.1	60.6	35 52.6	+5.3	61.8	36 48.1	+7.6	63.1	37 41.0	+9.9	64.5
37	33 55.7	+0.2	58.2	34 57.9	+2.4	59.4	35 57.9	+4.6	60.6	36 55.7	+6.8	61.9	37 50.9	+9.2	63.3
38	33 55.9	-0.5	57.0	35 00.3	+1.6	58.1	36 02.5	+3.8	59.4	37 02.5	+6.0	60.7	38 00.1	+8.3	62.0
39	33 55.4	-1.2	55.8	35 01.9	+0.9	56.9	36 06.3	+3.1	58.1	37 08.5	+5.3	59.4	38 08.4	+7.5	60.7
40	33 54.2	-1.9	54.6	35 02.8	+0.1	55.7	36 09.4	+2.3	56.9	37 13.8	+4.5	58.2	38 15.9	+6.8	59.5
41	33 52.3	-2.6	53.4	35 02.9	-0.5	54.5	36 11.7	+1.5	55.7	37 18.3	+3.7	56.9	38 22.7	+5.9	58.2
42	33 49.7	-3.3	52.2	35 02.4	-1.3	53.3	36 13.2	+0.7	54.4	37 22.0	+2.8	55.6	38 28.6	+5.0	56.9
43	33 46.4	-4.0	51.0	35 01.1	-2.1	52.0	36 13.9	0.0	53.2	37 24.8	+2.1	54.4	38 33.6	+4.3	55.7
44	33 42.4	-4.7	49.8	34 59.9	-2.8	50.8	36 13.9	-0.8	51.9	37 26.9	+1.3	53.1	38 37.9	+3.4	54.4
45	33 37.7	-5.4	48.6	34 56.2	-3.5	49.6	36 13.1	-1.5	50.7	37 28.2	+0.5	51.9	38 41.3	+2.5	53.1
46	33 32.3	-6.1	47.4	34 52.7	-4.2	48.4	36 11.6	-2.3	49.5	37 28.7	-0.4	50.6	38 43.8	+1.8	51.8
47	33 26.2	-6.8	46.2	34 48.5	-4.9	47.2	36 09.3	-3.1	48.2	37 28.3	-1.1	49.4	38 45.6	+0.9	50.6
48	33 19.4	-7.4	45.0	34 43.6	-5.7	46.0	36 06.2	-3.8	47.0	37 27.2	-1.9	48.1	38 46.5	0.0	49.3
49	33 12.0	-8.2	43.8	34 37.9	-6.4	44.7	36 02.4	-4.6	45.8	37 25.3	-2.7	46.8	38 46.5	-0.8	48.0
50	33 03.8	-8.8	42.6	34 31.5	-7.1	43.5	35 57.8	-5.4	44.5	37 22.6	-3.6	45.6	38 45.7	-1.6	46.7
51	32 55.0	-9.4	41.4	34 24.4	-7.8	42.3	35 52.4	-6.1	43.3	37 19.0	-4.3	44.3	38 44.1	-2.5	45.4
52	32 45.6	-10.1	40.3	34 16.6	-8.5	41.1	35 46.3	-6.8	42.1	37 14.7	-5.1	43.1	38 41.6	-3.3	44.1
53	32 35.5	-10.8	39.1	34 08.1	-9.2	39.9	35 39.5	-7.6	40.8	37 09.6	-5.9	41.8	38 38.3	-4.2	42.9
54	32 24.7	-11.4	37.9	33 58.9	-9.9	38.7	35 31.9	-8.3	39.6	37 03.7	-6.7	40.6	38 34.1	-4.9	41.6
55	32 13.3	-12.0	36.8	33 49.0	-10.6	37.6	35 23.6	-9.1	38.4	36 57.0	-7.5	39.3	38 29.2	-5.8	40.3
56	32 01.3	-12.7	35.6	33 38.4	-11.2	36.4	35 14.5	-9.8	37.2	36 49.5	-8.2	38.1	38 23.4	-6.6	39.0
57	31 48.6	-13.2	34.5	33 27.2	-12.0	35.2	35 04.7	-10.4	36.0	36 41.3	-9.0	36.8	38 16.8	-7.5	37.8
58	31 35.4	-13.9	33.3	33 15.2	-12.5	34.0	34 54.3	-11.2	34.8	36 32.3	-9.7	35.6	38 09.3	-8.2	36.5
59	31 21.5	-14.5	32.2	33 02.7	-13.3	32.9	34 43.1	-11.9	33.6	36 22.6	-10.5	34.4	38 01.1	-9.1	35.3
60	31 07.0	-15.1	31.0	32 49.4	-13.8	31.7	34 31.2	-12.6	32.4	36 12.1	-11.3	33.2	37 52.0	-9.8	34.0
61	30 51.9	-15.7	29.9	32 35.6	-14.5	30.5	34 18.6	-13.3	31.2	36 00.8	-12.0	32.0	37 42.2	-10.6	32.8
62	30 36.2	-16.2	28.8	32 21.1	-15.1	29.4	34 05.3	-13.9	30.0	35 48.8	-12.7	30.7	37 31.6	-11.4	31.5
63	30 20.0	-16.8	27.7	32 06.0	-15.8	28.2	33 51.4	-14.6	28.9	35 36.1	-13.4	29.5	37 20.2	-12.2	30.3
64	30 03.2	-17.4	26.6	31 50.2	-16.3	27.1	33 36.8	-15.3	27.7	35 22.7	-14.1	28.3	37 08.0	-12.9	29.0
65	29 45.8	-17.9	25.5	31 33.9	-16.9	26.0	33 21.5	-15.9	26.5	35 08.6	-14.8	27.2	36 55.1	-13.7	27.8
66	29 27.9	-18.5	24.4	31 17.0	-17.5	24.8	33 05.6	-16.5	25.4	34 53.8	-15.5	26.0	36 41.4	-14.4	26.6
67	29 09.4	-19.0	23.3	30 59.5	-18.1	23.7	32 49.1	-17.1	24.2	34 38.3	-16.2	24.8	36 27.0	-15.2	25.4
68	28 50.4	-19.5	22.2	30 41.4	-18.7	22.6	32 32.0	-17.8	23.1	34 22.1	-16.8	23.6	36 11.8	-15.8	24.2
69	28 30.9	-20.0	21.1	30 22.7	-19.2	21.5	32 14.2	-18.4	22.0	34 05.3	-17.5	22.5	35 56.0	-16.6	23.0
70	28 10.9	-20.5	20.0	30 03.5	-19.7	20.4	31 55.8	-18.9	20.8	33 47.8	-18.1	21.3	35 39.4	-17.2	21.8
71	27 50.4	-21.0	19.0	29 43.8	-20.3	19.3	31 36.9	-19.5	19.7	33 29.7	-18.7	20.2	35 22.2	-18.0	20.6
72	27 29.4	-21.4	17.9	29 23.5	-20.8	18.2	31 17.4	-20.1	18.6	33 11.0	-19.4	19.0	35 04.2	-18.6	19.5
73	27 08.0	-22.0	16.9	29 02.7	-21.3	17.2	30 57.3	-20.7	17.5	32 51.6	-20.0	17.9	34 45.6	-19.2	18.3
74	26 46.0	-22.3	15.8	28 41.4	-21.8	16.1	30 36.6	-21.2	16.4	32 31.6	-20.5	16.8	34 26.4	-19.9	17.2
75	26 23.7	-22.9	14.8	28 19.6	-22.3	15.0	30 15.4	-21.7	15.3	32 11.1	-21.2	15.7	34 06.5	-20.5	16.0
76	26 00.8	-23.2	13.7	27 57.3	-22.7	14.0	29 53.7	-22.3	14.3	31 49.9	-21.7	14.6	33 46.0	-21.2	14.9
77	25 37.6	-23.7	12.7	27 34.6	-23.3	12.9	29 31.4	-22.7	13.2	31 28.2	-22.2	13.5	33 24.8	-21.7	13.8
78	25 13.9	-24.2	11.7	27 11.3	-23.7	11.9	29 08.7	-23.3	12.1	31 06.0	-22.9	12.4	33 03.1	-22.3	12.7
79	24 49.7	-24.5	10.7	26 47.6	-24.1	10.9	28 45.4	-23.7	11.1	30 43.1	-23.3	11.3	32 40.8	-22.9	11.5
80	24 25.2	-24.9	9.7	26 23.5	-24.6	9.9	28 21.7	-24.2	10.0	30 19.8	-23.8	10.2	32 17.9	-23.5	10.5
81	24 00.3	-25.3	8.7	25 58.9	-25.0	8.8	27 57.5	-24.7	9.0	29 56.0	-24.4	9.2	31 54.4	-24.0	9.4
82	23 35.0	-25.6	7.7	25 33.9	-25.4	7.8	27 32.8	-25.1	8.0	29 31.6	-24.8	8.1	31 30.4	-24.6	8.3
83	23 09.4	-26.1	6.7	25 08.5	-25.8	6.8	27 07.7	-25.6	6.9	29 06.8	-25.4	7.1	31 05.8	-25.1	7.2
84	22 43.3	-26.4	5.7	24 42.7	-26.2	5.8	26 42.1	-26.0	5.9	28 41.4	-25.8	6.0	30 40.7	-25.5	6.2
85	22 16.9	-26.7	4.8	24 16.5	-26.6	4.8	26 16.1	-26.4	4.9	28 15.6	-26.2	5.0	30 15.2	-26.1	5.1
86	21 50.2	-27.1	3.8	23 49.9	-26.9	3.9	25 49.7	-26.9	3.9	27 49.4	-26.7	4.0	29 49.1	-26.6	4.1
87	21 23.1	-27.4	2.8	23 23.0	-27.3	2.9	25 22.8	-27.2	2.9	27 22.7	-27.2	3.0	29 22.5	-27.0	3.0
88	20 55.7	-27.7	1.9	22 55.7	-27.7	1.9	24 55.6	-27.6	1.9	26 55.5	-27.5	2.0	28 55.5	-27.6	2.0
89	20 28.0	-28.0	0.9	22 28.0	-28.0	1.0	24 28.0	-28.0	1.0	26 28.0	-28.0	1.0	28 27.9	-27.9	1.0
90	20 00.0	-28.3	0.0	22 00.0	-28.3	0.0	24 00.0	-28.3	0.0	26 00.0	-28.4	0.0	28 00.0	-28.4	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 62°, 298°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
12	11.0	-31.8	128.5	10	56.0	-33.2	128.8	9	40.5	-34.6	129.1	8	24.5	-35.8	129.4	7	08.2	-37.1	129.6	30
11	39.2	-31.9	129.4	10	22.8	-33.3	129.7	9	05.9	-34.6	130.0	7	48.7	-36.0	130.2	6	31.1	-37.2	130.4	31
11	07.3	-32.1	130.3	9	49.5	-33.5	130.5	8	31.3	-34.8	130.8	7	12.7	-36.0	131.0	5	53.9	-37.3	131.2	32
10	35.2	-32.3	131.1	9	16.0	-33.5	131.4	7	56.5	-34.9	131.6	6	36.7	-36.2	131.8	5	16.6	-37.4	132.0	33
10	02.9	-32.4	132.0	8	42.5	-33.7	132.2	7	21.6	-34.9	132.4	6	00.5	-36.2	132.6	4	39.2	-37.4	132.7	34
9	30.5	-32.5	132.8	8	08.8	-33.8	133.1	6	46.7	-35.0	133.3	5	24.3	-36.2	133.4	4	01.8	-37.5	133.5	35
8	58.0	-32.6	133.7	7	35.0	-33.9	133.9	6	11.7	-35.2	134.1	4	48.1	-36.3	134.2	3	24.3	-37.5	134.3	36
8	25.4	-32.7	134.5	7	01.1	-33.9	134.7	5	36.5	-35.1	134.9	4	11.8	-36.4	135.0	2	46.8	-37.5	135.1	37
7	52.7	-32.8	135.4	6	27.2	-34.1	135.6	5	01.4	-35.3	135.7	3	35.4	-36.4	135.8	2	09.3	-37.5	135.9	38
7	19.9	-32.9	136.2	5	53.1	-34.1	136.4	4	26.1	-35.3	136.5	2	59.0	-36.4	136.6	1	31.8	-37.6	136.7	39
6	47.0	-33.1	137.1	5	19.0	-34.2	137.2	3	50.8	-35.3	137.3	2	22.6	-36.5	137.4	0	54.2	-37.6	137.4	40
6	13.9	-33.0	137.9	4	44.8	-34.2	138.0	3	15.5	-35.4	138.1	1	46.1	-36.5	138.2	0	16.6	-37.5	138.2	41
5	40.9	-33.2	138.7	4	10.6	-34.3	138.9	2	40.1	-35.4	138.9	1	09.6	-36.5	139.0	0	20.9	+37.6	41.0	42
5	07.7	-33.2	139.6	3	36.3	-34.4	139.7	2	04.7	-35.4	139.7	0	33.1	-36.5	139.8	0	58.5	+37.6	40.2	43
4	34.5	-33.3	140.4	3	01.9	-34.4	140.5	1	29.3	-35.5	140.6	0	03.4	+36.5	39.4	1	36.1	+37.5	39.4	44
4	01.2	-33.3	141.3	2	27.5	-34.4	141.3	0	53.8	-35.4	141.4	0	39.9	+36.5	38.6	2	13.6	+37.5	38.7	45
3	27.9	-33.4	142.1	1	53.1	-34.4	142.1	0	18.4	-35.5	142.2	1	16.4	+36.5	37.8	2	51.1	+37.5	37.9	46
2	54.5	-33.4	142.9	1	18.7	-34.4	143.0	0	17.1	+35.4	37.0	0	52.9	+36.4	37.0	3	28.6	+37.5	37.1	47
2	21.1	-33.5	143.8	0	44.3	-34.5	143.8	0	52.5	+35.5	36.2	2	29.3	+36.5	36.3	4	06.1	+37.4	36.3	48
1	47.6	-33.4	144.6	0	09.8	-34.4	144.6	1	28.0	+35.4	35.4	3	05.8	+36.4	35.5	4	43.5	+37.3	35.5	49
1	14.2	-33.5	145.4	0	24.6	+34.5	34.6	2	03.4	+35.4	34.6	3	42.2	+36.3	34.7	5	20.8	+37.3	34.8	50
0	40.7	-33.5	146.2	0	59.1	+34.4	33.8	2	38.8	+35.4	33.8	4	18.5	+36.3	33.9	5	58.1	+37.2	34.0	51
0	07.2	-33.5	147.1	1	33.5	+34.5	32.9	3	14.2	+35.4	33.0	4	54.8	+36.3	33.1	6	35.3	+37.2	33.2	52
0	26.3	+33.5	32.1	2	08.0	+34.3	32.1	3	49.6	+35.2	32.2	5	31.1	+36.2	32.3	7	12.5	+37.1	32.4	53
0	59.8	+33.5	31.3	2	42.3	+34.4	31.3	4	24.8	+35.3	31.4	6	07.3	+36.1	31.5	7	49.6	+36.9	31.6	54
1	33.3	+33.4	30.4	3	16.7	+34.3	30.5	5	00.1	+35.2	30.6	6	43.4	+36.0	30.7	8	26.5	+36.9	30.8	55
2	06.7	+33.5	29.6	3	51.0	+34.3	29.7	5	35.3	+35.1	29.7	7	19.4	+36.0	29.9	9	03.4	+36.8	30.0	56
2	40.2	+33.3	28.8	4	25.3	+34.2	28.8	6	10.4	+35.0	28.9	7	55.4	+35.8	29.0	9	40.2	+36.6	29.2	57
3	13.5	+33.4	27.9	4	59.5	+34.2	28.0	6	45.4	+35.0	28.1	8	31.2	+35.8	28.2	10	16.8	+36.6	28.4	58
3	46.9	+33.3	27.1	5	33.7	+34.1	27.2	7	20.4	+34.8	27.3	9	07.0	+35.6	27.4	10	53.4	+36.4	27.6	59
4	20.2	+33.3	26.3	8	07.8	+34.0	26.4	7	55.2	+34.8	26.5	9	42.6	+35.5	26.6	11	29.8	+36.3	26.8	60
4	53.5	+33.1	25.4	6	41.8	+33.9	25.5	8	30.0	+34.7	25.6	10	18.1	+35.4	25.8	12	06.1	+36.1	26.0	61
5	26.6	+33.2	24.6	7	15.7	+33.8	24.7	9	04.7	+34.5	24.8	10	53.5	+35.3	25.0	12	42.2	+36.0	25.1	62
5	59.8	+33.0	23.8	7	49.5	+33.8	23.9	9	39.2	+34.5	24.0	11	28.8	+35.1	24.1	13	18.2	+35.9	24.3	63
6	32.8	+33.0	22.9	8	23.3	+33.6	23.0	10	13.7	+34.3	23.2	12	03.9	+35.0	23.3	13	54.1	+35.6	23.5	64
7	05.8	+32.8	22.1	8	56.9	+33.5	22.2	10	48.0	+34.1	22.3	12	38.9	+34.8	22.5	14	29.7	+35.5	22.7	65
7	38.6	+32.8	21.2	9	30.4	+33.4	21.4	11	22.1	+34.1	21.5	13	13.7	+34.7	21.6	15	05.2	+35.3	21.8	66
8	11.4	+32.7	20.4	10	03.8	+33.3	20.5	11	56.2	+33.9	20.6	13	48.4	+34.5	20.8	15	40.5	+35.1	21.0	67
8	44.1	+32.5	19.6	10	37.1	+33.1	19.7	12	30.1	+33.7	19.8	14	22.9	+34.3	20.0	16	15.6	+34.9	20.2	68
9	16.6	+32.4	18.7	11	10.2	+33.0	18.8	13	03.8	+33.5	19.0	14	57.2	+34.1	19.1	16	50.5	+34.7	19.3	69
9	49.0	+32.3	17.8	11	43.2	+32.9	18.0	13	37.3	+33.4	18.1	15	31.3	+34.0	18.3	17	25.2	+34.5	18.5	70
10	21.3	+32.2	17.0	12	16.1	+32.6	17.1	14	10.7	+33.2	17.2	16	05.3	+33.7	17.4	17	59.7	+34.3	17.6	71
10	53.5	+32.0	16.1	12	48.7	+32.6	16.2	14	43.9	+33.0	16.4	16	39.0	+33.5	16.5	18	34.0	+34.0	16.7	72
11	25.5	+31.9	15.3	13	21.3	+32.3	15.4	15	16.9	+32.8	15.5	17	12.5	+33.3	15.7	19	08.0	+33.8	15.9	73
11	57.4	+31.7	14.4	13	53.6	+32.1	14.5	15	49.7	+32.6	14.7	17	45.8	+33.0	14.8	19	41.8	+33.5	15.0	74
12	29.1	+31.5	13.5	14	25.7	+32.0	13.6	16	22.3	+32.4	13.8	18	18.8	+32.8	13.9	20	15.3	+33.2	14.1	75
13	00.6	+31.4	12.7	14	57.7	+31.8	12.8	16	54.7	+32.2	12.9	18	51.6	+32.6	13.0	20	48.5	+33.0	13.2	76
13	32.0	+31.2	11.8	15	29.5	+31.5	11.9	17	26.9	+31.9	12.0	19	24.2	+32.3	12.2	21	21.5	+32.7	12.3	77
14	03.2	+31.0	10.9	16	01.0	+31.3	11.0	17	58.8	+31.7	11.1	19	56.5	+32.0	11.3	21	54.2	+32.3	11.4	78
14	34.2	+30.8	10.0	16	32.3	+31.1	10.1	18	30.5	+31.4	10.2	20	28.5	+31.8	10.4	22	26.5	+32.1	10.5	79
15	05.0	+30.6	9.1	17	03.4	+30.9	9.2	19	01.9	+31.1	9.3	21	00.3	+31.4	9.5	22	58.6	+31.8	9.6	80
15	35.6	+30.3	8.2	17	34.3	+30.6	8.3	19	33.0	+30.9	8.4	21	31.7	+31.2	8.5	23	30.4	+31.4	8.7	81
16	05.9	+30.2	7.3	18	04.9	+30.4	7.4	20	03.9	+30.6	7.5	22	02.9	+30.8	7.6	24	01.8	+31.1	7.7	82
16	36.1	+29.9	6.4	18	35.3	+30.1	6.5	20	34.5	+30.3	6.6	22	33.7	+30.5	6.7	24	32.9	+30.7	6.8	83
17	06.0	+29.6	5.5	19	05.4	+29.8	5.6	21	04.8	+30.0	5.7	23	04.2	+30.2	5.8	25	03.6	+30.4	5.8	84
17	35.6	+29.4	4.6	19	35.2	+29.6	4.7	21	34.8	+29.7	4.7	23	34.4	+29.9	4.8	25	34.0	+30.0	4.9	85
18	05.0	+29.2	3.7	20	04.8	+29.3	3.8	22	04.5	+29.4	3.8	24	04.3	+29.5	3.9	26	04.0	+29.6	3.9	86
18	34.2	+28.9	2.8	20	34.1	+28.9	2.8	22	33.9	+29.1	2.9	24	33.8	+29.1	2.9	26	33.6	+29.2	3.0	87
19	03.1	+28.6	1.9	21	03.0	+28.7	1.9	23	03.0	+28.7	1.9	25	02.9	+28.7	1.9	27	02.8	+28.8	2.0	88
19	31.7	+28.3	0.9	21	31.7	+28.3	0.9	23	31.7	+28.3	1.0	25	31.6	+28.4	1.0	27	31.6	+28.4	1.0	89
20	00.0	+28.0	0.0	22	00.0	+28.0	0.0	24	00.0	+28.0	0.0	26	00.0	+28.0	0.0	28	00.0	+27.9	0.0	90

LATITUDE SAME NAME

L.H.A. 118°, 242°

64°, 296° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	22 18.7	-14.4	57.3	23 22.9	-12.5	58.0	24 25.8	-10.6	58.8	25 27.4	-8.7	59.6	26 27.4	-6.7	60.4
31	22 04.3	-14.8	56.2	23 10.4	-13.0	56.9	24 15.2	-11.1	57.7	25 18.7	-9.2	58.5	26 20.7	-7.2	59.3
32	21 49.5	-15.3	55.2	22 57.4	-13.4	55.9	24 04.1	-11.6	56.6	25 09.5	-9.7	57.4	26 13.5	-7.8	58.2
33	21 34.2	-15.6	54.2	22 44.0	-13.9	54.8	23 52.5	-12.0	55.5	24 59.8	-10.2	56.3	26 05.7	-8.2	57.1
34	21 18.6	-15.9	53.1	22 30.1	-14.2	53.8	23 40.5	-12.5	54.5	24 49.6	-10.6	55.2	25 57.5	-8.8	56.0
35	21 02.7	-16.4	52.1	22 15.9	-14.6	52.7	23 28.0	-12.8	53.4	24 39.0	-11.1	54.1	25 48.7	-9.2	54.9
36	20 46.3	-16.7	51.0	22 01.3	-15.1	51.7	23 15.2	-13.3	52.3	24 27.9	-11.5	53.0	25 39.5	-9.7	53.8
37	20 29.6	-17.1	50.0	21 46.2	-15.4	50.6	23 01.9	-13.8	51.3	24 16.4	-12.0	51.9	25 29.8	-10.3	52.7
38	20 12.5	-17.4	49.0	21 30.8	-15.8	49.6	22 48.1	-14.1	50.2	24 04.4	-12.5	50.9	25 19.5	-10.7	51.6
39	19 55.1	-17.8	48.0	21 15.0	-16.2	48.5	22 34.0	-14.6	49.1	23 51.9	-12.9	49.8	25 08.8	-11.1	50.5
40	19 37.3	-18.1	47.0	20 58.8	-16.6	47.5	22 19.4	-15.0	48.1	23 39.0	-13.3	48.7	24 57.7	-11.7	49.4
41	19 19.2	-18.5	46.0	20 42.2	-16.9	46.5	22 04.4	-15.3	47.1	23 25.7	-13.7	47.7	24 46.0	-12.1	48.3
42	19 00.7	-18.7	44.9	20 25.3	-17.3	45.5	21 49.1	-15.8	46.0	23 12.0	-14.2	46.6	24 33.9	-12.6	47.3
43	18 42.0	-19.1	43.9	20 08.0	-17.6	44.4	21 33.3	-16.1	45.0	22 57.8	-14.6	45.6	24 21.3	-13.0	46.2
44	18 22.9	-19.4	42.9	19 50.4	-18.0	43.4	21 17.2	-16.5	43.9	22 43.2	-15.0	44.5	24 08.3	-13.4	45.1
45	18 03.5	-19.7	41.9	19 32.4	-18.3	42.4	21 00.7	-16.9	42.9	22 28.2	-15.5	43.5	23 54.9	-14.0	44.0
46	17 43.8	-20.1	41.0	19 14.1	-18.7	41.4	20 43.8	-17.3	41.9	22 12.7	-15.8	42.4	23 40.9	-14.3	43.0
47	17 23.7	-20.3	40.0	18 55.4	-18.9	40.4	20 26.5	-17.6	40.9	21 56.9	-16.2	41.4	23 26.6	-14.8	41.9
48	17 03.4	-20.5	39.0	18 36.5	-19.3	39.4	20 08.9	-18.0	39.8	21 40.7	-16.6	40.3	23 11.8	-15.2	40.9
49	16 42.9	-20.9	38.0	18 17.2	-19.6	38.4	19 50.9	-18.3	38.8	21 24.1	-16.9	39.3	22 56.6	-15.6	39.8
50	16 22.0	-21.1	37.0	17 57.6	-19.9	37.4	19 32.6	-18.6	37.8	21 07.2	-17.4	38.3	22 41.0	-16.0	38.8
51	16 00.9	-21.4	36.0	17 37.7	-20.2	36.4	19 14.0	-19.0	36.8	20 49.8	-17.7	37.2	22 25.0	-16.4	37.7
52	15 39.5	-21.7	35.1	17 17.5	-20.5	35.4	18 55.0	-19.3	35.8	20 32.1	-18.1	36.2	22 08.6	-16.8	36.7
53	15 17.8	-21.9	34.1	16 57.0	-20.8	34.4	18 35.7	-19.6	34.8	20 14.0	-18.4	35.2	21 51.8	-17.2	35.6
54	14 55.9	-22.1	33.1	16 36.2	-21.0	33.5	18 16.1	-19.9	33.8	19 55.6	-18.7	34.2	21 34.6	-17.5	34.6
55	14 33.8	-22.4	32.2	16 15.2	-21.3	32.5	17 56.2	-20.2	32.8	19 36.9	-19.1	33.2	21 17.1	-18.0	33.6
56	14 11.4	-22.6	31.2	15 53.9	-21.6	31.5	17 36.0	-20.5	31.8	19 17.8	-19.5	32.2	20 59.1	-18.3	32.6
57	13 48.8	-22.8	30.3	15 32.3	-21.8	30.5	17 15.5	-20.8	30.8	18 58.3	-19.7	31.2	20 40.8	-18.7	31.5
58	13 26.0	-23.1	29.3	15 10.5	-22.1	29.6	16 54.7	-21.1	29.9	18 38.6	-20.1	30.2	20 22.1	-19.0	30.5
59	13 02.9	-23.2	28.4	14 48.4	-22.3	28.6	16 33.6	-21.3	28.9	18 18.5	-20.3	29.2	20 03.1	-19.3	29.5
60	12 39.7	-23.5	27.4	14 26.1	-22.6	27.6	16 12.3	-21.7	27.9	17 58.2	-20.7	28.2	19 43.8	-19.7	28.5
61	12 16.2	-23.6	26.5	14 03.5	-22.7	26.7	15 50.6	-21.8	26.9	17 37.5	-21.0	27.2	19 24.1	-20.0	27.5
62	11 52.6	-23.8	25.5	13 40.8	-23.0	25.7	15 28.8	-22.2	26.0	17 16.5	-21.2	26.2	19 04.1	-20.4	26.5
63	11 28.8	-24.0	24.6	13 17.8	-23.2	24.8	15 06.6	-22.3	25.0	16 55.3	-21.5	25.2	18 43.7	-20.6	25.5
64	11 04.8	-24.2	23.7	12 54.6	-23.4	23.8	14 44.3	-22.6	24.0	16 33.8	-21.8	24.3	18 23.1	-21.0	24.5
65	10 40.6	-24.3	22.7	12 31.2	-23.6	22.9	14 21.7	-22.9	23.1	16 12.0	-22.1	23.3	18 02.1	-21.3	23.5
66	10 16.3	-24.5	21.8	12 07.6	-23.8	22.0	13 58.8	-23.0	22.1	15 49.9	-22.3	22.3	17 40.8	-21.5	22.6
67	9 51.8	-24.7	20.9	11 43.8	-23.9	21.0	13 35.8	-23.3	21.2	15 27.6	-22.6	21.4	17 19.3	-21.9	21.6
68	9 27.1	-24.8	20.0	11 19.9	-24.2	20.1	13 12.5	-23.5	20.2	15 05.0	-22.8	20.4	16 57.4	-22.1	20.6
69	9 02.3	-24.9	19.0	10 55.7	-24.3	19.2	12 49.0	-23.7	19.3	14 42.2	-23.0	19.5	16 35.3	-22.4	19.6
70	8 37.4	-25.1	18.1	10 31.4	-24.5	18.2	12 25.3	-23.8	18.3	14 19.2	-23.3	18.5	16 12.9	-22.6	18.7
71	8 12.3	-25.2	17.2	10 06.9	-24.6	17.3	12 01.5	-24.1	17.4	13 55.9	-23.5	17.5	15 50.3	-22.9	17.7
72	7 47.1	-25.3	16.3	9 42.3	-24.8	16.4	11 37.4	-24.2	16.5	13 32.4	-23.7	16.6	15 27.4	-23.2	16.7
73	7 21.8	-25.4	15.4	9 17.5	-24.9	15.4	11 13.2	-24.5	15.5	13 08.7	-23.9	15.7	15 04.2	-23.3	15.8
74	6 56.4	-25.5	14.5	8 52.6	-25.1	14.5	10 48.7	-24.6	14.6	12 44.8	-24.1	14.7	14 40.9	-23.7	14.8
75	6 30.9	-25.6	13.5	8 27.5	-25.2	13.6	10 24.1	-24.7	13.7	12 20.7	-24.3	13.8	14 17.2	-23.8	13.9
76	6 05.3	-25.7	12.6	8 02.3	-25.3	12.7	9 59.4	-24.9	12.8	11 56.4	-24.5	12.8	13 53.4	-24.1	12.9
77	5 39.6	-25.8	11.7	7 37.0	-25.4	11.8	9 34.5	-25.0	11.8	11 31.9	-24.6	11.9	13 29.3	-24.2	12.0
78	5 13.8	-25.9	10.8	7 11.6	-25.5	10.9	9 09.5	-25.2	10.9	11 07.3	-24.9	11.0	13 05.1	-24.5	11.1
79	4 47.9	-26.0	9.9	6 46.1	-25.6	9.9	8 44.3	-25.3	10.0	10 42.4	-24.9	10.1	12 40.6	-24.7	10.1
80	4 21.9	-26.0	9.0	6 20.5	-25.8	9.0	8 19.0	-25.5	9.1	10 17.5	-25.2	9.1	12 15.9	-24.8	9.2
81	3 55.9	-26.0	8.1	5 54.7	-25.8	8.1	7 53.5	-25.5	8.2	9 52.3	-25.3	8.2	11 51.1	-25.1	8.3
82	3 29.9	-26.2	7.2	5 28.9	-25.9	7.2	7 28.0	-25.7	7.2	9 27.0	-25.4	7.3	11 26.0	-25.2	7.3
83	3 03.7	-26.1	6.3	5 03.0	-26.0	6.3	7 02.3	-25.8	6.3	9 01.6	-25.6	6.4	11 00.8	-25.4	6.4
84	2 37.6	-26.2	5.4	4 37.0	-26.0	5.4	6 36.5	-25.9	5.4	8 36.0	-25.7	5.5	10 35.4	-25.5	5.5
85	2 11.4	-26.3	4.5	4 11.0	-26.1	4.5	6 10.6	-25.9	4.5	8 10.3	-25.9	4.5	10 09.9	-25.7	4.6
86	1 45.1	-26.2	3.6	3 44.9	-26.2	3.6	5 44.7	-26.1	3.6	7 44.4	-25.9	3.6	9 44.2	-25.9	3.6
87	1 18.9	-26.3	2.7	3 18.7	-26.2	2.7	5 18.6	-26.1	2.7	7 18.5	-26.1	2.7	9 18.3	-25.9	2.7
88	0 52.6	-26.3	1.8	2 52.5	-26.2	1.8	4 52.5	-26.2	1.8	6 52.4	-26.1	1.8	8 52.4	-26.2	1.8
89	0 26.3	-26.3	0.9	2 26.3	-26.3	0.9	4 26.3	-26.3	0.9	6 26.3	-26.3	0.9	8 26.2	-26.2	0.9
90	0 00.0	-26.3	0.0	2 00.0	-26.3	0.0	4 00.0	-26.3	0.0	6 00.0	-26.3	0.0	8 00.0	-26.4	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 64°, 296°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
22 18.7 -14.4 122.7	21 13.2 -16.2 123.4	20 06.7 -18.1 124.0	18 59.0 -19.7 124.6	17 50.4 -21.4 125.1	30										
22 04.3 -14.8 123.8	20 57.0 -16.6 124.4	19 48.6 -18.3 125.0	18 39.3 -20.1 125.6	17 29.0 -21.7 126.1	31										
21 49.5 -15.3 124.8	20 40.4 -17.0 125.4	19 30.3 -18.7 126.0	18 19.2 -20.3 126.6	17 07.3 -22.0 127.1	32										
21 34.2 -15.6 125.8	20 23.4 -17.3 126.5	19 11.6 -19.0 127.0	17 58.9 -20.7 127.6	16 45.3 -22.3 128.1	33										
21 18.6 -15.9 126.9	20 06.1 -17.7 127.5	18 52.6 -19.3 128.0	17 38.2 -20.9 128.6	16 23.0 -22.5 129.0	34										
21 02.7 -16.4 127.9	19 48.4 -18.0 128.5	18 33.3 -19.7 129.5	17 17.3 -21.3 129.5	16 00.5 -22.8 130.0	35										
20 46.3 -16.7 129.0	19 30.4 -18.3 129.5	18 13.6 -19.9 130.0	16 56.0 -21.5 130.5	15 37.7 -23.0 131.0	36										
20 29.6 -17.1 130.0	19 12.1 -18.7 130.5	17 53.7 -20.3 131.0	16 34.5 -21.8 131.5	15 14.7 -23.3 131.9	37										
20 12.5 -17.4 131.0	18 53.4 -19.0 131.5	17 33.4 -20.5 132.0	16 12.7 -22.0 132.5	14 51.4 -23.5 132.9	38										
19 55.1 -17.8 132.0	18 34.4 -19.4 132.5	17 12.9 -20.9 133.0	15 50.7 -22.3 133.4	14 27.9 -23.8 133.8	39										
19 37.3 -18.1 133.0	18 15.0 -19.6 133.5	16 52.0 -21.1 134.0	15 28.4 -22.6 134.4	14 04.1 -23.9 134.8	40										
19 19.2 -18.5 134.0	17 55.4 -19.9 134.5	16 30.9 -21.4 135.0	15 05.8 -22.8 135.4	13 40.2 -24.2 135.7	41										
19 00.7 -18.7 135.1	17 35.5 -20.3 135.5	16 09.5 -21.6 135.9	14 43.0 -23.0 136.3	13 16.0 -24.4 136.7	42										
18 42.0 -19.1 136.1	17 15.2 -20.5 136.5	15 47.9 -21.9 136.9	14 20.0 -23.3 137.3	12 51.6 -24.6 137.6	43										
18 22.9 -19.4 137.1	16 54.7 -20.8 137.5	15 26.0 -22.2 137.9	13 56.7 -23.5 138.2	12 27.0 -24.8 138.5	44										
18 03.5 -19.7 138.1	16 33.9 -21.1 138.5	15 03.8 -22.4 138.8	13 33.2 -23.6 139.2	12 02.2 -24.9 139.5	45										
17 43.8 -20.1 139.0	16 12.8 -21.3 139.4	14 41.4 -22.6 139.8	13 09.6 -23.9 140.1	11 37.3 -25.2 140.4	46										
17 23.7 -20.3 140.0	15 51.5 -21.6 140.4	14 18.8 -22.9 140.8	12 45.5 -24.1 141.1	11 12.1 -25.3 141.3	47										
17 03.4 -20.5 141.0	15 29.9 -21.8 141.4	13 55.9 -23.1 141.7	12 21.6 -24.3 142.0	10 46.8 -25.4 142.3	48										
16 42.9 -20.9 142.0	15 08.1 -22.1 142.3	13 32.8 -23.3 142.7	11 57.3 -24.5 142.9	10 21.4 -25.7 143.2	49										
16 22.0 -21.1 143.0	14 46.0 -22.4 143.3	13 09.5 -23.5 143.6	11 32.8 -24.7 143.4	9 55.7 -25.9 144.1	50										
16 00.9 -21.4 144.0	14 23.6 -22.5 144.3	12 46.0 -23.7 144.6	11 08.1 -24.8 144.8	9 30.0 -26.0 145.0	51										
15 39.5 -21.7 144.9	14 01.1 -22.8 145.2	12 22.3 -23.9 145.5	10 43.3 -25.0 145.7	9 04.0 -26.1 145.9	52										
15 17.8 -21.9 145.9	13 38.3 -23.0 146.2	11 58.4 -24.1 146.4	10 18.3 -25.1 146.6	8 38.0 -26.2 146.8	53										
14 55.9 -22.1 146.9	13 15.3 -23.2 147.1	11 34.3 -24.2 147.4	9 53.2 -25.3 147.6	8 11.8 -26.3 147.7	54										
14 33.8 -22.4 147.8	12 52.1 -23.5 148.1	11 10.1 -24.5 148.3	9 27.9 -25.5 148.3	7 45.5 -26.4 148.6	55										
14 11.4 -22.6 148.8	12 28.6 -23.6 149.0	10 45.6 -24.6 149.2	9 02.4 -25.5 149.4	7 19.1 -26.6 149.6	56										
13 48.8 -22.8 149.7	12 05.0 -23.8 150.0	10 21.0 -24.7 150.2	8 36.9 -25.8 150.3	6 52.5 -26.6 150.5	57										
13 26.0 -23.1 150.7	11 41.2 -24.0 150.9	9 56.3 -25.0 151.1	8 11.1 -25.8 151.2	6 25.9 -26.7 151.4	58										
13 02.9 -23.2 151.6	11 17.2 -24.1 151.8	9 31.3 -25.0 152.0	7 45.3 -25.9 152.1	5 59.2 -26.9 152.3	59										
12 39.7 -23.5 152.6	10 53.1 -24.4 152.8	9 06.3 -25.2 152.9	7 19.4 -26.1 153.1	5 32.3 -26.9 153.2	60										
12 16.2 -23.6 153.5	10 28.7 -24.5 153.7	8 41.1 -25.3 153.8	6 53.3 -26.1 154.0	5 05.4 -26.9 154.1	61										
11 52.6 -23.8 154.5	10 04.2 -24.6 154.6	8 15.8 -25.5 154.8	6 27.2 -26.3 154.9	4 38.5 -27.1 155.0	62										
11 28.8 -24.0 155.4	9 39.6 -24.8 155.5	7 50.3 -25.6 155.7	6 00.9 -26.3 155.8	4 11.4 -27.1 155.8	63										
11 04.8 -24.2 156.3	9 14.8 -24.9 156.5	7 24.7 -25.7 156.6	5 34.6 -26.5 156.7	3 44.3 -27.1 156.7	64										
10 40.6 -24.3 157.3	8 49.9 -25.1 157.4	6 59.0 -25.8 157.5	5 08.1 -26.5 157.6	3 17.2 -27.2 157.6	65										
10 16.3 -24.5 158.2	8 24.8 -25.2 158.3	6 33.2 -25.8 158.4	4 41.6 -26.5 158.5	2 50.0 -27.3 158.5	66										
9 51.8 -24.7 159.1	7 59.6 -25.3 159.2	6 07.4 -26.0 159.3	4 15.1 -26.7 159.4	2 22.7 -27.2 159.4	67										
9 27.1 -24.8 160.0	7 34.3 -25.5 160.1	5 41.4 -26.1 160.2	3 48.4 -26.7 160.3	1 55.5 -27.3 160.3	68										
9 02.3 -24.9 161.0	7 08.8 -25.5 161.1	5 15.3 -26.1 161.1	3 21.7 -26.7 161.2	1 28.2 -27.4 161.2	69										
8 37.4 -25.1 161.9	6 43.3 -25.6 162.0	4 49.2 -26.2 162.0	2 55.0 -26.8 162.1	1 00.8 -27.3 162.1	70										
8 12.3 -25.2 162.8	6 17.7 -25.8 162.9	4 23.0 -26.3 162.9	2 28.2 -26.8 163.0	0 33.5 -27.4 163.0	71										
7 47.1 -25.3 163.7	5 51.9 -25.8 163.8	3 56.7 -26.4 163.8	2 01.4 -26.8 163.9	0 06.1 -27.3 163.9	72										
7 21.8 -25.4 164.6	5 26.1 -25.9 164.7	3 30.3 -26.4 164.7	1 34.6 -26.9 164.8	0 21.2 +27.4 15.2	73										
6 56.4 -25.5 165.5	5 00.2 -26.0 165.6	3 03.9 -26.4 165.6	1 07.7 -26.9 165.7	0 48.6 +27.3 14.3	74										
6 30.9 -25.6 166.5	4 34.2 -26.0 166.5	2 37.5 -26.5 166.5	0 40.8 -26.9 166.5	1 15.9 +27.3 13.5	75										
6 05.3 -25.7 167.4	4 08.2 -26.1 167.4	2 11.0 -26.5 167.4	0 13.9 -26.9 167.4	1 43.2 +27.3 12.6	76										
5 39.6 -25.8 168.3	3 42.1 -26.2 168.3	1 44.5 -26.5 168.3	0 13.0 +26.9 11.7	2 10.5 +27.3 11.7	77										
5 13.8 -25.9 169.2	3 15.9 -26.2 169.2	1 18.0 -26.5 169.2	0 39.9 +26.9 10.8	2 37.8 +27.2 10.8	78										
4 47.9 -26.0 170.1	2 49.7 -26.3 170.1	0 51.5 -26.6 170.1	1 06.8 +26.8 9.9	3 05.0 +27.2 9.9	79										
4 21.9 -26.0 171.0	2 23.4 -26.3 171.0	0 24.9 -26.6 171.0	1 33.6 +26.9 9.0	3 32.2 +27.1 9.0	80										
3 55.9 -26.0 171.9	1 57.1 -26.3 171.9	0 01.7 +26.5 8.1	2 00.5 +26.8 8.1	3 59.3 +27.1 8.1	81										
3 29.9 -26.2 172.8	1 30.8 -26.3 172.8	0 28.2 +26.6 7.2	2 27.3 +26.8 7.2	4 26.4 +27.0 7.2	82										
3 03.7 -26.1 173.7	1 04.5 -26.4 173.7	0 54.8 +26.6 6.3	2 54.1 +26.7 6.3	4 53.4 +26.9 6.3	83										
2 37.6 -26.2 174.6	0 38.1 -26.4 174.6	1 21.4 +26.5 5.4	3 20.8 +26.7 5.4	5 20.3 +26.8 5.4	84										
2 11.4 -26.3 175.5	0 11.7 -26.3 175.5	1 47.9 +26.5 4.5	3 47.5 +26.7 4.5	5 47.1 +26.8 4.5	85										
1 45.1 -26.2 176.4	0 14.6 +26.4 3.6	2 14.4 +26.5 3.6	4 14.2 +26.5 3.6	6 13.9 +26.7 3.6	86										
1 18.9 -26.3 177.3	0 41.0 +26.3 2.7	2 40.9 +26.4 2.7	4 40.7 +26.5 2.7	6 40.6 +26.6 2.7	87										
0 52.6 -26.3 178.2	1 07.3 +26.4 1.8	3 07.3 +26.4 1.8	5 07.2 +26.5 1.8	7 07.2 +26.4 1.8	88										
0 26.3 -26.3 179.1	1 33.7 +26.3 0.9	3 33.7 +26.3 0.9	5 33.7 +26.3 0.9	7 33.6 +26.4 0.9	89										
0 00.0 +26.3 0.0	2 00.0 +26.3 0.0	4 00.0 +26.3 0.0	6 00.0 +26.3 0.0	8 00.0 +26.2 0.0	90										
0°	2°	4°	6°	8°											

LATITUDE SAME NAME

L.H.A. 116°, 244°

64°, 296° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	27 25.9	-4.7	61.3	28 22.7	-2.6	62.2	29 17.8	-0.5	63.2	30 10.9	+1.7	64.2	31 02.1	+3.9	65.3
31	27 21.2	-5.2	60.2	28 20.1	-3.2	61.1	29 17.3	-1.1	62.0	30 12.6	+1.0	63.1	31 06.0	+3.2	64.1
32	27 16.0	-5.8	59.0	28 16.9	-3.7	59.9	29 16.2	-1.7	60.9	30 13.6	+0.4	61.9	31 09.2	+2.5	63.0
33	27 10.2	-6.3	57.9	28 13.2	-4.3	58.8	29 14.5	-2.3	59.8	30 14.0	-0.2	60.7	31 11.7	+2.0	61.8
34	27 03.9	-6.8	56.8	28 08.9	-4.9	57.7	29 12.2	-2.8	58.6	30 13.8	-0.8	59.6	31 13.7	+1.3	60.6
35	26 57.1	-7.4	55.7	28 04.0	-5.4	56.6	29 09.4	-3.5	57.5	30 13.0	-1.4	58.4	31 15.0	+0.6	59.5
36	26 49.7	-7.8	54.6	27 58.6	-6.0	55.4	29 05.9	-4.0	56.3	30 11.6	-2.0	57.3	31 15.6	0.0	58.3
37	26 41.9	-8.4	53.5	27 52.6	-6.5	54.3	29 01.9	-4.6	55.2	30 09.6	-2.6	56.1	31 15.6	-0.6	57.1
38	26 33.5	-8.9	52.4	27 46.1	-7.1	53.2	28 57.3	-5.2	54.0	30 07.0	-3.2	55.0	31 15.0	-1.2	55.9
39	26 24.6	-9.4	51.2	27 39.0	-7.6	52.1	28 52.1	-5.7	52.9	30 03.8	-3.9	53.8	31 13.8	-1.9	54.8
40	26 15.2	-10.0	50.1	27 31.4	-8.1	50.9	28 46.4	-6.3	51.8	29 59.9	-4.4	52.7	31 11.9	-2.5	53.6
41	26 05.2	-10.4	49.0	27 23.3	-8.7	49.8	28 40.1	-6.9	50.6	29 55.5	-5.1	51.5	31 09.4	-3.1	52.4
42	25 54.8	-10.9	48.0	27 14.6	-9.2	48.7	28 33.2	-7.5	49.5	29 50.4	-5.6	50.4	31 06.3	-3.8	51.3
43	25 43.9	-11.4	46.9	27 05.4	-9.7	47.6	28 25.7	-8.0	48.4	29 44.8	-6.2	49.2	31 02.5	-4.4	50.1
44	25 32.5	-11.9	45.8	26 55.7	-10.2	46.5	28 17.7	-8.5	47.2	29 38.6	-6.8	48.1	30 58.1	-5.0	48.9
45	25 20.6	-12.3	44.7	26 45.5	-10.8	45.4	28 09.2	-9.1	46.1	29 31.8	-7.4	46.9	30 53.1	-5.7	47.8
46	25 08.3	-12.8	43.6	26 34.7	-11.2	44.3	28 00.1	-9.6	45.0	29 24.4	-8.0	45.8	30 47.4	-6.2	46.6
47	24 55.5	-13.3	42.5	26 23.5	-11.8	43.2	27 50.5	-10.2	43.9	29 16.4	-8.6	44.6	30 41.2	-6.9	45.5
48	24 42.2	-13.8	41.5	26 11.7	-12.3	42.1	27 40.3	-10.7	42.8	29 07.8	-9.1	43.5	30 34.3	-7.5	44.3
49	24 28.4	-14.1	40.4	25 59.4	-12.7	41.0	27 29.6	-11.3	41.7	28 58.7	-9.7	42.4	30 26.8	-8.1	43.2
50	24 14.3	-14.7	39.3	25 46.7	-13.2	39.9	27 18.3	-11.7	40.6	28 49.0	-10.2	41.3	30 18.7	-8.7	42.0
51	23 59.6	-15.1	38.3	25 33.5	-13.7	38.8	27 06.6	-12.3	39.5	28 38.8	-10.8	40.1	30 10.0	-9.3	40.9
52	23 44.5	-15.5	37.2	25 19.8	-14.2	37.7	26 54.3	-12.8	38.4	28 28.0	-11.4	39.0	30 00.7	-9.8	39.7
53	23 29.0	-15.9	36.1	25 05.6	-14.6	36.7	26 41.5	-13.3	37.3	28 16.6	-11.9	37.9	29 50.9	-10.5	38.6
54	23 13.1	-16.3	35.1	24 51.0	-15.1	35.6	26 28.2	-13.8	36.2	28 04.7	-12.4	36.8	29 40.4	-11.0	37.4
55	22 56.8	-16.8	34.0	24 35.9	-15.5	34.5	26 14.4	-14.2	35.1	27 52.3	-13.0	35.7	29 29.4	-11.6	36.3
56	22 40.0	-17.2	33.0	24 20.4	-16.0	33.5	26 00.2	-14.8	34.0	27 39.3	-13.5	34.6	29 17.8	-12.2	35.2
57	22 22.8	-17.5	32.0	24 04.4	-16.4	32.4	25 45.4	-15.2	32.9	27 25.8	-14.0	33.5	29 05.6	-12.7	34.1
58	22 05.3	-17.9	30.9	23 48.0	-16.8	31.4	25 30.2	-15.7	31.9	27 11.8	-14.5	32.4	28 52.9	-13.3	33.0
59	21 47.4	-18.4	29.9	23 31.2	-17.3	30.3	25 14.5	-16.1	30.8	26 57.3	-15.0	31.3	28 39.6	-13.8	31.8
60	21 29.0	-18.7	28.9	23 13.9	-17.7	29.3	24 58.4	-16.6	29.7	26 42.3	-15.5	30.2	28 25.8	-14.4	30.7
61	21 10.3	-19.0	27.9	22 56.2	-18.0	28.2	24 41.8	-17.1	28.7	26 26.8	-16.0	29.1	28 11.4	-14.9	29.6
62	20 51.3	-19.4	26.8	22 38.2	-18.5	27.2	24 24.7	-17.5	27.6	26 10.8	-16.4	28.0	27 56.5	-15.4	28.5
63	20 31.9	-19.8	25.8	22 19.7	-18.8	26.2	24 07.2	-17.9	26.6	25 54.4	-16.9	27.0	27 41.1	-15.9	27.4
64	20 12.1	-20.1	24.8	22 00.9	-19.3	25.2	23 49.3	-18.3	25.5	25 37.5	-17.4	25.9	27 25.2	-16.4	26.4
65	19 52.0	-20.5	23.8	21 41.6	-19.6	24.1	23 31.0	-18.7	24.5	25 20.1	-17.9	24.9	27 08.8	-17.0	25.3
66	19 31.5	-20.7	22.8	21 22.0	-19.9	23.1	23 12.3	-19.2	23.4	25 02.2	-18.3	23.8	26 51.8	-17.4	24.2
67	19 10.8	-21.1	21.8	21 02.1	-20.4	22.1	22 53.1	-19.5	22.4	24 43.9	-18.7	22.7	26 34.4	-17.8	23.1
68	18 49.7	-21.4	20.8	20 41.7	-20.7	21.1	22 33.6	-19.9	21.4	24 25.2	-19.2	21.7	26 16.6	-18.4	22.1
69	18 28.3	-21.7	19.9	20 21.0	-21.0	20.1	22 13.7	-20.4	20.4	24 06.0	-19.5	20.7	25 58.2	-18.8	21.0
70	18 06.6	-22.1	18.9	20 00.0	-21.3	19.1	21 53.3	-20.6	19.3	23 46.5	-20.0	19.6	25 39.4	-19.3	19.9
71	17 44.5	-22.2	17.9	19 38.7	-21.7	18.1	21 32.7	-21.1	18.3	23 26.5	-20.4	18.6	25 20.1	-19.7	18.9
72	17 22.3	-22.6	16.9	19 17.0	-22.0	17.1	21 11.6	-21.4	17.3	23 06.1	-20.8	17.6	25 00.4	-20.1	17.8
73	16 59.7	-22.9	15.9	18 55.0	-22.3	16.1	20 50.2	-21.7	16.3	22 45.3	-21.2	16.6	24 40.3	-20.6	16.8
74	16 36.8	-23.1	15.0	18 32.7	-22.6	15.1	20 28.5	-22.1	15.3	22 24.1	-21.5	15.5	24 19.7	-21.0	15.8
75	16 13.7	-23.4	14.0	18 10.1	-22.9	14.2	20 06.4	-22.4	14.3	22 02.6	-21.9	14.5	23 58.7	-21.4	14.7
76	15 50.3	-23.6	13.1	17 47.2	-23.2	13.2	19 44.0	-22.8	13.4	21 40.7	-22.3	13.5	23 37.3	-21.8	13.7
77	15 26.7	-23.9	12.1	17 24.0	-23.5	12.2	19 21.2	-23.0	12.4	21 18.4	-22.6	12.5	23 15.5	-22.2	12.7
78	15 02.8	-24.1	11.2	17 00.5	-23.7	11.3	18 58.2	-23.4	11.4	20 55.8	-23.0	11.5	22 53.3	-22.5	11.7
79	14 38.7	-24.3	10.2	16 36.8	-24.0	10.3	18 34.8	-23.6	10.4	20 32.8	-23.3	10.6	22 30.8	-23.0	10.7
80	14 14.4	-24.6	9.3	16 12.8	-24.3	9.4	18 11.2	-24.0	9.5	20 09.5	-23.6	9.6	22 07.8	-23.3	9.7
81	13 49.8	-24.8	8.3	15 48.5	-24.5	8.4	17 47.2	-24.2	8.5	19 45.9	-23.9	8.6	21 44.5	-23.6	8.7
82	13 25.0	-24.9	7.4	15 24.0	-24.7	7.5	17 23.0	-24.5	7.5	19 22.0	-24.3	7.6	21 20.9	-24.0	7.7
83	13 00.1	-25.2	6.5	14 59.3	-25.0	6.5	16 58.5	-24.8	6.6	18 57.7	-24.5	6.7	20 56.9	-24.3	6.7
84	12 34.9	-25.4	5.5	14 34.3	-25.2	5.6	16 33.7	-25.0	5.6	18 33.2	-24.9	5.7	20 32.6	-24.7	5.8
85	12 09.5	-25.6	4.6	14 09.1	-25.4	4.6	16 08.7	-25.3	4.7	18 08.3	-25.1	4.7	20 07.9	-25.0	4.8
86	11 43.9	-25.7	3.7	13 43.7	-25.6	3.7	15 43.4	-25.5	3.7	17 43.2	-25.4	3.8	19 42.9	-25.3	3.8
87	11 18.2	-25.9	2.7	13 18.1	-25.9	2.8	15 17.9	-25.7	2.8	17 17.8	-25.7	2.8	19 17.6	-25.6	2.9
88	10 52.3	-26.1	1.8	12 52.2	-26.0	1.8	14 52.2	-26.0	1.9	16 52.1	-25.9	1.9	18 52.0	-25.8	1.9
89	10 26.2	-26.2	0.9	12 26.2	-26.2	0.9	14 26.2	-26.2	0.9	16 26.2	-26.2	0.9	18 26.2	-26.2	0.9
90	10 00.0	-26.4	0.0	12 00.0	-26.4	0.0	14 00.0	-26.4	0.0	16 00.0	-26.4	0.0	18 00.0	-26.4	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 64°, 296°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
16 40.9	-23.1	125.7	15 30.5	-24.6	126.1	14 19.4	-26.2	126.5	13 07.6	-27.7	126.9	11 55.2	-29.3	127.3	30
16 17.8	-23.3	126.6	15 05.9	-25.0	127.1	13 53.2	-26.5	127.5	12 39.9	-28.0	127.8	11 25.9	-29.4	128.2	31
15 54.5	-23.6	127.6	14 40.9	-25.1	128.0	13 26.7	-26.6	128.4	12 11.9	-28.2	128.8	10 56.5	-29.6	129.1	32
15 30.9	-23.8	128.5	14 15.8	-25.4	128.9	13 00.1	-26.9	129.3	11 43.7	-28.3	129.7	10 26.9	-29.7	130.0	33
15 07.1	-24.1	129.5	13 50.4	-25.5	129.9	12 33.2	-27.0	130.2	11 15.4	-28.4	130.6	9 57.2	-29.9	130.8	34
14 43.0	-24.3	130.4	13 24.9	-25.8	130.8	12 06.2	-27.3	131.2	10 47.0	-28.7	131.5	9 27.3	-30.0	131.7	35
14 18.7	-24.5	131.4	12 59.1	-26.0	131.7	11 38.9	-27.3	132.1	10 18.3	-28.7	132.3	8 57.3	-30.1	132.6	36
13 54.2	-24.8	132.3	12 33.1	-26.1	132.7	11 11.6	-27.6	133.0	9 49.6	-29.0	133.2	8 27.2	-30.3	133.5	37
13 29.4	-24.9	133.3	12 07.0	-26.4	133.6	10 44.0	-27.7	133.9	9 20.6	-29.0	134.1	7 56.9	-30.3	134.3	38
13 04.5	-25.2	134.2	11 40.6	-26.5	134.5	10 16.3	-27.9	134.8	8 51.6	-29.2	135.0	7 26.6	-30.5	135.2	39
12 39.3	-25.3	135.1	11 14.1	-26.7	135.4	9 48.4	-28.0	135.7	8 22.4	-29.7	135.9	6 56.1	-30.6	136.1	40
12 14.0	-25.5	136.0	10 47.4	-26.8	136.3	9 20.4	-28.1	136.6	7 53.1	-29.4	136.8	6 25.5	-30.6	137.0	41
11 48.5	-25.7	137.0	10 20.6	-27.0	137.2	8 52.3	-28.3	137.5	7 23.7	-29.5	137.7	5 54.9	-30.7	137.8	42
11 22.8	-25.9	137.9	9 53.6	-27.2	138.1	8 24.0	-28.4	138.4	6 54.2	-29.6	138.5	5 24.2	-30.8	138.7	43
10 56.9	-26.1	138.8	9 26.4	-27.3	139.0	7 55.6	-28.5	139.2	6 24.6	-29.7	139.4	4 53.4	-30.9	139.5	44
10 30.8	-26.2	139.7	8 59.1	-27.4	140.0	7 27.1	-28.6	140.1	5 54.9	-30.2	140.3	4 22.5	-31.0	140.4	45
10 04.6	-26.3	140.6	8 31.7	-27.5	140.9	6 58.5	-28.7	141.0	5 25.2	-29.9	141.2	3 51.6	-30.9	141.3	46
9 38.3	-26.5	141.6	8 04.2	-27.7	141.7	6 29.8	-28.8	141.9	4 55.3	-29.9	142.0	3 20.7	-31.1	142.1	47
9 11.8	-26.6	142.5	7 36.5	-27.7	142.6	6 01.0	-28.8	142.8	4 25.4	-30.0	142.9	2 49.6	-31.0	143.0	48
8 45.2	-26.8	143.4	7 08.8	-27.9	143.5	5 32.2	-29.0	143.7	3 55.4	-30.0	143.8	2 18.6	-31.1	143.8	49
8 18.4	-26.9	144.3	6 40.9	-28.0	144.4	5 03.2	-29.0	144.6	3 25.4	-30.1	144.6	1 47.5	-31.1	144.7	50
7 51.5	-27.0	145.2	6 12.9	-28.0	145.3	4 34.2	-29.1	145.4	2 55.3	-30.1	145.5	1 16.4	-31.1	145.5	51
7 24.5	-27.1	146.1	5 44.9	-28.2	146.2	4 05.1	-29.2	146.3	2 25.2	-30.1	146.4	0 45.3	-31.2	146.4	52
6 57.4	-27.2	147.0	5 16.7	-28.2	147.1	3 35.9	-29.2	147.2	1 55.1	-30.2	147.2	0 14.1	-31.1	147.3	53
6 30.2	-27.3	147.9	4 48.5	-28.2	148.0	3 06.7	-29.2	148.1	1 24.9	-30.2	148.1	0 17.0	+31.1	31.9	54
6 02.9	-27.4	148.8	4 20.3	-28.4	148.9	2 37.5	-29.3	148.9	0 54.9	-30.2	149.0	0 48.1	+31.1	31.0	55
5 35.5	-27.4	149.7	3 51.9	-28.4	149.8	2 08.2	-29.3	149.8	0 24.5	-30.2	149.8	1 19.2	+31.2	30.2	56
5 08.1	-27.6	150.6	3 23.5	-28.4	150.6	1 38.9	-29.3	150.7	0 05.7	+30.2	29.3	1 50.4	+31.0	29.3	57
4 40.5	-27.6	151.5	2 55.1	-28.5	151.5	1 09.6	-29.4	151.6	0 35.9	+30.2	28.4	2 21.4	+31.1	28.5	58
4 12.9	-27.7	152.3	2 26.6	-28.5	152.4	0 40.2	-29.3	152.4	1 06.1	+30.2	27.6	2 52.5	+31.0	27.6	59
3 45.2	-27.7	153.2	1 58.1	-28.6	153.3	0 10.9	-29.4	153.3	1 36.3	+30.2	26.7	3 23.5	+31.0	26.8	60
3 17.5	-27.8	154.1	1 29.5	-28.5	154.2	0 18.5	+29.3	25.8	2 06.5	+30.1	25.9	3 54.5	+30.9	25.9	61
2 49.7	-27.8	155.0	1 01.0	-28.6	155.0	0 47.8	+29.4	25.0	2 36.6	+30.1	25.0	4 25.4	+30.8	25.0	62
2 21.9	-27.8	155.9	0 32.4	-28.6	155.9	1 17.2	+29.3	24.1	3 06.7	+30.1	24.1	4 56.2	+30.8	24.2	63
1 54.1	-27.9	156.8	0 03.8	-28.6	156.8	1 46.5	+29.3	23.2	3 36.8	+30.0	23.3	5 27.0	+30.7	23.3	64
1 26.2	-27.9	157.7	0 24.8	+28.6	22.3	2 15.8	+29.3	22.3	4 06.8	+29.9	22.3	5 57.7	+30.6	22.5	65
0 58.3	-27.9	158.6	0 53.4	+28.6	21.4	2 45.1	+29.2	21.5	4 36.7	+29.9	21.5	6 28.3	+30.6	21.6	66
0 30.4	-27.9	159.4	1 22.0	+28.5	20.6	3 14.3	+29.2	20.6	5 06.6	+29.8	20.6	6 58.9	+30.4	20.7	67
0 02.5	-27.9	160.3	1 50.5	+28.6	19.7	3 43.5	+29.1	19.7	5 36.4	+29.8	19.8	7 29.3	+30.4	19.9	68
0 25.4	+28.0	18.8	2 19.1	+28.4	18.8	4 12.6	+29.1	18.8	6 06.2	+29.6	18.9	7 59.7	+30.2	19.0	69
0 53.4	+27.9	17.9	2 47.5	+28.5	17.9	4 41.7	+29.0	18.0	6 35.8	+29.6	18.0	8 29.9	+30.1	18.1	70
1 21.3	+27.8	17.0	3 16.0	+28.4	17.0	5 10.7	+29.0	17.1	7 05.4	+29.5	17.1	9 00.0	+30.0	17.2	71
1 49.1	+27.9	16.1	3 44.4	+28.4	16.2	5 39.7	+28.8	16.2	7 34.9	+29.3	16.3	9 30.0	+29.9	16.4	72
2 17.0	+27.8	15.2	4 12.8	+28.3	15.3	6 08.5	+28.8	15.3	8 04.2	+29.3	15.4	9 59.9	+29.7	15.5	73
2 44.8	+27.8	14.4	4 41.1	+28.2	14.4	6 37.3	+28.7	14.4	8 33.5	+29.1	14.5	10 29.6	+29.6	14.6	74
3 12.6	+27.7	13.5	5 09.3	+28.1	13.5	7 06.0	+28.5	13.6	9 02.6	+29.0	13.6	10 59.2	+29.4	13.7	75
3 40.3	+27.7	12.6	5 37.4	+28.1	12.6	7 34.5	+28.5	12.7	9 31.6	+28.9	12.7	11 28.6	+29.3	12.8	76
4 08.0	+27.6	11.7	6 05.5	+28.0	11.7	8 03.0	+28.4	11.8	10 00.5	+28.7	11.8	11 57.9	+29.1	11.9	77
4 35.6	+27.6	10.8	6 33.5	+27.9	10.8	8 31.4	+28.2	10.9	10 29.2	+28.6	11.0	12 27.0	+28.9	11.0	78
5 03.2	+27.5	9.9	7 01.4	+27.8	10.0	8 59.6	+28.1	10.0	10 57.8	+28.4	10.1	12 55.9	+28.7	10.1	79
5 30.7	+27.4	9.0	7 29.2	+27.7	9.1	9 27.7	+28.0	9.1	11 26.2	+28.2	9.2	13 24.6	+28.6	9.2	80
5 58.1	+27.3	8.1	7 56.9	+27.5	8.2	9 55.7	+27.8	8.2	11 54.4	+28.1	8.3	13 53.2	+28.3	8.3	81
6 25.4	+27.2	7.2	8 24.4	+27.5	7.3	10 23.5	+27.7	7.3	12 22.5	+27.9	7.4	14 21.5	+28.1	7.4	82
6 52.6	+27.2	6.3	8 51.9	+27.3	6.4	10 51.2	+27.5	6.4	12 50.4	+27.7	6.5	14 49.6	+27.9	6.5	83
7 19.8	+27.0	5.4	9 19.2	+27.2	5.5	11 18.7	+27.3	5.5	13 18.1	+27.5	5.5	15 17.5	+27.7	5.6	84
7 46.8	+26.9	4.5	9 46.4	+27.0	4.6	11 46.0	+27.2	4.6	13 45.6	+27.3	4.6	15 45.2	+27.5	4.7	85
8 13.7	+26.8	3.6	10 13.4	+26.9	3.7	12 13.2	+27.0	3.7	14 12.9	+27.1	3.7	16 12.7	+27.2	3.7	86
8 40.5	+26.6	2.7	10 40.3	+26.7	2.7	12 40.2	+26.8	2.8	14 40.0	+26.9	2.8	16 39.9	+27.0	2.8	87
9 07.1	+26.5	1.8	11 07.0	+26.6	1.8	13 07.0	+26.6	1.8	15 06.9	+26.7	1.9	17 06.9	+26.7	1.9	88
9 33.6	+26.4	0.9	11 33.6	+26.4	0.9	13 33.6	+26.4	0.9	15 33.6	+26.4	0.9	17 33.6	+26.4	0.9	89
10 00.0	+26.2	0.0	12 00.0	+26.2	0.0	14 00.0	+26.2	0.0	16 00.0	+26.2	0.0	18 00.0	+26.2	0.0	90
10°			12°			14°			16°			18°			

LATITUDE SAME NAME

L.H.A. 116°, 244°

64°, 296° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	31 51.2	+6.1	66.4	32 38.2	+8.3	67.6	33 22.8	+10.6	68.8	34 05.0	+12.9	70.0	34 44.8	+15.2	71.3
31	31 57.3	+5.4	65.2	32 46.5	+7.6	66.4	33 33.4	+9.9	67.6	34 17.9	+12.2	68.8	35 00.0	+14.5	70.1
32	32 02.7	+4.7	64.1	32 54.1	+7.0	65.2	33 43.3	+9.2	66.4	34 30.1	+11.5	67.7	35 14.5	+13.8	68.9
33	32 07.4	+4.1	62.9	33 01.1	+6.3	64.0	33 52.5	+8.6	65.2	34 41.6	+10.9	66.5	35 28.3	+13.2	67.8
34	32 11.5	+3.5	61.7	33 07.4	+5.6	62.8	34 01.1	+7.8	64.0	34 52.5	+10.1	65.3	35 41.5	+12.4	66.6
35	32 15.0	+2.8	60.5	33 13.0	+5.0	61.6	34 08.9	+7.2	62.8	35 02.6	+9.4	64.1	35 53.9	+11.6	65.4
36	32 17.8	+2.1	59.3	33 18.0	+4.2	60.5	34 16.1	+6.4	61.6	35 12.0	+8.6	62.9	36 05.5	+11.0	64.1
37	32 19.9	+1.5	58.2	33 22.2	+3.6	59.3	34 22.5	+5.8	60.4	35 20.6	+8.0	61.6	36 16.5	+10.2	62.9
38	32 21.4	+0.8	57.0	33 25.8	+2.9	58.1	34 28.3	+5.0	59.2	35 28.6	+7.2	60.4	36 26.7	+9.4	61.7
39	32 22.2	+0.1	55.8	33 28.7	+2.2	56.9	34 33.3	+4.3	58.0	35 35.8	+6.5	59.2	36 36.1	+8.7	60.5
40	32 22.3	-0.5	54.6	33 30.9	+1.5	55.7	34 37.6	+3.6	56.8	35 42.3	+5.7	58.0	36 44.8	+7.9	59.2
41	32 21.8	-1.2	53.4	33 32.4	+0.8	54.5	34 41.2	+2.8	55.6	35 48.0	+5.0	56.8	36 52.7	+7.1	58.0
42	32 20.6	-1.9	52.2	33 33.2	+0.1	53.3	34 44.0	+2.2	54.4	35 53.0	+4.2	55.5	36 59.8	+6.4	56.8
43	32 18.7	-2.5	51.1	33 33.3	-0.6	52.1	34 46.2	+1.4	53.2	35 57.2	+3.5	54.3	37 06.2	+5.6	55.5
44	32 16.2	-3.2	49.9	33 32.7	-1.2	50.9	34 47.6	+0.7	51.9	36 00.7	+2.7	53.1	37 11.8	+4.8	54.3
45	32 13.0	-3.8	48.7	33 31.5	-2.0	49.7	34 48.3	-0.1	50.7	36 03.4	+1.9	51.8	37 16.6	+4.0	53.0
46	32 09.2	-4.5	47.5	33 29.5	-2.7	48.5	34 48.2	-0.7	49.5	36 05.3	+1.2	50.6	37 20.6	+3.2	51.8
47	32 04.7	-5.1	46.3	33 26.8	-3.3	47.3	34 47.5	-1.5	48.3	36 06.5	+0.4	49.4	37 23.8	+2.4	50.5
48	31 59.6	-5.8	45.2	33 23.5	-4.1	46.1	34 46.0	-2.2	47.1	36 06.9	-0.3	48.1	37 26.2	+1.6	49.2
49	31 53.8	-6.5	44.0	33 19.4	-4.7	44.9	34 43.8	-3.0	45.8	36 06.6	-1.1	46.9	37 27.8	+0.8	48.0
50	31 47.3	-7.1	42.8	33 14.7	-5.4	43.7	34 40.8	-3.7	44.6	36 05.5	-1.9	45.6	37 28.6	0.0	46.7
51	31 40.2	-7.7	41.7	33 09.3	-6.1	42.5	34 37.1	-4.3	43.4	36 03.6	-2.6	44.4	37 28.6	-0.8	45.5
52	31 32.5	-8.3	40.5	33 03.2	-6.7	41.3	34 32.8	-5.1	42.2	36 01.0	-3.4	43.2	37 27.8	-1.6	44.2
53	31 24.2	-9.0	39.3	32 56.5	-7.4	40.1	34 27.7	-5.9	41.0	35 57.6	-4.2	41.9	37 26.2	-2.5	42.9
54	31 15.2	-9.6	38.2	32 49.1	-8.1	38.9	34 21.8	-6.5	39.8	35 53.4	-4.9	40.7	37 23.7	-3.2	41.7
55	31 05.6	-10.2	37.0	32 41.0	-8.8	37.8	34 15.3	-7.2	38.6	35 48.5	-5.6	39.5	37 20.5	-4.0	40.4
56	30 55.4	-10.8	35.9	32 32.2	-9.4	36.6	34 08.1	-7.9	37.4	35 42.9	-6.4	38.2	37 16.5	-4.8	39.2
57	30 44.6	-11.4	34.7	32 22.8	-10.0	35.4	34 00.2	-8.7	36.2	35 36.5	-7.1	37.0	37 11.7	-5.5	37.9
58	30 33.2	-12.0	33.6	32 12.8	-10.7	34.3	33 51.5	-9.3	35.0	35 29.4	-7.9	35.8	37 06.2	-6.4	36.7
59	30 21.2	-12.6	32.4	32 02.1	-11.3	33.1	33 42.2	-10.0	33.8	35 21.5	-8.6	34.6	36 59.8	-7.2	35.4
60	30 08.6	-13.2	31.3	31 50.8	-12.0	31.9	33 32.2	-10.6	32.6	35 12.9	-9.3	33.4	36 52.6	-7.9	34.2
61	29 55.4	-13.7	30.2	31 38.8	-12.5	30.8	33 21.6	-11.3	31.4	35 03.6	-10.1	32.2	36 44.7	-8.7	32.9
62	29 41.7	-14.3	29.1	31 26.3	-13.2	29.6	33 10.3	-12.0	30.3	34 53.5	-10.7	31.0	36 36.0	-9.4	31.7
63	29 27.4	-14.9	27.9	31 13.1	-13.8	28.5	32 58.3	-12.7	29.1	34 42.8	-11.5	29.8	36 26.6	-10.2	30.5
64	29 12.5	-15.4	26.8	30 59.3	-14.3	27.4	32 45.6	-13.3	27.9	34 31.3	-12.1	28.6	36 16.4	-11.0	29.3
65	28 57.1	-16.0	25.7	30 45.0	-15.0	26.2	32 32.3	-13.9	26.8	34 19.2	-12.8	27.4	36 05.4	-11.6	28.0
66	28 41.1	-16.5	24.6	30 30.0	-15.5	25.1	32 18.4	-14.5	25.6	34 06.4	-13.5	26.2	35 53.8	-12.5	26.8
67	28 24.6	-17.0	23.5	30 14.5	-16.1	24.0	32 03.9	-15.2	24.5	33 52.9	-14.2	25.0	35 41.3	-13.1	25.6
68	28 07.6	-17.5	22.4	29 58.4	-16.7	22.9	31 48.7	-15.7	23.3	33 38.7	-14.8	23.9	35 28.2	-13.8	24.4
69	27 50.1	-18.0	21.4	29 41.7	-17.2	21.8	31 33.0	-16.4	22.2	33 23.9	-15.5	22.7	35 14.4	-14.5	23.2
70	27 32.1	-18.5	20.3	29 24.5	-17.8	20.7	31 16.6	-16.9	21.1	33 08.4	-16.1	21.5	34 59.9	-15.3	22.0
71	27 13.6	-19.1	19.2	29 06.7	-18.2	19.6	30 59.7	-17.5	20.0	32 52.3	-16.7	20.4	34 44.6	-15.9	20.9
72	26 54.5	-19.4	18.1	28 48.5	-18.8	18.5	30 42.2	-18.1	18.8	32 35.6	-17.4	19.2	34 28.7	-16.5	19.7
73	26 35.1	-20.0	17.1	28 29.7	-19.3	17.4	30 24.1	-18.7	17.7	32 18.2	-17.9	18.1	34 12.2	-17.3	18.5
74	26 15.1	-20.4	16.0	28 10.4	-19.9	16.3	30 05.4	-19.2	16.6	32 00.3	-18.5	17.0	33 54.9	-17.8	17.4
75	25 54.7	-20.9	15.0	27 50.5	-20.3	15.3	29 46.2	-19.7	15.5	31 41.8	-19.2	15.9	33 37.1	-18.5	16.2
76	25 33.8	-21.3	13.9	27 30.2	-20.8	14.2	29 26.5	-20.3	14.5	31 22.6	-19.7	14.8	33 18.6	-19.1	15.1
77	25 12.5	-21.7	12.9	27 09.4	-21.2	13.1	29 06.2	-20.7	13.4	31 02.9	-20.2	13.7	32 59.5	-19.8	13.9
78	24 50.8	-22.1	11.9	26 48.2	-21.7	12.1	28 45.5	-21.3	12.3	30 42.7	-20.8	12.6	32 39.7	-20.3	12.8
79	24 28.7	-22.6	10.9	26 26.5	-22.2	11.0	28 24.2	-21.8	11.2	30 21.9	-21.4	11.5	32 19.4	-20.9	11.7
80	24 06.1	-23.0	9.8	26 04.3	-22.6	10.0	28 02.4	-22.2	10.2	30 00.5	-21.9	10.4	31 58.5	-21.5	10.6
81	23 43.1	-23.3	8.8	25 41.7	-23.1	9.0	27 40.2	-22.7	9.1	29 38.6	-22.3	9.3	31 37.0	-22.0	9.5
82	23 19.8	-23.8	7.8	25 18.6	-23.4	8.0	27 17.5	-23.2	8.1	29 16.3	-22.9	8.2	31 15.0	-22.6	8.4
83	22 56.0	-24.1	6.8	24 55.2	-23.9	6.9	26 54.3	-23.6	7.1	28 53.4	-23.4	7.2	30 52.4	-23.1	7.3
84	22 31.9	-24.4	5.8	24 31.3	-24.3	5.9	26 30.7	-24.1	6.0	28 30.0	-23.9	6.1	30 29.3	-23.7	6.3
85	22 07.5	-24.9	4.9	24 07.0	-24.6	4.9	26 06.6	-24.5	5.0	28 06.1	-24.3	5.1	30 05.6	-24.1	5.2
86	21 42.6	-25.1	3.9	23 42.4	-25.1	3.9	25 42.1	-24.9	4.0	27 41.8	-24.8	4.1	29 41.5	-24.7	4.1
87	21 17.5	-25.5	2.9	23 17.3	-25.4	2.9	25 17.2	-25.4	3.0	27 17.0	-25.2	3.0	29 16.8	-25.1	3.1
88	20 52.0	-25.9	1.9	22 51.9	-25.8	2.0	24 51.8	-25.7	2.0	26 51.8	-25.7	2.0	28 51.7	-25.6	2.1
89	20 26.1	-26.1	1.0	22 26.1	-26.1	1.0	24 26.1	-26.1	1.0	26 26.1	-26.1	1.0	28 26.1	-26.1	1.0
90	20 00.0	-26.5	0.0	22 00.0	-26.5	0.0	24 00.0	-26.5	0.0	26 00.0	-26.5	0.0	28 00.0	-26.5	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 64°, 296°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
10 42.2	-30.7	127.6	9 28.8	-32.2	127.9	8 14.9	-33.6	128.1	7 00.6	-34.9	128.3	5 46.0	-36.3	128.5	30
10 11.5	-30.9	128.5	8 56.6	-32.3	128.7	7 41.3	-33.6	129.0	6 25.7	-35.0	129.2	5 09.7	-36.2	129.3	31
9 40.6	-31.0	129.4	8 24.3	-32.4	129.6	7 07.7	-33.8	129.8	5 50.7	-35.1	130.0	4 33.5	-36.4	130.1	32
9 09.6	-31.1	130.2	7 51.9	-32.4	130.5	6 33.9	-33.8	130.6	5 15.6	-35.1	130.8	3 57.1	-36.4	130.9	33
8 38.5	-31.2	131.1	7 19.5	-32.6	131.3	6 00.1	-33.9	131.5	4 40.5	-35.1	131.6	3 20.7	-36.4	131.7	34
8 07.3	-31.4	132.0	6 46.9	-32.7	132.1	5 26.2	-33.9	132.3	4 05.4	-35.3	132.4	2 44.3	-36.4	132.5	35
7 35.9	-31.5	132.8	6 14.2	-32.7	133.0	4 52.3	-34.1	133.1	3 30.1	-35.2	133.2	2 07.9	-36.5	133.3	36
7 04.4	-31.5	133.7	5 41.5	-32.9	133.8	4 18.2	-34.0	134.0	2 54.9	-35.3	134.0	1 31.4	-36.5	134.1	37
6 32.9	-31.6	134.5	5 08.6	-32.9	134.7	3 44.2	-34.1	134.8	2 19.6	-35.3	134.9	0 54.9	-36.5	134.9	38
6 01.3	-31.8	135.4	4 35.7	-32.9	135.5	3 10.1	-34.2	135.6	1 44.3	-35.4	135.7	0 18.4	-36.5	135.7	39
5 29.5	-31.7	136.2	4 02.8	-33.0	136.4	2 35.9	-34.2	136.4	1 08.9	-35.4	136.5	0 18.1	+36.5	43.5	40
4 57.8	-31.9	137.1	3 29.8	-33.1	137.2	2 01.7	-34.2	137.3	0 33.6	-35.4	137.3	0 54.6	+36.5	42.7	41
4 25.9	-31.9	137.9	2 56.7	-33.0	138.0	1 27.5	-34.2	138.1	0 01.8	+35.4	41.9	1 31.1	+36.5	41.9	42
3 54.0	-32.0	138.8	2 23.7	-33.1	138.9	0 53.3	-34.3	138.9	0 37.2	+35.3	41.1	2 07.6	+36.4	41.1	43
3 22.0	-32.0	139.6	1 50.6	-33.2	139.7	0 19.0	-34.2	139.7	0 12.5	+35.4	40.3	2 44.0	+36.4	40.3	44
2 50.0	-32.0	140.5	1 17.4	-33.1	140.5	0 15.2	+34.3	39.5	1 47.9	+35.3	39.5	3 20.4	+36.4	39.5	45
2 18.0	-32.1	141.3	0 44.3	-33.2	141.4	0 49.5	+34.2	38.6	2 23.2	+35.3	38.7	3 56.8	+36.4	38.7	46
1 45.9	-32.1	142.2	0 11.1	-33.2	142.2	1 23.7	+34.2	37.8	2 58.5	+35.2	37.9	4 33.2	+36.2	37.9	47
1 13.8	-32.1	143.0	0 22.1	+33.1	37.0	1 57.9	+34.2	37.0	3 33.7	+35.2	37.1	5 09.4	+36.3	37.1	48
0 41.7	-32.1	143.9	0 55.2	+33.2	36.1	2 32.1	+34.2	36.2	4 08.9	+35.2	36.2	5 45.7	+36.1	36.3	49
0 09.6	-32.2	144.7	1 28.4	+33.1	35.3	3 06.3	+34.1	35.4	4 44.1	+35.1	35.4	6 21.8	+36.1	35.5	50
0 22.6	+32.1	34.4	2 01.5	+33.1	34.5	3 40.4	+34.1	34.5	5 19.2	+35.1	34.6	6 57.9	+36.0	34.7	51
0 54.7	+32.1	33.6	2 34.6	+33.1	33.6	4 14.5	+34.0	33.7	5 54.3	+34.9	33.8	7 33.9	+35.9	33.9	52
1 26.8	+32.1	32.8	3 07.7	+33.0	32.8	4 48.5	+34.0	32.9	6 29.2	+34.9	33.0	8 09.8	+35.8	33.1	53
1 58.9	+32.0	31.9	3 40.7	+33.0	32.0	5 22.5	+33.9	32.0	7 04.1	+34.8	32.2	8 45.6	+35.7	32.3	54
2 30.9	+32.1	31.1	4 13.7	+32.9	31.1	5 56.4	+33.8	31.2	7 38.9	+34.7	31.3	9 21.3	+35.6	31.5	55
3 03.0	+32.0	30.2	4 46.6	+32.9	30.3	6 30.2	+33.7	30.4	8 13.6	+34.7	30.5	9 56.9	+35.5	30.7	56
3 35.0	+31.9	29.4	5 19.5	+32.8	29.4	7 03.9	+33.7	29.6	8 48.3	+34.5	29.6	10 32.4	+35.4	29.9	57
4 06.9	+31.9	28.5	5 52.3	+32.7	28.6	7 37.6	+33.5	28.7	9 22.8	+34.3	28.9	11 07.8	+35.2	29.0	58
4 38.8	+31.8	27.7	6 25.0	+32.7	27.8	8 11.1	+33.5	27.9	9 57.1	+34.3	28.0	11 43.0	+35.1	28.2	59
5 10.6	+31.8	26.8	6 57.7	+32.5	26.9	8 44.6	+33.3	27.0	10 31.4	+34.1	27.2	12 18.1	+34.9	27.4	60
5 42.4	+31.7	26.0	7 30.2	+32.5	26.1	9 17.9	+33.3	26.2	11 05.5	+34.0	26.4	12 53.0	+34.7	26.6	61
6 14.1	+31.6	25.1	8 02.7	+32.3	25.2	9 51.2	+33.1	25.4	11 39.5	+33.9	25.5	13 27.7	+34.6	25.7	62
6 45.7	+31.5	24.3	8 35.0	+32.3	24.4	10 24.3	+32.9	24.5	12 13.4	+33.7	24.7	14 02.3	+34.5	24.9	63
7 17.2	+31.4	23.4	9 07.3	+32.1	23.5	10 57.2	+32.8	23.7	12 47.1	+33.5	23.8	14 36.8	+34.2	24.0	64
7 48.6	+31.3	22.5	9 39.4	+32.0	22.7	11 30.0	+32.7	22.8	13 20.6	+33.4	23.0	15 11.0	+34.0	23.2	65
8 19.9	+31.2	21.7	10 11.4	+31.8	21.8	12 02.7	+32.5	22.0	13 54.0	+33.1	22.1	15 45.0	+33.9	22.3	66
8 51.1	+31.1	20.8	10 43.2	+31.7	20.9	12 35.2	+32.4	21.1	14 27.1	+33.0	21.3	16 18.9	+33.8	21.5	67
9 22.2	+30.9	20.0	11 14.9	+31.6	20.1	13 07.6	+32.2	20.2	15 00.1	+32.8	20.4	16 52.5	+33.4	20.6	68
9 53.1	+30.8	19.1	11 46.5	+31.4	19.2	13 39.8	+32.0	19.4	15 32.9	+32.6	19.5	17 25.9	+33.2	19.7	69
10 23.9	+30.7	18.2	12 17.9	+31.2	18.3	14 11.8	+31.8	18.5	16 05.5	+32.4	18.7	17 59.1	+33.0	18.9	70
10 54.6	+30.6	17.3	12 49.1	+31.1	17.5	14 43.6	+31.6	17.6	16 37.9	+32.1	17.8	18 32.1	+32.7	18.0	71
11 25.2	+30.3	16.5	13 20.2	+30.9	16.6	15 15.2	+31.4	16.7	17 10.0	+32.0	16.9	19 04.8	+32.4	17.1	72
11 55.5	+30.2	15.6	13 51.1	+30.7	15.7	15 46.6	+31.1	15.8	17 42.0	+31.6	16.0	19 37.2	+32.2	16.2	73
12 25.7	+30.1	14.7	14 21.8	+30.5	14.8	16 17.7	+31.0	15.0	18 13.6	+31.5	15.1	20 09.4	+31.9	15.3	74
12 55.8	+29.8	13.8	14 52.3	+30.3	13.9	16 48.7	+30.7	14.1	18 45.1	+31.1	14.2	20 41.3	+31.7	14.4	75
13 25.6	+29.7	12.9	15 22.6	+30.0	13.0	17 19.4	+30.5	13.2	19 16.2	+30.9	13.3	21 13.0	+31.3	13.5	76
13 55.3	+29.4	12.0	15 52.6	+29.9	12.1	17 49.9	+30.2	12.3	19 47.1	+30.7	12.4	21 44.3	+31.0	12.6	77
14 24.7	+29.3	11.1	16 22.5	+29.6	11.2	18 20.1	+30.0	11.4	20 17.8	+30.3	11.5	22 15.3	+30.7	11.6	78
14 54.0	+29.1	10.2	16 52.1	+29.4	10.3	18 50.1	+29.7	10.4	20 48.1	+30.1	10.6	22 46.0	+30.4	10.7	79
15 23.1	+28.8	9.3	17 21.5	+29.1	9.4	19 19.8	+29.5	9.5	21 18.2	+29.7	9.6	23 16.4	+30.1	9.8	80
15 51.9	+28.6	8.4	17 50.6	+28.9	8.5	19 49.3	+29.1	8.6	21 47.9	+29.4	8.7	23 46.5	+29.7	8.8	81
16 20.5	+28.4	7.5	18 19.5	+28.6	7.6	20 18.4	+28.8	7.7	22 17.3	+29.1	7.8	24 16.2	+29.3	7.9	82
16 48.9	+28.1	6.6	18 48.1	+28.3	6.6	20 47.2	+28.6	6.7	22 46.4	+28.8	6.8	24 45.5	+29.0	6.9	83
17 17.0	+27.8	5.6	19 16.4	+28.0	5.7	21 15.8	+28.2	5.8	23 15.2	+28.4	5.9	25 14.5	+28.6	6.0	84
17 44.8	+27.6	4.7	19 44.4	+27.8	4.8	21 44.0	+27.9	4.8	23 43.6	+28.0	4.9	25 43.1	+28.2	5.0	85
18 12.4	+27.3	3.8	20 12.2	+27.4	3.8	22 11.9	+27.5	3.9	24 11.6	+27.7	3.9	26 11.3	+27.8	4.0	86
18 39.7	+27.1	2.8	20 39.6	+27.1	2.9	22 39.4	+27.3	2.9	24 39.3	+27.3	3.0	26 39.1	+27.4	3.0	87
19 06.8	+26.7	1.9	21 06.7	+26.8	1.9	23 06.7	+26.8	2.0	25 06.6	+26.9	2.0	27 06.5	+27.0	2.0	88
19 33.5	+26.5	1.0	21 33.5	+26.5	1.0	23 33.5	+26.5	1.0	25 33.5	+26.5	1.0	27 33.5	+26.5	1.0	89
20 00.0	+26.1	0.0	22 00.0	+26.1	0.0	24 00.0	+26.1	0.0	26 00.0	+26.1	0.0	28 00.0	+26.1	0.0	90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 116°, 244°

66°, 294° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	20 37.5	-13.2	57.7	21 41.0	-11.4	58.4	22 43.3	-9.4	59.1	23 44.4	-7.6	59.8	24 44.0	-5.6	60.6
31	20 24.3	-13.6	56.7	21 29.6	-11.7	57.3	22 33.9	-9.9	58.0	23 36.8	-8.0	58.7	24 38.4	-6.0	59.5
32	20 10.7	-14.0	55.6	21 17.9	-12.2	56.3	22 24.0	-10.4	56.9	23 28.8	-8.4	57.6	24 32.4	-6.5	58.4
33	19 56.7	-14.3	54.6	21 05.7	-12.5	55.2	22 13.6	-10.7	55.9	23 20.4	-8.9	56.6	24 25.9	-7.0	57.3
34	19 42.4	-14.7	53.6	20 53.2	-13.0	54.2	22 02.9	-11.2	54.8	23 11.5	-9.3	55.5	24 18.9	-7.5	56.2
35	19 27.7	-15.0	52.5	20 40.2	-13.3	53.1	21 51.7	-11.5	53.7	23 02.2	-9.8	54.4	24 11.4	-7.9	55.1
36	19 12.7	-15.4	51.5	20 26.9	-13.6	52.1	21 40.2	-12.0	52.7	22 52.4	-10.2	53.3	24 03.5	-8.4	54.0
37	18 57.3	-15.7	50.5	20 13.3	-14.1	51.0	21 28.2	-12.3	51.6	22 42.2	-10.6	52.3	23 55.1	-8.9	53.0
38	18 41.6	-16.0	49.5	19 59.2	-14.4	50.0	21 15.9	-12.8	50.6	22 31.6	-11.0	51.2	23 46.2	-9.3	51.9
39	18 25.6	-16.3	48.4	19 44.8	-14.7	49.0	21 03.1	-13.1	49.5	22 20.6	-11.5	50.1	23 36.9	-9.7	50.8
40	18 09.3	-16.7	47.4	19 30.1	-15.1	47.9	20 50.0	-13.5	48.5	22 09.1	-11.9	49.1	23 27.2	-10.2	49.7
41	17 52.6	-17.0	46.4	19 15.0	-15.5	46.9	20 36.5	-13.8	47.4	21 57.2	-12.2	48.0	23 17.0	-10.6	48.6
42	17 35.6	-17.3	45.4	18 59.5	-15.8	45.9	20 22.7	-14.3	46.4	21 45.0	-12.7	47.0	23 06.4	-11.0	47.6
43	17 18.3	-17.5	44.4	18 43.7	-16.1	44.9	20 08.4	-14.6	45.4	21 32.3	-13.0	45.9	22 55.4	-11.5	46.5
44	17 00.8	-17.9	43.4	18 27.6	-16.4	43.9	19 53.8	-15.0	44.3	21 19.3	-13.5	44.9	22 43.9	-11.9	45.4
45	16 42.9	-18.2	42.4	18 11.2	-16.8	42.8	19 38.8	-15.3	43.3	21 05.8	-13.8	43.8	22 32.0	-12.3	44.4
46	16 24.7	-18.4	41.4	17 54.4	-17.0	41.8	19 23.5	-15.6	42.3	20 52.0	-14.2	42.8	22 19.7	-12.8	43.3
47	16 06.3	-18.7	40.4	17 37.4	-17.4	40.8	19 07.9	-16.0	41.3	20 37.8	-14.6	41.7	22 06.9	-13.1	42.3
48	15 47.6	-19.0	39.4	17 20.0	-17.7	39.8	18 51.9	-16.3	40.2	20 23.2	-15.0	40.7	21 53.8	-13.5	41.2
49	15 28.6	-19.2	38.5	17 02.3	-17.9	38.8	18 35.6	-16.7	39.2	20 08.2	-15.3	39.7	21 40.3	-13.9	40.2
50	15 09.4	-19.5	37.5	16 44.4	-18.3	37.8	18 18.9	-17.0	38.2	19 52.9	-15.6	38.6	21 26.4	-14.4	39.1
51	14 49.9	-19.8	36.5	16 26.1	-18.5	36.8	18 01.9	-17.2	37.2	19 37.3	-16.0	37.6	21 12.0	-14.7	38.1
52	14 30.1	-20.0	35.5	16 07.6	-18.8	35.8	17 44.7	-17.6	36.2	19 21.3	-16.4	36.6	20 57.3	-15.0	37.0
53	14 10.1	-20.2	34.5	15 48.8	-19.1	34.8	17 27.1	-17.9	35.2	19 04.9	-16.7	35.6	20 42.3	-15.5	36.0
54	13 49.9	-20.4	33.6	15 29.7	-19.3	33.9	17 09.2	-18.2	34.2	18 48.2	-17.0	34.6	20 26.8	-15.8	35.0
55	13 29.5	-20.7	32.6	15 10.4	-19.6	32.9	16 51.0	-18.5	33.2	18 31.2	-17.3	33.5	20 11.0	-16.2	33.9
56	13 08.8	-20.9	31.6	14 50.8	-19.8	31.9	16 32.5	-18.7	32.2	18 13.9	-17.7	32.5	19 54.8	-16.5	32.9
57	12 47.9	-21.1	30.7	14 31.0	-20.1	30.9	16 13.8	-19.0	31.2	17 56.2	-17.9	31.5	19 38.3	-16.8	31.9
58	12 26.8	-21.3	29.7	14 10.9	-20.3	30.0	15 54.8	-19.3	30.2	17 38.3	-18.3	30.5	19 21.5	-17.2	30.9
59	12 05.5	-21.5	28.8	13 50.6	-20.5	29.0	15 35.5	-19.6	29.2	17 20.0	-18.5	29.5	19 04.3	-17.6	29.9
60	11 44.0	-21.6	27.8	13 30.1	-20.8	28.0	15 15.9	-19.8	28.3	17 01.5	-18.9	28.5	18 46.7	-17.8	28.8
61	11 22.4	-21.9	26.9	13 09.3	-20.9	27.1	14 56.1	-20.1	27.3	16 42.6	-19.1	27.5	18 28.9	-18.2	27.8
62	11 00.5	-22.0	25.9	12 48.4	-21.2	26.1	14 36.0	-20.3	26.3	16 23.5	-19.4	26.6	18 10.7	-18.5	26.8
63	10 38.5	-22.2	25.0	12 27.2	-21.4	25.1	14 15.7	-20.5	25.3	16 04.1	-19.7	25.6	17 52.2	-18.8	25.8
64	10 16.3	-22.4	24.0	12 05.8	-21.6	24.2	13 55.2	-20.8	24.4	15 44.4	-19.9	24.6	17 33.4	-19.1	24.8
65	9 53.9	-22.6	23.1	11 44.2	-21.7	23.2	13 34.4	-21.0	23.4	15 24.5	-20.2	23.6	17 14.3	-19.4	23.8
66	9 31.3	-22.6	22.1	11 22.5	-22.0	22.3	13 13.4	-21.2	22.4	15 04.3	-20.5	22.6	16 54.9	-19.6	22.9
67	9 08.7	-22.9	21.2	11 00.5	-22.1	21.3	12 52.2	-21.4	21.5	14 43.8	-20.7	21.7	16 35.3	-20.0	21.9
68	8 45.8	-22.9	20.3	10 38.4	-22.3	20.4	12 30.8	-21.6	20.5	14 23.1	-20.9	20.7	16 15.3	-20.2	20.9
69	8 22.9	-23.1	19.3	10 16.1	-22.5	19.4	12 09.2	-21.8	19.6	14 02.2	-21.1	19.7	15 55.1	-20.5	19.9
70	7 59.8	-23.2	18.4	9 53.6	-22.6	18.5	11 47.4	-22.0	18.6	13 41.1	-21.4	18.8	15 34.6	-20.7	18.9
71	7 36.6	-23.4	17.5	9 31.0	-22.8	17.6	11 25.4	-22.2	17.7	13 19.7	-21.6	17.8	15 13.9	-21.0	18.0
72	7 13.2	-23.4	16.5	9 08.2	-22.9	16.6	11 03.2	-22.4	16.7	12 58.1	-21.8	16.8	14 52.9	-21.2	17.0
73	6 49.8	-23.6	15.6	8 45.3	-23.0	15.7	10 40.8	-22.5	15.8	12 36.3	-22.0	15.9	14 31.7	-21.5	16.0
74	6 26.2	-23.6	14.7	8 22.3	-23.2	14.7	10 18.3	-22.7	14.8	12 14.3	-22.2	14.9	14 10.2	-21.7	15.1
75	6 02.6	-23.8	13.8	7 59.1	-23.3	13.8	9 55.6	-22.8	13.9	11 52.1	-22.4	14.0	13 48.5	-21.9	14.1
76	5 38.8	-23.8	12.8	7 35.8	-23.4	12.9	9 32.8	-23.0	13.0	11 29.7	-22.6	13.0	13 26.6	-22.2	13.1
77	5 15.0	-23.9	11.9	7 12.4	-23.5	12.0	9 09.8	-23.2	12.0	11 07.1	-22.7	12.1	13 04.4	-22.3	12.2
78	4 51.1	-24.0	11.0	6 48.9	-23.7	11.0	8 46.6	-23.3	11.1	10 44.4	-22.9	11.1	12 42.1	-22.6	11.2
79	4 27.1	-24.1	10.1	6 25.2	-23.7	10.1	8 23.3	-23.4	10.1	10 21.5	-23.1	10.2	12 19.5	-22.7	10.3
80	4 03.0	-24.1	9.2	6 01.5	-23.9	9.2	7 59.9	-23.5	9.2	9 58.4	-23.3	9.3	11 56.8	-22.9	9.3
81	3 38.9	-24.2	8.2	5 37.6	-23.9	8.3	7 36.4	-23.7	8.3	9 35.1	-23.4	8.3	11 33.9	-23.2	8.4
82	3 14.7	-24.2	7.3	5 13.7	-24.0	7.3	7 12.7	-23.7	7.4	9 11.7	-23.5	7.4	11 10.7	-23.3	7.4
83	2 50.5	-24.3	6.4	4 49.7	-24.0	6.4	6 49.0	-23.9	6.4	8 48.2	-23.7	6.5	10 47.4	-23.4	6.5
84	2 26.2	-24.3	5.5	4 25.7	-24.2	5.5	6 25.1	-24.0	5.5	8 24.5	-23.8	5.5	10 24.0	-23.7	5.6
85	2 01.9	-24.3	4.6	4 01.5	-24.2	4.6	6 01.1	-24.0	4.6	8 00.7	-23.9	4.6	10 00.3	-23.7	4.6
86	1 37.6	-24.4	3.7	3 37.3	-24.3	3.7	5 37.1	-24.2	3.7	7 36.8	-24.0	3.7	9 36.6	-24.0	3.7
87	1 13.2	-24.4	2.7	3 13.0	-24.3	2.7	5 12.9	-24.2	2.8	7 12.8	-24.2	2.8	9 12.6	-24.0	2.8
88	0 48.8	-24.4	1.8	2 48.7	-24.3	1.8	4 48.7	-24.3	1.8	6 48.6	-24.2	1.8	8 48.6	-24.3	1.8
89	0 24.4	-24.4	0.9	2 24.4	-24.4	0.9	4 24.4	-24.4	0.9	6 24.4	-24.4	0.9	8 24.3	-24.3	0.9
90	0 00.0	-24.4	0.0	2 00.0	-24.4	0.0	4 00.0	-24.4	0.0	6 00.0	-24.4	0.0	8 00.0	-24.5	0.0

0°

2°

4°

6°

8°

LATITUDE CONTRARY NAME

L.H.A. 66°, 294°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
20 37.5	-13.2	122.3	19 32.8	-15.0	122.9	18 27.1	-16.8	123.5	17 20.4	-18.5	124.0	16 12.9	-20.3	124.5	30
20 24.3	-13.6	123.3	19 17.8	-15.4	123.9	18 10.3	-17.1	124.5	17 01.9	-18.9	125.0	15 52.6	-20.5	125.5	31
20 10.7	-14.0	124.4	19 02.4	-15.7	125.0	17 53.2	-17.5	125.5	16 43.0	-19.1	126.0	15 32.1	-20.8	126.5	32
19 56.7	-14.3	125.4	18 46.7	-16.1	126.0	17 35.7	-17.7	126.5	16 23.9	-19.4	127.0	15 11.3	-21.0	127.4	33
19 42.4	-14.7	126.4	18 30.6	-16.3	127.0	17 18.0	-18.1	127.5	16 04.5	-19.6	128.0	14 50.3	-21.3	128.4	34
19 27.7	-15.0	127.5	18 14.3	-16.7	128.0	16 59.9	-18.3	128.5	15 44.9	-20.0	129.0	14 29.0	-21.5	129.4	35
19 12.7	-15.4	128.5	17 57.6	-17.0	129.0	16 41.6	-18.6	129.5	15 24.9	-20.2	129.9	14 07.5	-21.7	130.3	36
18 57.3	-15.7	129.5	17 40.6	-17.4	130.0	16 23.0	-18.9	130.5	15 04.7	-20.4	130.9	13 45.8	-21.9	131.3	37
18 41.6	-16.0	130.5	17 23.2	-17.6	131.0	16 04.1	-19.2	131.5	14 44.3	-20.7	131.9	13 23.9	-22.2	132.3	38
18 25.6	-16.3	131.6	17 05.6	-17.9	132.0	15 44.9	-19.4	132.5	14 23.6	-20.9	132.9	13 01.7	-22.4	133.2	39
18 09.3	-16.7	132.6	16 47.7	-18.2	133.0	15 25.5	-19.7	133.5	14 02.7	-21.2	133.8	12 39.3	-22.6	134.2	40
17 52.6	-17.0	133.6	16 29.5	-18.4	134.0	15 05.8	-19.9	134.4	13 41.5	-21.3	134.8	12 16.7	-22.7	135.1	41
17 35.6	-17.3	134.6	16 11.1	-18.8	135.0	14 45.9	-20.2	135.4	13 20.2	-21.6	135.8	11 54.0	-23.0	136.1	42
17 18.3	-17.5	135.6	15 52.3	-19.0	136.0	14 25.7	-20.4	136.4	12 58.6	-21.8	136.7	11 31.0	-23.1	137.0	43
17 00.8	-17.9	136.6	15 33.3	-19.3	137.0	14 05.3	-20.7	137.3	12 36.8	-22.0	137.7	11 07.9	-23.3	138.0	44
16 42.9	-18.2	137.6	15 14.0	-19.5	138.0	13 44.6	-20.9	138.3	12 14.8	-22.2	138.6	10 44.6	-23.5	138.9	45
16 24.7	-18.4	138.6	14 54.5	-19.8	139.0	13 23.7	-21.1	139.3	11 52.6	-22.4	139.6	10 21.1	-23.7	139.8	46
16 06.3	-18.7	139.6	14 34.7	-20.0	139.9	13 02.6	-21.3	140.2	11 30.2	-22.6	140.5	9 57.4	-23.8	140.8	47
15 47.6	-19.0	140.6	14 14.7	-20.3	140.9	12 41.3	-21.5	141.2	11 07.6	-22.7	141.5	9 33.6	-23.9	141.7	48
15 28.6	-19.2	141.5	13 54.4	-20.5	141.9	12 19.8	-21.7	142.2	10 44.9	-22.9	142.4	9 09.7	-24.1	142.6	49
15 09.4	-19.5	142.5	13 33.9	-20.7	142.8	11 58.1	-21.9	143.1	10 22.0	-23.1	143.3	8 43.2	-24.3	143.5	50
14 49.9	-19.8	143.5	13 13.2	-20.9	143.8	11 36.2	-22.1	144.1	9 58.9	-23.2	144.3	8 21.3	-24.3	144.5	51
14 30.1	-20.0	144.5	12 52.3	-21.2	144.8	11 14.1	-22.3	145.0	9 35.7	-23.4	145.2	7 57.0	-24.5	145.4	52
14 10.1	-20.2	145.5	12 31.1	-21.3	145.7	10 51.8	-22.4	146.0	9 12.3	-23.6	146.2	7 32.5	-24.6	146.3	53
13 49.9	-20.4	146.4	12 09.8	-21.6	146.7	10 29.4	-22.6	146.9	8 48.7	-23.6	147.1	7 07.9	-24.7	147.2	54
13 29.5	-20.7	147.4	11 48.2	-21.7	147.6	10 06.8	-22.8	147.8	8 25.1	-23.8	148.0	6 43.2	-24.8	148.2	55
13 08.8	-20.9	148.4	11 26.5	-21.9	148.6	9 44.0	-22.9	148.8	8 01.3	-23.9	148.9	6 18.4	-24.9	149.1	56
12 47.9	-21.1	149.3	11 04.6	-22.1	149.5	9 21.1	-23.1	149.7	7 37.4	-24.1	149.9	5 53.5	-25.0	150.0	57
12 26.8	-21.3	150.3	10 42.5	-22.3	150.5	8 58.0	-23.2	150.7	7 13.3	-24.1	150.8	5 28.5	-25.1	150.9	58
12 05.5	-21.5	151.2	10 20.2	-22.4	151.4	8 34.8	-23.4	151.6	6 49.2	-24.3	151.7	5 03.4	-25.1	151.8	59
11 44.0	-21.6	152.2	9 57.8	-22.6	152.4	8 11.4	-23.5	152.5	6 24.9	-24.4	152.6	4 38.3	-25.2	152.7	60
11 22.4	-21.9	153.1	9 35.2	-22.7	153.3	7 47.9	-23.6	153.4	6 00.5	-24.4	153.6	4 13.1	-25.3	153.6	61
11 00.5	-22.0	154.1	9 12.5	-22.9	154.2	7 24.3	-23.7	154.4	5 36.1	-24.5	154.5	3 47.8	-25.4	154.5	62
10 38.5	-22.2	155.0	8 49.6	-23.0	155.2	7 00.6	-23.8	155.3	5 11.6	-24.6	155.4	3 22.4	-25.4	155.5	63
10 16.3	-22.4	156.0	8 26.6	-23.2	156.1	6 36.8	-23.9	156.2	4 47.0	-24.7	156.3	2 57.0	-25.4	156.4	64
9 53.9	-22.6	156.9	8 03.4	-23.3	157.0	6 12.9	-24.0	157.1	4 22.3	-24.8	157.2	2 31.6	-25.5	157.3	65
9 31.3	-22.6	157.9	7 40.1	-23.4	158.0	5 48.9	-24.1	158.1	3 57.5	-24.8	158.1	2 06.1	-25.5	158.2	66
9 08.7	-22.9	158.8	7 16.7	-23.5	158.9	5 24.8	-24.2	159.0	3 32.7	-24.9	159.0	1 40.6	-25.5	159.1	67
8 45.8	-22.9	159.7	6 53.2	-23.6	159.8	5 00.6	-24.3	159.9	3 07.8	-24.9	160.0	1 15.1	-25.5	160.0	68
8 22.9	-23.1	160.7	6 29.6	-23.7	160.8	4 36.3	-24.4	160.8	2 42.9	-24.9	160.9	0 49.6	-25.6	160.9	69
7 59.8	-23.2	161.6	6 05.9	-23.8	161.7	4 11.9	-24.4	161.7	2 18.0	-25.0	161.8	0 24.0	-25.6	161.8	70
7 36.6	-23.4	162.5	5 42.1	-23.9	162.6	3 47.5	-24.4	162.7	1 53.0	-25.0	162.7	0 01.6	+25.5	17.3	71
7 13.2	-23.4	163.5	5 18.2	-24.0	163.5	3 23.1	-24.5	163.6	1 28.0	-25.1	163.6	0 27.1	+25.6	16.4	72
6 49.8	-23.6	164.4	4 54.2	-24.1	164.5	2 58.6	-24.6	164.5	1 02.9	-25.0	164.5	0 52.7	+25.6	15.5	73
6 26.2	-23.6	165.3	4 30.1	-24.1	165.4	2 34.0	-24.6	165.4	0 37.9	-25.1	165.4	1 18.3	+25.5	14.6	74
6 02.6	-23.8	166.2	4 06.0	-24.2	166.3	2 09.4	-24.6	166.3	0 12.8	-25.1	166.3	1 43.8	+25.5	13.7	75
5 38.8	-23.8	167.2	3 41.8	-24.2	167.2	1 44.8	-24.7	167.2	0 12.3	+25.0	12.8	2 09.3	+25.5	12.8	76
5 15.0	-23.9	168.1	3 17.6	-24.3	168.1	1 20.1	-24.7	168.1	0 37.3	+25.1	11.9	2 34.8	+25.4	11.9	77
4 51.1	-24.0	169.0	2 53.3	-24.4	169.0	0 55.4	-24.6	169.0	0 10.4	+25.0	11.0	3 00.2	+25.4	11.0	78
4 27.1	-24.1	169.9	2 28.9	-24.4	170.0	0 30.8	-24.7	170.0	1 27.4	+25.0	10.0	3 25.6	+25.3	10.1	79
4 03.0	-24.1	170.8	2 04.5	-24.4	170.9	0 06.1	-24.7	170.9	1 52.4	+25.0	9.1	3 50.9	+25.3	9.1	80
3 38.9	-24.2	171.8	1 40.1	-24.4	171.8	0 18.6	+24.7	8.2	2 17.4	+25.0	8.2	4 16.2	+25.2	8.2	81
3 14.7	-24.2	172.7	1 15.7	-24.5	172.7	0 43.3	+24.7	7.3	2 42.4	+24.9	7.3	4 41.4	+25.1	7.3	82
2 50.5	-24.3	173.6	0 51.2	-24.4	173.6	1 08.0	+24.7	6.4	3 07.3	+24.9	6.4	5 06.5	+25.1	6.4	83
2 26.2	-24.3	174.5	0 26.8	-24.5	174.5	1 32.7	+24.6	5.5	3 32.2	+24.8	5.5	5 31.6	+25.0	5.5	84
2 01.9	-24.3	175.4	0 02.3	-24.5	175.4	1 57.3	+24.7	4.6	3 57.0	+24.7	4.6	5 56.6	+24.9	4.6	85
1 37.6	-24.4	176.3	0 22.2	+24.5	3.7	2 22.0	+24.5	3.7	4 21.7	+24.7	3.7	6 21.5	+24.8	3.7	86
1 13.2	-24.4	177.3	0 46.7	+24.4	2.7	2 46.5	+24.6	2.7	4 46.4	+24.6	2.7	6 46.3	+24.7	2.8	87
0 48.8	-24.4	178.2	1 11.1	+24.5	1.8	3 11.1	+24.5	1.8	5 11.0	+24.6	1.8	7 11.0	+24.5	1.8	88
0 24.4	-24.4	179.1	1 35.6	+24.4	0.9	3 35.6	+24.4	0.9	5 35.6	+24.4	0.9	7 35.5	+24.5	0.9	89
0 00.0	+24.4	0.0	2 00.0	+24.4	0.0	4 00.0	+24.4	0.0	6 00.0	+24.4	0.0	8 00.0	+24.3	0.0	90

LATITUDE SAME NAME

L.H.A. 114°, 246°

66°, 294° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	25 42.2	-3.6	61.4	26 38.9	-1.6	62.3	27 33.9	+0.5	63.2	28 27.1	+2.7	64.1	29 18.5	+4.8	65.1
31	25 38.6	-4.0	60.3	26 37.3	-2.0	61.2	27 34.4	0.0	62.1	28 29.8	+2.1	63.0	29 23.3	+4.3	64.0
32	25 34.6	-4.6	59.2	26 35.3	-2.6	60.0	27 34.4	-0.5	60.9	28 31.9	+1.5	61.9	29 27.6	+3.6	62.8
33	25 30.0	-5.1	58.1	26 32.7	-3.1	58.9	27 33.9	-1.1	59.8	28 33.4	+1.0	60.7	29 31.2	+3.0	61.7
34	25 24.9	-5.5	57.0	26 29.6	-3.6	57.8	27 32.8	-1.7	58.7	28 34.4	+0.3	59.6	29 34.2	+2.5	60.6
35	25 19.4	-6.1	55.9	26 26.0	-4.2	56.7	27 31.1	-2.1	57.5	28 34.7	-0.1	58.4	29 36.7	+1.9	59.4
36	25 13.3	-6.5	54.8	26 21.8	-4.6	55.6	27 29.0	-2.8	56.4	28 34.6	-0.8	57.3	29 38.6	+1.2	58.3
37	25 06.8	-7.1	53.7	26 17.2	-5.2	54.5	27 26.2	-3.2	55.3	28 33.8	-1.3	56.2	29 39.8	+0.7	57.1
38	24 59.7	-7.5	52.6	26 12.0	-5.7	53.4	27 23.0	-3.8	54.2	28 32.5	-1.9	55.0	29 40.5	+0.1	55.9
39	24 52.2	-7.9	51.5	26 06.3	-6.1	52.2	27 19.2	-4.4	53.0	28 30.6	-2.5	53.9	29 40.6	-0.6	54.8
40	24 44.3	-8.5	50.4	26 00.2	-6.7	51.1	27 14.8	-4.9	51.9	28 28.1	-3.0	52.8	29 40.0	-1.1	53.6
41	24 35.8	-8.9	49.3	25 53.5	-7.2	50.0	27 09.9	-5.4	50.8	28 25.1	-3.6	51.6	29 38.9	-1.7	52.5
42	24 26.9	-9.4	48.2	25 46.3	-7.7	48.9	27 04.5	-5.9	49.7	28 21.5	-4.1	50.5	29 37.2	-2.3	51.3
43	24 17.5	-9.9	47.1	25 38.6	-8.2	47.8	26 58.6	-6.5	48.6	28 17.4	-4.7	49.4	29 34.9	-2.9	50.2
44	24 07.6	-10.3	46.1	25 30.4	-8.7	46.7	26 52.1	-7.0	47.4	28 12.7	-5.3	48.2	29 32.0	-3.5	49.0
45	23 57.3	-10.7	45.0	25 21.7	-9.1	45.6	26 45.1	-7.5	46.3	28 07.4	-5.8	47.1	29 28.5	-4.1	47.9
46	23 46.6	-11.2	43.9	25 12.6	-9.7	44.5	26 37.6	-8.0	45.2	28 01.6	-6.4	46.0	29 24.4	-4.7	46.8
47	23 35.4	-11.7	42.8	25 02.9	-10.1	43.4	26 29.6	-8.6	44.1	27 55.2	-6.9	44.8	29 19.7	-5.2	45.6
48	23 23.7	-12.1	41.8	24 52.8	-10.6	42.4	26 21.0	-9.0	43.0	27 48.3	-7.5	43.7	29 14.5	-5.9	44.5
49	23 11.6	-12.5	40.7	24 42.2	-11.0	41.3	26 12.0	-9.6	41.9	27 40.8	-8.0	42.6	29 08.6	-6.4	43.3
50	22 59.1	-12.9	39.6	24 31.2	-11.5	40.2	26 02.4	-10.0	40.8	27 32.8	-8.6	41.5	29 02.2	-7.0	42.2
51	22 46.2	-13.4	38.6	24 19.7	-12.0	39.1	25 52.4	-10.6	39.7	27 24.2	-9.0	40.4	28 55.2	-7.5	41.1
52	22 32.8	-13.7	37.5	24 07.7	-12.4	38.0	25 41.8	-11.0	38.6	27 15.2	-9.6	39.2	28 47.7	-8.2	39.9
53	22 19.1	-14.2	36.5	23 55.3	-12.9	37.0	25 30.8	-11.5	37.5	27 05.6	-10.2	38.1	28 39.5	-8.7	38.8
54	22 04.9	-14.6	35.4	23 42.4	-13.3	35.9	25 19.3	-12.0	36.4	26 55.4	-10.6	37.0	28 30.8	-9.2	37.7
55	21 50.3	-14.9	34.4	23 29.1	-13.7	34.8	25 07.3	-12.5	35.4	26 44.8	-11.2	35.9	28 21.6	-9.8	36.5
56	21 35.4	-15.4	33.3	23 15.4	-14.2	33.8	24 54.8	-12.9	34.3	26 33.6	-11.6	34.8	28 11.8	-10.3	35.4
57	21 20.0	-15.7	32.3	23 01.2	-14.6	32.7	24 41.9	-13.4	33.2	26 22.0	-12.2	33.7	28 01.5	-10.9	34.3
58	21 04.3	-16.1	31.3	22 46.6	-15.0	31.7	24 28.5	-13.8	32.1	26 09.8	-12.6	32.6	27 50.6	-11.4	33.2
59	20 48.2	-16.5	30.2	22 31.6	-15.4	30.6	24 14.7	-14.3	31.1	25 57.2	-13.1	31.6	27 39.2	-12.0	32.1
60	20 31.7	-16.9	29.2	22 16.2	-15.8	29.6	24 00.4	-14.7	30.0	25 44.1	-13.7	30.5	27 27.2	-12.4	31.0
61	20 14.8	-17.2	28.2	22 00.4	-16.2	28.5	23 45.7	-15.2	28.9	25 30.4	-14.0	29.4	27 14.8	-13.0	29.9
62	19 57.6	-17.5	27.1	21 44.2	-16.5	27.5	23 30.5	-15.6	27.9	25 16.4	-14.6	28.3	27 01.8	-13.5	28.8
63	19 40.1	-17.9	26.1	21 27.7	-17.0	26.5	23 14.9	-16.0	26.8	25 01.8	-15.0	27.2	26 48.3	-14.0	27.7
64	19 22.2	-18.2	25.1	21 10.7	-17.3	25.4	22 58.9	-16.4	25.8	24 46.8	-15.5	26.2	26 34.3	-14.5	26.6
65	19 04.0	-18.6	24.1	20 53.4	-17.7	24.4	22 42.5	-16.8	24.7	24 31.3	-15.9	25.1	26 19.8	-14.9	25.5
66	18 45.4	-18.8	23.1	20 35.7	-18.1	23.4	22 25.7	-17.2	23.7	24 15.4	-16.3	24.1	26 04.9	-15.5	24.4
67	18 26.6	-19.2	22.1	20 17.6	-18.4	22.4	22 08.5	-17.6	22.7	23 59.1	-16.8	23.0	25 49.4	-15.9	23.4
68	18 07.4	-19.5	21.1	19 59.2	-18.7	21.4	21 50.9	-18.0	21.6	23 42.3	-17.2	21.9	25 33.5	-16.4	22.3
69	17 47.9	-19.8	20.1	19 40.5	-19.1	20.3	21 32.9	-18.4	20.6	23 25.1	-17.6	20.9	25 17.1	-16.8	21.2
70	17 28.1	-20.1	19.1	19 21.4	-19.4	19.3	21 14.5	-18.7	19.6	23 07.5	-18.0	19.9	25 00.3	-17.3	20.2
71	17 08.0	-20.4	18.1	19 02.0	-19.8	18.3	20 55.8	-19.1	18.6	22 49.5	-18.4	18.8	24 43.0	-17.8	19.1
72	16 47.6	-20.6	17.2	18 42.2	-20.0	17.3	20 36.7	-19.4	17.6	22 31.1	-18.9	17.8	24 25.2	-18.1	18.1
73	16 27.0	-20.9	16.2	18 22.2	-20.4	16.3	20 17.3	-19.8	16.5	22 12.2	-19.2	16.8	24 07.1	-18.6	17.0
74	16 06.1	-21.2	15.2	18 01.8	-20.6	15.4	19 57.5	-20.1	15.5	21 53.0	-19.5	15.7	23 48.5	-19.0	16.0
75	15 44.9	-21.5	14.2	17 41.2	-21.0	14.4	19 37.4	-20.5	14.5	21 33.5	-20.0	14.7	23 29.5	-19.5	14.9
76	15 23.4	-21.7	13.3	17 20.2	-21.3	13.4	19 16.9	-20.8	13.5	21 13.5	-20.3	13.7	23 10.0	-19.8	13.9
77	15 01.7	-21.9	12.3	16 58.9	-21.5	12.4	18 56.1	-21.1	12.5	20 53.2	-20.6	12.7	22 50.2	-20.2	12.9
78	14 39.8	-22.2	11.3	16 37.4	-21.8	11.4	18 35.0	-21.4	11.6	20 32.6	-21.0	11.7	22 30.0	-20.6	11.9
79	14 17.6	-22.4	10.4	16 15.6	-22.0	10.5	18 13.6	-21.7	10.6	20 11.6	-21.4	10.7	22 09.4	-20.9	10.8
80	13 55.2	-22.6	9.4	15 53.6	-22.3	9.5	17 51.9	-22.0	9.6	19 50.2	-21.7	9.7	21 48.5	-21.4	9.8
81	13 32.6	-22.9	8.5	15 31.3	-22.6	8.5	17 29.9	-22.3	8.6	19 28.5	-22.0	8.7	21 27.1	-21.7	8.8
82	13 09.7	-23.0	7.5	15 08.7	-22.8	7.6	17 07.6	-22.5	7.6	19 06.5	-22.3	7.7	21 05.4	-22.0	7.8
83	12 46.7	-23.3	6.6	14 45.9	-23.1	6.6	16 45.1	-22.9	6.7	18 44.2	-22.6	6.8	20 43.4	-22.4	6.8
84	12 23.4	-23.4	5.6	14 22.8	-23.2	5.7	16 22.2	-23.1	5.7	18 21.6	-22.9	5.8	20 21.0	-22.7	5.8
85	12 00.0	-23.7	4.7	13 59.6	-23.5	4.7	15 59.1	-23.3	4.8	17 58.7	-23.2	4.8	19 58.3	-23.0	4.9
86	11 36.3	-23.8	3.7	13 36.1	-23.8	3.8	15 35.8	-23.6	3.8	17 35.5	-23.5	3.8	19 35.3	-23.4	3.9
87	11 12.5	-24.0	2.8	13 12.3	-23.9	2.8	15 12.2	-23.8	2.8	17 12.0	-23.7	2.9	19 11.9	-23.7	2.9
88	10 48.5	-24.2	1.9	12 48.4	-24.1	1.9	14 48.4	-24.1	1.9	16 48.3	-24.0	1.9	18 48.2	-23.9	1.9
89	10 24.3	-24.3	0.9	12 24.3	-24.3	0.9	14 24.3	-24.3	0.9	16 24.3	-24.3	0.9	18 24.3	-24.3	1.0
90	10 00.0	-24.5	0.0	12 00.0	-24.5	0.0	14 00.0	-24.5	0.0	16 00.0	-24.5	0.0	18 00.0	-24.5	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 66°, 294°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
15	04.4	-21.9	125.0	13	55.3	-23.6	125.4	12	45.4	-25.1	125.8	11	35.0	-26.7	126.1	10	23.9	-28.2	126.5	30
14	42.5	-22.1	125.9	13	31.7	-23.7	126.4	12	20.3	-25.3	126.7	11	08.3	-26.9	127.1	9	55.7	-28.3	127.3	31
14	20.4	-22.4	126.9	13	08.0	-24.0	127.3	11	55.0	-25.5	127.6	10	41.4	-27.0	128.0	9	27.4	-28.5	128.2	32
13	58.0	-22.6	127.9	12	44.0	-24.1	128.2	11	29.5	-25.7	128.6	10	14.4	-27.1	128.9	8	58.9	-28.6	129.1	33
13	35.4	-22.8	128.8	12	19.9	-24.4	129.2	11	03.8	-25.8	129.5	9	47.3	-27.3	129.8	8	30.3	-28.7	130.0	34
13	12.6	-23.0	129.8	11	55.5	-24.5	130.1	10	38.0	-26.0	130.4	9	20.0	-27.4	130.7	8	01.6	-28.9	130.9	35
12	49.6	-23.3	130.7	11	31.0	-24.7	131.0	10	12.0	-26.2	131.3	8	52.6	-27.6	131.6	7	32.7	-28.9	131.8	36
12	26.3	-23.4	131.7	11	06.3	-24.9	132.0	9	45.8	-26.2	132.2	8	25.0	-27.7	132.5	7	03.8	-29.0	132.7	37
12	02.9	-23.6	132.6	10	41.4	-25.0	132.9	9	19.6	-26.5	133.2	7	57.3	-27.8	133.4	6	34.8	-29.2	133.6	38
11	39.3	-23.8	133.5	10	16.4	-25.2	133.8	8	53.1	-26.5	134.1	7	29.5	-27.9	134.3	6	05.6	-29.2	134.4	39
11	15.5	-24.0	134.5	9	51.2	-25.3	134.7	8	26.6	-26.7	135.0	7	01.6	-28.0	135.2	5	36.4	-29.3	135.3	40
10	51.5	-24.1	135.4	9	25.9	-25.5	135.7	7	59.9	-26.8	135.9	6	33.6	-28.1	136.1	5	07.1	-29.4	136.2	41
10	27.4	-24.4	136.3	9	00.4	-25.7	136.6	7	33.1	-27.0	136.8	6	05.5	-28.2	136.9	4	37.7	-29.4	137.1	42
10	03.0	-24.4	137.3	8	34.7	-25.7	137.5	7	06.1	-27.0	137.7	5	37.3	-28.3	137.8	4	08.3	-29.5	137.9	43
9	38.6	-24.6	138.2	8	09.0	-25.9	138.4	6	39.1	-27.1	138.6	5	09.0	-28.3	138.7	3	38.8	-29.6	138.8	44
9	14.0	-24.8	139.1	7	43.1	-26.0	139.3	6	12.0	-27.2	139.5	4	40.7	-28.4	139.6	3	09.2	-29.7	139.7	45
8	49.2	-24.9	140.0	7	17.1	-26.1	140.2	5	44.8	-27.3	140.4	4	12.3	-28.5	140.5	2	39.7	-29.7	140.6	46
8	24.3	-25.0	141.0	6	51.0	-26.2	141.1	5	17.5	-27.4	141.3	3	43.8	-28.5	141.4	2	10.0	-29.6	141.4	47
7	59.3	-25.1	141.9	6	24.8	-26.3	142.0	4	50.1	-27.4	142.2	3	15.3	-28.6	142.2	1	40.4	-29.7	142.3	48
7	34.2	-25.3	142.8	5	58.5	-26.4	142.9	4	22.7	-27.5	143.1	2	46.7	-28.6	143.1	1	10.7	-29.7	143.2	49
7	08.9	-25.3	143.7	5	32.1	-26.4	143.8	3	55.2	-27.6	143.9	2	18.1	-28.6	144.0	0	41.0	-29.7	144.0	50
6	43.6	-25.5	144.6	5	05.7	-26.6	144.7	3	27.6	-27.6	144.8	1	49.5	-28.7	144.9	0	11.3	-29.7	144.9	51
6	18.1	-25.5	145.5	4	39.1	-26.6	145.6	3	00.0	-27.7	145.7	1	20.8	-28.7	145.8	0	18.4	-29.7	145.8	52
5	52.6	-25.7	146.4	4	12.5	-26.7	146.5	2	32.3	-27.6	146.6	0	52.1	-28.7	146.6	0	48.1	-29.7	146.6	53
5	26.9	-25.7	147.4	3	45.8	-26.7	147.4	2	04.7	-27.8	147.5	0	23.4	-28.7	147.5	1	17.8	-29.7	147.5	54
5	01.2	-25.8	148.3	3	19.1	-26.8	148.3	1	36.9	-27.7	148.4	0	05.3	-28.7	148.4	1	47.5	-29.6	148.4	55
4	35.4	-25.9	149.2	2	52.3	-26.8	149.2	1	09.2	-27.8	149.3	0	34.0	-28.7	149.3	2	17.1	-29.6	149.3	56
4	09.5	-25.9	150.1	2	25.5	-26.8	150.1	1	04.4	-27.7	150.2	1	02.7	-28.6	150.2	2	46.7	-29.6	150.2	57
3	43.6	-26.0	151.0	1	58.7	-26.9	151.0	0	13.7	-27.8	151.0	1	31.3	-28.7	151.0	3	16.3	-29.5	151.0	58
3	17.6	-26.0	151.9	1	31.8	-26.9	151.9	0	14.1	-27.8	151.9	2	00.0	-28.6	151.9	3	45.8	-29.5	151.9	59
2	51.6	-26.1	152.8	1	04.9	-27.0	152.8	0	41.9	-27.7	152.8	2	28.6	-28.6	152.8	4	15.3	-29.4	152.8	60
2	25.5	-26.1	153.7	0	37.9	-26.9	153.7	1	09.6	-27.8	153.7	2	57.2	-28.6	153.7	4	44.7	-29.4	153.7	61
1	59.4	-26.1	154.6	0	11.0	-26.9	154.6	1	37.4	-27.7	154.6	3	25.8	-28.5	154.6	5	14.1	-29.3	154.6	62
1	33.3	-26.2	155.5	0	15.9	-27.0	155.5	2	05.1	-27.7	155.5	3	54.3	-28.4	155.5	5	43.4	-29.2	155.5	63
1	07.1	-26.2	156.4	0	42.9	-26.9	156.4	2	32.8	-27.7	156.4	4	22.7	-28.4	156.4	6	12.6	-29.1	156.4	64
0	40.9	-26.2	157.3	1	09.8	-26.9	157.3	3	00.5	-27.6	157.3	4	51.1	-28.3	157.3	6	41.7	-29.0	157.3	65
0	14.7	-26.2	158.2	1	36.7	-26.9	158.2	3	28.1	-27.5	158.2	5	19.4	-28.3	158.2	7	10.7	-28.9	158.2	66
0	11.5	+26.2	20.9	2	03.6	+26.8	20.9	3	55.6	+27.5	21.0	5	47.7	+28.1	21.0	7	39.6	+28.8	21.1	67
0	37.7	+26.1	20.0	2	30.4	+26.8	20.0	4	23.1	+27.5	20.1	6	15.8	+28.1	20.1	8	08.4	+28.7	20.2	68
1	03.8	+26.2	19.1	2	57.2	+26.8	19.1	4	50.6	+27.3	19.2	6	43.9	+28.0	19.2	8	37.1	+28.6	19.3	69
1	30.0	+26.1	18.2	3	24.0	+26.7	18.2	5	17.9	+27.3	18.3	7	11.9	+27.8	18.4	9	05.7	+28.5	18.4	70
1	56.1	+26.2	17.3	3	50.7	+26.7	17.3	5	45.2	+27.2	17.4	7	39.7	+27.8	17.5	9	34.2	+28.3	17.6	71
2	22.3	+26.0	16.4	4	17.4	+26.6	16.4	6	12.4	+27.2	16.5	8	07.5	+27.6	16.6	10	02.5	+28.1	16.7	72
2	48.3	+26.1	15.5	4	44.0	+26.5	15.5	6	39.6	+27.0	15.6	8	35.1	+27.5	15.7	10	30.6	+28.0	15.8	73
3	14.4	+26.0	14.6	5	10.5	+26.4	14.6	7	06.6	+26.9	14.7	9	02.6	+27.4	14.8	10	58.6	+27.9	14.9	74
3	40.4	+25.9	13.7	5	36.9	+26.4	13.7	7	33.5	+26.8	13.8	9	30.0	+27.3	13.9	11	26.5	+27.7	14.0	75
4	06.3	+25.9	12.8	6	03.3	+26.3	12.8	8	00.3	+26.7	12.9	9	57.3	+27.1	13.0	11	54.2	+27.5	13.1	76
4	32.2	+25.8	11.9	6	29.6	+26.2	11.9	8	27.0	+26.6	12.0	10	24.4	+26.9	12.1	12	21.7	+27.3	12.1	77
4	58.0	+25.7	11.0	6	55.8	+26.1	11.0	8	53.6	+26.4	11.1	10	51.3	+26.8	11.2	12	49.0	+27.2	11.2	78
5	23.7	+25.7	10.1	7	21.9	+25.9	10.1	9	20.0	+26.3	10.2	11	18.1	+26.6	10.2	13	16.2	+26.9	10.3	79
5	49.4	+25.5	9.2	7	47.8	+25.9	9.2	9	46.3	+26.1	9.3	11	44.7	+26.4	9.3	13	43.1	+26.7	9.4	80
6	14.9	+25.5	8.3	8	13.7	+25.7	8.3	10	12.4	+26.0	8.3	12	11.1	+26.3	8.4	14	09.8	+26.6	8.5	81
6	40.4	+25.4	7.4	8	39.4	+25.6	7.4	10	38.4	+25.8	7.4	12	37.4	+26.1	7.5	14	36.4	+26.3	7.5	82
7	05.8	+25.2	6.4	9	05.0	+25.5	6.5	11	04.2	+25.7	6.5	13	03.5	+25.8	6.6	15	02.7	+26.1	6.6	83
7	31.0	+25.2	5.5	9	30.5	+25.3	5.6	11	29.9	+25.5	5.6	13	29.3	+25.7	5.6	15	28.8	+25.8	5.7	84
7	56.2	+25.0	4.6	9	55.8	+25.2	4.6	11	55.4	+25.3	4.7	13	55.0	+25.5	4.7	15	54.6	+25.6	4.7	85
8	21.2	+24.9	3.7	10	21.0	+25.0	3.7	12	20.7	+25.1	3.7	14	20.5	+25.2	3.8	16	20.2	+25.3	3.8	86
8	46.1	+24.8	2.8	10	46.0	+24.8	2.8	12	45.8	+25.0	2.8	14	45.7	+25.0	2.8	16	45.5	+25.1	2.9	87
9	10.9	+24.6	1.9	11	10.8	+24.7	1.9	13	10.8	+24.7	1.9	15	10.7	+24.8	1.9	17	10.6	+24.9	1.9	88
9	35.5	+24.5	0.9	11	35.5	+24.5	0.9	13	35.5	+24.5	0.9	15	35.5	+24.5	0.9	17	35.5	+24.5	1.0	89
10	00.0	+24.3	0.0	12	00.0	+24.3	0.0	14	00.0	+24.3	0.0	16	00.0	+24.3	0.0	18	00.0	+24.3	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 114°, 246°

66°, 294° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	30 08.0	+7.0	66.2	30 55.4	+9.2	67.3	31 40.7	+11.5	68.4	32 23.8	+13.7	69.6	33 04.6	+15.9	70.8
31	30 15.0	+6.4	65.0	31 04.6	+8.6	66.1	31 52.2	+10.8	67.2	32 37.5	+13.0	68.4	33 20.5	+15.3	69.6
32	30 21.4	+5.7	63.9	31 13.2	+8.0	64.9	32 03.0	+10.1	66.1	32 50.5	+12.4	67.2	33 35.8	+14.6	68.5
33	30 27.1	+5.2	62.7	31 21.2	+7.3	63.8	32 13.1	+9.5	64.9	33 02.9	+11.7	66.1	33 50.4	+14.0	67.3
34	30 32.3	+4.6	61.6	31 28.5	+6.7	62.6	32 22.6	+8.9	63.7	33 14.6	+11.1	64.9	34 04.4	+13.3	66.1
35	30 36.9	+3.9	60.4	31 35.2	+6.0	61.5	32 31.5	+8.2	62.6	33 25.7	+10.4	63.7	34 17.7	+12.6	64.9
36	30 40.8	+3.3	59.2	31 41.2	+5.5	60.3	32 39.7	+7.6	61.4	33 36.1	+9.8	62.5	34 30.3	+12.0	63.7
37	30 44.1	+2.7	58.1	31 46.7	+4.7	59.1	32 47.3	+6.9	60.2	33 45.9	+9.0	61.4	34 42.3	+11.2	62.6
38	30 46.8	+2.1	56.9	31 51.4	+4.2	57.9	32 54.2	+6.2	59.0	33 54.9	+8.4	60.2	34 53.5	+10.6	61.4
39	30 48.9	+1.5	55.8	31 55.6	+3.4	56.8	33 00.4	+5.5	57.8	34 03.3	+7.6	59.0	35 04.1	+9.8	60.2
40	30 50.4	+0.8	54.6	31 59.0	+2.9	55.6	33 05.9	+4.9	56.7	34 10.9	+7.0	57.8	35 13.9	+9.1	59.0
41	30 51.2	+0.2	53.4	32 01.9	+2.1	54.4	33 10.8	+4.2	55.5	34 17.9	+6.2	56.6	35 23.0	+8.3	57.7
42	30 51.4	-0.4	52.3	32 04.0	+1.6	53.2	33 15.0	+3.5	54.3	34 24.1	+5.6	55.4	35 31.3	+7.7	56.5
43	30 51.0	-1.1	51.1	32 05.6	+0.8	52.1	33 18.5	+2.8	53.1	34 29.7	+4.8	54.2	35 39.0	+6.9	55.3
44	30 49.9	-1.6	49.9	32 06.4	+0.2	50.9	33 21.3	+2.2	51.9	34 34.5	+4.1	53.0	35 45.9	+6.1	54.1
45	30 48.3	-2.3	48.8	32 06.6	-0.4	49.7	33 23.5	+1.4	50.7	34 38.6	+3.4	51.7	35 52.0	+5.4	52.9
46	30 46.0	-3.0	47.6	32 06.2	-1.1	48.5	33 24.9	+0.7	49.5	34 42.0	+2.7	50.5	35 57.4	+4.7	51.6
47	30 43.0	-3.5	46.4	32 05.1	-1.8	47.3	33 25.6	+0.1	48.3	34 44.7	+1.9	49.3	36 02.1	+3.9	50.4
48	30 39.5	-4.2	45.3	32 03.3	-2.4	46.2	33 25.7	-0.6	47.1	34 46.6	+1.3	48.1	36 06.0	+3.1	49.2
49	30 35.3	-4.7	44.1	32 00.9	-3.1	45.0	33 25.1	-1.3	45.9	34 47.9	+0.5	46.9	36 09.1	+2.4	47.9
50	30 30.6	-5.4	43.0	31 57.8	-3.7	43.8	33 23.8	-2.1	44.7	34 48.4	-0.3	45.7	36 11.5	+1.6	46.7
51	30 25.2	-6.0	41.8	31 54.1	-4.4	42.6	33 21.7	-2.7	43.5	34 48.1	-1.0	44.4	36 13.1	+0.8	45.4
52	30 19.2	-6.6	40.7	31 49.7	-5.0	41.5	33 19.0	-3.3	42.3	34 47.1	-1.6	43.2	36 13.9	+0.1	44.2
53	30 12.6	-7.2	39.5	31 44.7	-5.7	40.3	33 15.7	-4.1	41.1	34 45.5	-2.5	42.0	36 14.0	-0.7	43.0
54	30 05.4	-7.8	38.4	31 39.0	-6.3	39.1	33 11.6	-4.8	39.9	34 43.0	-3.1	40.8	36 13.3	-1.5	41.7
55	29 57.6	-8.4	37.2	31 32.7	-6.9	37.9	33 06.8	-5.4	38.7	34 39.9	-3.9	39.6	36 11.8	-2.2	40.5
56	29 49.2	-9.0	36.1	31 25.8	-7.6	36.8	33 01.4	-6.1	37.5	34 36.0	-4.5	38.4	36 09.6	-3.0	39.3
57	29 40.2	-9.5	34.9	31 18.2	-8.2	35.6	32 55.3	-6.8	36.4	34 31.5	-5.3	37.2	36 06.6	-3.8	38.0
58	29 30.7	-10.2	33.8	31 10.0	-8.8	34.5	32 48.5	-7.4	35.2	34 26.2	-6.1	35.9	36 02.8	-4.5	36.8
59	29 20.5	-10.7	32.7	31 01.2	-9.5	33.3	32 41.1	-8.1	34.0	34 20.1	-6.7	34.7	35 58.3	-5.3	35.5
60	29 09.8	-11.3	31.5	30 51.7	-10.0	32.1	32 33.0	-8.8	32.8	34 13.4	-7.4	33.5	35 53.0	-6.0	34.3
61	28 58.5	-11.8	30.4	30 41.7	-10.6	31.0	32 24.2	-9.4	31.6	34 06.0	-8.1	32.3	35 47.0	-6.8	33.1
62	28 46.7	-12.4	29.3	30 31.1	-11.3	29.9	32 14.8	-10.0	30.5	33 57.9	-8.8	31.1	35 40.2	-7.5	31.9
63	28 34.3	-12.9	28.2	30 19.8	-11.8	28.7	32 04.8	-10.7	29.3	33 49.1	-9.5	29.9	35 32.7	-8.2	30.6
64	28 21.4	-13.5	27.1	30 08.0	-12.4	27.6	31 54.1	-11.3	28.1	33 39.6	-10.2	28.8	35 24.5	-9.0	29.4
65	28 07.9	-14.0	26.0	29 55.6	-13.0	26.5	31 42.8	-12.0	27.0	33 29.4	-10.8	27.6	35 15.5	-9.7	28.2
66	27 53.9	-14.5	24.9	29 42.6	-13.6	25.3	31 30.8	-12.5	25.8	33 18.6	-11.5	26.4	35 05.8	-10.4	27.0
67	27 39.4	-15.0	23.8	29 29.0	-14.1	24.2	31 18.3	-13.2	24.7	33 07.1	-12.2	25.2	34 55.4	-11.1	25.8
68	27 24.4	-15.6	22.7	29 14.9	-14.7	23.1	31 05.1	-13.7	23.6	32 54.9	-12.8	24.1	34 44.3	-11.9	24.6
69	27 08.8	-16.0	21.6	29 00.2	-15.2	22.0	30 51.4	-14.4	22.4	32 42.1	-13.5	22.9	34 32.4	-12.5	23.4
70	26 52.8	-16.6	20.5	28 45.0	-15.7	20.9	30 37.0	-14.9	21.3	32 28.6	-14.0	21.7	34 19.9	-13.2	22.2
71	26 36.2	-17.0	19.4	28 29.3	-16.3	19.8	30 22.1	-15.5	20.2	32 14.6	-14.7	20.6	34 06.7	-13.8	21.1
72	26 19.2	-17.5	18.4	28 13.0	-16.8	18.7	30 06.6	-16.1	19.0	31 59.9	-15.4	19.4	33 52.9	-14.6	19.9
73	26 01.7	-17.9	17.3	27 56.2	-17.3	17.6	29 50.5	-16.6	17.9	31 44.5	-15.9	18.3	33 38.3	-15.2	18.7
74	25 43.8	-18.5	16.2	27 38.9	-17.8	16.5	29 33.9	-17.2	16.8	31 28.6	-16.5	17.2	33 23.1	-15.8	17.6
75	25 25.3	-18.8	15.2	27 21.1	-18.3	15.4	29 16.7	-17.7	15.7	31 12.1	-17.1	16.0	33 07.3	-16.4	16.4
76	25 06.5	-19.3	14.1	27 02.8	-18.8	14.4	28 59.0	-18.3	14.6	30 55.0	-17.7	14.9	32 50.9	-17.1	15.3
77	24 47.2	-19.8	13.1	26 44.0	-19.3	13.3	28 40.7	-18.7	13.5	30 37.3	-18.2	13.8	32 33.8	-17.7	14.1
78	24 27.4	-20.1	12.0	26 24.7	-19.7	12.2	28 22.0	-19.3	12.5	30 19.1	-18.8	12.7	32 16.1	-18.3	13.0
79	24 07.3	-20.6	11.0	26 05.0	-20.2	11.2	28 02.7	-19.8	11.4	30 00.3	-19.4	11.6	31 57.8	-18.9	11.9
80	23 46.7	-21.0	10.0	25 44.8	-20.6	10.1	27 42.9	-20.2	10.3	29 40.9	-19.8	10.5	31 38.9	-19.5	10.7
81	23 25.7	-21.4	9.0	25 24.2	-21.1	9.1	27 22.7	-20.8	9.3	29 21.1	-20.4	9.4	31 19.4	-20.0	9.6
82	23 04.3	-21.8	7.9	25 03.1	-21.5	8.1	27 01.9	-21.2	8.2	29 00.7	-20.9	8.4	30 59.4	-20.6	8.5
83	22 42.5	-22.1	6.9	24 41.6	-21.9	7.0	26 40.7	-21.6	7.2	28 39.8	-21.4	7.3	30 38.8	-21.2	7.4
84	22 20.4	-22.5	5.9	24 19.7	-22.3	6.0	26 19.1	-22.1	6.1	28 18.4	-21.9	6.2	30 17.6	-21.6	6.3
85	21 57.9	-22.9	4.9	23 57.4	-22.7	5.0	25 57.0	-22.6	5.1	27 56.5	-22.4	5.2	29 56.0	-22.2	5.3
86	21 35.0	-23.3	3.9	23 34.7	-23.1	4.0	25 34.4	-23.0	4.1	27 34.1	-22.9	4.1	29 33.8	-22.7	4.2
87	21 11.7	-23.5	2.9	23 11.6	-23.5	3.0	25 11.4	-23.4	3.0	27 11.2	-23.3	3.1	29 11.1	-23.2	3.1
88	20 48.2	-24.0	2.0	22 48.1	-23.9	2.0	24 48.0	-23.8	2.0	26 47.9	-23.7	2.0	28 47.9	-23.7	2.1
89	20 24.2	-24.2	1.0	22 24.2	-24.2	1.0	24 24.2	-24.2	1.0	26 24.2	-24.2	1.0	28 24.2	-24.2	1.0
90	20 00.0	-24.6	0.0	22 00.0	-24.6	0.0	24 00.0	-24.6	0.0	26 00.0	-24.6	0.0	28 00.0	-24.6	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 66°, 294°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9 12.4 -29.7 126.7	8 00.4 -31.1 127.0	6 48.1 -32.6 127.2	5 35.4 -33.9 127.4	4 22.5 -35.3 127.5	30										
8 42.7 -29.8 127.6	7 29.3 -31.3 127.8	6 15.5 -32.6 128.0	5 01.5 -34.0 128.2	3 47.2 -35.4 128.3	31										
8 12.9 -29.9 128.5	6 58.0 -31.3 128.7	5 42.9 -32.7 128.9	4 27.5 -34.1 129.0	3 11.8 -35.3 129.1	32										
7 43.0 -30.0 129.4	6 26.7 -31.4 129.6	5 10.2 -32.8 129.7	3 53.4 -34.1 129.8	2 36.5 -35.5 129.9	33										
7 13.0 -30.2 130.2	5 55.3 -31.5 130.4	4 37.4 -32.8 130.6	3 19.3 -34.2 130.7	2 01.0 -35.4 130.7	34										
6 42.8 -30.2 131.1	5 23.8 -31.6 131.3	4 04.6 -32.9 131.4	2 45.1 -34.1 131.5	1 25.6 -35.4 131.5	35										
6 12.6 -30.3 132.0	4 52.2 -31.6 132.1	3 31.7 -33.0 132.2	2 11.0 -34.2 132.3	0 50.2 -35.5 132.3	36										
5 42.3 -30.4 132.8	4 20.6 -31.7 133.0	2 58.7 -32.9 133.1	1 36.8 -34.3 133.1	0 14.7 -35.5 133.1	37										
5 11.9 -30.4 133.7	3 48.9 -31.7 133.8	2 25.8 -33.0 133.9	1 02.5 -34.2 133.9	0 20.8 +35.4 46.0	38										
4 41.5 -30.5 134.6	3 17.2 -31.8 134.7	1 52.8 -33.1 134.7	0 28.3 -34.3 134.8	0 56.2 +35.5 45.2	39										
4 11.0 -30.6 135.4	2 45.4 -31.8 135.5	1 19.7 -33.0 135.6	0 06.0 +34.2 44.4	1 31.7 +35.4 44.4	40										
3 40.4 -30.6 136.3	2 13.6 -31.8 136.4	0 46.7 -33.0 136.4	0 40.2 +34.2 43.6	2 07.1 +35.4 43.6	41										
3 09.8 -30.7 137.2	1 41.8 -31.9 137.2	0 13.7 -33.1 137.2	1 14.4 +34.3 42.8	2 42.5 +35.4 42.8	42										
2 39.1 -30.7 138.0	1 09.9 -31.9 138.1	0 19.4 +33.0 41.9	1 48.7 +34.2 41.9	3 17.9 +35.3 42.0	43										
2 08.4 -30.7 138.9	0 38.0 -31.9 138.9	0 52.4 +33.1 41.1	2 22.9 +34.1 41.1	3 53.2 +35.3 41.2	44										
1 37.7 -30.7 139.7	0 06.1 -31.9 139.8	1 25.5 +33.0 40.3	2 57.0 +34.2 40.3	4 28.5 +35.2 40.4	45										
1 07.0 -30.8 140.6	0 25.8 +31.9 39.4	1 58.5 +33.0 39.4	3 31.2 +34.1 39.5	5 03.7 +35.2 39.6	46										
0 36.2 -30.8 141.5	0 57.7 +31.8 38.5	2 31.5 +33.0 38.6	4 05.3 +34.0 38.7	5 38.9 +35.1 38.8	47										
0 05.4 -30.8 142.3	1 29.5 +31.9 37.7	3 04.5 +32.9 37.7	4 39.3 +34.0 37.8	6 14.0 +35.0 37.9	48										
0 25.4 +30.7 36.8	2 01.4 +31.8 36.8	3 37.4 +32.9 36.9	5 13.3 +33.9 37.0	6 49.0 +35.0 37.1	49										
0 56.1 +30.8 36.0	2 33.2 +31.8 36.0	4 10.3 +32.8 36.1	5 47.2 +33.9 36.2	7 24.0 +34.9 36.3	50										
1 26.9 +30.7 35.1	3 05.0 +31.8 35.2	4 43.1 +32.8 35.2	6 21.1 +33.7 35.3	7 58.9 +34.7 35.5	51										
1 57.6 +30.7 34.2	3 36.8 +31.7 34.3	5 15.9 +32.7 34.4	6 54.8 +33.7 34.5	8 33.6 +34.7 34.7	52										
2 28.3 +30.7 33.4	4 08.5 +31.6 33.5	5 48.6 +32.6 33.5	7 28.5 +33.6 33.7	9 08.3 +34.5 33.8	53										
2 59.0 +30.6 32.5	4 40.1 +31.6 32.6	6 21.2 +32.5 32.7	8 02.1 +33.5 32.8	9 42.8 +34.4 33.0	54										
3 29.6 +30.6 31.7	5 11.7 +31.5 31.7	6 53.7 +32.5 31.9	8 35.6 +33.3 32.0	10 17.2 +34.3 32.2	55										
4 00.2 +30.6 30.8	5 43.2 +31.5 30.9	7 26.2 +32.3 31.0	9 08.9 +33.3 31.2	10 51.5 +34.2 31.3	56										
4 30.8 +30.4 29.9	6 14.7 +31.4 30.0	7 58.5 +32.3 30.2	9 42.2 +33.1 30.3	11 25.7 +34.0 30.5	57										
5 01.2 +30.4 29.1	6 46.1 +31.2 29.2	8 30.8 +32.1 29.3	10 15.3 +33.0 29.5	11 59.7 +33.9 29.7	58										
5 31.6 +30.4 28.2	7 17.3 +31.2 28.3	9 02.9 +32.0 28.5	10 48.3 +32.9 28.6	12 33.6 +33.7 28.8	59										
6 02.0 +30.2 27.3	7 48.5 +31.1 27.5	9 34.9 +31.9 27.6	11 21.2 +32.7 27.8	13 07.3 +33.5 28.0	60										
6 32.2 +30.2 26.5	8 19.6 +30.9 26.6	10 06.8 +31.8 26.7	11 53.9 +32.6 26.9	13 40.8 +33.4 27.1	61										
7 02.4 +30.0 25.6	8 50.5 +30.9 25.7	10 38.6 +31.6 25.9	12 26.5 +32.4 26.1	14 14.2 +33.1 26.3	62										
7 32.4 +30.0 24.7	9 21.4 +30.7 24.9	11 10.2 +31.4 25.0	12 58.9 +32.2 25.2	14 47.3 +33.0 25.4	63										
8 02.4 +29.8 23.9	9 52.1 +30.5 24.0	11 41.6 +31.4 24.1	13 31.1 +32.0 24.3	15 20.3 +32.8 24.5	64										
8 32.2 +29.7 23.0	10 22.6 +30.5 23.1	12 13.0 +31.1 23.3	14 03.1 +31.9 23.5	15 53.1 +32.6 23.7	65										
9 01.9 +29.6 22.1	10 53.1 +30.3 22.2	12 44.1 +31.0 22.4	14 35.0 +31.6 22.6	16 25.7 +32.3 22.8	66										
9 31.5 +29.5 21.2	11 23.4 +30.1 21.4	13 15.1 +30.8 21.5	15 06.6 +31.5 21.7	16 58.0 +32.2 21.9	67										
10 01.0 +29.3 20.3	11 53.5 +29.9 20.5	13 45.9 +30.5 20.6	15 38.1 +31.2 20.8	17 30.2 +31.9 21.0	68										
10 30.3 +29.2 19.4	12 23.4 +29.8 19.6	14 16.4 +30.4 19.7	16 09.3 +31.1 19.9	18 02.1 +31.6 20.1	69										
10 59.5 +29.0 18.6	12 53.2 +29.6 18.7	14 46.8 +30.2 18.9	16 40.4 +30.7 19.0	18 33.7 +31.4 19.2	70										
11 28.5 +28.9 17.7	13 22.8 +29.5 17.8	15 17.0 +30.0 18.0	17 11.1 +30.6 18.1	19 05.1 +31.1 18.3	71										
11 57.4 +28.7 16.8	13 52.3 +29.2 16.9	15 47.0 +29.8 17.1	17 41.7 +30.3 17.2	19 36.2 +30.9 17.4	72										
12 26.1 +28.5 15.9	14 21.5 +29.0 16.0	16 16.8 +29.5 16.2	18 12.0 +30.0 16.3	20 07.1 +30.6 16.5	73										
12 54.6 +28.3 15.0	14 50.5 +28.8 15.1	16 46.3 +29.3 15.2	18 42.0 +29.8 15.4	20 37.7 +30.2 15.6	74										
13 22.9 +28.2 14.1	15 19.3 +28.6 14.2	17 15.6 +29.0 14.3	19 11.8 +29.5 14.5	21 07.9 +30.0 14.7	75										
13 51.1 +27.9 13.2	15 47.9 +28.3 13.3	17 44.6 +28.8 13.4	19 41.3 +29.2 13.6	21 37.9 +29.7 13.8	76										
14 19.0 +27.7 12.2	16 16.2 +28.1 12.4	18 13.4 +28.5 12.5	20 10.5 +29.0 12.6	22 07.6 +29.3 12.8	77										
14 46.7 +27.5 11.3	16 44.3 +27.9 11.4	18 41.9 +28.3 11.6	20 39.5 +28.6 11.7	22 36.9 +29.0 11.9	78										
15 14.2 +27.3 10.4	17 12.2 +27.6 10.5	19 10.2 +27.9 10.6	21 08.1 +28.3 10.8	23 05.9 +28.7 10.9	79										
15 41.5 +27.0 9.5	17 39.8 +27.4 9.6	19 38.1 +27.7 9.7	21 36.4 +28.0 9.8	23 34.6 +28.3 10.0	80										
16 08.5 +26.8 8.6	18 07.2 +27.0 8.6	20 05.8 +27.3 8.8	22 04.4 +27.6 8.9	24 02.9 +28.0 9.0	81										
16 35.3 +26.6 7.6	18 34.2 +26.8 7.7	20 33.1 +27.1 7.8	22 32.0 +27.3 7.9	24 30.9 +27.5 8.0	82										
17 01.9 +26.3 6.7	19 01.0 +26.5 6.8	21 00.2 +26.7 6.8	22 59.3 +27.0 6.9	24 58.4 +27.2 7.1	83										
17 28.2 +26.0 5.7	19 27.5 +26.3 5.8	21 26.9 +26.4 5.9	23 26.3 +26.6 6.0	25 25.6 +26.8 6.1	84										
17 54.2 +25.7 4.8	19 53.8 +25.9 4.9	21 53.3 +26.1 4.9	23 52.9 +26.2 5.0	25 52.4 +26.4 5.1	85										
18 19.9 +25.5 3.8	20 19.7 +25.5 3.9	22 19.4 +25.7 4.0	24 19.1 +25.8 4.0	26 18.8 +25.9 4.1	86										
18 45.4 +25.2 2.9	20 45.2 +25.3 2.9	22 45.1 +25.3 3.0	24 44.9 +25.5 3.0	26 44.7 +25.6 3.1	87										
19 10.6 +24.8 1.9	21 10.5 +24.9 2.0	23 10.4 +25.0 2.0	25 10.4 +25.0 2.0	27 10.3 +25.1 2.1	88										
19 35.4 +24.6 1.0	21 35.4 +24.6 1.0	23 35.4 +24.6 1.0	25 35.4 +24.6 1.0	27 35.4 +24.6 1.0	89										
20 00.0 +24.2 0.0	22 00.0 +24.2 0.0	24 00.0 +24.2 0.0	26 00.0 +24.2 0.0	28 00.0 +24.2 0.0	90										
20°	22°	24°	26°	28°											

LATITUDE SAME NAME

L.H.A. 114°, 246°

68°, 292° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	18 55.8	-12.0	58.1	19 58.7	-10.2	58.7	21 00.5	-8.3	59.3	22 01.1	-6.4	60.0	23 00.4	-4.4	60.7
31	18 43.8	-12.4	57.1	19 48.5	-10.6	57.6	20 52.2	-8.7	58.3	21 54.7	-6.8	58.9	22 56.0	-4.9	59.7
32	18 31.4	-12.8	56.0	19 37.9	-10.9	56.6	20 43.5	-9.1	57.2	21 47.9	-7.3	57.9	22 51.1	-5.3	58.6
33	18 18.6	-13.0	55.0	19 27.0	-11.3	55.6	20 34.4	-9.5	56.2	21 40.6	-7.6	56.8	22 45.8	-5.8	57.5
34	18 05.6	-13.4	54.0	19 15.7	-11.6	54.5	20 24.9	-9.9	55.1	21 33.0	-8.1	55.7	22 40.0	-6.2	56.4
35	17 52.2	-13.7	52.9	19 04.1	-12.0	53.5	20 15.0	-10.2	54.1	21 24.9	-8.4	54.7	22 33.8	-6.6	55.3
36	17 38.5	-14.0	51.9	18 52.1	-12.3	52.4	20 04.8	-10.6	53.0	21 16.5	-8.9	53.6	22 27.2	-7.1	54.3
37	17 24.5	-14.3	50.9	18 39.8	-12.7	51.4	19 54.2	-11.0	52.0	21 07.6	-9.2	52.5	22 20.1	-7.5	53.2
38	17 10.2	-14.7	49.9	18 27.1	-13.0	50.4	19 43.2	-11.4	50.9	20 58.4	-9.6	51.5	22 12.6	-7.9	52.1
39	16 55.5	-14.9	48.9	18 14.1	-13.4	49.3	19 31.8	-11.6	49.9	20 48.8	-10.1	50.4	22 04.7	-8.3	51.0
40	16 40.6	-15.2	47.9	18 00.7	-13.6	48.3	19 20.2	-12.1	48.8	20 38.7	-10.4	49.4	21 56.4	-8.7	50.0
41	16 25.4	-15.6	46.8	17 47.1	-14.0	47.3	19 08.1	-12.4	47.8	20 28.3	-10.8	48.3	21 47.7	-9.2	48.9
42	16 09.8	-15.8	45.8	17 33.1	-14.3	46.3	18 55.7	-12.7	46.8	20 17.5	-11.1	47.3	21 38.5	-9.5	47.8
43	15 54.0	-16.0	44.8	17 18.8	-14.6	45.3	18 43.0	-13.1	45.7	20 06.4	-11.6	46.2	21 29.0	-10.0	46.8
44	15 38.0	-16.4	43.8	17 04.2	-14.9	44.2	18 29.9	-13.4	44.7	19 54.8	-11.9	45.2	21 19.0	-10.3	45.7
45	15 21.6	-16.6	42.8	16 49.3	-15.2	43.2	18 16.5	-13.8	43.7	19 42.9	-12.2	44.1	21 08.7	-10.8	44.7
46	15 05.0	-16.9	41.8	16 34.1	-15.4	42.2	18 02.7	-14.0	42.6	19 30.7	-12.6	43.1	20 57.9	-11.1	43.6
47	14 48.1	-17.1	40.8	16 18.7	-15.8	41.2	17 48.7	-14.4	41.6	19 18.1	-13.0	42.1	20 46.8	-11.5	42.6
48	14 31.0	-17.4	39.9	16 02.9	-16.1	40.2	17 34.3	-14.7	40.6	19 05.1	-13.3	41.0	20 35.3	-11.9	41.5
49	14 13.6	-17.6	38.9	15 46.8	-16.3	39.2	17 19.6	-15.0	39.6	18 51.8	-13.7	40.0	20 23.4	-12.3	40.5
50	13 56.0	-17.9	37.9	15 30.5	-16.6	38.2	17 04.6	-15.3	38.6	18 38.1	-14.0	39.0	20 11.1	-12.6	39.4
51	13 38.1	-18.0	36.9	15 13.9	-16.8	37.2	16 49.3	-15.6	37.6	18 24.1	-14.3	37.9	19 58.5	-13.0	38.4
52	13 20.1	-18.4	35.9	14 57.1	-17.2	36.2	16 33.7	-15.9	36.6	18 09.8	-14.6	36.9	19 45.5	-13.3	37.3
53	13 01.7	-18.5	34.9	14 39.9	-17.3	35.2	16 17.8	-16.2	35.5	17 55.2	-15.0	35.9	19 32.2	-13.7	36.3
54	12 43.2	-18.7	34.0	14 22.6	-17.6	34.2	16 01.6	-16.4	34.5	17 40.2	-15.2	34.9	19 18.5	-14.1	35.3
55	12 24.5	-19.0	33.0	14 05.0	-17.9	33.2	15 45.2	-16.8	33.5	17 25.0	-15.6	33.9	19 04.4	-14.4	34.2
56	12 05.5	-19.2	32.0	13 47.1	-18.1	32.3	15 28.4	-17.0	32.5	17 09.4	-15.9	32.9	18 50.0	-14.7	33.2
57	11 46.3	-19.3	31.1	13 29.0	-18.3	31.3	15 11.4	-17.2	31.6	16 53.5	-16.1	31.9	18 35.3	-15.1	32.2
58	11 27.0	-19.5	30.1	13 10.7	-18.5	30.3	14 54.2	-17.5	30.6	16 37.4	-16.5	30.8	18 20.2	-15.4	31.2
59	11 07.5	-19.8	29.1	12 52.2	-18.8	29.3	14 36.7	-17.8	29.6	16 20.9	-16.7	29.8	18 04.8	-15.7	30.2
60	10 47.7	-19.9	28.2	12 33.4	-18.9	28.4	14 18.9	-18.0	28.6	16 04.2	-17.1	28.8	17 49.1	-16.0	29.1
61	10 27.8	-20.1	27.2	12 14.5	-19.2	27.4	14 00.9	-18.2	27.6	15 47.1	-17.2	27.8	17 33.1	-16.3	28.1
62	10 07.7	-20.2	26.2	11 55.3	-19.4	26.4	13 42.7	-18.5	26.6	15 29.9	-17.6	26.9	17 16.8	-16.6	27.1
63	9 47.5	-20.4	25.3	11 35.9	-19.5	25.4	13 24.2	-18.7	25.6	15 12.3	-17.8	25.9	17 00.2	-17.0	26.1
64	9 27.1	-20.6	24.3	11 16.4	-19.8	24.5	13 05.5	-18.9	24.7	14 54.5	-18.1	24.9	16 43.2	-17.2	25.1
65	9 06.5	-20.7	23.4	10 56.6	-19.9	23.5	12 46.6	-19.1	23.7	14 36.4	-18.3	23.9	16 26.0	-17.5	24.1
66	8 45.8	-20.8	22.4	10 36.7	-20.1	22.6	12 27.5	-19.4	22.7	14 18.1	-18.6	22.9	16 08.5	-17.7	23.1
67	8 25.0	-21.0	21.5	10 16.6	-20.2	21.6	12 08.1	-19.5	21.8	13 59.5	-18.8	21.9	15 50.8	-18.1	22.1
68	8 04.0	-21.1	20.5	9 56.4	-20.5	20.6	11 48.6	-19.7	20.8	13 40.7	-19.0	20.9	15 32.7	-18.3	21.1
69	7 42.9	-21.2	19.6	9 35.9	-20.6	19.7	11 28.9	-20.0	19.8	13 21.7	-19.2	20.0	15 14.4	-18.5	20.1
70	7 21.7	-21.4	18.6	9 15.3	-20.7	18.7	11 08.9	-20.1	18.9	13 02.5	-19.5	19.0	14 55.9	-18.9	19.2
71	7 00.3	-21.5	17.7	8 54.6	-20.9	17.8	10 48.8	-20.3	17.9	12 43.0	-19.7	18.0	14 37.0	-19.0	18.2
72	6 38.8	-21.5	16.8	8 33.7	-21.0	16.8	10 28.5	-20.4	16.9	12 23.3	-19.9	17.1	14 18.0	-19.3	17.2
73	6 17.3	-21.7	15.8	8 12.7	-21.1	15.9	10 08.1	-20.6	16.0	12 03.4	-20.1	16.1	13 58.7	-19.6	16.2
74	5 55.6	-21.8	14.9	7 51.6	-21.3	15.0	9 47.5	-20.8	15.0	11 43.3	-20.2	15.1	13 39.1	-19.7	15.2
75	5 33.8	-21.8	14.0	7 30.3	-21.4	14.0	9 26.7	-20.9	14.1	11 23.1	-20.5	14.2	13 19.4	-20.0	14.3
76	5 12.0	-22.0	13.0	7 08.9	-21.5	13.1	9 05.8	-21.1	13.1	11 02.6	-20.6	13.2	12 59.4	-20.2	13.3
77	4 50.0	-22.0	12.1	6 47.4	-21.7	12.1	8 44.7	-21.2	12.2	10 42.0	-20.9	12.3	12 39.2	-20.4	12.3
78	4 28.0	-22.1	11.1	6 25.7	-21.7	11.2	8 23.5	-21.4	11.2	10 21.1	-20.9	11.3	12 18.8	-20.6	11.4
79	4 05.9	-22.1	10.2	6 04.0	-21.8	10.2	8 02.1	-21.5	10.3	10 00.2	-21.2	10.3	11 58.2	-20.8	10.4
80	3 43.8	-22.2	9.3	5 42.2	-21.9	9.3	7 40.6	-21.6	9.3	9 39.0	-21.3	9.4	11 37.4	-21.0	9.5
81	3 21.6	-22.3	8.4	5 20.3	-22.0	8.4	7 19.0	-21.7	8.4	9 17.7	-21.4	8.5	11 16.4	-21.2	8.5
82	2 59.3	-22.3	7.4	4 58.3	-22.1	7.4	6 57.3	-21.8	7.5	8 56.3	-21.6	7.5	10 55.2	-21.3	7.6
83	2 37.0	-22.4	6.5	4 36.2	-22.1	6.5	6 35.5	-22.0	6.5	8 34.7	-21.8	6.6	10 33.9	-21.5	6.6
84	2 14.6	-22.3	5.6	4 14.1	-22.2	5.6	6 13.5	-22.0	5.6	8 12.9	-21.8	5.6	10 12.4	-21.7	5.7
85	1 52.3	-22.5	4.6	3 51.9	-22.3	4.6	5 51.5	-22.2	4.7	7 51.1	-22.0	4.7	9 50.7	-21.9	4.7
86	1 29.8	-22.4	3.7	3 29.6	-22.3	3.7	5 29.3	-22.2	3.7	7 29.1	-22.1	3.7	9 28.8	-22.0	3.8
87	1 07.4	-22.5	2.8	3 07.3	-22.4	2.8	5 07.1	-22.3	2.8	7 07.0	-22.2	2.8	9 06.8	-22.1	2.8
88	0 44.9	-22.4	1.9	2 44.9	-22.4	1.9	4 44.8	-22.4	1.9	6 44.8	-22.4	1.9	8 44.7	-22.3	1.9
89	0 22.5	-22.5	0.9	2 22.5	-22.5	0.9	4 22.4	-22.4	0.9	6 22.4	-22.4	0.9	8 22.4	-22.4	0.9
90	0 00.0	-22.5	0.0	2 00.0	-22.5	0.0	4 00.0	-22.5	0.0	6 00.0	-22.5	0.0	8 00.0	-22.5	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 68°, 292°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
18 55.8	-12.0	121.9	17 51.9	-13.9	122.5	16 47.0	-15.7	123.0	15 41.2	-17.4	123.5	14 34.6	-19.1	123.9	30
18 43.8	-12.4	122.9	17 38.0	-14.2	123.5	16 31.3	-15.9	124.0	15 23.8	-17.6	124.5	14 15.5	-19.3	124.9	31
18 31.4	-12.8	124.0	17 23.8	-14.4	124.5	16 15.4	-16.2	125.0	15 06.2	-17.9	125.5	13 56.2	-19.6	125.9	32
18 18.6	-13.0	125.0	17 09.4	-14.8	125.5	15 59.2	-16.5	126.0	14 48.3	-18.2	126.5	13 36.6	-19.8	126.9	33
18 05.6	-13.4	126.0	16 54.6	-15.1	126.5	15 42.7	-16.8	127.0	14 30.1	-18.4	127.4	13 16.8	-20.0	127.8	34
17 52.2	-13.7	127.1	16 39.5	-15.4	127.6	15 25.9	-17.0	128.0	14 11.7	-18.6	128.4	12 56.8	-20.2	128.8	35
17 38.5	-14.0	128.1	16 24.1	-15.7	128.6	15 08.9	-17.3	129.0	13 53.1	-18.9	129.4	12 36.6	-20.4	129.8	36
17 24.5	-14.3	129.1	16 08.4	-15.9	129.6	14 51.6	-17.5	130.0	13 34.2	-19.1	130.4	12 16.2	-20.7	130.7	37
17 10.2	-14.7	130.1	15 52.5	-16.3	130.6	14 34.1	-17.8	131.0	13 15.1	-19.3	131.4	11 55.5	-20.8	131.7	38
16 55.5	-14.9	131.1	15 36.2	-16.5	131.6	14 16.3	-18.1	132.0	12 55.8	-19.6	132.3	11 34.7	-21.0	132.6	39
16 40.6	-15.2	132.1	15 19.7	-16.7	132.6	13 58.2	-18.2	133.0	12 36.2	-19.7	133.3	11 13.7	-21.2	133.6	40
16 25.4	-15.6	133.2	15 03.0	-17.1	133.6	13 40.0	-18.5	133.9	12 16.5	-20.0	134.3	10 52.5	-21.4	134.6	41
16 09.8	-15.8	134.2	14 45.9	-17.2	134.6	13 21.5	-18.8	134.9	11 56.5	-20.1	135.2	10 31.1	-21.5	135.5	42
15 54.0	-16.0	135.2	14 28.7	-17.6	135.5	13 02.7	-18.9	135.9	11 36.4	-20.4	136.2	10 09.6	-21.7	136.5	43
15 38.0	-16.4	136.2	14 11.1	-17.7	136.5	12 43.8	-19.2	136.9	11 16.0	-20.5	137.2	9 47.9	-21.9	137.4	44
15 21.6	-16.6	137.2	13 53.4	-18.0	137.5	12 24.6	-19.3	137.8	10 55.5	-20.7	138.1	9 26.0	-22.0	138.3	45
15 05.0	-16.9	138.2	13 35.4	-18.3	138.5	12 05.3	-19.6	138.8	10 34.8	-20.9	139.1	9 04.0	-22.2	139.3	46
14 48.1	-17.1	139.2	13 17.1	-18.4	139.5	11 45.7	-19.8	139.8	10 13.9	-21.0	140.0	8 41.8	-22.3	140.2	47
14 31.0	-17.4	140.1	12 58.7	-18.7	140.5	11 25.9	-19.9	140.7	9 52.9	-21.2	141.0	8 19.5	-22.4	141.2	48
14 13.6	-17.6	141.1	12 40.0	-18.9	141.4	11 06.0	-20.1	141.7	9 31.7	-21.4	141.9	7 57.1	-22.6	142.1	49
13 56.0	-17.9	142.1	12 21.1	-19.1	142.4	10 45.9	-20.4	142.7	9 10.3	-21.5	143.0	7 34.5	-22.6	143.0	50
13 38.1	-18.0	143.1	12 02.0	-19.3	143.4	10 25.5	-20.4	143.6	8 48.8	-21.6	143.8	7 11.9	-22.8	144.0	51
13 20.1	-18.4	144.1	11 42.7	-19.5	144.3	10 05.1	-20.7	144.6	8 27.2	-21.8	144.8	6 49.1	-22.9	144.9	52
13 01.7	-18.5	145.1	11 23.2	-19.7	145.3	9 44.4	-20.8	145.5	8 05.4	-21.9	145.7	6 26.2	-23.0	145.8	53
12 43.2	-18.7	146.0	11 03.5	-19.8	146.3	9 23.6	-20.9	146.5	7 43.5	-22.0	146.6	6 03.2	-23.1	146.8	54
12 24.5	-19.0	147.0	10 43.7	-20.1	147.2	9 02.7	-21.1	147.4	7 21.5	-22.2	147.6	5 40.1	-23.2	147.7	55
12 05.5	-19.2	148.0	10 23.6	-20.2	148.2	8 41.6	-21.3	148.4	6 59.3	-22.2	148.5	5 16.9	-23.2	148.6	56
11 46.3	-19.3	148.9	10 03.4	-20.3	149.1	8 20.3	-21.3	149.3	6 37.1	-22.4	149.4	4 53.7	-23.4	149.5	57
11 27.0	-19.5	149.9	9 43.1	-20.6	150.1	7 59.0	-21.6	150.3	6 14.7	-22.5	150.4	4 30.3	-23.4	150.5	58
11 07.5	-19.8	150.9	9 22.5	-20.7	151.1	7 37.4	-21.6	151.2	5 52.2	-22.5	151.3	4 06.9	-23.5	151.4	59
10 47.7	-19.9	151.8	9 01.8	-20.8	152.0	7 15.8	-21.7	152.1	5 29.7	-22.7	152.2	3 43.4	-23.5	152.3	60
10 27.8	-20.1	152.8	8 41.0	-21.0	153.0	6 54.1	-21.9	153.1	5 07.0	-22.7	153.2	3 19.9	-23.6	153.2	61
10 07.7	-20.2	153.8	8 20.0	-21.1	153.9	6 32.2	-21.9	154.0	4 44.3	-22.8	154.1	2 56.3	-23.6	154.2	62
9 47.5	-20.4	154.7	7 58.9	-21.2	154.8	6 10.3	-22.1	155.0	4 21.5	-22.8	155.0	2 32.7	-23.6	155.1	63
9 27.1	-20.6	155.7	7 37.7	-21.3	155.8	5 48.2	-22.1	155.9	3 58.7	-23.0	156.0	2 09.1	-23.7	156.0	64
9 06.5	-20.7	156.6	7 16.4	-21.5	156.7	5 26.1	-22.3	156.8	3 35.7	-22.9	156.9	1 45.4	-23.8	156.9	65
8 45.8	-20.8	157.6	6 54.9	-21.6	157.7	5 03.8	-22.3	157.8	3 12.8	-23.1	157.8	1 21.6	-23.7	157.8	66
8 25.0	-21.0	158.5	6 33.3	-21.7	158.6	4 41.5	-22.4	158.7	2 49.7	-23.1	158.7	0 57.9	-23.8	158.8	67
8 04.0	-21.1	159.5	6 11.6	-21.8	159.6	4 19.1	-22.4	159.6	2 26.6	-23.1	159.7	0 34.1	-23.7	159.7	68
7 42.9	-21.2	160.4	5 49.8	-21.9	160.5	3 56.7	-22.5	160.5	2 03.5	-23.1	160.6	0 10.4	-23.8	160.6	69
7 21.7	-21.4	161.4	5 27.9	-21.9	161.4	3 34.2	-22.6	161.5	1 40.4	-23.2	161.5	0 13.4	+23.8	18.5	70
7 00.3	-21.5	162.3	5 06.0	-22.1	162.4	3 11.6	-22.6	162.4	1 17.2	-23.2	162.4	0 37.2	+23.7	17.6	71
6 38.8	-21.5	163.2	4 43.9	-22.1	163.3	2 49.0	-22.7	163.3	0 54.0	-23.2	163.3	1 00.9	+23.8	16.7	72
6 17.3	-21.7	164.2	4 21.8	-22.2	164.2	2 26.3	-22.7	164.3	0 30.8	-23.2	164.3	1 24.7	+23.7	15.7	73
5 55.6	-21.8	165.1	3 59.6	-22.2	165.2	2 03.6	-22.7	165.2	0 07.6	-23.2	165.2	1 48.4	+23.7	14.8	74
5 33.8	-21.8	166.0	3 37.4	-22.3	166.1	1 40.9	-22.8	166.1	0 15.6	+23.2	13.9	2 12.1	+23.7	13.9	75
5 12.0	-22.0	167.0	3 15.1	-22.4	167.0	1 18.1	-22.8	167.0	0 38.8	+23.2	13.0	2 35.8	+23.6	13.0	76
4 50.0	-22.0	167.9	2 52.7	-22.4	167.9	0 55.3	-22.8	168.0	1 02.0	+23.2	12.0	2 59.4	+23.6	12.1	77
4 28.0	-22.1	168.9	2 30.3	-22.5	168.9	0 32.5	-22.8	168.9	1 25.2	+23.2	11.1	3 23.0	+23.5	11.1	78
4 05.9	-22.1	169.8	2 07.8	-22.4	169.8	0 09.7	-22.8	169.8	1 48.4	+23.1	10.2	3 46.5	+23.4	10.2	79
3 43.8	-22.2	170.7	1 45.4	-22.6	170.7	0 13.1	+22.8	9.3	2 11.5	+23.1	9.3	4 09.9	+23.4	9.3	80
3 21.6	-22.3	171.6	1 22.8	-22.5	171.7	0 35.9	+22.8	8.3	2 34.6	+23.1	8.3	4 33.3	+23.4	8.4	81
2 59.3	-22.3	172.6	1 00.3	-22.5	172.6	0 58.7	+22.8	7.4	2 57.7	+23.0	7.4	4 56.7	+23.2	7.4	82
2 37.0	-22.4	173.5	0 37.8	-22.6	173.5	1 21.5	+22.7	6.5	3 20.7	+23.0	6.5	5 19.9	+23.2	6.5	83
2 14.6	-22.3	174.4	0 15.2	-22.5	174.4	1 44.2	+22.8	5.6	3 43.7	+22.9	5.6	5 43.1	+23.1	5.6	84
1 52.3	-22.5	175.4	0 07.3	+22.6	4.6	2 07.0	+22.7	4.6	4 06.6	+22.8	4.6	6 06.2	+22.9	4.7	85
1 29.8	-22.4	176.3	0 29.9	+22.6	3.7	2 29.7	+22.6	3.7	4 29.4	+22.8	3.7	6 29.1	+22.9	3.7	86
1 07.4	-22.5	177.2	0 52.5	+22.5	2.8	2 52.3	+22.6	2.8	4 52.2	+22.7	2.8	6 52.0	+22.8	2.8	87
0 44.9	-22.4	178.1	1 15.0	+22.5	1.9	3 14.9	+22.6	1.9	5 14.9	+22.6	1.9	7 14.8	+22.7	1.9	88
0 22.5	+22.5	179.1	1 37.5	+22.5	0.9	3 37.5	+22.5	0.9	5 37.5	+22.5	0.9	7 37.5	+22.5	0.9	89
0 00.0	+22.5	0.0	2 00.0	+22.5	0.0	4 00.0	+22.4	0.0	6 00.0	+22.4	0.0	8 00.0	+22.4	0.0	90

LATITUDE SAME NAME

L.H.A. 112°, 248°

68°, 292° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	23 58.4	-2.5	61.5	24 54.9	-0.4	62.3	25 50.0	+1.6	63.1	26 43.4	+3.6	64.0	27 35.0	+5.8	65.0
31	23 55.9	-2.9	60.4	24 54.5	-0.9	61.2	25 51.6	+1.0	62.0	26 47.0	+3.2	62.9	27 40.8	+5.3	63.8
32	23 53.0	-3.4	59.3	24 53.6	-1.5	60.1	25 52.6	+0.6	60.9	26 50.2	+2.6	61.8	27 46.1	+4.7	62.7
33	23 49.6	-3.8	58.2	24 52.1	-1.9	59.0	25 53.2	+0.1	59.8	26 52.8	+2.1	60.7	27 50.8	+4.1	61.6
34	23 45.8	-4.4	57.1	24 50.2	-2.4	57.9	25 53.3	-0.4	58.7	26 54.9	+1.6	59.5	27 54.9	+3.6	60.4
35	23 41.4	-4.7	56.0	24 47.8	-2.8	56.8	25 52.9	-1.0	57.6	26 56.5	+1.0	58.4	27 58.5	+3.0	59.3
36	23 36.7	-5.3	54.9	24 45.0	-3.4	55.7	25 51.9	-1.4	56.5	26 57.5	+0.5	57.3	28 01.5	+2.5	58.2
37	23 31.4	-5.6	53.9	24 41.6	-3.8	54.6	25 50.5	-2.0	55.4	26 58.0	-0.1	56.2	28 04.0	+1.9	57.1
38	23 25.8	-6.2	52.8	24 37.8	-4.4	53.5	25 48.5	-2.4	54.3	26 57.9	-0.5	55.1	28 05.9	+1.4	55.9
39	23 19.6	-6.5	51.7	24 33.4	-4.7	52.4	25 46.1	-3.0	53.1	26 57.4	-1.1	53.9	28 07.3	+0.8	54.8
40	23 13.1	-7.1	50.6	24 28.7	-5.3	51.3	25 43.1	-3.5	52.0	26 56.3	-1.7	52.8	28 08.1	+0.3	53.7
41	23 06.0	-7.4	49.5	24 23.4	-5.7	50.2	25 39.6	-3.9	50.9	26 54.6	-2.1	51.7	28 08.4	-0.4	52.5
42	22 58.6	-7.9	48.5	24 17.7	-6.2	49.1	25 35.7	-4.5	49.8	26 52.5	-2.7	50.6	28 08.0	-0.8	51.4
43	22 50.7	-8.3	47.4	24 11.5	-6.7	48.0	25 31.2	-5.0	48.7	26 49.8	-3.2	49.5	28 07.2	-1.5	50.3
44	22 42.4	-8.8	46.3	24 04.8	-7.1	46.9	25 26.2	-5.4	47.6	26 46.6	-3.8	48.3	28 05.7	-2.0	49.1
45	22 33.6	-9.2	45.2	23 57.7	-7.6	45.8	25 20.8	-6.0	46.5	26 42.8	-4.3	47.2	28 03.7	-2.5	48.0
46	22 24.4	-9.6	44.2	23 50.1	-8.1	44.8	25 14.8	-6.4	45.4	26 38.5	-4.8	46.1	28 01.2	-3.1	46.9
47	22 14.8	-10.0	43.1	23 42.0	-8.5	43.7	25 08.4	-7.0	44.3	26 33.7	-5.3	45.0	27 58.1	-3.7	45.7
48	22 04.8	-10.4	42.0	23 33.5	-8.9	42.6	25 01.4	-7.4	43.2	26 28.4	-5.8	43.9	27 54.4	-4.2	44.6
49	21 54.4	-10.9	41.0	23 24.6	-9.4	41.5	24 54.0	-7.9	42.1	26 22.6	-6.3	42.8	27 50.2	-4.8	43.5
50	21 43.5	-11.2	39.9	23 15.2	-9.8	40.4	24 46.1	-8.3	41.0	26 16.3	-6.9	41.7	27 45.4	-5.3	42.3
51	21 32.3	-11.7	38.9	23 05.4	-10.3	39.4	24 37.8	-8.8	39.9	26 09.4	-7.4	40.5	27 40.1	-5.8	41.2
52	21 20.6	-12.0	37.8	22 55.1	-10.7	38.3	24 29.0	-9.3	38.8	26 02.0	-7.8	39.4	27 34.3	-6.4	40.1
53	21 08.6	-12.4	36.7	22 44.4	-11.1	37.2	24 19.7	-9.8	37.8	25 54.2	-8.4	38.3	27 27.9	-7.0	39.0
54	20 56.2	-12.8	35.7	22 33.3	-11.5	36.2	24 09.9	-10.2	36.7	25 45.8	-8.9	37.2	27 20.9	-7.4	37.8
55	20 43.4	-13.2	34.7	22 21.8	-11.9	35.1	23 59.7	-10.7	35.6	25 36.9	-9.3	36.1	27 13.5	-8.0	36.7
56	20 30.2	-13.6	33.6	22 09.9	-12.4	34.0	23 49.0	-11.1	34.5	25 27.6	-9.9	35.0	27 05.5	-8.5	35.6
57	20 16.6	-13.9	32.6	21 57.5	-12.7	33.0	23 37.9	-11.5	33.4	25 17.7	-10.3	34.0	26 57.0	-9.1	34.5
58	20 02.7	-14.3	31.5	21 44.8	-13.2	31.9	23 26.4	-12.0	32.4	25 07.4	-10.8	32.9	26 47.9	-9.5	33.4
59	19 48.4	-14.6	30.5	21 31.6	-13.5	30.9	23 14.4	-12.5	31.3	24 56.6	-11.2	31.8	26 38.4	-10.1	32.3
60	19 33.8	-15.0	29.5	21 18.1	-14.0	29.8	23 01.9	-12.8	30.2	24 45.4	-11.8	30.7	26 28.3	-10.6	31.2
61	19 18.8	-15.3	28.4	21 04.1	-14.3	28.8	22 49.1	-13.3	29.2	24 33.6	-12.2	29.6	26 17.7	-11.1	30.1
62	19 03.5	-15.7	27.4	20 49.8	-14.7	27.8	22 35.8	-13.7	28.1	24 21.4	-12.6	28.5	26 06.6	-11.5	29.0
63	18 47.8	-16.0	26.4	20 35.1	-15.0	26.7	22 22.1	-14.0	27.1	24 08.8	-13.1	27.5	25 55.1	-12.1	27.9
64	18 31.8	-16.3	25.4	20 20.1	-15.5	25.7	22 08.1	-14.5	26.0	23 55.7	-13.5	26.4	25 43.0	-12.5	26.8
65	18 15.5	-16.7	24.4	20 04.6	-15.7	24.7	21 53.6	-14.9	25.0	23 42.2	-14.0	25.3	25 30.5	-13.1	25.7
66	17 58.8	-17.0	23.4	19 48.9	-16.2	23.6	21 38.7	-15.3	23.9	23 28.2	-14.4	24.3	25 17.4	-13.5	24.7
67	17 41.8	-17.2	22.4	19 32.7	-16.4	22.6	21 23.4	-15.7	22.9	23 13.8	-14.8	23.2	25 03.9	-13.9	23.6
68	17 24.6	-17.6	21.3	19 16.3	-16.9	21.6	21 07.7	-16.0	21.9	22 59.0	-15.2	22.2	24 50.0	-14.4	22.5
69	17 07.0	-17.8	20.3	18 59.4	-17.1	20.6	20 51.7	-16.4	20.8	22 43.8	-15.7	21.1	24 35.6	-14.9	21.4
70	16 49.2	-18.2	19.3	18 42.3	-17.5	19.6	20 35.3	-16.8	19.8	22 28.1	-16.0	20.1	24 20.7	-15.3	20.4
71	16 31.0	-18.4	18.4	18 24.8	-17.8	18.6	20 18.5	-17.1	18.8	22 12.1	-16.5	19.0	24 05.4	-15.7	19.3
72	16 12.6	-18.7	17.4	18 07.0	-18.1	17.5	20 01.4	-17.5	17.8	21 55.6	-16.8	18.0	23 49.7	-16.2	18.3
73	15 53.9	-19.0	16.4	17 48.9	-18.4	16.5	19 43.9	-17.8	16.7	21 38.8	-17.2	17.0	23 33.5	-16.6	17.2
74	15 34.9	-19.2	15.4	17 30.5	-18.7	15.5	19 26.1	-18.1	15.7	21 21.6	-17.6	15.9	23 16.9	-17.0	16.2
75	15 15.7	-19.5	14.4	17 11.8	-19.0	14.5	19 08.0	-18.5	14.7	21 04.0	-18.0	14.9	22 59.9	-17.4	15.1
76	14 56.2	-19.8	13.4	16 52.8	-19.2	13.6	18 49.5	-18.8	13.7	20 46.0	-18.3	13.9	22 42.5	-17.9	14.1
77	14 36.4	-20.0	12.4	16 33.6	-19.6	12.6	18 30.7	-19.2	12.7	20 27.7	-18.7	12.9	22 24.6	-18.2	13.0
78	14 16.4	-20.2	11.5	16 14.0	-19.8	11.6	18 11.5	-19.4	11.7	20 09.0	-19.0	11.8	22 06.4	-18.6	12.0
79	13 56.2	-20.4	10.5	15 54.2	-20.1	10.6	17 52.1	-19.7	10.7	19 50.0	-19.4	10.8	21 47.8	-19.0	11.0
80	13 35.8	-20.7	9.5	15 34.1	-20.4	9.6	17 32.4	-20.1	9.7	19 30.6	-19.7	9.8	21 28.8	-19.3	10.0
81	13 15.1	-20.9	8.6	15 13.7	-20.6	8.6	17 12.3	-20.3	8.7	19 10.9	-20.0	8.8	21 09.5	-19.7	8.9
82	12 54.2	-21.1	7.6	14 53.1	-20.8	7.7	16 52.0	-20.6	7.7	18 50.9	-20.3	7.8	20 49.8	-20.1	7.9
83	12 33.1	-21.3	6.6	14 32.3	-21.1	6.7	16 31.4	-20.8	6.8	18 30.6	-20.7	6.8	20 29.7	-20.4	6.9
84	12 11.8	-21.5	5.7	14 11.2	-21.3	5.7	16 10.6	-21.2	5.8	18 09.9	-20.9	5.9	20 09.3	-20.7	5.9
85	11 50.3	-21.7	4.7	13 49.9	-21.6	4.8	15 49.4	-21.4	4.8	17 49.0	-21.2	4.9	19 48.6	-21.1	4.9
86	11 28.6	-21.9	3.8	13 28.3	-21.8	3.8	15 28.0	-21.6	3.8	17 27.8	-21.6	3.9	19 27.5	-21.4	3.9
87	11 06.7	-22.1	2.8	13 06.5	-21.9	2.9	15 06.4	-21.9	2.9	17 06.2	-21.8	2.9	19 06.1	-21.7	2.9
88	10 44.6	-22.2	1.9	12 44.6	-22.2	1.9	14 44.5	-22.1	1.9	16 44.4	-22.1	1.9	18 44.4	-22.1	2.0
89	10 22.4	-22.4	0.9	12 22.4	-22.4	0.9	14 22.4	-22.4	1.0	16 22.3	-22.3	1.0	18 22.3	-22.3	1.0
90	10 00.0	-22.6	0.0	12 00.0	-22.6	0.0	14 00.0	-22.6	0.0	16 00.0	-22.6	0.0	18 00.0	-22.6	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 68°, 292°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
13 27.2 -20.7 124.3	12 19.2 -22.4 124.7	11 10.6 -24.1 125.1	10 01.3 -25.5 125.4	8 51.6 -27.1 125.6	30										
13 06.5 -21.0 125.3	11 56.8 -22.6 125.7	10 46.5 -24.1 126.0	9 35.8 -25.8 126.3	8 24.5 -27.2 126.5	31										
12 45.5 -21.2 126.3	11 34.2 -22.8 126.6	10 22.4 -24.4 126.9	9 10.0 -25.9 127.2	7 57.3 -27.4 127.4	32										
12 24.3 -21.4 127.2	11 11.4 -22.9 127.6	9 58.0 -24.5 127.9	8 44.1 -26.0 128.1	7 29.9 -27.5 128.3	33										
12 02.9 -21.6 128.2	10 48.5 -23.2 128.5	9 33.5 -24.6 128.8	8 18.1 -26.1 129.0	7 02.4 -27.6 129.2	34										
11 41.3 -21.7 129.1	10 25.3 -23.3 129.4	9 08.9 -24.8 129.7	7 52.0 -26.2 129.9	6 34.8 -27.7 130.1	35										
11 19.6 -22.0 130.1	10 02.0 -23.4 130.4	8 44.1 -24.9 130.6	7 25.8 -26.4 130.8	6 07.1 -27.7 131.0	36										
10 57.6 -22.1 131.0	9 38.6 -23.6 131.3	8 19.2 -25.1 131.6	6 59.4 -26.4 131.8	5 39.4 -27.9 131.9	37										
10 35.5 -22.3 132.0	9 15.0 -23.8 132.2	7 54.1 -25.1 132.5	6 33.0 -26.6 132.7	5 11.5 -27.9 132.8	38										
10 13.2 -22.5 132.9	8 51.2 -23.8 133.2	7 29.0 -25.3 133.4	6 06.4 -26.6 133.6	4 43.6 -28.0 133.7	39										
9 50.7 -22.6 133.9	8 27.4 -24.0 134.1	7 03.7 -25.4 134.3	5 39.8 -27.2 134.5	4 15.6 -28.0 134.6	40										
9 28.1 -22.8 134.8	8 03.4 -24.2 135.0	6 38.3 -25.5 135.2	5 13.0 -26.8 135.4	3 47.6 -28.1 135.5	41										
9 05.3 -22.9 135.7	7 39.2 -24.2 136.0	6 12.8 -25.5 136.1	4 46.2 -26.8 136.3	3 19.5 -28.2 136.4	42										
8 42.4 -23.0 136.7	7 15.0 -24.4 136.9	5 47.3 -25.7 137.0	4 19.4 -27.0 137.2	2 51.3 -28.2 137.2	43										
8 19.4 -23.2 137.6	6 50.6 -24.5 137.8	5 21.6 -25.7 137.9	3 52.4 -27.0 138.0	2 23.1 -28.2 138.1	44										
7 56.2 -23.3 138.6	6 26.1 -24.5 138.7	4 55.9 -25.9 138.8	3 25.4 -27.2 138.9	1 54.9 -28.3 139.0	45										
7 32.9 -23.4 139.5	6 01.6 -24.7 139.6	4 30.0 -25.8 139.8	2 58.4 -27.1 139.8	1 26.6 -28.2 139.9	46										
7 09.5 -23.6 140.4	5 36.9 -24.8 140.6	4 04.2 -26.0 140.7	2 31.3 -27.1 140.7	0 58.4 -28.2 140.8	47										
6 45.9 -23.6 141.3	5 12.1 -24.8 141.5	3 38.2 -26.0 141.6	2 04.2 -27.2 141.6	0 30.1 -28.3 141.7	48										
6 22.3 -23.7 142.3	4 47.3 -24.9 142.4	3 12.2 -26.0 142.5	1 37.0 -27.2 142.5	0 01.8 -28.3 142.5	49										
5 58.6 -23.9 143.2	4 22.4 -24.9 143.3	2 46.2 -26.1 143.4	1 09.8 -27.2 143.4	0 26.5 -28.3 143.4	50										
5 34.7 -23.9 144.1	3 57.5 -25.1 144.2	2 20.1 -26.1 144.3	0 42.6 -27.2 144.3	0 54.8 -28.3 144.3	51										
5 10.8 -24.0 145.0	3 32.4 -25.0 145.1	1 54.0 -26.2 145.2	0 15.4 -27.2 145.2	1 23.1 -28.2 145.2	52										
4 46.8 -24.0 145.9	3 07.4 -25.2 146.0	1 27.8 -26.2 146.1	0 11.8 -27.2 146.1	1 51.3 -28.3 146.1	53										
4 22.8 -24.2 146.9	2 42.2 -25.1 146.9	1 01.6 -26.1 147.0	0 39.0 -27.2 147.0	2 19.6 -28.2 147.0	54										
3 58.6 -24.2 147.8	2 17.1 -25.2 147.8	0 35.5 -26.2 147.9	0 35.5 -26.2 147.9	2 47.8 -28.3 147.9	55										
3 34.4 -24.2 148.7	1 51.9 -25.3 148.8	0 09.3 -26.2 148.8	1 09.3 -26.2 148.8	3 15.9 -28.1 148.8	56										
3 10.2 -24.3 149.6	1 26.6 -25.2 149.7	0 16.9 -26.2 149.7	0 16.9 -26.2 149.7	3 44.0 -28.1 149.7	57										
2 45.9 -24.4 150.5	1 01.4 -25.3 150.6	0 43.1 -26.2 149.9	0 43.1 -26.2 149.9	4 12.1 -28.0 149.9	58										
2 21.5 -24.3 151.4	0 36.1 -25.3 151.5	1 09.3 -26.2 150.0	1 09.3 -26.2 150.0	4 40.1 -27.9 150.0	59										
1 57.2 -24.4 152.4	0 10.8 -25.2 152.4	1 35.5 -26.1 150.1	1 35.5 -26.1 150.1	5 08.0 -27.9 150.1	60										
1 32.8 -24.5 153.3	0 14.4 -25.3 153.3	2 01.6 -26.1 150.2	2 01.6 -26.1 150.2	5 35.9 -27.8 150.2	61										
1 08.3 -24.4 154.2	0 39.7 -25.3 154.2	2 27.7 -26.1 150.3	2 27.7 -26.1 150.3	6 03.7 -27.6 150.3	62										
0 43.9 -24.5 155.1	1 05.0 -25.2 155.1	2 53.8 -26.0 150.4	2 53.8 -26.0 150.4	6 31.3 -27.6 150.4	63										
0 19.4 -24.4 156.0	1 30.2 -25.2 156.0	3 19.8 -26.0 150.5	3 19.8 -26.0 150.5	6 58.9 -27.5 150.5	64										
0 05.0 -24.5 156.9	1 55.4 -25.2 156.9	3 45.8 -26.0 150.6	3 45.8 -26.0 150.6	7 26.4 -27.4 150.6	65										
0 29.5 -24.5 157.8	2 20.6 -25.2 157.8	4 11.8 -25.8 150.7	4 11.8 -25.8 150.7	7 53.8 -27.3 150.7	66										
0 54.0 -24.4 158.7	2 45.8 -25.1 158.7	4 37.6 -25.8 150.8	4 37.6 -25.8 150.8	8 21.1 -27.1 150.8	67										
1 18.4 -24.4 159.6	3 10.9 -25.1 159.6	5 03.4 -25.7 150.9	5 03.4 -25.7 150.9	8 48.2 -27.1 150.9	68										
1 42.8 -24.4 160.5	3 36.0 -25.0 160.5	5 29.1 -25.7 151.0	5 29.1 -25.7 151.0	9 15.3 -26.8 151.0	69										
2 07.2 -24.4 161.4	4 01.0 -25.0 161.4	5 54.8 -25.5 151.1	5 54.8 -25.5 151.1	9 42.1 -26.8 151.1	70										
2 31.6 -24.3 162.3	4 26.0 -24.9 162.3	6 20.3 -25.5 151.2	6 20.3 -25.5 151.2	10 08.9 -26.6 151.2	71										
2 55.9 -24.3 163.2	4 50.9 -24.8 163.2	6 45.8 -25.3 151.3	6 45.8 -25.3 151.3	10 35.5 -26.4 151.3	72										
3 20.2 -24.2 164.1	5 15.7 -24.7 164.1	7 11.1 -25.3 151.4	7 11.1 -25.3 151.4	11 01.9 -26.3 151.4	73										
3 44.4 -24.2 165.0	5 40.4 -24.7 165.0	7 36.4 -25.1 151.5	7 36.4 -25.1 151.5	11 28.2 -26.1 151.5	74										
4 08.6 -24.1 165.9	6 05.1 -24.5 165.9	8 01.5 -25.0 151.6	8 01.5 -25.0 151.6	11 54.3 -25.9 151.6	75										
4 32.7 -24.0 166.8	6 29.6 -24.5 166.8	8 26.5 -24.9 151.7	8 26.5 -24.9 151.7	12 20.2 -25.7 151.7	76										
4 56.7 -24.0 167.7	6 54.1 -24.3 167.7	8 51.4 -24.7 151.8	8 51.4 -24.7 151.8	12 45.9 -25.5 151.8	77										
5 20.7 -23.9 168.6	7 18.4 -24.3 168.6	9 16.1 -24.6 151.9	9 16.1 -24.6 151.9	13 11.4 -25.4 151.9	78										
5 44.6 -23.8 169.5	7 42.7 -24.1 169.5	9 40.7 -24.5 152.0	9 40.7 -24.5 152.0	13 36.8 -25.1 152.0	79										
6 08.4 -23.7 170.4	8 06.8 -24.0 170.4	10 05.2 -24.3 152.1	10 05.2 -24.3 152.1	14 01.9 -24.9 152.1	80										
6 32.1 -23.6 171.3	8 30.8 -23.8 171.3	10 29.5 -24.1 152.2	10 29.5 -24.1 152.2	14 26.8 -24.7 152.2	81										
6 55.7 -23.4 172.2	8 54.6 -23.8 172.2	10 53.6 -24.0 152.3	10 53.6 -24.0 152.3	14 51.5 -24.4 152.3	82										
7 19.1 -23.4 173.1	9 18.4 -23.5 173.1	11 17.6 -23.8 152.4	11 17.6 -23.8 152.4	15 15.9 -24.3 152.4	83										
7 42.5 -23.3 174.0	9 41.9 -23.5 174.0	11 41.4 -23.6 152.5	11 41.4 -23.6 152.5	15 40.2 -23.9 152.5	84										
8 05.8 -23.1 174.9	10 05.4 -23.2 174.9	12 05.0 -23.4 152.6	12 05.0 -23.4 152.6	16 04.1 -23.7 152.6	85										
8 28.9 -23.0 175.8	10 28.6 -23.1 175.8	12 28.4 -23.2 152.7	12 28.4 -23.2 152.7	16 27.8 -23.5 152.7	86										
8 51.9 -22.8 176.7	10 51.7 -23.0 176.7	12 51.6 -23.0 152.8	12 51.6 -23.0 152.8	16 51.3 -23.2 152.8	87										
9 14.7 -22.7 177.6	11 14.7 -22.7 177.6	13 14.6 -22.8 152.9	13 14.6 -22.8 152.9	17 14.5 -22.9 152.9	88										
9 37.4 -22.6 178.5	11 37.4 -22.6 178.5	13 37.4 -22.6 153.0	13 37.4 -22.6 153.0	17 37.4 -22.6 153.0	89										
10 00.0 -22.4 179.4	12 00.0 -22.4 179.4	14 00.0 -22.4 153.1	14 00.0 -22.4 153.1	18 00.0 -22.3 153.1	90										
10°	12°	14°	16°	18°											

LATITUDE SAME NAME

L.H.A. 112°, 248°

68°, 292° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	28 24.9	+8.0	65.9	29 12.9	-10.1	66.9	29 59.0	+12.2	68.0	30 42.9	+14.5	69.1	31 24.7	+16.6	70.2
31	28 32.9	+7.3	64.8	29 23.0	+9.5	65.8	30 11.2	+11.7	66.8	30 57.4	+13.8	67.9	31 41.3	+16.1	69.1
32	28 40.2	+6.8	63.7	29 32.5	+9.0	64.7	30 22.9	+11.1	65.7	31 11.2	+13.3	66.8	31 57.4	+15.5	67.9
33	28 47.0	+6.2	62.5	29 41.5	+8.3	63.5	30 34.0	+10.5	64.6	31 24.5	+12.6	65.7	32 12.9	+14.8	66.8
34	28 53.2	+5.7	61.4	29 49.8	+7.7	62.4	30 44.5	+9.8	63.4	31 37.1	+12.1	64.5	32 27.7	+14.2	65.6
35	28 58.9	+5.1	60.3	29 57.5	+7.2	61.2	30 54.3	+9.3	62.3	31 49.2	+11.4	63.4	32 41.9	+13.6	64.5
36	29 04.0	+4.5	59.1	30 04.7	+6.6	60.1	31 03.6	+8.7	61.1	32 00.6	+10.7	62.2	32 55.5	+12.9	63.3
37	29 08.5	+3.9	58.0	30 11.3	+5.9	58.9	31 12.3	+8.0	60.0	32 11.3	+10.2	61.0	33 08.4	+12.3	62.2
38	29 12.4	+3.3	56.8	30 17.2	+5.4	57.8	31 20.3	+7.4	58.8	32 21.5	+9.5	59.9	33 20.7	+11.6	61.0
39	29 15.7	+2.8	55.7	30 22.6	+4.7	56.6	31 27.7	+6.7	57.6	32 31.0	+8.8	58.7	33 32.3	+10.9	59.8
40	29 18.5	+2.1	54.5	30 27.3	+4.1	55.5	31 34.4	+6.2	56.5	32 39.8	+8.2	57.5	33 43.2	+10.3	58.6
41	29 20.6	+1.6	53.4	30 31.4	+3.5	54.3	31 40.6	+5.5	55.3	32 48.0	+7.5	56.4	33 53.5	+9.6	57.5
42	29 22.2	+1.0	52.2	30 34.9	+2.9	53.2	31 46.1	+4.8	54.1	32 55.5	+6.8	55.2	34 03.1	+8.9	56.3
43	29 23.2	+0.4	51.1	30 37.8	+2.3	52.0	31 50.9	+4.2	53.0	33 02.3	+6.2	54.0	34 12.0	+8.2	55.1
44	29 23.6	-0.2	50.0	30 40.1	+1.7	50.8	31 55.1	+3.6	51.8	33 08.5	+5.5	52.8	34 20.2	+7.5	53.9
45	29 23.4	-0.8	48.8	30 41.8	+1.0	49.7	31 58.7	+2.9	50.6	33 14.0	+4.8	51.6	34 27.7	+6.8	52.7
46	29 22.6	-1.3	47.7	30 42.8	+0.4	48.5	32 01.6	+2.2	49.4	33 18.8	+4.2	50.4	34 34.5	+6.0	51.5
47	29 21.3	-2.0	46.5	30 43.2	-0.2	47.4	32 03.8	+1.6	48.3	33 23.0	+3.4	49.2	34 40.5	+5.4	50.3
48	29 19.3	-2.5	45.4	30 43.0	-0.8	46.2	32 05.4	+0.9	47.1	33 26.4	+2.8	48.0	34 45.9	+4.6	49.0
49	29 16.8	-3.2	44.2	30 42.2	-1.5	45.0	32 06.3	+0.3	45.9	33 29.2	+2.0	46.8	34 50.5	+3.9	47.8
50	29 13.6	-3.7	43.1	30 40.7	-2.0	43.9	32 06.6	-0.4	44.7	33 31.2	+1.4	45.6	34 54.4	+3.2	46.6
51	29 09.9	-4.3	41.9	30 38.7	-2.7	42.7	32 06.2	-1.0	43.5	33 32.6	+0.7	44.4	34 57.6	+2.4	45.4
52	29 05.6	-4.9	40.8	30 36.0	-3.4	41.5	32 05.2	-1.7	42.4	33 33.3	0.0	43.2	35 00.0	+1.7	44.2
53	29 00.7	-5.4	39.6	30 32.6	-3.9	40.4	32 03.5	-2.3	41.2	33 33.3	-0.8	42.0	35 01.7	+1.0	43.0
54	28 55.3	-6.0	38.5	30 28.7	-4.5	39.2	32 01.2	-3.0	40.0	33 32.5	-1.4	40.8	35 02.7	+0.3	41.7
55	28 49.3	-6.6	37.4	30 24.2	-5.2	38.1	31 58.2	-3.7	38.8	33 31.1	-2.1	39.6	35 03.0	-0.5	40.5
56	28 42.7	-7.2	36.2	30 19.0	-5.7	36.9	31 54.5	-4.3	37.6	33 29.0	-2.8	38.4	35 02.5	-1.2	39.3
57	28 35.5	-7.7	35.1	30 13.3	-6.4	35.8	31 50.2	-4.9	36.5	33 26.2	-3.4	37.2	35 01.3	-2.0	38.1
58	28 27.8	-8.3	34.0	30 06.9	-6.9	34.6	31 45.3	-5.6	35.3	33 22.8	-4.2	36.0	34 59.3	-2.7	36.8
59	28 19.5	-8.8	32.9	30 00.0	-7.6	33.5	31 39.7	-6.2	34.1	33 18.6	-4.9	34.8	34 56.6	-3.4	35.6
60	28 10.7	-9.4	31.7	29 52.4	-8.2	32.3	31 33.5	-6.9	33.0	33 13.7	-5.5	33.7	34 53.2	-4.2	34.4
61	28 01.3	-10.0	30.6	29 44.2	-8.7	31.2	31 26.6	-7.5	31.8	33 08.2	-6.2	32.5	34 49.0	-4.8	33.2
62	27 51.3	-10.4	29.5	29 35.5	-9.3	30.0	31 19.1	-8.1	30.6	33 02.0	-6.9	31.3	34 44.2	-5.6	32.0
63	27 40.9	-11.0	28.4	29 26.2	-9.9	28.9	31 11.0	-8.8	29.5	32 55.1	-7.5	30.1	34 38.6	-6.3	30.8
64	27 29.9	-11.5	27.3	29 16.3	-10.5	27.8	31 02.2	-9.3	28.3	32 47.6	-8.2	28.9	34 32.3	-7.0	29.6
65	27 18.4	-12.1	26.2	29 05.8	-11.0	26.6	30 52.9	-10.0	27.2	32 39.4	-8.9	27.7	34 25.3	-7.8	28.4
66	27 06.3	-12.5	25.1	28 54.8	-11.6	25.5	30 42.9	-10.6	26.0	32 30.5	-9.5	26.6	34 17.5	-8.4	27.2
67	26 53.8	-13.1	24.0	28 43.2	-12.1	24.4	30 32.3	-11.2	24.9	32 21.0	-10.2	25.4	34 09.1	-9.1	26.0
68	26 40.7	-13.6	22.9	28 31.1	-12.7	23.3	30 21.1	-11.7	23.7	32 10.8	-10.8	24.2	34 00.0	-9.8	24.8
69	26 27.1	-14.0	21.8	28 18.4	-13.2	22.2	30 09.4	-12.4	22.6	32 00.0	-11.5	23.1	33 50.2	-10.5	23.6
70	26 13.1	-14.6	20.7	28 05.2	-13.7	21.1	29 57.0	-12.9	21.5	31 48.5	-12.0	21.9	33 39.7	-11.2	22.4
71	25 58.5	-15.0	19.6	27 51.5	-14.3	20.0	29 44.1	-13.5	20.3	31 36.5	-12.7	20.8	33 28.5	-11.8	21.2
72	25 43.5	-15.5	18.5	27 37.2	-14.8	18.9	29 30.6	-14.0	19.2	31 23.8	-13.3	19.6	33 16.7	-12.5	20.0
73	25 28.0	-15.9	17.5	27 22.4	-15.3	17.8	29 16.6	-14.6	18.1	31 10.5	-13.9	18.5	33 04.2	-13.1	18.9
74	25 12.1	-16.4	16.4	27 07.1	-15.8	16.7	29 02.0	-15.2	17.0	30 56.6	-14.5	17.3	32 51.1	-13.8	17.7
75	24 55.7	-16.9	15.3	26 51.3	-16.3	15.6	28 46.8	-15.7	15.9	30 42.1	-15.0	16.2	32 37.3	-14.5	16.6
76	24 38.8	-17.3	14.3	26 35.0	-16.7	14.5	28 31.1	-16.2	14.8	30 27.1	-15.7	15.1	32 22.8	-15.0	15.4
77	24 21.5	-17.7	13.2	26 18.3	-17.3	13.5	28 14.9	-16.7	13.7	30 11.4	-16.2	14.0	32 07.8	-15.7	14.3
78	24 03.8	-18.2	12.2	26 01.0	-17.7	12.4	27 58.2	-17.3	12.6	29 55.2	-16.8	12.9	31 52.1	-16.2	13.1
79	23 45.6	-18.6	11.1	25 43.3	-18.2	11.3	27 40.9	-17.7	11.5	29 38.4	-17.3	11.7	31 35.9	-16.9	12.0
80	23 27.0	-19.0	10.1	25 25.1	-18.6	10.3	27 23.2	-18.3	10.4	29 21.1	-17.8	10.6	31 19.0	-17.4	10.9
81	23 08.0	-19.4	9.1	25 06.5	-19.1	9.2	27 04.9	-18.7	9.4	29 03.3	-18.4	9.6	31 01.6	-18.0	9.7
82	22 48.6	-19.8	8.0	24 47.4	-19.5	8.2	26 46.2	-19.2	8.3	28 44.9	-18.9	8.5	30 43.6	-18.6	8.6
83	22 28.8	-20.1	7.0	24 27.9	-19.9	7.1	26 27.0	-19.7	7.3	28 26.0	-19.4	7.4	30 25.0	-19.1	7.5
84	22 08.7	-20.6	6.0	24 08.0	-20.3	6.1	26 07.3	-20.1	6.2	28 06.6	-19.9	6.3	30 05.9	-19.7	6.4
85	21 48.1	-20.9	5.0	23 47.7	-20.8	5.1	25 47.2	-20.6	5.1	27 46.7	-20.4	5.2	29 46.2	-20.2	5.3
86	21 27.2	-21.3	4.0	23 26.9	-21.1	4.0	25 26.6	-21.0	4.1	27 26.3	-20.9	4.2	29 26.0	-20.8	4.3
87	21 05.9	-21.6	3.0	23 05.8	-21.6	3.0	25 05.6	-21.5	3.1	27 05.4	-21.3	3.1	29 05.2	-21.2	3.2
88	20 44.3	-22.0	2.0	22 44.2	-21.9	2.0	24 44.1	-21.8	2.0	26 44.1	-21.8	2.1	28 44.0	-21.8	2.1
89	20 22.3	-22.3	1.0	22 22.3	-22.3	1.0	24 22.3	-22.3	1.0	26 22.3	-22.3	1.0	28 22.2	-22.2	1.1
90	20 00.0	-22.6	0.0	22 00.0	-22.7	0.0	24 00.0	-22.7	0.0	26 00.0	-22.7	0.0	28 00.0	-22.7	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 68°, 292°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
7 41.5	-28.6	125.9	6 31.0	-30.1	126.1	5 20.2	-31.6	126.2	4 09.1	-33.0	126.4	2 57.8	-34.3	126.5	30
7 12.9	-28.8	126.8	6 00.9	-30.2	127.0	4 48.6	-31.6	127.1	3 36.1	-33.0	127.2	2 23.5	-34.4	127.3	31
6 44.1	-28.8	127.6	5 30.7	-30.3	127.8	4 17.0	-31.7	128.0	3 03.1	-33.1	128.1	1 49.1	-34.5	128.1	32
6 15.3	-29.0	128.5	5 00.4	-30.4	128.7	3 45.3	-31.8	128.8	2 30.0	-33.1	128.9	1 14.6	-34.4	128.9	33
5 46.3	-29.0	129.4	4 30.0	-30.4	129.6	3 13.5	-31.7	129.7	1 56.9	-33.1	129.7	0 40.2	-34.5	129.8	34
5 17.3	-29.0	130.3	3 59.6	-30.4	130.4	2 41.8	-31.9	130.5	1 23.8	-33.2	130.6	0 05.7	-34.4	130.6	35
4 48.3	-29.2	131.2	3 29.2	-30.5	131.3	2 09.9	-31.8	131.4	0 50.6	-33.1	131.4	0 28.7	+34.5	48.6	36
4 19.1	-29.2	132.0	2 58.7	-30.6	132.1	1 38.1	-31.9	132.2	0 17.5	-33.2	132.2	1 03.2	+34.4	47.8	37
3 49.9	-29.3	132.9	2 28.1	-30.6	133.0	1 06.2	-31.9	133.0	0 15.7	+33.2	46.9	1 37.6	+34.4	47.0	38
3 20.6	-29.3	133.8	1 57.5	-30.6	133.9	0 34.3	-31.9	133.9	0 48.9	+33.1	46.1	2 12.0	+34.4	46.1	39
2 51.3	-29.3	134.7	1 26.9	-30.6	134.7	0 02.4	-31.8	134.7	1 22.0	+33.2	45.3	2 46.4	+34.4	45.3	40
2 22.0	-29.4	135.5	0 56.3	-30.7	135.6	0 29.4	+31.9	44.4	1 55.2	+33.1	44.4	3 20.8	+34.3	44.5	41
1 52.6	-29.4	136.4	0 25.6	-30.6	136.4	1 01.3	+31.9	43.6	2 28.3	+33.0	43.6	3 55.1	+34.3	43.7	42
1 23.2	-29.5	137.3	0 05.0	+30.7	42.7	1 33.2	+31.9	42.7	3 01.3	+33.1	42.8	4 29.4	+34.2	42.9	43
0 53.7	-29.4	138.2	0 35.7	+30.6	41.8	2 05.1	+31.8	41.9	3 34.4	+33.0	41.9	5 03.6	+34.1	42.0	44
0 24.3	-29.5	139.0	1 06.3	+30.6	41.0	2 36.9	+31.8	41.0	4 07.4	+32.9	41.1	5 37.7	+34.1	41.2	45
0 05.2	+29.4	40.1	1 36.9	+30.6	40.1	3 08.7	+31.7	40.2	4 40.3	+32.9	40.3	6 11.8	+34.0	40.4	46
0 34.6	+29.4	39.2	2 07.5	+30.6	39.3	3 40.4	+31.7	39.3	5 13.2	+32.8	39.4	6 45.8	+33.9	39.6	47
1 04.0	+29.5	38.4	2 38.1	+30.6	38.4	4 12.1	+31.7	38.5	5 46.0	+32.8	38.6	7 19.7	+33.9	38.7	48
1 33.5	+29.4	37.5	3 08.7	+30.5	37.5	4 43.8	+31.6	37.6	6 18.8	+32.6	37.7	7 53.6	+33.7	37.9	49
2 02.9	+29.3	36.6	3 39.2	+30.4	36.7	5 15.4	+31.5	36.8	6 51.4	+32.6	36.9	8 27.3	+33.6	37.1	50
2 32.2	+29.4	35.7	4 09.6	+30.4	35.8	5 46.9	+31.4	35.9	7 24.0	+32.5	36.0	9 00.9	+33.5	36.2	51
3 01.6	+29.3	34.9	4 40.0	+30.3	34.9	6 18.3	+31.4	35.1	7 56.5	+32.3	35.2	9 34.4	+33.4	35.4	52
3 30.9	+29.2	34.0	5 10.3	+30.3	34.1	6 49.7	+31.2	34.2	8 28.8	+32.3	34.3	10 07.8	+33.3	34.5	53
4 00.1	+29.2	33.1	5 40.6	+30.2	33.2	7 20.9	+31.2	33.3	9 01.1	+32.1	33.5	10 41.1	+33.1	33.7	54
4 29.3	+29.1	32.2	6 10.8	+30.1	32.3	7 52.1	+31.0	32.5	9 33.2	+32.0	32.6	11 14.2	+32.9	32.8	55
4 58.4	+29.1	31.4	6 40.9	+30.0	31.5	8 23.1	+31.0	31.6	10 05.2	+31.9	31.8	11 47.1	+32.9	32.0	56
5 27.5	+29.0	30.5	7 10.9	+29.9	30.6	8 54.1	+30.8	30.7	10 37.1	+31.8	30.9	12 20.0	+32.6	31.1	57
5 56.5	+28.9	29.6	7 40.8	+29.8	29.7	9 24.9	+30.7	29.9	11 08.9	+31.6	30.1	12 52.6	+32.5	30.3	58
6 25.4	+28.8	28.7	8 10.6	+29.6	28.8	9 55.6	+30.5	29.0	11 40.5	+31.4	29.2	13 25.1	+32.3	29.4	59
6 54.2	+28.7	27.8	8 40.2	+29.6	28.0	10 26.1	+30.5	28.1	12 11.9	+31.3	28.3	13 57.4	+32.2	28.5	60
7 22.9	+28.6	27.0	9 09.8	+29.4	27.1	10 56.6	+30.2	27.2	12 43.2	+31.1	27.4	14 29.6	+31.9	27.7	61
7 51.5	+28.5	26.1	9 39.2	+29.3	26.2	11 26.8	+30.1	26.4	13 14.3	+30.9	26.6	15 01.5	+31.7	26.8	62
8 20.0	+28.4	25.2	10 08.5	+29.2	25.3	11 56.9	+30.0	25.5	13 45.2	+30.7	25.7	15 33.2	+31.5	25.9	63
8 48.4	+28.2	24.3	10 37.7	+29.0	24.4	12 26.9	+29.7	24.6	14 15.9	+30.5	24.8	16 04.7	+31.3	25.0	64
9 16.6	+28.1	23.4	11 06.7	+28.8	23.5	12 56.6	+29.6	23.7	14 46.4	+30.4	23.9	16 36.0	+31.1	24.1	65
9 44.7	+28.0	22.5	11 35.5	+28.7	22.6	13 26.2	+29.4	22.8	15 16.8	+30.1	23.0	17 07.1	+30.9	23.2	66
10 12.7	+27.8	21.6	12 04.2	+28.5	21.7	13 55.6	+29.2	21.9	15 46.9	+29.9	22.1	17 38.0	+30.6	22.3	67
10 40.5	+27.7	20.7	12 32.7	+28.4	20.8	14 24.8	+29.0	21.0	16 16.8	+29.6	21.2	18 08.6	+30.3	21.4	68
11 08.2	+27.5	19.8	13 01.1	+28.1	19.9	14 53.8	+28.8	20.1	16 46.4	+29.5	20.3	18 38.9	+30.1	20.5	69
11 35.7	+27.4	18.9	13 29.2	+28.0	19.0	15 22.6	+28.5	19.2	17 15.9	+29.1	19.4	19 09.0	+29.8	19.6	70
12 03.1	+27.1	18.0	13 57.2	+27.7	18.1	15 51.1	+28.4	18.3	17 45.0	+28.9	18.5	19 38.8	+29.5	18.7	71
12 30.2	+27.0	17.1	14 24.9	+27.5	17.2	16 19.5	+28.1	17.4	18 13.9	+28.7	17.6	20 08.3	+29.2	17.8	72
12 57.2	+26.8	16.2	14 52.4	+27.3	16.3	16 47.6	+27.8	16.4	18 42.6	+28.4	16.6	20 37.5	+28.9	16.8	73
13 24.0	+26.6	15.2	15 19.7	+27.1	15.4	17 15.4	+27.6	15.5	19 11.0	+28.1	15.7	21 06.4	+28.7	15.9	74
13 50.6	+26.3	14.3	15 46.8	+26.9	14.4	17 43.0	+27.3	14.6	19 39.1	+27.8	14.8	21 35.1	+28.2	15.0	75
14 16.9	+26.2	13.4	16 13.7	+26.6	13.5	18 10.3	+27.0	13.7	20 06.9	+27.5	13.8	22 03.3	+28.0	14.0	76
14 43.1	+25.9	12.5	16 40.3	+26.3	12.6	18 37.3	+26.8	12.7	20 34.4	+27.2	12.9	22 31.3	+27.6	13.0	77
15 09.0	+25.7	11.5	17 06.6	+26.1	11.6	19 04.1	+26.5	11.8	21 01.6	+26.8	11.9	22 58.9	+27.3	12.1	78
15 34.7	+25.5	10.6	17 32.7	+25.8	10.7	19 30.6	+26.1	10.8	21 28.4	+26.6	11.0	23 26.2	+26.9	11.1	79
16 00.2	+25.2	9.6	17 58.5	+25.5	9.7	19 56.7	+25.9	9.9	21 55.0	+26.1	10.0	23 53.1	+26.5	10.1	80
16 25.4	+25.0	8.7	18 24.0	+25.3	8.8	20 22.6	+25.6	8.9	22 21.1	+25.9	9.0	24 19.6	+26.2	9.2	81
16 50.4	+24.7	7.8	18 49.3	+25.0	7.8	20 48.2	+25.2	7.9	22 47.0	+25.5	8.0	24 45.8	+25.8	8.2	82
17 15.1	+24.4	6.9	19 14.3	+24.6	6.9	21 13.4	+24.9	7.0	23 12.5	+25.1	7.1	25 11.6	+25.3	7.2	83
17 39.5	+24.2	5.8	19 38.9	+24.4	5.9	21 38.3	+24.5	6.0	23 37.6	+24.7	6.1	25 36.9	+25.0	6.2	84
18 03.7	+23.9	4.9	20 03.3	+24.0	4.9	22 02.8	+24.2	5.0	24 02.3	+24.4	5.1	26 01.9	+24.5	5.2	85
18 27.6	+23.5	3.9	20 27.3	+23.7	4.0	22 27.0	+23.8	4.0	24 26.7	+23.9	4.1	26 26.4	+24.1	4.1	86
18 51.1	+23.3	2.9	20 51.0	+23.3	3.0	22 50.8	+23.5	3.0	24 50.6	+23.6	3.1	26 50.5	+23.6	3.1	87
19 14.4	+23.0	2.0	21 14.3	+23.0	2.0	23 14.3	+23.0	2.0	25 14.2	+23.1	2.1	27 14.1	+23.2	2.1	88
19 37.4	+22.6	1.0	21 37.3	+22.7	1.0	23 37.3	+22.7	1.0	25 37.3	+22.7	1.0	27 37.3	+22.7	1.0	89
20 00.0	+22.3	0.0	22 00.0	+22.3	0.0	24 00.0	+22.3	0.0	26 00.0	+22.3	0.0	28 00.0	+22.2	0.0	90

LATITUDE SAME NAME

L.H.A. 112°, 248°

70°, 290° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	17 13.8	-10.9	58.4	18 16.1	-9.1	59.0	19 17.4	-7.2	59.6	20 17.6	-5.2	60.2	21 16.7	-3.3	60.8
31	17 02.9	-11.2	57.4	18 07.0	-9.4	57.9	19 10.2	-7.5	58.5	20 12.4	-5.7	59.1	21 13.4	-3.8	59.8
32	16 51.7	-11.6	56.4	17 57.6	-9.7	56.9	19 02.7	-7.9	57.5	20 06.7	-6.0	58.1	21 09.6	-4.1	58.7
33	16 40.1	-11.8	55.4	17 47.9	-10.0	55.9	18 54.8	-8.3	56.4	20 00.7	-6.5	57.0	21 05.5	-4.6	57.6
34	16 28.3	-12.1	54.3	17 37.9	-10.4	54.8	18 46.5	-8.6	55.4	19 54.2	-6.8	55.9	21 00.9	-5.0	56.6
35	16 16.2	-12.4	53.3	17 27.5	-10.7	53.8	18 37.9	-8.9	54.3	19 47.4	-7.1	54.9	20 55.9	-5.3	55.5
36	16 03.8	-12.7	52.3	17 16.8	-11.0	52.8	18 29.0	-9.3	53.3	19 40.3	-7.6	53.8	20 50.6	-5.8	54.4
37	15 51.1	-13.0	51.3	17 05.8	-11.3	51.7	18 19.7	-9.6	52.2	19 32.7	-7.9	52.8	20 44.8	-6.1	53.4
38	15 38.1	-13.2	50.3	16 54.5	-11.6	50.7	18 10.1	-10.0	51.2	19 24.8	-8.2	51.7	20 38.7	-6.5	52.3
39	15 24.9	-13.6	49.2	16 42.9	-12.0	49.7	18 00.1	-10.3	50.2	19 16.6	-8.6	50.7	20 32.2	-7.0	51.2
40	15 11.3	-13.8	48.2	16 30.9	-12.2	48.7	17 49.8	-10.6	49.1	19 08.0	-9.0	49.6	20 25.2	-7.3	50.2
41	14 57.5	-14.0	47.2	16 18.7	-12.5	47.6	17 39.2	-10.9	48.1	18 59.0	-9.3	48.6	20 17.9	-7.6	49.1
42	14 43.5	-14.4	46.2	16 06.2	-12.8	46.6	17 28.3	-11.3	47.1	18 49.7	-9.7	47.5	20 10.3	-8.1	48.1
43	14 29.1	-14.5	45.2	15 53.4	-13.1	45.6	17 17.0	-11.6	46.0	18 40.0	-10.0	46.5	20 02.2	-8.4	47.0
44	14 14.6	-14.9	44.2	15 40.3	-13.4	44.6	17 05.4	-11.8	45.0	18 30.0	-10.4	45.5	19 53.8	-8.9	46.0
45	13 59.7	-15.0	43.2	15 26.9	-13.6	43.6	16 53.6	-12.2	44.0	18 19.6	-10.7	44.4	19 44.9	-9.1	44.9
46	13 44.7	-15.4	42.2	15 13.3	-13.9	42.6	16 41.4	-12.5	43.0	18 08.9	-11.0	43.4	19 35.8	-9.6	43.9
47	13 29.3	-15.5	41.2	14 59.4	-14.2	41.6	16 28.9	-12.8	41.9	17 57.9	-11.4	42.4	19 26.2	-9.9	42.8
48	13 13.8	-15.8	40.2	14 45.2	-14.5	40.6	16 16.1	-13.1	40.9	17 46.5	-11.7	41.3	19 16.3	-10.2	41.8
49	12 58.0	-16.0	39.2	14 30.9	-14.7	39.6	16 03.0	-13.3	39.9	17 34.8	-12.0	40.3	19 06.1	-10.6	40.7
50	12 42.0	-16.2	38.3	14 16.0	-14.9	38.6	15 49.7	-13.7	38.9	17 22.8	-12.3	39.3	18 55.5	-11.0	39.7
51	12 25.8	-16.5	37.3	14 01.1	-15.2	37.6	15 36.0	-13.9	37.9	17 10.5	-12.6	38.2	18 44.5	-11.3	38.6
52	12 09.3	-16.6	36.3	13 45.9	-15.4	36.6	15 22.1	-14.2	36.9	16 57.9	-12.9	37.2	18 33.2	-11.6	37.6
53	11 52.7	-16.9	35.3	13 30.5	-15.7	35.6	15 07.9	-14.4	35.9	16 45.0	-13.3	36.2	18 21.6	-12.0	36.6
54	11 35.8	-17.0	34.3	13 14.8	-15.9	34.6	14 53.5	-14.8	34.9	16 31.7	-13.5	35.2	18 09.6	-12.3	35.5
55	11 18.8	-17.2	33.3	12 58.9	-16.1	33.6	14 38.7	-14.9	33.9	16 18.2	-13.8	34.2	17 57.3	-12.6	34.5
56	11 01.6	-17.5	32.4	12 42.8	-16.3	32.6	14 23.8	-15.3	32.9	16 04.4	-14.1	33.2	17 44.7	-13.0	33.5
57	10 44.1	-17.6	31.4	12 26.5	-16.6	31.6	14 08.5	-15.5	31.9	15 50.3	-14.4	32.1	17 31.7	-13.2	32.5
58	10 26.5	-17.8	30.4	12 09.9	-16.8	30.6	13 53.0	-15.7	30.9	15 35.9	-14.6	31.1	17 18.5	-13.6	31.4
59	10 08.7	-17.9	29.5	11 53.1	-16.9	29.6	13 37.3	-15.9	29.9	15 21.3	-15.0	30.1	17 04.9	-13.9	30.4
60	9 50.8	-18.1	28.5	11 36.2	-17.2	28.7	13 21.4	-16.2	28.9	15 06.3	-15.2	29.1	16 51.0	-14.2	29.4
61	9 32.7	-18.3	27.5	11 19.0	-17.3	27.7	13 05.2	-16.4	27.9	14 51.1	-15.4	28.1	16 36.8	-14.4	28.4
62	9 14.4	-18.4	26.5	11 01.7	-17.6	26.7	12 48.8	-16.7	26.9	14 35.7	-15.7	27.1	16 22.4	-14.8	27.4
63	8 56.0	-18.6	25.6	10 44.1	-17.7	25.7	12 32.1	-16.8	25.9	14 20.0	-16.0	26.1	16 07.6	-15.0	26.4
64	8 37.4	-18.7	24.6	10 26.4	-17.9	24.8	12 15.3	-17.1	24.9	14 04.0	-16.2	25.1	15 52.6	-15.3	25.4
65	8 18.7	-18.9	23.7	10 08.5	-18.1	23.8	11 58.2	-17.2	24.0	13 47.8	-16.4	24.1	15 37.3	-15.6	24.4
66	7 59.8	-19.0	22.7	9 50.4	-18.2	22.8	11 41.0	-17.5	23.0	13 31.4	-16.7	23.1	15 21.7	-15.9	23.4
67	7 40.8	-19.1	21.7	9 32.2	-18.4	21.9	11 23.5	-17.6	22.0	13 14.7	-16.9	22.2	15 05.8	-16.1	22.4
68	7 21.7	-19.3	20.8	9 13.8	-18.5	20.9	11 05.9	-17.9	21.0	12 57.8	-17.1	21.2	14 49.7	-16.4	21.4
69	7 02.4	-19.3	19.8	8 55.3	-18.7	19.9	10 48.0	-18.0	20.0	12 40.7	-17.3	20.2	14 33.3	-16.6	20.4
70	6 43.1	-19.5	18.9	8 36.6	-18.9	19.0	10 30.0	-18.2	19.1	12 23.4	-17.6	19.2	14 16.7	-16.9	19.4
71	6 23.6	-19.6	17.9	8 17.7	-18.9	18.0	10 11.8	-18.3	18.1	12 05.8	-17.7	18.2	13 59.8	-17.1	18.4
72	6 04.0	-19.7	17.0	7 58.8	-19.1	17.1	9 53.5	-18.6	17.1	11 48.1	-18.0	17.3	13 42.7	-17.4	17.4
73	5 44.3	-19.7	16.0	7 39.7	-19.3	16.1	9 34.9	-18.7	16.2	11 30.1	-18.1	16.3	13 25.3	-17.6	16.4
74	5 24.6	-19.9	15.1	7 20.4	-19.3	15.1	9 16.2	-18.8	15.2	11 12.0	-18.3	15.3	13 07.7	-17.8	15.4
75	5 04.7	-19.9	14.1	7 01.1	-19.5	14.2	8 57.4	-19.0	14.3	10 53.7	-18.5	14.3	12 49.9	-18.0	14.4
76	4 44.8	-20.0	13.2	6 41.6	-19.6	13.2	8 38.4	-19.1	13.3	10 35.2	-18.7	13.4	12 31.9	-18.2	13.5
77	4 24.8	-20.1	12.2	6 22.0	-19.7	12.3	8 19.3	-19.3	12.3	10 16.5	-18.9	12.4	12 13.7	-18.5	12.5
78	4 04.7	-20.2	11.3	6 02.3	-19.7	11.3	8 00.0	-19.4	11.4	9 57.6	-19.0	11.4	11 55.2	-18.6	11.5
79	3 44.5	-20.2	10.4	5 42.6	-19.9	10.4	7 40.6	-19.6	10.4	9 38.6	-19.2	10.5	11 36.6	-18.9	10.5
80	3 24.3	-20.3	9.4	5 22.7	-20.0	9.4	7 21.0	-19.6	9.5	9 19.4	-19.3	9.5	11 17.7	-19.0	9.6
81	3 04.0	-20.3	8.5	5 02.7	-20.0	8.5	7 01.4	-19.8	8.5	9 00.1	-19.5	8.6	10 58.7	-19.2	8.6
82	2 43.7	-20.4	7.5	4 42.7	-20.2	7.5	6 41.6	-19.9	7.6	8 40.6	-19.7	7.6	10 39.5	-19.4	7.6
83	2 23.3	-20.4	6.6	4 22.5	-20.2	6.6	6 21.7	-19.9	6.6	8 20.9	-19.7	6.6	10 20.1	-19.5	6.7
84	2 02.9	-20.4	5.6	4 02.3	-20.2	5.7	6 01.8	-20.1	5.7	8 01.2	-19.9	5.7	10 00.6	-19.7	5.7
85	1 42.5	-20.5	4.7	3 42.1	-20.3	4.7	5 41.7	-20.2	4.7	7 41.3	-20.1	4.7	9 40.9	-19.9	4.8
86	1 22.0	-20.5	3.8	3 21.8	-20.4	3.8	5 21.5	-20.3	3.8	7 21.2	-20.1	3.8	9 21.0	-20.0	3.8
87	1 01.5	-20.5	2.8	3 01.4	-20.4	2.8	5 01.2	-20.3	2.8	7 01.1	-20.3	2.8	9 01.0	-20.2	2.9
88	0 41.0	-20.5	1.9	2 41.0	-20.5	1.9	4 40.9	-20.4	1.9	6 40.8	-20.3	1.9	8 40.8	-20.3	1.9
89	0 20.5	-20.5	0.9	2 20.5	-20.5	0.9	4 20.5	-20.5	0.9	6 20.5	-20.5	0.9	8 20.5	-20.5	0.9
90	0 00.0	-20.5	0.0	2 00.0	-20.5	0.0	4 00.0	-20.6	0.0	6 00.0	-20.6	0.0	8 00.0	-20.6	0.0

LATITUDE CONTRARY NAME

L.H.A. 70°, 290°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
17 13.8 -10.9 121.6	16 10.5 -12.7 122.1	15 06.3 -14.5 122.5	14 01.4 -16.3 123.0	12 55.7 -18.0 123.4	30										
17 02.9 -11.2 122.6	15 57.8 -13.0 123.1	14 51.8 -14.7 123.6	13 45.1 -16.4 124.0	12 37.7 -18.1 124.4	31										
16 51.7 -11.6 123.6	15 44.8 -13.3 124.1	14 37.1 -15.0 124.6	13 28.7 -16.7 125.0	12 19.6 -18.4 125.3	32										
16 40.1 -11.8 124.6	15 31.5 -13.5 125.1	14 22.1 -15.3 125.6	13 12.0 -17.0 126.0	12 01.2 -18.6 126.3	33										
16 28.3 -12.1 125.7	15 18.0 -13.9 126.1	14 06.8 -15.5 126.6	12 55.0 -17.1 126.9	11 42.6 -18.8 127.3	34										
16 16.2 -12.4 126.7	15 04.1 -14.1 127.1	13 51.3 -15.7 127.6	12 37.9 -17.4 127.9	11 23.8 -18.9 128.3	35										
16 03.8 -12.7 127.7	14 50.0 -14.3 128.1	13 35.6 -16.0 128.5	12 20.5 -17.6 128.9	11 04.9 -19.2 129.2	36										
15 51.1 -13.0 128.7	14 35.7 -14.6 129.2	13 19.6 -16.2 129.5	12 02.9 -17.7 129.9	10 45.7 -19.3 130.2	37										
15 38.1 -13.2 129.7	14 21.1 -14.9 130.2	13 03.4 -16.4 130.5	11 45.2 -18.0 130.9	10 26.4 -19.5 131.2	38										
15 24.9 -13.6 130.8	14 06.2 -15.1 131.2	12 47.0 -16.7 131.5	11 27.2 -18.2 131.8	10 06.9 -19.7 132.1	39										
15 11.3 -13.8 131.8	13 51.1 -15.3 132.1	12 30.3 -16.9 132.5	11 09.0 -18.4 132.8	9 47.2 -19.8 133.1	40										
14 57.5 -14.0 132.8	13 35.8 -15.6 133.1	12 13.4 -17.0 133.5	10 50.6 -18.5 133.8	9 27.4 -20.0 134.0	41										
14 43.5 -14.4 133.8	13 20.2 -15.8 134.1	11 56.4 -17.3 134.5	10 32.1 -18.7 134.7	9 07.4 -20.1 135.0	42										
14 29.1 -14.5 134.8	13 04.4 -16.1 135.1	11 39.1 -17.5 135.4	10 13.4 -18.9 135.7	8 47.3 -20.3 135.9	43										
14 14.6 -14.9 135.8	12 48.3 -16.3 136.1	11 21.6 -17.7 136.4	9 54.5 -19.1 136.7	8 27.0 -20.4 136.9	44										
13 59.7 -15.0 136.8	12 32.0 -16.4 137.1	11 03.9 -17.8 137.4	9 35.4 -19.2 137.6	8 06.6 -20.5 137.8	45										
13 44.7 -15.4 137.8	12 15.6 -16.7 138.1	10 46.1 -18.1 138.4	9 16.2 -19.3 138.6	7 46.1 -20.7 138.8	46										
13 29.3 -15.5 138.8	11 58.9 -16.9 139.1	10 28.0 -18.2 139.3	8 56.9 -19.6 139.6	7 25.4 -20.8 139.7	47										
13 13.8 -15.8 139.8	11 42.0 -17.1 140.1	10 09.8 -18.4 140.3	8 37.3 -19.6 140.5	7 04.6 -20.9 140.7	48										
12 58.0 -16.0 140.8	11 24.9 -17.3 141.0	9 51.4 -18.5 141.3	8 17.7 -19.8 141.5	6 43.7 -21.0 141.6	49										
12 42.0 -16.2 141.7	11 07.6 -17.5 142.0	9 32.9 -18.7 142.2	7 57.9 -19.9 142.4	6 22.7 -21.1 142.6	50										
12 25.8 -16.5 142.7	10 50.1 -17.6 143.0	9 14.2 -18.9 143.2	7 38.0 -20.1 143.4	6 01.6 -21.2 143.5	51										
12 09.3 -16.6 143.7	10 32.5 -17.9 144.0	8 55.3 -19.0 144.2	7 17.9 -20.1 144.3	5 40.4 -21.3 144.5	52										
11 52.7 -16.9 144.7	10 14.6 -18.0 144.9	8 36.3 -19.2 145.1	6 57.8 -20.3 145.3	5 19.1 -21.4 145.4	53										
11 35.8 -17.0 145.7	9 56.6 -18.2 145.9	8 17.1 -19.2 146.1	6 37.5 -20.4 146.2	4 57.7 -21.5 146.3	54										
11 18.8 -17.2 146.7	9 38.4 -18.3 146.9	7 57.9 -19.5 147.0	6 17.1 -20.5 147.2	4 36.2 -21.5 147.3	55										
11 01.6 -17.5 147.6	9 20.1 -18.5 147.8	7 38.4 -19.5 148.0	5 56.6 -20.6 148.1	4 14.7 -21.6 148.2	56										
10 44.1 -17.6 148.6	9 01.6 -18.6 148.8	7 18.9 -19.7 148.9	5 36.0 -20.6 149.1	3 53.1 -21.7 149.1	57										
10 26.5 -17.8 149.6	8 43.0 -18.8 149.7	6 59.2 -19.8 149.9	5 15.4 -20.8 150.0	3 31.4 -21.7 150.1	58										
10 08.7 -17.9 150.5	8 24.2 -19.0 150.7	6 39.4 -19.8 150.8	4 54.6 -20.8 150.9	3 09.7 -21.8 151.0	59										
9 50.8 -18.1 151.5	8 05.2 -19.0 151.7	6 19.6 -20.0 151.8	4 33.8 -20.9 151.9	2 47.9 -21.8 151.9	60										
9 32.7 -18.3 152.5	7 46.2 -19.2 152.6	5 59.6 -20.1 152.7	4 12.8 -20.9 152.8	2 26.1 -21.9 152.9	61										
9 14.4 -18.4 153.5	7 27.0 -19.3 153.6	5 39.5 -20.2 153.7	3 51.9 -21.1 153.8	2 04.2 -21.9 153.8	62										
8 56.0 -18.6 154.4	7 07.7 -19.5 154.5	5 19.3 -20.3 154.6	3 30.8 -21.1 154.7	1 42.3 -21.9 154.7	63										
8 37.4 -18.7 155.4	6 48.2 -19.5 155.5	4 59.0 -20.3 155.6	3 09.7 -21.1 155.6	1 20.4 -21.9 155.7	64										
8 18.7 -18.9 156.3	6 28.7 -19.7 156.4	4 38.7 -20.5 156.5	2 48.6 -21.2 156.6	0 58.5 -22.0 156.6	65										
7 59.8 -19.0 157.3	6 09.0 -19.7 157.4	4 18.2 -20.5 157.5	2 27.4 -21.3 157.5	0 36.5 -22.0 157.5	66										
7 40.8 -19.1 158.3	5 49.3 -19.8 158.3	3 57.7 -20.5 158.4	2 06.1 -21.2 158.4	0 14.5 -21.9 158.5	67										
7 21.7 -19.3 159.2	5 29.5 -20.0 159.3	3 37.2 -20.6 159.3	1 44.9 -21.3 159.4	0 07.4 +22.0 20.6	68										
7 02.4 -19.3 160.2	5 09.5 -20.0 160.2	3 16.6 -20.7 160.3	1 23.6 -21.3 160.3	0 29.4 +22.0 19.7	69										
6 43.1 -19.5 161.1	4 49.5 -20.1 161.2	2 55.9 -20.7 161.2	1 02.3 -21.4 161.2	0 51.4 +21.9 18.7	70										
6 23.6 -19.6 162.1	4 29.4 -20.2 162.1	2 35.2 -20.8 162.2	0 40.9 -21.3 162.2	1 13.3 +21.9 17.8	71										
6 04.0 -19.7 163.0	4 09.2 -20.2 163.1	2 14.4 -20.8 163.1	0 19.6 -21.4 163.1	1 35.2 +21.9 16.9	72										
5 44.3 -19.7 164.0	3 49.0 -20.3 164.0	1 53.6 -20.8 164.0	0 01.8 +21.3 15.9	1 57.1 +21.9 16.0	73										
5 24.6 -19.9 164.9	3 28.7 -20.4 165.0	1 32.8 -20.9 165.0	0 23.1 +21.4 15.0	2 19.0 +21.8 15.0	74										
5 04.7 -19.9 165.9	3 08.3 -20.4 165.9	1 11.9 -20.8 165.9	0 44.5 +21.3 14.1	2 40.8 +21.8 14.1	75										
4 44.8 -20.0 166.8	2 47.9 -20.4 166.8	0 51.1 -20.9 166.9	1 05.8 +21.3 13.1	3 02.6 +21.8 13.2	76										
4 24.8 -20.1 167.8	2 27.5 -20.5 167.8	0 30.2 -20.9 167.8	1 27.1 +21.3 12.2	3 24.4 +21.7 12.2	77										
4 04.7 -20.2 168.7	2 07.0 -20.5 168.7	0 09.3 -20.9 168.7	1 48.4 +21.3 11.3	3 46.1 +21.6 11.3	78										
3 44.5 -20.2 169.6	1 46.5 -20.6 169.7	0 11.6 +20.9 10.3	2 09.7 +21.2 10.3	4 07.7 +21.6 10.4	79										
3 24.3 -20.3 170.6	1 25.9 -20.6 170.6	0 32.5 +20.9 9.4	2 30.9 +21.2 9.4	4 29.3 +21.5 9.4	80										
3 04.0 -20.3 171.5	1 05.3 -20.6 171.5	0 53.4 +20.8 8.5	2 52.1 +21.1 8.5	4 50.8 +21.4 8.5	81										
2 43.7 -20.4 172.5	0 44.7 -20.6 172.5	1 14.2 +20.9 7.5	3 13.2 +21.1 7.5	5 12.2 +21.3 7.5	82										
2 23.3 -20.4 173.4	0 24.1 -20.6 173.4	1 35.1 +20.8 6.6	3 34.3 +21.0 6.6	5 33.5 +21.2 6.6	83										
2 02.9 -20.4 174.4	0 03.5 -20.6 174.4	1 55.9 +20.8 5.6	3 55.3 +21.0 5.7	5 54.7 +21.2 5.7	84										
1 42.5 -20.5 175.3	0 17.1 +20.6 4.7	2 16.7 +20.8 4.7	4 16.3 +20.9 4.7	6 15.9 +21.0 4.7	85										
1 22.0 -20.5 176.2	0 37.7 +20.6 3.8	2 37.5 +20.7 3.8	4 37.2 +20.8 3.8	6 36.9 +21.0 3.8	86										
1 01.5 -20.5 177.2	0 58.3 +20.6 2.8	2 58.2 +20.6 2.8	4 58.0 +20.8 2.8	6 57.9 +20.8 2.8	87										
0 41.0 -20.5 178.1	1 18.9 +20.6 1.9	3 18.8 +20.6 1.9	5 18.8 +20.6 1.9	7 18.7 +20.7 1.9	88										
0 20.5 -20.5 179.1	1 39.5 +20.5 0.9	3 39.4 +20.6 0.9	5 39.4 +20.6 0.9	7 39.4 +20.6 0.9	89										
0 00.0 +20.5 0.0	2 00.0 +20.5 0.0	4 00.0 +20.5 0.0	6 00.0 +20.5 0.0	8 00.0 +20.5 0.0	90										

LATITUDE SAME NAME

L.H.A. 110°, 250°

70°, 290° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	22 14.5	-1.4	61.5	23 11.0	+0.6	62.3	24 06.1	+2.6	63.1	24 59.7	+4.7	63.9	25 51.7	+6.8	64.7
31	22 13.1	-1.8	60.5	23 11.6	+0.2	61.2	24 08.7	+2.2	62.0	25 04.4	+4.2	62.8	25 58.5	+6.2	63.6
32	22 11.3	-2.2	59.4	23 11.8	-0.3	60.1	24 10.9	+1.7	60.9	25 08.6	+3.7	61.7	26 04.7	+5.8	62.5
33	22 09.1	-2.7	58.3	23 11.5	-0.7	59.0	24 12.6	+1.2	59.8	25 12.3	+3.2	60.6	26 10.5	+5.2	61.4
34	22 06.4	-3.0	57.2	23 10.8	-1.2	57.9	24 13.8	+0.8	58.7	25 15.5	+2.7	59.5	26 15.7	+4.7	60.3
35	22 03.4	-3.6	56.2	23 09.6	-1.6	56.8	24 14.6	+0.2	57.6	25 18.2	+2.2	58.4	26 20.4	+4.2	59.2
36	21 59.8	-3.9	55.1	23 08.0	-2.1	55.8	24 14.8	-0.1	56.5	25 20.4	+1.8	57.3	26 24.6	+3.7	58.1
37	21 55.9	-4.3	54.0	23 05.9	-2.5	54.7	24 14.7	-0.7	55.4	25 22.2	+1.2	56.2	26 28.3	+3.1	57.0
38	21 51.6	-4.8	52.9	23 03.4	-3.0	53.6	24 14.0	-1.1	54.3	25 23.4	+0.7	55.1	26 31.4	+2.7	55.9
39	21 46.8	-5.2	51.9	23 00.4	-3.4	52.5	24 12.9	-1.6	53.2	25 24.1	+0.3	53.9	26 34.1	+2.1	54.7
40	21 41.6	-5.6	50.8	22 57.0	-3.9	51.4	24 11.3	-2.1	52.1	25 24.4	-0.3	52.8	26 36.2	+1.6	53.6
41	21 36.0	-6.0	49.7	22 53.1	-4.3	50.3	24 09.2	-2.6	51.0	25 24.1	-0.8	51.7	26 37.8	+1.1	52.5
42	21 30.0	-6.4	48.6	22 48.8	-4.7	49.3	24 06.6	-3.0	49.9	25 23.3	-1.2	50.6	26 38.9	+0.5	51.4
43	21 23.6	-6.8	47.6	22 44.1	-5.2	48.2	24 03.6	-3.5	48.8	25 22.1	-1.8	49.5	26 39.4	0.0	50.3
44	21 16.8	-7.3	46.5	22 38.9	-5.6	47.1	24 00.1	-3.9	47.7	25 20.3	-2.2	48.4	26 39.4	-0.5	49.1
45	21 09.5	-7.6	45.4	22 33.3	-6.0	46.0	23 56.2	-4.4	46.6	25 18.1	-2.8	47.3	26 38.9	-1.0	48.0
46	21 01.9	-8.0	44.4	22 27.3	-6.5	44.9	23 51.8	-4.9	45.5	25 15.3	-3.2	46.2	26 37.9	-1.6	46.9
47	20 53.9	-8.4	43.3	22 20.8	-6.9	43.9	23 46.9	-5.3	44.5	25 12.1	-3.7	45.1	26 36.3	-2.1	45.8
48	20 45.5	-8.8	42.3	22 13.9	-7.3	42.8	23 41.6	-5.8	43.4	25 08.4	-4.2	44.0	26 34.2	-2.6	44.7
49	20 36.7	-9.2	41.2	22 06.6	-7.7	41.7	23 35.8	-6.2	42.3	25 04.2	-4.7	42.9	26 31.6	-3.1	43.6
50	20 27.5	-9.6	40.1	21 58.9	-8.1	40.6	23 29.6	-6.7	41.2	24 59.5	-5.2	41.8	26 28.5	-3.6	42.4
51	20 17.9	-9.9	39.1	21 50.8	-8.6	39.6	23 22.9	-7.1	40.1	24 54.3	-5.7	40.7	26 24.9	-4.2	41.3
52	20 08.0	-10.3	38.0	21 42.2	-9.0	38.5	23 15.8	-7.6	39.0	24 48.6	-6.1	39.6	26 20.7	-4.7	40.2
53	19 57.7	-10.7	37.0	21 33.2	-9.3	37.4	23 08.2	-8.0	38.0	24 42.5	-6.6	38.5	26 16.0	-5.2	39.1
54	19 47.0	-11.0	35.9	21 23.9	-9.8	36.4	23 00.2	-8.5	36.9	24 35.9	-7.1	37.4	26 10.8	-5.7	38.0
55	19 36.0	-11.5	34.9	21 14.1	-10.1	35.3	22 51.7	-8.8	35.8	24 28.8	-7.6	36.3	26 05.1	-6.2	36.9
56	19 24.5	-11.7	33.9	21 04.0	-10.6	34.3	22 42.9	-9.4	34.7	24 21.2	-8.0	35.2	25 58.9	-6.7	35.8
57	19 12.8	-12.1	32.8	20 53.4	-10.9	33.2	22 33.5	-9.7	33.7	24 13.2	-8.5	34.1	25 52.2	-7.2	34.7
58	19 00.7	-12.5	31.8	20 42.5	-11.4	32.2	22 23.8	-10.1	32.6	24 04.7	-9.0	33.1	25 45.0	-7.8	33.6
59	18 48.2	-12.8	30.7	20 31.1	-11.7	31.1	22 13.7	-10.6	31.5	23 55.7	-9.4	32.0	25 37.2	-8.2	32.5
60	18 35.4	-13.1	29.7	20 19.4	-12.0	30.1	22 03.1	-11.0	30.5	23 46.3	-9.8	30.9	25 29.0	-8.7	31.4
61	18 22.3	-13.5	28.7	20 07.4	-12.5	29.0	21 52.1	-11.4	29.4	23 36.5	-10.3	29.8	25 20.3	-9.1	30.3
62	18 08.8	-13.8	27.7	19 54.9	-12.8	28.0	21 40.7	-11.8	28.3	23 26.2	-10.8	28.7	25 11.2	-9.7	29.2
63	17 55.0	-14.1	26.6	19 42.1	-13.1	26.9	21 28.9	-12.1	27.3	23 15.4	-11.2	27.7	25 01.5	-10.2	28.1
64	17 40.9	-14.4	25.6	19 29.0	-13.5	25.9	21 16.8	-12.6	26.2	23 04.2	-11.6	26.6	24 51.3	-10.6	27.0
65	17 26.5	-14.8	24.6	19 15.5	-13.9	24.9	21 04.2	-13.0	25.2	22 52.6	-12.0	25.5	24 40.7	-11.0	25.9
66	17 11.7	-15.0	23.6	19 01.6	-14.2	23.8	20 51.2	-13.3	24.1	22 40.6	-12.4	24.5	24 29.7	-11.6	24.8
67	16 56.7	-15.3	22.6	18 47.4	-14.5	22.8	20 37.9	-13.7	23.1	22 28.2	-12.9	23.4	24 18.1	-12.0	23.8
68	16 41.4	-15.7	21.6	18 32.9	-14.9	21.8	20 24.2	-14.1	22.1	22 15.3	-13.3	22.4	24 06.1	-12.4	22.7
69	16 25.7	-15.9	20.6	18 18.0	-15.2	20.8	20 10.1	-14.4	21.0	22 02.0	-13.7	21.3	23 53.7	-12.9	21.6
70	16 09.8	-16.2	19.5	18 02.8	-15.5	19.8	19 55.7	-14.8	20.0	21 48.3	-14.0	20.3	23 40.8	-13.3	20.5
71	15 53.6	-16.5	18.5	17 47.3	-15.8	18.7	19 40.9	-15.2	19.0	21 34.3	-14.5	19.2	23 27.5	-13.7	19.5
72	15 37.1	-16.7	17.5	17 31.5	-16.2	17.7	19 25.7	-15.5	17.9	21 19.8	-14.8	18.2	23 13.8	-14.2	18.4
73	15 20.4	-17.0	16.6	17 15.3	-16.4	16.7	19 10.2	-15.8	16.9	21 05.0	-15.3	17.1	22 59.6	-14.6	17.4
74	15 03.4	-17.3	15.6	16 58.9	-16.7	15.7	18 54.4	-16.2	15.9	20 49.7	-15.6	16.1	22 45.0	-15.0	16.3
75	14 46.1	-17.5	14.6	16 42.2	-17.0	14.7	18 38.2	-16.5	14.9	20 34.1	-15.9	15.1	22 30.0	-15.4	15.3
76	14 28.6	-17.8	13.6	16 25.2	-17.3	13.7	18 21.7	-16.8	13.9	20 18.2	-16.3	14.0	22 14.6	-15.9	14.2
77	14 10.8	-18.0	12.6	16 07.9	-17.6	12.7	18 04.9	-17.1	12.8	20 01.9	-16.7	13.0	21 58.7	-16.2	13.2
78	13 52.8	-18.3	11.6	15 50.3	-17.8	11.7	17 47.8	-17.5	11.8	19 45.2	-17.0	12.0	21 42.5	-16.5	12.1
79	13 34.5	-18.4	10.6	15 32.5	-18.2	10.7	17 30.3	-17.7	10.8	19 28.2	-17.4	11.0	21 26.0	-17.0	11.1
80	13 16.1	-18.7	9.7	15 14.3	-18.3	9.7	17 12.6	-18.0	9.8	19 10.8	-17.7	9.9	21 09.0	-17.4	10.1
81	12 57.4	-19.0	8.7	14 56.0	-18.7	8.8	16 54.6	-18.4	8.8	18 53.1	-18.0	8.9	20 51.6	-17.7	9.1
82	12 38.4	-19.1	7.7	14 37.3	-18.8	7.8	16 36.2	-18.6	7.8	18 35.1	-18.3	7.9	20 33.9	-18.0	8.0
83	12 19.3	-19.3	6.7	14 18.5	-19.1	6.8	16 17.6	-18.9	6.9	18 16.8	-18.7	6.9	20 15.9	-18.4	7.0
84	12 00.0	-19.6	5.8	13 59.4	-19.4	5.8	15 58.7	-19.1	5.9	17 58.1	-19.0	5.9	19 57.5	-18.8	6.0
85	11 40.4	-19.7	4.8	13 40.0	-19.6	4.8	15 39.6	-19.4	4.9	17 39.1	-19.2	4.9	19 38.7	-19.1	5.0
86	11 20.7	-19.9	3.8	13 20.4	-19.7	3.9	15 20.2	-19.7	3.9	17 19.9	-19.6	3.9	19 19.6	-19.4	4.0
87	11 00.8	-20.1	2.9	13 00.7	-20.1	2.9	15 00.5	-19.9	2.9	17 00.3	-19.8	2.9	19 00.2	-19.8	3.0
88	10 40.7	-20.3	1.9	12 40.6	-20.2	1.9	14 40.6	-20.2	1.9	16 40.5	-20.1	2.0	18 40.4	-20.0	2.0
89	10 20.4	-20.4	1.0	12 20.4	-20.4	1.0	14 20.4	-20.4	1.0	16 20.4	-20.4	1.0	18 20.4	-20.4	1.0
90	10 00.0	-20.6	0.0	12 00.0	-20.6	0.0	14 00.0	-20.6	0.0	16 00.0	-20.7	0.0	18 00.0	-20.7	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 70°, 290°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
11 49.3 -19.6 123.8	10 42.4 -21.3 124.1	9 34.8 -22.9 124.4	8 26.9 -24.6 124.6	7 18.4 -26.0 124.9	30										
11 29.7 -19.8 124.7	10 21.1 -21.5 125.0	9 11.9 -23.0 125.3	8 02.3 -24.6 125.6	6 52.4 -26.2 125.8	31										
11 09.9 -20.1 125.7	9 59.6 -21.6 126.0	8 48.9 -23.2 126.3	7 37.7 -24.7 126.5	6 26.2 -26.3 126.7	32										
10 49.8 -20.1 126.6	9 38.0 -21.8 126.9	8 25.7 -23.4 127.2	7 13.0 -24.9 127.4	5 59.9 -26.4 127.6	33										
10 29.7 -20.4 127.6	9 16.2 -21.9 127.9	8 02.3 -23.4 128.1	6 48.1 -25.0 128.3	5 33.5 -26.4 128.5	34										
10 09.3 -20.5 128.6	8 54.3 -22.1 128.8	7 38.9 -23.6 129.0	6 23.1 -25.0 129.2	5 07.1 -26.5 129.4	35										
9 48.8 -20.7 129.5	8 32.2 -22.2 129.8	7 15.3 -23.7 130.0	5 58.1 -25.2 130.1	4 40.6 -26.6 130.3	36										
9 28.1 -20.9 130.5	8 10.0 -22.3 130.7	6 51.6 -23.8 130.9	5 32.9 -25.2 131.1	4 14.0 -26.7 131.2	37										
9 07.2 -21.0 131.4	7 47.7 -22.5 131.6	6 27.8 -23.9 131.8	5 07.7 -25.4 132.0	3 47.3 -26.7 132.1	38										
8 46.2 -21.1 132.4	7 25.2 -22.6 132.6	6 03.9 -24.0 132.7	4 42.3 -25.3 132.9	3 20.6 -26.8 133.0	39										
8 25.1 -21.3 133.3	7 02.6 -22.6 133.5	5 39.9 -24.1 133.7	4 17.0 -25.3 133.8	2 53.8 -26.8 133.9	40										
8 03.8 -21.4 134.3	6 40.0 -22.8 134.4	5 15.8 -24.1 134.6	3 51.5 -25.5 134.7	2 27.0 -26.8 134.8	41										
7 42.4 -21.5 135.2	6 17.2 -22.9 135.4	4 51.7 -24.3 135.5	3 26.0 -25.6 135.6	2 00.2 -26.9 135.7	42										
7 20.9 -21.6 136.1	5 54.3 -23.0 136.3	4 27.4 -24.3 136.4	3 00.4 -25.6 136.5	1 33.3 -26.9 136.6	43										
6 59.3 -21.8 137.1	5 31.3 -23.1 137.2	4 03.1 -24.3 137.3	2 34.8 -25.6 137.4	1 06.4 -26.9 137.5	44										
6 37.5 -21.8 138.0	5 08.2 -23.1 138.2	3 38.8 -24.3 138.3	2 09.5 -25.6 138.4	0 39.5 -26.9 138.4	45										
6 15.7 -22.0 139.0	4 45.1 -23.2 139.1	3 14.4 -24.5 139.2	1 43.5 -25.7 139.2	0 12.6 -26.9 139.2	46										
5 53.7 -22.0 139.9	4 21.9 -23.3 140.0	2 49.9 -24.5 140.1	1 17.8 -25.7 140.1	0 14.3 +26.9 39.9	47										
5 31.7 -22.2 140.8	3 58.6 -23.4 140.9	2 25.4 -24.6 141.0	0 52.1 -25.7 141.0	0 41.2 +26.9 39.0	48										
5 09.5 -22.2 141.8	3 35.2 -23.4 141.9	2 00.8 -24.6 141.9	0 26.4 -25.8 141.9	1 08.1 +26.9 38.1	49										
4 47.3 -22.3 142.7	3 11.8 -23.4 142.8	1 36.2 -24.6 142.8	0 00.6 -25.7 142.8	1 35.0 +26.9 37.2	50										
4 25.0 -22.3 143.6	2 48.4 -23.5 143.7	1 11.6 -24.6 143.7	0 25.1 +25.8 36.3	2 01.9 +26.8 36.3	51										
4 02.7 -22.5 144.6	2 24.9 -23.6 144.6	0 47.0 -24.6 144.6	0 47.0 -24.6 144.6	2 28.7 +26.8 35.4	52										
3 40.2 -22.4 145.5	2 01.3 -23.5 145.5	0 22.4 -24.7 145.6	1 16.6 +25.7 34.4	2 55.5 +26.8 34.5	53										
3 17.8 -22.6 146.4	1 37.8 -23.6 146.5	0 02.3 +24.6 33.5	1 42.3 +25.7 33.5	3 22.3 +26.7 33.6	54										
2 55.2 -22.6 147.3	1 14.2 -23.6 147.4	0 26.9 +24.6 32.6	2 08.0 +25.6 32.6	3 49.0 +26.6 32.7	55										
2 32.6 -22.6 148.3	0 50.6 -23.7 148.3	0 51.5 +24.6 31.7	2 33.6 +25.6 31.7	4 15.6 +26.6 31.8	56										
2 10.0 -22.6 149.2	0 26.9 -23.6 149.2	1 16.1 +24.6 30.8	2 59.2 +25.6 30.8	4 42.2 +26.5 30.9	57										
1 47.4 -22.7 150.1	0 03.3 -23.6 150.1	1 40.7 +24.6 29.9	3 24.8 +25.5 29.9	5 08.7 +26.5 30.0	58										
1 24.7 -22.7 151.0	0 20.3 +23.6 28.9	2 05.3 +24.6 29.0	3 50.3 +25.4 29.0	5 35.2 +26.3 29.1	59										
1 02.0 -22.7 152.0	0 43.9 +23.7 28.0	2 29.9 +24.5 28.1	4 15.7 +25.4 28.1	6 01.5 +26.3 28.2	60										
0 39.3 -22.8 152.9	1 07.6 +23.6 27.1	2 54.4 +24.4 27.1	4 41.1 +25.4 27.2	6 27.8 +26.2 27.3	61										
0 16.5 -22.7 153.8	1 31.2 +23.5 26.2	3 18.8 +24.4 26.2	5 06.5 +25.2 26.3	6 54.0 +26.1 26.4	62										
0 06.2 +22.7 25.3	1 54.7 +23.6 25.3	3 43.2 +24.4 25.3	5 31.7 +25.2 25.4	7 20.1 +25.9 25.5	63										
0 28.9 +22.8 24.3	2 18.3 +23.5 24.3	4 07.6 +24.3 24.4	5 56.9 +25.0 24.5	7 46.0 +25.9 24.6	64										
0 51.7 +22.7 23.4	2 41.8 +23.5 23.4	4 31.9 +24.2 23.5	6 21.9 +25.0 23.6	8 11.9 +25.7 23.7	65										
1 14.4 +22.7 22.5	3 05.3 +23.4 22.5	4 56.1 +24.1 22.6	6 46.9 +24.9 22.6	8 37.6 +25.6 22.7	66										
1 37.1 +22.7 21.6	3 28.7 +23.3 21.6	5 20.2 +24.1 21.6	7 11.8 +24.7 21.7	9 03.2 +25.5 21.8	67										
1 59.8 +22.6 20.6	3 52.0 +23.4 20.7	5 44.3 +24.0 20.7	7 36.5 +24.7 20.8	9 28.7 +25.3 20.9	68										
2 22.4 +22.6 19.7	4 15.4 +23.2 19.7	6 08.3 +23.9 19.8	8 01.2 +24.5 19.9	9 54.0 +25.1 20.0	69										
2 45.0 +22.5 18.8	4 38.6 +23.2 18.8	6 32.2 +23.7 18.9	8 25.7 +24.4 19.0	10 19.1 +25.0 19.1	70										
3 07.5 +22.6 17.8	5 01.8 +23.1 17.9	6 55.9 +23.7 18.0	8 50.1 +24.2 18.0	10 44.1 +24.9 18.1	71										
3 30.1 +22.4 16.9	5 24.9 +23.0 17.0	7 19.6 +23.6 17.0	9 14.3 +24.1 17.1	11 09.0 +24.7 17.2	72										
3 52.5 +22.4 16.0	5 47.9 +22.9 16.0	7 43.2 +23.4 16.1	9 38.4 +24.0 16.2	11 33.7 +24.5 16.3	73										
4 14.9 +22.3 15.1	6 10.8 +22.8 15.1	8 06.6 +23.3 15.2	10 02.4 +23.8 15.3	11 58.2 +24.3 15.4	74										
4 37.2 +22.3 14.1	6 33.6 +22.7 14.2	8 29.9 +23.2 14.2	10 26.2 +23.7 14.3	12 22.5 +24.1 14.4	75										
4 59.5 +22.2 13.2	6 56.3 +22.6 13.2	8 53.1 +23.0 13.3	10 49.9 +23.4 13.4	12 46.6 +23.9 13.5	76										
5 21.7 +22.0 12.3	7 18.9 +22.5 12.3	9 16.1 +22.9 12.4	11 13.3 +23.3 12.4	13 10.5 +23.7 12.5	77										
5 43.7 +22.0 11.3	7 41.4 +22.4 11.4	9 39.0 +22.8 11.4	11 36.6 +23.2 11.5	13 34.2 +23.5 11.6	78										
6 05.7 +21.9 10.4	8 03.8 +22.2 10.4	10 01.8 +22.6 10.5	11 59.8 +22.9 10.6	13 57.7 +23.3 10.6	79										
6 27.6 +21.8 9.5	8 26.0 +22.1 9.5	10 24.4 +22.4 9.5	12 22.7 +22.7 9.6	14 21.0 +23.0 9.7	80										
6 49.4 +21.7 8.5	8 48.1 +22.0 8.6	10 46.8 +22.2 8.6	12 45.4 +22.5 8.7	14 44.0 +22.8 8.7	81										
7 11.1 +21.6 7.6	9 10.1 +21.8 7.6	11 09.0 +22.1 7.7	13 07.9 +22.3 7.7	15 06.8 +22.6 7.8	82										
7 32.7 +21.5 6.6	9 31.9 +21.7 6.7	11 31.1 +21.9 6.7	13 30.2 +22.1 6.8	15 29.4 +22.3 6.8	83										
7 54.2 +21.3 5.7	9 53.6 +21.5 5.7	11 53.0 +21.6 5.8	13 52.3 +21.9 5.8	15 51.7 +22.1 5.9	84										
8 15.5 +21.2 4.7	10 15.1 +21.3 4.8	12 14.6 +21.5 4.8	14 14.2 +21.7 4.8	16 13.8 +21.8 4.9	85										
8 36.7 +21.0 3.8	10 36.4 +21.2 3.8	12 36.1 +21.3 3.9	14 35.9 +21.4 3.9	16 35.6 +21.5 3.9	86										
8 57.7 +20.9 2.9	10 57.6 +21.0 2.9	12 57.4 +21.1 2.9	14 57.3 +21.1 2.9	16 57.1 +21.3 2.9	87										
9 18.6 +20.8 1.9	11 18.6 +20.8 1.9	13 18.5 +20.9 1.9	15 18.4 +20.9 1.9	17 18.4 +20.9 2.0	88										
9 39.4 +20.6 1.0	11 39.4 +20.6 1.0	13 39.4 +20.6 1.0	15 39.3 +20.7 1.0	17 39.3 +20.7 1.0	89										
10 00.0 +20.4 0.0	12 00.0 +20.4 0.0	14 00.0 +20.4 0.0	16 00.0 +20.4 0.0	18 00.0 +20.4 0.0	90										
10°	12°	14°	16°	18°											

LATITUDE SAME NAME

L.H.A. 110°, 250°

70°, 290° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	26 42.1	+8.8	65.6	27 30.7	-11.0	66.6	28 17.5	+13.1	67.5	29 02.3	+15.3	68.6	29 45.2	+17.4	69.6
31	26 50.9	+8.4	64.5	27 41.7	-10.4	65.5	28 30.6	+12.5	66.4	29 17.6	+14.7	67.5	30 02.6	+16.8	68.5
32	26 59.3	+7.8	63.4	27 52.1	+9.9	64.3	28 43.1	+12.0	65.3	29 32.3	+14.1	66.3	30 19.4	+16.3	67.4
33	27 07.1	+7.2	62.3	28 02.0	+9.3	63.2	28 55.1	+11.5	64.2	29 46.4	+13.5	65.2	30 35.7	+15.7	66.3
34	27 14.3	+6.8	61.2	28 11.3	+8.8	62.1	29 06.6	+10.8	63.1	29 59.9	+13.0	64.1	30 51.4	+15.1	65.2
35	27 21.1	+6.2	60.1	28 20.1	+8.3	61.0	29 17.4	+10.3	62.0	30 12.9	+12.4	63.0	31 06.5	+14.5	64.0
36	27 27.3	+5.6	58.9	28 28.4	+7.6	59.9	29 27.7	+9.8	60.8	30 25.3	+11.8	61.8	31 21.0	+13.9	62.9
37	27 32.9	+5.2	57.8	28 36.0	+7.2	58.7	29 37.5	+9.1	59.7	30 37.1	+11.2	60.7	31 34.9	+13.3	61.8
38	27 38.1	+4.6	56.7	28 43.2	+6.5	57.6	29 46.6	+8.6	58.6	30 48.3	+10.6	59.6	31 48.2	+12.7	60.6
39	27 42.7	+4.0	55.6	28 49.7	+6.0	56.5	29 55.2	+8.0	57.4	30 58.9	+10.0	58.4	32 00.9	+12.0	59.5
40	27 46.7	+3.5	54.4	28 55.7	+5.4	55.3	30 03.2	+7.3	56.3	31 08.9	+9.4	57.3	32 12.9	+11.4	58.3
41	27 50.2	+2.9	53.3	29 01.1	+4.9	54.2	30 10.5	+6.8	55.1	31 18.3	+8.8	56.1	32 24.3	+10.8	57.1
42	27 53.1	+2.4	52.2	29 06.0	+4.2	53.1	30 17.3	+6.2	54.0	31 27.1	+8.1	54.9	32 35.1	+10.2	56.0
43	27 55.5	+1.8	51.1	29 10.2	+3.7	51.9	30 23.5	+5.6	52.8	31 35.2	+7.5	53.8	32 45.3	+9.4	54.8
44	27 57.3	+1.3	49.9	29 13.9	+3.1	50.8	30 29.1	+4.9	51.7	31 42.7	+6.9	52.6	32 54.7	+8.8	53.6
45	27 58.6	+0.7	48.8	29 17.0	+2.5	49.6	30 34.0	+4.3	50.5	31 49.6	+6.2	51.4	33 03.5	+8.2	52.4
46	27 59.3	+0.1	47.7	29 19.5	+1.9	48.5	30 38.3	+3.8	49.3	31 55.8	+5.6	50.3	33 11.7	+7.5	51.3
47	27 59.4	-0.4	46.5	29 21.4	+1.3	47.3	30 42.1	+3.1	48.2	32 01.4	+4.9	49.1	33 19.2	+6.7	50.1
48	27 59.0	-0.9	45.4	29 22.7	+0.8	46.2	30 45.2	+2.4	47.0	32 06.3	+4.2	47.9	33 25.9	+6.2	48.9
49	27 58.1	-1.5	44.3	29 23.5	-0.1	45.0	30 47.6	+1.9	45.9	32 10.5	+3.7	46.7	33 32.1	+5.4	47.7
50	27 56.6	-2.1	43.1	29 23.6	-0.4	43.9	30 49.5	+1.2	44.7	32 14.2	+2.9	45.6	33 37.5	+4.7	46.5
51	27 54.5	-2.6	42.0	29 23.2	-1.1	42.7	30 50.7	+0.6	43.5	32 17.1	+2.3	44.4	33 42.2	+4.0	45.3
52	27 51.9	-3.2	40.9	29 22.1	-1.6	41.6	30 51.3	0.0	42.4	32 19.4	+1.6	43.2	33 46.2	+3.4	44.1
53	27 48.7	-3.7	39.7	29 20.5	-2.2	40.4	30 51.3	-0.6	41.2	32 21.0	+1.0	42.0	33 49.6	+2.6	42.9
54	27 45.0	-4.3	38.6	29 18.3	-2.8	39.3	30 50.7	-1.3	40.0	32 22.0	+0.3	40.8	33 52.2	+1.9	41.7
55	27 40.7	-4.8	37.5	29 15.5	-3.4	38.2	30 49.4	-1.9	38.9	32 22.3	-0.3	39.7	33 54.1	+1.3	40.5
56	27 35.9	-5.4	36.4	29 12.1	-3.9	37.0	30 47.5	-2.5	37.7	32 22.0	-1.1	38.5	33 55.4	+0.5	39.3
57	27 30.5	-5.9	35.2	29 08.2	-4.6	35.9	30 45.0	-3.1	36.5	32 20.9	-1.6	37.3	33 55.9	-0.2	38.1
58	27 24.6	-6.4	34.1	29 03.6	-5.1	34.7	30 41.9	-3.8	35.4	32 19.3	-2.4	36.1	33 55.7	-0.9	36.9
59	27 18.2	-7.0	33.0	28 58.5	-5.7	33.6	30 38.1	-4.4	34.2	32 16.9	-3.0	34.9	33 54.8	-1.5	35.7
60	27 11.2	-7.5	31.9	28 52.8	-6.3	32.5	30 33.7	-5.0	33.1	32 13.9	-3.7	33.7	33 53.3	-2.3	34.5
61	27 03.7	-8.0	30.8	28 46.5	-6.8	31.3	30 28.7	-5.6	31.9	32 10.2	-4.3	32.6	33 51.0	-3.0	33.3
62	26 55.7	-8.6	29.7	28 39.7	-7.4	30.2	30 23.1	-6.2	30.8	32 05.9	-5.0	31.4	33 48.0	-3.7	32.1
63	26 47.1	-9.0	28.5	28 32.3	-8.0	29.1	30 16.9	-6.8	29.6	32 00.9	-5.6	30.2	33 44.3	-4.4	30.9
64	26 38.1	-9.6	27.4	28 24.3	-8.5	27.9	30 10.1	-7.4	28.5	31 55.3	-6.3	29.0	33 39.9	-5.1	29.7
65	26 28.5	-10.1	26.3	28 15.8	-9.1	26.8	30 02.7	-8.0	27.3	31 49.0	-6.9	27.9	33 34.8	-5.7	28.5
66	26 18.4	-10.6	25.2	28 06.7	-9.6	25.7	29 54.7	-8.6	26.2	31 42.1	-7.5	26.7	33 29.1	-6.5	27.3
67	26 07.8	-11.1	24.1	27 57.1	-10.1	24.6	29 46.1	-9.2	25.0	31 34.6	-8.2	25.5	33 22.6	-7.1	26.1
68	25 56.7	-11.6	23.0	27 47.0	-10.7	23.4	29 36.9	-9.8	23.9	31 26.4	-8.8	24.4	33 15.5	-7.8	24.9
69	25 45.1	-12.0	22.0	27 36.3	-11.2	22.3	29 27.1	-10.3	22.8	31 17.6	-9.4	23.2	33 07.7	-8.5	23.7
70	25 33.1	-12.6	20.9	27 25.1	-11.8	21.2	29 16.8	-10.9	21.6	31 08.2	-10.1	22.1	32 59.2	-9.1	22.5
71	25 20.5	-13.0	19.8	27 13.3	-12.2	20.1	29 05.9	-11.5	20.5	30 58.1	-10.6	20.9	32 50.1	-9.8	21.4
72	25 07.5	-13.5	18.7	27 01.1	-12.8	19.0	28 54.4	-12.0	19.4	30 47.5	-11.3	19.8	32 40.3	-10.5	20.2
73	24 54.0	-13.9	17.6	26 48.3	-13.3	17.9	28 42.4	-12.6	18.3	30 36.2	-11.8	18.6	32 29.8	-11.1	19.0
74	24 40.1	-14.4	16.6	26 35.0	-13.8	16.8	28 29.8	-13.1	17.1	30 24.4	-12.5	17.5	32 18.7	-11.7	17.8
75	24 25.7	-14.9	15.5	26 21.2	-14.2	15.7	28 16.7	-13.7	16.0	30 11.9	-13.0	16.3	32 07.0	-12.4	16.7
76	24 10.8	-15.3	14.4	26 07.0	-14.8	14.7	28 03.0	-14.2	14.9	29 58.9	-13.6	15.2	31 54.6	-13.0	15.5
77	23 55.5	-15.7	13.4	25 52.2	-15.2	13.6	27 48.8	-14.7	13.8	29 45.3	-14.2	14.1	31 41.6	-13.6	14.4
78	23 39.8	-16.1	12.3	25 37.0	-15.7	12.5	27 34.1	-15.2	12.7	29 31.1	-14.7	13.0	31 28.0	-14.2	13.2
79	23 23.7	-16.6	11.3	25 21.3	-16.1	11.4	27 18.9	-15.7	11.6	29 16.4	-15.3	11.9	31 13.8	-14.8	12.1
80	23 07.1	-17.0	10.2	25 05.2	-16.6	10.4	27 03.2	-16.2	10.6	29 01.1	-15.8	10.8	30 59.0	-15.4	11.0
81	22 50.1	-17.4	9.2	24 48.6	-17.1	9.3	26 47.0	-16.7	9.5	28 45.3	-16.4	9.7	30 43.6	-16.0	9.8
82	22 32.7	-17.7	8.1	24 31.5	-17.5	8.3	26 30.3	-17.2	8.4	28 28.9	-16.8	8.6	30 27.6	-16.6	8.7
83	22 15.0	-18.2	7.1	24 14.0	-17.9	7.2	26 13.1	-17.7	7.3	28 12.1	-17.4	7.5	30 11.0	-17.1	7.6
84	21 56.8	-18.6	6.1	23 56.1	-18.3	6.2	25 55.4	-18.1	6.3	27 54.7	-17.9	6.4	29 53.9	-17.7	6.5
85	21 38.2	-18.9	5.1	23 37.8	-18.8	5.1	25 37.3	-18.6	5.2	27 36.8	-18.4	5.3	29 36.2	-18.2	5.4
86	21 19.3	-19.3	4.0	23 19.0	-19.2	4.1	25 18.7	-19.0	4.2	27 18.4	-18.9	4.2	29 18.0	-18.7	4.3
87	21 00.0	-19.6	3.0	22 59.8	-19.5	3.1	24 59.7	-19.5	3.1	26 59.5	-19.4	3.2	28 59.3	-19.3	3.2
88	20 40.4	-20.0	2.0	22 40.3	-20.0	2.0	24 40.2	-19.9	2.1	26 40.1	-19.8	2.1	28 40.0	-19.7	2.1
89	20 20.4	-20.4	1.0	22 20.3	-20.3	1.0	24 20.3	-20.3	1.0	26 20.3	-20.3	1.0	28 20.3	-20.3	1.1
90	20 00.0	-20.7	0.0	22 00.0	-20.7	0.0	24 00.0	-20.7	0.0	26 00.0	-20.7	0.0	28 00.0	-20.8	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 70°, 290°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
6	09.7	-27.6	125.1	5	00.6	-29.1	125.2	3	51.3	-30.6	125.3	2	41.8	-32.1	125.4	1	32.1	-33.5	125.5	30
5	42.1	-27.7	126.0	4	31.5	-29.2	126.1	3	20.7	-30.7	126.2	2	09.7	-32.1	126.3	0	58.6	-33.4	126.3	31
5	14.4	-27.8	126.8	4	02.3	-29.3	127.0	2	50.0	-30.7	127.1	1	37.6	-32.1	127.1	0	25.2	-33.5	127.2	32
4	46.6	-27.9	127.7	3	33.0	-29.3	127.9	2	19.3	-30.7	127.9	1	05.5	-32.1	128.0	0	08.3	+33.5	52.0	33
4	18.7	-27.9	128.6	3	03.7	-29.3	128.7	1	48.6	-30.7	128.8	0	33.4	-32.1	128.8	0	41.8	+33.5	51.2	34
3	50.8	-27.9	129.5	2	34.4	-29.4	129.6	1	17.9	-30.8	129.7	0	01.3	-32.1	129.7	1	15.3	+33.5	50.3	35
3	22.9	-28.0	130.4	2	05.0	-29.4	130.5	0	47.1	-30.8	130.5	0	30.8	+32.2	49.5	1	48.8	+33.4	49.5	36
2	54.9	-28.1	131.3	1	35.6	-29.4	131.3	0	16.3	-30.7	131.4	1	03.0	+32.1	48.6	2	22.2	+33.4	48.7	37
2	26.8	-28.1	132.2	1	06.2	-29.4	132.2	0	14.4	+30.8	47.8	1	35.1	+32.0	47.8	2	55.6	+33.4	47.9	38
1	58.7	-28.1	133.1	0	36.8	-29.5	133.1	0	45.2	+30.8	46.9	2	07.1	+32.1	47.0	3	29.0	+33.3	47.0	39
1	30.6	-28.1	133.9	0	07.3	-29.4	134.0	1	16.0	+30.7	46.1	2	39.2	+32.0	46.1	4	02.3	+33.3	46.2	40
1	02.5	-28.2	134.8	0	22.1	+29.5	45.2	1	46.7	+30.7	45.2	3	11.2	+32.0	45.3	4	35.6	+33.2	45.4	41
0	34.3	-28.1	135.7	0	51.6	+29.4	44.3	2	17.4	+30.7	44.3	3	43.2	+31.9	44.4	5	08.8	+33.2	44.5	42
0	06.2	-28.2	136.6	1	21.0	+29.4	43.4	2	48.1	+30.7	43.5	4	15.1	+31.9	43.6	5	42.0	+33.1	43.7	43
0	22.0	+28.1	42.5	1	50.4	+29.4	42.6	3	18.8	+30.6	42.6	4	47.0	+31.8	42.7	6	15.1	+33.0	42.8	44
0	50.1	+28.2	41.6	2	19.8	+29.3	41.7	3	49.4	+30.5	41.8	5	18.8	+31.8	41.9	6	48.1	+33.0	42.0	45
1	18.3	+28.1	40.8	2	49.1	+29.4	40.8	4	19.9	+30.5	40.9	5	50.6	+31.6	41.0	7	21.0	+32.8	41.2	46
1	46.4	+28.1	39.9	3	18.5	+29.2	39.9	4	50.4	+30.4	40.0	6	22.2	+31.6	40.2	7	53.8	+32.8	40.3	47
2	14.5	+28.1	39.0	3	47.7	+29.2	39.1	5	20.8	+30.4	39.2	6	53.8	+31.5	39.3	8	26.6	+32.6	39.5	48
2	42.6	+28.0	38.1	4	16.9	+29.2	38.2	5	51.2	+30.3	38.3	7	25.3	+31.4	38.4	8	59.2	+32.5	38.6	49
3	10.6	+28.0	37.2	4	46.1	+29.1	37.3	6	21.5	+30.2	37.4	7	56.7	+31.3	37.6	9	31.7	+32.3	37.8	50
3	38.6	+27.9	36.3	5	15.2	+29.0	36.4	6	51.7	+30.1	36.6	8	28.0	+31.1	36.7	10	04.0	+32.3	36.9	51
4	06.5	+27.9	35.5	5	44.2	+28.9	35.6	7	21.8	+30.0	35.7	8	59.1	+31.1	35.9	10	36.3	+32.1	36.1	52
4	34.4	+27.8	34.6	6	13.1	+28.9	34.7	7	51.8	+29.8	34.8	9	30.2	+30.9	35.0	11	08.4	+31.9	35.2	53
5	02.2	+27.7	33.7	6	42.0	+28.7	33.8	8	21.6	+29.8	33.9	10	01.1	+30.8	34.1	11	40.3	+31.8	34.3	54
5	29.9	+27.7	32.8	7	10.7	+28.7	32.9	8	51.4	+29.7	33.1	10	31.9	+30.6	33.2	12	12.1	+31.6	33.5	55
5	57.6	+27.5	31.9	7	39.4	+28.5	32.0	9	21.1	+29.5	32.2	11	02.5	+30.5	32.4	12	43.7	+31.5	32.6	56
6	25.1	+27.5	31.0	8	07.9	+28.5	31.1	9	50.6	+29.3	31.3	11	33.0	+30.3	31.5	13	15.2	+31.3	31.7	57
6	52.6	+27.4	30.1	8	36.4	+28.3	30.2	10	19.9	+29.3	30.4	12	03.3	+30.2	30.6	13	46.5	+31.1	30.8	58
7	20.0	+27.3	29.2	9	04.7	+28.1	29.3	10	49.2	+29.1	29.5	12	33.5	+30.0	29.7	14	17.6	+30.9	30.0	59
7	47.3	+27.1	28.3	9	32.8	+28.1	28.5	11	18.3	+28.9	28.6	13	03.5	+29.8	28.8	14	48.5	+30.7	29.1	60
8	14.4	+27.0	27.4	10	00.9	+27.9	27.6	11	47.2	+28.7	27.7	13	33.3	+29.6	27.9	15	19.2	+30.5	28.2	61
8	41.4	+26.9	26.5	10	28.8	+27.7	26.7	12	15.9	+28.6	26.8	14	02.9	+29.4	27.0	15	49.7	+30.2	27.3	62
9	08.3	+26.8	25.6	10	56.5	+27.6	25.8	12	44.5	+28.4	25.9	14	32.3	+29.2	26.2	16	19.9	+30.1	26.4	63
9	35.1	+26.6	24.7	11	24.1	+27.4	24.8	13	12.9	+28.2	25.0	15	01.5	+29.0	25.2	16	50.0	+29.8	25.5	64
10	01.7	+26.5	23.8	11	51.5	+27.2	23.9	13	41.1	+28.0	24.1	15	30.5	+28.8	24.3	17	19.8	+29.5	24.6	65
10	28.2	+26.4	22.9	12	18.7	+27.1	23.0	14	09.1	+27.8	23.2	15	59.3	+28.5	23.4	17	49.3	+29.3	23.7	66
10	54.6	+26.1	22.0	12	45.8	+26.9	22.1	14	36.9	+27.6	22.3	16	27.8	+28.3	22.5	18	18.6	+29.0	22.8	67
11	20.7	+26.0	21.0	13	12.7	+26.6	21.2	15	04.5	+27.3	21.4	16	56.1	+28.1	21.6	18	47.6	+28.8	21.8	68
11	46.7	+25.8	20.1	13	39.3	+26.5	20.3	15	31.8	+27.1	20.5	17	24.2	+27.8	20.7	19	16.4	+28.4	20.9	69
12	12.5	+25.6	19.2	14	05.8	+26.2	19.4	15	58.9	+26.9	19.5	17	52.0	+27.5	19.7	19	44.8	+28.2	20.0	70
12	38.1	+25.5	18.3	14	32.0	+26.1	18.4	16	25.8	+26.7	18.6	18	19.5	+27.3	18.8	20	13.0	+27.9	19.0	71
13	03.6	+25.2	17.3	14	58.1	+25.8	17.5	16	52.5	+26.4	17.7	18	46.8	+26.9	17.9	20	40.9	+27.6	18.1	72
13	28.8	+25.0	16.4	15	23.9	+25.5	16.6	17	18.9	+26.1	16.7	19	13.7	+26.7	16.9	21	08.5	+27.2	17.1	73
13	53.8	+24.9	15.5	15	49.4	+25.4	15.6	17	45.0	+25.8	15.8	19	40.4	+26.4	16.0	21	35.7	+26.9	16.2	74
14	18.7	+24.5	14.5	16	14.8	+25.1	14.7	18	10.8	+25.6	14.8	20	06.8	+26.0	15.0	22	02.6	+26.6	15.2	75
14	43.2	+24.4	13.6	16	39.9	+24.8	13.7	18	36.4	+25.3	13.9	20	32.8	+25.8	14.1	22	29.2	+26.2	14.2	76
15	07.6	+24.1	12.6	17	04.7	+24.5	12.8	19	01.7	+24.9	12.9	20	58.6	+25.4	13.1	22	55.4	+25.9	13.3	77
15	31.7	+23.9	11.7	17	29.2	+24.3	11.8	19	26.6	+24.7	12.0	21	24.0	+25.1	12.1	23	21.3	+25.5	12.3	78
15	55.6	+23.6	10.7	17	53.5	+24.0	10.9	19	51.3	+24.4	11.0	21	49.1	+24.7	11.1	23	46.8	+25.1	11.3	79
16	19.2	+23.4	9.8	18	17.5	+23.7	9.9	20	15.7	+24.0	10.0	22	13.8	+24.4	10.2	24	11.9	+24.7	10.3	80
16	42.6	+23.1	8.8	18	41.2	+23.4	8.9	20	39.7	+23.7	9.0	22	38.2	+24.0	9.2	24	36.6	+24.4	9.3	81
17	05.7	+22.8	7.9	19	04.6	+23.1	8.0	21	03.4	+23.4	8.1	23	02.2	+23.6	8.2	25	01.0	+23.9	8.3	82
17	28.5	+22.6	6.9	19	27.7	+22.7	7.0	21	26.8	+23.0	7.1	23	25.8	+23.3	7.2	25	24.9	+23.5	7.3	83
17	51.1	+22.2	5.9	19	50.4	+22.5	6.0	21	49.8	+22.6	6.1	23	49.1	+22.9	6.2	25	48.4	+23.1	6.3	84
18	13.3	+22.0	4.9	20	12.9	+22.1	5.0	22	12.4	+22.3	5.1	24	12.0	+22.4	5.2	26	11.5	+22.6	5.2	85
18	35.3	+21.7	4.0	20	35.0	+21.8	4.0	22	34.7	+21.9	4.1	24	34.4	+22.0	4.1	26	34.1	+22.2	4.2	86
18	57.0	+21.3	3.0	20	56.8	+21.4	3.0	22	56.6	+21.5	3.1	24	56.4	+21.7	3.1	26	56.3	+21.7	3.2	87
19	18.3	+21.0	2.0	21	18.2	+21.1	2.0	23	18.1	+21.2	2.0	25	18.1	+21.2	2.1	27	18.0	+21.2	2.1	88
19	39.3	+20.7	1.0	21	39.3	+20.7	1.0	23	39.3	+20.7	1.0	25	39.3	+20.7	1.0	27	39.2	+20.8	1.1	89
20	00.0	+20.4	0.0	22	00.0	+20.3	0.0	24	00.0	+20.3	0.0	26	00.0	+20.3	0.0	28	00.0	+20.3	0.0	90

LATITUDE SAME NAME

L.H.A. 110°, 250°

72°, 288° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	15 31.3	-9.7	58.7	16 33.2	-7.9	59.2	17 34.1	-6.1	59.8	18 34.0	-4.1	60.3	19 32.9	-2.3	60.9
31	15 21.6	-10.1	57.7	16 25.3	-8.3	58.2	17 28.0	-6.4	58.7	18 29.9	-4.6	59.3	19 30.6	-2.6	59.9
32	15 11.5	-10.3	56.7	16 17.0	-8.5	57.2	17 21.6	-6.7	57.7	18 25.3	-4.8	58.2	19 28.0	-3.0	58.8
33	15 01.2	-10.6	55.7	16 08.5	-8.8	56.1	17 14.9	-7.0	56.6	18 20.5	-5.2	57.2	19 25.0	-3.3	57.7
34	14 50.6	-10.8	54.7	15 59.7	-9.1	55.1	17 07.9	-7.3	55.6	18 15.3	-5.6	56.1	19 21.7	-3.8	56.7
35	14 39.8	-11.1	53.6	15 50.6	-9.5	54.1	17 00.6	-7.7	54.6	18 09.7	-5.9	55.1	19 17.9	-4.1	55.6
36	14 28.7	-11.4	52.6	15 41.1	-9.7	53.1	16 52.9	-8.0	53.5	18 03.8	-6.2	54.0	19 13.8	-4.4	54.6
37	14 17.3	-11.7	51.6	15 31.4	-9.9	52.0	16 44.9	-8.3	52.5	17 57.6	-6.6	53.0	19 09.4	-4.8	53.5
38	14 05.6	-11.9	50.6	15 21.5	-10.3	51.0	16 36.6	-8.6	51.5	17 51.0	-6.9	51.9	19 04.6	-5.2	52.5
39	13 53.7	-12.1	49.6	15 11.2	-10.5	50.0	16 28.0	-8.9	50.4	17 44.1	-7.2	50.9	18 59.4	-5.6	51.4
40	13 41.6	-12.4	48.6	15 00.7	-10.8	49.0	16 19.1	-9.2	49.4	17 36.9	-7.6	49.9	18 53.8	-5.8	50.4
41	13 29.2	-12.6	47.6	14 49.9	-11.1	47.9	16 09.9	-9.5	48.4	17 29.3	-7.9	48.8	18 48.0	-6.3	49.3
42	13 16.6	-12.9	46.6	14 38.8	-11.3	46.9	16 00.4	-9.7	47.3	17 21.4	-8.2	47.8	18 41.7	-6.6	48.3
43	13 03.7	-13.1	45.6	14 27.5	-11.6	45.9	15 50.7	-10.1	46.3	17 13.2	-8.5	46.7	18 35.1	-6.9	47.2
44	12 50.6	-13.3	44.6	14 15.9	-11.9	44.9	15 40.6	-10.4	45.3	17 04.7	-8.8	45.7	18 28.2	-7.3	46.2
45	12 37.3	-13.6	43.6	14 04.0	-12.1	43.9	15 30.2	-10.6	44.3	16 55.9	-9.2	44.7	18 20.9	-7.6	45.1
46	12 23.7	-13.7	42.6	13 51.9	-12.4	42.9	15 19.6	-10.9	43.2	16 46.7	-9.4	43.6	18 13.3	-8.0	44.1
47	12 10.0	-14.0	41.6	13 39.5	-12.6	41.9	15 08.7	-11.2	42.2	16 37.3	-9.8	42.6	18 05.3	-8.3	43.0
48	11 56.0	-14.2	40.6	13 26.9	-12.8	40.9	14 57.5	-11.5	41.2	16 27.5	-10.1	41.6	17 57.0	-8.6	42.0
49	11 41.8	-14.4	39.6	13 14.1	-13.1	39.9	14 46.0	-11.7	40.2	16 17.4	-10.3	40.5	17 48.4	-9.0	40.9
50	11 27.4	-14.6	38.6	13 01.0	-13.3	38.9	14 34.3	-12.0	39.2	16 07.1	-10.7	39.5	17 39.4	-9.3	39.9
51	11 12.8	-14.8	37.6	12 47.7	-13.5	37.9	14 22.3	-12.3	38.2	15 56.4	-10.9	38.5	17 30.1	-9.6	38.9
52	10 58.0	-14.9	36.6	12 34.2	-13.7	36.9	14 10.0	-12.5	37.1	15 45.5	-11.2	37.5	17 20.5	-9.9	37.8
53	10 43.1	-15.2	35.6	12 20.5	-14.0	35.9	13 57.5	-12.7	36.1	15 34.3	-11.5	36.5	17 10.6	-10.3	36.8
54	10 27.9	-15.3	34.6	12 06.5	-14.2	34.9	13 44.8	-13.0	35.1	15 22.8	-11.8	35.4	17 00.3	-10.5	35.8
55	10 12.6	-15.6	33.7	11 52.3	-14.4	33.9	13 31.8	-13.2	34.1	15 11.0	-12.1	34.4	16 49.8	-10.9	34.7
56	9 57.0	-15.7	32.7	11 37.9	-14.6	32.9	13 18.6	-13.5	33.1	14 58.9	-12.3	33.4	16 38.9	-11.2	33.7
57	9 41.3	-15.8	31.7	11 23.3	-14.7	31.9	13 05.1	-13.7	32.1	14 46.6	-12.6	32.4	16 27.7	-11.4	32.7
58	9 25.5	-16.0	30.7	11 08.6	-15.0	30.9	12 51.4	-13.9	31.1	14 34.0	-12.9	31.4	16 16.3	-11.8	31.7
59	9 09.5	-16.2	29.7	10 53.6	-15.2	29.9	12 37.5	-14.2	30.1	14 21.1	-13.1	30.4	16 04.5	-12.0	30.6
60	8 53.3	-16.3	28.8	10 38.4	-15.4	28.9	12 23.3	-14.3	29.1	14 08.0	-13.3	29.4	15 52.5	-12.4	29.6
61	8 37.0	-16.5	27.8	10 23.0	-15.5	28.0	12 09.0	-14.6	28.1	13 54.7	-13.6	28.4	15 40.1	-12.6	28.6
62	8 20.5	-16.6	26.8	10 07.5	-15.7	27.0	11 54.4	-14.8	27.1	13 41.1	-13.9	27.4	15 27.5	-12.9	27.6
63	8 03.9	-16.8	25.9	9 51.8	-15.9	26.0	11 39.6	-15.0	26.2	13 27.2	-14.1	26.4	15 14.6	-13.1	26.6
64	7 47.1	-16.9	24.9	9 35.9	-16.0	25.0	11 24.6	-15.2	25.2	13 13.1	-14.3	25.4	15 01.5	-13.5	25.6
65	7 30.2	-17.0	23.9	9 19.9	-16.2	24.0	11 09.4	-15.4	24.2	12 58.8	-14.5	24.4	14 48.0	-13.6	24.6
66	7 13.2	-17.1	22.9	9 03.7	-16.4	23.1	10 54.0	-15.5	23.2	12 44.3	-14.8	23.4	14 34.4	-14.0	23.6
67	6 56.1	-17.3	22.0	8 47.3	-16.5	22.1	10 38.5	-15.8	22.2	12 29.5	-15.0	22.4	14 20.4	-14.2	22.6
68	6 38.8	-17.3	21.0	8 30.8	-16.6	21.1	10 22.7	-15.9	21.2	12 14.5	-15.2	21.4	14 06.2	-14.4	21.6
69	6 21.5	-17.5	20.1	8 14.2	-16.8	20.1	10 06.8	-16.1	20.3	11 59.3	-15.4	20.4	13 51.8	-14.7	20.6
70	6 04.0	-17.6	19.1	7 57.4	-16.9	19.2	9 50.7	-16.3	19.3	11 43.9	-15.6	19.4	13 37.1	-15.0	19.6
71	5 46.4	-17.6	18.1	7 40.5	-17.1	18.2	9 34.4	-16.4	18.3	11 28.3	-15.8	18.4	13 22.1	-15.1	18.6
72	5 28.8	-17.8	17.2	7 23.4	-17.2	17.2	9 18.0	-16.6	17.3	11 12.5	-16.0	17.4	13 07.0	-15.4	17.6
73	5 11.0	-17.8	16.2	7 06.2	-17.3	16.3	9 01.4	-16.7	16.4	10 56.5	-16.2	16.5	12 51.6	-15.6	16.6
74	4 53.2	-18.0	15.3	6 48.9	-17.4	15.3	8 44.7	-16.9	15.4	10 40.3	-16.3	15.5	12 36.0	-15.9	15.6
75	4 35.2	-18.0	14.3	6 31.5	-17.5	14.3	8 27.8	-17.1	14.4	10 24.0	-16.6	14.5	12 20.1	-16.0	14.6
76	4 17.2	-18.0	13.3	6 14.0	-17.6	13.4	8 10.7	-17.2	13.4	10 07.4	-16.7	13.5	12 04.1	-16.3	13.6
77	3 59.2	-18.2	12.4	5 56.4	-17.8	12.4	7 53.5	-17.3	12.5	9 50.7	-16.9	12.5	11 47.8	-16.4	12.6
78	3 41.0	-18.2	11.4	5 38.6	-17.8	11.5	7 36.2	-17.4	11.5	9 33.8	-17.0	11.6	11 31.4	-16.7	11.6
79	3 22.8	-18.2	10.5	5 20.8	-17.9	10.5	7 18.8	-17.6	10.5	9 16.8	-17.2	10.6	11 14.7	-16.8	10.7
80	3 04.6	-18.4	9.5	5 02.9	-18.0	9.5	7 01.2	-17.6	9.6	8 59.6	-17.4	9.6	10 57.9	-17.1	9.7
81	2 46.2	-18.3	8.6	4 44.9	-18.1	8.6	6 43.6	-17.8	8.6	8 42.2	-17.5	8.7	10 40.8	-17.2	8.7
82	2 27.9	-18.4	7.6	4 26.8	-18.1	7.6	6 25.8	-17.9	7.7	8 24.7	-17.7	7.7	10 23.6	-17.4	7.7
83	2 09.5	-18.4	6.7	4 08.7	-18.2	6.7	6 07.9	-18.0	6.7	8 07.0	-17.7	6.7	10 06.2	-17.5	6.8
84	1 51.1	-18.5	5.7	3 50.5	-18.3	5.7	5 49.9	-18.1	5.7	7 49.3	-17.9	5.8	9 48.7	-17.8	5.8
85	1 32.6	-18.5	4.8	3 32.2	-18.4	4.8	5 31.8	-18.2	4.8	7 31.4	-18.1	4.8	9 30.9	-17.9	4.8
86	1 14.1	-18.5	3.8	3 13.8	-18.3	3.8	5 13.6	-18.3	3.8	7 13.3	-18.1	3.8	9 13.0	-18.0	3.9
87	0 55.6	-18.5	2.9	2 55.5	-18.5	2.9	4 55.3	-18.4	2.9	6 55.2	-18.3	2.9	8 55.0	-18.2	2.9
88	0 37.1	-18.6	1.9	2 37.0	-18.5	1.9	4 36.9	-18.4	1.9	6 36.9	-18.4	1.9	8 36.8	-18.3	1.9
89	0 18.5	-18.5	1.0	2 18.5	-18.5	1.0	4 18.5	-18.5	1.0	6 18.5	-18.5	1.0	8 18.5	-18.5	1.0
90	0 00.0	-18.5	0.0	2 00.0	-18.6	0.0	4 00.0	-18.6	0.0	6 00.0	-18.6	0.0	8 00.0	-18.6	0.0

LATITUDE CONTRARY NAME

L.H.A. 72°, 288°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
15 31.3	-9.7	121.3	14 28.7	-11.6	121.7	13 25.2	-13.4	122.1	12 21.0	-15.1	122.5	11 16.2	-16.9	122.9	30
15 21.6	-10.1	122.3	14 17.1	-11.8	122.7	13 11.8	-13.5	123.1	12 05.9	-15.3	123.5	10 59.3	-17.0	123.9	31
15 11.5	-10.3	123.3	14 05.3	-12.1	123.7	12 58.3	-13.9	124.1	11 50.6	-15.5	124.5	10 42.3	-17.2	124.8	32
15 01.2	-10.6	124.3	13 53.2	-12.3	124.8	12 44.4	-14.0	125.1	11 35.1	-15.7	125.5	10 25.1	-17.3	125.8	33
14 50.6	-10.8	125.3	13 40.9	-12.6	125.8	12 30.4	-14.2	126.1	11 19.4	-16.0	126.5	10 07.8	-17.6	126.8	34
14 39.8	-11.1	126.4	13 28.3	-12.8	126.8	12 16.2	-14.5	127.1	11 03.4	-16.1	127.5	9 50.2	-17.7	127.8	35
14 28.7	-11.4	127.4	13 15.5	-13.1	127.8	12 01.7	-14.7	128.1	10 47.3	-16.3	128.4	9 32.5	-17.9	128.7	36
14 17.3	-11.7	128.4	13 02.4	-13.3	128.8	11 47.0	-14.9	129.1	10 31.0	-16.4	129.4	9 14.6	-18.0	129.7	37
14 05.6	-11.9	129.4	12 49.1	-13.5	129.8	11 32.1	-15.1	130.1	10 14.6	-16.7	130.4	8 56.6	-18.2	130.7	38
13 53.7	-12.1	130.4	12 35.6	-13.7	130.8	11 17.0	-15.3	131.1	9 57.9	-16.8	131.4	8 38.4	-18.3	131.6	39
13 41.6	-12.4	131.4	12 21.9	-13.9	131.8	11 01.7	-15.4	132.1	9 41.1	-17.0	132.3	8 20.1	-18.5	132.6	40
13 29.2	-12.6	132.4	12 08.0	-14.2	132.8	10 46.3	-15.7	133.1	9 24.1	-17.1	133.3	8 01.6	-18.6	133.5	41
13 16.6	-12.9	133.4	11 53.8	-14.3	133.8	10 30.6	-15.8	134.0	9 07.0	-17.3	134.3	7 43.0	-18.7	134.5	42
13 03.7	-13.1	134.4	11 39.5	-14.6	134.7	10 14.8	-16.1	135.0	8 49.7	-17.4	135.3	7 24.3	-18.8	135.5	43
12 50.6	-13.3	135.4	11 24.9	-14.8	135.7	9 58.7	-16.1	136.0	8 32.3	-17.6	136.2	7 05.5	-19.0	136.4	44
12 37.3	-13.6	136.4	11 10.1	-14.9	136.7	9 42.6	-16.4	137.0	8 14.7	-17.8	137.2	6 46.5	-19.1	137.4	45
12 23.7	-13.7	137.4	10 55.2	-15.2	137.7	9 26.2	-16.5	138.0	7 56.9	-17.8	138.2	6 27.4	-19.2	138.3	46
12 10.0	-14.0	138.4	10 40.0	-15.3	138.7	9 09.7	-16.7	138.9	7 39.1	-18.0	139.1	6 08.2	-19.2	139.3	47
11 56.0	-14.2	139.4	10 24.7	-15.5	139.7	8 53.0	-16.8	139.9	7 21.1	-18.1	140.1	5 49.0	-19.4	140.2	48
11 41.8	-14.4	140.4	10 09.2	-15.7	140.7	8 36.2	-17.0	140.9	7 03.0	-18.2	141.0	5 29.6	-19.5	141.2	49
11 27.4	-14.6	141.4	9 53.5	-15.9	141.6	8 19.2	-17.1	141.8	6 44.8	-18.4	142.0	5 10.1	-19.5	142.1	50
11 12.8	-14.8	142.4	9 37.6	-16.0	142.6	8 02.1	-17.2	142.8	6 26.4	-18.4	143.0	4 50.6	-19.7	143.1	51
10 58.0	-14.9	143.4	9 21.6	-16.2	143.6	7 44.9	-17.4	143.8	6 08.0	-18.6	143.9	4 30.9	-19.7	144.0	52
10 43.1	-15.2	144.4	9 05.4	-16.3	144.6	7 27.5	-17.5	144.7	5 49.4	-18.6	144.9	4 11.2	-19.8	145.0	53
10 27.9	-15.3	145.4	8 49.1	-16.5	145.5	7 10.0	-17.6	145.7	5 30.8	-18.7	145.8	3 51.4	-19.8	145.9	54
10 12.6	-15.6	146.3	8 32.6	-16.7	146.5	6 52.4	-17.7	146.7	5 12.1	-18.9	146.8	3 31.6	-19.9	146.9	55
9 57.0	-15.7	147.3	8 15.9	-16.7	147.5	6 34.7	-17.9	147.6	4 53.2	-18.9	147.7	3 11.7	-19.9	147.8	56
9 41.3	-15.8	148.3	7 59.2	-17.0	148.5	6 16.8	-17.9	148.6	4 34.3	-18.9	148.7	2 51.8	-20.0	148.8	57
9 25.5	-16.0	149.3	7 42.2	-17.0	149.4	5 58.9	-18.1	149.6	4 15.4	-19.1	149.6	2 31.8	-20.1	149.7	58
9 09.5	-16.2	150.3	7 25.2	-17.2	150.4	5 40.8	-18.1	150.5	3 56.3	-19.1	150.6	2 11.7	-20.0	150.6	59
8 53.3	-16.3	151.2	7 08.0	-17.2	151.4	5 22.7	-18.3	151.5	3 37.2	-19.2	151.5	1 51.7	-20.1	151.6	60
8 37.0	-16.5	152.2	6 50.8	-17.4	152.3	5 04.4	-18.3	152.4	3 18.0	-19.2	152.5	1 31.6	-20.2	152.5	61
8 20.5	-16.6	153.2	6 33.4	-17.6	153.3	4 46.1	-18.4	153.4	2 58.8	-19.3	153.4	1 11.4	-20.1	153.5	62
8 03.9	-16.8	154.1	6 15.8	-17.6	154.3	4 27.7	-18.5	154.3	2 39.5	-19.3	154.4	0 51.3	-20.2	154.4	63
7 47.1	-16.9	155.1	5 58.2	-17.7	155.2	4 09.2	-18.5	155.3	2 20.2	-19.4	155.3	0 31.1	-20.1	155.4	64
7 30.2	-17.0	156.1	5 40.5	-17.8	156.2	3 50.7	-18.6	156.2	2 00.8	-19.3	156.3	0 11.0	-20.2	156.3	65
7 13.2	-17.1	157.1	5 22.7	-17.9	157.1	3 32.1	-18.7	157.2	1 41.5	-19.5	157.2	0 09.2	+20.2	22.8	66
6 56.1	-17.3	158.0	5 04.8	-18.0	158.1	3 13.4	-18.7	158.1	1 22.0	-19.4	158.2	0 29.4	+20.1	21.8	67
6 38.8	-17.3	159.0	4 46.8	-18.1	159.1	2 54.7	-18.7	159.1	1 02.6	-19.5	159.1	0 49.5	+20.2	20.9	68
6 21.5	-17.5	159.9	4 28.7	-18.1	160.0	2 36.0	-18.9	160.1	0 43.1	-19.4	160.1	1 09.7	+20.1	19.9	69
6 04.0	-17.6	160.9	4 10.6	-18.2	161.0	2 17.1	-18.8	161.0	0 23.7	-19.5	161.0	1 29.8	+20.1	19.0	70
5 46.4	-17.6	161.9	3 52.4	-18.3	161.9	1 58.3	-18.9	162.0	0 04.2	-19.5	162.0	1 49.9	+20.1	18.0	71
5 28.8	-17.8	162.8	3 34.1	-18.3	162.9	1 39.4	-18.9	162.9	0 15.3	+19.5	17.1	2 10.0	+20.0	17.1	72
5 11.0	-17.8	163.8	3 15.8	-18.4	163.8	1 20.5	-18.9	163.9	0 34.8	+19.4	16.1	2 30.0	+20.0	16.2	73
4 53.2	-18.0	164.7	2 57.4	-18.4	164.8	1 01.6	-19.0	164.8	0 54.2	+19.5	15.2	2 50.0	+20.0	15.2	74
4 35.2	-18.0	165.7	2 39.0	-18.5	165.7	0 42.6	-18.9	165.7	1 13.7	+19.4	14.3	3 10.0	+19.9	14.3	75
4 17.2	-18.0	166.7	2 20.5	-18.6	166.7	0 23.7	-19.0	166.7	1 33.1	+19.4	13.3	3 29.9	+19.8	13.3	76
3 59.2	-18.2	167.6	2 01.9	-18.5	167.6	0 04.7	-18.9	167.6	1 52.5	+19.4	12.4	3 49.7	+19.8	12.4	77
3 41.0	-18.2	168.6	1 43.4	-18.6	168.6	0 14.2	+19.0	11.4	2 11.9	+19.3	11.4	4 09.5	+19.7	11.4	78
3 22.8	-18.2	169.5	1 24.8	-18.6	169.5	0 33.2	+18.9	10.5	2 31.2	+19.3	10.5	4 29.2	+19.6	10.5	79
3 04.6	-18.4	170.5	1 06.2	-18.6	170.5	0 52.1	+19.0	9.5	2 50.5	+19.2	9.5	4 48.8	+19.6	9.5	80
2 46.2	-18.3	171.4	0 47.6	-18.7	171.4	1 11.1	+18.9	8.6	3 09.7	+19.2	8.6	5 08.4	+19.5	8.6	81
2 27.9	-18.4	172.4	0 28.9	-18.6	172.4	1 30.0	+18.9	7.6	3 28.9	+19.2	7.6	5 27.9	+19.4	7.6	82
2 09.5	-18.4	173.3	0 10.3	-18.6	173.3	1 48.9	+18.8	6.7	3 48.1	+19.1	6.7	5 47.3	+19.3	6.7	83
1 51.1	-18.5	174.3	0 08.3	+18.7	5.7	2 07.7	+18.9	5.7	4 07.2	+19.0	5.7	6 06.6	+19.1	5.7	84
1 32.6	-18.5	175.2	0 27.0	+18.6	4.8	2 26.6	+18.8	4.8	4 26.2	+18.9	4.8	6 25.7	+19.1	4.8	85
1 14.1	-18.5	176.2	0 45.6	+18.7	3.8	2 45.4	+18.7	3.8	4 45.1	+18.9	3.8	6 44.8	+19.0	3.8	86
0 55.6	-18.5	177.1	1 04.3	+18.6	2.9	3 04.1	+18.7	2.9	5 04.0	+18.7	2.9	7 03.8	+18.9	2.9	87
0 37.1	-18.6	178.1	1 22.9	+18.5	1.9	3 22.8	+18.6	1.9	5 22.7	+18.7	1.9	7 22.7	+18.7	1.9	88
0 18.5	+18.5	179.0	1 41.4	+18.6	1.0	3 41.4	+18.6	1.0	5 41.4	+18.6	1.0	7 41.4	+18.6	1.0	89
0 00.0	+18.5	0.0	2 00.0	+18.5	0.0	4 00.0	+18.5	0.0	6 00.0	+18.5	0.0	8 00.0	+18.5	0.0	90

LATITUDE SAME NAME

L.H.A. 108°, 252°

72°, 288° L.H.A.

LATITUDE SAME NAME

Dec. °	10°			12°			14°			16°			18°		
	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °
30	20 30.6	-0.3	61.6	21 27.1	+1.7	62.2	22 22.4	+3.6	63.0	23 16.2	+5.7	63.7	24 08.6	+7.7	64.5
31	20 30.3	-0.7	60.5	21 28.8	+1.2	61.2	22 26.0	+3.2	61.9	23 21.9	+5.2	62.6	24 16.3	+7.3	63.4
32	20 29.6	-1.1	59.4	21 30.0	+0.9	60.1	22 29.2	+2.8	60.8	23 27.1	+4.8	61.5	24 23.6	+6.7	62.3
33	20 28.5	-1.5	58.4	21 30.9	+0.4	59.0	22 32.0	+2.4	59.7	23 31.9	+4.3	60.5	24 30.3	+6.3	61.2
34	20 27.0	-1.8	57.3	21 31.3	0.0	57.9	22 34.4	+1.9	58.6	23 36.2	+3.8	59.4	24 36.6	+5.9	60.1
35	20 25.2	-2.3	56.2	21 31.3	-0.4	56.9	22 36.3	+1.5	57.6	23 40.0	+3.4	58.3	24 42.5	+5.3	59.0
36	20 22.9	-2.7	55.2	21 30.9	-0.8	55.8	22 37.8	+1.0	56.5	23 43.4	+3.0	57.2	24 47.8	+4.9	57.9
37	20 20.2	-3.0	54.1	21 30.1	-1.2	54.7	22 38.8	+0.6	55.4	23 46.4	+2.5	56.1	24 52.7	+4.3	56.8
38	20 17.2	-3.4	53.0	21 28.9	-1.7	53.6	22 39.4	+0.2	54.3	23 48.9	+2.0	55.0	24 57.0	+3.9	55.7
39	20 13.8	-3.8	52.0	21 27.2	-2.0	52.6	22 39.6	-0.3	53.2	23 50.9	+1.5	53.9	25 00.9	+3.5	54.6
40	20 10.0	-4.2	50.9	21 25.2	-2.5	51.5	22 39.3	-0.7	52.1	23 52.4	+1.1	52.8	25 04.4	+2.9	53.5
41	20 05.8	-4.6	49.8	21 22.7	-2.9	50.4	22 38.6	-1.1	51.1	23 53.5	+0.7	51.7	25 07.3	+2.4	52.4
42	20 01.2	-4.9	48.8	21 19.8	-3.3	49.4	22 37.5	-1.6	50.0	23 54.2	+0.1	50.6	25 09.7	+2.0	51.3
43	19 56.3	-5.4	47.7	21 16.5	-3.6	48.3	22 35.9	-2.0	48.9	23 54.3	-0.3	49.5	25 11.7	+1.4	50.2
44	19 50.9	-5.7	46.7	21 12.9	-4.1	47.2	22 33.9	-2.4	47.8	23 54.0	-0.7	48.4	25 13.1	+1.0	49.1
45	19 45.2	-6.1	45.6	21 08.8	-4.5	46.1	22 31.5	-2.9	46.7	23 53.3	-1.3	47.3	25 14.1	+0.4	48.0
46	19 39.1	-6.4	44.5	21 04.3	-4.9	45.1	22 28.6	-3.3	45.6	23 52.0	-1.6	46.3	25 14.5	0.0	46.9
47	19 32.7	-6.8	43.5	20 59.4	-5.3	44.0	22 25.3	-3.7	44.6	23 50.4	-2.2	45.2	25 14.5	-0.5	45.8
48	19 25.9	-7.2	42.4	20 54.1	-5.7	42.9	22 21.6	-4.2	43.5	23 48.2	-2.6	44.1	25 14.0	-1.1	44.7
49	19 18.7	-7.5	41.4	20 48.4	-6.1	41.9	22 17.4	-4.6	42.4	23 45.6	-3.1	43.0	25 12.9	-1.5	43.6
50	19 11.2	-7.9	40.3	20 42.3	-6.5	40.8	22 12.8	-5.0	41.3	23 42.5	-3.5	41.9	25 11.4	-2.0	42.5
51	19 03.3	-8.3	39.3	20 35.8	-6.8	39.7	22 07.8	-5.5	40.2	23 39.0	-4.0	40.8	25 09.4	-2.5	41.4
52	18 55.0	-8.6	38.2	20 29.0	-7.3	38.7	22 02.3	-5.8	39.2	23 35.0	-4.4	39.7	25 06.9	-2.9	40.3
53	18 46.4	-8.9	37.2	20 21.7	-7.6	37.6	21 56.5	-6.3	38.1	23 30.6	-4.9	38.6	25 04.0	-3.5	39.2
54	18 37.5	-9.3	36.2	20 14.1	-8.0	36.6	21 50.2	-6.7	37.0	23 25.7	-5.4	37.5	25 00.5	-4.0	38.1
55	18 28.2	-9.7	35.1	20 06.1	-8.4	35.5	21 43.5	-7.1	36.0	23 20.3	-5.8	36.4	24 56.5	-4.4	37.0
56	18 18.5	-10.0	34.1	19 57.7	-8.8	34.5	21 36.4	-7.5	34.9	23 14.5	-6.2	35.4	24 52.1	-4.9	35.9
57	18 08.5	-10.3	33.0	19 48.9	-9.1	33.4	21 28.9	-7.9	33.8	23 08.3	-6.7	34.3	24 47.2	-5.5	34.8
58	17 58.2	-10.6	32.0	19 39.8	-9.5	32.4	21 21.0	-8.4	32.8	23 01.6	-7.1	33.2	24 41.7	-5.8	33.7
59	17 47.6	-11.0	31.0	19 30.3	-9.8	31.3	21 12.6	-8.7	31.7	22 54.5	-7.6	32.1	24 35.9	-6.4	32.6
60	17 36.6	-11.3	29.9	19 20.5	-10.3	30.3	21 03.9	-9.1	30.6	22 46.9	-7.9	31.0	24 29.5	-6.8	31.5
61	17 25.3	-11.6	28.9	19 10.2	-10.5	29.2	20 54.8	-9.5	29.6	22 39.0	-8.5	30.0	24 22.7	-7.3	30.4
62	17 13.7	-11.9	27.9	18 59.7	-10.9	28.2	20 45.3	-9.9	28.5	22 30.5	-8.8	28.9	24 15.4	-7.8	29.3
63	17 01.8	-12.2	26.8	18 48.8	-11.3	27.1	20 35.4	-10.3	27.5	22 21.7	-9.3	27.8	24 07.6	-8.2	28.2
64	16 49.6	-12.5	25.8	18 37.5	-11.6	26.1	20 25.1	-10.6	26.4	22 12.4	-9.6	26.8	23 59.4	-8.7	27.2
65	16 37.1	-12.8	24.8	18 25.9	-11.9	25.1	20 14.5	-11.1	25.4	22 02.8	-10.1	25.7	23 50.7	-9.1	26.1
66	16 24.3	-13.2	23.8	18 14.0	-12.3	24.0	20 03.4	-11.3	24.3	21 52.7	-10.5	24.6	23 41.6	-9.6	25.0
67	16 11.1	-13.4	22.8	18 01.7	-12.6	23.0	19 52.1	-11.8	23.3	21 42.2	-10.9	23.6	23 32.0	-10.0	23.9
68	15 57.7	-13.7	21.8	17 49.1	-12.9	22.0	19 40.3	-12.1	22.2	21 31.3	-11.3	22.5	23 22.0	-10.5	22.8
69	15 44.0	-13.9	20.7	17 36.2	-13.2	21.0	19 28.2	-12.5	21.2	21 20.0	-11.7	21.5	23 11.5	-10.9	21.8
70	15 30.1	-14.3	19.7	17 23.0	-13.6	19.9	19 15.7	-12.8	20.2	21 08.3	-12.1	20.4	23 00.6	-11.3	20.7
71	15 15.8	-14.5	18.7	17 09.4	-13.8	18.9	19 02.9	-13.2	19.1	20 56.2	-12.5	19.4	22 49.3	-11.8	19.6
72	15 01.3	-14.8	17.7	16 55.6	-14.2	17.9	18 49.7	-13.5	18.1	20 43.7	-12.8	18.3	22 37.5	-12.1	18.6
73	14 46.5	-15.0	16.7	16 41.4	-14.4	16.9	18 36.2	-13.8	17.1	20 30.9	-13.3	17.3	22 25.4	-12.6	17.5
74	14 31.5	-15.3	15.7	16 27.0	-14.8	15.9	18 22.4	-14.2	16.0	20 17.6	-13.6	16.2	22 12.8	-13.0	16.4
75	14 16.2	-15.5	14.7	16 12.2	-15.0	14.9	18 08.2	-14.5	15.0	20 04.0	-13.9	15.2	21 59.8	-13.4	15.4
76	14 00.7	-15.8	13.7	15 57.2	-15.3	13.8	17 53.7	-14.8	14.0	19 50.1	-14.3	14.2	21 46.4	-13.8	14.3
77	13 44.9	-16.0	12.7	15 41.9	-15.6	12.8	17 38.9	-15.1	13.0	19 35.8	-14.7	13.1	21 32.6	-14.2	13.3
78	13 28.9	-16.3	11.7	15 26.3	-15.8	11.8	17 23.8	-15.5	12.0	19 21.1	-15.0	12.1	21 18.4	-14.5	12.3
79	13 12.6	-16.5	10.7	15 10.5	-16.1	10.8	17 08.3	-15.7	10.9	19 06.1	-15.3	11.1	21 03.9	-15.0	11.2
80	12 56.1	-16.7	9.8	14 54.4	-16.4	9.8	16 52.6	-16.0	9.9	18 50.8	-15.7	10.0	20 48.9	-15.3	10.2
81	12 39.4	-16.9	8.8	14 38.0	-16.6	8.8	16 36.6	-16.3	8.9	18 35.1	-16.0	9.0	20 33.6	-15.7	9.1
82	12 22.5	-17.1	7.8	14 21.4	-16.9	7.9	16 20.3	-16.6	7.9	18 19.1	-16.3	8.0	20 17.9	-16.0	8.1
83	12 05.4	-17.4	6.8	14 04.5	-17.1	6.9	16 03.7	-16.9	6.9	18 02.8	-16.7	7.0	20 01.9	-16.4	7.1
84	11 48.0	-17.5	5.8	13 47.4	-17.3	5.9	15 46.8	-17.2	5.9	17 46.1	-16.9	6.0	19 45.5	-16.8	6.1
85	11 30.5	-17.7	4.9	13 30.1	-17.6	4.9	15 29.6	-17.4	4.9	17 29.2	-17.3	5.0	19 28.7	-17.1	5.0
86	11 12.8	-18.0	3.9	13 12.5	-17.8	3.9	15 12.2	-17.7	3.9	17 11.9	-17.5	4.0	19 11.6	-17.4	4.0
87	10 54.8	-18.1	2.9	12 54.7	-18.0	2.9	14 54.5	-17.9	3.0	16 54.4	-17.9	3.0	18 54.2	-17.7	3.0
88	10 36.7	-18.2	1.9	12 36.7	-18.3	1.9	14 36.6	-18.2	2.0	16 36.5	-18.1	2.0	18 36.5	-18.1	2.0
89	10 18.5	-18.5	1.0	12 18.4	-18.4	1.0	14 18.4	-18.4	1.0	16 18.4	-18.4	1.0	18 18.4	-18.4	1.0
90	10 00.0	-18.6	0.0	12 00.0	-18.6	0.0	14 00.0	-18.7	0.0	16 00.0	-18.7	0.0	18 00.0	-18.7	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 72°, 288°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
10	10.7	-18.5	123.2	9	04.8	-20.2	123.5	7	58.4	-21.9	123.7	6	51.6	-23.5	123.9	5	44.4	-25.1	124.1	30
9	52.2	-18.7	124.2	8	44.6	-20.3	124.4	7	36.5	-21.9	124.7	6	28.1	-23.6	124.9	5	19.3	-25.1	125.0	31
9	33.5	-18.8	125.1	8	24.3	-20.5	125.4	7	14.6	-22.1	125.6	6	04.5	-23.6	125.8	4	54.2	-25.2	126.0	32
9	14.7	-19.0	126.1	8	03.8	-20.6	126.3	6	52.5	-22.2	126.5	5	40.9	-23.7	126.7	4	29.0	-25.2	126.9	33
8	55.7	-19.2	127.0	7	43.2	-20.8	127.3	6	30.3	-22.3	127.5	5	17.2	-23.9	127.6	4	03.8	-25.4	127.8	34
8	36.5	-19.3	128.0	7	22.4	-20.8	128.2	6	08.0	-22.4	128.4	4	53.3	-23.8	128.6	3	38.4	-25.3	128.7	35
8	17.2	-19.4	129.0	7	01.6	-21.0	129.2	5	45.6	-22.4	129.3	4	29.5	-24.0	129.5	3	13.1	-25.5	129.6	36
7	57.8	-19.6	129.9	6	40.6	-21.0	130.1	5	23.2	-22.6	130.3	4	05.5	-24.0	130.4	2	47.6	-25.4	130.5	37
7	38.2	-19.7	130.9	6	19.6	-21.2	131.1	5	00.6	-22.6	131.2	3	41.5	-24.1	131.3	2	22.2	-25.5	131.4	38
7	18.5	-19.8	131.8	5	58.4	-21.3	132.0	4	38.0	-22.7	132.1	3	17.4	-24.2	132.2	1	56.7	-25.6	132.3	39
6	58.7	-19.9	132.8	5	37.1	-21.3	132.9	4	15.3	-22.8	133.1	2	53.2	-24.3	133.2	1	31.1	-25.5	133.2	40
6	38.8	-20.0	133.7	5	15.8	-21.5	133.9	3	52.5	-22.9	134.0	2	29.1	-24.2	134.1	1	05.6	-25.6	134.1	41
6	18.8	-20.1	134.7	4	54.3	-21.5	134.8	3	29.6	-22.8	134.9	2	04.9	-24.3	135.0	0	40.0	-25.6	135.0	42
5	58.7	-20.3	135.6	4	32.8	-21.6	135.8	3	06.8	-23.0	135.8	1	40.6	-24.3	135.9	0	14.4	-25.6	135.9	43
5	38.4	-20.3	136.6	4	11.2	-21.7	136.7	2	43.8	-23.0	136.8	1	16.3	-24.3	136.8	0	11.2	+25.6	43.2	44
5	18.1	-20.4	137.5	3	49.5	-21.7	137.6	2	20.8	-23.0	137.7	0	52.0	-24.3	137.7	0	52.0	+25.6	42.3	45
4	57.7	-20.5	138.5	3	27.8	-21.8	138.6	1	57.8	-23.0	138.6	0	27.7	-24.3	138.6	1	02.3	+25.6	41.4	46
4	37.2	-20.6	139.4	3	06.0	-21.8	139.5	1	34.8	-23.1	139.5	0	03.4	-24.3	139.6	1	27.9	+25.5	40.5	47
4	16.6	-20.6	140.3	2	44.2	-21.9	140.4	1	11.7	-23.1	140.5	0	20.9	+24.3	39.5	1	53.4	+25.5	39.5	48
3	56.0	-20.7	141.3	2	22.3	-21.9	141.4	0	48.6	-23.1	141.4	0	45.2	+24.3	38.6	2	18.9	+25.5	38.6	49
3	35.3	-20.7	142.2	2	00.4	-21.9	142.3	0	25.5	-23.1	142.3	1	09.5	+24.3	37.7	2	44.4	+25.5	37.7	50
3	14.6	-20.8	143.2	1	38.5	-22.0	143.2	0	02.4	-23.2	143.2	1	33.8	+24.2	36.8	3	09.9	+25.3	36.8	51
2	53.8	-20.9	144.1	1	16.5	-22.0	144.1	0	20.8	+23.1	35.8	1	58.0	+24.2	35.9	3	35.2	+25.0	35.9	52
2	32.9	-20.9	145.0	0	54.5	-22.0	145.1	0	43.9	+23.1	34.9	2	22.2	+24.2	34.9	4	00.6	+25.2	35.0	53
2	12.0	-20.9	146.0	0	32.5	-22.0	146.0	1	07.0	+23.0	34.0	2	46.4	+24.2	34.0	4	25.8	+25.3	34.1	54
1	51.1	-21.0	146.9	0	10.5	-22.0	146.9	1	30.0	+23.1	33.1	3	10.6	+24.1	33.1	4	51.1	+25.1	33.2	55
1	30.1	-21.0	147.9	0	11.5	+22.0	32.1	1	53.1	+23.0	32.1	3	34.7	+24.0	32.2	5	16.2	+25.0	32.3	56
1	09.1	-21.0	148.8	0	33.5	+22.0	31.2	2	16.1	+23.0	31.2	3	58.7	+24.0	31.3	5	41.2	+25.0	31.4	57
0	48.1	-21.0	149.7	0	55.5	+22.0	30.3	2	39.1	+23.0	30.3	4	22.7	+23.9	30.4	6	06.2	+24.9	30.5	58
0	27.1	-21.0	150.7	1	17.5	+21.9	29.3	3	02.1	+22.9	29.4	4	46.6	+23.9	29.4	6	31.1	+24.7	29.5	59
0	06.1	-21.0	151.6	1	39.4	+22.0	28.4	3	25.0	+22.8	28.4	5	10.5	+23.7	28.5	6	55.8	+24.7	28.6	60
0	14.9	+21.0	27.5	2	01.4	+21.9	27.5	3	47.8	+22.8	27.5	5	34.2	+23.7	27.6	7	20.5	+24.6	27.7	61
0	35.9	+21.0	26.5	2	23.3	+21.9	26.5	4	10.6	+22.7	26.6	5	57.9	+23.6	26.7	7	45.1	+24.4	26.8	62
0	56.9	+21.0	25.6	2	45.2	+21.8	25.6	4	33.3	+22.7	25.7	6	21.5	+23.5	25.7	8	09.5	+24.3	25.9	63
1	17.9	+21.0	24.6	3	07.0	+21.8	24.7	4	56.0	+22.6	24.7	6	45.0	+23.3	24.8	8	33.8	+24.2	24.9	64
1	38.9	+21.0	23.7	3	28.8	+21.7	23.7	5	18.6	+22.5	23.8	7	08.3	+23.3	23.9	8	58.0	+24.0	24.0	65
1	59.9	+20.9	22.8	3	50.5	+21.6	22.8	5	41.1	+22.4	22.9	7	31.6	+23.1	23.0	9	22.0	+23.9	23.1	66
2	20.8	+20.8	21.8	4	12.1	+21.6	21.9	6	03.5	+22.3	21.9	7	54.7	+23.1	22.0	9	45.9	+23.8	22.2	67
2	41.6	+20.9	20.9	4	33.7	+21.6	20.9	6	25.8	+22.2	21.0	8	17.8	+22.9	21.1	10	09.7	+23.6	21.2	68
3	02.5	+20.8	20.0	4	55.3	+21.4	20.0	6	48.0	+22.1	20.1	8	40.7	+22.7	20.2	10	33.3	+23.4	20.3	69
3	23.3	+20.7	19.0	5	16.7	+21.4	19.1	7	10.1	+22.0	19.1	9	03.4	+22.6	19.2	10	56.7	+23.2	19.3	70
3	44.0	+20.7	18.1	5	38.1	+21.2	18.1	7	32.1	+21.8	18.2	9	26.0	+22.5	18.3	11	19.9	+23.1	18.4	71
4	04.7	+20.6	17.1	5	59.3	+21.2	17.2	7	53.9	+21.8	17.3	9	48.5	+22.3	17.4	11	43.0	+22.9	17.5	72
4	25.3	+20.5	16.2	6	20.5	+21.1	16.2	8	15.7	+21.6	16.3	10	10.8	+22.2	16.4	12	05.9	+22.7	16.5	73
4	45.8	+20.5	15.3	6	41.6	+20.9	15.3	8	37.3	+21.4	15.4	10	33.0	+21.9	15.5	12	28.6	+22.5	15.6	74
5	06.3	+20.3	14.3	7	02.5	+20.9	14.4	8	58.7	+21.4	14.4	10	54.9	+21.8	14.5	12	51.1	+22.3	14.6	75
5	26.6	+20.3	13.4	7	23.4	+20.7	13.4	9	20.1	+21.1	13.5	11	16.7	+21.7	13.6	13	13.4	+22.0	13.7	76
5	46.9	+20.2	12.4	7	44.1	+20.6	12.5	9	41.2	+21.1	12.5	11	38.4	+21.4	12.6	13	35.4	+21.9	12.7	77
6	07.1	+20.1	11.5	8	04.7	+20.5	11.5	10	02.3	+20.8	11.6	11	59.8	+21.2	11.7	13	57.3	+21.6	11.8	78
6	27.2	+20.0	10.5	8	25.2	+20.3	10.6	10	23.1	+20.7	10.6	12	21.0	+21.1	10.7	14	18.9	+21.4	10.8	79
6	47.2	+19.8	9.6	8	45.5	+20.2	9.6	10	43.8	+20.5	9.7	12	42.1	+20.8	9.7	14	40.3	+21.2	9.8	80
7	07.0	+19.8	8.6	9	05.7	+20.0	8.7	11	04.3	+20.3	8.7	13	02.9	+20.6	8.8	15	01.5	+20.9	8.9	81
7	26.8	+19.6	7.7	9	25.7	+19.9	7.7	11	24.6	+20.2	7.8	13	23.5	+20.4	7.8	15	22.4	+20.7	7.9	82
7	46.4	+19.5	6.7	9	45.6	+19.7	6.8	11	44.8	+19.9	6.8	13	43.9	+20.2	6.9	15	43.1	+20.4	6.9	83
8	05.9	+19.4	5.8	10	05.3	+19.6	5.8	12	04.7	+19.8	5.8	14	04.1	+19.9	5.9	16	03.5	+20.1	5.9	84
8	25.3	+19.3	4.8	10	24.9	+19.4	4.8	12	24.5	+19.5	4.9	14	24.0	+19.7	4.9	16	23.6	+19.8	5.0	85
8	44.6	+19.1	3.8	10	44.3	+19.2	3.9	12	44.0	+19.3	3.9	14	43.7	+19.5	3.9	16	43.4	+19.6	4.0	86
9	03.7	+18.9	2.9	11	03.5	+19.0	2.9	13	03.3	+19.2	2.9	15	03.2	+19.2	3.0	17	03.0	+19.3	3.0	87
9	22.6	+18.8	1.9	11	22.5	+18.9	1.9	13	22.5	+18.8	2.0	15	22.4	+18.9	2.0	17	22.3	+19.0	2.0	88
9	41.4	+18.6	1.0	11	41.4	+18.6	1.0	13	41.3	+18.7	1.0	15	41.3	+18.7	1.0	17	41.3	+18.7	1.0	89
10	00.0	+18.5	0.0	12	00.0	+18.4	0.0	14	00.0	+18.4	0.0	16	00.0	+18.4	0.0	18	00.0	+18.4	0.0	90

LATITUDE SAME NAME

L.H.A. 108°, 252°

72°, 288° L.H.A.

LATITUDE SAME NAME

Dec. °	20°			22°			24°			26°			28°		
	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °
30	24 59.5	+9.8	65.3	25 48.8	+11.8	66.2	26 36.3	+14.0	67.1	27 22.1	+16.0	68.0	28 06.1	+18.1	69.0
31	25 09.3	+9.2	64.2	26 00.6	+11.3	65.1	26 50.3	+13.4	66.0	27 38.1	+15.6	67.0	28 24.2	+17.6	67.9
32	25 18.5	+8.8	63.1	26 11.9	+10.9	64.0	27 03.7	+12.9	64.9	27 53.7	+14.9	65.9	28 41.8	+17.1	66.8
33	25 27.3	+8.3	62.1	26 22.8	+10.3	62.9	27 16.6	+12.4	63.8	28 08.6	+14.5	64.8	28 58.9	+16.5	65.8
34	25 35.6	+7.9	61.0	26 33.1	+9.8	61.8	27 29.0	+11.8	62.7	28 23.1	+13.9	63.7	29 15.4	+16.0	64.7
35	25 43.5	+7.3	59.9	26 42.9	+9.4	60.7	27 40.8	+11.4	61.6	28 37.0	+13.4	62.6	29 31.4	+15.5	63.5
36	25 50.8	+6.8	58.8	26 52.3	+8.8	59.6	27 52.2	+10.8	60.5	28 50.4	+12.8	61.4	29 46.9	+14.8	62.4
37	25 57.6	+6.3	57.6	27 01.1	+8.2	58.5	28 03.0	+10.2	59.4	29 03.2	+12.3	60.3	30 01.7	+14.4	61.3
38	26 03.9	+5.8	56.5	27 09.3	+7.8	57.4	28 13.2	+9.8	58.3	29 15.5	+11.7	59.2	30 16.1	+13.7	60.2
39	26 09.7	+5.3	55.4	27 17.1	+7.2	56.3	28 23.0	+9.1	57.2	29 27.2	+11.2	58.1	30 29.8	+13.2	59.1
40	26 15.0	+4.8	54.3	27 24.3	+6.7	55.1	28 32.1	+8.6	56.0	29 38.4	+10.5	57.0	30 43.0	+12.5	57.9
41	26 19.8	+4.3	53.2	27 31.0	+6.1	54.0	28 40.7	+8.1	54.9	29 48.9	+10.0	55.8	30 55.5	+12.0	56.8
42	26 24.1	+3.7	52.1	27 37.1	+5.6	52.9	28 48.8	+7.5	53.8	29 58.9	+9.4	54.7	31 07.5	+11.3	55.7
43	26 27.8	+3.2	51.0	27 42.7	+5.1	51.8	28 56.3	+6.9	52.6	30 08.3	+8.8	53.5	31 18.8	+10.8	54.5
44	26 31.0	+2.8	49.9	27 47.8	+4.5	50.7	29 03.2	+6.3	51.5	30 17.1	+8.2	52.4	31 29.6	+10.1	53.4
45	26 33.8	+2.1	48.8	27 52.3	+3.9	49.5	29 09.5	+5.7	50.4	30 25.3	+7.6	51.2	31 39.7	+9.5	52.2
46	26 35.9	+1.7	47.6	27 56.2	+3.4	48.4	29 15.2	+5.2	49.2	30 32.9	+7.0	50.1	31 49.2	+8.8	51.0
47	26 37.6	+1.1	46.5	27 59.6	+2.9	47.3	29 20.4	+4.6	48.1	30 39.9	+6.4	48.9	31 58.0	+8.2	49.9
48	26 38.7	+0.7	45.4	28 02.5	+2.2	46.1	29 25.0	+4.0	46.9	30 46.3	+5.8	47.8	32 06.2	+7.6	48.7
49	26 39.4	0.0	44.3	28 04.7	+1.8	45.0	29 29.0	+3.4	45.8	30 52.1	+5.1	46.6	32 13.8	+6.9	47.5
50	26 39.4	-0.4	43.2	28 06.5	+1.1	43.9	29 32.4	+2.8	44.6	30 57.2	+4.5	45.5	32 20.7	+6.3	46.4
51	26 39.0	-1.0	42.0	28 07.6	+0.7	42.7	29 35.2	+2.3	43.5	31 01.7	+3.9	44.3	32 27.0	+5.6	45.2
52	26 38.0	-1.4	40.9	28 08.3	0.0	41.6	29 37.5	+1.6	42.3	31 05.6	+3.3	43.1	32 32.6	+4.9	44.0
53	26 36.6	-2.1	39.8	28 08.3	-0.5	40.5	29 39.1	+1.0	41.2	31 08.9	+2.6	42.0	32 37.5	+4.3	42.8
54	26 34.5	-2.5	38.7	28 07.8	-1.1	39.3	29 40.1	+0.5	40.0	31 11.5	+2.0	40.8	32 41.8	+3.6	41.6
55	26 32.0	-3.0	37.6	28 06.7	-1.6	38.2	29 40.6	-0.2	38.9	31 13.5	+1.4	39.6	32 45.4	+2.9	40.4
56	26 29.0	-3.6	36.5	28 05.1	-2.2	37.1	29 40.4	-0.7	37.7	31 14.9	+0.7	38.5	32 48.3	+2.3	39.3
57	26 25.4	-4.1	35.3	28 02.9	-2.7	35.9	29 39.7	-1.4	36.6	31 15.6	+0.1	37.3	32 50.6	+1.5	38.1
58	26 21.3	-4.6	34.2	28 00.2	-3.3	34.8	29 38.3	-1.9	35.4	31 15.7	-0.6	36.1	32 52.1	+0.9	36.9
59	26 16.7	-5.1	33.1	27 56.9	-3.9	33.7	29 36.4	-2.6	34.3	31 15.1	-1.2	35.0	32 53.0	+0.3	35.7
60	26 11.6	-5.7	32.0	27 53.0	-4.4	32.5	29 33.8	-3.1	33.1	31 13.9	-1.8	33.8	32 53.3	-0.5	34.5
61	26 05.9	-6.1	30.9	27 48.6	-4.9	31.4	29 30.7	-3.7	32.0	31 12.1	-2.4	32.6	32 52.8	-1.1	33.3
62	25 59.8	-6.7	29.8	27 43.7	-5.5	30.3	29 27.0	-4.3	30.8	31 09.7	-3.1	31.5	32 51.7	-1.8	32.1
63	25 53.1	-7.1	28.7	27 38.2	-6.1	29.2	29 22.7	-4.9	29.7	31 06.6	-3.7	30.3	32 49.9	-2.5	30.9
64	25 46.0	-7.7	27.6	27 32.1	-6.6	28.0	29 17.8	-5.5	28.6	31 02.9	-4.3	29.1	32 47.4	-3.1	29.7
65	25 38.3	-8.1	26.5	27 25.5	-7.1	26.9	29 12.3	-6.1	27.4	30 58.6	-5.0	28.0	32 44.3	-3.9	28.5
66	25 30.2	-8.6	25.4	27 18.4	-7.6	25.8	29 06.2	-6.6	26.3	30 53.6	-5.6	26.8	32 40.4	-4.4	27.4
67	25 21.6	-9.2	24.3	27 10.8	-8.2	24.7	28 59.6	-7.2	25.1	30 48.0	-6.2	25.6	32 36.0	-5.2	26.2
68	25 12.4	-9.6	23.2	27 02.6	-8.7	23.6	28 52.4	-7.8	24.0	30 41.8	-6.8	24.5	32 30.8	-5.8	25.0
69	25 02.8	-10.0	22.1	26 53.9	-9.2	22.5	28 44.6	-8.3	22.9	30 35.0	-7.4	23.3	32 25.0	-6.5	23.8
70	24 52.8	-10.6	21.0	26 44.7	-9.8	21.4	28 36.3	-8.9	21.7	30 27.6	-8.1	22.2	32 18.5	-7.1	22.6
71	24 42.2	-11.0	19.9	26 34.9	-10.2	20.3	28 27.4	-9.5	20.6	30 19.5	-8.6	21.0	32 11.4	-7.8	21.5
72	24 31.2	-11.5	18.8	26 24.7	-10.8	19.2	28 17.9	-10.0	19.5	30 10.9	-9.2	19.9	32 03.6	-8.4	20.3
73	24 19.7	-11.9	17.8	26 13.9	-11.2	18.1	28 07.9	-10.5	18.4	30 01.7	-9.8	18.7	31 55.2	-9.1	19.1
74	24 07.8	-12.4	16.7	26 02.7	-11.8	17.0	27 57.4	-11.1	17.3	29 51.9	-10.5	17.6	31 46.1	-9.7	18.0
75	23 55.4	-12.8	15.6	25 50.9	-12.2	15.9	27 46.3	-11.6	16.2	29 41.4	-10.9	16.5	31 36.4	-10.3	16.8
76	23 42.6	-13.2	14.6	25 38.7	-12.7	14.8	27 34.7	-12.2	15.0	29 30.5	-11.6	15.3	31 26.1	-10.9	15.6
77	23 29.4	-13.7	13.5	25 26.0	-13.2	13.7	27 22.5	-12.6	13.9	29 18.9	-12.1	14.2	31 15.2	-11.6	14.5
78	23 15.7	-14.2	12.4	25 12.8	-13.7	12.6	27 09.9	-13.2	12.8	29 06.8	-12.7	13.1	31 03.6	-12.1	13.3
79	23 01.5	-14.5	11.4	24 59.1	-14.1	11.5	26 56.7	-13.7	11.7	28 54.1	-13.2	12.0	30 51.5	-12.8	12.2
80	22 47.0	-14.9	10.3	24 45.0	-14.5	10.5	26 43.0	-14.2	10.7	28 40.9	-13.8	10.9	30 38.7	-13.3	11.1
81	22 32.1	-15.4	9.3	24 30.5	-15.1	9.4	26 28.8	-14.6	9.6	28 27.1	-14.3	9.7	30 25.4	-14.0	9.9
82	22 16.7	-15.8	8.2	24 15.4	-15.4	8.3	26 14.2	-15.2	8.5	28 12.8	-14.8	8.6	30 11.4	-14.5	8.8
83	22 00.9	-16.1	7.2	24 00.0	-15.9	7.3	25 59.0	-15.6	7.4	27 58.0	-15.4	7.5	29 56.9	-15.1	7.7
84	21 44.8	-16.6	6.1	23 44.1	-16.3	6.2	25 43.4	-16.1	6.3	27 42.6	-15.8	6.4	29 41.8	-15.6	6.6
85	21 28.2	-16.9	5.1	23 27.8	-16.8	5.2	25 27.3	-16.6	5.3	27 26.8	-16.4	5.4	29 26.2	-16.2	5.5
86	21 11.3	-17.3	4.1	23 11.0	-17.1	4.1	25 10.7	-17.0	4.2	27 10.4	-16.9	4.3	29 10.0	-16.7	4.4
87	20 54.0	-17.6	3.1	22 53.9	-17.6	3.1	24 53.7	-17.5	3.1	26 53.5	-17.4	3.2	28 53.3	-17.2	3.3
88	20 36.4	-18.0	2.0	22 36.3	-18.0	2.1	24 36.2	-17.9	2.1	26 36.1	-17.8	2.1	28 36.1	-17.8	2.2
89	20 18.4	-18.4	1.0	22 18.3	-18.3	1.0	24 18.3	-18.3	1.0	26 18.3	-18.3	1.0	28 18.3	-18.3	1.1
90	20 00.0	-18.7	0.0	22 00.0	-18.7	0.0	24 00.0	-18.8	0.0	26 00.0	-18.8	0.0	28 00.0	-18.8	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 72°, 288°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
4 36.9	-26.6	124.3	3 29.2	-28.1	124.4	2 21.4	-29.7	124.5	1 13.4	-31.1	124.5	0 05.3	-32.5	124.5	30
4 10.3	-26.6	125.2	3 01.1	-28.2	125.3	1 51.7	-29.6	125.3	0 42.3	-31.2	125.4	0 27.2	+32.6	54.6	31
3 43.7	-26.8	126.1	2 32.9	-28.2	126.2	1 22.1	-29.7	126.2	0 11.1	-31.1	126.2	0 59.8	+32.6	53.8	32
3 16.9	-26.7	127.0	2 04.7	-28.2	127.0	0 52.4	-29.7	127.1	0 20.0	+31.1	52.9	1 32.4	+32.5	52.9	33
2 50.2	-26.8	127.9	1 36.5	-28.3	127.9	0 22.7	-29.7	128.0	0 51.1	+31.2	52.1	2 04.9	+32.5	52.1	34
2 23.4	-26.9	128.8	1 08.2	-28.3	128.8	0 07.0	+29.7	51.2	1 22.3	+31.1	51.2	2 37.4	+32.5	51.2	35
1 56.5	-26.8	129.7	0 39.9	-28.3	129.7	0 36.7	+29.7	50.3	1 53.4	+31.0	50.3	3 09.9	+32.4	50.4	36
1 29.7	-26.9	130.6	0 11.6	-28.3	130.6	1 06.4	+29.7	49.4	2 24.4	+31.1	49.5	3 42.3	+32.4	49.6	37
1 02.8	-27.0	131.4	0 16.7	+28.3	48.5	1 36.1	+29.7	48.6	2 55.5	+31.0	48.6	4 14.7	+32.4	48.7	38
0 35.8	-26.9	132.3	0 45.0	+28.3	47.7	2 05.8	+29.6	47.7	3 26.5	+30.9	47.8	4 47.1	+32.2	47.9	39
0 08.9	-26.9	133.2	1 13.3	+28.2	46.8	2 35.4	+29.6	46.8	3 57.4	+31.0	46.9	5 19.3	+32.2	47.0	40
0 18.0	+26.9	45.9	1 41.5	+28.3	45.9	3 05.0	+29.5	46.0	4 28.4	+30.8	46.1	5 51.5	+32.2	46.2	41
0 44.9	+26.9	45.0	2 09.8	+28.2	45.0	3 34.5	+29.6	45.1	4 59.2	+30.8	45.2	6 23.7	+32.0	45.3	42
1 11.8	+26.9	44.1	2 38.0	+28.1	44.1	4 04.1	+29.4	44.2	5 30.0	+30.7	44.3	6 55.7	+32.0	44.5	43
1 38.7	+26.9	43.2	3 06.1	+28.2	43.2	4 33.5	+29.4	43.3	6 00.7	+30.6	43.5	7 27.7	+31.8	43.6	44
2 05.6	+26.8	42.3	3 34.3	+28.1	42.4	5 02.9	+29.3	42.5	6 31.3	+30.5	42.6	7 59.5	+31.8	42.8	45
2 32.4	+26.8	41.4	4 02.4	+28.0	41.5	5 32.2	+29.2	41.6	7 01.8	+30.5	41.7	8 31.3	+31.6	41.9	46
2 59.2	+26.7	40.5	4 30.4	+27.9	40.6	6 01.4	+29.2	40.7	7 32.3	+30.3	40.9	9 02.9	+31.5	41.1	47
3 25.9	+26.7	39.6	4 58.3	+27.9	39.7	6 30.6	+29.0	39.8	8 02.6	+30.2	40.0	9 34.4	+31.4	40.2	48
3 52.6	+26.7	38.7	5 26.2	+27.8	38.8	6 59.6	+29.0	38.9	8 32.8	+30.2	39.1	10 05.8	+31.3	39.3	49
4 19.3	+26.6	37.8	5 54.0	+27.7	37.9	7 28.6	+28.8	38.1	9 03.0	+29.9	38.2	10 37.1	+31.1	38.5	50
4 45.9	+26.5	36.9	6 21.7	+27.7	37.0	7 57.4	+28.8	37.2	9 32.9	+29.9	37.4	11 08.2	+30.9	37.6	51
5 12.4	+26.4	36.0	6 49.4	+27.5	36.1	8 26.2	+28.6	36.3	10 02.8	+29.7	36.5	11 39.1	+30.8	36.7	52
5 38.8	+26.4	35.1	7 16.9	+27.4	35.2	8 54.8	+28.5	35.4	10 32.5	+29.6	35.6	12 09.9	+30.7	35.8	53
6 05.2	+26.2	34.2	7 44.3	+27.3	34.3	9 23.3	+28.4	34.5	11 02.1	+29.4	34.7	12 40.6	+30.4	35.0	54
6 31.4	+26.2	33.3	8 11.6	+27.2	33.4	9 51.7	+28.2	33.6	11 31.5	+29.2	33.8	13 11.0	+30.3	34.1	55
6 57.6	+26.0	32.4	8 38.8	+27.1	32.5	10 19.9	+28.0	32.7	12 00.7	+29.1	32.9	13 41.3	+30.1	33.2	56
7 23.6	+26.0	31.5	9 05.9	+26.9	31.6	10 47.9	+28.0	31.8	12 29.8	+28.9	32.0	14 11.4	+29.9	32.3	57
7 49.6	+25.8	30.6	9 32.8	+26.8	30.7	11 15.9	+27.7	30.9	12 58.7	+28.7	31.1	14 41.3	+29.6	31.4	58
8 15.4	+25.7	29.7	9 59.6	+26.6	29.8	11 43.6	+27.6	30.0	13 27.4	+28.5	30.2	15 10.9	+29.5	30.5	59
8 41.1	+25.6	28.8	10 26.2	+26.5	28.9	12 11.2	+27.4	29.1	13 55.9	+28.3	29.3	15 40.4	+29.2	29.6	60
9 06.7	+25.4	27.8	10 52.7	+26.4	28.0	12 38.6	+27.2	28.2	14 24.2	+28.1	28.4	16 08.6	+29.0	28.7	61
9 32.1	+25.3	26.9	11 19.1	+26.1	27.1	13 05.8	+27.0	27.3	14 52.3	+27.9	27.5	16 38.6	+28.8	27.8	62
9 57.4	+25.2	26.0	11 45.2	+26.0	26.2	13 32.8	+26.8	26.4	15 20.2	+27.7	26.6	17 07.4	+28.5	26.9	63
10 22.6	+25.0	25.1	12 11.2	+25.8	25.2	13 59.6	+26.6	25.4	15 47.9	+27.4	25.7	17 35.9	+28.3	25.9	64
10 47.6	+24.8	24.2	12 37.0	+25.6	24.3	14 26.2	+26.4	24.5	16 15.3	+27.2	24.8	18 04.2	+28.0	25.0	65
11 12.4	+24.6	23.2	13 02.6	+25.4	23.4	14 52.6	+26.2	23.6	16 42.5	+27.0	23.8	18 32.2	+27.7	24.1	66
11 37.0	+24.5	22.3	13 28.0	+25.2	22.5	15 18.8	+25.9	22.7	17 09.5	+26.6	22.9	18 59.9	+27.4	23.1	67
12 01.5	+24.3	21.4	13 53.2	+25.0	21.5	15 44.7	+25.7	21.7	17 36.1	+26.4	21.9	19 27.3	+27.2	22.2	68
12 25.8	+24.1	20.4	14 18.2	+24.7	20.6	16 10.4	+25.5	20.8	18 02.5	+26.2	21.0	19 54.5	+26.8	21.3	69
12 49.9	+23.9	19.5	14 42.9	+24.6	19.7	16 35.9	+25.2	19.8	18 28.7	+25.8	20.1	20 21.3	+26.5	20.3	70
13 13.8	+23.6	18.5	15 07.5	+24.3	18.7	17 01.1	+24.9	18.9	18 54.5	+25.6	19.1	20 47.8	+26.2	19.3	71
13 37.4	+23.5	17.6	15 31.8	+24.0	17.8	17 26.0	+24.6	17.9	19 20.1	+25.2	18.1	21 14.0	+25.9	18.4	72
14 00.9	+23.2	16.7	15 55.8	+23.8	16.8	17 50.6	+24.4	17.0	19 45.3	+25.0	17.2	21 39.9	+25.6	17.4	73
14 24.1	+23.1	15.7	16 19.6	+23.6	15.9	18 15.0	+24.1	16.0	20 10.3	+24.6	16.2	22 05.5	+25.1	16.4	74
14 47.2	+22.7	14.7	16 43.2	+23.2	14.9	18 39.1	+23.8	15.1	20 34.9	+24.3	15.2	22 30.6	+24.9	15.5	75
15 09.9	+22.6	13.8	17 06.4	+23.1	13.9	19 02.9	+23.5	14.1	20 59.2	+24.0	14.3	22 55.5	+24.4	14.5	76
15 32.5	+22.3	12.8	17 29.5	+22.7	13.0	19 26.4	+23.1	13.1	21 23.2	+23.6	13.3	23 19.9	+24.1	13.5	77
15 54.8	+22.0	11.9	17 52.2	+22.4	12.0	19 49.5	+22.9	12.1	21 46.8	+23.3	12.3	23 44.0	+23.7	12.5	78
16 16.8	+21.8	10.9	18 14.6	+22.1	11.0	20 12.4	+22.5	11.1	22 10.1	+22.9	11.3	24 07.7	+23.3	11.5	79
16 38.6	+21.4	9.9	18 36.7	+21.9	10.0	20 34.9	+22.2	10.2	22 33.0	+22.5	10.3	24 31.0	+22.9	10.5	80
17 00.0	+21.3	9.0	18 58.6	+21.5	9.1	20 57.1	+21.8	9.2	22 55.5	+22.1	9.3	24 53.9	+22.5	9.4	81
17 21.3	+20.9	8.0	19 20.1	+21.2	8.1	21 18.9	+21.5	8.2	23 17.6	+21.8	8.3	25 16.4	+22.0	8.4	82
17 42.2	+20.6	7.0	19 41.3	+20.8	7.1	21 40.4	+21.1	7.2	23 39.4	+21.4	7.3	25 38.4	+21.6	7.4	83
18 02.8	+20.3	6.0	20 02.1	+20.6	6.1	22 01.5	+20.7	6.2	24 00.8	+20.9	6.2	26 00.0	+21.2	6.4	84
18 23.1	+20.1	5.0	20 22.7	+20.2	5.1	22 22.2	+20.3	5.1	24 21.7	+20.5	5.2	26 21.2	+20.7	5.3	85
18 43.2	+19.7	4.0	20 42.9	+19.8	4.1	22 42.5	+20.0	4.1	24 42.2	+20.1	4.2	26 41.9	+20.3	4.3	86
19 02.9	+19.3	3.0	21 02.7	+19.5	3.1	23 02.5	+19.6	3.1	25 02.3	+19.7	3.1	27 02.2	+19.7	3.2	87
19 22.2	+19.1	2.0	21 22.2	+19.1	2.0	23 22.1	+19.1	2.1	25 22.0	+19.2	2.1	27 21.9	+19.3	2.1	88
19 41.3	+18.7	1.0	21 41.3	+18.7	1.0	23 41.2	+18.8	1.0	25 41.2	+18.8	1.1	27 41.2	+18.8	1.1	89
20 00.0	+18.4	0.0	22 00.0	+18.3	0.0	24 00.0	+18.3	0.0	26 00.0	+18.3	0.0	28 00.0	+18.3	0.0	90

LATITUDE SAME NAME

L.H.A. 108°, 252°

74°, 286° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	13 48.6	-8.6	59.0	14 50.0	-6.8	59.4	15 50.6	-5.0	59.9	16 50.3	-3.1	60.4	17 49.0	-1.2	61.0
31	13 40.0	-8.9	58.0	14 43.2	-7.1	58.4	15 45.6	-5.2	58.9	16 47.2	-3.4	59.4	17 47.8	-1.5	59.9
32	13 31.1	-9.1	57.0	14 36.1	-7.3	57.4	15 40.4	-5.5	57.9	16 43.8	-3.7	58.3	17 46.3	-1.8	58.9
33	13 22.0	-9.4	56.0	14 28.8	-7.6	56.4	15 34.9	-5.9	56.8	16 40.1	-4.0	57.3	17 44.5	-2.2	57.8
34	13 12.6	-9.6	54.9	14 21.2	-7.9	55.3	15 29.0	-6.1	55.8	16 36.1	-4.3	56.3	17 42.3	-2.5	56.8
35	13 03.0	-9.9	53.9	14 13.3	-8.2	54.3	15 22.9	-6.4	54.8	16 31.8	-4.7	55.2	17 39.8	-2.9	55.7
36	12 53.1	-10.1	52.9	14 05.1	-8.4	53.3	15 16.5	-6.7	53.7	16 27.1	-4.9	54.2	17 36.9	-3.1	54.7
37	12 43.0	-10.3	51.9	13 56.7	-8.6	52.3	15 09.8	-6.9	52.7	16 22.2	-5.3	53.1	17 33.8	-3.6	53.6
38	12 32.7	-10.5	50.9	13 48.1	-8.9	51.3	15 02.9	-7.3	51.7	16 16.9	-5.5	52.1	17 30.2	-3.8	52.6
39	12 22.2	-10.8	49.9	13 39.2	-9.2	50.2	14 55.6	-7.5	50.6	16 11.4	-5.9	51.1	17 26.4	-4.2	51.5
40	12 11.4	-11.0	48.9	13 30.0	-9.4	49.2	14 48.1	-7.8	49.6	16 05.5	-6.1	50.0	17 22.2	-4.4	50.5
41	12 00.4	-11.2	47.9	13 20.6	-9.6	48.2	14 40.3	-8.0	48.6	15 59.4	-6.5	49.0	17 17.8	-4.9	49.4
42	11 49.2	-11.4	46.9	13 11.0	-9.9	47.2	14 32.3	-8.4	47.6	15 52.9	-6.7	48.0	17 12.9	-5.1	48.4
43	11 37.8	-11.6	45.9	13 01.1	-10.1	46.2	14 23.9	-8.6	46.5	15 46.2	-7.0	46.9	17 07.8	-5.5	47.4
44	11 26.2	-11.8	44.9	12 51.0	-10.3	45.2	14 15.3	-8.8	45.5	15 39.2	-7.4	45.9	17 02.3	-5.7	46.3
45	11 14.4	-12.1	43.9	12 40.7	-10.6	44.2	14 06.5	-9.1	44.5	15 31.8	-7.6	44.9	16 56.6	-6.1	45.3
46	11 02.3	-12.2	42.9	12 30.1	-10.8	43.2	13 57.4	-9.4	43.5	15 24.2	-7.9	43.8	16 50.5	-6.4	44.2
47	10 50.1	-12.4	41.9	12 19.3	-11.0	42.1	13 48.0	-9.6	42.5	15 16.3	-8.2	42.8	16 44.1	-6.7	43.2
48	10 37.7	-12.6	40.9	12 08.3	-11.3	41.1	13 38.4	-9.8	41.4	15 08.1	-8.4	41.8	16 37.4	-7.1	42.2
49	10 25.1	-12.8	39.9	11 57.0	-11.4	40.1	13 28.6	-10.1	40.4	14 59.7	-8.7	40.8	16 30.3	-7.3	41.1
50	10 12.3	-12.9	38.9	11 45.6	-11.7	39.1	13 18.5	-10.4	39.4	14 51.0	-9.0	39.7	16 23.0	-7.6	40.1
51	9 59.4	-13.2	37.9	11 33.9	-11.9	38.1	13 08.1	-10.6	38.4	14 42.0	-9.3	38.7	16 15.4	-8.0	39.1
52	9 46.2	-13.3	36.9	11 22.0	-12.0	37.1	12 57.5	-10.8	37.4	14 32.7	-9.5	37.7	16 07.4	-8.2	38.0
53	9 32.9	-13.5	35.9	11 10.0	-12.3	36.1	12 46.7	-11.0	36.4	14 23.2	-9.8	36.7	15 59.2	-8.5	37.0
54	9 19.4	-13.6	34.9	10 57.7	-12.5	35.1	12 35.7	-11.3	35.4	14 13.4	-10.1	35.7	15 50.7	-8.8	36.0
55	9 05.8	-13.8	33.9	10 45.2	-12.6	34.1	12 24.4	-11.5	34.4	14 03.3	-10.3	34.6	15 41.9	-9.1	34.9
56	8 52.0	-14.0	33.0	10 32.6	-12.9	33.1	12 12.9	-11.7	33.4	13 53.0	-10.5	33.6	15 32.8	-9.4	33.9
57	8 38.0	-14.1	32.0	10 19.7	-13.0	32.2	12 01.2	-11.9	32.4	13 42.5	-10.9	32.6	15 23.4	-9.7	32.9
58	8 23.9	-14.2	31.0	10 06.7	-13.2	31.2	11 49.3	-12.1	31.4	13 31.6	-11.0	31.6	15 13.7	-9.9	31.9
59	8 09.7	-14.4	30.0	9 53.5	-13.4	30.2	11 37.2	-12.4	30.4	13 20.6	-11.3	30.6	15 03.8	-10.3	30.8
60	7 55.3	-14.5	29.0	9 40.1	-13.5	29.2	11 24.8	-12.5	29.4	13 09.3	-11.5	29.6	14 53.5	-10.4	29.8
61	7 40.8	-14.7	28.1	9 26.6	-13.7	28.2	11 12.3	-12.8	28.4	12 57.8	-11.8	28.6	14 43.1	-10.8	28.8
62	7 26.1	-14.8	27.1	9 12.9	-13.9	27.2	10 59.5	-12.9	27.4	12 46.0	-12.0	27.6	14 32.3	-11.0	27.8
63	7 11.3	-14.9	26.1	8 59.0	-14.0	26.2	10 46.6	-13.1	26.4	12 34.0	-12.2	26.6	14 21.3	-11.3	26.8
64	6 56.4	-15.0	25.1	8 45.0	-14.2	25.2	10 33.5	-13.3	25.4	12 21.8	-12.4	25.6	14 10.0	-11.5	25.8
65	6 41.4	-15.2	24.1	8 30.8	-14.3	24.3	10 20.2	-13.5	24.4	12 09.4	-12.6	24.6	13 58.5	-11.8	24.7
66	6 26.2	-15.2	23.2	8 16.5	-14.5	23.3	10 06.7	-13.7	23.4	11 56.8	-12.9	23.6	13 46.7	-12.0	23.7
67	6 11.0	-15.4	22.2	8 02.0	-14.6	22.3	9 53.0	-13.8	22.4	11 43.9	-13.1	22.6	13 34.7	-12.3	22.7
68	5 55.6	-15.5	21.2	7 47.4	-14.7	21.3	9 39.2	-14.0	21.4	11 30.8	-13.2	21.6	13 22.4	-12.5	21.7
69	5 40.1	-15.5	20.3	7 32.7	-14.9	20.3	9 25.2	-14.2	20.4	11 17.6	-13.5	20.6	13 09.9	-12.8	20.7
70	5 24.6	-15.7	19.3	7 17.8	-15.0	19.4	9 11.0	-14.3	19.5	11 04.1	-13.7	19.6	12 57.1	-13.0	19.7
71	5 08.9	-15.7	18.3	7 02.8	-15.1	18.4	8 56.7	-14.5	18.5	10 50.4	-13.8	18.6	12 44.1	-13.2	18.7
72	4 53.2	-15.9	17.3	6 47.7	-15.2	17.4	8 42.2	-14.7	17.5	10 36.6	-14.0	17.6	12 30.9	-13.4	17.7
73	4 37.3	-15.9	16.4	6 32.5	-15.4	16.4	8 27.5	-14.7	16.5	10 22.6	-14.3	16.6	12 17.5	-13.6	16.7
74	4 21.4	-15.9	15.4	6 17.1	-15.4	15.5	8 12.8	-15.0	15.5	10 08.3	-14.3	15.6	12 03.9	-13.9	15.7
75	4 05.5	-16.1	14.4	6 01.7	-15.6	14.5	7 57.8	-15.0	14.5	9 54.0	-14.6	14.6	11 50.0	-14.0	14.7
76	3 49.4	-16.1	13.5	5 46.1	-15.7	13.5	7 42.8	-15.2	13.6	9 39.4	-14.7	13.6	11 36.0	-14.3	13.7
77	3 33.3	-16.2	12.5	5 30.4	-15.7	12.5	7 27.6	-15.4	12.6	9 24.7	-14.9	12.7	11 21.7	-14.4	12.7
78	3 17.1	-16.2	11.5	5 14.7	-15.9	11.6	7 12.2	-15.4	11.6	9 09.8	-15.1	11.7	11 07.3	-14.7	11.8
79	3 00.9	-16.3	10.6	4 58.8	-15.9	10.6	6 56.8	-15.6	10.6	8 54.7	-15.2	10.7	10 52.6	-14.8	10.8
80	2 44.6	-16.3	9.6	4 42.9	-16.0	9.6	6 41.2	-15.7	9.7	8 39.5	-15.4	9.7	10 37.8	-15.1	9.8
81	2 28.3	-16.4	8.7	4 26.9	-16.1	8.7	6 25.5	-15.8	8.7	8 24.1	-15.5	8.7	10 22.7	-15.2	8.8
82	2 11.9	-16.4	7.7	4 10.8	-16.1	7.7	6 09.7	-15.9	7.7	8 08.6	-15.6	7.8	10 07.5	-15.3	7.8
83	1 55.5	-16.4	6.7	3 54.7	-16.2	6.7	5 53.8	-16.0	6.8	7 53.0	-15.8	6.8	9 52.2	-15.6	6.8
84	1 39.1	-16.5	5.8	3 38.5	-16.3	5.8	5 37.8	-16.1	5.8	7 37.2	-15.9	5.8	9 36.6	-15.7	5.8
85	1 22.6	-16.5	4.8	3 22.2	-16.4	4.8	5 21.7	-16.1	4.8	7 21.3	-16.0	4.8	9 20.9	-15.9	4.9
86	1 06.1	-16.5	3.8	3 05.8	-16.4	3.9	5 05.6	-16.3	3.9	7 05.3	-16.2	3.9	9 05.0	-16.0	3.9
87	0 49.6	-16.5	2.9	2 49.4	-16.4	2.9	4 49.3	-16.4	2.9	6 49.1	-16.2	2.9	8 49.0	-16.2	2.9
88	0 33.1	-16.6	1.9	2 33.0	-16.5	1.9	4 32.9	-16.4	1.9	6 32.9	-16.4	1.9	8 32.8	-16.3	1.9
89	0 16.5	-16.5	1.0	2 16.5	-16.5	1.0	4 16.5	-16.5	1.0	6 16.5	-16.5	1.0	8 16.5	-16.5	1.0
90	0 00.0	-16.5	0.0	2 00.0	-16.6	0.0	4 00.0	-16.6	0.0	6 00.0	-16.6	0.0	8 00.0	-16.6	0.0

LATITUDE CONTRARY NAME

L.H.A. 74°, 286°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
13 48.6	-8.6	121.0	12 46.5	-10.5	121.4	11 43.6	-12.2	121.8	10 40.1	-13.9	122.1	9 36.1	-15.7	122.4	30
13 40.0	-8.9	122.0	12 36.0	-10.7	122.4	11 31.4	-12.4	122.8	10 26.2	-14.2	123.1	9 20.4	-15.9	123.4	31
13 31.1	-9.1	123.0	12 25.3	-10.9	123.4	11 19.0	-12.7	123.8	10 12.0	-14.4	124.1	9 04.5	-16.0	124.4	32
13 22.0	-9.4	124.0	12 14.4	-11.1	124.4	11 06.3	-12.8	124.8	9 57.6	-14.5	125.1	8 48.5	-16.2	125.3	33
13 12.6	-9.6	125.1	12 03.3	-11.3	125.4	10 53.5	-13.0	125.8	9 43.1	-14.7	126.0	8 32.3	-16.4	126.3	34
13 03.0	-9.9	126.1	11 52.0	-11.5	126.4	10 40.5	-13.2	126.7	9 28.4	-14.8	127.0	8 15.9	-16.4	127.3	35
12 53.1	-10.1	127.1	11 40.5	-11.8	127.4	10 27.3	-13.4	127.7	9 13.6	-15.0	128.0	7 59.5	-16.6	128.3	36
12 43.0	-10.3	128.1	11 28.7	-12.0	128.4	10 13.9	-13.6	128.7	8 58.6	-15.2	129.0	7 42.9	-16.8	129.2	37
12 32.7	-10.5	129.1	11 16.7	-12.1	129.4	10 00.3	-13.8	129.7	8 43.4	-15.3	130.0	7 26.1	-16.8	130.2	38
12 22.2	-10.8	130.1	11 04.6	-12.4	130.4	9 46.5	-13.9	130.7	8 28.1	-15.5	131.0	7 09.3	-17.0	131.2	39
12 11.4	-11.0	131.1	10 52.2	-12.5	131.4	9 32.6	-14.1	131.7	8 12.6	-15.6	131.9	6 52.3	-17.1	132.1	40
12 00.4	-11.2	132.1	10 39.7	-12.8	132.4	9 18.5	-14.2	132.7	7 57.0	-15.7	132.9	6 35.2	-17.2	133.1	41
11 49.2	-11.4	133.1	10 26.9	-12.9	133.4	9 04.3	-14.4	133.7	7 41.3	-15.9	133.9	6 18.0	-17.4	134.1	42
11 37.8	-11.6	134.1	10 14.0	-13.1	134.4	8 49.9	-14.6	134.6	7 25.4	-16.0	134.8	6 00.6	-17.4	135.0	43
11 26.2	-11.8	135.1	10 00.9	-13.3	135.4	8 35.3	-14.7	135.6	7 09.4	-16.1	135.8	5 43.2	-17.5	136.0	44
11 14.4	-12.1	136.1	9 47.6	-13.4	136.4	8 20.6	-14.9	136.6	6 53.3	-16.2	136.8	5 25.7	-17.6	136.9	45
11 02.3	-12.2	137.1	9 34.2	-13.6	137.4	8 05.7	-14.9	137.6	6 37.0	-16.3	137.8	5 08.1	-17.7	137.9	46
10 50.1	-12.4	138.1	9 20.6	-13.8	138.4	7 50.8	-15.2	138.6	6 20.7	-16.3	138.7	4 50.4	-17.8	138.9	47
10 37.7	-12.6	139.1	9 06.8	-13.9	139.4	7 35.6	-15.2	139.5	6 04.2	-16.5	139.7	4 32.6	-17.8	139.8	48
10 25.1	-12.8	140.1	8 52.9	-14.1	140.3	7 20.4	-15.4	140.5	5 47.7	-16.7	140.7	4 14.8	-18.0	140.8	49
10 12.3	-12.9	141.1	8 38.8	-14.3	141.3	7 05.0	-15.5	141.5	5 31.0	-16.8	141.6	3 56.8	-17.9	141.7	50
9 59.4	-13.2	142.1	8 24.5	-14.4	142.3	6 49.5	-15.6	142.5	5 14.2	-16.8	142.6	3 38.9	-18.1	142.7	51
9 46.2	-13.3	143.1	8 10.1	-14.5	143.3	6 33.9	-15.8	143.4	4 57.4	-16.9	143.6	3 20.8	-18.1	143.6	52
9 32.9	-13.5	144.1	7 55.6	-14.7	144.3	6 18.1	-15.8	144.4	4 40.5	-17.0	144.5	3 02.7	-18.2	144.6	53
9 19.4	-13.6	145.1	7 40.9	-14.8	145.2	6 02.3	-16.0	145.4	4 23.5	-17.1	145.5	2 44.5	-18.2	145.6	54
9 05.8	-13.8	146.1	7 26.1	-14.9	146.2	5 46.3	-16.0	146.3	4 06.4	-17.2	146.4	2 26.3	-18.2	146.5	55
8 52.0	-14.0	147.0	7 11.2	-15.0	147.2	5 30.3	-16.2	147.3	3 49.2	-17.2	147.4	2 08.1	-18.3	147.5	56
8 38.0	-14.1	148.0	6 56.2	-15.2	148.2	5 14.1	-16.2	148.3	3 32.0	-17.2	148.4	1 49.8	-18.3	148.4	57
8 23.9	-14.2	149.0	6 41.0	-15.3	149.1	4 57.9	-16.3	149.2	3 14.8	-17.4	149.3	1 31.5	-18.3	149.4	58
8 09.7	-14.4	150.0	6 25.7	-15.4	150.1	4 41.6	-16.4	150.2	2 57.4	-17.4	150.3	1 13.2	-18.4	150.3	59
7 55.3	-14.5	151.0	6 10.3	-15.5	151.1	4 25.2	-16.4	151.2	2 40.0	-17.4	151.2	0 54.8	-18.3	151.3	60
7 40.8	-14.7	151.9	5 54.8	-15.6	152.1	4 08.8	-16.6	152.1	2 22.6	-17.4	152.2	0 36.5	-18.4	152.2	61
7 26.1	-14.8	152.9	5 39.2	-15.7	153.0	3 52.2	-16.6	153.1	2 05.2	-17.5	153.2	0 18.1	-18.4	153.2	62
7 11.3	-14.9	153.9	5 23.5	-15.8	154.0	3 35.6	-16.6	154.1	1 47.7	-17.6	154.1	0 00.3	+18.4	25.9	63
6 56.4	-15.0	154.9	5 07.7	-15.9	155.0	3 19.0	-16.8	155.0	1 30.1	-17.5	155.1	0 18.7	+18.4	24.9	64
6 41.4	-15.2	155.9	4 51.8	-15.9	155.9	3 02.2	-16.7	156.0	1 12.6	-17.6	156.0	0 37.1	+18.3	24.0	65
6 26.2	-15.2	156.8	4 35.9	-16.1	156.9	2 45.5	-16.9	157.0	0 55.0	-17.6	157.0	0 55.4	+18.4	23.0	66
6 11.0	-15.4	157.8	4 19.8	-16.1	157.9	2 28.6	-16.8	157.9	0 37.4	-17.6	157.9	1 13.8	+18.3	22.1	67
5 55.6	-15.5	158.8	4 03.7	-16.2	158.8	2 11.8	-16.9	158.9	0 19.8	-17.6	158.9	1 32.1	+18.3	21.1	68
5 40.1	-15.5	159.7	3 47.5	-16.2	159.8	1 54.9	-16.9	159.8	0 02.2	-17.6	159.8	1 50.4	+18.3	20.2	69
5 24.6	-15.7	160.7	3 31.3	-16.3	160.8	1 38.0	-17.0	160.8	0 15.4	+17.6	19.2	2 08.7	+18.2	19.2	70
5 08.9	-15.7	161.7	3 15.0	-16.4	161.7	1 21.0	-17.0	161.8	0 33.0	+17.5	18.2	2 26.9	+18.2	18.3	71
4 53.2	-15.9	162.7	2 58.6	-16.4	162.7	1 04.0	-17.0	162.7	0 50.5	+17.6	17.3	2 45.1	+18.2	17.3	72
4 37.3	-15.9	163.6	2 42.2	-16.5	163.7	0 47.0	-17.0	163.7	1 08.1	+17.6	16.3	3 03.3	+18.1	16.3	73
4 21.4	-15.9	164.6	2 25.7	-16.5	164.6	0 30.0	-17.0	164.6	1 25.7	+17.5	15.4	3 21.4	+18.0	15.4	74
4 05.5	-16.1	165.6	2 09.2	-16.5	165.6	0 13.0	-17.0	165.6	1 43.2	+17.5	14.4	3 39.4	+18.0	14.4	75
3 49.4	-16.1	166.5	1 52.7	-16.6	166.5	0 04.0	+17.0	13.4	2 00.7	+17.5	13.5	3 57.4	+17.9	13.5	76
3 33.3	-16.2	167.5	1 36.1	-16.6	167.5	0 21.0	+17.0	12.5	2 18.2	+17.4	12.5	4 15.3	+17.9	12.5	77
3 17.1	-16.2	168.5	1 19.5	-16.6	168.5	0 38.0	+17.0	11.5	2 35.6	+17.4	11.5	4 33.2	+17.8	11.6	78
3 00.9	-16.3	169.4	1 02.9	-16.6	169.4	0 55.0	+17.0	10.6	2 53.0	+17.3	10.6	4 51.0	+17.6	10.6	79
2 44.6	-16.3	170.4	0 46.3	-16.7	170.4	1 12.0	+17.0	9.6	3 10.3	+17.3	9.6	5 08.6	+17.7	9.6	80
2 28.3	-16.4	171.3	0 29.6	-16.6	171.4	1 29.0	+16.9	8.7	3 27.6	+17.3	8.7	5 26.3	+17.5	8.7	81
2 11.9	-16.4	172.3	0 13.0	-16.7	172.3	1 45.9	+16.9	7.7	3 44.9	+17.1	7.7	5 43.8	+17.4	7.7	82
1 55.5	-16.4	173.3	0 03.7	+16.6	6.7	2 02.8	+16.9	6.7	4 02.0	+17.1	6.7	6 01.2	+17.3	6.8	83
1 39.1	-16.5	174.2	0 20.3	+16.7	5.8	2 19.7	+16.9	5.8	4 19.1	+17.0	5.8	6 18.5	+17.2	5.8	84
1 22.6	-16.5	175.2	0 37.0	+16.6	4.8	2 36.6	+16.8	4.8	4 36.1	+17.0	4.8	6 35.7	+17.1	4.8	85
1 06.1	-16.5	176.2	0 53.6	+16.7	3.8	2 53.4	+16.7	3.8	4 53.1	+16.8	3.9	6 52.8	+17.0	3.9	86
0 49.6	-16.5	177.1	1 10.3	+16.6	2.9	3 10.1	+16.7	2.9	5 09.9	+16.8	2.9	7 09.8	+16.9	2.9	87
0 33.1	-16.6	178.1	1 26.9	+16.5	1.9	3 26.8	+16.6	1.9	5 26.7	+16.7	1.9	7 26.7	+16.7	1.9	88
0 16.5	-16.5	179.0	1 43.4	+16.6	1.0	3 43.4	+16.6	1.0	5 43.4	+16.6	1.0	7 43.4	+16.6	1.0	89
0 00.0	+16.5	0.0	2 00.0	+16.5	0.0	4 00.0	+16.5	0.0	6 00.0	+16.5	0.0	8 00.0	+16.5	0.0	90

LATITUDE SAME NAME

L.H.A. 106°, 254°

74°, 286° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	18 46.7	+0.7	61.6	19 43.3	+2.7	62.2	20 38.7	+4.7	62.8	21 32.9	+6.6	63.5	22 25.7	+8.7	64.2
31	18 47.4	+0.4	60.5	19 46.0	+2.3	61.1	20 43.4	+4.2	61.8	21 39.5	+6.3	62.4	22 34.4	+8.2	63.2
32	18 47.8	+0.1	59.4	19 48.3	+2.0	60.0	20 47.6	+3.9	60.7	21 45.8	+5.8	61.4	22 42.6	+7.8	62.1
33	18 47.9	-0.3	58.4	19 50.3	+1.5	59.0	20 51.5	+3.5	59.6	21 51.6	+5.4	60.3	22 50.4	+7.4	61.0
34	18 47.6	-0.7	57.3	19 51.8	+1.2	57.9	20 55.0	+3.1	58.6	21 57.0	+5.0	59.2	22 57.8	+6.9	59.9
35	18 46.9	-1.0	56.3	19 53.0	+0.8	56.9	20 58.1	+2.6	57.5	22 02.0	+4.5	58.2	23 04.7	+6.5	58.9
36	18 45.9	-1.4	55.2	19 53.8	+0.4	55.8	21 00.7	+2.3	56.4	22 06.5	+4.2	57.1	23 11.2	+6.0	57.8
37	18 44.5	-1.8	54.2	19 54.2	+0.1	54.7	21 03.0	+1.9	55.3	22 10.7	+3.7	56.0	23 17.2	+5.6	56.7
38	18 42.7	-2.1	53.1	19 54.3	-0.3	53.7	21 04.9	+1.5	54.3	22 14.4	+3.3	54.9	23 22.8	+5.1	55.6
39	18 40.6	-2.4	52.1	19 54.0	-0.7	52.6	21 06.4	+1.0	53.2	22 17.7	+2.9	53.8	23 27.9	+4.7	54.5
40	18 38.2	-2.8	51.0	19 53.3	-1.1	51.5	21 07.4	+0.7	52.1	22 20.6	+2.4	52.8	23 32.6	+4.3	53.4
41	18 35.4	-3.2	49.9	19 52.2	-1.5	50.5	21 08.1	+0.2	51.1	22 23.0	+2.0	51.7	23 36.9	+3.7	52.4
42	18 32.2	-3.5	48.9	19 50.7	-1.8	49.4	21 08.3	-0.1	50.0	22 25.0	+1.6	50.6	23 40.6	+3.4	51.3
43	18 28.7	-3.8	47.8	19 48.9	-2.2	48.4	21 08.2	-0.6	48.9	22 26.6	+1.1	49.5	23 44.0	+2.8	50.2
44	18 24.9	-4.2	46.8	19 46.7	-2.6	47.3	21 07.6	-0.9	47.8	22 27.7	+0.7	48.4	23 46.8	+2.4	49.1
45	18 20.7	-4.6	45.7	19 44.1	-3.0	46.2	21 06.7	-1.4	46.8	22 28.4	+0.3	47.4	23 49.2	+2.0	48.0
46	18 16.1	-4.9	44.7	19 41.1	-3.3	45.2	21 05.3	-1.8	45.7	22 28.7	-0.2	46.3	23 51.2	+1.5	46.9
47	18 11.2	-5.2	43.6	19 37.8	-3.8	44.1	21 03.5	-2.1	44.6	22 28.5	-0.6	45.2	23 52.7	+1.0	45.8
48	18 06.0	-5.6	42.6	19 34.0	-4.0	43.0	21 01.4	-2.6	43.6	22 27.9	-1.0	44.1	23 53.7	+0.5	44.7
49	18 00.4	-5.9	41.5	19 30.0	-4.5	42.0	20 58.8	-3.0	42.5	22 26.9	-1.4	43.0	23 54.2	+0.1	43.6
50	17 54.5	-6.2	40.5	19 25.5	-4.8	40.9	20 55.8	-3.3	41.4	22 25.5	-1.9	41.9	23 54.3	-0.4	42.5
51	17 48.3	-6.6	39.4	19 20.7	-5.2	39.9	20 52.5	-3.8	40.3	22 23.6	-2.4	40.9	23 53.9	-0.8	41.4
52	17 41.7	-6.9	38.4	19 15.5	-5.5	38.8	20 48.7	-4.2	39.3	22 21.2	-2.7	39.8	23 53.1	-1.3	40.3
53	17 34.8	-7.2	37.4	19 10.0	-6.0	37.8	20 44.5	-4.5	38.2	22 18.5	-3.2	38.7	23 51.8	-1.8	39.2
54	17 27.6	-7.6	36.3	19 04.0	-6.7	36.7	20 40.0	-5.0	37.1	22 15.3	-3.6	37.6	23 50.0	-2.2	38.1
55	17 20.0	-7.8	35.3	18 57.8	-6.7	35.7	20 35.0	-5.3	36.1	22 11.7	-4.0	36.5	23 47.8	-2.7	37.1
56	17 12.2	-8.2	34.2	18 51.1	-6.9	34.6	20 29.7	-5.8	35.0	22 07.7	-4.5	35.5	23 45.1	-3.1	36.0
57	17 04.0	-8.5	33.2	18 44.2	-7.4	33.6	20 23.9	-6.1	34.0	22 03.2	-4.9	34.4	23 42.0	-3.6	34.9
58	16 55.5	-8.9	32.2	18 36.8	-7.6	32.5	20 17.8	-6.5	32.9	21 58.3	-5.2	33.3	23 38.4	-4.1	33.8
59	16 46.6	-9.1	31.1	18 29.2	-8.0	31.5	20 11.3	-6.9	31.8	21 53.1	-5.8	32.2	23 34.3	-4.5	32.7
60	16 37.5	-9.4	30.1	18 21.2	-8.4	30.4	20 04.4	-7.2	30.8	21 47.3	-6.1	31.2	23 29.8	-5.0	31.6
61	16 28.1	-9.8	29.1	18 12.8	-8.7	29.4	19 57.2	-7.6	29.7	21 41.2	-6.5	30.1	23 24.8	-5.4	30.5
62	16 18.3	-10.0	28.0	18 04.1	-9.0	28.3	19 49.6	-8.0	28.7	21 34.7	-7.0	29.0	23 19.4	-5.9	29.4
63	16 08.3	-10.3	27.0	17 55.1	-9.4	27.3	19 41.6	-8.4	27.6	21 27.7	-7.3	28.0	23 13.5	-6.3	28.4
64	15 58.0	-10.6	26.0	17 45.7	-9.7	26.3	19 33.2	-8.7	26.6	21 20.4	-7.8	26.9	23 07.2	-6.7	27.3
65	15 47.4	-11.0	25.0	17 36.0	-10.0	25.2	19 24.5	-9.1	25.5	21 12.6	-8.2	25.8	23 00.5	-7.2	26.2
66	15 36.4	-11.1	24.0	17 26.0	-10.3	24.2	19 15.4	-9.5	24.5	21 04.4	-8.5	24.8	22 53.3	-7.7	25.1
67	15 25.3	-11.5	22.9	17 15.7	-10.7	23.2	19 05.9	-9.8	23.4	20 55.9	-8.9	23.7	22 45.6	-8.0	24.0
68	15 13.8	-11.8	21.9	17 05.0	-10.9	22.1	18 56.1	-10.2	22.4	20 47.0	-9.4	22.7	22 37.6	-8.5	23.0
69	15 02.0	-12.0	20.9	16 54.1	-11.3	21.1	18 45.9	-10.5	21.3	20 37.6	-9.7	21.6	22 29.1	-8.9	21.9
70	14 50.0	-12.2	19.9	16 42.8	-11.6	20.1	18 35.4	-10.8	20.3	20 27.9	-10.1	20.5	22 20.2	-9.4	20.8
71	14 37.8	-12.6	18.9	16 31.2	-11.8	19.1	18 24.6	-11.2	19.3	20 17.8	-10.5	19.5	22 10.8	-9.7	19.8
72	14 25.2	-12.8	17.9	16 19.4	-12.2	18.0	18 13.4	-11.5	18.2	20 07.3	-10.8	18.4	22 01.1	-10.2	18.7
73	14 12.4	-13.0	16.9	16 07.2	-12.4	17.0	18 01.9	-11.8	17.2	19 56.5	-11.2	17.4	21 50.9	-10.5	17.6
74	13 59.4	-13.3	15.8	15 54.8	-12.8	16.0	17 50.1	-12.2	16.2	19 45.3	-11.6	16.4	21 40.4	-11.0	16.6
75	13 46.1	-13.6	14.8	15 42.0	-13.0	15.0	17 37.9	-12.5	15.1	19 33.7	-11.9	15.3	21 29.4	-11.4	15.5
76	13 32.5	-13.8	13.8	15 29.0	-13.3	14.0	17 25.4	-12.8	14.1	19 21.8	-12.3	14.3	21 18.0	-11.7	14.5
77	13 18.7	-14.0	12.8	15 15.7	-13.5	13.0	17 12.6	-13.1	13.1	19 09.5	-12.6	13.2	21 06.3	-12.2	13.4
78	13 04.7	-14.2	11.8	15 02.2	-13.9	11.9	16 59.5	-13.4	12.1	18 56.9	-13.0	12.2	20 54.1	-12.5	12.4
79	12 50.5	-14.5	10.8	14 48.3	-14.1	10.9	16 46.1	-13.7	11.0	18 43.9	-13.3	11.2	20 41.6	-12.9	11.3
80	12 36.0	-14.7	9.8	14 34.2	-14.3	9.9	16 32.4	-14.0	10.0	18 30.6	-13.7	10.1	20 28.7	-13.3	10.3
81	12 21.3	-14.9	8.9	14 19.9	-14.6	8.9	16 18.4	-14.3	9.0	18 16.9	-14.0	9.1	20 15.4	-13.7	9.2
82	12 06.4	-15.1	7.9	14 05.3	-14.9	7.9	16 04.1	-14.6	8.0	18 02.9	-14.3	8.1	20 01.7	-14.0	8.2
83	11 51.3	-15.3	6.9	13 50.4	-15.1	6.9	15 49.5	-14.8	7.0	17 48.6	-14.6	7.1	19 47.7	-14.3	7.2
84	11 36.0	-15.5	5.9	13 35.3	-15.3	5.9	15 34.7	-15.1	6.0	17 34.0	-14.9	6.0	19 33.4	-14.8	6.1
85	11 20.5	-15.8	4.9	13 20.0	-15.5	4.9	15 19.6	-15.4	5.0	17 19.1	-15.2	5.0	19 18.6	-15.0	5.1
86	11 04.7	-15.9	3.9	13 04.5	-15.8	3.9	15 04.2	-15.7	4.0	17 03.9	-15.6	4.0	19 03.6	-15.4	4.1
87	10 48.8	-16.1	2.9	12 48.7	-16.0	3.0	14 48.5	-15.9	3.0	16 48.3	-15.8	3.0	18 48.2	-15.8	3.0
88	10 32.7	-16.2	2.0	12 32.7	-16.3	2.0	14 32.6	-16.2	2.0	16 32.5	-16.1	2.0	18 32.4	-16.0	2.0
89	10 16.5	-16.5	1.0	12 16.4	-16.4	1.0	14 16.4	-16.4	1.0	16 16.4	-16.4	1.0	18 16.4	-16.4	1.0
90	10 00.0	-16.6	0.0	12 00.0	-16.6	0.0	14 00.0	-16.7	0.0	16 00.0	-16.7	0.0	18 00.0	-16.7	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 74°, 286°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
8 31.6	-17.5	122.7	7 26.6	-19.1	122.9	6 21.2	-20.8	123.1	5 15.5	-22.4	123.3	4 09.5	-24.0	123.4	30
8 14.1	-17.5	123.6	7 07.5	-19.3	123.9	6 00.4	-20.8	124.1	4 53.1	-22.5	124.2	3 45.5	-24.1	124.3	31
7 56.6	-17.7	124.6	6 48.2	-19.3	124.8	5 39.6	-21.0	125.0	4 30.6	-22.6	125.1	3 21.4	-24.1	125.3	32
7 38.9	-17.9	125.6	6 28.9	-19.5	125.8	5 18.6	-21.1	125.9	4 08.0	-22.6	126.1	2 57.3	-24.2	126.2	33
7 21.0	-17.9	126.5	6 09.4	-19.5	126.7	4 57.5	-21.1	126.9	3 45.4	-22.7	127.0	2 33.1	-24.2	127.1	34
7 03.1	-18.1	127.5	5 49.9	-19.7	127.7	4 36.4	-21.2	127.8	3 22.7	-22.9	127.9	2 08.9	-24.2	128.0	35
6 45.0	-18.2	128.5	5 30.2	-19.7	128.6	4 15.2	-21.2	128.8	3 00.0	-22.8	128.9	1 44.7	-24.3	128.9	36
6 26.8	-18.3	129.4	5 10.5	-19.8	129.6	3 54.0	-21.4	129.7	2 37.2	-22.8	129.8	1 20.4	-24.3	129.8	37
6 08.5	-18.4	130.4	4 50.7	-19.9	130.5	3 32.6	-21.4	130.6	2 14.4	-22.8	130.7	0 56.1	-24.3	130.7	38
5 50.1	-18.4	131.3	4 30.8	-20.0	131.5	3 11.2	-21.4	131.6	1 51.6	-22.9	131.6	0 31.8	-24.3	131.7	39
5 31.7	-18.6	132.3	4 10.8	-20.0	132.4	2 49.8	-21.5	132.5	1 28.7	-22.9	132.6	0 07.5	-24.3	132.6	40
5 13.1	-18.7	133.2	3 50.8	-20.1	133.4	2 28.3	-21.5	133.4	1 05.8	-22.9	133.5	0 16.8	+24.3	46.5	41
4 54.4	-18.7	134.2	3 30.7	-20.2	134.3	2 06.8	-21.6	134.4	0 42.9	-23.0	134.4	0 41.1	+24.3	45.6	42
4 35.7	-18.9	135.1	3 10.5	-20.2	135.2	1 45.2	-21.5	135.3	0 19.9	-22.9	135.3	1 05.4	+24.3	44.7	43
4 16.8	-18.9	136.1	2 50.3	-20.3	136.2	1 23.7	-21.6	136.2	0 03.0	+23.0	43.7	1 29.7	+24.3	43.8	44
3 57.9	-18.9	137.1	2 30.0	-20.3	137.1	1 02.1	-21.7	137.2	0 26.0	+22.9	42.8	1 54.0	+24.2	42.9	45
3 39.0	-19.1	138.0	2 09.7	-20.3	138.1	0 40.4	-21.6	138.1	0 48.9	+22.9	41.9	2 18.2	+24.2	41.9	46
3 19.9	-19.0	139.0	1 49.4	-20.4	139.0	0 18.8	-21.6	139.0	1 11.8	+22.9	41.0	2 42.4	+24.1	41.0	47
3 00.9	-19.2	139.9	1 29.0	-20.3	140.0	0 02.8	+21.7	40.0	1 34.7	+22.9	40.0	3 06.5	+24.1	40.1	48
2 41.7	-19.1	140.9	1 08.7	-20.4	140.9	0 24.5	+21.6	39.1	1 57.6	+22.8	39.1	3 30.6	+24.1	39.2	49
2 22.6	-19.2	141.8	0 48.3	-20.5	141.8	0 46.1	+21.6	38.2	2 20.4	+22.8	38.2	3 54.7	+24.0	38.3	50
2 03.4	-19.3	142.7	0 27.8	-20.4	142.8	1 07.7	+21.6	37.2	2 43.2	+22.8	37.3	4 18.7	+23.9	37.3	51
1 44.1	-19.2	143.7	0 07.4	-20.4	143.7	1 29.3	+21.6	36.3	3 06.0	+22.7	36.3	4 42.6	+23.9	36.4	52
1 24.9	-19.3	144.6	0 13.0	+20.4	35.3	1 50.9	+21.5	35.4	3 28.7	+22.7	35.4	5 06.5	+23.7	35.5	53
1 05.6	-19.4	145.6	0 33.4	+20.5	34.4	2 12.4	+21.6	34.4	3 51.4	+22.6	34.5	5 30.2	+23.7	34.6	54
0 46.2	-19.3	146.5	0 53.9	+20.4	33.5	2 34.0	+21.4	33.5	4 14.0	+22.5	33.6	5 53.9	+23.6	33.7	55
0 26.9	-19.3	147.5	1 14.3	+20.3	32.5	2 55.4	+21.4	32.6	4 36.5	+22.5	32.6	6 17.5	+23.5	32.7	56
0 07.6	-19.3	148.4	1 34.6	+20.4	31.6	3 16.8	+21.4	31.6	4 59.0	+22.4	31.7	6 41.0	+23.4	31.8	57
0 11.7	+19.4	30.6	1 55.0	+20.3	30.6	3 38.2	+21.3	30.7	5 21.4	+22.3	30.8	7 04.4	+23.3	30.9	58
0 31.1	+19.3	29.7	2 15.3	+20.3	29.7	3 59.5	+21.3	29.8	5 43.7	+22.2	29.8	7 27.7	+23.2	30.0	59
0 50.4	+19.3	28.7	2 35.6	+20.3	28.8	4 20.8	+21.2	28.8	6 05.9	+21.2	28.9	7 50.9	+23.0	29.0	60
1 09.7	+19.3	27.8	2 55.9	+20.2	27.8	4 42.0	+21.1	27.9	6 28.0	+21.0	28.0	8 13.9	+22.9	28.1	61
1 29.0	+19.3	26.8	3 16.1	+20.1	26.9	5 03.1	+21.0	26.9	6 50.0	+21.0	27.0	8 36.8	+22.8	27.2	62
1 48.3	+19.2	25.9	3 36.2	+20.1	25.9	5 24.1	+20.9	26.0	7 11.9	+21.8	26.1	8 59.6	+22.7	26.2	63
2 07.5	+19.2	24.9	3 56.3	+20.0	25.0	5 45.0	+20.9	25.1	7 33.7	+21.7	25.2	9 22.3	+22.4	25.3	64
2 26.7	+19.2	24.0	4 16.3	+20.0	24.0	6 05.9	+20.7	24.1	7 55.4	+21.5	24.2	9 44.7	+22.4	24.3	65
2 45.9	+19.1	23.0	4 36.3	+19.8	23.1	6 26.6	+20.7	23.2	8 16.9	+21.4	23.3	10 07.1	+22.2	23.4	66
3 05.0	+19.0	22.1	4 56.1	+19.8	22.1	6 47.3	+20.5	22.2	8 38.3	+21.3	22.3	10 29.3	+22.0	22.5	67
3 24.0	+19.0	21.1	5 15.9	+19.7	21.2	7 07.8	+20.4	21.3	8 59.6	+21.1	21.4	10 51.3	+21.8	21.5	68
3 43.0	+19.0	20.2	5 35.6	+19.7	20.3	7 28.2	+20.3	20.3	9 20.7	+21.0	20.4	11 13.1	+21.6	20.6	69
4 02.0	+18.9	19.2	5 55.3	+19.5	19.3	7 48.5	+20.2	19.4	9 41.7	+20.8	19.5	11 34.7	+21.5	19.6	70
4 20.9	+18.8	18.3	6 14.8	+19.4	18.4	8 08.7	+20.0	18.4	10 02.5	+20.6	18.5	11 56.2	+21.3	18.7	71
4 39.7	+18.7	17.3	6 34.2	+19.3	17.4	8 28.7	+19.9	17.5	10 23.1	+20.5	17.6	12 17.5	+21.1	17.7	72
4 58.4	+18.7	16.4	6 53.5	+19.2	16.4	8 48.6	+19.7	16.5	10 43.6	+20.3	16.6	12 38.6	+20.8	16.7	73
5 17.1	+18.5	15.4	7 12.7	+19.1	15.5	9 08.3	+19.6	15.6	11 03.9	+20.1	15.7	12 59.4	+20.7	15.8	74
5 35.6	+18.5	14.5	7 31.8	+19.0	14.5	9 27.9	+19.5	14.6	11 24.0	+20.0	14.7	13 20.1	+20.4	14.8	75
5 54.1	+18.4	13.5	7 50.8	+18.8	13.6	9 47.4	+19.3	13.6	11 44.0	+19.7	13.7	13 40.5	+20.2	13.8	76
6 12.5	+18.2	12.6	8 09.6	+18.7	12.6	10 06.7	+19.1	12.7	12 03.7	+19.6	12.8	14 00.7	+20.0	12.9	77
6 30.7	+18.2	11.6	8 28.3	+18.5	11.7	10 25.8	+18.9	11.7	12 23.3	+19.3	11.8	14 20.7	+19.7	11.9	78
6 48.9	+18.0	10.6	8 46.8	+18.4	10.7	10 44.7	+18.8	10.8	12 42.6	+19.1	10.8	14 40.4	+19.5	10.9	79
7 06.9	+18.0	9.7	9 05.2	+18.3	9.7	11 03.5	+18.6	9.8	13 01.7	+18.9	9.9	14 59.9	+19.3	10.0	80
7 24.9	+17.8	8.7	9 23.5	+18.1	8.8	11 22.1	+18.3	8.8	13 20.6	+18.7	8.9	15 19.2	+19.0	9.0	81
7 42.7	+17.6	7.8	9 41.6	+17.9	7.8	11 40.4	+18.2	7.9	13 39.3	+18.5	7.9	15 38.2	+18.7	8.0	82
8 00.3	+17.6	6.8	9 59.5	+17.8	6.8	11 58.6	+18.0	6.9	13 57.8	+18.2	6.9	15 56.9	+18.4	7.0	83
8 17.9	+17.4	5.8	10 17.3	+17.5	5.9	12 16.6	+17.8	5.9	14 16.0	+18.0	6.0	16 15.3	+18.2	6.0	84
8 35.3	+17.2	4.9	10 34.8	+17.5	4.9	12 34.4	+17.6	4.9	14 34.0	+17.7	5.0	16 33.5	+17.9	5.0	85
8 52.5	+17.1	3.9	10 52.3	+17.2	3.9	12 52.0	+17.3	3.9	14 51.7	+17.5	4.0	16 51.4	+17.6	4.0	86
9 09.6	+17.0	2.9	11 09.5	+17.0	2.9	13 09.3	+17.1	3.0	15 09.2	+17.2	3.0	17 09.0	+17.3	3.0	87
9 26.6	+16.8	1.9	11 26.5	+16.9	2.0	13 26.4	+16.9	2.0	15 26.4	+16.9	2.0	17 26.3	+17.0	2.0	88
9 43.4	+16.6	1.0	11 43.4	+16.6	1.0	13 43.3	+16.7	1.0	15 43.3	+16.7	1.0	17 43.3	+16.7	1.0	89
10 00.0	+16.5	0.0	12 00.0	+16.4	0.0	14 00.0	+16.4	0.0	16 00.0	+16.4	0.0	18 00.0	+16.4	0.0	90

LATITUDE SAME NAME

L.H.A. 106°, 254°

74°, 286° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	23 17.2	+10.6	65.0	24 07.1	-12.7	65.8	24 55.5	+14.8	66.6	25 42.3	+16.8	67.5	26 27.3	+18.9	68.4
31	23 27.8	+10.3	63.9	24 19.8	-12.3	64.7	25 10.3	+14.3	65.6	25 59.1	+16.3	66.4	26 46.2	+18.4	67.3
32	23 38.1	+9.7	62.9	24 32.1	-11.8	63.7	25 24.6	+13.8	64.5	26 15.4	+15.9	65.4	27 04.6	+17.9	66.3
33	23 47.8	+9.4	61.8	24 43.9	-11.3	62.6	25 38.4	+13.3	63.4	26 31.3	+15.3	64.3	27 22.5	+17.4	65.2
34	23 57.2	+8.9	60.7	24 55.2	-10.9	61.5	25 51.7	+12.9	62.3	26 46.6	+14.9	63.2	27 39.9	+16.9	64.1
35	24 06.1	+8.4	59.6	25 06.1	-10.3	60.4	26 04.6	+12.3	61.2	27 01.5	+14.4	62.1	27 56.8	+16.3	63.0
36	24 14.5	+7.9	58.5	25 16.4	+9.9	59.3	26 16.9	+11.9	60.2	27 15.9	+13.8	61.0	28 13.1	+15.9	62.0
37	24 22.4	+7.5	57.4	25 26.3	+9.4	58.2	26 28.8	+11.4	59.1	27 29.7	+13.3	59.9	28 29.0	+15.3	60.9
38	24 29.9	+7.1	56.3	25 35.7	+9.0	57.1	26 40.2	+10.8	58.0	27 43.0	+12.9	58.8	28 44.3	+14.8	59.8
39	24 37.0	+6.5	55.3	25 44.7	+8.4	56.0	26 51.0	+10.4	56.9	27 55.9	+12.2	57.7	28 59.1	+14.3	58.7
40	24 43.5	+6.1	54.2	25 53.1	+7.9	54.9	27 01.4	+9.8	55.8	28 08.1	+11.8	56.6	29 13.4	+13.7	57.5
41	24 49.6	+5.6	53.1	26 01.0	+7.5	53.8	27 11.2	+9.3	54.6	28 19.9	+11.2	55.5	29 27.1	+13.1	56.4
42	24 55.2	+5.1	52.0	26 08.5	+6.9	52.7	27 20.5	+8.7	53.5	28 31.1	+10.6	54.4	29 40.2	+12.5	55.3
43	25 00.3	+4.6	50.9	26 15.4	+6.4	51.6	27 29.2	+8.3	52.4	28 41.7	+10.1	53.3	29 52.7	+12.0	54.2
44	25 04.9	+4.1	49.8	26 21.8	+5.9	50.5	27 37.5	+7.7	51.3	28 51.8	+9.6	52.1	30 04.7	+11.4	53.0
45	25 09.0	+3.7	48.7	26 27.7	+5.4	49.4	27 45.2	+7.1	50.2	29 01.4	+8.9	51.0	30 16.1	+10.8	51.9
46	25 12.7	+3.1	47.6	26 33.1	+4.8	48.3	27 52.3	+6.6	49.1	29 10.3	+8.4	49.9	30 26.9	+10.3	50.8
47	25 15.8	+2.7	46.5	26 37.9	+4.4	47.2	27 58.9	+6.1	47.9	29 18.7	+7.8	48.7	30 37.2	+9.6	49.6
48	25 18.5	+2.1	45.4	26 42.3	+3.8	46.1	28 05.0	+5.5	46.8	29 26.5	+7.3	47.6	30 46.8	+9.0	48.5
49	25 20.6	+1.7	44.3	26 46.1	+3.3	44.9	28 10.5	+5.0	45.7	29 33.8	+6.6	46.5	30 55.8	+8.4	47.3
50	25 22.3	+1.2	43.1	26 49.4	+2.8	43.8	28 15.5	+4.3	44.5	29 40.4	+6.1	45.3	31 04.2	+7.7	46.2
51	25 23.5	+0.7	42.0	26 52.2	+2.2	42.7	28 19.8	+3.9	43.4	29 46.5	+5.4	44.2	31 11.9	+7.2	45.0
52	25 24.2	+0.2	40.9	26 54.4	+1.7	41.6	28 23.7	+3.2	42.3	29 51.9	+4.9	43.0	31 19.1	+6.5	43.8
53	25 24.4	-0.4	39.8	26 56.1	+1.2	40.5	28 26.9	+2.7	41.1	29 56.8	+4.3	41.9	31 25.6	+5.9	42.7
54	25 24.0	-0.8	38.7	26 57.6	+0.6	39.3	28 29.6	+2.2	40.0	30 01.1	+3.6	40.7	31 31.5	+5.2	41.5
55	25 23.2	-1.3	37.6	26 57.9	+0.1	38.2	28 31.8	+1.5	38.9	30 04.7	+3.1	39.6	31 36.7	+4.6	40.3
56	25 21.9	-1.8	36.5	26 58.0	-0.4	37.1	28 33.3	+1.0	37.7	30 07.8	+2.4	38.4	31 41.3	+4.0	39.2
57	25 20.1	-2.3	35.4	26 57.6	-1.0	36.0	28 34.3	+0.4	36.6	30 10.2	+1.9	37.3	31 45.3	+3.3	38.0
58	25 17.8	-2.8	34.3	26 56.6	-1.5	34.8	28 34.7	-0.1	35.5	30 12.1	+1.2	36.1	31 48.6	+2.7	36.8
59	25 15.0	-3.3	33.2	26 55.1	-2.0	33.7	28 34.6	-0.7	34.3	30 13.3	+0.7	35.0	31 51.3	+2.0	35.7
60	25 11.7	-3.8	32.1	26 53.1	-2.6	32.6	28 33.9	-1.3	33.2	30 14.0	0.0	33.8	31 53.3	+1.3	34.5
61	25 07.9	-4.2	31.0	26 50.5	-3.0	31.5	28 32.6	-1.9	32.0	30 14.0	-0.6	32.6	31 54.6	+0.8	33.3
62	25 03.7	-4.8	29.9	26 47.5	-3.6	30.4	28 30.7	-2.4	30.9	30 13.4	-1.2	31.5	31 55.4	0.0	32.1
63	24 58.9	-5.2	28.8	26 43.9	-4.2	29.3	28 28.3	-3.0	29.8	30 12.2	-1.8	30.3	31 55.4	-0.6	30.9
64	24 53.7	-5.7	27.7	26 39.7	-4.6	28.1	28 25.3	-3.6	28.6	30 10.4	-2.5	29.2	31 54.8	-1.2	29.8
65	24 48.0	-6.2	26.6	26 35.1	-5.2	27.0	28 21.7	-4.1	27.5	30 07.9	-3.0	28.0	31 53.6	-1.9	28.6
66	24 41.8	-6.7	25.5	26 29.9	-5.7	25.9	28 17.6	-4.7	26.4	30 04.9	-3.6	26.9	31 51.7	-2.5	27.4
67	24 35.1	-7.2	24.4	26 24.2	-6.2	24.8	28 12.9	-5.2	25.2	30 01.3	-4.3	25.7	31 49.2	-3.2	26.2
68	24 27.9	-7.6	23.3	26 18.0	-6.7	23.7	28 07.7	-5.8	24.1	29 57.0	-4.8	24.6	31 46.0	-3.9	25.1
69	24 20.3	-8.1	22.2	26 11.3	-7.3	22.6	28 01.9	-6.3	23.0	29 52.2	-5.4	23.4	31 42.1	-4.4	23.9
70	24 12.2	-8.5	21.1	26 04.0	-7.7	21.5	27 55.6	-6.9	21.8	29 46.8	-6.0	22.3	31 37.7	-5.2	22.7
71	24 03.7	-9.0	20.0	25 56.3	-8.2	20.4	27 48.7	-7.5	20.7	29 40.8	-6.7	21.1	31 32.5	-5.7	21.5
72	23 54.7	-9.5	19.0	25 48.1	-8.8	19.3	27 41.2	-8.0	19.6	29 34.1	-7.2	20.0	31 26.8	-6.4	20.4
73	23 45.2	-9.9	17.9	25 39.3	-9.2	18.2	27 33.2	-8.5	18.5	29 26.9	-7.7	18.8	31 20.4	-7.0	19.2
74	23 35.3	-10.3	16.8	25 30.1	-9.7	17.1	27 24.7	-9.0	17.4	29 19.2	-8.4	17.7	31 13.4	-7.7	18.0
75	23 25.0	-10.8	15.7	25 20.4	-10.2	16.0	27 15.7	-9.6	16.3	29 10.8	-8.9	16.6	31 05.7	-8.2	16.9
76	23 14.2	-11.3	14.7	25 10.2	-10.7	14.9	27 06.1	-10.1	15.1	29 01.9	-9.5	15.4	30 57.5	-8.9	15.7
77	23 02.9	-11.6	13.6	24 59.5	-11.1	13.8	26 56.0	-10.6	14.0	28 52.4	-10.1	14.3	30 48.6	-9.5	14.6
78	22 51.3	-12.1	12.5	24 48.4	-11.6	12.7	26 45.4	-11.1	12.9	28 42.3	-10.6	13.2	30 39.1	-10.1	13.4
79	22 39.2	-12.5	11.5	24 36.8	-12.1	11.6	26 34.3	-11.7	11.8	28 31.7	-11.2	12.0	30 29.0	-10.7	12.3
80	22 26.7	-12.9	10.4	24 24.7	-12.5	10.6	26 22.6	-12.1	10.7	28 20.5	-11.7	10.9	30 18.3	-11.3	11.1
81	22 13.8	-13.3	9.3	24 12.2	-13.0	9.5	26 10.5	-12.6	9.6	28 08.8	-12.3	9.8	30 07.0	-11.9	10.0
82	22 00.5	-13.7	8.3	23 59.2	-13.4	8.4	25 57.9	-13.1	8.6	27 56.5	-12.7	8.7	29 55.1	-12.4	8.9
83	21 46.8	-14.1	7.2	23 45.8	-13.9	7.4	25 44.8	-13.6	7.5	27 43.8	-13.3	7.6	29 42.7	-13.0	7.8
84	21 32.7	-14.5	6.2	23 31.9	-14.2	6.3	25 31.2	-14.0	6.4	27 30.5	-13.9	6.5	29 29.7	-13.6	6.6
85	21 18.2	-14.9	5.2	23 17.7	-14.7	5.2	25 17.2	-14.6	5.3	27 16.6	-14.3	5.4	29 16.1	-14.2	5.5
86	21 03.3	-15.3	4.1	23 03.0	-15.2	4.2	25 02.6	-15.0	4.2	27 02.3	-14.8	4.3	29 01.9	-14.6	4.4
87	20 48.0	-15.6	3.1	22 47.8	-15.5	3.1	24 47.6	-15.4	3.2	26 47.5	-15.4	3.2	28 47.3	-15.3	3.3
88	20 32.4	-16.0	2.1	22 32.3	-16.0	2.1	24 32.2	-15.9	2.1	26 32.1	-15.8	2.1	28 32.0	-15.7	2.2
89	20 16.4	-16.4	1.0	22 16.3	-16.3	1.0	24 16.3	-16.3	1.1	26 16.3	-16.3	1.1	28 16.3	-16.3	1.1
90	20 00.0	-16.7	0.0	22 00.0	-16.7	0.0	24 00.0	-16.8	0.0	26 00.0	-16.8	0.0	28 00.0	-16.8	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 74°, 286°

20°			22°			24°			26°			28°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
3	03.3	-25.6	123.5	1	57.0	-27.2	123.6	0	50.5	-28.6	123.6	0	15.9	+30.2	56.4	1	22.4	+31.7	56.4	30
2	37.7	-25.6	124.4	1	29.8	-27.2	124.5	0	21.9	-28.8	124.5	0	46.1	+30.2	55.5	1	54.1	+31.7	55.5	31
2	12.1	-25.7	125.3	1	02.6	-27.2	125.4	0	06.9	+28.7	54.6	1	16.3	+30.2	54.6	2	25.8	+31.6	54.7	32
1	46.4	-25.7	126.2	0	35.4	-27.2	126.3	0	35.6	+28.6	53.7	1	46.5	+30.2	53.8	2	57.4	+31.6	53.8	33
1	20.7	-25.7	127.1	0	08.2	-27.2	127.2	1	04.2	+28.7	52.9	2	16.7	+30.1	52.9	3	29.0	+31.6	53.0	34
0	55.0	-25.7	128.0	0	19.0	+27.2	51.9	1	32.9	+28.7	52.0	2	46.8	+30.1	52.0	4	00.6	+31.5	52.1	35
0	29.3	-25.8	128.9	0	46.2	+27.2	51.1	2	01.6	+28.6	51.1	3	16.9	+30.0	51.2	4	32.1	+31.4	51.3	36
0	03.5	-25.7	129.9	1	13.4	+27.1	50.2	2	30.2	+28.6	50.2	3	46.9	+30.0	50.3	5	03.5	+31.4	50.4	37
0	22.2	+25.8	49.2	1	40.5	+27.2	49.3	2	58.8	+28.5	49.3	4	16.9	+30.0	49.4	5	34.9	+31.3	49.6	38
0	48.0	+25.7	48.3	2	07.7	+27.1	48.4	3	27.3	+28.5	48.5	4	46.9	+29.8	48.6	6	06.2	+31.2	48.7	39
1	13.7	+25.7	47.4	2	34.8	+27.1	47.5	3	55.8	+28.5	47.6	5	16.7	+29.8	47.7	6	37.4	+31.1	47.8	40
1	39.4	+25.7	46.5	3	01.9	+27.0	46.6	4	24.3	+28.4	46.7	5	46.5	+29.7	46.8	7	08.5	+31.0	47.0	41
2	05.1	+25.6	45.6	3	28.9	+27.0	45.7	4	52.7	+28.3	45.8	6	16.2	+29.6	45.9	7	39.5	+31.0	46.1	42
2	30.7	+25.6	44.7	3	55.9	+26.9	44.8	5	21.0	+28.2	44.9	6	45.8	+29.6	45.1	8	10.5	+30.8	45.3	43
2	56.3	+25.6	43.8	4	22.8	+26.9	43.9	5	49.2	+28.2	44.0	7	15.4	+29.4	44.2	8	41.3	+30.7	44.4	44
3	21.9	+25.5	42.9	4	49.7	+26.8	43.0	6	17.4	+28.0	43.1	7	44.8	+29.3	43.3	9	12.0	+30.6	43.5	45
3	47.4	+25.5	42.0	5	16.5	+26.7	42.1	6	45.4	+28.0	42.3	8	14.1	+29.2	42.4	9	42.6	+30.4	42.6	46
4	12.9	+25.4	41.1	5	43.2	+26.7	41.2	7	13.4	+27.9	41.4	8	43.3	+29.1	41.5	10	13.0	+30.3	41.8	47
4	38.3	+25.3	40.2	6	09.9	+26.5	40.3	7	41.3	+27.7	40.5	9	12.4	+29.0	40.7	10	43.3	+30.1	40.9	48
5	03.6	+25.2	39.3	6	36.4	+26.4	39.4	8	09.0	+27.6	39.6	9	41.4	+28.8	39.8	11	13.4	+30.0	40.0	49
5	28.8	+25.2	38.4	7	02.8	+26.4	38.5	8	36.6	+27.5	38.7	10	10.2	+28.7	38.9	11	43.4	+29.9	39.1	50
5	54.0	+25.1	37.5	7	29.2	+26.2	37.6	9	04.1	+27.4	37.8	10	38.9	+28.5	38.0	12	13.3	+29.6	38.2	51
6	19.1	+25.0	36.5	7	55.4	+26.1	36.7	9	31.5	+27.3	36.9	11	07.4	+28.3	37.1	12	42.9	+29.5	37.4	52
6	44.1	+24.9	35.6	8	21.5	+26.0	35.8	9	58.8	+27.0	36.0	11	35.7	+28.2	36.2	13	12.4	+29.3	36.5	53
7	09.0	+24.7	34.7	8	47.5	+25.9	34.9	10	25.8	+27.0	35.1	12	03.9	+28.1	35.3	13	41.7	+29.1	35.6	54
7	33.7	+24.7	33.8	9	13.4	+25.7	34.0	10	52.8	+26.8	34.2	12	32.0	+27.8	34.4	14	10.8	+28.9	34.7	55
7	58.4	+24.5	32.9	9	39.1	+25.5	33.0	11	19.6	+26.6	33.2	12	59.8	+27.6	33.5	14	39.7	+28.7	33.8	56
8	22.9	+24.4	32.0	10	04.6	+25.5	32.1	11	46.2	+26.4	32.3	13	27.4	+27.5	32.6	15	08.4	+28.5	32.8	57
8	47.3	+24.3	31.0	10	30.1	+25.2	31.2	12	12.6	+26.2	31.4	13	54.9	+27.2	31.7	15	36.9	+28.2	31.9	58
9	11.6	+24.1	30.1	10	55.3	+25.1	30.3	12	38.8	+26.1	30.5	14	22.1	+27.1	30.7	16	05.1	+28.0	31.0	59
9	35.7	+24.0	29.2	11	20.4	+24.9	29.4	13	04.9	+25.9	29.6	14	49.2	+26.8	29.8	16	33.1	+27.8	30.1	60
9	59.7	+23.8	28.2	11	45.3	+24.8	28.4	13	30.8	+25.6	28.6	15	16.0	+26.5	28.9	17	00.9	+27.5	29.2	61
10	23.5	+23.7	27.3	12	10.1	+24.5	27.5	13	56.4	+25.5	27.7	15	42.5	+26.4	28.0	17	28.4	+27.2	28.2	62
10	47.2	+23.5	26.4	12	34.6	+24.4	26.6	14	21.9	+25.2	26.8	16	08.9	+26.1	27.0	17	55.6	+27.0	27.3	63
11	10.7	+23.3	25.4	12	59.0	+24.1	25.6	14	47.1	+25.0	25.8	16	35.0	+25.8	26.1	18	22.6	+26.7	26.4	64
11	34.0	+23.1	24.5	13	23.1	+24.0	24.7	15	12.1	+24.7	24.9	17	00.8	+25.6	25.1	18	49.3	+26.4	25.4	65
11	57.1	+23.0	23.6	13	47.1	+23.7	23.7	15	36.8	+24.5	24.0	17	26.4	+25.3	24.2	19	15.7	+26.2	24.5	66
12	20.1	+22.7	22.6	14	10.8	+23.5	22.8	16	01.3	+24.3	23.0	17	51.7	+25.0	23.2	19	41.9	+25.8	23.5	67
12	42.8	+22.6	21.7	14	34.3	+23.3	21.8	16	25.6	+24.0	22.1	18	16.7	+24.8	22.3	20	07.7	+25.5	22.6	68
13	05.4	+22.3	20.7	14	57.6	+23.0	20.9	16	49.6	+23.8	21.1	18	41.5	+24.4	21.3	20	33.2	+25.2	21.6	69
13	27.7	+22.2	19.8	15	20.6	+22.8	19.9	17	13.4	+23.4	20.1	19	05.9	+24.2	20.4	20	58.4	+24.8	20.6	70
13	49.9	+21.9	18.8	15	43.4	+22.5	19.0	17	36.8	+23.2	19.2	19	30.1	+23.8	19.4	21	23.2	+24.5	19.6	71
14	11.8	+21.6	17.8	16	05.9	+22.3	18.0	18	00.0	+22.9	18.2	19	53.9	+23.5	18.4	21	47.7	+24.2	18.7	72
14	33.4	+21.5	16.9	16	28.2	+22.0	17.0	18	22.9	+22.6	17.2	20	17.4	+23.2	17.4	22	11.9	+23.8	17.7	73
14	54.9	+21.2	15.9	16	50.2	+21.8	16.1	18	45.5	+22.3	16.2	20	40.6	+22.9	16.5	22	35.7	+23.4	16.7	74
15	16.1	+20.9	14.9	17	12.0	+21.4	15.1	19	07.8	+21.9	15.3	21	03.5	+22.5	15.5	22	59.1	+23.0	15.7	75
15	37.0	+20.7	14.0	17	33.4	+21.2	14.1	19	29.7	+21.7	14.3	21	26.0	+22.1	14.5	23	22.1	+22.7	14.7	76
15	57.7	+20.4	13.0	17	54.6	+20.8	13.1	19	51.4	+21.3	13.3	21	48.1	+21.8	13.5	23	44.8	+22.3	13.7	77
16	18.1	+20.1	12.0	18	15.4	+20.6	12.1	20	12.7	+21.0	12.3	22	09.9	+21.4	12.5	24	07.1	+21.8	12.6	78
16	38.2	+19.9	11.0	18	36.0	+20.3	11.2	20	33.7	+20.6	11.3	22	31.3	+21.1	11.5	24	28.9	+21.5	11.6	79
16	58.1	+19.6	10.1	18	56.3	+19.9	10.2	20	54.3	+20.3	10.3	22	52.4	+20.6	10.4	24	50.4	+21.0	10.6	80
17	17.7	+19.3	9.1	19	16.2	+19.6	9.2	21	14.6	+20.0	9.3	23	13.0	+20.3	9.4	25	11.4	+20.6	9.6	81
17	37.0	+19.0	8.1	19	35.8	+19.3	8.2	21	34.6	+19.5	8.3	23	33.3	+19.8	8.4	25	32.0	+20.1	8.5	82
17	56.0	+18.7	7.1	19	55.1	+18.9	7.2	21	54.1	+19.2	7.3	23	53.1	+19.5	7.4	25	52.1	+19.7	7.5	83
18	14.7	+18.3	6.1	20	14.0	+18.6	6.1	22	13.3	+18.8	6.2	24	12.6	+19.0	6.3	26	11.8	+19.3	6.4	84
18	33.0	+18.1	5.1	20	32.6	+18.2	5.1	22	32.1	+18.4	5.2	24	31.6	+18.6	5.3	26	31.1	+18.7	5.4	85
18	51.1	+17.7	4.1	20	50.8	+17.9	4.1	22	50.5	+18.0	4.2	24	50.2	+18.1	4.2	26	49.8	+18.3	4.3	86
19	08.8	+17.4	3.1	21	08.7	+17.5	3.1	23	08.5	+17.6	3.1	25	08.3	+17.7	3.2	27	08.1	+17.8	3.2	87
19	26.2	+17.1	2.0	21	26.2	+17.1	2.1	23	26.1	+17.1	2.1	25	26.0	+17.2	2.1	27	25.9	+17.3	2.2	88
19	43.3	+16.7	1.0	21	43.3	+16.7	1.0	23	43.2	+16.8	1.0	25	43.2	+16.8	1.1	27	43.2	+16.8	1.1	89
20	00.0	+16.4	0.0	22	00.0	+16.3	0.0	24	00.0	+16.3	0.0	26	00.0	+16.3	0.0	28	00.0	+16.3	0.0	90

LATITUDE SAME NAME

L.H.A. 106°, 254°

76°, 284° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	12 05.6	-7.5	59.2	13 06.6	-5.7	59.6	14 06.9	-3.8	60.1	15 06.4	-2.0	60.5	16 05.1	-0.1	61.0
31	11 58.1	-7.8	58.2	13 00.9	-5.9	58.6	14 03.1	-4.1	59.0	15 04.4	-2.2	59.5	16 05.0	-0.4	59.9
32	11 50.3	-7.9	57.2	12 55.0	-6.2	57.6	13 59.0	-4.4	58.0	15 02.2	-2.6	58.4	16 04.6	-0.7	58.9
33	11 42.4	-8.2	56.2	12 48.8	-6.4	56.6	13 54.6	-4.7	57.0	14 59.6	-2.8	57.4	16 03.9	-1.0	57.9
34	11 34.2	-8.4	55.2	12 42.4	-6.7	55.5	13 49.9	-4.9	55.9	14 56.8	-3.1	56.4	16 02.9	-1.4	56.8
35	11 25.8	-8.6	54.2	12 35.7	-6.8	54.5	13 45.0	-5.1	54.9	14 53.7	-3.4	55.3	16 01.5	-1.6	55.8
36	11 17.2	-8.8	53.2	12 28.9	-7.2	53.5	13 39.9	-5.4	53.9	14 50.3	-3.7	54.3	15 59.9	-1.9	54.7
37	11 08.4	-9.0	52.2	12 21.7	-7.3	52.5	13 34.5	-5.7	52.9	14 46.6	-3.9	53.3	15 58.0	-2.2	53.7
38	10 59.4	-9.2	51.2	12 14.4	-7.6	51.5	13 28.8	-5.9	51.8	14 42.7	-4.2	52.2	15 55.8	-2.5	52.7
39	10 50.2	-9.4	50.2	12 06.8	-7.7	50.5	13 22.9	-6.1	50.8	14 38.5	-4.5	51.2	15 53.3	-2.8	51.6
40	10 40.8	-9.6	49.1	11 59.1	-8.0	49.5	13 16.8	-6.4	49.8	14 34.0	-4.8	50.2	15 50.5	-3.1	50.6
41	10 31.2	-9.8	48.1	11 51.1	-8.3	48.4	13 10.4	-6.6	48.8	14 29.2	-5.0	49.1	15 47.4	-3.4	49.6
42	10 21.4	-9.9	47.1	11 42.8	-8.4	47.4	13 03.8	-6.9	47.8	14 24.2	-5.3	48.1	15 44.0	-3.7	48.5
43	10 11.5	-10.2	46.1	11 34.4	-8.6	46.4	12 56.9	-7.1	46.7	14 18.9	-5.6	47.1	15 40.3	-4.0	47.5
44	10 01.3	-10.3	45.1	11 25.8	-8.9	45.4	12 49.8	-7.4	45.7	14 13.3	-5.8	46.1	15 36.3	-4.3	46.4
45	9 51.0	-10.5	44.1	11 16.9	-9.0	44.4	12 42.4	-7.5	44.7	14 07.5	-6.1	45.0	15 32.0	-4.5	45.4
46	9 40.5	-10.7	43.1	11 07.9	-9.3	43.4	12 34.9	-7.8	43.7	14 01.4	-6.3	44.0	15 27.5	-4.9	44.4
47	9 29.8	-10.8	42.1	10 58.6	-9.4	42.4	12 27.1	-8.1	42.7	13 55.1	-6.6	43.0	15 22.6	-5.1	43.3
48	9 19.0	-11.1	41.1	10 49.2	-9.7	41.4	12 19.0	-8.2	41.6	13 48.5	-6.9	42.0	15 17.5	-5.4	42.3
49	9 07.9	-11.1	40.1	10 39.5	-9.8	40.4	12 10.8	-8.5	40.6	13 41.6	-7.1	40.9	15 12.1	-5.7	41.3
50	8 56.8	-11.4	39.2	10 29.7	-10.0	39.4	12 02.3	-8.7	39.6	13 34.5	-7.3	39.9	15 06.4	-6.0	40.2
51	8 45.4	-11.5	38.2	10 19.7	-10.3	38.4	11 53.6	-8.9	38.6	13 27.2	-7.6	38.9	15 00.4	-6.3	39.2
52	8 33.9	-11.6	37.2	10 09.4	-10.4	37.4	11 44.7	-9.2	37.6	13 19.6	-7.9	37.9	14 54.1	-6.5	38.2
53	8 22.3	-11.8	36.2	9 59.0	-10.5	36.4	11 35.5	-9.3	36.6	13 11.7	-8.1	36.9	14 47.6	-6.8	37.2
54	8 10.5	-11.9	35.2	9 48.5	-10.8	35.4	11 26.2	-9.5	35.6	13 03.6	-8.3	35.8	14 40.8	-7.1	36.1
55	7 58.6	-12.1	34.2	9 37.7	-10.9	34.4	11 16.7	-9.8	34.6	12 55.3	-8.5	34.8	14 33.7	-7.4	35.1
56	7 46.5	-12.2	33.2	9 26.8	-11.1	33.4	11 06.9	-9.9	33.6	12 46.8	-8.8	33.8	14 26.3	-7.6	34.1
57	7 34.3	-12.4	32.2	9 15.7	-11.2	32.4	10 57.0	-10.2	32.6	12 38.0	-9.0	32.8	14 18.7	-7.9	33.1
58	7 21.9	-12.4	31.2	9 04.5	-11.4	31.4	10 46.8	-10.3	31.6	12 29.0	-9.3	31.8	14 10.8	-8.1	32.0
59	7 09.5	-12.6	30.2	8 53.1	-11.6	30.4	10 36.5	-10.5	30.6	12 19.7	-9.5	30.8	14 02.7	-8.4	31.0
60	6 56.9	-12.8	29.3	8 41.5	-11.7	29.4	10 26.0	-10.8	29.6	12 10.2	-9.7	29.8	13 54.3	-8.7	30.0
61	6 44.1	-12.8	28.3	8 29.8	-11.9	28.4	10 15.2	-10.9	28.6	12 00.5	-9.9	28.7	13 45.6	-8.9	29.0
62	6 31.3	-13.0	27.3	8 17.9	-12.0	27.4	10 04.3	-11.0	27.6	11 50.6	-10.1	27.7	13 36.7	-9.1	27.9
63	6 18.3	-13.0	26.3	8 05.9	-12.2	26.4	9 53.3	-11.3	26.6	11 40.5	-10.3	26.7	13 27.6	-9.4	26.9
64	6 05.3	-13.2	25.3	7 53.7	-12.3	25.4	9 42.0	-11.4	25.6	11 30.2	-10.6	25.7	13 18.2	-9.6	25.9
65	5 52.1	-13.3	24.3	7 41.4	-12.5	24.4	9 30.6	-11.6	24.6	11 19.6	-10.7	24.7	13 08.6	-9.9	24.9
66	5 38.8	-13.4	23.4	7 28.9	-12.5	23.5	9 19.0	-11.8	23.6	11 08.9	-10.9	23.7	12 58.7	-10.1	23.9
67	5 25.4	-13.4	22.4	7 16.4	-12.7	22.5	9 07.2	-11.9	22.6	10 58.0	-11.2	22.7	12 48.6	-10.3	22.9
68	5 12.0	-13.6	21.4	7 03.7	-12.9	21.5	8 55.3	-12.1	21.6	10 46.8	-11.3	21.7	12 38.3	-10.6	21.9
69	4 58.4	-13.6	20.4	6 50.8	-12.9	20.5	8 43.2	-12.2	20.6	10 35.5	-11.5	20.7	12 27.7	-10.8	20.9
70	4 44.8	-13.8	19.5	6 37.9	-13.1	19.5	8 31.0	-12.4	19.6	10 24.0	-11.7	19.7	12 16.9	-11.0	19.9
71	4 31.0	-13.8	18.5	6 24.8	-13.1	18.5	8 18.6	-12.5	18.6	10 12.3	-11.9	18.7	12 05.9	-11.2	18.8
72	4 17.2	-13.8	17.5	6 11.7	-13.3	17.6	8 06.1	-12.7	17.6	10 00.4	-12.1	17.7	11 54.7	-11.5	17.8
73	4 03.4	-14.0	16.5	5 58.4	-13.4	16.6	7 53.4	-12.8	16.6	9 48.3	-12.2	16.7	11 43.2	-11.6	16.8
74	3 49.4	-14.0	15.5	5 45.0	-13.5	15.6	7 40.6	-13.0	15.7	9 36.1	-12.4	15.7	11 31.6	-11.9	15.8
75	3 35.4	-14.1	14.6	5 31.5	-13.6	14.6	7 27.6	-13.1	14.7	9 23.7	-12.6	14.7	11 19.7	-12.0	14.8
76	3 21.3	-14.1	13.6	5 17.9	-13.6	13.6	7 14.5	-13.2	13.7	9 11.1	-12.7	13.8	11 07.7	-12.3	13.8
77	3 07.2	-14.2	12.6	5 04.3	-13.8	12.7	7 01.3	-13.3	12.7	8 58.4	-12.9	12.8	10 55.4	-12.4	12.8
78	2 53.0	-14.3	11.7	4 50.5	-13.8	11.7	6 48.0	-13.4	11.7	8 45.5	-13.0	11.8	10 43.0	-12.7	11.8
79	2 38.7	-14.2	10.7	4 36.7	-14.0	10.7	6 34.6	-13.6	10.7	8 32.5	-13.2	10.8	10 30.3	-12.8	10.9
80	2 24.5	-14.4	9.7	4 22.7	-14.0	9.7	6 21.0	-13.7	9.8	8 19.3	-13.4	9.8	10 17.5	-13.0	9.9
81	2 10.1	-14.3	8.7	4 08.7	-14.0	8.8	6 07.3	-13.7	8.8	8 05.9	-13.5	8.8	10 04.5	-13.2	8.9
82	1 55.8	-14.4	7.8	3 54.7	-14.2	7.8	5 53.6	-13.9	7.8	7 52.4	-13.6	7.8	9 51.3	-13.3	7.9
83	1 41.4	-14.5	6.8	3 40.5	-14.2	6.8	5 39.7	-14.0	6.8	7 38.8	-13.7	6.9	9 38.0	-13.6	6.9
84	1 26.9	-14.4	5.8	3 26.3	-14.2	5.8	5 25.7	-14.1	5.8	7 25.1	-13.9	5.9	9 24.4	-13.6	5.9
85	1 12.5	-14.5	4.9	3 12.1	-14.4	4.9	5 11.6	-14.1	4.9	7 11.2	-14.0	4.9	9 10.8	-13.9	4.9
86	0 58.0	-14.5	3.9	2 57.7	-14.3	3.9	4 57.5	-14.3	3.9	6 57.2	-14.1	3.9	8 56.9	-14.0	3.9
87	0 43.5	-14.5	2.9	2 43.4	-14.4	2.9	4 43.2	-14.3	2.9	6 43.1	-14.3	2.9	8 42.9	-14.2	2.9
88	0 29.0	-14.5	1.9	2 29.0	-14.5	1.9	4 28.9	-14.4	1.9	6 28.8	-14.3	2.0	8 28.7	-14.3	2.0
89	0 14.5	-14.5	1.0	2 14.5	-14.5	1.0	4 14.5	-14.5	1.0	6 14.5	-14.5	1.0	8 14.4	-14.4	1.0
90	0 00.0	-14.5	0.0	2 00.0	-14.5	0.0	4 00.0	-14.5	0.0	6 00.0	-14.6	0.0	8 00.0	-14.6	0.0

LATITUDE CONTRARY NAME

L.H.A. 76°, 284°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
12 05.6	-7.5	120.8	11 03.9	-9.3	121.1	10 01.7	-11.2	121.4	8 58.8	-12.9	121.7	7 55.5	-14.6	122.0	30
11 58.1	-7.8	121.8	10 54.6	-9.5	122.1	9 50.5	-11.3	122.4	8 45.9	-13.0	122.7	7 40.9	-14.8	122.9	31
11 50.3	-7.9	122.8	10 45.1	-9.8	123.1	9 39.2	-11.4	123.4	8 32.9	-13.2	123.7	7 26.1	-14.8	123.9	32
11 42.4	-8.2	123.8	10 35.3	-9.9	124.1	9 27.8	-11.7	124.4	8 19.7	-13.3	124.7	7 11.3	-15.1	124.9	33
11 34.2	-8.4	124.8	10 25.4	-10.1	125.1	9 16.1	-11.8	125.4	8 06.4	-13.5	125.7	6 56.2	-15.1	125.9	34
11 25.8	-8.6	125.8	10 15.3	-10.3	126.1	9 04.3	-11.9	126.4	7 52.9	-13.6	126.6	6 41.1	-15.2	126.8	35
11 17.2	-8.8	126.8	10 05.0	-10.5	127.1	8 52.4	-12.2	127.4	7 39.3	-13.8	127.6	6 25.9	-15.4	127.8	36
11 08.4	-9.0	127.8	9 54.5	-10.6	128.1	8 40.2	-12.2	128.4	7 25.5	-13.8	128.6	6 10.5	-15.4	128.8	37
10 59.4	-9.2	128.8	9 43.9	-10.8	129.1	8 28.0	-12.4	129.4	7 11.7	-14.0	129.6	5 55.1	-15.6	129.8	38
10 50.2	-9.4	129.8	9 33.1	-11.0	130.1	8 15.6	-12.6	130.4	6 57.7	-14.2	130.6	5 39.5	-15.7	130.7	39
10 40.8	-9.6	130.9	9 22.1	-11.2	131.1	8 03.0	-12.7	131.4	6 43.5	-14.2	131.5	5 23.8	-15.6	131.7	40
10 31.2	-9.8	131.9	9 10.9	-11.3	132.1	7 50.3	-12.9	132.3	6 29.3	-14.3	132.5	5 08.1	-15.9	132.7	41
10 21.4	-9.9	132.9	8 59.6	-11.5	133.1	7 37.4	-12.9	133.3	6 15.0	-14.5	133.5	4 52.2	-15.9	133.6	42
10 11.5	-10.2	133.9	8 48.1	-11.6	134.1	7 24.5	-13.2	134.3	6 00.5	-14.6	134.5	4 36.3	-16.0	134.6	43
10 01.3	-10.3	134.9	8 36.5	-11.8	135.1	7 11.3	-13.2	135.3	5 45.9	-14.6	135.5	4 20.3	-16.1	135.6	44
9 51.0	-10.5	135.9	8 24.7	-11.9	136.1	6 58.1	-13.4	136.4	5 31.3	-14.8	136.4	4 04.2	-16.1	136.5	45
9 40.5	-10.7	136.9	8 12.8	-12.1	137.1	6 44.7	-13.4	137.3	5 16.5	-14.8	137.4	3 48.1	-16.2	137.5	46
9 29.8	-10.8	137.9	8 00.7	-12.3	138.1	6 31.3	-13.6	138.2	5 01.7	-15.0	138.4	3 31.9	-16.3	138.5	47
9 19.0	-11.1	138.9	7 48.4	-12.3	139.1	6 17.7	-13.7	139.2	4 46.7	-15.0	139.3	3 15.6	-16.3	139.4	48
9 07.9	-11.1	139.9	7 36.1	-12.5	140.0	6 04.0	-13.8	140.2	4 31.7	-15.1	140.3	2 59.3	-16.4	140.4	49
8 56.8	-11.4	140.8	7 23.6	-12.6	141.0	5 50.2	-13.9	141.2	4 16.6	-15.1	141.3	2 42.9	-16.4	141.4	50
8 45.4	-11.5	141.8	7 11.0	-12.8	142.0	5 36.3	-14.0	142.2	4 01.5	-15.3	142.3	2 26.5	-16.4	142.3	51
8 33.9	-11.6	142.8	6 58.2	-12.9	143.0	5 22.3	-14.1	143.1	3 46.2	-15.3	143.2	2 10.1	-16.5	143.3	52
8 22.3	-11.8	143.8	6 45.3	-13.0	144.0	5 08.2	-14.2	144.1	3 30.9	-15.3	144.2	1 53.6	-16.6	144.2	53
8 10.5	-11.9	144.8	6 32.3	-13.1	145.0	4 54.0	-14.3	145.1	3 15.6	-15.5	145.2	1 37.0	-16.5	145.2	54
7 58.6	-12.1	145.8	6 19.2	-13.2	145.9	4 39.7	-14.3	146.1	3 00.1	-15.4	146.1	1 20.5	-16.6	146.2	55
7 46.5	-12.2	146.8	6 06.0	-13.3	146.9	4 25.4	-14.4	147.0	2 44.7	-15.5	147.1	1 03.9	-16.6	147.1	56
7 34.3	-12.4	147.8	5 52.7	-13.4	147.9	4 11.0	-14.5	148.0	2 29.2	-15.6	148.1	0 47.3	-16.6	148.1	57
7 21.9	-12.4	148.8	5 39.3	-13.6	148.9	3 56.5	-14.6	149.0	2 13.6	-15.6	149.0	0 30.7	-16.6	149.1	58
7 09.5	-12.6	149.8	5 25.7	-13.6	149.9	3 41.9	-14.6	149.9	1 58.0	-15.6	150.0	0 14.1	-16.7	150.0	59
6 56.9	-12.8	150.7	5 12.1	-13.7	150.8	3 27.3	-14.7	150.9	1 42.4	-15.7	151.0	0 02.6	+16.6	29.0	60
6 44.1	-12.8	151.7	4 58.4	-13.8	151.8	3 12.6	-14.8	151.9	1 26.7	-15.7	151.9	0 19.2	+16.6	28.1	61
6 31.3	-13.0	152.7	4 44.6	-13.9	152.8	2 57.8	-14.8	152.9	1 11.0	-15.7	152.9	0 35.8	+16.6	27.1	62
6 18.3	-13.0	153.7	4 30.7	-13.9	153.8	2 43.0	-14.8	153.8	0 55.3	-15.7	153.9	0 52.4	+16.6	26.1	63
6 05.3	-13.2	154.7	4 16.8	-14.1	154.8	2 28.2	-14.9	154.8	0 39.6	-15.7	154.8	1 09.0	+16.6	25.2	64
5 52.1	-13.3	155.7	4 02.7	-14.1	155.7	2 13.3	-14.9	155.8	0 23.9	-15.8	155.8	1 25.6	+16.5	24.2	65
5 38.8	-13.4	156.6	3 48.6	-14.1	156.7	1 58.4	-15.0	156.7	0 08.1	-15.7	156.8	1 42.1	+16.5	23.3	66
5 25.4	-13.4	157.6	3 34.5	-14.3	157.7	1 43.4	-14.9	157.7	0 07.6	+15.7	22.3	1 58.6	+16.5	22.3	67
5 12.0	-13.6	158.6	3 20.2	-14.3	158.6	1 28.5	-15.1	158.7	0 23.3	+15.8	21.3	2 15.1	+16.5	21.3	68
4 58.4	-13.6	159.6	3 05.9	-14.3	159.6	1 13.4	-15.0	159.6	0 39.1	+15.7	20.3	2 31.6	+16.4	20.4	69
4 44.8	-13.8	160.5	2 51.6	-14.4	160.6	0 58.4	-15.0	160.6	0 54.8	+15.7	19.4	2 48.0	+16.3	19.4	70
4 31.0	-13.8	161.5	2 37.2	-14.4	161.6	0 43.4	-15.1	161.6	1 10.5	+15.7	18.4	3 04.3	+16.3	18.4	71
4 17.2	-13.8	162.5	2 22.8	-14.5	162.5	0 28.3	-15.1	162.6	1 26.2	+15.6	17.5	3 20.6	+16.3	17.5	72
4 03.4	-14.0	163.5	2 08.3	-14.5	163.5	0 13.2	-15.0	163.5	1 41.8	+15.7	16.5	3 36.9	+16.2	16.5	73
3 49.4	-14.0	164.5	1 53.8	-14.6	164.5	0 01.8	+15.1	15.5	1 57.5	+15.6	15.5	3 53.1	+16.1	15.5	74
3 35.4	-14.1	165.4	1 39.2	-14.5	165.4	0 16.9	+15.1	14.5	2 13.1	+15.5	14.6	4 09.2	+16.1	14.6	75
3 21.3	-14.1	166.4	1 24.7	-14.6	166.4	0 32.0	+15.0	13.6	2 28.6	+15.5	13.6	4 25.3	+15.9	13.6	76
3 07.2	-14.2	167.4	1 10.1	-14.6	167.4	0 47.0	+15.1	12.6	2 44.1	+15.5	12.6	4 41.2	+15.9	12.7	77
2 53.0	-14.3	168.3	0 55.5	-14.7	168.4	1 02.1	+15.0	11.6	2 59.6	+15.4	11.7	4 57.1	+15.8	11.7	78
2 38.7	-14.2	169.3	0 40.8	-14.6	169.3	1 17.1	+15.0	10.7	3 15.0	+15.4	10.7	5 12.9	+15.8	10.7	79
2 24.5	-14.4	170.3	0 26.2	-14.7	170.3	1 32.1	+15.0	9.7	3 30.4	+15.3	9.7	5 28.7	+15.6	9.7	80
2 10.1	-14.3	171.3	0 11.5	-14.6	171.3	1 47.1	+14.9	8.7	3 45.7	+15.2	8.7	5 44.3	+15.5	8.8	81
1 55.8	-14.4	172.2	0 03.1	+14.7	7.8	2 02.0	+14.9	7.8	4 00.9	+15.2	7.8	5 59.8	+15.5	7.8	82
1 41.4	-14.5	173.2	0 17.8	+14.6	6.8	2 16.9	+14.9	6.8	4 16.1	+15.1	6.8	6 15.3	+15.3	6.8	83
1 26.9	-14.4	174.2	0 32.4	+14.7	5.8	2 31.8	+14.8	5.8	4 31.2	+15.0	5.8	6 30.6	+15.2	5.9	84
1 12.5	-14.5	175.1	0 47.1	+14.6	4.9	2 46.6	+14.8	4.9	4 46.2	+15.0	4.9	6 45.8	+15.1	4.9	85
0 58.0	-14.5	176.1	1 01.7	+14.6	3.9	3 01.4	+14.8	3.9	5 01.2	+14.8	3.9	7 00.9	+15.0	3.9	86
0 43.5	-14.5	177.1	1 16.3	+14.6	2.9	3 16.2	+14.6	2.9	5 16.0	+14.8	2.9	7 15.9	+14.8	2.9	87
0 29.0	-14.5	178.1	1 30.9	+14.6	1.9	3 30.8	+14.7	1.9	5 30.8	+14.6	1.9	7 30.7	+14.7	2.0	88
0 14.5	-14.5	179.0	1 45.5	+14.5	1.0	3 45.5	+14.5	1.0	5 45.4	+14.6	1.0	7 45.4	+14.6	1.0	89
0 00.0	+14.5	0.0	2 00.0	+14.5	0.0	4 00.0	+14.5	0.0	6 00.0	+14.5	0.0	8 00.0	+14.4	0.0	90

LATITUDE SAME NAME

L.H.A. 104°, 256°

76°, 284° L.H.A.

LATITUDE SAME NAME

Dec. °	10°			12°			14°			16°			18°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	17 02.8	+1.8	61.5	17 59.5	+3.8	62.1	18 55.2	+5.7	62.7	19 49.7	+7.7	63.3	20 43.1	+9.6	63.9
31	17 04.6	+1.5	60.5	18 03.3	+3.3	61.0	19 00.9	+5.3	61.6	19 57.4	+7.2	62.2	20 52.7	+9.2	62.9
32	17 06.1	+1.1	59.4	18 06.6	+3.1	60.0	19 06.2	+4.9	60.6	20 04.6	+6.9	61.2	21 01.9	+8.8	61.8
33	17 07.2	+0.9	58.4	18 09.7	+2.7	58.9	19 11.1	+4.6	59.5	20 11.5	+6.5	60.1	21 10.7	+8.4	60.8
34	17 08.1	+0.5	57.3	18 12.4	+2.3	57.9	19 15.7	+4.2	58.4	20 18.0	+6.1	59.1	21 19.1	+8.0	59.7
35	17 08.6	+0.2	56.3	18 14.7	+2.1	56.8	19 19.9	+3.9	57.4	20 24.1	+5.7	58.0	21 27.1	+7.6	58.6
36	17 08.8	-0.2	55.2	18 16.8	+1.6	55.8	19 23.8	+3.5	56.3	20 29.8	+5.3	56.9	21 34.7	+7.2	57.6
37	17 08.6	-0.4	54.2	18 18.4	+1.3	54.7	19 27.3	+3.1	55.3	20 35.1	+5.0	55.9	21 41.9	+6.8	56.5
38	17 08.2	-0.8	53.1	18 19.7	+1.0	53.7	19 30.4	+2.7	54.2	20 40.1	+4.5	54.8	21 48.7	+6.4	55.4
39	17 07.4	-1.1	52.1	18 20.7	+0.6	52.6	19 33.1	+2.4	53.1	20 44.6	+4.2	53.7	21 55.1	+5.9	54.4
40	17 06.3	-1.4	51.0	18 21.3	+0.3	51.5	19 35.5	+2.0	52.1	20 48.8	+3.7	52.7	22 01.0	+5.6	53.3
41	17 04.9	-1.8	50.0	18 21.6	0.0	50.5	19 37.5	+1.7	51.0	20 52.5	+3.4	51.6	22 06.6	+5.1	52.2
42	17 03.1	-2.0	49.0	18 21.6	-0.5	49.4	19 39.2	+1.2	50.0	20 55.9	+3.0	50.5	22 11.7	+4.7	51.1
43	17 01.1	-2.4	47.9	18 21.1	-0.7	48.4	19 40.4	+0.9	48.9	20 58.9	+2.5	49.5	22 16.4	+4.2	50.1
44	16 58.7	-2.7	46.9	18 20.4	-1.1	47.3	19 41.3	+0.5	47.8	21 01.4	+2.2	48.4	22 20.6	+3.9	49.0
45	16 56.0	-3.0	45.8	18 19.3	-1.5	46.3	19 41.8	+0.2	46.8	21 03.6	+1.7	47.3	22 24.5	+3.4	47.9
46	16 53.0	-3.4	44.8	18 17.8	-1.8	45.2	19 42.0	-0.3	45.7	21 05.3	+1.4	46.3	22 27.9	+3.0	46.8
47	16 49.6	-3.6	43.7	18 16.0	-2.1	44.2	19 41.7	-0.6	44.7	21 06.7	+1.0	45.2	22 30.9	+2.5	45.8
48	16 46.0	-4.0	42.7	18 13.9	-2.5	43.1	19 41.1	-1.0	43.6	21 07.7	+0.5	44.1	22 33.4	+2.1	44.7
49	16 42.0	-4.3	41.7	18 11.4	-2.9	42.1	19 40.1	-1.3	42.5	21 08.2	+0.1	43.0	22 35.5	+1.7	43.6
50	16 37.7	-4.6	40.6	18 08.5	-3.1	41.0	19 38.8	-1.8	41.5	21 08.3	-0.2	42.0	22 37.2	+1.2	42.5
51	16 33.1	-4.9	39.6	18 05.4	-3.6	40.0	19 37.0	-2.1	40.4	21 08.1	-0.7	40.9	22 38.4	+0.8	41.4
52	16 28.2	-5.2	38.5	18 01.8	-3.8	38.9	19 34.9	-2.5	39.3	21 07.4	-1.1	39.8	22 39.2	+0.4	40.3
53	16 23.0	-5.5	37.5	17 58.0	-4.2	37.9	19 32.4	-2.8	38.3	21 06.3	-1.4	38.8	22 39.6	-0.1	39.3
54	16 17.5	-5.8	36.5	17 53.8	-4.6	36.8	19 29.6	-3.2	37.2	21 04.9	-1.9	37.7	22 39.5	-0.5	38.2
55	16 11.7	-6.2	35.4	17 49.2	-4.8	35.8	19 26.4	-3.6	36.2	21 03.0	-2.3	36.6	22 39.0	-0.9	37.1
56	16 05.5	-6.4	34.4	17 44.4	-5.2	34.7	19 22.8	-4.0	35.1	21 00.7	-2.7	35.5	22 38.1	-1.4	36.0
57	15 59.1	-6.7	33.3	17 39.2	-5.6	33.7	19 18.8	-4.3	34.1	20 58.0	-3.1	34.5	22 36.7	-1.9	34.9
58	15 52.4	-7.0	32.3	17 33.6	-5.8	32.6	19 14.5	-4.7	33.0	20 54.9	-3.5	33.4	22 34.8	-2.2	33.8
59	15 45.4	-7.3	31.3	17 27.8	-6.2	31.6	19 09.8	-5.0	31.9	20 51.4	-3.9	32.3	22 32.6	-2.7	32.8
60	15 38.1	-7.6	30.3	17 21.6	-6.5	30.6	19 04.8	-5.4	30.9	20 47.5	-4.2	31.3	22 29.9	-3.1	31.7
61	15 30.5	-7.9	29.2	17 15.1	-6.8	29.5	18 59.4	-5.8	29.8	20 43.3	-4.7	30.2	22 26.8	-3.6	30.6
62	15 22.6	-8.1	28.2	17 08.3	-7.2	28.5	18 53.6	-6.1	28.8	20 38.6	-5.1	29.1	22 23.2	-4.0	29.5
63	15 14.5	-8.5	27.2	17 01.1	-7.5	27.4	18 47.5	-6.5	27.7	20 33.5	-5.4	28.1	22 19.2	-4.4	28.4
64	15 06.0	-8.7	26.1	16 53.6	-7.7	26.4	18 41.0	-6.8	26.7	20 28.1	-5.9	27.0	22 14.8	-4.8	27.4
65	14 57.3	-9.0	25.1	16 45.9	-8.1	25.4	18 34.2	-7.2	25.6	20 22.2	-6.2	25.9	22 10.0	-5.3	26.3
66	14 48.3	-9.2	24.1	16 37.8	-8.4	24.3	18 27.0	-7.5	24.6	20 16.0	-6.6	24.9	22 04.7	-5.6	25.2
67	14 39.1	-9.6	23.1	16 29.4	-8.7	23.3	18 19.5	-7.8	23.5	20 09.4	-7.0	23.8	21 59.1	-6.1	24.1
68	14 29.5	-9.7	22.1	16 20.7	-9.0	22.3	18 11.7	-8.2	22.5	20 02.4	-7.3	22.8	21 53.0	-6.6	23.1
69	14 19.8	-10.1	21.0	16 11.7	-9.3	21.2	18 03.5	-8.6	21.5	19 55.1	-7.8	21.7	21 46.4	-6.9	22.0
70	14 09.7	-10.3	20.0	16 02.4	-9.6	20.2	17 54.9	-8.8	20.4	19 47.3	-8.1	20.7	21 39.5	-7.3	20.9
71	13 59.4	-10.6	19.0	15 52.8	-9.9	19.2	17 46.1	-9.2	19.4	19 39.2	-8.5	19.6	21 32.2	-7.8	19.9
72	13 48.8	-10.8	18.0	15 42.9	-10.1	18.1	17 36.9	-9.5	18.3	19 30.7	-8.8	18.5	21 24.4	-8.1	18.8
73	13 38.0	-11.0	17.0	15 32.8	-10.5	17.1	17 27.4	-9.8	17.3	19 21.9	-9.2	17.5	21 16.3	-8.6	17.7
74	13 27.0	-11.3	16.0	15 22.3	-10.7	16.1	17 17.6	-10.2	16.3	19 12.7	-9.6	16.5	21 07.7	-8.9	16.7
75	13 15.7	-11.6	15.0	15 11.6	-11.0	15.1	17 07.4	-10.4	15.2	19 03.1	-9.9	15.4	20 58.8	-9.4	15.6
76	13 04.1	-11.7	13.9	15 00.6	-11.3	14.1	16 57.0	-10.8	14.2	18 53.2	-10.2	14.4	20 49.4	-9.7	14.5
77	12 52.4	-12.0	12.9	14 49.3	-11.5	13.0	16 46.2	-11.1	13.2	18 43.0	-10.6	13.3	20 39.7	-10.1	13.5
78	12 40.4	-12.2	11.9	14 37.8	-11.8	12.0	16 35.1	-11.4	12.2	18 32.4	-10.9	12.3	20 29.6	-10.5	12.4
79	12 28.2	-12.5	10.9	14 26.0	-12.1	11.0	16 23.7	-11.6	11.1	18 21.5	-11.3	11.2	20 19.1	-10.8	11.4
80	12 15.7	-12.6	9.9	14 13.9	-12.3	10.0	16 12.1	-12.0	10.1	18 10.2	-11.6	10.2	20 08.3	-11.3	10.3
81	12 03.1	-12.9	8.9	14 01.6	-12.6	9.0	16 00.1	-12.3	9.1	17 58.6	-12.0	9.2	19 57.0	-11.6	9.3
82	11 50.2	-13.1	7.9	13 49.0	-12.8	8.0	15 47.8	-12.5	8.1	17 46.6	-12.2	8.2	19 45.4	-11.9	8.2
83	11 37.1	-13.3	6.9	13 36.2	-13.0	7.0	15 35.3	-12.8	7.1	17 34.4	-12.6	7.1	19 33.5	-12.4	7.2
84	11 23.8	-13.5	5.9	13 23.2	-13.3	6.0	15 22.5	-13.1	6.0	17 21.8	-12.9	6.1	19 21.1	-12.6	6.2
85	11 10.3	-13.7	4.9	13 09.9	-13.6	5.0	15 09.4	-13.4	5.0	17 08.9	-13.2	5.1	19 08.5	-13.1	5.1
86	10 56.6	-13.9	4.0	12 56.3	-13.7	4.0	14 56.0	-13.6	4.0	16 55.7	-13.4	4.1	18 55.4	-13.3	4.1
87	10 42.7	-14.0	3.0	12 42.6	-14.0	3.0	14 42.4	-13.9	3.0	16 42.3	-13.8	3.0	18 42.1	-13.7	3.1
88	10 28.7	-14.3	2.0	12 28.6	-14.2	2.0	14 28.5	-14.1	2.0	16 28.5	-14.1	2.0	18 28.4	-14.0	2.0
89	10 14.4	-14.4	1.0	12 14.4	-14.4	1.0	14 14.4	-14.4	1.0	16 14.4	-14.4	1.0	18 14.4	-14.4	1.0
90	10 00.0	-14.6	0.0	12 00.0	-14.6	0.0	14 00.0	-14.6	0.0	16 00.0	-14.7	0.0	18 00.0	-14.7	0.0

LATITUDE CONTRARY NAME

L.H.A. 76°, 284°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
6 51.8	-16.3	122.2	5 47.7	-18.0	122.4	4 43.3	-19.7	122.5	3 38.7	-21.4	122.6	2 33.9	-23.0	122.7	30
6 35.5	-16.5	123.2	5 29.7	-18.2	123.3	4 23.6	-19.8	123.5	3 17.3	-21.4	123.6	2 10.9	-23.1	123.7	31
6 19.0	-16.6	124.1	5 11.5	-18.2	124.3	4 03.8	-19.8	124.4	2 55.9	-21.5	124.5	1 47.8	-23.0	124.6	32
6 02.4	-16.6	125.1	4 53.3	-18.3	125.2	3 44.0	-19.9	125.4	2 34.4	-21.5	125.5	1 24.8	-23.1	125.5	33
5 45.8	-16.8	126.1	4 35.0	-18.4	126.2	3 24.1	-20.0	126.3	2 12.9	-21.5	126.4	1 01.7	-23.1	126.4	34
5 29.0	-16.8	127.0	4 16.6	-18.4	127.2	3 04.1	-20.0	127.3	1 51.4	-21.6	127.3	0 38.6	-23.1	127.4	35
5 12.2	-17.0	128.0	3 58.2	-18.5	128.1	2 44.1	-20.1	128.2	1 29.8	-21.6	128.3	0 15.5	-23.1	128.3	36
4 55.2	-17.0	128.9	3 39.7	-18.6	129.1	2 24.0	-20.1	129.1	1 08.2	-21.6	129.2	0 07.6	+23.1	50.8	37
4 38.2	-17.1	129.9	3 21.1	-18.6	130.0	2 03.9	-20.1	130.1	0 46.6	-21.6	130.1	0 30.7	+23.2	49.9	38
4 21.1	-17.2	130.9	3 02.5	-18.7	131.0	1 43.8	-20.2	131.0	0 25.0	-21.7	131.1	0 53.9	+23.0	49.0	39
4 03.9	-17.2	131.8	2 43.8	-18.7	131.9	1 23.6	-20.2	132.0	0 03.3	-21.6	132.0	1 16.9	+23.1	48.0	40
3 46.7	-17.4	132.8	2 25.1	-18.8	132.9	1 03.4	-20.2	132.9	0 18.3	+21.6	47.1	1 40.0	+23.1	47.1	41
3 29.3	-17.3	133.7	2 06.3	-18.8	133.8	0 43.2	-20.2	133.9	0 39.9	+21.7	46.1	2 03.1	+23.0	46.2	42
3 12.0	-17.4	134.7	1 47.5	-18.8	134.8	0 23.0	-20.2	134.8	1 01.6	+21.6	45.2	2 26.1	+22.9	45.3	43
2 54.6	-17.5	135.7	1 28.7	-18.9	135.7	0 02.8	-20.3	135.7	1 23.2	+21.6	44.3	2 49.0	+23.0	44.3	44
2 37.1	-17.5	136.6	1 09.8	-18.8	136.7	0 17.5	+20.2	43.3	1 44.8	+21.5	43.3	3 12.0	+22.9	43.4	45
2 19.6	-17.6	137.6	0 51.0	-18.9	137.6	0 37.7	+20.2	42.4	2 06.3	+21.5	42.4	3 34.9	+22.8	42.5	46
2 02.0	-17.6	138.5	0 32.1	-18.9	138.6	0 57.9	+20.2	41.4	2 27.8	+21.5	41.5	3 57.7	+22.8	41.6	47
1 44.4	-17.6	139.5	0 13.2	-18.9	139.5	1 18.1	+20.2	40.5	2 49.3	+21.5	40.5	4 20.5	+22.6	40.6	48
1 26.8	-17.6	140.4	0 05.7	+18.9	39.5	1 38.3	+20.1	39.6	3 10.8	+21.3	39.6	4 43.1	+22.7	39.7	49
1 09.2	-17.7	141.4	0 24.6	+18.9	38.6	1 58.4	+20.1	38.6	3 32.1	+21.4	38.7	5 05.8	+22.5	38.8	50
0 51.5	-17.7	142.4	0 43.5	+18.9	37.6	2 18.5	+20.1	37.7	3 53.5	+21.2	37.7	5 28.3	+22.5	37.8	51
0 33.8	-17.6	143.3	1 02.4	+18.9	36.7	2 38.6	+20.0	36.7	4 14.7	+21.2	36.8	5 50.8	+22.3	36.9	52
0 16.2	-17.7	144.3	1 21.3	+18.8	35.7	2 58.6	+20.0	35.8	4 35.9	+21.2	35.9	6 13.1	+22.3	36.0	53
0 01.5	+17.7	34.8	1 40.1	+18.8	34.8	3 18.6	+20.0	34.8	4 57.1	+21.0	34.9	6 35.4	+22.2	35.0	54
0 19.2	+17.7	33.8	1 58.9	+18.8	33.8	3 38.6	+19.8	33.9	5 18.1	+21.0	34.0	6 57.6	+22.0	34.1	55
0 36.9	+17.7	32.9	2 17.7	+18.7	32.9	3 58.4	+19.8	32.9	5 39.1	+20.8	33.0	7 19.6	+21.9	33.2	56
0 54.6	+17.6	31.9	2 36.4	+18.7	31.9	4 18.2	+19.8	32.0	5 59.9	+20.8	32.1	7 41.5	+21.8	32.2	57
1 12.2	+17.7	31.0	2 55.1	+18.7	31.0	4 38.0	+19.6	31.1	6 20.7	+20.7	31.2	8 03.3	+21.7	31.3	58
1 29.9	+17.6	30.0	3 13.8	+18.6	30.0	4 57.6	+19.6	30.1	6 41.4	+20.6	30.2	8 25.0	+21.6	30.3	59
1 47.5	+17.6	29.0	3 32.4	+18.5	29.1	5 17.2	+19.5	29.2	7 02.0	+20.4	29.3	8 46.6	+21.4	29.4	60
2 05.1	+17.5	28.1	3 50.9	+18.5	28.1	5 36.7	+19.4	28.2	7 22.4	+20.3	28.3	9 08.0	+21.2	28.5	61
2 22.6	+17.5	27.1	4 09.4	+18.4	27.2	5 56.1	+19.3	27.3	7 42.7	+20.2	27.4	9 29.2	+21.1	27.5	62
2 40.1	+17.5	26.2	4 27.8	+18.3	26.2	6 15.4	+19.2	26.3	8 02.9	+20.1	26.4	9 50.3	+21.0	26.6	63
2 57.6	+17.4	25.2	4 46.1	+18.3	25.3	6 34.6	+19.1	25.4	8 23.0	+19.9	25.5	10 11.3	+20.8	25.6	64
3 15.0	+17.4	24.3	5 04.4	+18.2	24.3	6 53.7	+19.0	24.4	8 42.9	+19.8	24.5	10 32.1	+20.6	24.7	65
3 32.4	+17.3	23.3	5 22.6	+18.0	23.4	7 12.7	+18.8	23.4	9 02.7	+19.7	23.6	10 52.7	+20.4	23.7	66
3 49.7	+17.2	22.3	5 40.6	+18.0	22.4	7 31.5	+18.8	22.5	9 22.4	+19.5	22.6	11 13.1	+20.3	22.7	67
4 06.9	+17.2	21.4	5 58.6	+17.9	21.4	7 50.3	+18.6	21.5	9 41.9	+19.3	21.6	11 33.4	+20.0	21.8	68
4 24.1	+17.0	20.4	6 16.5	+17.8	20.5	8 08.9	+18.5	20.6	10 01.2	+19.2	20.7	11 53.4	+19.9	20.8	69
4 41.1	+17.1	19.4	6 34.3	+17.6	19.5	8 27.4	+18.3	19.6	10 20.4	+19.0	19.7	12 13.3	+19.6	19.8	70
4 58.2	+16.9	18.5	6 51.9	+17.6	18.6	8 45.7	+18.2	18.6	10 39.4	+18.8	18.8	12 32.9	+19.5	18.9	71
5 15.1	+16.8	17.5	7 09.5	+17.4	17.6	9 03.9	+18.0	17.7	10 58.2	+18.6	17.8	12 52.4	+19.2	17.9	72
5 31.9	+16.8	16.6	7 26.9	+17.3	16.6	9 21.9	+17.9	16.7	11 16.8	+18.4	16.8	13 11.6	+19.0	16.9	73
5 48.7	+16.6	15.6	7 44.2	+17.2	15.7	9 39.8	+17.7	15.7	11 35.2	+18.3	15.8	13 30.6	+18.8	16.0	74
6 05.3	+16.6	14.6	8 01.4	+17.1	14.7	9 57.5	+17.5	14.8	11 53.5	+18.0	14.9	13 49.4	+18.6	15.0	75
6 21.9	+16.4	13.7	8 18.5	+16.9	13.7	10 15.0	+17.4	13.8	12 11.5	+17.9	13.9	14 08.0	+18.3	14.0	76
6 38.3	+16.3	12.7	8 35.4	+16.7	12.8	10 32.4	+17.2	12.8	12 29.4	+17.6	12.9	14 26.3	+18.1	13.0	77
6 54.6	+16.2	11.7	8 52.1	+16.6	11.8	10 49.6	+17.0	11.9	12 47.0	+17.4	11.9	14 44.4	+17.8	12.0	78
7 10.8	+16.1	10.8	9 08.7	+16.5	10.8	11 06.6	+16.8	10.9	13 04.4	+17.2	11.0	15 02.2	+17.6	11.1	79
7 26.9	+16.0	9.8	9 25.2	+16.3	9.8	11 23.4	+16.6	9.9	13 21.6	+17.0	10.0	15 19.8	+17.3	10.1	80
7 42.9	+15.8	8.8	9 41.5	+16.1	8.9	11 40.0	+16.4	8.9	13 38.6	+16.7	9.0	15 37.1	+17.0	9.1	81
7 58.7	+15.7	7.8	9 57.6	+15.9	7.9	11 56.4	+16.3	7.9	13 55.3	+16.5	8.0	15 54.1	+16.8	8.1	82
8 14.4	+15.5	6.9	10 13.5	+15.8	6.9	12 12.7	+16.0	6.9	14 11.8	+16.2	7.0	16 10.9	+16.4	7.1	83
8 29.9	+15.4	5.9	10 29.3	+15.6	5.9	12 28.7	+15.8	6.0	14 28.0	+16.0	6.0	16 27.3	+16.2	6.1	84
8 45.3	+15.3	4.9	10 44.9	+15.4	4.9	12 44.5	+15.5	5.0	14 44.0	+15.7	5.0	16 43.5	+15.9	5.1	85
9 00.6	+15.1	3.9	11 00.3	+15.2	4.0	13 00.0	+15.4	4.0	14 59.7	+15.5	4.0	16 59.4	+15.6	4.1	86
9 15.7	+14.9	2.9	11 15.5	+15.1	3.0	13 15.4	+15.1	3.0	15 15.2	+15.2	3.0	17 15.0	+15.3	3.0	87
9 30.6	+14.8	2.0	11 30.6	+14.8	2.0	13 30.5	+14.9	2.0	15 30.4	+14.9	2.0	17 30.3	+15.0	2.0	88
9 45.4	+14.6	1.0	11 45.4	+14.6	1.0	13 45.4	+14.6	1.0	15 45.3	+14.7	1.0	17 45.3	+14.7	1.0	89
10 00.0	+14.4	0.0	12 00.0	+14.4	0.0	14 00.0	+14.4	0.0	16 00.0	+14.4	0.0	18 00.0	+14.4	0.0	90

LATITUDE SAME NAME

L.H.A. 104°, 256°

76°, 284° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	21 35.1	+11.6	64.6	22 25.8	-13.6	65.4	23 15.1	+15.6	66.1	24 02.8	+17.6	66.9	24 49.0	+19.6	67.8
31	21 46.7	+11.2	63.6	22 39.4	-13.1	64.3	23 30.7	+15.1	65.1	24 20.4	+17.2	65.9	25 08.6	+19.2	66.7
32	21 57.9	+10.7	62.5	22 52.5	-12.8	63.3	23 45.8	+14.7	64.0	24 37.6	+16.7	64.8	25 27.8	+18.7	65.7
33	22 08.6	+10.4	61.5	23 05.3	-12.3	62.2	24 00.5	+14.3	63.0	24 54.3	+16.3	63.8	25 46.5	+18.2	64.6
34	22 19.0	+9.9	60.4	23 17.6	-11.9	61.1	24 14.8	+13.8	61.9	25 10.6	+15.8	62.7	26 04.7	+17.8	63.6
35	22 28.9	+9.5	59.3	23 29.5	-11.4	60.1	24 28.6	+13.4	60.8	25 26.4	+15.3	61.7	26 22.5	+17.3	62.5
36	22 38.4	+9.1	58.3	23 40.9	-11.0	59.0	24 42.0	+12.9	59.8	25 41.7	+14.9	60.6	26 39.8	+16.9	61.5
37	22 47.5	+8.7	57.2	23 51.9	-10.5	57.9	24 54.9	+12.5	58.7	25 56.6	+14.3	59.5	26 56.7	+16.3	60.4
38	22 56.2	+8.2	56.1	24 02.4	-10.1	56.8	25 07.4	+12.0	57.6	26 10.9	+14.0	58.4	27 13.0	+15.8	59.3
39	23 04.4	+7.8	55.0	24 12.5	+9.7	55.8	25 19.4	+11.5	56.5	26 24.9	+13.4	57.3	27 28.8	+15.4	58.2
40	23 12.2	+7.3	54.0	24 22.2	+9.1	54.7	25 30.9	+11.0	55.4	26 38.3	+12.9	56.3	27 44.2	+14.8	57.1
41	23 19.5	+6.9	52.9	24 31.3	+8.8	53.6	25 41.9	+10.6	54.4	26 51.2	+12.4	55.2	27 59.0	+14.3	56.0
42	23 26.4	+6.5	51.8	24 40.1	+8.2	52.5	25 52.5	+10.0	53.3	27 03.6	+11.9	54.1	28 13.3	+13.7	54.9
43	23 32.9	+6.0	50.7	24 48.3	+7.7	51.4	26 02.5	+9.6	52.2	27 15.5	+11.3	53.0	28 27.0	+13.2	53.8
44	23 38.9	+5.5	49.6	24 56.0	+7.3	50.3	26 12.1	+9.0	51.1	27 26.8	+10.9	51.9	28 40.2	+12.7	52.7
45	23 44.4	+5.1	48.5	25 03.3	+6.8	49.2	26 21.1	+8.5	50.0	27 37.7	+10.3	50.8	28 52.9	+12.1	51.6
46	23 49.5	+4.6	47.5	25 10.1	+6.3	48.1	26 29.6	+8.1	48.9	27 48.0	+9.8	49.6	29 05.0	+11.6	50.5
47	23 54.1	+4.2	46.4	25 16.4	+5.9	47.0	26 37.7	+7.5	47.8	27 57.8	+9.2	48.5	29 16.6	+11.0	49.3
48	23 58.3	+3.7	45.3	25 22.3	+5.3	45.9	26 45.2	+7.0	46.6	28 07.0	+8.7	47.4	29 27.6	+10.4	48.2
49	24 02.0	+3.2	44.2	25 27.6	+4.8	44.8	26 52.2	+6.4	45.5	28 15.7	+8.1	46.3	29 38.0	+9.9	47.1
50	24 05.2	+2.8	43.1	25 32.4	+4.4	43.7	26 58.6	+6.0	44.4	28 23.8	+7.6	45.2	29 47.9	+9.2	45.9
51	24 08.0	+2.3	42.0	25 36.8	+3.8	42.6	27 04.6	+5.4	43.3	28 31.4	+7.0	44.0	29 57.1	+8.7	44.8
52	24 10.3	+1.8	40.9	25 40.6	+3.3	41.5	27 10.0	+4.9	42.2	28 38.4	+6.5	42.9	30 05.8	+8.1	43.7
53	24 12.1	+1.4	39.8	25 43.9	+2.9	40.4	27 14.9	+4.3	41.1	28 44.9	+5.9	41.8	30 13.9	+7.4	42.5
54	24 13.5	+0.9	38.7	25 46.8	+2.3	39.3	27 19.2	+3.8	39.9	28 50.8	+5.3	40.6	30 21.3	+6.9	41.4
55	24 14.4	+0.4	37.6	25 49.1	+1.8	38.2	27 23.0	+3.3	38.8	28 56.1	+4.7	39.5	30 28.2	+6.3	40.2
56	24 14.8	0.0	36.5	25 50.9	+1.3	37.1	27 26.3	+2.7	37.7	29 00.8	+4.2	38.3	30 34.5	+5.6	39.1
57	24 14.8	-0.6	35.4	25 52.2	+0.8	36.0	27 29.0	+2.2	36.6	29 05.0	+3.6	37.2	30 40.1	+5.0	37.9
58	24 14.2	-1.0	34.3	25 53.0	+0.3	34.9	27 31.2	+1.6	35.4	29 08.6	+3.0	36.1	30 45.1	+4.4	36.7
59	24 13.2	-1.4	33.2	25 53.3	-0.2	33.7	27 32.8	+1.1	34.3	29 11.6	+2.4	34.9	30 49.5	+3.8	35.6
60	24 11.8	-2.0	32.1	25 53.1	-0.7	32.6	27 33.9	+0.5	33.2	29 14.0	+1.8	33.8	30 53.3	+3.2	34.4
61	24 09.8	-2.4	31.0	25 52.4	-1.2	31.5	27 34.4	0.0	32.1	29 15.8	+1.2	32.6	30 56.5	+2.5	33.3
62	24 07.4	-2.8	29.9	25 51.2	-1.8	30.4	27 34.4	-0.6	30.9	29 17.0	+0.7	31.5	30 59.0	+2.0	32.1
63	24 04.6	-3.4	28.8	25 49.4	-2.2	29.3	27 33.8	-1.1	29.8	29 17.7	+0.1	30.3	31 01.0	+1.2	30.9
64	24 01.2	-3.8	27.8	25 47.2	-2.7	28.2	27 32.7	-1.6	28.7	29 17.8	-0.5	29.2	31 02.2	+0.7	29.8
65	23 57.4	-4.3	26.7	25 44.5	-3.3	27.1	27 31.1	-2.2	27.5	29 17.3	-1.2	28.0	31 02.9	0.0	28.6
66	23 53.1	-4.7	25.6	25 41.2	-3.7	26.0	27 28.9	-2.7	26.4	29 16.1	-1.6	26.9	31 02.9	-0.6	27.4
67	23 48.4	-5.2	24.5	25 37.5	-4.3	24.9	27 26.2	-3.3	25.3	29 14.5	-2.3	25.8	31 02.3	-1.2	26.3
68	23 43.2	-5.6	23.4	25 33.2	-4.7	23.8	27 22.9	-3.8	24.2	29 12.2	-2.9	24.6	31 01.1	-1.9	25.1
69	23 37.6	-6.1	22.3	25 28.5	-5.3	22.7	27 19.1	-4.4	23.0	29 09.3	-3.4	23.5	30 59.2	-2.5	23.9
70	23 31.5	-6.6	21.2	25 23.2	-5.7	21.6	27 14.7	-4.9	21.9	29 05.9	-4.1	22.3	30 56.7	-3.1	22.8
71	23 24.9	-7.0	20.1	25 17.5	-6.2	20.4	27 09.8	-5.4	20.8	29 01.8	-4.6	21.2	30 53.6	-3.8	21.6
72	23 17.9	-7.4	19.1	25 11.3	-6.7	19.4	27 04.4	-6.0	19.7	28 57.2	-5.1	20.0	30 49.8	-4.3	20.4
73	23 10.5	-7.9	18.0	25 04.6	-7.2	18.3	26 58.4	-6.5	18.6	28 52.1	-5.8	18.9	30 45.5	-5.0	19.3
74	23 02.6	-8.3	16.9	24 57.4	-7.7	17.2	26 51.9	-7.0	17.4	28 46.3	-6.3	17.8	30 40.5	-5.6	18.1
75	22 54.3	-8.8	15.8	24 49.7	-8.2	16.1	26 44.9	-7.5	16.3	28 40.0	-6.9	16.6	30 34.9	-6.2	17.0
76	22 45.5	-9.1	14.7	24 41.5	-8.6	15.0	26 37.4	-8.1	15.2	28 33.1	-7.4	15.5	30 28.7	-6.9	15.8
77	22 36.4	-9.6	13.7	24 32.9	-9.1	13.9	26 29.3	-8.5	14.1	28 25.7	-8.0	14.4	30 21.8	-7.4	14.7
78	22 26.8	-10.1	12.6	24 23.8	-9.5	12.8	26 20.8	-9.1	13.0	28 17.7	-8.6	13.2	30 14.4	-8.0	13.5
79	22 16.7	-10.4	11.5	24 14.3	-10.0	11.7	26 11.7	-9.5	11.9	28 09.1	-9.1	12.1	30 06.4	-8.7	12.4
80	22 06.3	-10.9	10.5	24 04.3	-10.5	10.6	26 02.2	-10.1	10.8	28 00.0	-9.7	11.0	29 57.7	-9.2	11.2
81	21 55.4	-11.2	9.4	23 53.8	-10.9	9.6	25 52.1	-10.6	9.7	27 50.3	-10.1	9.9	29 48.5	-9.8	10.1
82	21 44.2	-11.7	8.4	23 42.9	-11.4	8.5	25 41.5	-11.0	8.6	27 40.2	-10.8	8.8	29 38.7	-10.4	8.9
83	21 32.5	-12.1	7.3	23 31.5	-11.8	7.4	25 30.5	-11.5	7.5	27 29.4	-11.2	7.7	29 28.3	-10.9	7.8
84	21 20.4	-12.4	6.3	23 19.7	-12.2	6.3	25 19.0	-12.0	6.4	27 18.2	-11.8	6.6	29 17.4	-11.5	6.7
85	21 08.0	-12.9	5.2	23 07.5	-12.7	5.3	25 07.0	-12.5	5.4	27 06.4	-12.3	5.5	29 05.9	-12.1	5.6
86	20 55.1	-13.2	4.2	22 54.8	-13.1	4.2	24 54.5	-13.0	4.3	26 54.1	-12.7	4.4	28 53.8	-12.6	4.4
87	20 41.9	-13.6	3.1	22 41.7	-13.5	3.2	24 41.5	-13.4	3.2	26 41.4	-13.3	3.3	28 41.2	-13.2	3.3
88	20 28.3	-14.0	2.1	22 28.2	-13.9	2.1	24 28.1	-13.8	2.1	26 28.1	-13.8	2.2	28 28.0	-13.7	2.2
89	20 14.3	-14.3	1.0	22 14.3	-14.3	1.0	24 14.3	-14.3	1.1	26 14.3	-14.3	1.1	28 14.3	-14.3	1.1
90	20 00.0	-14.7	0.0	22 00.0	-14.7	0.0	24 00.0	-14.7	0.0	26 00.0	-14.8	0.0	28 00.0	-14.8	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 76°, 284°

20°			22°			24°			26°			28°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
1 28.9 -24.6 122.8	0 23.9 -26.2 122.8	0 41.2 +27.7 57.2	1 46.2 +29.3 57.2	2 51.1 +30.8 57.3	30										
1 04.3 -24.6 123.7	0 02.3 +26.2 56.3	1 08.9 +27.8 56.3	2 15.5 +29.2 56.3	3 21.9 +30.8 56.4	31										
0 39.7 -24.6 124.6	0 28.5 +26.2 55.4	1 36.7 +27.7 55.4	2 44.7 +29.3 55.5	3 52.7 +30.7 55.6	32										
0 15.1 -24.7 125.5	0 54.7 +26.2 54.5	2 04.4 +27.7 54.5	3 14.0 +29.2 54.6	4 23.4 +30.7 54.7	33										
0 09.6 +24.6 53.6	1 20.9 +26.1 53.6	2 32.1 +27.6 53.6	3 43.2 +29.1 53.7	4 54.1 +30.6 53.8	34										
0 34.2 +24.7 52.6	1 47.0 +26.1 52.7	2 59.7 +27.6 52.7	4 12.3 +29.1 52.8	5 24.7 +30.5 53.0	35										
0 58.9 +24.6 51.7	2 13.1 +26.1 51.8	3 27.3 +27.6 51.9	4 41.4 +29.0 52.0	5 55.2 +30.4 52.1	36										
1 23.5 +24.6 50.8	2 39.2 +26.1 50.9	3 54.9 +27.5 51.0	5 10.4 +28.9 51.1	6 25.6 +30.4 51.2	37										
1 48.1 +24.5 49.9	3 05.3 +26.0 50.0	4 22.4 +27.4 50.1	5 39.3 +28.9 50.2	6 56.0 +30.3 50.4	38										
2 12.6 +24.6 49.0	3 31.3 +26.0 49.1	4 49.8 +27.4 49.2	6 08.2 +28.8 49.3	7 26.3 +30.1 49.5	39										
2 37.2 +24.5 48.1	3 57.3 +25.9 48.2	5 17.2 +27.3 48.3	6 37.0 +28.6 48.4	7 56.4 +30.1 48.6	40										
3 01.7 +24.4 47.2	4 23.2 +25.8 47.3	5 44.5 +27.2 47.4	7 05.6 +28.6 47.6	8 26.5 +29.9 47.8	41										
3 26.1 +24.4 46.3	4 49.0 +25.8 46.4	6 11.7 +27.1 46.5	7 34.2 +28.5 46.7	8 56.4 +29.8 46.9	42										
3 50.5 +24.3 45.3	5 14.8 +25.7 45.4	6 38.8 +27.1 45.6	8 02.7 +28.3 45.8	9 26.2 +29.7 46.0	43										
4 14.8 +24.3 44.4	5 40.5 +25.5 44.5	7 05.9 +26.9 44.7	8 31.0 +28.3 44.9	9 55.9 +29.5 45.1	44										
4 39.1 +24.2 43.5	6 06.0 +25.6 43.6	7 32.8 +26.8 43.8	8 59.3 +28.1 44.0	10 25.4 +29.4 44.2	45										
5 03.3 +24.1 42.6	6 31.6 +25.4 42.7	7 59.6 +26.7 42.9	9 27.4 +27.9 43.1	10 54.8 +29.3 43.3	46										
5 27.4 +24.1 41.7	6 57.0 +25.3 41.8	8 26.3 +26.6 42.0	9 55.3 +27.9 42.2	11 24.1 +29.0 42.5	47										
5 51.5 +23.9 40.7	7 22.3 +25.2 40.9	8 52.9 +26.4 41.1	10 23.2 +27.6 41.3	11 53.1 +28.9 41.6	48										
6 15.4 +23.9 39.8	7 47.5 +25.0 40.0	9 19.3 +26.3 40.2	10 50.8 +27.5 40.4	12 22.0 +28.8 40.7	49										
6 39.3 +23.7 38.9	8 12.5 +25.0 39.1	9 45.6 +26.1 39.3	11 18.3 +27.4 39.5	12 50.6 +28.5 39.8	50										
7 03.0 +23.6 38.0	8 37.5 +24.8 38.1	10 11.7 +26.0 38.3	11 45.7 +27.2 38.6	13 19.3 +28.4 38.9	51										
7 26.6 +23.6 37.0	9 02.3 +24.7 37.2	10 37.7 +25.9 37.4	12 12.9 +27.0 37.7	13 47.7 +28.1 38.0	52										
7 50.2 +23.4 36.1	9 27.0 +24.5 36.3	11 03.6 +25.6 36.5	12 39.9 +26.8 36.8	14 15.8 +28.0 37.1	53										
8 13.6 +23.2 35.2	9 51.5 +24.4 35.4	11 29.2 +25.5 35.6	13 06.7 +26.6 35.8	14 43.8 +27.7 36.1	54										
8 36.8 +23.2 34.3	10 15.9 +24.2 34.4	11 54.7 +25.4 34.7	13 33.3 +26.4 34.9	15 11.5 +29.4 35.2	55										
9 00.0 +23.0 33.3	10 40.1 +24.1 33.5	12 20.1 +25.1 33.7	13 59.7 +26.2 34.0	15 39.0 +27.3 34.3	56										
9 23.0 +22.8 32.4	11 04.2 +23.9 32.6	12 45.2 +24.9 32.8	14 25.9 +26.0 33.1	16 06.3 +27.0 33.4	57										
9 45.8 +22.7 31.4	11 28.1 +23.7 31.6	13 10.1 +24.7 31.9	14 51.9 +25.7 32.1	16 33.3 +26.8 32.4	58										
10 08.5 +22.5 30.5	11 51.8 +23.5 30.7	13 34.8 +24.6 30.9	15 17.6 +25.5 31.2	17 00.1 +26.5 31.5	59										
10 31.0 +22.4 29.6	12 15.3 +23.3 29.8	13 59.4 +24.3 30.0	15 43.1 +25.3 30.3	17 26.6 +26.3 30.6	60										
10 53.4 +22.2 28.6	12 38.6 +23.2 28.8	14 23.7 +24.0 29.1	16 08.4 +25.1 29.3	17 52.9 +26.0 29.6	61										
11 15.6 +22.0 27.7	13 01.8 +22.9 27.9	14 47.7 +23.9 28.1	16 33.5 +24.7 28.4	18 18.9 +25.7 28.7	62										
11 37.6 +21.8 26.7	13 24.7 +22.7 26.9	15 11.6 +23.6 27.2	16 58.2 +24.5 27.4	18 44.6 +25.4 27.7	63										
11 59.4 +21.7 25.8	13 47.4 +22.5 26.0	15 35.2 +23.3 26.2	17 22.7 +24.3 26.5	19 10.0 +25.1 26.8	64										
12 21.1 +21.4 24.8	14 09.9 +22.3 25.0	15 58.5 +23.1 25.2	17 47.0 +23.9 25.5	19 35.1 +24.8 25.8	65										
12 42.5 +21.2 23.9	14 32.2 +22.0 24.1	16 21.6 +22.9 24.3	18 10.9 +23.7 24.5	19 59.9 +24.5 24.8	66										
13 03.7 +21.0 22.9	14 54.2 +21.8 23.1	16 44.5 +22.5 23.3	18 34.6 +23.3 23.6	20 24.4 +24.2 23.9	67										
13 24.7 +20.8 21.9	15 16.0 +21.5 22.1	17 07.0 +22.3 22.4	18 57.9 +23.1 22.6	20 48.6 +23.8 22.9	68										
13 45.5 +20.6 21.0	15 37.5 +21.3 21.2	17 29.3 +22.0 21.4	19 21.0 +22.7 21.6	21 12.4 +23.5 21.9	69										
14 06.1 +20.3 20.0	15 58.8 +21.0 20.2	17 51.3 +21.7 20.4	19 43.7 +22.4 20.6	21 35.9 +23.2 20.9	70										
14 26.4 +20.1 19.0	16 19.8 +20.8 19.2	18 13.0 +21.5 19.4	20 06.1 +22.1 19.7	21 59.1 +22.7 19.9	71										
14 46.5 +19.9 18.1	16 40.6 +20.4 18.2	18 34.5 +21.1 18.4	20 28.2 +21.8 18.7	22 21.8 +22.4 18.9	72										
15 06.4 +19.6 17.1	17 01.0 +20.2 17.3	18 55.6 +20.8 17.5	20 50.0 +21.4 17.7	22 44.2 +22.1 17.9	73										
15 26.0 +19.3 16.1	17 21.2 +19.9 16.3	19 16.4 +20.4 16.5	21 11.4 +21.0 16.7	23 06.3 +21.6 16.9	74										
15 45.3 +19.1 15.1	17 41.1 +19.6 15.3	19 36.8 +20.2 15.5	21 32.4 +20.7 15.7	23 27.9 +21.2 15.9	75										
16 04.4 +18.8 14.1	18 00.7 +19.3 14.3	19 57.0 +19.8 14.5	21 53.1 +20.3 14.7	23 49.1 +20.9 14.9	76										
16 23.2 +18.5 13.2	18 20.0 +19.0 13.3	20 16.8 +19.4 13.5	22 13.4 +20.0 13.6	24 10.0 +20.4 13.8	77										
16 41.7 +18.3 12.2	18 39.0 +18.7 12.3	20 36.2 +19.1 12.4	22 33.4 +19.5 12.6	24 30.4 +20.0 12.8	78										
17 00.0 +17.9 11.2	18 57.7 +18.3 11.3	20 55.3 +18.7 11.4	22 52.9 +19.1 11.6	24 50.4 +19.6 11.8	79										
17 17.9 +17.7 10.2	19 16.0 +18.0 10.3	21 14.0 +18.4 10.4	23 12.0 +18.8 10.6	25 10.0 +19.1 10.7	80										
17 35.6 +17.3 9.2	19 34.0 +17.7 9.3	21 32.4 +18.0 9.4	23 30.8 +18.3 9.5	25 29.1 +18.7 9.7	81										
17 52.9 +17.0 8.2	19 51.7 +17.3 8.3	21 50.4 +17.6 8.4	23 49.1 +17.9 8.5	25 47.8 +18.2 8.6	82										
18 09.9 +16.8 7.1	20 09.0 +17.0 7.2	22 08.0 +17.3 7.3	24 07.0 +17.5 7.4	26 06.0 +17.8 7.6	83										
18 26.7 +16.4 6.1	20 26.0 +16.6 6.2	22 25.3 +16.8 6.3	24 24.5 +17.1 6.4	26 23.8 +17.2 6.5	84										
18 43.1 +16.0 5.1	20 42.6 +16.2 5.2	22 42.1 +16.4 5.3	24 41.6 +16.6 5.3	26 41.0 +16.8 5.4	85										
18 59.1 +15.8 4.1	20 58.8 +15.9 4.2	22 58.5 +16.0 4.2	24 58.2 +16.1 4.3	26 57.8 +16.3 4.4	86										
19 14.9 +15.4 3.1	21 14.7 +15.5 3.1	23 14.5 +15.6 3.2	25 14.3 +15.7 3.2	27 14.1 +15.8 3.3	87										
19 30.3 +15.0 2.1	21 30.2 +15.1 2.1	23 30.1 +15.2 2.1	25 30.0 +15.2 2.2	27 29.9 +15.3 2.2	88										
19 45.3 +14.7 1.0	21 45.3 +14.7 1.0	23 45.3 +14.7 1.1	25 45.2 +14.8 1.1	27 45.2 +14.8 1.1	89										
20 00.0 +14.3 0.0	22 00.0 +14.3 0.0	24 00.0 +14.3 0.0	26 00.0 +14.3 0.0	28 00.0 +14.3 0.0	90										

LATITUDE SAME NAME

L.H.A. 104°, 256°

78°, 282° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	10 22.4	-6.5	59.4	11 23.1	-4.6	59.8	12 23.2	-2.8	60.1	13 22.5	-0.9	60.5	14 21.2	+0.9	61.0
31	10 15.9	-6.6	58.4	11 18.5	-4.8	58.8	12 20.4	-3.0	59.1	13 21.6	-1.1	59.5	14 22.1	+0.7	59.9
32	10 09.3	-6.8	57.4	11 13.7	-5.1	57.7	12 17.4	-3.2	58.1	13 20.5	-1.5	58.5	14 22.8	+0.4	58.9
33	10 02.5	-7.0	56.4	11 08.6	-5.2	56.7	12 14.2	-3.5	57.1	13 19.0	-1.6	57.5	14 23.2	+0.2	57.9
34	9 55.5	-7.1	55.4	11 03.4	-5.4	55.7	12 10.7	-3.7	56.1	13 17.4	-1.9	56.4	14 23.4	-0.1	56.8
35	9 48.4	-7.4	54.4	10 58.0	-5.7	54.7	12 07.0	-3.9	55.0	13 15.5	-2.2	55.4	14 23.3	-0.4	55.8
36	9 41.0	-7.5	53.4	10 52.3	-5.8	53.7	12 03.1	-4.1	54.0	13 13.3	-2.4	54.4	14 22.9	-0.7	54.8
37	9 33.5	-7.7	52.4	10 46.5	-6.1	52.7	11 59.0	-4.4	53.0	13 10.9	-2.6	53.4	14 22.2	-0.9	53.7
38	9 25.8	-7.9	51.4	10 40.4	-6.2	51.7	11 54.6	-4.5	52.0	13 08.3	-2.9	52.3	14 21.3	-1.2	52.7
39	9 17.9	-8.0	50.4	10 34.2	-6.4	50.6	11 50.1	-4.8	51.0	13 05.4	-3.2	51.3	14 20.1	-1.5	51.7
40	9 09.9	-8.2	49.4	10 27.8	-6.6	49.6	11 45.3	-5.0	49.9	13 02.2	-3.3	50.3	14 18.6	-1.7	50.7
41	9 01.7	-8.4	48.4	10 21.2	-6.8	48.6	11 40.3	-5.2	48.9	12 58.9	-3.6	49.3	14 16.9	-2.0	49.6
42	8 53.3	-8.5	47.4	10 14.4	-7.0	47.6	11 35.1	-5.5	47.9	12 55.3	-3.9	48.2	14 14.9	-2.2	48.6
43	8 44.8	-8.7	46.4	10 07.4	-7.2	46.6	11 29.6	-5.6	46.9	12 51.4	-4.1	47.2	14 12.7	-2.6	47.6
44	8 36.1	-8.9	45.4	10 00.2	-7.3	45.6	11 24.0	-5.9	45.9	12 47.3	-4.3	46.2	14 10.1	-2.8	46.5
45	8 27.2	-9.0	44.4	9 52.9	-7.6	44.6	11 18.1	-6.0	44.9	12 43.0	-4.6	45.2	14 07.3	-3.0	45.5
46	8 18.2	-9.1	43.4	9 45.3	-7.7	43.6	11 12.1	-6.3	43.8	12 38.4	-4.8	44.1	14 04.3	-3.3	44.5
47	8 09.1	-9.3	42.4	9 37.6	-7.9	42.6	11 05.8	-6.5	42.8	12 33.6	-5.0	43.1	14 01.0	-3.6	43.4
48	7 59.8	-9.4	41.4	9 29.7	-8.0	41.6	10 59.3	-6.6	41.8	12 28.6	-5.3	42.1	13 57.4	-3.8	42.4
49	7 50.4	-9.6	40.4	9 21.7	-8.3	40.6	10 52.7	-6.9	40.8	12 23.3	-5.5	41.1	13 53.6	-4.1	41.4
50	7 40.8	-9.7	39.4	9 13.4	-8.3	39.6	10 45.8	-7.1	39.8	12 17.8	-5.7	40.1	13 49.5	-4.4	40.4
51	7 31.1	-9.8	38.4	9 05.1	-8.6	38.6	10 38.7	-7.2	38.8	12 12.1	-5.9	39.0	13 45.1	-4.6	39.3
52	7 21.3	-10.0	37.4	8 56.5	-8.7	37.6	10 31.5	-7.5	37.8	12 06.2	-6.2	38.0	13 40.5	-4.8	38.3
53	7 11.3	-10.1	36.4	8 47.8	-8.9	36.6	10 24.0	-7.6	36.8	12 00.0	-6.4	37.0	13 35.7	-5.1	37.3
54	7 01.2	-10.3	35.4	8 38.9	-9.0	35.6	10 16.4	-7.8	35.8	11 53.6	-6.6	36.0	13 30.6	-5.4	36.2
55	6 50.9	-10.3	34.4	8 29.9	-9.2	34.6	10 08.6	-8.0	34.7	11 47.0	-6.8	35.0	13 25.2	-5.6	35.2
56	6 40.6	-10.5	33.4	8 20.7	-9.4	33.6	10 00.6	-8.2	33.7	11 40.2	-7.0	34.0	13 19.6	-5.8	34.2
57	6 30.1	-10.6	32.4	8 11.3	-9.5	32.6	9 52.4	-8.4	32.7	11 33.2	-7.2	32.9	13 13.8	-6.1	33.2
58	6 19.5	-10.7	31.4	8 01.8	-9.6	31.6	9 44.0	-8.5	31.7	11 26.0	-7.5	31.9	13 07.7	-6.3	32.2
59	6 08.8	-10.8	30.4	7 52.2	-9.7	30.6	9 35.5	-8.8	30.7	11 18.5	-7.6	30.9	13 01.4	-6.6	31.1
60	5 58.0	-10.9	29.5	7 42.5	-10.0	29.6	9 26.7	-8.8	29.7	11 10.9	-7.9	29.9	12 54.8	-6.8	30.1
61	5 47.1	-11.0	28.5	7 32.5	-10.0	28.6	9 17.9	-9.1	28.7	11 03.0	-8.0	28.9	12 48.0	-7.1	29.1
62	5 36.1	-11.1	27.5	7 22.5	-10.2	27.6	9 08.8	-9.2	27.7	10 55.0	-8.3	27.9	12 40.9	-7.3	28.1
63	5 25.0	-11.2	26.5	7 12.3	-10.3	26.6	8 59.6	-9.4	26.7	10 46.7	-8.5	26.9	12 33.6	-7.5	27.1
64	5 13.8	-11.3	25.5	7 02.0	-10.4	25.6	8 50.2	-9.5	25.7	10 38.2	-8.6	25.9	12 26.1	-7.7	26.0
65	5 02.5	-11.4	24.5	6 51.6	-10.6	24.6	8 40.7	-9.7	24.7	10 29.6	-8.8	24.9	12 18.4	-8.0	25.0
66	4 51.1	-11.5	23.5	6 41.0	-10.6	23.6	8 31.0	-9.9	23.7	10 20.8	-9.1	23.9	12 10.4	-8.1	24.0
67	4 39.6	-11.6	22.5	6 30.4	-10.8	22.6	8 21.1	-10.0	22.7	10 11.7	-9.2	22.9	12 02.3	-8.4	23.0
68	4 28.0	-11.6	21.6	6 19.6	-10.9	21.6	8 11.1	-10.1	21.7	10 02.5	-9.3	21.8	11 53.9	-8.6	22.0
69	4 16.4	-11.7	20.6	6 08.7	-11.0	20.6	8 01.0	-10.3	20.7	9 53.2	-9.6	20.8	11 45.3	-8.9	21.0
70	4 04.7	-11.8	19.6	5 57.7	-11.1	19.7	7 50.7	-10.5	19.7	9 43.6	-9.7	19.8	11 36.4	-9.0	20.0
71	3 52.9	-11.9	18.6	5 46.6	-11.2	18.7	7 40.2	-10.5	18.7	9 33.9	-10.0	18.8	11 27.4	-9.3	19.0
72	3 41.0	-11.9	17.6	5 35.4	-11.3	17.7	7 29.7	-10.7	17.8	9 23.9	-10.0	17.8	11 18.1	-9.4	18.0
73	3 29.1	-12.0	16.6	5 24.1	-11.5	16.7	7 19.0	-10.8	16.8	9 13.9	-10.3	16.8	11 08.7	-9.7	16.9
74	3 17.1	-12.0	15.7	5 12.6	-11.4	15.7	7 08.2	-11.0	15.8	9 03.6	-10.4	15.8	10 59.0	-9.8	15.9
75	3 05.1	-12.1	14.7	5 01.2	-11.6	14.7	6 57.2	-11.1	14.8	8 53.2	-10.6	14.8	10 49.2	-10.1	14.9
76	2 53.0	-12.2	13.7	4 49.6	-11.7	13.7	6 46.1	-11.2	13.8	8 42.6	-10.7	13.9	10 39.1	-10.2	13.9
77	2 40.8	-12.1	12.7	4 37.9	-11.8	12.8	6 34.9	-11.3	12.8	8 31.9	-10.8	12.9	10 28.9	-10.4	12.9
78	2 28.7	-12.3	11.7	4 26.1	-11.8	11.8	6 23.6	-11.4	11.8	8 21.1	-11.1	11.9	10 18.5	-10.6	11.9
79	2 16.4	-12.3	10.8	4 14.3	-11.9	10.8	6 12.2	-11.6	10.8	8 10.0	-11.1	10.9	10 07.9	-10.8	10.9
80	2 04.1	-12.3	9.8	4 02.4	-12.0	9.8	6 00.6	-11.6	9.8	7 58.9	-11.3	9.9	9 57.1	-11.0	9.9
81	1 51.8	-12.3	8.8	3 50.4	-12.0	8.8	5 49.0	-11.8	8.8	7 47.6	-11.5	8.9	9 46.1	-11.1	8.9
82	1 39.5	-12.4	7.8	3 38.4	-12.1	7.8	5 37.2	-11.8	7.9	7 36.1	-11.6	7.9	9 35.0	-11.3	7.9
83	1 27.1	-12.4	6.8	3 26.3	-12.2	6.9	5 25.4	-11.9	6.9	7 24.5	-11.7	6.9	9 23.7	-11.5	6.9
84	1 14.7	-12.4	5.9	3 14.1	-12.2	5.9	5 13.5	-12.1	5.9	7 12.8	-11.8	5.9	9 12.2	-11.7	5.9
85	1 02.3	-12.4	4.9	3 01.9	-12.3	4.9	5 01.4	-12.1	4.9	7 01.0	-12.0	4.9	9 00.5	-11.8	5.0
86	0 49.9	-12.5	3.9	2 49.6	-12.3	3.9	4 49.3	-12.2	3.9	6 49.0	-12.1	3.9	8 48.7	-11.9	4.0
87	0 37.4	-12.5	2.9	2 37.3	-12.4	2.9	4 37.1	-12.3	2.9	6 36.9	-12.2	3.0	8 36.8	-12.1	3.0
88	0 24.9	-12.4	2.0	2 24.9	-12.4	2.0	4 24.8	-12.4	2.0	6 24.7	-12.3	2.0	8 24.7	-12.3	2.0
89	0 12.5	-12.5	1.0	2 12.5	-12.5	1.0	4 12.4	-12.4	1.0	6 12.4	-12.4	1.0	8 12.4	-12.4	1.0
90	0 00.0	-12.5	0.0	2 00.0	-12.5	0.0	4 00.0	-12.5	0.0	6 00.0	-12.5	0.0	8 00.0	-12.5	0.0

LATITUDE CONTRARY NAME

L.H.A. 78°, 282°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
10 22.4	-6.5	120.6	9 21.1	-8.2	120.9	8 19.3	-10.0	121.1	7 17.1	-11.8	121.4	6 14.5	-13.6	121.6	30
10 15.9	-6.6	121.6	9 12.9	-8.4	121.9	8 09.3	-10.2	122.1	7 05.3	-11.9	122.3	6 00.9	-13.6	122.5	31
10 09.3	-6.8	122.6	9 04.5	-8.6	122.9	7 59.1	-10.3	123.1	6 53.4	-12.0	123.3	5 47.3	-13.8	123.5	32
10 02.5	-7.0	123.6	8 55.9	-8.7	123.9	7 48.8	-10.4	124.1	6 41.4	-12.2	124.3	5 33.5	-13.8	124.5	33
9 55.5	-7.1	124.6	8 47.2	-8.9	124.9	7 38.4	-10.6	125.1	6 29.2	-12.3	125.3	5 19.7	-13.9	125.5	34
9 48.4	-7.4	125.6	8 38.3	-9.1	125.9	7 27.8	-10.7	126.1	6 16.9	-12.4	126.3	5 05.8	-14.1	126.4	35
9 41.0	-7.5	126.6	8 29.2	-9.2	126.9	7 17.1	-10.9	127.1	6 04.5	-12.4	127.3	4 51.7	-14.1	127.4	36
9 33.5	-7.7	127.6	8 20.0	-9.3	127.9	7 06.2	-11.0	128.1	5 52.1	-12.6	128.3	4 37.6	-14.2	128.4	37
9 25.8	-7.9	128.6	8 10.7	-9.5	128.9	6 55.2	-11.1	129.1	5 39.5	-12.7	129.2	4 23.4	-14.2	129.4	38
9 17.9	-8.0	129.6	8 01.2	-9.6	129.9	6 44.1	-11.2	130.1	5 26.8	-12.8	130.2	4 09.2	-14.4	130.3	39
9 09.9	-8.2	130.6	7 51.6	-9.8	130.9	6 32.9	-11.3	131.0	5 14.0	-12.9	131.2	3 54.8	-14.4	131.3	40
9 01.7	-8.4	131.6	7 41.8	-9.9	131.8	6 21.6	-11.5	132.0	5 01.1	-13.0	132.2	3 40.4	-14.4	132.3	41
8 53.3	-8.5	132.6	7 31.9	-10.1	132.8	6 10.1	-11.5	133.0	4 48.1	-13.0	133.2	3 26.0	-14.6	133.3	42
8 44.8	-8.7	133.6	7 21.8	-10.2	133.8	5 58.6	-11.7	134.0	4 35.1	-13.1	134.1	3 11.4	-14.5	134.2	43
8 36.1	-8.9	134.6	7 11.6	-10.3	134.8	5 46.9	-11.8	135.0	4 22.0	-13.2	135.1	2 56.9	-14.7	135.2	44
8 27.2	-9.0	135.6	7 01.3	-10.4	135.8	5 35.1	-11.8	136.0	4 08.8	-13.3	136.1	2 42.2	-14.6	136.2	45
8 18.2	-9.1	136.6	6 50.9	-10.6	136.8	5 23.3	-12.0	137.0	3 55.5	-13.4	137.1	2 27.6	-14.8	137.1	46
8 09.1	-9.3	137.6	6 40.3	-10.7	137.8	5 11.3	-12.0	137.9	3 42.1	-13.4	138.0	2 12.8	-14.8	138.1	47
7 59.8	-9.4	138.6	6 29.6	-10.7	138.8	4 59.3	-12.2	138.9	3 28.7	-13.4	139.0	1 58.1	-14.8	139.1	48
7 50.4	-9.6	139.6	6 18.9	-11.0	139.8	4 47.1	-12.2	139.9	3 15.3	-13.6	140.0	1 43.3	-14.8	140.1	49
7 40.8	-9.7	140.6	6 07.9	-11.0	140.8	4 34.9	-12.3	140.9	3 01.7	-13.9	141.0	1 28.5	-14.9	141.0	50
7 31.1	-9.8	141.6	5 56.9	-11.1	141.8	4 22.6	-12.4	141.9	2 48.1	-13.6	142.0	1 13.6	-14.9	142.0	51
7 21.3	-10.0	142.6	5 45.8	-11.2	142.8	4 10.2	-12.4	142.9	2 34.5	-13.7	142.9	0 58.7	-14.8	143.0	52
7 11.3	-10.1	143.6	5 34.6	-11.3	143.7	3 57.8	-12.6	143.8	2 20.8	-13.7	143.9	0 43.9	-14.9	143.9	53
7 01.2	-10.3	144.6	5 23.3	-11.4	144.7	3 45.2	-12.5	144.8	2 07.1	-13.7	144.9	0 29.0	-14.9	144.9	54
6 50.9	-10.3	145.6	5 11.9	-11.5	145.7	3 32.7	-12.7	145.8	1 53.4	-13.9	145.9	0 14.1	-15.0	145.9	55
6 40.6	-10.5	146.6	5 00.4	-11.6	146.7	3 20.0	-12.7	146.8	1 39.6	-13.8	146.8	0 00.9	+14.9	33.2	56
6 30.1	-10.6	147.6	4 48.8	-11.7	147.7	3 07.3	-12.8	147.8	1 25.8	-13.9	147.8	0 15.8	+14.9	32.2	57
6 19.5	-10.7	148.6	4 37.1	-11.8	148.7	2 54.5	-12.8	148.7	1 11.9	-13.8	148.8	0 30.7	+14.9	31.2	58
6 08.8	-10.8	149.6	4 25.3	-11.8	149.6	2 41.7	-12.8	149.7	0 58.1	-13.9	149.7	0 45.6	+14.9	30.3	59
5 58.0	-10.9	150.5	4 13.5	-11.9	150.6	2 28.9	-12.9	150.7	0 44.2	-13.9	150.7	1 00.5	+14.8	29.3	60
5 47.1	-11.0	151.5	4 01.6	-12.0	151.6	2 16.0	-13.0	151.7	0 30.3	-13.9	151.7	1 15.3	+14.9	28.3	61
5 36.1	-11.1	152.5	3 49.6	-12.1	152.6	2 03.0	-13.0	152.6	0 16.4	-13.9	152.7	1 30.2	+14.8	27.3	62
5 25.0	-11.2	153.5	3 37.5	-12.1	153.6	1 50.0	-13.0	153.6	0 02.5	-13.9	153.6	1 45.0	+14.8	26.4	63
5 13.8	-11.3	154.5	3 25.4	-12.2	154.6	1 37.0	-13.0	154.6	0 11.4	+13.9	25.4	1 59.8	+14.7	25.4	64
5 02.5	-11.4	155.5	3 13.2	-12.2	155.5	1 24.0	-13.1	155.6	0 25.3	+13.9	24.4	2 14.5	+14.7	24.4	65
4 51.1	-11.5	156.5	3 01.0	-12.3	156.5	1 10.9	-13.0	156.6	0 39.2	+13.8	23.4	2 29.2	+14.7	23.5	66
4 39.6	-11.6	157.5	2 48.7	-12.3	157.5	0 57.9	-13.1	157.5	0 53.0	+13.9	22.5	2 43.9	+14.6	22.5	67
4 28.0	-11.6	158.4	2 36.4	-12.4	158.5	0 44.8	-13.2	158.5	1 06.9	+13.8	21.5	2 58.5	+14.6	21.5	68
4 16.4	-11.7	159.4	2 24.0	-12.4	159.5	0 31.6	-13.1	159.5	1 20.7	+13.9	20.5	3 13.1	+14.5	20.6	69
4 04.7	-11.8	160.4	2 11.6	-12.5	160.4	0 18.5	-13.1	160.5	1 34.6	+13.8	19.6	3 27.6	+14.5	19.6	70
3 52.9	-11.9	161.4	1 59.1	-12.5	161.4	0 05.4	-13.1	161.4	1 48.4	+13.7	18.6	3 42.1	+14.4	18.6	71
3 41.0	-11.9	162.4	1 46.6	-12.5	162.4	0 07.7	+13.2	17.6	2 02.1	+13.7	17.6	3 56.5	+14.3	17.6	72
3 29.1	-12.0	163.4	1 34.1	-12.5	163.4	0 20.9	+13.1	16.6	2 15.8	+13.7	16.6	4 10.8	+14.3	16.7	73
3 17.1	-12.0	164.3	1 21.6	-12.6	164.4	0 34.0	+13.1	15.6	2 29.5	+13.7	15.7	4 25.1	+14.2	15.7	74
3 05.1	-12.1	165.3	1 09.0	-12.6	165.3	0 47.1	+13.1	14.7	2 43.2	+13.6	14.7	4 39.3	+14.1	14.7	75
2 53.0	-12.2	166.3	0 56.4	-12.6	166.3	1 00.2	+13.1	13.7	2 56.8	+13.5	13.7	4 53.4	+14.0	13.7	76
2 40.8	-12.1	167.3	0 43.8	-12.6	167.3	1 13.3	+13.0	12.7	3 10.3	+13.5	12.7	5 07.4	+13.9	12.8	77
2 28.7	-12.3	168.3	0 31.2	-12.7	168.3	1 26.3	+13.1	11.7	3 23.8	+13.5	11.8	5 21.3	+13.8	11.8	78
2 16.4	-12.3	169.2	0 18.5	-12.6	169.2	1 39.4	+13.0	10.8	3 37.3	+13.3	10.8	5 35.1	+13.8	10.8	79
2 04.1	-12.3	170.2	0 05.9	-12.7	170.2	1 52.4	+12.9	9.8	3 50.6	+13.3	9.8	5 48.9	+13.6	9.8	80
1 51.8	-12.3	171.2	0 06.8	+12.6	8.8	2 05.3	+13.0	8.8	4 03.9	+13.3	8.8	6 02.5	+13.5	8.9	81
1 39.5	-12.4	172.2	0 19.4	+12.6	7.8	2 18.3	+12.9	7.8	4 17.2	+13.1	7.8	6 16.0	+13.5	7.9	82
1 27.1	-12.4	173.2	0 32.0	+12.7	6.8	2 31.2	+12.8	6.9	4 30.3	+13.1	6.9	6 29.5	+13.3	6.9	83
1 14.7	-12.4	174.1	0 44.7	+12.6	5.9	2 44.0	+12.8	5.9	4 43.4	+13.0	5.9	6 42.8	+13.1	5.9	84
1 02.3	-12.4	175.1	0 57.3	+12.6	4.9	2 56.8	+12.8	4.9	4 56.4	+12.9	4.9	6 55.9	+13.1	4.9	85
0 49.9	-12.5	176.1	1 09.9	+12.5	3.9	3 09.6	+12.7	3.9	5 09.3	+12.8	3.9	7 09.0	+13.0	3.9	86
0 37.4	-12.5	177.1	1 22.4	+12.6	2.9	3 22.3	+12.6	2.9	5 22.1	+12.7	2.9	7 22.0	+12.8	3.0	87
0 24.9	-12.4	178.0	1 35.0	+12.5	2.0	3 34.9	+12.6	2.0	5 34.8	+12.7	2.0	7 34.8	+12.7	2.0	88
0 12.5	-12.5	179.0	1 47.5	+12.5	1.0	3 47.5	+12.5	1.0	5 47.5	+12.5	1.0	7 47.5	+12.5	1.0	89
0 00.0	+12.5	0.0	2 00.0	+12.5	0.0	4 00.0	+12.4	0.0	6 00.0	+12.4	0.0	8 00.0	+12.4	0.0	90

LATITUDE SAME NAME

L.H.A. 102°, 258°

78°, 282° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	15 19.0	+2.8	61.4	16 15.9	+4.7	61.9	17 11.9	+6.6	62.5	18 06.8	+8.6	63.0	19 00.7	+10.5	63.6
31	15 21.8	+2.6	60.4	16 20.6	+4.5	60.9	17 18.5	+6.4	61.4	18 15.4	+8.3	62.0	19 11.2	+10.2	62.6
32	15 24.4	+2.2	59.4	16 25.1	+4.1	59.9	17 24.9	+6.0	60.4	18 23.7	+7.9	60.9	19 21.4	+9.8	61.5
33	15 26.6	+2.0	58.3	16 29.2	+3.8	58.8	17 30.9	+5.7	59.3	18 31.6	+7.5	59.9	19 31.2	+9.5	60.5
34	15 28.6	+1.7	57.3	16 33.0	+3.6	57.8	17 36.6	+5.3	58.3	18 39.1	+7.3	58.9	19 40.7	+9.1	59.5
35	15 30.3	+1.4	56.3	16 36.6	+3.2	56.7	17 41.9	+5.1	57.3	18 46.4	+6.8	57.8	19 49.8	+8.7	58.4
36	15 31.7	+1.1	55.2	16 39.8	+2.8	55.7	17 47.0	+4.6	56.2	18 53.2	+6.5	56.8	19 58.5	+8.3	57.4
37	15 32.8	+0.8	54.2	16 42.6	+2.6	54.6	17 51.6	+4.4	55.2	18 59.7	+6.2	55.7	20 06.8	+8.0	56.3
38	15 33.6	+0.6	53.1	16 45.2	+2.3	53.6	17 56.0	+4.0	54.1	19 05.9	+5.8	54.7	20 14.8	+7.6	55.2
39	15 34.2	+0.2	52.1	16 47.5	+1.9	52.6	18 00.0	+3.7	53.1	19 11.7	+5.4	53.6	20 22.4	+7.2	54.2
40	15 34.4	-0.1	51.1	16 49.4	+1.7	51.5	18 03.7	+3.4	52.0	19 17.1	+5.1	52.5	20 29.6	+6.9	53.1
41	15 34.3	-0.3	50.0	16 51.1	+1.3	50.5	18 07.1	+3.0	51.0	19 22.2	+4.7	51.5	20 36.5	+6.4	52.1
42	15 34.0	-0.7	49.0	16 52.4	+1.0	49.4	18 10.1	+2.6	49.9	19 26.9	+4.4	50.4	20 42.9	+6.0	51.0
43	15 33.3	-0.9	48.0	16 53.4	+0.7	48.4	18 12.7	+2.3	48.9	19 31.3	+3.9	49.4	20 48.9	+5.7	49.9
44	15 32.4	-1.2	46.9	16 54.1	+0.3	47.3	18 15.0	+2.0	47.8	19 35.2	+3.6	48.3	20 54.6	+5.3	48.9
45	15 31.2	-1.5	45.9	16 54.4	+0.1	46.3	18 17.0	+1.6	46.8	19 38.8	+3.3	47.3	20 59.9	+4.8	47.8
46	15 29.7	-1.8	44.8	16 54.5	-0.3	45.2	18 18.6	+1.3	45.7	19 42.1	+2.8	46.2	21 04.7	+4.5	46.7
47	15 27.9	-2.1	43.8	16 54.2	-0.6	44.2	18 19.9	+0.9	44.6	19 44.9	+2.5	45.1	21 09.2	+4.0	45.7
48	15 25.8	-2.4	42.8	16 53.6	-0.9	43.2	18 20.8	+0.6	43.6	19 47.4	+2.1	44.1	21 13.2	+3.7	44.6
49	15 23.4	-2.7	41.7	16 52.7	-1.3	42.5	18 21.4	+0.2	42.5	19 49.5	+1.7	43.0	21 16.9	+3.2	43.5
50	15 20.7	-2.9	40.7	16 51.4	-1.5	41.1	18 21.6	-0.1	41.5	19 51.2	+1.4	41.9	21 20.1	+2.8	42.5
51	15 17.8	-3.3	39.7	16 49.9	-1.9	40.0	18 21.5	-0.4	40.4	19 52.6	+0.9	40.9	21 22.9	+2.5	41.4
52	15 14.5	-3.5	38.6	16 48.0	-2.1	39.0	18 21.1	-0.8	39.4	19 53.5	+0.6	39.8	21 25.4	+2.0	40.3
53	15 11.0	-3.8	37.6	16 45.9	-2.5	37.9	18 20.3	-1.2	38.3	19 54.1	+0.2	38.8	21 27.4	+1.6	39.2
54	15 07.2	-4.1	36.6	16 43.4	-2.8	36.9	18 19.1	-1.5	37.3	19 54.3	-0.1	37.7	21 29.0	+1.2	38.2
55	15 03.1	-4.4	35.5	16 40.6	-3.2	35.9	18 17.6	-1.8	36.2	19 54.2	-0.6	36.6	21 30.2	+0.8	37.1
56	14 58.7	-4.6	34.5	16 37.4	-3.4	34.8	18 15.8	-2.2	35.2	19 53.6	-0.9	35.6	21 31.0	+0.3	36.0
57	14 54.1	-5.0	33.5	16 34.0	-3.7	33.8	18 13.6	-2.6	34.1	19 52.7	-1.3	34.5	21 31.3	0.0	34.9
58	14 49.1	-5.2	32.4	16 30.3	-4.1	32.7	18 11.0	-2.9	33.1	19 51.4	-1.7	33.4	21 31.3	-0.5	33.9
59	14 43.9	-5.4	31.4	16 26.2	-4.4	31.7	18 08.1	-3.2	32.0	19 49.7	-2.1	32.4	21 30.8	-0.9	32.8
60	14 38.5	-5.8	30.4	16 21.8	-4.6	30.6	18 04.9	-3.5	31.0	19 47.6	-2.4	31.3	21 29.9	-1.2	31.7
61	14 32.7	-6.0	29.3	16 17.2	-5.0	29.6	18 01.4	-3.9	29.9	19 45.2	-2.8	30.3	21 28.7	-1.7	30.6
62	14 26.7	-6.3	28.3	16 12.2	-5.3	28.6	17 57.5	-4.3	28.9	19 42.4	-3.2	29.2	21 27.0	-2.2	29.6
63	14 20.4	-6.5	27.3	16 06.9	-5.5	27.5	17 53.2	-4.6	27.8	19 39.2	-3.6	28.1	21 24.8	-2.5	28.5
64	14 13.9	-6.9	26.3	16 01.4	-5.9	26.5	17 48.6	-4.9	26.8	19 35.6	-3.9	27.1	21 22.3	-2.9	27.4
65	14 07.0	-7.0	25.2	15 55.5	-6.2	25.5	17 43.7	-5.2	25.7	19 31.7	-4.3	26.0	21 19.4	-3.3	26.3
66	14 00.0	-7.3	24.2	15 49.3	-6.4	24.4	17 38.5	-5.6	24.7	19 27.4	-4.7	25.0	21 16.1	-3.8	25.3
67	13 52.7	-7.6	23.2	15 42.9	-6.8	23.4	17 32.9	-5.9	23.6	19 22.7	-5.0	23.9	21 12.3	-4.1	24.2
68	13 45.1	-7.9	22.2	15 36.1	-7.0	22.4	17 27.0	-6.2	22.6	19 17.7	-5.4	22.8	21 08.2	-4.6	23.1
69	13 37.2	-8.0	21.1	15 29.1	-7.3	21.3	17 20.8	-6.6	21.5	19 12.3	-5.7	21.8	21 03.6	-4.9	22.1
70	13 29.2	-8.4	20.1	15 21.8	-7.6	20.3	17 14.2	-6.8	20.5	19 06.6	-6.2	20.7	20 58.7	-5.4	21.0
71	13 20.8	-8.6	19.1	15 14.2	-7.9	19.3	17 07.4	-7.2	19.5	19 00.4	-6.4	19.7	20 53.3	-5.7	19.9
72	13 12.2	-8.8	18.1	15 06.3	-8.2	18.2	17 00.2	-7.5	18.4	18 54.0	-6.9	18.6	20 47.6	-6.1	18.9
73	13 03.4	-9.0	17.1	14 58.1	-8.4	17.2	16 52.7	-7.8	17.4	18 47.1	-7.2	17.6	20 41.5	-6.6	17.8
74	12 54.4	-9.3	16.1	14 49.7	-8.7	16.2	16 44.9	-8.2	16.4	18 39.9	-7.5	16.5	20 34.9	-6.9	16.7
75	12 45.1	-9.5	15.0	14 41.0	-9.0	15.2	16 36.7	-8.4	15.3	18 32.4	-7.9	15.5	20 28.0	-7.3	15.7
76	12 35.6	-9.8	14.0	14 32.0	-9.3	14.1	16 28.3	-8.7	14.3	18 24.5	-8.2	14.4	20 20.7	-7.7	14.6
77	12 25.8	-9.9	13.0	14 22.7	-9.5	13.1	16 19.6	-9.1	13.3	18 16.3	-8.5	13.4	20 13.0	-8.0	13.6
78	12 15.9	-10.2	12.0	14 13.2	-9.7	12.1	16 10.5	-9.3	12.2	18 07.8	-8.9	12.4	20 05.0	-8.5	12.5
79	12 05.7	-10.4	11.0	14 03.5	-10.1	11.1	16 01.2	-9.6	11.2	17 58.9	-9.2	11.3	19 56.5	-8.8	11.5
80	11 55.3	-10.7	10.0	13 53.4	-10.2	10.1	15 51.6	-10.0	10.2	17 49.7	-9.6	10.3	19 47.7	-9.2	10.4
81	11 44.6	-10.8	9.0	13 43.2	-10.6	9.1	15 41.6	-10.2	9.1	17 40.1	-9.9	9.2	19 38.5	-9.5	9.4
82	11 33.8	-11.0	8.0	13 32.6	-10.7	8.0	15 31.4	-10.4	8.1	17 30.2	-10.2	8.2	19 29.0	-9.9	8.3
83	11 22.8	-11.3	7.0	13 21.9	-11.0	7.0	15 21.0	-10.8	7.1	17 20.0	-10.5	7.2	19 19.1	-10.3	7.3
84	11 11.5	-11.4	6.0	13 10.9	-11.3	6.0	15 10.2	-11.0	6.1	17 09.5	-10.8	6.1	19 08.8	-10.6	6.2
85	11 00.1	-11.7	5.0	12 59.6	-11.4	5.0	14 59.2	-11.3	5.1	16 58.7	-11.1	5.1	18 58.2	-11.0	5.2
86	10 48.4	-11.8	4.0	12 48.2	-11.8	4.0	14 47.9	-11.6	4.0	16 47.6	-11.5	4.1	18 47.2	-11.3	4.1
87	10 36.6	-12.0	3.0	12 36.4	-11.9	3.0	14 36.3	-11.9	3.0	16 36.1	-11.7	3.1	18 35.9	-11.6	3.1
88	10 24.6	-12.2	2.0	12 24.5	-12.1	2.0	14 24.4	-12.1	2.0	16 24.4	-12.1	2.0	18 24.3	-12.0	2.1
89	10 12.4	-12.4	1.0	12 12.4	-12.4	1.0	14 12.3	-12.3	1.0	16 12.3	-12.3	1.0	18 12.3	-12.3	1.0
90	10 00.0	-12.6	0.0	12 00.0	-12.6	0.0	14 00.0	-12.6	0.0	16 00.0	-12.6	0.0	18 00.0	-12.6	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 78°, 282°

10°			12°			14°			16°			18°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
5	11.5	-15.2	121.7	4	08.3	-17.0	121.9	3	04.9	-18.7	122.0	2	01.3	-20.4	122.0	0	57.5	-22.0	122.1	30
4	56.3	-15.4	122.7	3	51.3	-17.0	122.8	2	46.2	-18.7	122.9	1	40.9	-20.4	123.0	0	35.5	-22.0	123.0	31
4	40.9	-15.4	123.7	3	34.3	-17.1	123.8	2	27.5	-18.8	123.9	1	20.5	-20.4	123.9	0	13.5	-22.0	124.0	32
4	25.5	-15.5	124.6	3	17.2	-17.2	124.7	2	08.7	-18.8	124.8	1	00.1	-20.4	124.9	0	08.5	+22.0	55.1	33
4	10.0	-15.6	125.6	3	00.0	-17.2	125.7	1	49.9	-18.8	125.8	0	39.7	-20.4	125.8	0	30.5	+22.0	54.2	34
3	54.4	-15.7	126.6	2	42.8	-17.3	126.7	1	31.1	-18.9	126.7	0	19.3	-20.4	126.7	0	52.5	+22.0	53.3	35
3	38.7	-15.7	127.5	2	25.5	-17.3	127.6	1	12.2	-18.8	127.7	0	01.1	+20.5	52.3	1	14.5	+21.9	52.3	36
3	23.0	-15.8	128.5	2	08.2	-17.3	128.6	0	53.4	-18.9	128.6	0	21.6	+20.4	51.4	1	36.4	+22.0	51.4	37
3	07.2	-15.8	129.5	1	50.9	-17.4	129.5	0	34.5	-18.9	129.6	0	42.0	+20.4	50.4	1	58.4	+21.9	50.5	38
2	51.4	-15.9	130.4	1	33.5	-17.4	130.5	0	15.6	-18.9	130.5	1	02.4	+20.4	49.5	2	20.3	+21.9	49.5	39
2	35.5	-15.9	131.4	1	16.1	-17.4	131.5	0	03.3	+18.9	48.5	1	22.8	+20.3	48.5	2	42.2	+21.8	48.6	40
2	19.6	-15.9	132.4	0	58.7	-17.4	132.4	0	22.2	+18.9	47.6	1	43.1	+20.4	47.6	3	04.0	+21.8	47.7	41
2	03.7	-16.0	133.3	0	41.3	-17.4	133.4	0	41.1	+18.9	46.6	2	03.5	+20.3	46.7	3	25.8	+21.7	46.7	42
1	47.7	-16.0	134.3	0	23.9	-17.5	134.3	1	00.0	+18.9	45.7	2	23.8	+20.3	45.7	3	47.5	+21.7	45.8	43
1	31.7	-16.1	135.3	0	06.4	-17.4	135.3	1	18.9	+18.8	44.7	2	44.1	+20.2	44.8	4	09.2	+21.6	44.9	44
1	15.6	-16.1	136.2	0	11.0	+17.5	43.8	1	37.7	+18.8	43.8	3	04.3	+20.2	43.8	4	30.8	+21.5	43.9	45
0	59.5	-16.0	137.2	0	28.5	+17.4	42.8	1	56.5	+18.8	42.8	3	24.5	+20.1	42.9	4	52.3	+21.5	43.0	46
0	43.5	-16.1	138.2	0	45.9	+17.5	41.8	2	15.3	+18.7	41.9	3	44.6	+20.1	42.0	5	13.8	+21.3	42.1	47
0	27.4	-16.1	139.1	1	03.4	+17.4	40.9	2	34.0	+18.8	40.9	4	04.7	+20.0	41.0	5	35.1	+21.3	41.1	48
0	11.3	-16.1	140.1	1	20.8	+17.4	39.9	2	52.8	+18.6	40.0	4	24.7	+19.9	40.1	5	56.4	+21.2	40.2	49
0	04.8	+16.2	39.0	1	38.2	+17.3	39.0	3	11.4	+18.6	39.0	4	44.6	+19.8	39.1	6	17.6	+21.1	39.2	50
0	21.0	+16.1	38.0	1	55.5	+17.3	38.0	3	30.0	+18.6	38.1	5	04.4	+19.8	38.2	6	38.7	+21.0	38.3	51
0	37.1	+16.0	37.0	2	12.8	+17.3	37.1	3	48.6	+18.4	37.1	5	24.2	+19.7	37.2	6	59.7	+20.8	37.4	52
0	53.1	+16.1	36.1	2	30.1	+17.3	36.1	4	07.0	+18.5	36.2	5	43.9	+19.5	36.3	7	20.5	+20.8	36.4	53
1	09.2	+16.1	35.1	2	47.4	+17.2	35.1	4	25.5	+18.3	35.2	6	03.4	+19.5	35.3	7	41.3	+20.6	35.5	54
1	25.3	+16.0	34.1	3	04.6	+17.1	34.2	4	43.8	+18.3	34.3	6	22.9	+19.4	34.4	8	01.9	+20.5	34.5	55
1	41.3	+16.0	33.2	3	21.7	+17.1	33.2	5	02.1	+18.1	33.3	6	42.3	+19.3	33.4	8	22.4	+20.3	33.6	56
1	57.3	+16.0	32.2	3	38.8	+17.0	32.3	5	20.2	+18.1	32.3	7	01.6	+19.1	32.5	8	42.7	+20.2	32.6	57
2	13.3	+15.9	31.2	3	55.8	+17.0	31.3	5	38.3	+18.0	31.4	7	20.7	+19.0	31.5	9	02.9	+20.1	31.7	58
2	29.2	+15.9	30.3	4	12.8	+16.9	30.3	5	56.3	+17.9	30.4	7	39.7	+18.9	30.6	9	23.0	+19.9	30.7	59
2	45.1	+15.8	29.3	4	29.7	+16.8	29.4	6	14.2	+17.8	29.5	7	58.6	+18.8	29.6	9	42.9	+19.8	29.7	60
3	00.9	+15.8	28.4	4	46.5	+16.8	28.4	6	32.0	+17.7	28.5	8	17.4	+18.6	28.6	10	02.7	+19.5	28.8	61
3	16.7	+15.8	27.4	5	03.3	+16.6	27.5	6	49.7	+17.6	27.5	8	36.0	+18.5	27.7	10	22.2	+19.4	27.8	62
3	32.5	+15.6	26.4	5	19.9	+16.6	26.5	7	07.3	+17.4	26.6	8	54.5	+18.4	26.7	10	41.6	+19.3	26.9	63
3	48.1	+15.7	25.5	5	36.5	+16.4	25.5	7	24.7	+17.3	25.6	9	12.9	+18.2	25.7	11	00.9	+19.0	25.9	64
4	03.8	+15.5	24.5	5	52.9	+16.4	24.6	7	42.0	+17.2	24.7	9	31.1	+18.0	24.8	11	19.9	+18.9	24.9	65
4	19.3	+15.5	23.5	6	09.3	+16.3	23.6	7	59.2	+17.1	23.7	9	49.1	+17.8	23.8	11	38.8	+18.7	24.0	66
4	34.8	+15.4	22.5	6	25.6	+16.1	22.6	8	16.3	+16.9	22.7	10	06.9	+17.7	22.8	11	57.5	+18.4	23.0	67
4	50.2	+15.3	21.6	6	41.7	+16.1	21.7	8	33.2	+16.8	21.7	10	24.6	+17.5	21.9	12	15.9	+18.3	22.0	68
5	05.5	+15.2	20.6	6	57.8	+15.9	20.7	8	50.0	+16.6	20.8	10	42.1	+17.4	20.9	12	34.2	+18.0	21.0	69
5	20.7	+15.1	19.6	7	13.7	+15.8	19.7	9	06.6	+16.5	19.8	10	59.5	+17.1	19.9	12	52.2	+17.9	20.1	70
5	35.8	+15.0	18.7	7	29.5	+15.6	18.7	9	23.1	+16.3	18.8	11	16.6	+17.0	18.9	13	10.1	+17.6	19.1	71
5	50.8	+15.0	17.7	7	45.1	+15.6	17.8	9	39.4	+16.1	17.9	11	33.6	+16.7	18.0	13	27.7	+17.4	18.1	72
6	05.8	+14.8	16.7	8	00.7	+15.4	16.8	9	55.5	+16.0	16.9	11	50.3	+16.6	17.0	13	45.1	+17.1	17.1	73
6	20.6	+14.7	15.7	8	16.1	+15.2	15.8	10	11.5	+15.8	15.9	12	06.9	+16.3	16.0	14	02.2	+16.9	16.1	74
6	35.3	+14.6	14.8	8	31.3	+15.1	14.8	10	27.3	+15.6	14.9	12	23.2	+16.2	15.0	14	19.1	+16.7	15.1	75
6	49.9	+14.5	13.8	8	46.4	+15.0	13.9	10	42.9	+15.5	13.9	12	39.4	+15.9	14.0	14	35.8	+16.4	14.2	76
7	04.4	+14.4	12.8	9	01.4	+14.8	12.9	10	58.4	+15.2	13.0	12	55.3	+15.7	13.0	14	52.2	+16.1	13.2	77
7	18.8	+14.2	11.8	9	16.2	+14.6	11.9	11	13.6	+15.1	12.0	13	11.0	+15.4	12.1	15	08.3	+15.9	12.2	78
7	33.0	+14.1	10.9	9	30.8	+14.5	10.9	11	28.7	+14.8	11.0	13	26.4	+15.3	11.1	15	24.2	+15.6	11.2	79
7	47.1	+14.0	9.9	9	45.3	+14.3	9.9	11	43.5	+14.6	10.0	13	41.7	+15.0	10.1	15	39.8	+15.3	10.2	80
8	01.1	+13.8	8.9	9	59.6	+14.1	8.9	11	58.1	+14.5	9.0	13	56.7	+14.7	9.1	15	55.1	+15.1	9.2	81
8	14.9	+13.7	7.9	10	13.7	+14.0	8.0	12	12.6	+14.2	8.0	14	11.4	+14.5	8.1	16	10.2	+14.8	8.1	82
8	28.6	+13.5	6.9	10	27.7	+13.8	7.0	12	26.8	+14.0	7.0	14	25.9	+14.2	7.1	16	25.0	+14.5	7.1	83
8	42.1	+13.4	5.9	10	41.5	+13.6	6.0	12	40.8	+13.8	6.0	14	40.1	+14.0	6.1	16	39.5	+14.2	6.1	84
8	55.5	+13.2	5.0	10	55.1	+13.3	5.0	12	54.6	+13.5	5.0	14	54.1	+13.8	5.1	16	53.7	+13.8	5.1	85
9	08.7	+13.1	4.0	11	08.4	+13.2	4.0	13	08.1	+13.4	4.0	15	07.9	+13.4	4.1	17	07.5	+13.6	4.1	86
9	21.8	+12.9	3.0	11	21.6	+13.0	3.0	13	21.5	+13.1	3.0	15	21.3	+13.2	3.0	17	21.1	+13.3	3.1	87
9	34.7	+12.7	2.0	11	34.6	+12.8	2.0	13	34.6	+12.8	2.0	15	34.5	+12.9	2.0	17	34.4	+13.0	2.1	88
9	47.4	+12.6	1.0	11	47.4	+12.6	1.0	13	47.4	+12.6	1.0	15	47.4	+12.6	1.0	17	47.4	+12.6	1.0	89
10	00.0	+12.4	0.0	12	00.0	+12.4	0.0	14	00.0	+12.3	0.0	16	00.0	+12.3	0.0	18	00.0	+12.3	0.0	90

LATITUDE SAME NAME

L.H.A. 102°, 258°

78°, 282° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	19 53.4	+12.5	64.3	20 44.8	-14.5	64.9	21 35.0	+16.4	65.6	22 23.8	+18.4	66.4	23 11.2	+20.3	67.2
31	20 05.9	+12.1	63.2	20 59.3	-14.1	63.9	21 51.4	+16.0	64.6	22 42.2	+18.0	65.3	23 31.5	+19.9	66.1
32	20 18.0	+11.7	62.2	21 13.4	-13.6	62.9	22 07.4	+15.7	63.6	23 00.2	+17.5	64.3	23 51.4	+19.6	65.1
33	20 29.7	+11.4	61.1	21 27.0	-13.3	61.8	22 23.1	+15.2	62.5	23 17.7	+17.2	63.3	24 11.0	+19.1	64.1
34	20 41.1	+11.0	60.1	21 40.3	-12.9	60.8	22 38.3	+14.8	61.5	23 34.9	+16.7	62.2	24 30.1	+18.7	63.0
35	20 52.1	+10.6	59.0	21 53.2	-12.5	59.7	22 53.1	+14.4	60.4	23 51.6	+16.4	61.2	24 48.8	+18.2	62.0
36	21 02.7	+10.2	58.0	22 05.7	-12.1	58.7	23 07.5	+14.0	59.4	24 08.0	+15.8	60.1	25 07.0	+17.8	60.9
37	21 12.9	+9.8	56.9	22 17.8	-11.7	57.6	23 21.5	+13.5	58.3	24 23.8	+15.5	59.1	25 24.8	+17.3	59.9
38	21 22.7	+9.4	55.9	22 29.5	-11.2	56.5	23 35.0	+13.1	57.2	24 39.3	+14.9	58.0	25 42.1	+16.9	58.8
39	21 32.1	+9.0	54.8	22 40.7	-10.8	55.5	23 48.1	+12.7	56.2	24 54.2	+14.6	56.9	25 59.0	+16.4	57.7
40	21 41.1	+8.6	53.7	22 51.5	-10.4	54.4	24 00.8	+12.2	55.1	25 08.8	+14.0	55.9	26 15.4	+15.9	56.7
41	21 49.7	+8.2	52.7	23 01.9	-10.0	53.3	24 13.0	+11.8	54.0	25 22.8	+13.6	54.8	26 31.3	+15.5	55.6
42	21 57.9	+7.8	51.6	23 11.9	+9.5	52.3	24 24.8	+11.3	53.0	25 36.4	+13.1	53.7	26 46.8	+14.9	54.5
43	22 05.7	+7.4	50.5	23 21.4	+9.1	51.2	24 36.1	+10.8	51.9	25 49.5	+12.7	52.6	27 01.7	+14.5	53.4
44	22 13.1	+6.9	49.5	23 30.5	+8.7	50.1	24 46.9	+10.4	50.8	26 02.2	+12.1	51.5	27 16.2	+13.9	52.3
45	22 20.0	+6.5	48.4	23 39.2	+8.2	49.0	24 57.3	+9.9	49.7	26 14.3	+11.7	50.5	27 30.1	+13.4	51.2
46	22 26.5	+6.1	47.3	23 47.4	+7.7	48.0	25 07.2	+9.5	48.6	26 26.0	+11.1	49.4	27 43.5	+12.9	50.1
47	22 32.6	+5.7	46.2	23 55.1	+7.3	46.9	25 16.7	+8.9	47.5	26 37.1	+10.7	48.3	27 56.4	+12.4	49.0
48	22 38.3	+5.2	45.2	24 02.4	+6.8	45.8	25 25.6	+8.5	46.4	26 47.8	+10.1	47.2	28 08.8	+11.8	47.9
49	22 43.5	+4.8	44.1	24 09.2	+6.4	44.7	25 34.1	+7.9	45.3	26 57.9	+9.6	46.1	28 20.6	+11.3	46.8
50	22 48.3	+4.3	43.0	24 15.6	+5.9	43.6	25 42.0	+7.5	44.2	27 07.5	+9.1	44.9	28 31.9	+10.7	45.7
51	22 52.6	+3.9	41.9	24 21.5	+5.4	42.5	25 49.5	+7.0	43.1	27 16.6	+8.5	43.8	28 42.6	+10.2	44.6
52	22 56.5	+3.5	40.8	24 26.9	+5.0	41.4	25 56.5	+6.4	42.0	27 25.1	+8.0	42.7	28 52.8	+9.6	43.5
53	23 00.0	+3.0	39.8	24 31.9	+4.4	40.3	26 02.9	+6.0	40.9	27 33.1	+7.5	41.6	29 02.4	+9.0	42.3
54	23 03.0	+2.6	38.7	24 36.3	+4.0	39.2	26 08.9	+5.5	39.8	27 40.6	+7.0	40.5	29 11.4	+8.5	41.2
55	23 05.6	+2.1	37.6	24 40.3	+3.6	38.1	26 14.4	+4.9	38.7	27 47.6	+6.4	39.4	29 19.9	+7.9	40.1
56	23 07.7	+1.7	36.5	24 43.9	+3.0	37.0	26 19.3	+4.4	37.6	27 54.0	+5.8	38.2	29 27.8	+7.3	38.9
57	23 09.4	+1.3	35.4	24 46.9	+2.6	35.9	26 23.7	+3.9	36.5	27 59.8	+5.3	37.1	29 35.1	+6.7	37.8
58	23 10.7	+0.7	34.3	24 49.5	+2.0	34.8	26 27.6	+3.4	35.4	28 05.1	+4.8	36.0	29 41.8	+6.2	36.6
59	23 11.4	+0.4	33.2	24 51.5	+1.6	33.7	26 31.0	+2.9	34.3	28 09.9	+4.1	34.9	29 48.0	+5.5	35.5
60	23 11.8	-0.1	32.1	24 53.1	+1.1	32.6	26 33.9	+2.3	33.1	28 14.0	+3.7	33.7	29 53.5	+4.9	34.3
61	23 11.7	-0.6	31.1	24 54.2	+0.6	31.5	26 36.2	+1.9	32.0	28 17.7	+3.0	32.6	29 58.4	+4.4	33.2
62	23 11.1	-1.0	30.0	24 54.8	+0.2	30.4	26 38.1	+1.3	30.9	28 20.7	+2.5	31.5	30 02.8	+3.7	32.0
63	23 10.1	-1.4	28.9	24 55.0	-0.4	29.3	26 39.4	+0.7	29.8	28 23.2	+2.0	30.3	30 06.5	+3.2	30.9
64	23 08.7	-1.9	27.8	24 54.6	-0.8	28.2	26 40.1	+0.3	28.7	28 25.2	+1.3	29.2	30 09.7	+2.5	29.7
65	23 06.8	-2.4	26.7	24 53.8	-1.3	27.1	26 40.4	-0.3	27.6	28 26.5	+0.8	28.0	30 12.2	+1.9	28.6
66	23 04.4	-2.8	25.6	24 52.5	-1.9	26.0	26 40.1	-0.8	26.4	28 27.3	+0.3	26.9	30 14.1	+1.3	27.4
67	23 01.6	-3.2	24.5	24 50.6	-2.3	24.9	26 39.3	-1.3	25.3	28 27.6	-0.4	25.8	30 15.4	+0.7	26.3
68	22 58.4	-3.7	23.5	24 48.3	-2.7	23.8	26 38.0	-1.9	24.2	28 27.2	-0.9	24.6	30 16.1	+0.1	25.1
69	22 54.7	-4.1	22.4	24 45.6	-3.3	22.7	26 36.1	-2.4	23.1	28 26.3	-1.4	23.5	30 16.2	-0.5	23.9
70	22 50.6	-4.5	21.3	24 42.3	-3.7	21.6	26 33.7	-2.9	22.0	28 24.9	-2.1	22.4	30 15.7	-1.2	22.8
71	22 46.1	-5.0	20.2	24 38.6	-4.3	20.5	26 30.8	-3.4	20.8	28 22.8	-2.6	21.2	30 14.5	-1.7	21.6
72	22 41.1	-5.5	19.1	24 34.3	-4.7	19.4	26 27.4	-3.9	19.7	28 20.2	-3.1	20.1	30 12.8	-2.4	20.5
73	22 35.6	-5.8	18.0	24 29.6	-5.1	18.3	26 23.5	-4.5	18.6	28 17.1	-3.7	19.0	30 10.4	-2.9	19.3
74	22 29.8	-6.3	17.0	24 24.5	-5.7	17.2	26 19.0	-5.0	17.5	28 13.4	-4.3	17.8	30 07.5	-3.6	18.2
75	22 23.5	-6.7	15.9	24 18.8	-6.1	16.1	26 14.0	-5.5	16.4	28 09.1	-4.9	16.7	30 03.9	-4.1	17.0
76	22 16.8	-7.2	14.8	24 12.7	-6.6	15.0	26 08.5	-5.9	15.3	28 04.2	-5.4	15.6	29 59.8	-4.8	15.9
77	22 09.6	-7.5	13.7	24 06.1	-7.0	13.9	26 02.6	-6.5	14.2	27 58.8	-5.9	14.4	29 55.0	-5.4	14.7
78	22 02.1	-8.0	12.7	23 59.1	-7.5	12.9	25 56.1	-7.1	13.1	27 52.9	-6.5	13.3	29 49.6	-6.0	13.6
79	21 54.1	-8.4	11.6	23 51.6	-7.9	11.8	25 49.0	-7.5	12.0	27 46.4	-7.0	12.2	29 43.6	-6.5	12.4
80	21 45.7	-8.8	10.5	23 43.7	-8.4	10.7	25 41.5	-8.0	10.9	27 39.4	-7.6	11.1	29 37.1	-7.2	11.3
81	21 36.9	-9.2	9.5	23 35.3	-8.9	9.6	25 33.5	-8.4	9.8	27 31.8	-8.1	9.9	29 29.9	-7.7	10.1
82	21 27.7	-9.6	8.4	23 26.4	-9.3	8.5	25 25.1	-9.0	8.7	27 23.7	-8.7	8.8	29 22.2	-8.3	9.0
83	21 18.1	-10.0	7.4	23 17.1	-9.7	7.5	25 16.1	-9.5	7.6	27 15.0	-9.2	7.7	29 13.9	-8.9	7.9
84	21 08.1	-10.4	6.3	23 07.4	-10.2	6.4	25 06.6	-9.9	6.5	27 05.8	-9.7	6.6	29 05.0	-9.4	6.7
85	20 57.7	-10.8	5.2	22 57.2	-10.6	5.3	24 56.7	-10.4	5.4	26 56.1	-10.2	5.5	28 55.6	-10.0	5.6
86	20 46.9	-11.1	4.2	22 46.6	-11.0	4.2	24 46.3	-10.9	4.3	26 45.9	-10.7	4.4	28 45.6	-10.6	4.5
87	20 35.8	-11.6	3.1	22 35.6	-11.5	3.2	24 35.4	-11.4	3.2	26 35.2	-11.2	3.3	28 35.0	-11.1	3.3
88	20 24.2	-11.9	2.1	22 24.1	-11.8	2.1	24 24.0	-11.7	2.1	26 24.0	-11.8	2.2	28 23.9	-11.7	2.2
89	20 12.3	-12.3	1.0	22 12.3	-12.3	1.1	24 12.3	-12.3	1.1	26 12.2	-12.2	1.1	28 12.2	-12.2	1.1
90	20 00.0	-12.7	0.0	22 00.0	-12.7	0.0	24 00.0	-12.7	0.0	26 00.0	-12.7	0.0	28 00.0	-12.7	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 78°, 282°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
0 06.2 +23.7 57.9	1 10.0 +25.2 57.9	2 13.7 +26.8 58.0	3 17.3 +28.4 58.0	4 20.7 +29.9 58.2	30										
0 29.9 +23.6 57.0	1 35.2 +25.3 57.0	2 40.5 +26.8 57.1	3 45.7 +28.3 57.2	4 50.6 +29.9 57.3	31										
0 53.5 +23.6 56.1	2 00.5 +25.1 56.1	3 07.3 +26.8 56.2	4 14.0 +28.3 56.3	5 20.5 +29.8 56.4	32										
1 17.1 +23.6 55.1	2 25.6 +25.2 55.2	3 34.1 +26.7 55.3	4 42.3 +28.2 55.4	5 50.3 +29.8 55.6	33										
1 40.7 +23.5 54.2	2 50.8 +25.1 54.3	4 00.8 +26.6 54.4	5 10.5 +28.2 54.5	6 20.1 +29.6 54.7	34										
2 04.2 +23.6 53.3	3 15.9 +25.1 53.4	4 27.4 +26.6 53.5	5 38.7 +28.1 53.6	6 49.7 +29.6 53.8	35										
2 27.8 +23.5 52.4	3 41.0 +25.0 52.5	4 54.0 +26.5 52.6	6 06.8 +28.0 52.7	7 19.3 +29.4 52.9	36										
2 51.3 +23.4 51.5	4 06.0 +24.9 51.6	5 20.5 +26.4 51.7	6 34.8 +27.8 51.8	7 48.7 +29.4 52.0	37										
3 14.7 +23.4 50.5	4 30.9 +24.9 50.6	5 46.9 +26.3 50.8	7 02.6 +27.8 51.0	8 18.1 +29.2 51.2	38										
3 38.1 +23.4 49.6	4 55.8 +24.8 49.7	6 13.2 +26.3 49.9	7 30.4 +27.7 50.1	8 47.3 +29.1 50.3	39										
4 01.5 +23.2 48.7	5 20.6 +24.7 48.8	6 39.5 +26.1 49.0	7 58.1 +27.6 49.2	9 16.4 +29.0 49.4	40										
4 24.7 +23.3 47.8	5 45.3 +24.6 47.9	7 05.6 +26.1 48.1	8 25.7 +27.4 48.3	9 45.4 +28.8 48.5	41										
4 48.0 +23.1 46.8	6 09.9 +24.6 47.0	7 31.7 +25.9 47.2	8 53.1 +27.3 47.4	10 14.2 +28.7 47.6	42										
5 11.1 +23.1 45.9	6 34.5 +24.4 46.1	7 57.6 +25.8 46.2	9 20.4 +27.2 46.5	10 42.9 +28.5 46.7	43										
5 34.2 +22.9 45.0	6 58.9 +24.3 45.1	8 23.4 +25.7 45.3	9 47.6 +27.0 45.6	11 11.4 +28.4 45.8	44										
5 57.1 +22.9 44.1	7 23.2 +24.3 44.2	8 49.1 +25.5 44.4	10 14.6 +26.9 44.7	11 39.8 +28.2 44.9	45										
6 20.0 +22.8 43.1	7 47.5 +24.1 43.3	9 14.6 +25.5 43.5	10 41.5 +26.7 43.7	12 08.0 +28.0 44.0	46										
6 42.8 +22.6 42.2	8 11.6 +23.9 42.4	9 40.1 +25.2 42.6	11 08.2 +26.6 42.8	12 36.0 +27.9 43.1	47										
7 05.4 +22.6 41.3	8 35.5 +23.9 41.4	10 05.3 +25.1 41.7	11 34.8 +26.4 41.9	13 03.9 +27.6 42.2	48										
7 28.0 +22.4 40.3	8 59.4 +23.7 40.5	10 30.4 +25.0 40.7	12 01.2 +26.2 41.0	13 31.5 +27.5 41.3	49										
7 50.4 +22.4 39.4	9 23.1 +23.5 39.6	10 55.4 +24.8 39.8	12 27.4 +26.0 40.1	13 59.0 +27.2 40.4	50										
8 12.8 +22.1 38.5	9 46.6 +23.4 38.7	11 20.2 +24.6 38.9	12 53.4 +25.8 39.2	14 26.2 +27.1 39.5	51										
8 34.9 +22.1 37.5	10 10.0 +23.2 37.7	11 44.8 +24.4 38.0	13 19.2 +25.6 38.2	14 53.3 +26.8 38.5	52										
8 57.0 +21.9 36.6	10 33.2 +23.1 36.8	12 09.2 +24.2 37.0	13 44.8 +25.4 37.3	15 20.1 +26.6 37.6	53										
9 18.9 +21.8 35.6	10 56.3 +22.9 35.8	12 33.4 +24.1 36.1	14 10.2 +25.2 36.4	15 46.7 +26.3 36.7	54										
9 40.7 +21.6 34.7	11 19.2 +22.7 34.9	12 57.5 +23.8 35.1	14 35.4 +25.0 35.4	16 13.0 +26.1 35.8	55										
10 02.3 +21.4 33.7	11 41.9 +22.6 34.0	13 21.3 +23.6 34.2	15 00.4 +24.7 34.5	16 39.1 +25.9 34.8	56										
10 23.7 +21.3 32.8	12 04.5 +22.3 33.0	13 44.9 +23.5 33.3	15 25.1 +24.5 33.5	17 05.0 +25.5 33.9	57										
10 45.0 +21.1 31.8	12 26.8 +22.1 32.1	14 08.4 +23.2 32.3	15 49.6 +24.3 32.6	17 30.5 +25.3 32.9	58										
11 06.1 +20.9 30.9	12 48.9 +22.0 31.1	14 31.6 +22.9 31.4	16 13.9 +24.0 31.6	17 55.8 +25.1 32.0	59										
11 27.0 +20.7 29.9	13 10.9 +21.7 30.2	14 54.5 +22.7 30.4	16 37.9 +23.7 30.7	18 20.9 +24.9 31.0	60										
11 47.7 +20.6 29.0	13 32.6 +21.5 29.2	15 17.2 +22.5 29.4	17 01.6 +23.4 29.7	18 45.6 +24.5 30.1	61										
12 08.3 +20.3 28.0	13 54.1 +21.3 28.2	15 39.7 +22.2 28.5	17 25.0 +23.2 28.8	19 10.1 +24.1 29.1	62										
12 28.6 +20.1 27.1	14 15.4 +21.0 27.3	16 01.9 +22.0 27.5	17 48.2 +22.9 27.8	19 34.2 +23.8 28.1	63										
12 48.7 +20.0 26.1	14 36.4 +20.8 26.3	16 23.9 +21.7 26.5	18 11.1 +22.6 26.8	19 58.0 +23.5 27.1	64										
13 08.7 +19.7 25.1	14 57.2 +20.6 25.3	16 45.6 +21.4 25.6	18 33.7 +22.3 25.9	20 21.5 +23.2 26.2	65										
13 28.4 +19.5 24.1	15 17.8 +20.3 24.4	17 07.0 +21.1 24.6	18 56.0 +22.0 24.9	20 44.7 +22.9 25.2	66										
13 47.9 +19.2 23.2	15 38.1 +20.0 23.4	17 28.1 +20.9 23.6	19 18.0 +21.6 23.9	21 07.6 +22.5 24.2	67										
14 07.1 +19.0 22.2	15 58.1 +19.8 22.4	17 49.0 +20.5 22.6	19 39.6 +21.4 22.9	21 30.1 +22.1 23.2	68										
14 26.1 +18.8 21.2	16 17.9 +19.5 21.4	18 09.5 +20.3 21.6	20 01.0 +21.0 21.9	21 52.2 +21.8 22.2	69										
14 44.9 +18.5 20.2	16 37.4 +19.2 20.4	18 29.8 +19.9 20.7	20 22.0 +20.6 20.9	22 14.0 +21.4 21.2	70										
15 03.4 +18.3 19.3	16 56.6 +19.0 19.4	18 49.7 +19.6 19.7	20 42.6 +20.4 19.9	22 35.4 +21.0 20.2	71										
15 21.7 +18.0 18.3	17 15.6 +18.6 18.5	19 09.3 +19.3 18.7	21 03.0 +19.9 18.9	22 56.4 +20.6 19.2	72										
15 39.7 +17.7 17.3	17 34.2 +18.4 17.5	19 28.6 +19.0 17.7	21 22.9 +19.6 17.9	23 17.0 +20.3 18.1	73										
15 57.4 +17.5 16.3	17 52.6 +18.0 16.5	19 47.6 +18.6 16.7	21 42.5 +19.2 16.9	23 37.3 +19.8 17.1	74										
16 14.9 +17.2 15.3	18 10.6 +17.7 15.5	20 06.2 +18.3 15.6	22 01.7 +18.8 15.8	23 57.1 +19.4 16.1	75										
16 32.1 +16.9 14.3	18 28.3 +17.4 14.4	20 24.5 +17.9 14.6	22 20.5 +18.5 14.8	24 16.5 +19.0 15.0	76										
16 49.0 +16.6 13.3	18 45.7 +17.1 13.4	20 42.4 +17.6 13.6	22 39.0 +18.0 13.8	24 35.5 +18.5 14.0	77										
17 05.6 +16.3 12.3	19 02.8 +16.8 12.4	21 00.0 +17.2 12.6	22 57.0 +17.7 12.8	24 54.0 +18.1 13.0	78										
17 21.9 +16.0 11.3	19 19.6 +16.4 11.4	21 17.2 +16.8 11.6	23 14.7 +17.2 11.7	25 12.1 +17.7 11.9	79										
17 37.9 +15.7 10.3	19 36.0 +16.0 10.4	21 34.0 +16.4 10.5	23 31.9 +16.8 10.7	25 29.8 +17.2 10.8	80										
17 53.6 +15.4 9.3	19 52.0 +15.7 9.4	21 50.4 +16.0 9.5	23 48.7 +16.4 9.6	25 47.0 +16.8 9.8	81										
18 09.0 +15.0 8.2	20 07.7 +15.4 8.3	22 06.4 +15.7 8.4	24 05.1 +16.0 8.6	26 03.8 +16.2 8.7	82										
18 24.0 +14.8 7.2	20 23.1 +15.0 7.3	22 22.1 +15.2 7.4	24 21.1 +15.5 7.5	26 20.0 +15.8 7.6	83										
18 38.8 +14.4 6.2	20 38.1 +14.6 6.3	22 37.3 +14.9 6.4	24 36.6 +15.1 6.5	26 35.8 +15.3 6.6	84										
18 53.2 +14.0 5.2	20 52.7 +14.2 5.2	22 52.2 +14.4 5.3	24 51.7 +14.6 5.4	26 51.1 +14.8 5.5	85										
19 07.2 +13.8 4.1	21 06.9 +13.9 4.2	23 06.6 +14.0 4.3	25 06.3 +14.1 4.3	27 05.9 +14.3 4.4	86										
19 21.0 +13.3 3.1	21 20.8 +13.4 3.2	23 20.6 +13.6 3.2	25 20.4 +13.7 3.2	27 20.2 +13.8 3.3	87										
19 34.3 +13.0 2.1	21 34.2 +13.1 2.1	23 34.2 +13.1 2.1	25 34.1 +13.2 2.2	27 34.0 +13.3 2.2	88										
19 47.3 +12.7 1.0	21 47.3 +12.7 1.1	23 47.3 +12.7 1.1	25 47.3 +12.7 1.1	27 47.3 +12.7 1.1	89										
20 00.0 +12.3 0.0	22 00.0 +12.3 0.0	24 00.0 +12.3 0.0	26 00.0 +12.2 0.0	28 00.0 +12.2 0.0	90										
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 102°, 258°

80°, 280° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	8 39.0	-5.4	59.6	9 39.4	-3.5	59.9	10 39.3	-1.7	60.2	11 38.6	+0.2	60.6	12 37.3	+2.0	60.9
31	8 33.6	-5.5	58.6	9 35.9	-3.7	58.9	10 37.6	-1.9	59.2	11 38.8	-0.1	59.5	12 39.3	+1.8	59.9
32	8 28.1	-5.7	57.6	9 32.2	-3.9	57.9	10 35.7	-2.1	58.2	11 38.7	-0.3	58.5	12 41.1	+1.5	58.9
33	8 22.4	-5.8	56.6	9 28.3	-4.1	56.9	10 33.6	-2.3	57.2	11 38.4	-0.5	57.5	12 42.6	+1.3	57.9
34	8 16.6	-5.9	55.6	9 24.2	-4.2	55.8	10 31.3	-2.4	56.1	11 37.9	-0.7	56.5	12 43.9	+1.1	56.8
35	8 10.7	-6.1	54.6	9 20.0	-4.4	54.8	10 28.9	-2.7	55.1	11 37.2	-0.9	55.4	12 45.0	+0.8	55.8
36	8 04.6	-6.3	53.6	9 15.6	-4.6	53.8	10 26.2	-2.9	54.1	11 36.3	-1.2	54.4	12 45.8	+0.6	54.8
37	7 58.3	-6.4	52.6	9 11.0	-4.7	52.8	10 23.3	-3.0	53.1	11 35.1	-1.3	53.4	12 46.4	+0.3	53.8
38	7 51.9	-6.6	51.6	9 06.3	-4.9	51.8	10 20.3	-3.3	52.1	11 33.8	-1.6	52.4	12 46.7	+0.1	52.7
39	7 45.3	-6.6	50.6	9 01.4	-5.1	50.8	10 17.0	-3.4	51.1	11 32.2	-1.8	51.4	12 46.8	-0.1	51.7
40	7 38.7	-6.9	49.6	8 56.3	-5.2	49.8	10 13.6	-3.6	50.0	11 30.4	-2.0	50.3	12 46.7	-0.3	50.7
41	7 31.8	-6.9	48.6	8 51.1	-5.4	48.8	10 10.0	-3.9	49.0	11 28.4	-2.2	49.3	12 46.4	-0.6	49.6
42	7 24.9	-7.1	47.6	8 45.7	-5.6	47.8	10 06.1	-4.0	48.0	11 26.2	-2.4	48.3	12 45.8	-0.9	48.6
43	7 17.8	-7.3	46.6	8 40.1	-5.7	46.8	10 02.1	-4.1	47.0	11 23.8	-2.7	47.3	12 44.9	-1.0	47.6
44	7 10.5	-7.3	45.6	8 34.4	-5.9	45.8	9 58.0	-4.4	46.0	11 21.1	-2.8	46.3	12 43.9	-1.3	46.6
45	7 03.2	-7.5	44.6	8 28.5	-6.0	44.8	9 53.6	-4.5	45.0	11 18.3	-3.1	45.2	12 42.6	-1.6	45.5
46	6 55.7	-7.6	43.6	8 22.5	-6.2	43.7	9 49.1	-4.8	44.0	11 15.2	-3.2	44.2	12 41.0	-1.8	44.5
47	6 48.1	-7.8	42.6	8 16.3	-6.3	42.7	9 44.3	-4.9	43.0	11 12.0	-3.5	43.2	12 39.2	-2.0	43.5
48	6 40.3	-7.8	41.6	8 10.0	-6.5	41.7	9 39.4	-5.1	41.9	11 08.5	-3.7	42.2	12 37.2	-2.2	42.5
49	6 32.5	-8.0	40.6	8 03.5	-6.6	40.7	9 34.3	-5.2	40.9	11 04.8	-3.8	41.2	12 35.0	-2.5	41.5
50	6 24.5	-8.1	39.6	7 56.9	-6.7	39.7	9 29.1	-5.5	39.9	11 01.0	-4.1	40.2	12 32.5	-2.7	40.4
51	6 16.4	-8.2	38.6	7 50.2	-7.0	38.7	9 23.6	-5.6	38.9	10 56.9	-4.3	39.1	12 29.8	-3.0	39.4
52	6 08.2	-8.3	37.6	7 43.2	-7.0	37.7	9 18.0	-5.7	37.9	10 52.6	-4.5	38.1	12 26.8	-3.2	38.4
53	5 59.9	-8.4	36.6	7 36.2	-7.2	36.7	9 12.3	-6.0	36.9	10 48.1	-4.7	37.1	12 23.6	-3.4	37.4
54	5 51.5	-8.5	35.6	7 29.0	-7.3	35.7	9 06.3	-6.1	35.9	10 43.4	-4.9	36.1	12 20.2	-3.6	36.3
55	5 43.0	-8.7	34.6	7 21.7	-7.5	34.7	9 00.2	-6.2	34.9	10 38.5	-5.0	35.1	12 16.6	-3.9	35.3
56	5 34.3	-8.7	33.6	7 14.2	-7.6	33.7	8 54.0	-6.5	33.9	10 33.5	-5.3	34.1	12 12.7	-4.0	34.3
57	5 25.6	-8.8	32.6	7 06.6	-7.7	32.7	8 47.5	-6.6	32.9	10 28.2	-5.5	33.1	12 08.7	-4.3	33.3
58	5 16.8	-8.9	31.6	6 58.9	-7.8	31.7	8 40.9	-6.7	31.9	10 22.7	-5.6	32.0	12 04.4	-4.6	32.3
59	5 07.9	-9.0	30.6	6 51.1	-8.0	30.7	8 34.2	-6.9	30.9	10 17.1	-5.8	31.0	11 59.8	-4.7	31.2
60	4 58.9	-9.1	29.6	6 43.1	-8.1	29.7	8 27.3	-7.1	29.9	10 11.3	-6.1	30.0	11 55.1	-5.0	30.2
61	4 49.8	-9.2	28.6	6 35.0	-8.2	28.7	8 20.2	-7.2	28.9	10 05.2	-6.2	29.0	11 50.1	-5.2	29.2
62	4 40.6	-9.3	27.6	6 26.8	-8.3	27.7	8 13.0	-7.4	27.8	9 59.0	-6.4	28.0	11 44.9	-5.4	28.2
63	4 31.3	-9.4	26.6	6 18.5	-8.4	26.7	8 05.6	-7.5	26.8	9 52.6	-6.5	27.0	11 39.5	-5.6	27.2
64	4 21.9	-9.4	25.7	6 10.1	-8.6	25.7	7 58.1	-7.6	25.8	9 46.1	-6.8	26.0	11 33.9	-5.9	26.1
65	4 12.5	-9.5	24.7	6 01.5	-8.6	24.7	7 50.5	-7.8	24.8	9 39.3	-6.9	25.0	11 28.0	-6.0	25.1
66	4 03.0	-9.6	23.7	5 52.9	-8.8	23.7	7 42.7	-8.0	23.8	9 32.4	-7.1	24.0	11 22.0	-6.3	24.1
67	3 53.4	-9.6	22.7	5 44.1	-8.8	22.8	7 34.7	-8.0	22.8	9 25.3	-7.3	23.0	11 15.7	-6.4	23.1
68	3 43.8	-9.7	21.7	5 35.3	-9.0	21.8	7 26.7	-8.2	21.8	9 18.0	-7.4	22.0	11 09.3	-6.7	22.1
69	3 34.1	-9.8	20.7	5 26.3	-9.1	20.8	7 18.5	-8.4	20.8	9 10.6	-7.6	20.9	11 02.6	-6.9	21.1
70	3 24.3	-9.8	19.7	5 17.2	-9.1	19.8	7 10.1	-8.4	19.8	9 03.0	-7.8	19.9	10 55.7	-7.0	20.1
71	3 14.5	-9.9	18.7	5 08.1	-9.3	18.8	7 01.7	-8.6	18.8	8 55.2	-7.9	18.9	10 48.7	-7.3	19.1
72	3 04.6	-10.0	17.7	4 58.8	-9.3	17.8	6 53.1	-8.7	17.9	8 47.3	-8.1	17.9	10 41.4	-7.4	18.0
73	2 54.6	-10.0	16.8	4 49.5	-9.4	16.8	6 44.4	-8.9	16.9	8 39.2	-8.3	16.9	10 34.0	-7.7	17.0
74	2 44.6	-10.0	15.8	4 40.1	-9.5	15.8	6 35.5	-8.9	15.9	8 30.9	-8.4	15.9	10 26.3	-7.8	16.0
75	2 34.6	-10.1	14.8	4 30.6	-9.6	14.8	6 26.6	-9.1	14.9	8 22.5	-8.5	14.9	10 18.5	-8.1	15.0
76	2 24.5	-10.2	13.8	4 21.0	-9.7	13.8	6 17.5	-9.2	13.9	8 14.0	-8.7	13.9	10 10.4	-8.2	14.0
77	2 14.3	-10.2	12.8	4 11.3	-9.7	12.8	6 08.3	-9.3	12.9	8 05.3	-8.9	12.9	10 02.2	-8.4	13.0
78	2 04.1	-10.2	11.8	4 01.6	-9.8	11.8	5 59.0	-9.4	11.9	7 56.4	-8.9	11.9	9 53.8	-8.5	12.0
79	1 53.9	-10.2	10.8	3 51.8	-9.9	10.9	5 49.6	-9.5	10.9	7 47.5	-9.2	10.9	9 45.3	-8.8	11.0
80	1 43.7	-10.3	9.9	3 41.9	-9.9	9.9	5 40.1	-9.6	9.9	7 38.3	-9.2	9.9	9 36.5	-8.9	10.0
81	1 33.4	-10.3	8.9	3 32.0	-10.0	8.9	5 30.5	-9.7	8.9	7 29.1	-9.4	8.9	9 27.6	-9.1	9.0
82	1 23.1	-10.3	7.9	3 22.0	-10.1	7.9	5 20.8	-9.8	7.9	7 19.7	-9.6	7.9	9 18.5	-9.2	8.0
83	1 12.8	-10.4	6.9	3 11.9	-10.1	6.9	5 11.0	-9.9	6.9	7 10.1	-9.6	6.9	9 09.3	-9.5	7.0
84	1 02.4	-10.4	5.9	3 01.8	-10.2	5.9	5 01.1	-10.0	5.9	7 00.5	-9.8	6.0	8 59.8	-9.6	6.0
85	0 52.0	-10.4	4.9	2 51.6	-10.2	4.9	4 51.1	-10.0	4.9	6 50.7	-9.9	5.0	8 50.2	-9.7	5.0
86	0 41.6	-10.4	3.9	2 41.4	-10.3	3.9	4 41.1	-10.2	4.0	6 40.8	-10.0	4.0	8 40.5	-9.9	4.0
87	0 31.2	-10.4	3.0	2 31.1	-10.3	3.0	4 30.9	-10.2	3.0	6 30.8	-10.2	3.0	8 30.6	-10.1	3.0
88	0 20.8	-10.4	2.0	2 20.8	-10.4	2.0	4 20.7	-10.3	2.0	6 20.6	-10.2	2.0	8 20.5	-10.2	2.0
89	0 10.4	-10.4	1.0	2 10.4	-10.4	1.0	4 10.4	-10.4	1.0	6 10.4	-10.4	1.0	8 10.3	-10.3	1.0
90	0 00.0	-10.4	0.0	2 00.0	-10.4	0.0	4 00.0	-10.5	0.0	6 00.0	-10.5	0.0	8 00.0	-10.5	0.0

0°

2°

4°

6°

8°

LATITUDE CONTRARY NAME

L.H.A. 80°, 280°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
8 39.0	-5.4	120.4	7 38.0	-7.1	120.6	6 36.7	-8.9	120.8	5 35.0	-10.7	121.0	4 33.0	-12.5	121.2	30
8 33.6	-5.5	121.4	7 30.9	-7.3	121.6	6 27.8	-9.1	121.8	5 24.3	-10.8	122.0	4 20.5	-12.5	122.2	31
8 28.1	-5.7	122.4	7 23.6	-7.4	122.6	6 18.7	-9.2	122.8	5 13.5	-10.9	123.0	4 08.0	-12.6	123.1	32
8 22.4	-5.8	123.4	7 16.2	-7.6	123.6	6 09.5	-9.2	123.8	5 02.6	-11.0	124.0	3 55.4	-12.7	124.1	33
8 16.6	-5.9	124.4	7 08.6	-7.7	124.6	6 00.3	-9.4	124.8	4 51.6	-11.1	125.0	3 42.7	-12.8	125.1	34
8 10.7	-6.1	125.4	7 00.9	-7.8	125.6	5 50.9	-9.5	125.8	4 40.5	-11.1	126.0	3 29.9	-12.8	126.1	35
8 04.6	-6.3	126.4	6 53.1	-7.9	126.6	5 41.4	-9.6	126.8	4 29.4	-11.3	126.9	3 17.1	-12.8	127.1	36
7 58.3	-6.4	127.4	6 45.2	-8.1	127.6	5 31.8	-9.7	127.8	4 18.1	-11.3	127.9	3 04.3	-13.0	128.0	37
7 51.9	-6.6	128.4	6 37.1	-8.1	128.6	5 22.1	-9.8	128.8	4 06.8	-11.4	128.9	2 51.3	-12.9	129.0	38
7 45.3	-6.6	129.4	6 29.0	-8.3	129.6	5 12.3	-9.9	129.8	3 55.4	-11.4	129.9	2 38.4	-13.0	130.0	39
7 38.7	-6.9	130.4	6 20.7	-8.4	130.6	5 02.4	-9.9	130.8	3 44.0	-11.6	130.9	2 25.4	-13.1	131.0	40
7 31.8	-6.9	131.4	6 12.3	-8.5	131.6	4 52.5	-10.1	131.8	3 32.4	-11.5	131.9	2 12.3	-13.1	131.9	41
7 24.9	-7.1	132.4	6 03.8	-8.7	132.6	4 42.4	-10.1	132.7	3 20.9	-11.7	132.9	1 59.2	-13.1	132.9	42
7 17.8	-7.3	133.4	5 55.1	-8.7	133.6	4 32.3	-10.3	133.7	3 09.2	-11.7	133.8	1 46.1	-13.2	133.9	43
7 10.5	-7.3	134.4	5 46.4	-8.8	134.6	4 22.0	-10.3	134.7	2 57.5	-11.7	134.8	1 32.9	-13.2	134.9	44
7 03.2	-7.5	135.4	5 37.6	-9.0	135.6	4 11.7	-10.3	135.7	2 45.8	-11.8	135.8	1 19.7	-13.2	135.8	45
6 55.7	-7.6	136.4	5 28.6	-9.0	136.6	4 01.4	-10.5	136.7	2 34.0	-11.9	136.8	1 06.5	-13.2	136.8	46
6 48.1	-7.8	137.4	5 19.6	-9.1	137.6	3 50.9	-10.5	137.7	2 22.1	-11.9	137.8	0 53.3	-13.3	137.8	47
6 40.3	-7.8	138.4	5 10.5	-9.3	138.6	3 40.4	-10.6	138.7	2 10.2	-11.9	138.7	0 40.0	-13.3	138.8	48
6 32.5	-8.0	139.4	5 01.2	-9.3	139.6	3 29.8	-10.6	139.7	1 58.3	-11.9	139.7	0 26.7	-13.2	139.8	49
6 24.5	-8.1	140.4	4 51.9	-9.4	140.6	3 19.2	-10.7	140.6	1 46.4	-12.0	140.7	0 13.5	-13.3	140.7	50
6 16.4	-8.2	141.4	4 42.5	-9.5	141.5	3 08.5	-10.8	141.6	1 34.4	-12.0	141.7	0 00.2	-13.3	141.7	51
6 08.2	-8.3	142.4	4 33.0	-9.5	142.5	2 57.7	-10.8	142.6	1 22.4	-12.1	142.7	0 13.1	+13.2	37.3	52
5 59.9	-8.4	143.4	4 23.5	-9.7	143.5	2 46.9	-10.8	143.6	1 10.3	-12.1	143.6	0 26.3	+13.3	36.3	53
5 51.5	-8.5	144.4	4 13.8	-9.7	144.5	2 36.1	-10.9	144.6	0 58.2	-12.0	144.6	0 39.6	+13.2	35.4	54
5 43.0	-8.7	145.4	4 04.1	-9.8	145.5	2 25.2	-11.0	145.6	0 46.2	-12.1	145.6	0 52.8	+13.3	34.4	55
5 34.3	-8.7	146.4	3 54.3	-9.8	146.5	2 14.2	-11.0	146.6	0 34.1	-12.1	146.6	1 06.1	+13.2	33.4	56
5 25.6	-8.8	147.4	3 44.5	-10.0	147.5	2 03.2	-11.0	147.5	0 22.0	-12.1	147.6	1 19.3	+13.2	32.4	57
5 16.8	-8.9	148.4	3 34.5	-9.9	148.5	1 52.2	-11.0	148.5	0 09.9	-12.1	148.5	1 32.5	+13.2	31.5	58
5 07.9	-9.0	149.4	3 24.6	-10.1	149.5	1 41.2	-11.1	149.5	0 02.2	+12.2	30.5	1 45.7	+13.1	30.5	59
4 58.9	-9.1	150.4	3 14.5	-10.1	150.4	1 30.1	-11.1	150.5	0 14.4	+12.1	29.5	1 58.8	+13.1	29.5	60
4 49.8	-9.2	151.4	3 04.4	-10.2	151.4	1 19.0	-11.2	151.5	0 26.5	+12.1	28.5	2 11.9	+13.1	28.5	61
4 40.6	-9.3	152.4	2 54.2	-10.2	152.4	1 07.8	-11.1	152.5	0 38.6	+12.0	27.5	2 25.0	+13.0	27.6	62
4 31.3	-9.4	153.4	2 44.0	-10.3	153.4	0 56.7	-11.2	153.4	0 50.6	+12.1	26.6	2 38.0	+12.9	26.6	63
4 21.9	-9.4	154.3	2 33.7	-10.3	154.4	0 45.5	-11.2	154.4	1 02.7	+12.1	25.6	2 50.9	+13.0	25.6	64
4 12.5	-9.5	155.3	2 23.4	-10.3	155.4	0 34.3	-11.2	155.4	1 14.8	+12.0	24.6	3 03.9	+12.8	24.6	65
4 03.0	-9.6	156.3	2 13.1	-10.4	156.4	0 23.1	-11.2	156.4	1 26.8	+12.0	23.6	3 16.7	+12.9	23.7	66
3 53.4	-9.6	157.3	2 02.7	-10.4	157.4	0 11.9	-11.2	157.4	1 38.8	+12.0	22.6	3 29.6	+12.7	22.7	67
3 43.8	-9.7	158.3	1 52.3	-10.5	158.3	0 00.7	-11.2	158.4	1 50.8	+11.9	21.7	3 42.3	+12.7	21.7	68
3 34.1	-9.8	159.3	1 41.8	-10.5	159.3	0 10.5	+11.2	20.7	2 02.7	+12.0	20.7	3 55.0	+12.6	20.7	69
3 24.3	-9.8	160.3	1 31.3	-10.5	160.3	0 21.7	+11.2	19.7	2 14.7	+11.8	19.7	4 07.6	+12.6	19.7	70
3 14.5	-9.9	161.3	1 20.8	-10.5	161.3	0 32.9	+11.1	18.7	2 26.5	+11.9	18.7	4 20.2	+12.4	18.8	71
3 04.6	-10.0	162.3	1 10.3	-10.6	162.3	0 44.0	+11.2	17.7	2 38.4	+11.7	17.7	4 32.6	+12.4	17.8	72
2 54.6	-10.0	163.2	0 59.7	-10.6	163.3	0 55.2	+11.2	16.7	2 50.1	+11.8	16.8	4 45.0	+12.3	16.8	73
2 44.6	-10.0	164.2	0 49.1	-10.6	164.2	1 06.4	+11.1	15.8	3 01.9	+11.6	15.8	4 57.3	+12.3	15.8	74
2 34.6	-10.1	165.2	0 38.5	-10.6	165.2	1 17.5	+11.1	14.8	3 13.5	+11.7	14.8	5 09.6	+12.1	14.8	75
2 24.5	-10.2	166.2	0 27.9	-10.6	166.2	1 28.6	+11.1	13.8	3 25.2	+11.5	13.8	5 21.7	+12.0	13.8	76
2 14.3	-10.2	167.2	0 17.3	-10.6	167.2	1 39.7	+11.1	12.8	3 36.7	+11.5	12.8	5 33.7	+12.0	12.9	77
2 04.1	-10.2	168.2	0 06.7	-10.6	168.2	1 50.8	+11.0	11.8	3 48.2	+11.5	11.8	5 45.7	+11.8	11.9	78
1 53.9	-10.2	169.2	0 03.9	+10.7	10.8	2 01.8	+11.0	10.8	3 59.7	+11.3	10.9	5 57.5	+11.7	10.9	79
1 43.7	-10.3	170.1	0 14.6	+10.6	9.8	2 12.8	+10.9	9.9	4 11.0	+11.3	9.9	6 09.2	+11.7	9.9	80
1 33.4	-10.3	171.1	0 25.2	+10.6	8.9	2 23.7	+10.9	8.9	4 22.3	+11.2	8.9	6 20.9	+11.5	8.9	81
1 23.1	-10.3	172.1	0 35.8	+10.6	7.9	2 34.6	+10.9	7.9	4 33.5	+11.1	7.9	6 32.4	+11.4	7.9	82
1 12.8	-10.4	173.1	0 46.4	+10.6	6.9	2 45.5	+10.8	6.9	4 44.6	+11.1	6.9	6 43.8	+11.2	6.9	83
1 02.4	-10.4	174.1	0 57.0	+10.5	5.9	2 56.3	+10.8	5.9	4 55.7	+10.9	5.9	6 55.0	+11.2	6.0	84
0 52.0	-10.4	175.1	1 07.5	+10.6	4.9	3 07.1	+10.7	4.9	5 06.6	+10.9	4.9	7 06.2	+11.0	5.0	85
0 41.6	-10.4	176.1	1 18.1	+10.5	3.9	3 17.8	+10.6	3.9	5 17.5	+10.8	4.0	7 17.2	+10.9	4.0	86
0 31.2	-10.4	177.0	1 28.6	+10.5	3.0	3 28.4	+10.6	3.0	5 28.3	+10.7	3.0	7 28.1	+10.8	3.0	87
0 20.8	-10.4	178.0	1 39.1	+10.5	2.0	3 39.0	+10.5	2.0	5 39.0	+10.5	2.0	7 38.9	+10.6	2.0	88
0 10.4	-10.4	179.0	1 49.6	+10.4	1.0	3 49.5	+10.5	1.0	5 49.5	+10.5	1.0	7 49.5	+10.5	1.0	89
0 00.0	+10.4	0.0	2 00.0	+10.4	0.0	4 00.0	+10.4	0.0	6 00.0	+10.4	0.0	8 00.0	+10.3	0.0	90

LATITUDE SAME NAME

L.H.A. 100°, 260°

80°, 280° L.H.A.

LATITUDE SAME NAME

Dec. °	10°			12°			14°			16°			18°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	13 35.2	+3.9	61.3	14 32.4	+5.8	61.8	15 28.7	+7.7	62.2	16 24.1	+9.6	62.8	17 18.6	+11.4	63.3
31	13 39.1	+3.6	60.3	14 38.2	+5.4	60.7	15 36.4	+7.3	61.2	16 33.7	+9.2	61.7	17 30.0	+11.2	62.3
32	13 42.7	+3.4	59.3	14 43.6	+5.3	59.7	15 43.7	+7.1	60.2	16 42.9	+9.0	60.7	17 41.2	+10.8	61.2
33	13 46.1	+3.1	58.3	14 48.9	+4.9	58.7	15 50.8	+6.8	59.2	16 51.9	+8.6	59.7	17 52.0	+10.5	60.2
34	13 49.2	+2.9	57.2	14 53.8	+4.7	57.7	15 57.6	+6.5	58.1	17 00.5	+8.4	58.6	18 02.5	+10.2	59.2
35	13 52.1	+2.6	56.2	14 58.5	+4.4	56.6	16 04.1	+6.2	57.1	17 08.9	+8.0	57.6	18 12.7	+9.8	58.1
36	13 54.7	+2.3	55.2	15 02.9	+4.1	55.6	16 10.3	+5.9	56.1	17 16.9	+7.6	56.6	18 22.5	+9.5	57.1
37	13 57.0	+2.1	54.1	15 07.0	+3.8	54.6	16 16.2	+5.6	55.0	17 24.5	+7.4	55.5	18 32.0	+9.2	56.0
38	13 59.1	+1.8	53.1	15 10.8	+3.5	53.5	16 21.8	+5.2	54.0	17 31.9	+7.0	54.5	18 41.2	+8.8	55.0
39	14 00.9	+1.6	52.1	15 14.3	+3.3	52.5	16 27.0	+5.0	52.9	17 38.9	+6.8	53.4	18 50.0	+8.5	54.0
40	14 02.5	+1.3	51.0	15 17.6	+3.0	51.5	16 32.0	+4.7	51.9	17 45.7	+6.3	52.4	18 58.5	+8.1	52.9
41	14 03.8	+1.0	50.0	15 20.6	+2.7	50.4	16 36.7	+4.3	50.9	17 52.0	+6.1	51.3	19 06.6	+7.7	51.9
42	14 04.8	+0.8	49.0	15 23.3	+2.3	49.4	16 41.0	+4.1	49.8	17 58.1	+5.7	50.3	19 14.3	+7.4	50.8
43	14 05.6	+0.5	48.0	15 25.6	+2.2	48.3	16 45.1	+3.7	48.8	18 03.8	+5.3	49.3	19 21.7	+7.0	49.8
44	14 06.1	+0.2	46.9	15 27.8	+1.8	47.3	16 48.8	+3.4	47.7	18 09.1	+5.1	48.2	19 28.7	+6.7	48.7
45	14 06.3	0.0	45.9	15 29.6	+1.5	46.3	16 52.2	+3.1	46.7	18 14.2	+4.7	47.2	19 35.4	+6.3	47.7
46	14 06.3	-0.3	44.9	15 31.1	+1.2	45.2	16 55.3	+2.8	45.6	18 18.9	+4.3	46.1	19 41.7	+5.9	46.6
47	14 06.0	-0.5	43.8	15 32.3	+1.0	44.2	16 58.1	+2.5	44.6	18 23.2	+4.0	45.1	19 47.6	+5.6	45.5
48	14 05.5	-0.8	42.8	15 33.3	+0.7	43.2	17 00.6	+2.1	43.6	18 27.2	+3.6	44.0	19 53.2	+5.1	44.5
49	14 04.7	-1.1	41.8	15 34.0	+0.3	42.1	17 02.7	+1.8	42.5	18 30.8	+3.3	42.9	19 58.3	+4.8	43.4
50	14 03.6	-1.3	40.7	15 34.3	+0.1	41.1	17 04.5	+1.5	41.5	18 34.1	+3.0	41.9	20 03.1	+4.5	42.4
51	14 02.3	-1.6	39.7	15 34.4	-0.2	40.0	17 06.0	+1.2	40.4	18 37.1	+2.6	40.8	20 07.6	+4.0	41.3
52	14 00.7	-1.8	38.7	15 34.2	-0.5	39.0	17 07.2	+0.8	39.4	18 39.7	+2.2	39.8	20 11.6	+3.6	40.2
53	13 58.9	-2.2	37.6	15 33.7	-0.8	38.0	17 08.0	+0.6	38.3	18 41.9	+1.9	38.7	20 15.2	+3.3	39.2
54	13 56.7	-2.3	36.6	15 32.9	-1.1	36.9	17 08.6	+0.2	37.3	18 43.8	+1.5	37.7	20 18.5	+2.9	38.1
55	13 54.4	-2.7	35.6	15 31.8	-1.4	35.9	17 08.8	-0.1	36.2	18 45.3	+1.2	36.6	20 21.4	+2.5	37.0
56	13 51.7	-2.9	34.6	15 30.4	-1.7	34.9	17 08.7	-0.5	35.2	18 46.5	+0.8	35.6	20 23.9	+2.1	36.0
57	13 48.8	-3.1	33.5	15 28.7	-1.9	33.8	17 08.2	-0.7	34.1	18 47.3	+0.5	34.5	20 26.0	+1.7	34.9
58	13 45.7	-3.4	32.5	15 26.8	-2.3	32.8	17 07.5	-1.1	33.1	18 47.8	+0.1	33.5	20 27.7	+1.3	33.8
59	13 42.3	-3.7	31.5	15 24.5	-2.5	31.7	17 06.4	-1.4	32.1	18 47.9	-0.2	32.4	20 29.0	+0.9	32.8
60	13 38.6	-3.9	30.4	15 22.0	-2.9	30.7	17 05.0	-1.8	31.0	18 47.7	-0.7	31.3	20 29.9	+0.6	31.7
61	13 34.7	-4.1	29.4	15 19.1	-3.1	29.7	17 03.2	-2.0	30.0	18 47.0	-0.9	30.3	20 30.5	+0.1	30.6
62	13 30.6	-4.4	28.4	15 16.0	-3.4	28.6	17 01.2	-2.4	28.9	18 46.1	-1.3	29.2	20 30.6	-0.2	29.6
63	13 26.2	-4.7	27.4	15 12.6	-3.7	27.6	16 58.8	-2.7	27.9	18 44.8	-1.7	28.2	20 30.4	-0.6	28.5
64	13 21.5	-4.9	26.3	15 08.9	-3.9	26.6	16 56.1	-3.0	26.8	18 43.1	-2.0	27.1	20 29.8	-1.1	27.4
65	13 16.6	-5.2	25.3	15 05.0	-4.3	25.5	16 53.1	-3.3	25.8	18 41.1	-2.4	26.1	20 28.7	-1.4	26.4
66	13 11.4	-5.4	24.3	15 00.7	-4.5	24.5	16 49.8	-3.6	24.7	18 38.7	-2.7	25.0	20 27.3	-1.8	25.3
67	13 06.0	-5.6	23.3	14 56.2	-4.8	23.5	16 46.2	-4.0	23.7	18 36.0	-3.1	24.0	20 25.5	-2.2	24.2
68	13 00.4	-5.9	22.2	14 51.4	-5.1	22.4	16 42.2	-4.2	22.7	18 32.9	-3.5	22.9	20 23.3	-2.6	23.2
69	12 54.5	-6.1	21.2	14 46.3	-5.3	21.4	16 38.0	-4.6	21.6	18 29.4	-3.7	21.8	20 20.7	-3.0	22.1
70	12 48.4	-6.3	20.2	14 41.0	-5.7	20.4	16 33.4	-4.9	20.6	18 25.7	-4.2	20.8	20 17.7	-3.3	21.0
71	12 42.1	-6.6	19.2	14 35.3	-5.9	19.3	16 28.5	-5.2	19.5	18 21.5	-4.5	19.7	20 14.4	-3.8	20.0
72	12 35.5	-6.8	18.2	14 29.4	-6.1	18.3	16 23.3	-5.5	18.5	18 17.0	-4.8	18.7	20 10.6	-4.1	18.9
73	12 28.7	-7.1	17.2	14 23.3	-6.4	17.3	16 17.8	-5.8	17.5	18 12.2	-5.1	17.6	20 06.5	-4.5	17.9
74	12 21.6	-7.3	16.1	14 16.9	-6.7	16.3	16 12.0	-6.1	16.4	18 07.1	-5.5	16.6	20 02.0	-4.9	16.8
75	12 14.3	-7.4	15.1	14 10.2	-7.0	15.2	16 05.9	-6.4	15.4	18 01.6	-5.9	15.5	19 57.1	-5.3	15.7
76	12 06.9	-7.8	14.1	14 03.2	-7.2	14.2	15 59.5	-6.7	14.3	17 55.7	-6.2	14.5	19 51.8	-5.6	14.7
77	11 59.1	-7.9	13.1	13 56.0	-7.5	13.2	15 52.8	-7.0	13.3	17 49.5	-6.5	13.5	19 46.2	-6.0	13.6
78	11 51.2	-8.1	12.1	13 48.5	-7.7	12.2	15 45.8	-7.3	12.3	17 43.0	-6.8	12.4	19 40.2	-6.4	12.6
79	11 43.1	-8.4	11.1	13 40.8	-8.0	11.2	15 38.5	-7.6	11.3	17 36.2	-7.2	11.4	19 33.8	-6.7	11.5
80	11 34.7	-8.6	10.1	13 32.8	-8.2	10.1	15 30.9	-7.8	10.2	17 29.0	-7.5	10.3	19 27.1	-7.2	10.4
81	11 26.1	-8.8	9.0	13 24.6	-8.4	9.1	15 23.1	-8.2	9.2	17 21.5	-7.8	9.3	19 19.9	-7.4	9.4
82	11 17.3	-8.9	8.0	13 16.2	-8.8	8.1	15 14.9	-8.4	8.2	17 13.7	-8.1	8.3	19 12.5	-7.9	8.3
83	11 08.4	-9.2	7.0	13 07.4	-8.9	7.1	15 06.5	-8.7	7.1	17 05.6	-8.5	7.2	19 04.6	-8.2	7.3
84	10 59.2	-9.4	6.0	12 58.5	-9.2	6.1	14 57.8	-8.9	6.1	16 57.1	-8.7	6.2	18 56.4	-8.5	6.2
85	10 49.8	-9.6	5.0	12 49.3	-9.4	5.1	14 48.9	-9.3	5.1	16 48.4	-9.1	5.1	18 47.9	-8.9	5.2
86	10 40.2	-9.8	4.0	12 39.9	-9.6	4.0	14 39.6	-9.5	4.1	16 39.3	-9.4	4.1	18 39.0	-9.2	4.2
87	10 30.4	-9.9	3.0	12 30.3	-9.9	3.0	14 30.1	-9.8	3.1	16 29.9	-9.6	3.1	18 29.8	-9.6	3.1
88	10 20.5	-10.2	2.0	12 20.4	-10.1	2.0	14 20.3	-10.0	2.0	16 20.3	-10.0	2.1	18 20.2	-9.9	2.1
89	10 10.3	-10.3	1.0	12 10.3	-10.3	1.0	14 10.3	-10.3	1.0	16 10.3	-10.3	1.0	18 10.3	-10.3	1.0
90	10 00.0	-10.5	0.0	12 00.0	-10.5	0.0	14 00.0	-10.5	0.0	16 00.0	-10.6	0.0	18 00.0	-10.6	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 80°, 280°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
3 30.8	-14.2	121.3	2 28.4	-16.0	121.4	1 25.8	-17.6	121.4	0 23.2	-19.4	121.5	0 39.5	+21.0	58.5	30
3 16.6	-14.3	122.3	2 12.4	-15.9	122.4	1 08.2	-17.7	122.4	0 03.8	-19.3	122.4	1 00.5	+21.0	57.6	31
3 02.3	-14.3	123.2	1 56.5	-16.1	123.3	0 50.5	-17.7	123.4	0 15.5	+19.3	56.6	1 21.5	+20.9	56.7	32
2 48.0	-14.4	124.2	1 40.4	-16.0	124.3	0 32.8	-17.7	124.3	0 34.8	+19.3	55.7	1 42.4	+21.0	55.7	33
2 33.6	-14.4	125.2	1 24.4	-16.0	125.2	0 15.1	-17.6	125.3	0 54.1	+19.4	54.7	2 03.4	+20.9	54.8	34
2 19.2	-14.4	126.2	1 08.4	-16.1	126.2	0 02.5	+17.7	53.8	1 13.5	+19.2	53.8	2 24.3	+20.9	53.8	35
2 04.8	-14.5	127.1	0 52.3	-16.1	127.2	0 20.2	+17.7	52.8	1 32.7	+19.3	52.8	2 45.2	+20.8	52.9	36
1 50.3	-14.5	128.1	0 36.2	-16.1	128.1	0 37.9	+17.7	51.9	1 52.0	+19.2	51.9	3 06.0	+20.8	52.0	37
1 35.8	-14.6	129.1	0 20.1	-16.1	129.1	0 55.6	+17.6	50.9	2 11.2	+19.2	51.0	3 26.8	+20.7	51.0	38
1 21.2	-14.6	130.0	0 04.0	-16.1	130.1	1 13.2	+17.7	50.0	2 30.4	+19.2	50.0	3 47.5	+20.6	50.1	39
1 06.6	-14.6	131.0	0 12.1	+16.1	49.0	1 30.9	+17.6	49.0	2 49.6	+19.1	49.1	4 08.1	+20.6	49.1	40
0 52.0	-14.6	132.0	0 28.2	+16.1	48.0	1 48.5	+17.6	48.0	3 08.7	+19.0	48.1	4 28.7	+20.6	48.2	41
0 37.4	-14.6	133.0	0 44.3	+16.1	47.0	2 06.1	+17.5	47.1	3 27.7	+19.0	47.2	4 49.3	+20.4	47.3	42
0 22.8	-14.6	133.9	1 00.4	+16.1	46.1	2 23.6	+17.5	46.1	3 46.7	+19.0	46.2	5 09.7	+20.4	46.3	43
0 08.2	-14.6	134.9	1 16.5	+16.0	45.1	2 41.1	+17.5	45.2	4 05.7	+18.8	45.3	5 30.1	+20.2	45.4	44
0 06.4	+14.6	44.1	1 32.5	+16.0	44.2	2 58.6	+17.4	44.2	4 24.5	+18.8	44.3	5 50.3	+20.2	44.4	45
0 21.0	+14.6	43.2	1 48.5	+16.0	43.2	3 16.0	+17.3	43.3	4 43.3	+18.7	43.3	6 10.5	+20.1	43.5	46
0 35.6	+14.7	42.2	2 04.5	+16.0	42.2	3 33.3	+17.3	42.3	5 02.0	+18.7	42.4	6 30.6	+19.9	42.5	47
0 50.3	+14.5	41.2	2 20.5	+15.9	41.3	3 50.6	+17.3	41.3	5 20.7	+18.5	41.4	6 50.5	+19.9	41.6	48
1 04.8	+14.6	40.3	2 36.4	+15.9	40.3	4 07.9	+17.1	40.4	5 39.2	+18.5	40.5	7 10.4	+19.7	40.6	49
1 19.4	+14.6	39.3	2 52.3	+15.8	39.3	4 25.0	+17.1	39.4	5 57.7	+18.3	39.5	7 30.1	+19.6	39.7	50
1 34.0	+14.5	38.3	3 08.1	+15.8	38.4	4 42.1	+17.0	38.5	6 16.0	+18.3	38.6	7 49.7	+19.5	38.7	51
1 48.5	+14.5	37.3	3 23.9	+15.7	37.4	4 59.1	+17.0	37.5	6 34.3	+18.1	37.6	8 09.2	+19.4	37.8	52
2 03.0	+14.4	36.4	3 39.6	+15.6	36.4	5 16.1	+16.8	36.5	6 52.4	+18.0	36.7	8 28.6	+19.2	36.8	53
2 17.4	+14.4	35.4	3 55.2	+15.6	35.5	5 32.9	+16.7	35.6	7 10.4	+17.9	35.7	8 47.8	+19.1	35.9	54
2 31.8	+14.4	34.4	4 10.8	+15.5	34.5	5 49.6	+16.7	34.6	7 28.3	+17.8	34.7	9 06.9	+18.9	34.9	55
2 46.2	+14.3	33.5	4 26.3	+15.4	33.5	6 06.3	+16.5	33.6	7 46.1	+17.7	33.8	9 25.8	+18.7	33.9	56
3 00.5	+14.3	32.5	4 41.7	+15.4	32.6	6 22.8	+16.4	32.7	8 03.8	+17.5	32.8	9 44.5	+18.6	33.0	57
3 14.8	+14.2	31.5	4 57.1	+15.3	31.6	6 39.2	+16.4	31.7	8 21.3	+17.3	31.8	10 03.1	+18.5	32.0	58
3 29.0	+14.2	30.5	5 12.4	+15.1	30.6	6 55.6	+16.2	30.7	8 38.6	+17.3	30.9	10 21.6	+18.2	31.0	59
3 43.2	+14.1	29.6	5 27.5	+15.1	29.6	7 11.8	+16.0	29.8	8 55.9	+17.0	29.9	10 39.8	+18.1	30.1	60
3 57.3	+14.0	28.6	5 42.6	+15.0	28.7	7 27.8	+16.0	28.8	9 12.9	+17.0	28.9	10 57.9	+17.9	29.1	61
4 11.3	+14.0	27.6	5 57.6	+14.9	27.7	7 43.8	+15.8	27.8	9 29.9	+16.7	28.0	11 15.8	+17.7	28.1	62
4 25.3	+13.8	26.6	6 12.5	+14.8	26.7	7 59.6	+15.7	26.8	9 46.6	+16.6	27.0	11 33.5	+17.5	27.2	63
4 39.1	+13.8	25.7	6 27.3	+14.6	25.8	8 15.3	+15.5	25.9	10 03.2	+16.4	26.0	11 51.0	+17.3	26.2	64
4 52.9	+13.7	24.7	6 41.9	+14.6	24.8	8 30.8	+15.4	24.9	10 19.6	+16.3	25.0	12 08.3	+17.1	25.2	65
5 06.6	+13.7	23.7	6 56.5	+14.4	23.8	8 46.2	+15.3	23.9	10 35.9	+16.0	24.0	12 25.4	+16.9	24.2	66
5 20.3	+13.5	22.7	7 10.9	+14.3	22.8	9 01.5	+15.1	22.9	10 51.9	+15.9	23.1	12 42.3	+16.6	23.2	67
5 33.8	+13.4	21.8	7 25.2	+14.2	21.8	9 16.6	+14.9	22.0	11 07.8	+15.7	22.1	12 58.9	+16.5	22.2	68
5 47.2	+13.3	20.8	7 39.4	+14.0	20.9	9 31.5	+14.7	21.0	11 23.5	+15.5	21.1	13 15.4	+16.2	21.3	69
6 00.5	+13.3	19.8	7 53.4	+13.9	19.9	9 46.2	+14.6	20.0	11 39.0	+15.3	20.1	13 31.6	+16.0	20.3	70
6 13.8	+13.1	18.8	8 07.3	+13.8	18.9	10 00.8	+14.4	19.0	11 54.3	+15.0	19.1	13 47.6	+15.7	19.3	71
6 26.9	+13.0	17.8	8 21.1	+13.6	17.9	10 15.2	+14.3	18.0	12 09.3	+14.9	18.1	14 03.3	+15.5	18.3	72
6 39.9	+12.9	16.9	8 34.7	+13.5	16.9	10 29.5	+14.0	17.0	12 24.2	+14.6	17.1	14 18.8	+15.3	17.3	73
6 52.8	+12.7	15.9	8 48.2	+13.3	15.9	10 43.5	+13.9	16.0	12 38.8	+14.5	16.2	14 34.1	+15.0	16.3	74
7 05.5	+12.7	14.9	9 01.5	+13.2	15.0	10 57.4	+13.7	15.0	12 53.3	+14.2	15.2	14 49.1	+14.7	15.3	75
7 18.2	+12.5	13.9	9 14.7	+13.0	14.0	11 11.1	+13.5	14.1	13 07.5	+13.9	14.2	15 03.8	+14.5	14.3	76
7 30.7	+12.4	12.9	9 27.7	+12.8	13.0	11 24.6	+13.2	13.1	13 21.4	+13.8	13.2	15 18.3	+14.2	13.3	77
7 43.1	+12.2	11.9	9 40.5	+12.6	12.0	11 37.8	+13.1	12.1	13 35.2	+13.5	12.2	15 32.5	+13.9	12.3	78
7 55.3	+12.1	10.9	9 53.1	+12.5	11.0	11 50.9	+12.9	11.1	13 48.7	+13.2	11.2	15 46.4	+13.6	11.3	79
8 07.4	+12.0	9.9	10 05.6	+12.3	10.0	12 03.8	+12.6	10.1	14 01.9	+13.0	10.2	16 00.0	+13.4	10.2	80
8 19.4	+11.8	9.0	10 17.9	+12.1	9.0	12 16.4	+12.5	9.1	14 14.9	+12.8	9.1	16 13.4	+13.1	9.2	81
8 31.2	+11.7	8.0	10 30.0	+12.0	8.0	12 28.9	+12.2	8.1	14 27.7	+12.5	8.1	16 26.5	+12.7	8.2	82
8 42.9	+11.5	7.0	10 42.0	+11.7	7.0	12 41.1	+12.0	7.1	14 40.2	+12.2	7.1	16 39.2	+12.5	7.2	83
8 54.4	+11.3	6.0	10 53.7	+11.6	6.0	12 53.1	+11.7	6.1	14 52.4	+11.9	6.1	16 51.7	+12.2	6.2	84
9 05.7	+11.2	5.0	11 05.3	+11.3	5.0	13 04.8	+11.5	5.1	15 04.3	+11.7	5.1	17 03.9	+11.8	5.2	85
9 16.9	+11.1	4.0	11 16.6	+11.2	4.0	13 16.3	+11.3	4.0	15 16.0	+11.5	4.1	17 15.7	+11.6	4.1	86
9 28.0	+10.8	3.0	11 27.8	+10.9	3.0	13 27.6	+11.1	3.0	15 27.5	+11.1	3.1	17 27.3	+11.2	3.1	87
9 38.8	+10.7	2.0	11 38.7	+10.8	2.0	13 38.7	+10.8	2.0	15 38.6	+10.8	2.0	17 38.5	+10.9	2.1	88
9 49.5	+10.5	1.0	11 49.5	+10.5	1.0	13 49.5	+10.5	1.0	15 49.4	+10.6	1.0	17 49.4	+10.6	1.0	89
10 00.0	+10.3	0.0	12 00.0	+10.3	0.0	14 00.0	+10.3	0.0	16 00.0	+10.3	0.0	18 00.0	+10.3	0.0	90

LATITUDE SAME NAME

L.H.A. 100°, 260°

80°, 280° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	18 12.0	+13.4	63.9	19 04.2	-15.4	64.5	19 55.4	+17.2	65.1	20 45.2	+19.2	65.8	21 33.8	+21.1	66.5
31	18 25.4	+13.0	62.8	19 19.6	-14.9	63.5	20 12.6	+16.9	64.1	21 04.4	+18.8	64.8	21 54.9	+20.7	65.5
32	18 38.4	+12.7	61.8	19 34.5	-14.7	62.4	20 29.5	+16.5	63.1	21 23.2	+18.4	63.8	22 15.6	+20.3	64.5
33	18 51.1	+12.4	60.8	19 49.2	-14.2	61.4	20 46.0	+16.2	62.0	21 41.6	+18.1	62.7	22 35.9	+20.0	63.5
34	19 03.5	+12.0	59.7	20 03.4	-13.9	60.4	21 02.2	+15.8	61.0	21 59.7	+17.7	61.7	22 55.9	+19.6	62.4
35	19 15.5	+11.7	58.7	20 17.3	-13.6	59.3	21 18.0	+15.4	60.0	22 17.4	+17.3	60.7	23 15.5	+19.1	61.4
36	19 27.2	+11.4	57.7	20 30.9	-13.1	58.3	21 33.4	+15.0	58.9	22 34.7	+16.8	59.6	23 34.6	+18.8	60.4
37	19 38.6	+10.9	56.6	20 44.0	-12.8	57.2	21 48.4	+14.6	57.9	22 51.5	+16.5	58.6	23 53.4	+18.3	59.3
38	19 49.5	+10.6	55.6	20 56.8	-12.4	56.2	22 03.0	+14.2	56.9	23 08.0	+16.1	57.6	24 11.7	+18.0	58.3
39	20 00.1	+10.2	54.5	21 09.2	-12.0	55.1	22 17.2	+13.9	55.8	23 24.1	+15.6	56.5	24 29.7	+17.4	57.2
40	20 10.3	+9.9	53.5	21 21.2	-11.7	54.1	22 31.1	+13.4	54.8	23 39.7	+15.2	55.5	24 47.1	+17.1	56.2
41	20 20.2	+9.5	52.4	21 32.9	-11.2	53.0	22 44.5	+13.0	53.7	23 54.9	+14.8	54.4	25 04.2	+16.5	55.1
42	20 29.7	+9.1	51.4	21 44.1	-10.8	52.0	22 57.5	+12.5	52.6	24 09.7	+14.3	53.3	25 20.7	+16.2	54.1
43	20 38.8	+8.7	50.3	21 54.9	-10.4	50.9	23 10.0	+12.2	51.6	24 24.0	+13.9	52.3	25 36.9	+15.6	53.0
44	20 47.5	+8.3	49.3	22 05.3	-10.0	49.9	23 22.2	+11.7	50.5	24 37.9	+13.4	51.2	25 52.5	+15.2	51.9
45	20 55.8	+7.9	48.2	22 15.3	+9.6	48.8	23 33.9	+11.2	49.4	24 51.3	+13.0	50.1	26 07.7	+14.7	50.9
46	21 03.7	+7.6	47.1	22 24.9	+9.2	47.7	23 45.1	+10.8	48.4	25 04.3	+12.5	49.0	26 22.4	+14.2	49.8
47	21 11.3	+7.1	46.1	22 34.1	+8.7	46.7	23 55.9	+10.4	47.3	25 16.8	+12.0	48.0	26 36.6	+13.7	48.7
48	21 18.4	+6.7	45.0	22 42.8	+8.3	45.6	24 06.3	+9.9	46.2	25 28.8	+11.6	46.9	26 50.3	+13.2	47.6
49	21 25.1	+6.3	43.9	22 51.1	+7.9	44.5	24 16.2	+9.5	45.1	25 40.4	+11.0	45.8	27 03.5	+12.7	46.5
50	21 31.4	+5.9	42.9	22 59.0	+7.4	43.4	24 25.7	+9.0	44.0	25 51.4	+10.6	44.7	27 16.2	+12.2	45.4
51	21 37.3	+5.6	41.8	23 06.4	+7.0	42.4	24 34.7	+8.5	43.0	26 02.0	+10.1	43.6	27 28.4	+11.7	44.3
52	21 42.9	+5.0	40.7	23 13.4	+6.6	41.3	24 43.2	+8.0	41.9	26 12.1	+9.6	42.5	27 40.1	+11.1	43.2
53	21 47.9	+4.7	39.7	23 20.0	+6.1	40.2	24 51.2	+7.6	40.8	26 21.7	+9.0	41.4	27 51.2	+10.6	42.1
54	21 52.6	+4.3	38.6	23 26.1	+5.6	39.1	24 58.8	+7.1	39.7	26 30.7	+8.6	40.3	28 01.8	+10.0	41.0
55	21 56.9	+3.8	37.5	23 31.7	+5.2	38.0	25 05.9	+6.6	38.6	26 39.3	+8.0	39.2	28 11.8	+9.6	39.9
56	22 00.7	+3.4	36.4	23 36.9	+4.8	36.9	25 12.5	+6.1	37.5	26 47.3	+7.5	38.1	28 21.4	+8.9	38.7
57	22 04.1	+3.0	35.4	23 41.7	+4.3	35.9	25 18.6	+5.6	36.4	26 54.8	+7.0	37.0	28 30.3	+8.4	37.6
58	22 07.1	+2.6	34.3	23 46.0	+3.8	34.8	25 24.2	+5.2	35.3	27 01.8	+6.5	35.9	28 38.7	+7.8	36.5
59	22 09.7	+2.1	33.2	23 49.8	+3.4	33.7	25 29.4	+4.6	34.2	27 08.3	+5.9	34.7	28 46.5	+7.3	35.4
60	22 11.8	+1.7	32.1	23 53.2	+2.9	32.6	25 34.0	+4.1	33.1	27 14.2	+5.4	33.6	28 53.8	+6.7	34.2
61	22 13.5	+1.3	31.0	23 56.1	+2.4	31.5	25 38.1	+3.7	32.0	27 19.6	+4.9	32.5	29 00.5	+6.1	33.1
62	22 14.8	+0.8	30.0	23 58.5	+2.0	30.4	25 41.8	+3.1	30.9	27 24.5	+4.3	31.4	29 06.6	+5.6	32.0
63	22 15.6	+0.5	28.9	24 00.5	+1.5	29.3	25 44.9	+2.7	29.8	27 28.8	+3.8	30.3	29 12.2	+5.0	30.8
64	22 16.1	0.0	27.8	24 02.0	+1.1	28.2	25 47.6	+2.1	28.7	27 32.6	+3.3	29.1	29 17.2	+4.3	29.7
65	22 16.1	-0.5	26.7	24 03.1	+0.5	27.1	25 49.7	+1.6	27.5	27 35.9	+2.6	28.0	29 21.5	+3.8	28.5
66	22 15.6	-0.8	25.6	24 03.6	+0.2	26.0	25 51.3	+1.1	26.4	27 38.5	+2.2	26.9	29 25.3	+3.3	27.4
67	22 14.8	-1.3	24.6	24 03.8	-0.4	24.9	25 52.4	+0.6	25.3	27 40.7	+1.6	25.8	29 28.6	+2.6	26.2
68	22 13.5	-1.7	23.5	24 03.4	-0.8	23.8	25 53.0	+0.1	24.2	27 42.3	+1.0	24.6	29 31.2	+2.0	25.1
69	22 11.8	-2.2	22.4	24 02.6	-1.3	22.7	25 53.1	-0.4	23.1	27 43.3	+0.5	23.5	29 33.2	+1.4	23.9
70	22 09.6	-2.5	21.3	24 01.3	-1.8	21.6	25 52.7	-0.9	22.0	27 43.8	0.0	22.4	29 34.6	+0.9	22.8
71	22 07.1	-3.0	20.2	23 59.5	-2.2	20.5	25 51.8	-1.4	20.9	27 43.8	-0.6	21.2	29 35.5	+0.2	21.6
72	22 04.1	-3.4	19.2	23 57.3	-2.7	19.5	25 50.4	-2.0	19.8	27 43.2	-1.2	20.1	29 35.7	-0.3	20.5
73	22 00.7	-3.9	18.1	23 54.6	-3.1	18.4	25 48.4	-2.4	18.7	27 42.0	-1.7	19.0	29 35.4	-1.0	19.3
74	21 56.8	-4.2	17.0	23 51.5	-3.6	17.3	25 46.0	-2.9	17.5	27 40.3	-2.2	17.8	29 34.4	-1.5	18.2
75	21 52.6	-4.7	15.9	23 47.9	-4.1	16.2	25 43.1	-3.5	16.4	27 38.1	-2.8	16.7	29 32.9	-2.1	17.0
76	21 47.9	-5.1	14.9	23 43.8	-4.5	15.1	25 39.6	-3.9	15.3	27 35.3	-3.4	15.6	29 30.8	-2.8	15.9
77	21 42.8	-5.5	13.8	23 39.3	-5.0	14.0	25 35.7	-4.5	14.2	27 31.9	-3.9	14.5	29 28.0	-3.3	14.7
78	21 37.3	-5.9	12.7	23 34.3	-5.4	12.9	25 31.2	-4.9	13.1	27 28.0	-4.4	13.3	29 24.7	-3.9	13.6
79	21 31.4	-6.4	11.7	23 28.9	-5.9	11.8	25 26.3	-5.5	12.0	27 23.6	-5.0	12.2	29 20.8	-4.5	12.4
80	21 25.0	-6.7	10.6	23 23.0	-6.4	10.7	25 20.8	-5.9	10.9	27 18.6	-5.5	11.1	29 16.3	-5.0	11.3
81	21 18.3	-7.1	9.5	23 16.6	-6.7	9.7	25 14.9	-6.4	9.8	27 13.1	-6.0	10.0	29 11.3	-5.7	10.2
82	21 11.2	-7.6	8.5	23 09.9	-7.3	8.6	25 08.5	-6.9	8.7	27 07.1	-6.6	8.9	29 05.6	-6.2	9.0
83	21 03.6	-7.9	7.4	23 02.6	-7.6	7.5	25 01.6	-7.4	7.6	27 00.5	-7.1	7.7	28 59.4	-6.8	7.9
84	20 55.7	-8.3	6.3	22 55.0	-8.1	6.4	24 54.2	-7.9	6.5	26 53.4	-7.6	6.6	28 52.6	-7.4	6.8
85	20 47.4	-8.7	5.3	22 46.9	-8.6	5.3	24 46.3	-8.3	5.4	26 45.8	-8.1	5.5	28 45.2	-7.9	5.6
86	20 38.7	-9.1	4.2	22 38.3	-8.9	4.3	24 38.0	-8.8	4.3	26 37.7	-8.7	4.4	28 37.3	-8.5	4.5
87	20 29.6	-9.5	3.2	22 29.4	-9.4	3.2	24 29.2	-9.3	3.2	26 29.0	-9.2	3.3	28 28.8	-9.0	3.4
88	20 20.1	-9.9	2.1	22 20.0	-9.8	2.1	24 19.9	-9.7	2.2	26 19.8	-9.6	2.2	28 19.8	-9.7	2.2
89	20 10.2	-10.2	1.0	22 10.2	-10.2	1.1	24 10.2	-10.2	1.1	26 10.2	-10.2	1.1	28 10.1	-10.1	1.1
90	20 00.0	-10.6	0.0	22 00.0	-10.6	0.0	24 00.0	-10.6	0.0	26 00.0	-10.7	0.0	28 00.0	-10.7	0.0

20°

22°

24°

26°

28°

LATITUDE CONTRARY NAME

L.H.A. 80°, 280°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
1 42.1 +22.7 58.6	2 44.6 +24.3 58.6	3 47.0 +25.9 58.7	4 49.2 +27.5 58.9	5 51.1 +29.1 59.0	30										
2 04.8 +22.6 57.6	3 08.9 +24.3 57.7	4 12.9 +25.9 57.8	5 16.7 +27.5 58.0	6 20.2 +29.0 58.1	31										
2 27.4 +22.6 56.7	3 33.2 +24.2 56.8	4 38.8 +25.8 56.9	5 44.2 +27.3 57.1	6 49.2 +28.9 57.3	32										
2 50.0 +22.5 55.8	3 57.4 +24.1 55.9	5 04.6 +25.7 56.0	6 11.5 +27.3 56.2	7 18.1 +28.9 56.4	33										
3 12.5 +22.5 54.9	4 21.5 +24.1 55.0	5 30.3 +25.6 55.1	6 38.8 +27.2 55.3	7 47.0 +28.7 55.5	34										
3 35.0 +22.5 53.9	4 45.6 +24.0 54.0	5 55.9 +25.6 54.2	7 06.0 +27.0 54.4	8 15.7 +28.6 54.6	35										
3 57.5 +22.3 53.0	5 09.6 +23.9 53.1	6 21.5 +25.4 53.3	7 33.0 +27.0 53.5	8 44.3 +28.4 53.7	36										
4 19.8 +22.4 52.1	5 33.5 +23.8 52.2	6 46.9 +25.4 52.4	8 00.0 +26.8 52.6	9 12.7 +28.3 52.8	37										
4 42.2 +22.2 51.1	5 57.3 +23.8 51.3	7 12.3 +25.2 51.5	8 26.8 +26.8 51.7	9 41.0 +28.2 51.9	38										
5 04.4 +22.1 50.2	6 21.1 +23.6 50.4	7 37.5 +25.1 50.5	8 53.6 +26.5 50.8	10 09.2 +28.1 51.0	39										
5 26.5 +22.1 49.3	6 44.7 +23.6 49.4	8 02.6 +25.0 49.6	9 20.1 +26.5 49.9	10 37.3 +27.9 50.1	40										
5 48.6 +22.0 48.3	7 08.3 +23.4 48.5	8 27.6 +24.9 48.7	9 46.6 +26.3 49.0	11 05.2 +27.7 49.2	41										
6 10.6 +21.9 47.4	7 31.7 +23.3 47.6	8 52.5 +24.7 47.8	10 12.9 +26.1 48.0	11 32.9 +27.6 48.3	42										
6 32.5 +21.7 46.5	7 55.0 +23.2 46.6	9 17.2 +24.6 46.9	10 39.0 +26.0 47.1	12 00.5 +27.4 47.4	43										
6 54.2 +21.7 45.5	8 18.2 +23.0 45.7	9 41.8 +24.4 45.9	11 05.0 +25.9 46.2	12 27.9 +27.2 46.5	44										
7 15.9 +21.6 44.6	8 41.2 +23.0 44.8	10 06.2 +24.3 45.0	11 30.9 +25.6 45.3	12 55.1 +27.0 45.6	45										
7 37.5 +21.4 43.6	9 04.2 +22.7 43.8	10 30.5 +24.1 44.1	11 56.5 +25.5 44.4	13 22.1 +26.8 44.7	46										
7 58.9 +21.3 42.7	9 26.9 +22.7 42.9	10 54.6 +24.0 43.2	12 22.0 +25.3 43.4	13 48.9 +26.6 43.8	47										
8 20.2 +21.1 41.8	9 49.6 +22.4 42.0	11 18.6 +23.8 42.2	12 47.3 +25.0 42.5	14 15.5 +26.4 42.8	48										
8 41.3 +21.1 40.8	10 12.0 +22.3 41.0	11 42.4 +23.6 41.3	13 12.3 +24.9 41.6	14 41.9 +26.2 41.9	49										
9 02.4 +20.8 39.9	10 34.3 +22.2 40.1	12 06.0 +23.4 40.3	13 37.2 +24.2 40.6	15 08.1 +25.9 41.0	50										
9 23.2 +20.8 38.9	10 56.5 +21.9 39.1	12 29.4 +23.2 39.4	14 01.9 +24.5 39.7	15 34.0 +25.7 40.0	51										
9 44.0 +20.5 38.0	11 18.4 +21.8 38.2	12 52.6 +23.0 38.5	14 26.4 +24.2 38.8	15 59.7 +25.5 39.1	52										
10 04.5 +20.4 37.0	11 40.2 +21.6 37.2	13 15.6 +22.8 37.5	14 50.6 +24.0 37.8	16 25.2 +25.2 38.2	53										
10 24.9 +20.3 36.1	12 01.8 +21.4 36.3	13 38.4 +22.5 36.6	15 14.6 +23.7 36.9	16 50.4 +24.9 37.2	54										
10 45.2 +20.0 35.1	12 23.2 +21.2 35.3	14 00.9 +22.4 35.6	15 38.3 +23.6 35.9	17 15.3 +24.7 36.3	55										
11 05.2 +19.9 34.1	12 44.4 +21.0 34.4	14 23.3 +22.1 34.6	16 01.8 +23.3 35.0	17 40.0 +24.4 35.3	56										
11 25.1 +19.7 33.2	13 05.4 +20.8 33.4	14 45.4 +21.9 33.7	16 25.1 +23.0 34.0	18 04.4 +24.1 34.3	57										
11 44.8 +19.5 32.2	13 26.2 +20.5 32.4	15 07.3 +21.6 32.7	16 48.1 +22.7 33.0	18 28.5 +23.8 33.4	58										
12 04.3 +19.3 31.2	13 46.7 +20.4 31.5	15 28.9 +21.4 31.8	17 10.8 +22.4 32.1	18 52.3 +23.5 32.4	59										
12 23.6 +19.0 30.3	14 07.1 +20.1 30.5	15 50.3 +21.1 30.8	17 33.2 +22.2 31.1	19 15.8 +23.2 31.4	60										
12 42.6 +18.9 29.3	14 27.2 +19.8 29.5	16 11.4 +20.9 29.8	17 55.4 +21.9 30.1	19 39.0 +22.9 30.5	61										
13 01.5 +18.7 28.3	14 47.0 +19.6 28.6	16 32.3 +20.6 28.8	18 17.3 +21.5 29.1	20 01.9 +22.6 29.5	62										
13 20.2 +18.4 27.4	15 06.6 +19.4 27.6	16 52.9 +20.3 27.9	18 38.8 +21.3 28.2	20 24.5 +22.2 28.5	63										
13 38.6 +18.2 26.4	15 26.0 +19.1 26.6	17 13.2 +20.0 26.9	19 00.1 +20.9 27.2	20 46.7 +21.9 27.5	64										
13 56.8 +17.9 25.4	15 45.1 +18.8 25.6	17 33.2 +19.7 25.9	19 21.0 +20.6 26.2	21 08.6 +21.5 26.5	65										
14 14.7 +17.8 24.4	16 03.9 +18.6 24.6	17 52.9 +19.4 24.9	19 41.6 +20.3 25.2	21 30.1 +21.1 25.5	66										
14 32.5 +17.4 23.4	16 22.5 +18.3 23.6	18 12.3 +19.1 23.9	20 01.9 +19.9 24.2	21 51.2 +20.8 24.5	67										
14 49.9 +17.2 22.4	16 40.8 +18.0 22.7	18 31.4 +18.8 22.9	20 21.8 +19.6 23.2	22 12.0 +20.5 23.5	68										
15 07.1 +17.0 21.4	16 58.8 +17.7 21.7	18 50.2 +18.5 21.9	20 41.4 +19.3 22.2	22 32.5 +20.0 22.5	69										
15 24.1 +16.7 20.4	17 16.5 +17.4 20.7	19 08.7 +18.1 20.9	21 00.7 +18.9 21.2	22 52.5 +19.6 21.4	70										
15 40.8 +16.4 19.5	17 33.9 +17.1 19.7	19 26.8 +17.8 19.9	21 19.6 +18.5 20.1	23 12.1 +19.3 20.4	71										
15 57.2 +16.1 18.5	17 51.0 +16.8 18.6	19 44.6 +17.5 18.9	21 38.1 +18.1 19.1	23 31.4 +18.8 19.4	72										
16 13.3 +15.9 17.4	18 07.8 +16.4 17.6	20 02.1 +17.1 17.8	21 56.2 +17.8 18.1	23 50.2 +18.4 18.3	73										
16 29.2 +15.6 16.4	18 24.2 +16.2 16.6	20 19.2 +16.7 16.8	22 14.0 +17.3 17.1	24 08.6 +18.0 17.3	74										
16 44.8 +15.2 15.4	18 40.4 +15.8 15.6	20 35.9 +16.4 15.8	22 31.3 +17.0 16.0	24 26.6 +17.5 16.3	75										
17 00.0 +15.0 14.4	18 56.2 +15.5 14.6	20 52.3 +16.0 14.8	22 48.3 +16.5 15.0	24 44.1 +17.2 15.2	76										
17 15.0 +14.7 13.4	19 11.7 +15.2 13.6	21 08.3 +15.7 13.7	23 04.8 +16.2 13.9	25 01.3 +16.6 14.2	77										
17 29.7 +14.3 12.4	19 26.9 +14.8 12.5	21 24.0 +15.2 12.7	23 21.0 +15.7 12.9	25 17.9 +16.2 13.1	78										
17 44.0 +14.1 11.4	19 41.7 +14.4 11.5	21 39.2 +14.9 11.7	23 36.7 +15.3 11.8	25 34.1 +15.7 12.0	79										
17 58.1 +13.7 10.4	19 56.1 +14.1 10.5	21 54.1 +14.5 10.6	23 52.0 +14.9 10.8	25 49.8 +15.3 11.0	80										
18 11.8 +13.4 9.3	20 10.2 +13.7 9.4	22 08.6 +14.0 9.6	24 06.9 +14.4 9.7	26 05.1 +14.8 9.9	81										
18 25.2 +13.1 8.3	20 23.9 +13.4 8.4	22 22.6 +13.7 8.5	24 21.3 +14.0 8.7	26 19.9 +14.3 8.8	82										
18 38.3 +12.7 7.3	20 37.3 +13.0 7.4	22 36.3 +13.2 7.5	24 35.3 +13.5 7.6	26 34.2 +13.8 7.7	83										
18 51.0 +12.4 6.2	20 50.3 +12.6 6.3	22 49.5 +12.9 6.4	24 48.8 +13.0 6.5	26 48.0 +13.3 6.6	84										
19 03.4 +12.0 5.2	21 02.9 +12.2 5.3	23 02.4 +12.4 5.4	25 01.8 +12.6 5.4	27 01.3 +12.8 5.5	85										
19 15.4 +11.7 4.2	21 15.1 +11.8 4.2	23 14.8 +11.9 4.3	25 14.4 +12.1 4.4	27 14.8 +12.2 4.4	86										
19 27.1 +11.3 3.1	21 26.9 +11.4 3.2	23 26.7 +11.6 3.2	25 26.5 +11.7 3.3	27 26.3 +11.8 3.3	87										
19 38.4 +11.0 2.1	21 38.3 +11.1 2.1	23 38.3 +11.1 2.2	25 38.2 +11.1 2.2	27 38.1 +11.2 2.2	88										
19 49.4 +10.6 1.0	21 49.4 +10.6 1.1	23 49.4 +10.6 1.1	25 49.3 +10.7 1.1	27 49.3 +10.7 1.1	89										
20 00.0 +10.2 0.0	22 00.0 +10.2 0.0	24 00.0 +10.2 0.0	26 00.0 +10.2 0.0	28 00.0 +10.1 0.0	90										
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 100°, 260°

82°, 278° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	6 55.4	-4.3	59.8	7 55.6	-2.5	60.0	8 55.4	-0.6	60.2	9 54.7	+1.2	60.5	10 53.5	+3.0	60.8
31	6 51.1	-4.4	58.8	7 53.1	-2.6	59.0	8 54.8	-0.8	59.2	9 55.9	+1.0	59.5	10 56.5	+2.9	59.8
32	6 46.7	-4.5	57.7	7 50.5	-2.7	58.0	8 54.0	-1.0	58.2	9 56.9	+0.9	58.5	10 59.4	+2.6	58.8
33	6 42.2	-4.7	56.7	7 47.8	-2.9	57.0	8 53.0	-1.1	57.2	9 57.8	+0.6	57.5	11 02.0	+2.5	57.8
34	6 37.5	-4.7	55.7	7 44.9	-3.0	55.9	8 51.9	-1.3	56.2	9 58.4	+0.5	56.5	11 04.5	+2.2	56.8
35	6 32.8	-4.9	54.7	7 41.9	-3.2	54.9	8 50.6	-1.4	55.2	9 58.9	+0.3	55.5	11 06.7	+2.0	55.8
36	6 27.9	-5.0	53.7	7 38.7	-3.3	53.9	8 49.2	-1.6	54.2	9 59.2	+0.1	54.4	11 08.7	+1.9	54.7
37	6 22.9	-5.1	52.7	7 35.4	-3.4	52.9	8 47.6	-1.8	53.2	9 59.3	-0.1	53.4	11 10.6	+1.6	53.7
38	6 17.8	-5.3	51.7	7 32.0	-3.6	51.9	8 45.8	-1.9	52.1	9 59.2	-0.3	52.4	11 12.2	+1.4	52.7
39	6 12.5	-5.3	50.7	7 28.4	-3.8	50.9	8 43.9	-2.1	51.1	9 58.9	-0.4	51.4	11 13.6	+1.2	51.7
40	6 07.2	-5.4	49.7	7 24.6	-3.8	49.9	8 41.8	-2.3	50.1	9 58.5	-0.6	50.4	11 14.8	+1.0	50.7
41	6 01.8	-5.6	48.7	7 20.8	-4.0	48.9	8 39.5	-2.4	49.1	9 57.9	-0.9	49.4	11 15.8	+0.8	49.6
42	5 56.2	-5.7	47.7	7 16.8	-4.1	47.9	8 37.1	-2.6	48.1	9 57.0	-1.0	48.3	11 16.6	+0.6	48.6
43	5 50.5	-5.8	46.7	7 12.7	-4.3	46.9	8 34.5	-2.7	47.1	9 56.0	-1.1	47.3	11 17.2	+0.3	47.6
44	5 44.7	-5.8	45.7	7 08.4	-4.4	45.9	8 31.8	-2.9	46.1	9 54.9	-1.4	46.3	11 17.5	+0.2	46.6
45	5 38.9	-6.0	44.7	7 04.0	-4.5	44.9	8 28.9	-3.0	45.1	9 53.5	-1.6	45.3	11 17.7	0.0	45.6
46	5 32.9	-6.1	43.7	6 59.5	-4.7	43.9	8 25.9	-3.2	44.1	9 51.9	-1.7	44.3	11 17.7	-0.3	44.5
47	5 26.8	-6.2	42.7	6 54.8	-4.7	42.9	8 22.7	-3.4	43.1	9 50.2	-1.9	43.3	11 17.4	-0.5	43.5
48	5 20.6	-6.3	41.7	6 50.1	-4.9	41.9	8 19.3	-3.5	42.0	9 48.3	-2.1	42.3	11 16.9	-0.6	42.5
49	5 14.3	-6.4	40.7	6 45.2	-5.0	40.9	8 15.8	-3.6	41.0	9 46.2	-2.3	41.2	11 16.3	-0.9	41.5
50	5 07.9	-6.4	39.7	6 40.2	-5.2	39.9	8 12.2	-3.8	40.0	9 43.9	-2.4	40.2	11 15.4	-1.1	40.5
51	5 01.5	-6.6	38.7	6 35.0	-5.2	38.9	8 08.4	-4.0	39.0	9 41.5	-2.7	39.2	11 14.3	-1.3	39.4
52	4 54.9	-6.6	37.7	6 29.8	-5.4	37.9	8 04.4	-4.1	38.0	9 38.8	-2.8	38.2	11 13.0	-1.5	38.4
53	4 48.3	-6.8	36.7	6 24.4	-5.5	36.8	8 00.3	-4.2	37.0	9 36.0	-3.0	37.2	11 11.5	-1.7	37.4
54	4 41.5	-6.8	35.7	6 18.9	-5.6	35.8	7 56.1	-4.4	36.0	9 33.0	-3.1	36.2	11 09.8	-1.9	36.4
55	4 34.7	-6.9	34.7	6 13.3	-5.8	34.8	7 51.7	-4.6	35.0	9 29.9	-3.4	35.2	11 07.9	-2.2	35.4
56	4 27.8	-7.0	33.7	6 07.5	-5.8	33.8	7 47.1	-4.6	34.0	9 26.5	-3.5	34.1	11 05.7	-2.3	34.4
57	4 20.8	-7.0	32.7	6 01.7	-5.9	32.8	7 42.5	-4.9	33.0	9 23.0	-3.6	33.1	11 03.4	-2.5	33.3
58	4 13.8	-7.2	31.7	5 55.8	-6.1	31.8	7 37.6	-4.9	32.0	9 19.4	-3.9	32.1	11 00.9	-2.8	32.3
59	4 06.6	-7.2	30.8	5 49.7	-6.2	30.8	7 32.7	-5.1	31.0	9 15.5	-4.0	31.1	10 58.1	-2.9	31.3
60	3 59.4	-7.3	29.8	5 43.5	-6.2	29.8	7 27.6	-5.3	30.0	9 11.5	-4.2	30.1	10 55.2	-3.1	30.3
61	3 52.1	-7.3	28.8	5 37.3	-6.4	28.8	7 22.3	-5.3	29.0	9 07.3	-4.4	29.1	10 52.1	-3.4	29.3
62	3 44.8	-7.4	27.8	5 30.9	-6.4	27.8	7 17.0	-5.5	27.9	9 02.9	-4.5	28.1	10 48.7	-3.5	28.2
63	3 37.4	-7.5	26.8	5 24.5	-6.6	26.8	7 11.5	-5.7	26.9	8 58.4	-4.7	27.1	10 45.2	-3.8	27.2
64	3 29.9	-7.6	25.8	5 17.9	-6.7	25.8	7 05.8	-5.7	25.9	8 53.7	-4.9	26.1	10 41.4	-3.9	26.2
65	3 22.3	-7.6	24.8	5 11.2	-6.7	24.8	7 00.1	-5.9	24.9	8 48.8	-5.0	25.1	10 37.5	-4.1	25.2
66	3 14.7	-7.7	23.8	5 04.5	-6.9	23.9	6 54.2	-6.0	23.9	8 43.8	-5.1	24.0	10 33.4	-4.4	24.2
67	3 07.0	-7.7	22.8	4 57.6	-6.9	22.9	6 48.2	-6.1	22.9	8 38.7	-5.4	23.0	10 29.0	-4.5	23.2
68	2 59.3	-7.8	21.8	4 50.7	-7.0	21.9	6 42.1	-6.3	21.9	8 33.3	-5.5	22.0	10 24.5	-4.7	22.2
69	2 51.5	-7.8	20.8	4 43.7	-7.1	20.9	6 35.8	-6.4	20.9	8 27.8	-5.6	21.0	10 19.8	-4.9	21.1
70	2 43.7	-7.9	19.8	4 36.6	-7.2	19.9	6 29.4	-6.5	19.9	8 22.2	-5.8	20.0	10 14.9	-5.1	20.1
71	2 35.8	-7.9	18.8	4 29.4	-7.3	18.9	6 22.9	-6.6	18.9	8 16.4	-5.9	19.0	10 09.8	-5.3	19.1
72	2 27.9	-8.0	17.8	4 22.1	-7.3	17.9	6 16.3	-6.7	17.9	8 10.5	-6.1	18.0	10 04.5	-5.4	18.1
73	2 19.9	-8.0	16.8	4 14.8	-7.5	16.9	6 09.6	-6.9	16.9	8 04.4	-6.3	17.0	9 59.1	-5.7	17.1
74	2 11.9	-8.0	15.9	4 07.3	-7.5	15.9	6 02.7	-6.9	15.9	7 58.1	-6.4	16.0	9 53.4	-5.8	16.1
75	2 03.9	-8.1	14.9	3 59.8	-7.5	14.9	5 55.8	-7.1	14.9	7 51.7	-6.5	15.0	9 47.6	-6.0	15.1
76	1 55.8	-8.2	13.9	3 52.3	-7.7	13.9	5 48.7	-7.1	13.9	7 45.2	-6.7	14.0	9 41.6	-6.2	14.1
77	1 47.6	-8.1	12.9	3 44.6	-7.7	12.9	5 41.6	-7.3	12.9	7 38.5	-6.8	13.0	9 35.4	-6.3	13.1
78	1 39.5	-8.2	11.9	3 36.9	-7.8	11.9	5 34.3	-7.3	11.9	7 31.7	-6.9	12.0	9 29.1	-6.5	12.0
79	1 31.3	-8.2	10.9	3 29.1	-7.8	10.9	5 27.0	-7.5	10.9	7 24.8	-7.1	11.0	9 22.6	-6.7	11.0
80	1 23.1	-8.2	9.9	3 21.3	-7.9	9.9	5 19.5	-7.6	9.9	7 17.7	-7.2	10.0	9 15.9	-6.9	10.0
81	1 14.9	-8.3	8.9	3 13.4	-8.0	8.9	5 11.9	-7.6	8.9	7 10.5	-7.4	9.0	9 09.0	-7.0	9.0
82	1 06.6	-8.3	7.9	3 05.4	-8.0	7.9	5 04.3	-7.7	8.0	7 03.1	-7.4	8.0	9 02.0	-7.2	8.0
83	0 58.3	-8.3	6.9	2 57.4	-8.0	6.9	4 56.6	-7.9	7.0	6 55.7	-7.6	7.0	8 54.8	-7.4	7.0
84	0 50.0	-8.3	5.9	2 49.4	-8.1	5.9	4 48.7	-7.9	6.0	6 48.1	-7.8	6.0	8 47.4	-7.5	6.0
85	0 41.7	-8.3	5.0	2 41.3	-8.2	5.0	4 40.8	-8.0	5.0	6 40.3	-7.8	5.0	8 39.9	-7.7	5.0
86	0 33.4	-8.4	4.0	2 33.1	-8.2	4.0	4 32.8	-8.1	4.0	6 32.5	-7.9	4.0	8 32.2	-7.8	4.0
87	0 25.0	-8.3	3.0	2 24.9	-8.3	3.0	4 24.7	-8.1	3.0	6 24.6	-8.1	3.0	8 24.4	-8.0	3.0
88	0 16.7	-8.4	2.0	2 16.6	-8.3	2.0	4 16.6	-8.3	2.0	6 16.5	-8.2	2.0	8 16.4	-8.1	2.0
89	0 08.3	-8.3	1.0	2 08.3	-8.3	1.0	4 08.3	-8.3	1.0	6 08.3	-8.3	1.0	8 08.3	-8.3	1.0
90	0 00.0	-8.3	0.0	2 00.0	-8.4	0.0	4 00.0	-8.4	0.0	6 00.0	-8.4	0.0	8 00.0	-8.4	0.0

LATITUDE CONTRARY NAME

L.H.A. 82°, 278°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
6 55.4	-4.3	120.2	5 54.7	-6.0	120.4	4 53.8	-7.9	120.6	3 52.6	-9.7	120.7	2 51.2	-11.4	120.8	30
6 51.1	-4.4	121.2	5 48.7	-6.2	121.4	4 45.9	-7.9	121.6	3 42.9	-9.7	121.7	2 39.8	-11.5	121.8	31
6 46.7	-4.5	122.3	5 42.5	-6.3	122.4	4 38.0	-8.1	122.6	3 33.2	-9.7	122.7	2 28.3	-11.5	122.8	32
6 42.2	-4.7	123.3	5 36.2	-6.4	123.4	4 29.9	-8.1	123.6	3 23.5	-9.9	123.7	2 16.8	-11.5	123.8	33
6 37.5	-4.7	124.3	5 29.8	-6.5	124.4	4 21.8	-8.2	124.6	3 13.6	-9.9	124.7	2 05.3	-11.6	124.8	34
6 32.8	-4.9	125.3	5 23.3	-6.5	125.4	4 13.6	-8.2	125.6	3 03.7	-9.9	125.7	1 53.7	-11.6	125.7	35
6 27.9	-5.0	126.3	5 16.8	-6.7	126.4	4 05.4	-8.4	126.6	2 53.8	-10.0	126.7	1 42.1	-11.6	126.7	36
6 22.9	-5.1	127.3	5 10.1	-6.8	127.4	3 57.0	-8.4	127.6	2 43.8	-10.0	127.6	1 30.5	-11.7	127.7	37
6 17.8	-5.3	128.3	5 03.3	-6.8	128.4	3 48.6	-8.5	128.5	2 33.8	-10.1	128.6	1 18.8	-11.7	128.7	38
6 12.5	-5.3	129.3	4 56.5	-7.0	129.4	3 40.1	-8.5	129.5	2 23.7	-10.1	129.6	1 07.1	-11.7	129.7	39
6 07.2	-5.4	130.3	4 49.5	-7.0	130.4	3 31.6	-8.6	130.5	2 13.6	-10.2	130.6	0 55.4	-11.7	130.7	40
6 01.8	-5.6	131.3	4 42.5	-7.2	131.4	3 23.0	-8.7	131.5	2 03.4	-10.2	131.6	0 43.7	-11.7	131.6	41
5 56.2	-5.7	132.3	4 35.3	-7.2	132.4	3 14.3	-8.7	132.5	1 53.2	-10.3	132.6	0 32.0	-11.8	132.6	42
5 50.5	-5.8	133.3	4 28.1	-7.2	133.4	3 05.6	-8.8	133.5	1 42.9	-10.2	133.6	0 20.2	-11.7	133.6	43
5 44.7	-5.8	134.3	4 20.9	-7.4	134.4	2 56.8	-8.8	134.5	1 32.7	-10.3	134.6	0 08.5	-11.8	134.6	44
5 38.9	-6.0	135.3	4 13.5	-7.4	135.4	2 48.0	-8.9	135.5	1 22.4	-10.4	135.5	0 03.3	-11.7	44.4	45
5 32.9	-6.1	136.3	4 06.1	-7.6	136.4	2 39.1	-8.9	136.5	1 12.0	-10.3	136.5	0 15.0	+11.8	43.5	46
5 26.8	-6.2	137.3	3 58.5	-7.5	137.4	2 30.2	-9.0	137.5	1 01.7	-10.3	137.5	0 26.8	+11.7	42.5	47
5 20.6	-6.3	138.3	3 51.0	-7.7	138.4	2 21.2	-9.0	138.5	0 51.3	-10.3	138.5	0 38.5	+11.8	41.5	48
5 14.3	-6.4	139.3	3 43.3	-7.7	139.4	2 12.2	-9.1	139.4	0 41.0	-10.4	139.5	0 50.3	+11.7	40.5	49
5 07.9	-6.4	140.3	3 35.6	-7.8	140.4	2 03.1	-9.1	140.4	0 30.6	-10.4	140.5	1 02.0	+11.7	39.5	50
5 01.5	-6.6	141.3	3 27.8	-7.9	141.4	1 54.0	-9.1	141.4	0 20.2	-10.4	141.4	1 13.7	+11.6	38.6	51
4 54.9	-6.6	142.3	3 19.9	-7.9	142.4	1 44.9	-9.2	142.4	0 09.8	-10.4	142.4	1 25.3	+11.7	37.6	52
4 48.3	-6.8	143.3	3 12.0	-7.9	143.4	1 35.7	-9.2	143.4	0 00.6	+10.4	36.6	1 37.0	+11.6	36.6	53
4 41.5	-6.8	144.3	3 04.1	-8.0	144.3	1 26.5	-9.2	144.4	0 11.0	+10.4	35.6	1 48.6	+11.6	35.6	54
4 34.7	-6.9	145.3	2 56.1	-8.1	145.3	1 17.3	-9.2	145.4	0 21.4	+10.4	34.6	2 00.2	+11.5	34.6	55
4 27.8	-7.0	146.3	2 48.0	-8.1	146.3	1 08.1	-9.3	146.4	0 31.8	+10.4	33.6	2 11.7	+11.6	33.7	56
4 20.8	-7.0	147.3	2 39.9	-8.2	147.3	0 58.8	-9.2	147.4	0 42.2	+10.4	32.6	2 23.3	+11.4	32.7	57
4 13.8	-7.2	148.3	2 31.7	-8.2	148.3	0 49.6	-9.3	148.3	0 52.6	+10.4	31.7	2 34.7	+11.5	31.7	58
4 06.6	-7.2	149.2	2 23.5	-8.3	149.3	0 40.3	-9.3	149.3	1 03.0	+10.3	30.7	2 46.2	+11.3	30.7	59
3 59.4	-7.3	150.2	2 15.2	-8.3	150.3	0 31.0	-9.3	150.3	1 13.3	+10.3	29.7	2 57.5	+11.4	29.7	60
3 52.1	-7.3	151.2	2 06.9	-8.3	151.3	0 21.7	-9.4	151.3	1 23.6	+10.3	28.7	3 08.9	+11.2	28.7	61
3 44.8	-7.4	152.2	1 58.6	-8.4	152.3	0 12.3	-9.3	152.3	1 33.9	+10.3	27.7	3 20.1	+11.2	27.8	62
3 37.4	-7.5	153.2	1 50.2	-8.4	153.3	0 03.0	-9.3	153.3	1 44.2	+10.2	26.7	3 31.3	+11.2	26.8	63
3 29.9	-7.6	154.2	1 41.8	-8.4	154.3	0 06.3	+9.3	25.7	1 54.4	+10.2	25.7	3 42.5	+11.1	25.8	64
3 22.3	-7.6	155.2	1 33.4	-8.5	155.3	0 15.6	+9.3	24.7	2 04.6	+10.2	24.8	3 53.6	+11.0	24.8	65
3 14.7	-7.7	156.2	1 24.9	-8.5	156.2	0 24.9	+9.4	23.8	2 14.8	+10.1	23.8	4 04.6	+10.9	23.8	66
3 07.0	-7.7	157.2	1 16.4	-8.5	157.2	0 34.3	+9.3	22.8	2 24.9	+10.1	22.8	4 15.5	+10.9	22.8	67
2 59.3	-7.8	158.2	1 07.9	-8.6	158.2	0 43.6	+9.2	21.8	2 35.0	+10.0	21.8	4 26.4	+10.8	21.8	68
2 51.5	-7.8	159.2	0 59.3	-8.5	159.2	0 52.8	+9.3	20.8	2 45.0	+10.0	20.8	4 37.2	+10.7	20.9	69
2 43.7	-7.9	160.2	0 50.8	-8.6	160.2	1 02.1	+9.3	19.8	2 55.0	+9.9	19.8	4 47.9	+10.6	19.9	70
2 35.8	-7.9	161.2	0 42.2	-8.5	161.2	1 11.4	+9.2	18.8	3 04.9	+9.9	18.8	4 58.5	+10.5	18.9	71
2 27.9	-8.0	162.2	0 33.7	-8.6	162.2	1 20.6	+9.2	17.8	3 14.8	+9.8	17.8	5 09.0	+10.5	17.9	72
2 19.9	-8.0	163.2	0 25.1	-8.6	163.2	1 29.8	+9.2	16.8	3 24.6	+9.8	16.9	5 19.5	+10.3	16.9	73
2 11.9	-8.0	164.1	0 16.5	-8.6	164.2	1 39.0	+9.1	15.8	3 34.4	+9.7	15.9	5 29.8	+10.3	15.9	74
2 03.9	-8.1	165.1	0 07.9	-8.6	165.1	1 48.1	+9.1	14.9	3 44.1	+9.6	14.9	5 40.1	+10.1	14.9	75
1 55.8	-8.2	166.1	0 00.7	+8.6	13.9	1 57.2	+9.1	13.9	3 53.7	+9.6	13.9	5 50.2	+10.1	13.9	76
1 47.6	-8.1	167.1	0 09.3	+8.6	12.9	2 06.3	+9.1	12.9	4 03.3	+9.5	12.9	6 00.3	+9.9	12.9	77
1 39.5	-8.2	168.1	0 17.9	+8.6	11.9	2 15.4	+9.0	11.9	4 12.8	+9.4	11.9	6 10.2	+9.8	12.0	78
1 31.3	-8.2	169.1	0 26.5	+8.6	10.9	2 24.4	+8.9	10.9	4 22.2	+9.3	10.9	6 20.0	+9.7	11.0	79
1 23.1	-8.2	170.1	0 35.1	+8.6	9.9	2 33.3	+9.0	9.9	4 31.5	+9.3	9.9	6 29.7	+9.6	10.0	80
1 14.9	-8.3	171.1	0 43.7	+8.6	8.9	2 42.3	+8.8	8.9	4 40.8	+9.2	8.9	6 39.3	+9.5	9.0	81
1 06.6	-8.3	172.1	0 52.3	+8.5	7.9	2 51.1	+8.8	7.9	4 50.0	+9.1	8.0	6 48.8	+9.4	8.0	82
0 58.3	-8.3	173.1	1 00.8	+8.5	6.9	2 59.9	+8.8	6.9	4 59.1	+8.9	7.0	6 58.2	+9.2	7.0	83
0 50.0	-8.3	174.1	1 09.3	+8.6	5.9	3 08.7	+8.7	6.0	5 08.0	+9.0	6.0	7 07.4	+9.1	6.0	84
0 41.7	-8.3	175.0	1 17.9	+8.4	5.0	3 17.4	+8.7	5.0	5 17.0	+8.8	5.0	7 16.5	+9.0	5.0	85
0 33.4	-8.4	176.0	1 26.3	+8.5	4.0	3 26.1	+8.5	4.0	5 25.8	+8.7	4.0	7 25.5	+8.8	4.0	86
0 25.0	-8.3	177.0	1 34.8	+8.4	3.0	3 34.6	+8.6	3.0	5 34.5	+8.6	3.0	7 34.3	+8.7	3.0	87
0 16.7	-8.4	178.0	1 43.2	+8.4	2.0	3 43.2	+8.4	2.0	5 43.1	+8.5	2.0	7 43.0	+8.6	2.0	88
0 08.3	-8.3	179.0	1 51.6	+8.4	1.0	3 51.6	+8.4	1.0	5 51.6	+8.4	1.0	7 51.6	+8.4	1.0	89
0 00.0	+8.3	0.0	2 00.0	+8.3	0.0	4 00.0	+8.3	0.0	6 00.0	+8.3	0.0	8 00.0	+8.3	0.0	90

LATITUDE SAME NAME

L.H.A. 98°, 262°

82°, 278° L.H.A.

LATITUDE SAME NAME

Dec. °	10°			12°			14°			16°			18°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	11 51.6	+4.9	61.2	12 49.1	+6.7	61.6	13 45.8	+8.6	62.0	14 41.7	+10.5	62.4	15 36.8	+12.4	62.9
31	11 56.5	+4.7	60.2	12 55.8	+6.6	60.6	13 54.4	+8.4	61.0	14 52.2	+10.3	61.4	15 49.2	+12.1	61.9
32	12 01.2	+4.5	59.2	13 02.4	+6.3	59.5	14 02.8	+8.2	60.0	15 02.5	+10.0	60.4	16 01.3	+11.8	60.9
33	12 05.7	+4.2	58.1	13 08.7	+6.0	58.5	14 11.0	+7.8	58.9	15 12.5	+9.7	59.4	16 13.1	+11.6	59.9
34	12 09.9	+4.0	57.1	13 14.7	+5.8	57.5	14 18.8	+7.6	57.9	15 22.2	+9.4	58.4	16 24.7	+11.2	58.9
35	12 13.9	+3.8	56.1	13 20.5	+5.6	56.5	14 26.4	+7.4	56.9	15 31.6	+9.1	57.3	16 35.9	+11.0	57.8
36	12 17.7	+3.6	55.1	13 26.1	+5.3	55.5	14 33.8	+7.1	55.9	15 40.7	+8.9	56.3	16 46.9	+10.6	56.8
37	12 21.3	+3.3	54.1	13 31.4	+5.1	54.4	14 40.9	+6.8	54.8	15 49.6	+8.6	55.3	16 57.5	+10.3	55.8
38	12 24.6	+3.1	53.0	13 36.5	+4.8	53.4	14 47.7	+6.5	53.8	15 58.2	+8.2	54.3	17 07.8	+10.1	54.7
39	12 27.7	+2.9	52.0	13 41.3	+4.6	52.4	14 54.2	+6.3	52.8	16 06.4	+8.0	53.2	17 17.9	+9.7	53.7
40	12 30.6	+2.7	51.0	13 45.9	+4.3	51.4	15 00.5	+5.9	51.8	16 14.4	+7.7	52.2	17 27.6	+9.3	52.7
41	12 33.3	+2.4	50.0	13 50.2	+4.0	50.3	15 06.4	+5.7	50.7	16 22.1	+7.3	51.2	17 36.9	+9.1	51.6
42	12 35.7	+2.1	48.9	13 54.2	+3.8	49.3	15 12.1	+5.5	49.7	16 29.4	+7.1	50.1	17 46.0	+8.7	50.6
43	12 37.8	+2.0	47.9	13 58.0	+3.5	48.3	15 17.6	+5.1	48.7	16 36.5	+6.7	49.1	17 54.7	+8.4	49.6
44	12 39.8	+1.7	46.9	14 01.5	+3.3	47.2	15 22.7	+4.9	47.6	16 43.2	+6.5	48.1	18 03.1	+8.1	48.5
45	12 41.5	+1.5	45.9	14 04.8	+3.0	46.2	15 27.6	+4.5	46.6	16 49.7	+6.1	47.0	18 11.2	+7.7	47.5
46	12 43.0	+1.2	44.8	14 07.8	+2.8	45.2	15 32.1	+4.3	45.6	16 55.8	+5.8	46.0	18 18.9	+7.4	46.4
47	12 44.2	+1.0	43.8	14 10.6	+2.4	44.2	15 36.4	+4.0	44.5	17 01.6	+5.5	44.9	18 26.3	+7.0	45.4
48	12 45.2	+0.8	42.8	14 13.0	+2.2	43.1	15 40.4	+3.6	43.5	17 07.1	+5.2	43.9	18 33.3	+6.7	44.3
49	12 46.0	+0.5	41.8	14 15.2	+2.0	42.1	15 44.0	+3.4	42.5	17 12.3	+4.9	42.9	18 40.0	+6.3	43.3
50	12 46.5	+0.3	40.7	14 17.2	+1.7	41.1	15 47.4	+3.1	41.4	17 17.2	+4.5	41.8	18 46.3	+6.0	42.2
51	12 46.8	0.0	39.7	14 18.9	+1.4	40.0	15 50.5	+2.8	40.4	17 21.7	+4.2	40.8	18 52.3	+5.6	41.2
52	12 46.8	-0.1	38.7	14 20.3	+1.2	39.0	15 53.3	+2.5	39.3	17 25.9	+3.9	39.7	18 57.9	+5.3	40.1
53	12 46.7	-0.5	37.7	14 21.5	+0.8	38.0	15 55.8	+2.3	38.3	17 29.8	+3.5	38.7	19 03.2	+4.9	39.1
54	12 46.2	-0.6	36.6	14 22.3	+0.6	36.9	15 58.1	+1.9	37.3	17 33.3	+3.3	37.6	19 08.1	+4.6	38.0
55	12 45.6	-0.9	35.6	14 22.9	+0.4	35.9	16 00.0	+1.6	36.2	17 36.6	+2.8	36.6	19 12.7	+4.2	37.0
56	12 44.7	-1.2	34.6	14 23.3	+0.1	34.9	16 01.6	+1.3	35.2	17 39.4	+2.6	35.5	19 16.9	+3.8	35.9
57	12 43.5	-1.3	33.6	14 23.4	-0.2	33.8	16 02.9	+1.0	34.1	17 42.0	+2.2	34.5	19 20.7	+3.4	34.9
58	12 42.2	-1.6	32.5	14 23.2	-0.5	32.8	16 03.9	+0.7	33.1	17 44.2	+1.9	33.4	19 24.1	+3.1	33.8
59	12 40.6	-1.9	31.5	14 22.7	-0.7	31.8	16 04.6	+0.4	32.1	17 46.1	+1.6	32.4	19 27.2	+2.8	32.7
60	12 38.7	-2.1	30.5	14 22.0	-1.0	30.7	16 05.0	+0.1	31.0	17 47.7	+1.2	31.3	19 30.0	+2.3	31.7
61	12 36.6	-2.3	29.5	14 21.0	-1.3	29.7	16 05.1	-0.2	30.0	17 48.9	+0.9	30.3	19 32.3	+2.0	30.6
62	12 34.3	-2.5	28.4	14 19.7	-1.5	28.7	16 04.9	-0.5	28.9	17 49.8	+0.5	29.2	19 34.3	+1.6	29.6
63	12 31.8	-2.8	27.4	14 18.2	-1.8	27.6	16 04.4	-0.8	27.9	17 50.3	+0.2	28.2	19 35.9	+1.2	28.5
64	12 29.0	-3.0	26.4	14 16.4	-2.1	26.6	16 03.6	-1.1	26.9	17 50.5	-0.1	27.1	19 37.1	+0.9	27.4
65	12 26.0	-3.2	25.4	14 14.3	-2.3	25.6	16 02.5	-1.4	25.8	17 50.4	-0.5	26.1	19 38.0	+0.5	26.4
66	12 22.8	-3.5	24.4	14 12.0	-2.6	24.5	16 01.1	-1.8	24.8	17 49.9	-0.8	25.0	19 38.5	+0.1	25.3
67	12 19.3	-3.7	23.3	14 09.4	-2.9	23.5	15 59.3	-2.0	23.7	17 49.1	-1.1	24.0	19 38.6	-0.2	24.3
68	12 15.6	-3.9	22.3	14 06.5	-3.1	22.5	15 57.3	-2.3	22.7	17 48.0	-1.5	22.9	19 38.4	-0.7	23.2
69	12 11.7	-4.2	21.3	14 03.4	-3.4	21.5	15 55.0	-2.6	21.7	17 46.5	-1.8	21.9	19 37.7	-1.0	22.1
70	12 07.5	-4.3	20.3	14 00.0	-3.6	20.4	15 52.4	-2.9	20.6	17 44.7	-2.2	20.8	19 36.7	-1.3	21.1
71	12 03.2	-4.6	19.2	13 56.4	-3.9	19.4	15 49.5	-3.2	19.6	17 42.5	-2.5	19.8	19 35.4	-1.8	20.0
72	11 58.6	-4.9	18.2	13 52.5	-4.2	18.4	15 46.3	-3.5	18.5	17 40.0	-2.8	18.7	19 33.6	-2.1	19.0
73	11 53.7	-5.0	17.2	13 48.3	-4.4	17.3	15 42.8	-3.8	17.5	17 37.2	-3.1	17.7	19 31.5	-2.5	17.9
74	11 48.7	-5.2	16.2	13 43.9	-4.7	16.3	15 39.0	-4.0	16.5	17 34.1	-3.5	16.6	19 29.0	-2.9	16.8
75	11 43.5	-5.5	15.2	13 39.2	-4.9	15.3	15 35.0	-4.4	15.4	17 30.6	-3.8	15.6	19 26.1	-3.2	15.8
76	11 38.0	-5.7	14.2	13 34.3	-5.1	14.3	15 30.6	-4.7	14.4	17 26.8	-4.1	14.5	19 22.9	-3.6	14.7
77	11 32.3	-5.9	13.1	13 29.2	-5.5	13.2	15 25.9	-4.9	13.4	17 22.7	-4.5	13.5	19 19.3	-4.0	13.7
78	11 26.4	-6.1	12.1	13 23.7	-5.6	12.2	15 21.0	-5.2	12.3	17 18.2	-4.8	12.5	19 15.3	-4.3	12.6
79	11 20.3	-6.3	11.1	13 18.1	-6.0	11.2	15 15.8	-5.6	11.3	17 13.4	-5.1	11.4	19 11.0	-4.7	11.5
80	11 14.0	-6.5	10.1	13 12.1	-6.1	10.2	15 10.2	-5.8	10.3	17 08.3	-5.4	10.4	19 06.3	-5.0	10.5
81	11 07.5	-6.7	9.1	13 06.0	-6.4	9.2	15 04.4	-6.0	9.2	17 02.9	-5.8	9.3	19 01.3	-5.4	9.4
82	11 00.8	-6.9	8.1	12 59.6	-6.7	8.1	14 58.4	-6.4	8.2	16 57.1	-6.0	8.3	18 55.9	-5.8	8.4
83	10 53.9	-7.2	7.1	12 52.9	-6.8	7.1	14 52.0	-6.6	7.2	16 51.1	-6.4	7.2	18 50.1	-6.1	7.3
84	10 46.7	-7.3	6.0	12 46.1	-7.1	6.1	14 45.4	-6.9	6.1	16 44.7	-6.7	6.2	18 44.0	-6.5	6.3
85	10 39.4	-7.5	5.0	12 39.0	-7.4	5.1	14 38.5	-7.2	5.1	16 38.0	-7.0	5.2	18 37.5	-6.8	5.2
86	10 31.9	-7.7	4.0	12 31.6	-7.5	4.1	14 31.3	-7.4	4.1	16 31.0	-7.3	4.1	18 30.7	-7.2	4.2
87	10 24.2	-7.9	3.0	12 24.1	-7.8	3.0	14 23.9	-7.7	3.1	16 23.7	-7.6	3.1	18 23.5	-7.5	3.1
88	10 16.3	-8.0	2.0	12 16.3	-8.1	2.0	14 16.2	-8.0	2.0	16 16.1	-7.9	2.1	18 16.0	-7.8	2.1
89	10 08.3	-8.3	1.0	12 08.2	-8.2	1.0	14 08.2	-8.2	1.0	16 08.2	-8.2	1.0	18 08.2	-8.2	1.0
90	10 00.0	-8.4	0.0	12 00.0	-8.5	0.0	14 00.0	-8.5	0.0	16 00.0	-8.5	0.0	18 00.0	-8.5	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 82°, 278°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
1 49.6	-13.2	120.9	0 47.9	-14.9	120.9	0 13.8	+16.6	59.0	1 15.5	+18.3	59.1	2 17.1	+20.1	59.1	30
1 36.4	-13.2	121.9	0 33.0	-14.9	121.9	0 30.4	+16.6	58.1	1 33.8	+18.3	58.1	2 37.2	+19.9	58.2	31
1 23.2	-13.2	122.9	0 18.1	-14.9	122.9	0 47.0	+16.6	57.1	1 52.1	+18.3	57.2	2 57.1	+20.0	57.2	32
1 10.0	-13.2	123.8	0 03.2	-14.9	123.8	1 03.6	+16.6	56.2	2 10.4	+18.2	56.2	3 17.1	+19.9	56.3	33
0 56.8	-13.2	124.8	0 11.7	+14.9	55.2	1 20.2	+16.6	55.2	2 28.6	+18.2	55.3	3 37.0	+19.8	55.3	34
0 43.6	-13.3	125.8	0 26.6	+14.9	54.2	1 36.8	+16.5	54.2	2 46.8	+18.2	54.3	3 56.8	+19.7	54.4	35
0 30.3	-13.3	126.8	0 41.5	+14.9	53.2	1 53.3	+16.5	53.3	3 05.0	+18.1	53.4	4 16.5	+19.7	53.5	36
0 17.0	-13.2	127.7	0 56.4	+14.9	52.3	2 09.8	+16.5	52.3	3 23.1	+18.0	52.4	4 36.2	+19.6	52.5	37
0 03.8	-13.3	128.7	1 11.3	+14.8	51.3	2 26.3	+16.4	51.4	3 41.1	+18.0	51.4	4 55.8	+19.6	51.6	38
0 09.5	+13.3	50.3	1 26.1	+14.8	50.3	2 42.7	+16.3	50.4	3 59.1	+17.9	50.5	5 15.4	+19.4	50.6	39
0 22.8	+13.2	49.3	1 40.9	+14.8	49.4	2 59.0	+16.4	49.4	4 17.0	+17.9	49.5	5 34.8	+19.4	49.7	40
0 36.0	+13.3	48.4	1 55.7	+14.8	48.4	3 15.4	+16.2	48.5	4 34.9	+17.7	48.6	5 54.2	+19.2	48.7	41
0 49.3	+13.2	47.4	2 10.5	+14.7	47.4	3 31.6	+16.2	47.5	4 52.6	+17.7	47.6	6 13.4	+19.2	47.8	42
1 02.5	+13.3	46.4	2 25.2	+14.7	46.5	3 47.8	+16.2	46.5	5 10.3	+17.6	46.7	6 32.6	+19.0	46.8	43
1 15.8	+13.2	45.4	2 39.9	+14.7	45.5	4 04.0	+16.1	45.6	5 27.9	+17.5	45.7	6 51.6	+18.9	45.8	44
1 29.0	+13.1	44.5	2 54.6	+14.6	44.5	4 20.1	+16.0	44.6	5 45.4	+17.4	44.7	7 10.5	+18.7	44.9	45
1 42.1	+13.2	43.5	3 09.2	+14.5	43.5	4 36.1	+15.9	43.6	6 02.8	+17.3	43.8	7 29.4	+18.7	43.9	46
1 55.3	+13.1	42.5	3 23.7	+14.5	42.6	4 52.0	+15.8	42.7	6 20.1	+17.2	42.8	7 48.1	+18.5	43.0	47
2 08.4	+13.1	41.5	3 38.2	+14.4	41.6	5 07.8	+15.8	41.7	6 37.3	+17.1	41.8	8 06.6	+18.4	42.0	48
2 21.5	+13.0	40.6	3 52.6	+14.3	40.6	5 23.6	+15.6	40.7	6 54.4	+17.0	40.9	8 25.0	+18.3	41.1	49
2 34.5	+13.0	39.6	4 06.9	+14.3	39.7	5 39.2	+15.6	39.8	7 11.4	+16.8	39.9	8 43.3	+18.2	40.1	50
2 47.5	+12.9	38.6	4 21.2	+14.2	38.7	5 54.8	+15.5	38.8	7 28.2	+16.8	38.9	9 01.5	+17.9	39.1	51
3 00.4	+12.9	37.6	4 35.4	+14.1	37.7	6 10.3	+15.3	37.8	7 45.0	+16.6	38.0	9 19.4	+17.9	38.2	52
3 13.3	+12.8	36.6	4 49.5	+14.1	36.7	6 25.6	+15.3	36.9	8 01.6	+16.4	37.0	9 37.3	+17.6	37.2	53
3 26.1	+12.8	35.7	5 03.6	+13.9	35.8	6 40.9	+15.1	35.9	8 18.0	+16.3	36.0	9 54.9	+17.5	36.2	54
3 38.9	+12.7	34.7	5 17.5	+13.9	34.8	6 56.0	+15.0	34.9	8 34.3	+16.2	35.1	10 12.4	+17.4	35.2	55
3 51.6	+12.6	33.7	5 31.4	+13.7	33.8	7 11.0	+14.9	33.9	8 50.5	+16.0	34.1	10 29.8	+17.1	34.3	56
4 04.2	+12.6	32.7	5 45.1	+13.7	32.8	7 25.9	+14.8	33.0	9 06.5	+15.9	33.1	10 46.9	+17.0	33.3	57
4 16.8	+12.5	31.8	5 58.8	+13.6	31.8	7 40.7	+14.6	32.0	9 22.4	+15.7	32.1	11 03.9	+16.8	32.3	58
4 29.3	+12.4	30.8	6 12.4	+13.4	30.9	7 55.3	+14.5	31.0	9 38.1	+15.5	31.2	11 20.7	+16.6	31.3	59
4 41.7	+12.3	29.8	6 25.8	+13.3	29.9	8 09.8	+14.3	30.0	9 53.6	+15.4	30.2	11 37.3	+16.3	30.4	60
4 54.0	+12.3	28.8	6 39.1	+13.3	28.9	8 24.1	+14.2	29.0	10 09.0	+15.2	29.2	11 53.6	+16.2	29.4	61
5 06.3	+12.1	27.8	6 52.4	+13.1	27.9	8 38.3	+14.1	28.0	10 24.2	+15.0	28.2	12 09.8	+16.0	28.4	62
5 18.4	+12.1	26.8	7 05.5	+12.9	26.9	8 52.4	+13.9	27.1	10 39.2	+14.8	27.2	12 25.8	+15.8	27.4	63
5 30.5	+12.0	25.9	7 18.4	+12.9	26.0	9 06.3	+13.7	26.1	10 54.0	+14.6	26.2	12 41.6	+15.5	26.4	64
5 42.5	+11.8	24.9	7 31.3	+12.7	25.0	9 20.0	+13.6	25.1	11 08.6	+14.5	25.2	12 57.1	+15.3	25.4	65
5 54.3	+11.8	23.9	7 44.0	+12.6	24.0	9 33.6	+13.4	24.1	11 23.1	+14.2	24.3	13 12.4	+15.1	24.4	66
6 06.1	+11.6	22.9	7 56.6	+12.4	23.0	9 47.0	+13.2	23.1	11 37.3	+14.1	23.3	13 27.5	+14.8	23.4	67
6 17.7	+11.6	21.9	8 09.0	+12.3	22.0	10 00.2	+13.1	22.1	11 51.4	+13.8	22.3	13 42.3	+14.6	22.4	68
6 29.3	+11.4	20.9	8 21.3	+12.2	21.0	10 13.3	+12.9	21.1	12 05.2	+13.6	21.3	13 56.9	+14.4	21.4	69
6 40.7	+11.3	19.9	8 33.5	+12.0	20.0	10 26.2	+12.7	20.1	12 18.8	+13.4	20.3	14 11.3	+14.1	20.4	70
6 52.0	+11.2	18.9	8 45.5	+11.8	19.0	10 38.9	+12.5	19.2	12 32.2	+13.2	19.3	14 25.4	+13.9	19.4	71
7 03.2	+11.1	18.0	8 57.3	+11.7	18.0	10 51.4	+12.3	18.2	12 45.4	+12.9	18.3	14 39.3	+13.6	18.4	72
7 14.3	+10.9	17.0	9 09.0	+11.5	17.1	11 03.7	+12.1	17.2	12 58.3	+12.8	17.3	14 52.9	+13.3	17.4	73
7 25.2	+10.8	16.0	9 20.5	+11.4	16.1	11 15.8	+12.0	16.2	13 11.1	+12.4	16.3	15 06.2	+13.1	16.4	74
7 36.0	+10.7	15.0	9 31.9	+11.2	15.1	11 27.8	+11.7	15.2	13 23.5	+12.3	15.3	15 19.3	+12.8	15.4	75
7 46.7	+10.5	14.0	9 43.1	+11.0	14.1	11 39.5	+11.5	14.2	13 35.8	+12.0	14.3	15 32.1	+12.5	14.4	76
7 57.2	+10.4	13.0	9 54.1	+10.8	13.1	11 51.0	+11.3	13.2	13 47.8	+11.8	13.3	15 44.6	+12.2	13.4	77
8 07.6	+10.2	12.0	10 04.9	+10.7	12.1	12 02.3	+11.1	12.2	13 59.6	+11.5	12.3	15 56.8	+12.0	12.4	78
8 17.8	+10.1	11.0	10 15.6	+10.5	11.1	12 13.4	+10.8	11.1	14 11.1	+11.2	11.2	16 08.8	+11.6	11.3	79
8 27.9	+10.0	10.0	10 26.1	+10.3	10.1	12 24.2	+10.7	10.1	14 22.3	+11.0	10.2	16 20.4	+11.4	10.3	80
8 37.9	+9.7	9.0	10 36.4	+10.1	9.1	12 34.9	+10.4	9.1	14 33.3	+10.8	9.2	16 31.8	+11.0	9.3	81
8 47.6	+9.7	8.0	10 46.5	+9.9	8.1	12 45.3	+10.2	8.1	14 44.1	+10.4	8.2	16 42.8	+10.8	8.3	82
8 57.3	+9.4	7.0	10 56.4	+9.7	7.1	12 55.5	+9.9	7.1	14 54.5	+10.2	7.2	16 53.6	+10.4	7.2	83
9 06.7	+9.3	6.0	11 06.1	+9.5	6.1	13 05.4	+9.7	6.1	15 04.7	+9.9	6.2	17 04.0	+10.1	6.2	84
9 16.0	+9.2	5.0	11 15.6	+9.3	5.0	13 15.1	+9.5	5.1	15 14.6	+9.7	5.1	17 14.1	+9.9	5.2	85
9 25.2	+8.9	4.0	11 24.9	+9.1	4.0	13 24.6	+9.2	4.1	15 24.3	+9.3	4.1	17 24.0	+9.5	4.2	86
9 34.1	+8.8	3.0	11 34.0	+8.9	3.0	13 33.8	+9.0	3.1	15 33.6	+9.1	3.1	17 33.5	+9.1	3.1	87
9 42.9	+8.7	2.0	11 42.9	+8.6	2.0	13 42.8	+8.7	2.0	15 42.7	+8.8	2.1	17 42.6	+8.9	2.1	88
9 51.6	+8.4	1.0	11 51.5	+8.5	1.0	13 51.5	+8.5	1.0	15 51.5	+8.5	1.0	17 51.5	+8.5	1.0	89
10 00.0	+8.3	0.0	12 00.0	+8.2	0.0	14 00.0	+8.2	0.0	16 00.0	+8.2	0.0	18 00.0	+8.2	0.0	90

LATITUDE SAME NAME

L.H.A. 98°, 262°

82°, 278° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	16 30.9	+14.3	63.4	17 24.0	-16.2	64.0	18 16.1	+18.1	64.6	19 07.1	+20.0	65.2	19 56.8	+21.9	65.8
31	16 45.2	+14.0	62.4	17 40.2	-15.9	63.0	18 34.2	+17.8	63.6	19 27.1	+19.6	64.2	20 18.7	+21.5	64.8
32	16 59.2	+13.7	61.4	17 56.1	-15.6	62.0	18 52.0	+17.4	62.6	19 46.7	+19.3	63.2	20 40.2	+21.2	63.8
33	17 12.9	+13.4	60.4	18 11.7	-15.2	61.0	19 09.4	+17.1	61.5	20 06.0	+19.0	62.2	21 01.4	+20.8	62.8
34	17 26.3	+13.1	59.4	18 26.9	-14.9	59.9	19 26.5	+16.8	60.5	20 25.0	+18.6	61.2	21 22.2	+20.5	61.8
35	17 39.4	+12.7	58.4	18 41.8	-14.6	58.9	19 43.3	+16.4	59.5	20 43.6	+18.2	60.1	21 42.7	+20.1	60.8
36	17 52.1	+12.5	57.3	18 56.4	-14.3	57.9	19 59.7	+16.0	58.5	21 01.8	+17.9	59.1	22 02.8	+19.7	59.8
37	18 04.6	+12.1	56.3	19 10.7	-13.9	56.9	20 15.7	+15.7	57.5	21 19.7	+17.5	58.1	22 22.5	+19.4	58.8
38	18 16.7	+11.7	55.3	19 24.6	-13.5	55.8	20 31.4	+15.4	56.4	21 37.2	+17.2	57.1	22 41.9	+18.9	57.8
39	18 28.4	+11.5	54.2	19 38.1	-13.2	54.8	20 46.8	+14.9	55.4	21 54.4	+16.7	56.0	23 00.8	+18.5	56.7
40	18 39.9	+11.1	53.2	19 51.3	-12.8	53.8	21 01.7	+14.6	54.4	22 11.1	+16.4	55.0	23 19.3	+18.2	55.7
41	18 51.0	+10.7	52.2	20 04.1	-12.5	52.7	21 16.3	+14.2	53.3	22 27.5	+15.9	54.0	23 37.5	+17.7	54.7
42	19 01.7	+10.4	51.1	20 16.6	-12.1	51.7	21 30.5	+13.8	52.3	22 43.4	+15.6	52.9	23 55.2	+17.3	53.6
43	19 12.1	+10.1	50.1	20 28.7	-11.7	50.6	21 44.3	+13.5	51.2	22 59.0	+15.1	51.9	24 12.5	+16.8	52.6
44	19 22.2	+9.7	49.0	20 40.4	-11.4	49.6	21 57.8	+13.0	50.2	23 14.1	+14.7	50.8	24 29.3	+16.4	51.5
45	19 31.9	+9.3	48.0	20 51.8	-10.9	48.5	22 10.8	+12.6	49.1	23 28.8	+14.3	49.8	24 45.7	+16.0	50.5
46	19 41.2	+9.0	46.9	21 02.7	-10.6	47.5	22 23.4	+12.2	48.1	23 43.1	+13.8	48.7	25 01.7	+15.5	49.4
47	19 50.2	+8.6	45.9	21 13.3	-10.2	46.4	22 35.6	+11.7	47.0	23 56.9	+13.4	47.6	25 17.2	+15.1	48.3
48	19 58.8	+8.2	44.8	21 23.5	-9.7	45.4	22 47.3	+11.4	45.9	24 10.3	+13.0	46.6	25 32.3	+14.6	47.3
49	20 07.0	+7.8	43.8	21 33.2	-9.4	44.3	22 58.7	+10.9	44.9	24 23.3	+12.5	45.5	25 46.9	+14.1	46.2
50	20 14.8	+7.5	42.7	21 42.6	-9.0	43.2	23 09.6	+10.5	43.8	24 35.8	+12.0	44.4	26 01.0	+13.6	45.1
51	20 22.3	+7.1	41.7	21 51.6	-8.5	42.2	23 20.1	+10.0	42.7	24 47.8	+11.6	43.4	26 14.6	+13.1	44.0
52	20 29.4	+6.6	40.6	22 00.1	-8.2	41.1	23 30.1	+9.7	41.7	24 59.4	+11.1	42.3	26 27.7	+12.6	42.9
53	20 36.0	+6.4	39.5	22 08.3	-7.7	40.0	23 39.8	+9.1	40.6	25 10.5	+10.6	41.2	26 40.3	+12.2	41.8
54	20 42.4	+5.9	38.5	22 16.0	-7.3	39.0	23 48.9	+8.7	39.5	25 21.1	+10.2	40.1	26 52.5	+11.6	40.7
55	20 48.3	+5.5	37.4	22 23.3	-6.8	37.9	23 57.6	+8.3	38.4	25 31.3	+9.6	39.0	27 04.1	+11.1	39.6
56	20 53.8	+5.1	36.4	22 30.1	-6.5	36.8	24 05.9	+7.8	37.3	25 40.9	+9.2	37.9	27 15.2	+10.6	38.5
57	20 58.9	+4.7	35.3	22 36.6	-6.0	35.7	24 13.7	+7.3	36.3	25 50.1	+8.7	36.8	27 25.8	+10.0	37.4
58	21 03.6	+4.3	34.2	22 42.6	-5.6	34.7	24 21.0	+6.8	35.2	25 58.8	+8.1	35.7	27 35.8	+9.6	36.3
59	21 07.9	+4.0	33.1	22 48.2	-5.1	33.6	24 27.8	+6.4	34.1	26 06.9	+7.7	34.6	27 45.4	+8.9	35.2
60	21 11.9	+3.5	32.1	22 53.3	-4.7	32.5	24 34.2	+6.0	33.0	26 14.6	+7.2	33.5	27 54.3	+8.5	34.1
61	21 15.4	+3.1	31.0	22 58.0	-4.3	31.4	24 40.2	+5.4	31.9	26 21.8	+6.6	32.4	28 02.8	+7.9	33.0
62	21 18.5	+2.7	29.9	23 02.3	-3.8	30.3	24 45.6	+5.0	30.8	26 28.4	+6.1	31.3	28 10.7	+7.3	31.8
63	21 21.2	+2.3	28.9	23 06.1	-3.4	29.3	24 50.6	+4.4	29.7	26 34.5	+5.7	30.2	28 18.0	+6.8	30.7
64	21 23.5	+1.9	27.8	23 09.5	-2.9	28.2	24 55.0	+4.0	28.6	26 40.2	+5.1	29.1	28 24.8	+6.2	29.6
65	21 25.4	+1.4	26.7	23 12.4	-2.5	27.1	24 59.0	+3.5	27.5	26 45.3	+4.5	27.9	28 31.0	+5.7	28.4
66	21 26.8	+1.1	25.6	23 14.9	-2.0	26.0	25 02.5	+3.1	26.4	26 49.8	+4.1	26.8	28 36.7	+5.1	27.3
67	21 27.9	+0.6	24.6	23 16.9	-1.6	24.9	25 05.6	+2.5	25.3	26 53.9	+3.5	25.7	28 41.8	+4.5	26.2
68	21 28.5	+0.3	23.5	23 18.5	-1.1	23.8	25 08.1	+2.0	24.2	26 57.4	+3.0	24.6	28 46.3	+3.9	25.0
69	21 28.8	-0.2	22.4	23 19.6	-0.7	22.7	25 10.1	+1.6	23.1	27 00.4	+2.4	23.5	28 50.2	+3.4	23.9
70	21 28.6	-0.6	21.3	23 20.3	-0.2	21.6	25 11.7	+1.0	22.0	27 02.8	+1.9	22.4	28 53.6	+2.8	22.8
71	21 28.0	-1.0	20.3	23 20.5	-0.2	20.6	25 12.7	+0.6	20.9	27 04.7	+1.4	21.2	28 56.4	+2.3	21.6
72	21 27.0	-1.4	19.2	23 20.3	-0.7	19.5	25 13.3	+0.1	19.8	27 06.1	+0.8	20.1	28 58.7	+1.6	20.5
73	21 25.6	-1.8	18.1	23 19.6	-1.2	18.4	25 13.4	-0.5	18.7	27 06.9	+0.3	19.0	29 00.3	+1.1	19.3
74	21 23.8	-2.2	17.0	23 18.4	-1.5	17.3	25 12.9	-0.9	17.6	27 07.2	-0.2	17.9	29 01.4	+0.4	18.2
75	21 21.6	-2.7	16.0	23 16.9	-2.1	16.2	25 12.0	-1.4	16.5	27 07.0	-0.7	16.7	29 01.8	-0.1	17.0
76	21 18.9	-3.0	14.9	23 14.8	-2.5	15.1	25 10.6	-1.9	15.4	27 06.3	-1.3	15.6	29 01.7	-0.6	15.9
77	21 15.9	-3.5	13.8	23 12.3	-2.9	14.0	25 08.7	-2.4	14.2	27 05.0	-1.9	14.5	29 01.1	-1.3	14.8
78	21 12.4	-3.8	12.8	23 09.4	-3.4	12.9	25 06.3	-2.9	13.1	27 03.1	-2.3	13.4	28 59.8	-1.8	13.6
79	21 08.6	-4.3	11.7	23 06.0	-3.8	11.9	25 03.4	-3.3	12.0	27 00.8	-3.0	12.2	28 58.0	-2.4	12.5
80	21 04.3	-4.7	10.6	23 02.2	-4.3	10.8	25 00.1	-3.9	10.9	26 57.8	-3.4	11.1	28 55.6	-3.0	11.3
81	20 59.6	-5.0	9.6	22 57.9	-4.7	9.7	24 56.2	-4.3	9.8	26 54.4	-3.9	10.0	28 52.6	-3.6	10.2
82	20 54.6	-5.5	8.5	22 53.2	-5.1	8.6	24 51.9	-4.9	8.7	26 50.5	-4.5	8.9	28 49.0	-4.2	9.1
83	20 49.1	-5.8	7.4	22 48.1	-5.6	7.5	24 47.0	-5.3	7.6	26 46.0	-5.1	7.8	28 44.8	-4.7	7.9
84	20 43.3	-6.3	6.4	22 42.5	-6.0	6.4	24 41.7	-5.7	6.5	26 40.9	-5.5	6.7	28 40.1	-5.3	6.8
85	20 37.0	-6.6	5.3	22 36.5	-6.5	5.4	24 36.0	-6.3	5.4	26 35.4	-6.0	5.5	28 34.8	-5.8	5.6
86	20 30.4	-7.0	4.2	22 30.0	-6.8	4.3	24 29.7	-6.7	4.4	26 29.4	-6.6	4.4	28 29.0	-6.4	4.5
87	20 23.4	-7.5	3.2	22 23.2	-7.3	3.2	24 23.0	-7.2	3.3	26 22.8	-7.1	3.3	28 22.6	-7.0	3.4
88	20 15.9	-7.7	2.1	22 15.9	-7.8	2.1	24 15.8	-7.7	2.2	26 15.7	-7.6	2.2	28 15.6	-7.5	2.2
89	20 08.2	-8.2	1.1	22 08.1	-8.1	1.1	24 08.1	-8.1	1.1	26 08.1	-8.1	1.1	28 08.1	-8.1	1.1
90	20 00.0	-8.5	0.0	22 00.0	-8.6	0.0	24 00.0	-8.6	0.0	26 00.0	-8.6	0.0	28 00.0	-8.6	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 82°, 278°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
3 18.6	+21.7	59.2	4 20.0	+23.3	59.3	5 21.1	+25.0	59.5	6 21.9	+26.6	59.6	7 22.3	+28.3	59.9	30
3 40.3	+21.7	58.3	4 43.3	+23.3	58.4	5 46.1	+24.9	58.6	6 48.5	+26.6	58.7	7 50.6	+28.1	59.0	31
4 02.0	+21.6	57.3	5 06.6	+23.3	57.5	6 11.0	+24.9	57.6	7 15.1	+26.4	57.8	8 18.7	+28.1	58.1	32
4 23.6	+21.5	56.4	5 29.9	+23.1	56.5	6 35.9	+24.7	56.7	7 41.5	+26.3	56.9	8 46.8	+27.9	57.2	33
4 45.1	+21.4	55.5	5 53.0	+23.0	55.6	7 00.6	+24.6	55.8	8 07.8	+26.2	56.0	9 14.7	+27.7	56.3	34
5 06.5	+21.4	54.5	6 16.0	+23.0	54.7	7 25.2	+24.5	54.9	8 34.0	+26.1	55.1	9 42.4	+27.7	55.4	35
5 27.9	+21.2	53.6	6 39.0	+22.8	53.8	7 49.7	+24.4	54.0	9 00.1	+26.0	54.2	10 10.1	+27.5	54.5	36
5 49.1	+21.2	52.7	7 01.8	+22.7	52.8	8 14.1	+24.3	53.0	9 26.1	+25.8	53.3	10 37.6	+27.3	53.6	37
6 10.3	+21.1	51.7	7 24.5	+22.6	51.9	8 38.4	+24.1	52.1	9 51.9	+25.6	52.4	11 04.9	+27.1	52.7	38
6 31.4	+21.0	50.8	7 47.1	+22.5	51.0	9 02.5	+24.0	51.2	10 17.5	+25.5	51.5	11 32.0	+27.0	51.8	39
6 52.4	+20.8	49.8	8 09.6	+22.4	50.0	9 26.5	+23.9	50.3	10 43.0	+25.3	50.5	11 59.0	+26.8	50.8	40
7 13.2	+20.8	48.9	8 32.0	+22.2	49.1	9 50.4	+23.7	49.3	11 08.3	+25.2	49.6	12 25.8	+26.7	49.9	41
7 34.0	+20.6	47.9	8 54.2	+22.1	48.1	10 14.1	+23.5	48.4	11 33.5	+25.0	48.7	12 52.5	+26.4	49.0	42
7 54.6	+20.5	47.0	9 16.3	+21.9	47.2	10 37.6	+23.4	47.5	11 58.5	+24.8	47.8	13 18.9	+26.2	48.1	43
8 15.1	+20.3	46.0	9 38.2	+21.8	46.3	11 01.0	+23.2	46.5	12 23.3	+24.6	46.8	13 45.1	+26.1	47.2	44
8 35.4	+20.2	45.1	10 00.0	+21.6	45.3	11 24.2	+23.0	45.6	12 47.9	+24.4	45.9	14 11.2	+25.8	46.2	45
8 55.6	+20.1	44.1	10 21.6	+21.4	44.4	11 47.2	+22.8	44.6	13 12.3	+24.2	45.0	14 37.0	+25.6	45.3	46
9 15.7	+19.9	43.2	10 43.0	+21.3	43.4	12 10.0	+22.6	43.7	13 36.5	+24.0	44.0	15 02.6	+25.3	44.4	47
9 35.6	+19.8	42.2	11 04.3	+21.1	42.5	12 32.6	+22.5	42.8	14 00.5	+23.8	43.1	15 27.9	+25.2	43.4	48
9 55.4	+19.6	41.3	11 25.4	+20.9	41.5	12 55.1	+22.2	41.8	14 24.3	+23.6	42.1	15 53.1	+24.8	42.5	49
10 15.0	+19.4	40.3	11 46.3	+20.7	40.6	13 17.3	+22.0	40.8	14 47.9	+23.3	41.2	16 17.9	+24.7	41.5	50
10 34.4	+19.3	39.3	12 07.0	+20.6	39.6	13 39.3	+21.8	39.9	15 11.2	+23.0	40.2	16 42.6	+24.3	40.6	51
10 53.7	+19.0	38.4	12 27.6	+20.3	38.6	14 01.1	+21.6	38.9	15 34.2	+22.9	39.3	17 06.9	+24.1	39.6	52
11 12.7	+18.9	37.4	12 47.9	+20.1	37.7	14 22.7	+21.3	38.0	15 57.1	+22.5	38.3	17 31.0	+23.8	38.7	53
11 31.6	+18.7	36.4	13 08.0	+19.9	36.7	14 44.0	+21.1	37.0	16 19.6	+22.3	37.3	17 54.8	+23.5	37.7	54
11 50.3	+18.5	35.5	13 27.9	+19.6	35.7	15 05.1	+20.9	36.0	16 41.9	+22.1	36.4	18 18.3	+23.3	36.7	55
12 08.8	+18.3	34.5	13 47.5	+19.5	34.8	15 26.0	+20.5	35.1	17 04.0	+21.7	35.4	18 41.6	+22.9	35.8	56
12 27.1	+18.1	33.5	14 07.0	+19.2	33.8	15 46.5	+20.4	34.1	17 25.7	+21.5	34.4	19 04.5	+22.6	34.8	57
12 45.2	+17.8	32.5	14 26.2	+18.9	32.8	16 06.9	+20.0	33.1	17 47.2	+21.2	33.4	19 27.1	+22.3	33.8	58
13 03.0	+17.7	31.6	14 45.1	+18.7	31.8	16 26.9	+19.8	32.1	18 08.4	+20.8	32.5	19 49.4	+22.0	32.8	59
13 20.7	+17.4	30.6	15 03.8	+18.5	30.8	16 46.7	+19.5	31.1	18 29.2	+20.6	31.5	20 11.4	+21.6	31.8	60
13 38.1	+17.2	29.6	15 22.3	+18.2	29.9	17 06.2	+19.2	30.2	18 49.8	+20.3	30.5	20 33.0	+21.3	30.8	61
13 55.3	+16.9	28.6	15 40.5	+17.9	28.9	17 25.4	+19.0	29.2	19 10.1	+19.9	29.5	20 54.3	+21.0	29.8	62
14 12.2	+16.7	27.6	15 58.4	+17.7	27.9	17 44.4	+18.6	28.2	19 30.0	+19.6	28.5	21 15.3	+20.6	28.8	63
14 28.9	+16.5	26.6	16 16.1	+17.3	26.9	18 03.0	+18.3	27.2	19 49.6	+19.2	27.5	21 35.9	+20.2	27.8	64
14 45.4	+16.2	25.6	16 33.4	+17.1	25.9	18 21.3	+18.0	26.2	20 08.8	+18.9	26.5	21 56.1	+19.8	26.8	65
15 01.6	+15.9	24.6	16 50.5	+16.8	24.9	18 39.3	+17.6	25.2	20 27.7	+18.6	25.5	22 15.9	+19.5	25.8	66
15 17.5	+15.7	23.6	17 07.3	+16.5	23.9	18 56.9	+17.4	24.1	20 46.3	+18.2	24.4	22 35.4	+19.1	24.8	67
15 33.2	+15.4	22.6	17 23.8	+16.2	22.9	19 14.3	+17.0	23.1	21 04.5	+17.8	23.4	22 54.5	+18.7	23.7	68
15 48.6	+15.1	21.6	17 40.0	+15.9	21.9	19 31.3	+16.6	22.1	21 22.3	+17.5	22.4	23 13.2	+18.2	22.7	69
16 03.7	+14.8	20.6	17 55.9	+15.6	20.9	19 47.9	+16.4	21.1	21 39.8	+17.1	21.4	23 31.4	+17.9	21.7	70
16 18.5	+14.6	19.6	18 11.5	+15.2	19.8	20 04.3	+15.9	20.1	21 56.9	+16.7	20.3	23 49.3	+17.4	20.6	71
16 33.1	+14.2	18.6	18 26.7	+14.9	18.8	20 20.2	+15.6	19.0	22 13.6	+16.3	19.3	24 06.7	+17.0	19.6	72
16 47.3	+14.0	17.6	18 41.6	+14.6	17.8	20 35.8	+15.2	18.0	22 29.9	+15.8	18.3	24 23.7	+16.6	18.5	73
17 01.3	+13.6	16.6	18 56.2	+14.3	16.8	20 51.0	+14.9	17.0	22 45.7	+15.5	17.2	24 40.3	+16.1	17.5	74
17 14.9	+13.4	15.6	19 10.5	+13.9	15.7	21 05.9	+14.5	15.9	23 01.2	+15.1	16.2	24 56.4	+15.7	16.4	75
17 28.3	+13.0	14.5	19 24.4	+13.5	14.7	21 20.4	+14.1	14.9	23 16.3	+14.6	15.1	25 12.1	+15.2	15.4	76
17 41.3	+12.7	13.5	19 37.9	+13.2	13.7	21 34.5	+13.7	13.9	23 30.9	+14.2	14.1	25 27.3	+14.7	14.3	77
17 54.0	+12.4	12.5	19 51.1	+12.9	12.6	21 48.2	+13.3	12.8	23 45.1	+13.8	13.0	25 42.0	+14.3	13.2	78
18 06.4	+12.0	11.5	20 04.0	+12.4	11.6	22 01.5	+12.9	11.8	23 58.9	+13.4	11.9	25 56.3	+13.8	12.1	79
18 18.4	+11.8	10.4	20 16.4	+12.1	10.6	22 14.4	+12.5	10.7	24 12.3	+12.8	10.9	26 10.1	+13.3	11.0	80
18 30.2	+11.4	9.4	20 28.5	+11.8	9.5	22 26.9	+12.0	9.6	24 25.1	+12.5	9.8	26 23.4	+12.8	10.0	81
18 41.6	+11.0	8.4	20 40.3	+11.3	8.5	22 38.9	+11.7	8.6	24 37.6	+11.9	8.7	26 36.2	+12.3	8.9	82
18 52.6	+10.7	7.3	20 51.6	+11.0	7.4	22 50.6	+11.2	7.5	24 49.5	+11.5	7.6	26 48.5	+11.7	7.8	83
19 03.3	+10.4	6.3	21 02.6	+10.5	6.4	23 01.8	+10.8	6.5	25 01.0	+11.1	6.6	27 00.2	+11.3	6.7	84
19 13.7	+9.9	5.2	21 13.1	+10.2	5.3	23 12.6	+10.4	5.4	25 12.1	+10.5	5.5	27 11.5	+10.8	5.6	85
19 23.6	+9.7	4.2	21 23.3	+9.8	4.3	23 23.0	+9.9	4.3	25 22.6	+10.1	4.4	27 22.3	+10.2	4.5	86
19 33.3	+9.3	3.2	21 33.1	+9.4	3.2	23 32.9	+9.5	3.2	25 32.7	+9.6	3.3	27 32.5	+9.7	3.4	87
19 42.6	+8.9	2.1	21 42.5	+8.9	2.1	23 42.4	+9.0	2.2	25 42.3	+9.1	2.2	27 42.2	+9.2	2.2	88
19 51.5	+8.5	1.1	21 51.4	+8.6	1.1	23 51.4	+8.6	1.1	25 51.4	+8.6	1.1	27 51.4	+8.6	1.1	89
20 00.0	+8.2	0.0	22 00.0	+8.1	0.0	24 00.0	+8.1	0.0	26 00.0	+8.1	0.0	28 00.0	+8.1	0.0	90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 98°, 262°

84°, 276° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	5 11.6	-3.2	59.9	6 11.7	-1.4	60.0	7 11.5	+0.4	60.2	8 10.8	+2.3	60.5	9 09.7	+4.1	60.7
31	5 08.4	-3.3	58.9	6 10.3	-1.5	59.0	7 11.9	+0.3	59.2	8 13.1	+2.1	59.5	9 13.8	+4.0	59.7
32	5 05.1	-3.3	57.9	6 08.8	-1.6	58.0	7 12.2	+0.2	58.2	8 15.2	+2.0	58.5	9 17.8	+3.7	58.7
33	5 01.8	-3.5	56.9	6 07.2	-1.7	57.0	7 12.4	0.0	57.2	8 17.2	+1.8	57.4	9 21.5	+3.6	57.7
34	4 58.3	-3.6	55.9	6 05.5	-1.8	56.0	7 12.4	-0.1	56.2	8 19.0	+1.6	56.4	9 25.1	+3.4	56.7
35	4 54.7	-3.6	54.9	6 03.7	-2.0	55.0	7 12.3	-0.2	55.2	8 20.6	+1.5	55.4	9 28.5	+3.2	55.7
36	4 51.1	-3.8	53.9	6 01.7	-2.0	54.0	7 12.1	-0.4	54.2	8 22.1	+1.4	54.4	9 31.7	+3.1	54.7
37	4 47.3	-3.8	52.8	5 59.7	-2.2	53.0	7 11.7	-0.5	53.2	8 23.5	+1.2	53.4	9 34.8	+2.9	53.7
38	4 43.5	-3.9	51.8	5 57.5	-2.3	52.0	7 11.2	-0.6	52.2	8 24.7	+1.0	52.4	9 37.7	+2.7	52.6
39	4 39.6	-4.0	50.8	5 55.2	-2.4	51.0	7 10.6	-0.7	51.2	8 25.7	+0.9	51.4	9 40.4	+2.5	51.6
40	4 35.6	-4.1	49.8	5 52.8	-2.4	50.0	7 09.9	-0.9	50.2	8 26.6	+0.7	50.4	9 42.9	+2.4	50.6
41	4 31.5	-4.2	48.8	5 50.4	-2.6	49.0	7 09.0	-1.0	49.2	8 27.3	+0.6	49.4	9 45.3	+2.1	49.6
42	4 27.3	-4.2	47.8	5 47.8	-2.8	48.0	7 08.0	-1.2	48.1	8 27.9	+0.4	48.3	9 47.4	+2.0	48.6
43	4 23.1	-4.4	46.8	5 45.0	-2.8	47.0	7 06.8	-1.3	47.1	8 28.3	+0.2	47.3	9 49.4	+1.8	47.6
44	4 18.7	-4.4	45.8	5 42.2	-2.9	46.0	7 05.5	-1.4	46.1	8 28.5	+0.1	46.3	9 51.2	+1.7	46.6
45	4 14.3	-4.5	44.8	5 39.3	-3.0	45.0	7 04.1	-1.5	45.1	8 28.6	0.0	45.3	9 52.9	+1.4	45.5
46	4 09.8	-4.5	43.8	5 36.3	-3.1	44.0	7 02.6	-1.7	44.1	8 28.6	-0.2	44.3	9 54.3	+1.3	44.5
47	4 05.3	-4.7	42.8	5 33.2	-3.2	43.0	7 00.9	-1.8	43.1	8 28.4	-0.4	43.3	9 55.6	+1.0	43.5
48	4 00.6	-4.7	41.8	5 30.0	-3.4	42.0	6 59.1	-1.9	42.1	8 28.0	-0.5	42.3	9 56.6	+0.9	42.5
49	3 55.9	-4.7	40.8	5 26.6	-3.4	41.0	6 57.2	-2.1	41.1	8 27.5	-0.7	41.3	9 57.5	+0.8	41.5
50	3 51.2	-4.9	39.8	5 23.2	-3.5	39.9	6 55.1	-2.2	40.1	8 26.8	-0.8	40.3	9 58.3	+0.5	40.5
51	3 46.3	-4.9	38.8	5 19.7	-3.6	38.9	6 52.9	-2.3	39.1	8 26.0	-1.0	39.3	9 58.8	+0.3	39.5
52	3 41.4	-5.0	37.8	5 16.1	-3.7	37.9	6 50.6	-2.4	38.1	8 25.0	-1.1	38.2	9 59.1	+0.2	38.4
53	3 36.4	-5.1	36.8	5 12.4	-3.8	36.9	6 48.2	-2.6	37.1	8 23.9	-1.3	37.2	9 59.3	0.0	37.4
54	3 31.3	-5.1	35.9	5 08.6	-3.9	35.9	6 45.6	-2.6	36.1	8 22.6	-1.5	36.2	9 59.3	-0.3	36.4
55	3 26.2	-5.1	34.9	5 04.7	-4.0	34.9	6 43.0	-2.8	35.1	8 21.1	-1.6	35.2	9 59.0	-0.3	35.4
56	3 21.1	-5.3	33.9	5 00.7	-4.1	33.9	6 40.2	-3.0	34.1	8 19.5	-1.8	34.2	9 58.7	-0.6	34.4
57	3 15.8	-5.3	32.9	4 56.6	-4.2	32.9	6 37.2	-3.0	33.0	8 17.7	-1.9	33.2	9 58.1	-0.8	33.4
58	3 10.5	-5.3	31.9	4 52.4	-4.3	31.9	6 34.2	-3.2	32.0	8 15.8	-2.0	32.2	9 57.3	-0.9	32.3
59	3 05.2	-5.4	30.9	4 48.1	-4.3	30.9	6 31.0	-3.3	31.0	8 13.8	-2.2	31.2	9 56.4	-1.2	31.3
60	2 59.8	-5.5	29.9	4 43.8	-4.5	29.9	6 27.7	-3.4	30.0	8 11.6	-2.4	30.2	9 55.2	-1.3	30.3
61	2 54.3	-5.5	28.9	4 39.3	-4.5	28.9	6 24.3	-3.5	29.0	8 09.2	-2.5	29.1	9 53.9	-1.5	29.3
62	2 48.8	-5.6	27.9	4 34.8	-4.6	27.9	6 20.8	-3.6	28.0	8 06.7	-2.7	28.1	9 52.4	-1.7	28.3
63	2 43.2	-5.6	26.9	4 30.2	-4.7	26.9	6 17.2	-3.8	27.0	8 04.0	-2.8	27.1	9 50.7	-1.8	27.3
64	2 37.6	-5.7	25.9	4 25.5	-4.7	25.9	6 13.4	-3.9	26.0	8 01.2	-3.0	26.1	9 48.9	-2.1	26.3
65	2 31.9	-5.7	24.9	4 20.8	-4.9	24.9	6 09.5	-3.9	25.0	7 58.2	-3.1	25.1	9 46.8	-2.2	25.2
66	2 26.2	-5.8	23.9	4 15.9	-4.9	23.9	6 05.6	-4.1	24.0	7 55.1	-3.2	24.1	9 44.6	-2.4	24.2
67	2 20.4	-5.8	22.9	4 11.0	-5.0	22.9	6 01.5	-4.2	23.0	7 51.9	-3.4	23.1	9 42.2	-2.6	23.2
68	2 14.6	-5.8	21.9	4 06.0	-5.1	21.9	5 57.3	-4.3	22.0	7 48.5	-3.5	22.1	9 39.6	-2.7	22.2
69	2 08.8	-5.9	20.9	4 00.9	-5.1	20.9	5 53.0	-4.5	21.0	7 45.0	-3.7	21.1	9 36.9	-2.9	21.2
70	2 02.9	-5.9	19.9	3 55.8	-5.3	19.9	5 48.5	-4.5	20.0	7 41.3	-3.8	20.1	9 34.0	-3.2	20.2
71	1 57.0	-5.9	18.9	3 50.5	-5.3	18.9	5 44.0	-4.6	19.0	7 37.5	-4.0	19.1	9 30.8	-3.2	19.2
72	1 51.1	-6.0	17.9	3 45.2	-5.3	17.9	5 39.4	-4.7	18.0	7 33.5	-4.1	18.1	9 27.6	-3.5	18.2
73	1 45.1	-6.0	16.9	3 39.9	-5.4	16.9	5 34.7	-4.9	17.0	7 29.4	-4.2	17.1	9 24.1	-3.6	17.1
74	1 39.1	-6.1	15.9	3 34.5	-5.5	15.9	5 29.8	-4.9	16.0	7 25.2	-4.4	16.0	9 20.5	-3.8	16.1
75	1 33.0	-6.1	14.9	3 29.0	-5.6	14.9	5 24.9	-5.0	15.0	7 20.8	-4.5	15.0	9 16.7	-4.0	15.1
76	1 26.9	-6.1	13.9	3 23.4	-5.6	13.9	5 19.9	-5.2	14.0	7 16.3	-4.6	14.0	9 12.7	-4.1	14.1
77	1 20.8	-6.1	12.9	3 17.8	-5.7	12.9	5 14.7	-5.2	13.0	7 11.7	-4.8	13.0	9 08.6	-4.4	13.1
78	1 14.7	-6.1	11.9	3 12.1	-5.7	12.0	5 09.5	-5.3	12.0	7 06.9	-4.9	12.0	9 04.2	-4.4	12.1
79	1 08.6	-6.2	10.9	3 06.4	-5.8	11.0	5 04.2	-5.4	11.0	7 02.0	-5.0	11.0	8 59.8	-4.7	11.1
80	1 02.4	-6.2	9.9	3 00.6	-5.8	10.0	4 58.8	-5.5	10.0	6 57.0	-5.2	10.0	8 55.1	-4.8	10.1
81	0 56.2	-6.2	9.0	2 54.8	-5.9	9.0	4 53.3	-5.6	9.0	6 51.8	-5.3	9.0	8 50.3	-4.9	9.1
82	0 50.0	-6.2	8.0	2 48.9	-6.0	8.0	4 47.7	-5.7	8.0	6 46.5	-5.4	8.0	8 45.4	-5.2	8.1
83	0 43.8	-6.2	7.0	2 42.9	-6.0	7.0	4 42.0	-5.7	7.0	6 41.1	-5.5	7.0	8 40.2	-5.3	7.0
84	0 37.6	-6.3	6.0	2 36.9	-6.0	6.0	4 36.3	-5.9	6.0	6 35.6	-5.6	6.0	8 34.9	-5.4	6.0
85	0 31.3	-6.2	5.0	2 30.9	-6.1	5.0	4 30.4	-5.9	5.0	6 30.0	-5.8	5.0	8 29.5	-5.6	5.0
86	0 25.1	-6.3	4.0	2 24.8	-6.2	4.0	4 24.5	-6.0	4.0	6 24.2	-5.9	4.0	8 23.9	-5.7	4.0
87	0 18.8	-6.3	3.0	2 18.6	-6.1	3.0	4 18.5	-6.1	3.0	6 18.3	-6.0	3.0	8 18.2	-6.0	3.0
88	0 12.5	-6.2	2.0	2 12.5	-6.2	2.0	4 12.4	-6.2	2.0	6 12.3	-6.1	2.0	8 12.2	-6.0	2.0
89	0 06.3	-6.3	1.0	2 06.3	-6.3	1.0	4 06.2	-6.2	1.0	6 06.2	-6.2	1.0	8 06.2	-6.2	1.0
90	0 00.0	-6.3	0.0	2 00.0	-6.3	0.0	4 00.0	-6.3	0.0	6 00.0	-6.3	0.0	8 00.0	-6.3	0.0

LATITUDE CONTRARY NAME

L.H.A. 84°, 276°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
5 11.6	-3.2	120.1	4 11.2	-5.0	120.3	3 10.6	-6.8	120.4	2 09.9	-8.6	120.5	1 09.0	-10.4	120.5	30
5 08.4	-3.3	121.1	4 06.2	-5.0	121.3	3 03.8	-6.8	121.4	2 01.3	-8.6	121.5	0 58.6	-10.4	121.5	31
5 05.1	-3.3	122.1	4 01.2	-5.2	122.3	2 57.0	-6.9	122.4	1 52.7	-8.7	122.5	0 48.2	-10.3	122.5	32
5 01.8	-3.5	123.1	3 56.0	-5.2	123.3	2 50.1	-7.0	123.4	1 44.0	-8.7	123.4	0 37.9	-10.4	123.5	33
4 58.3	-3.6	124.1	3 50.8	-5.3	124.3	2 43.1	-7.0	124.4	1 35.3	-8.7	124.4	0 27.5	-10.4	124.5	34
4 54.7	-3.6	125.1	3 45.5	-5.3	125.3	2 36.1	-7.0	125.3	1 26.6	-8.8	125.4	0 17.1	-10.4	125.4	35
4 51.1	-3.8	126.1	3 40.2	-5.5	126.3	2 29.1	-7.1	126.4	1 17.9	-8.7	126.4	0 06.7	-10.4	126.4	36
4 47.3	-3.8	127.2	3 34.7	-5.4	127.3	2 22.0	-7.1	127.4	1 09.2	-8.8	127.4	0 03.7	+10.4	52.6	37
4 43.5	-3.9	128.2	3 29.3	-5.6	128.3	2 14.9	-7.2	128.3	1 00.4	-8.8	128.4	0 14.1	+10.4	51.6	38
4 39.6	-4.0	129.2	3 23.7	-5.6	129.3	2 07.7	-7.2	129.3	0 51.6	-8.8	129.4	0 24.5	+10.4	50.6	39
4 35.6	-4.1	130.2	3 18.1	-5.7	130.3	2 00.5	-7.3	130.3	0 42.8	-8.8	130.4	0 34.9	+10.4	49.6	40
4 31.5	-4.2	131.2	3 12.4	-5.7	131.3	1 53.2	-7.3	131.3	0 34.0	-8.9	131.4	0 45.3	+10.4	48.6	41
4 27.3	-4.2	132.2	3 06.7	-5.8	132.3	1 45.9	-7.3	132.3	0 25.1	-8.8	132.3	0 55.7	+10.4	47.7	42
4 23.1	-4.4	133.2	3 00.9	-5.8	133.3	1 38.6	-7.3	133.3	0 16.3	-8.8	133.3	1 06.1	+10.3	46.7	43
4 18.7	-4.4	134.2	2 55.1	-5.9	134.2	1 31.3	-7.4	134.3	0 07.5	-8.9	134.3	1 16.4	+10.3	45.7	44
4 14.3	-4.5	135.2	2 49.2	-6.0	135.2	1 23.9	-7.4	135.3	0 01.4	+8.8	44.7	1 26.7	+10.3	44.7	45
4 09.8	-4.5	136.2	2 43.2	-6.0	136.2	1 16.5	-7.4	136.3	0 10.2	+8.9	43.7	1 37.0	+10.2	43.7	46
4 05.3	-4.7	137.2	2 37.2	-6.0	137.2	1 09.1	-7.4	137.3	0 19.1	+8.8	42.7	1 47.2	+10.3	42.7	47
4 00.6	-4.7	138.2	2 31.2	-6.1	138.2	1 01.7	-7.5	138.3	0 27.9	+8.8	41.7	1 57.5	+10.2	41.7	48
3 55.9	-4.7	139.2	2 25.1	-6.1	139.2	0 54.2	-7.5	139.3	0 36.7	+8.9	40.7	2 07.7	+10.1	40.8	49
3 51.2	-4.9	140.2	2 19.0	-6.2	140.2	0 46.7	-7.5	140.3	0 45.6	+8.8	39.7	2 17.8	+10.1	39.8	50
3 46.3	-4.9	141.2	2 12.8	-6.2	141.2	0 39.2	-7.5	141.3	0 54.4	+8.7	38.8	2 27.9	+10.1	38.8	51
3 41.4	-5.0	142.2	2 06.6	-6.3	142.2	0 31.7	-7.5	142.2	0 10.3	-8.8	37.8	2 38.0	+10.0	37.8	52
3 36.4	-5.1	143.2	2 00.3	-6.3	143.2	0 24.2	-7.5	143.2	1 11.9	+8.8	36.8	2 48.0	+10.0	36.8	53
3 31.3	-5.1	144.1	1 54.0	-6.3	144.2	0 16.7	-7.5	144.2	1 20.7	+8.7	35.8	2 58.0	+9.9	35.8	54
3 26.2	-5.1	145.1	1 47.7	-6.3	145.2	0 09.2	-7.6	145.2	1 29.4	+8.7	34.8	3 07.9	+9.9	34.8	55
3 21.1	-5.3	146.1	1 41.4	-6.4	146.2	0 01.6	-7.5	146.2	1 38.1	+8.6	33.8	3 17.8	+9.8	33.9	56
3 15.8	-5.3	147.1	1 35.0	-6.4	147.2	0 05.9	+7.5	32.8	1 46.7	+8.7	32.8	3 27.6	+9.7	32.9	57
3 10.5	-5.3	148.1	1 28.6	-6.5	148.2	0 13.4	+7.5	31.8	1 55.4	+8.6	31.8	3 37.3	+9.7	31.9	58
3 05.2	-5.4	149.1	1 22.1	-6.4	149.2	0 20.9	+7.5	30.8	2 04.0	+8.5	30.8	3 47.0	+9.6	30.9	59
2 59.8	-5.5	150.1	1 15.7	-6.5	150.2	0 28.4	+7.6	29.8	2 12.5	+8.6	29.8	3 56.6	+9.5	29.9	60
2 54.3	-5.5	151.1	1 09.2	-6.5	151.2	0 36.0	+7.4	28.8	2 21.1	+8.5	28.9	4 06.1	+9.5	28.9	61
2 48.8	-5.6	152.1	1 02.7	-6.6	152.2	0 43.4	+7.5	27.8	2 29.6	+8.4	27.9	4 15.6	+9.4	27.9	62
2 43.2	-5.6	153.1	0 56.1	-6.5	153.2	0 50.9	+7.5	26.8	2 38.0	+8.4	26.9	4 25.0	+9.3	26.9	63
2 37.6	-5.7	154.1	0 49.6	-6.6	154.2	0 58.4	+7.4	25.9	2 46.4	+8.3	25.9	4 34.3	+9.3	25.9	64
2 31.9	-5.7	155.1	0 43.0	-6.5	155.1	1 05.8	+7.5	24.9	2 54.7	+8.3	24.9	4 43.6	+9.1	24.9	65
2 26.2	-5.8	156.1	0 36.5	-6.6	156.1	1 13.3	+7.4	23.9	3 03.0	+8.2	23.9	4 52.7	+9.1	24.0	66
2 20.4	-5.8	157.1	0 29.9	-6.6	157.1	1 20.7	+7.4	22.9	3 11.2	+8.2	22.9	5 01.8	+8.9	23.0	67
2 14.6	-5.8	158.1	0 23.3	-6.6	158.1	1 28.1	+7.3	21.9	3 19.4	+8.1	21.9	5 10.7	+8.9	22.0	68
2 08.8	-5.9	159.1	0 16.7	-6.6	159.1	1 35.4	+7.4	20.9	3 27.5	+8.1	20.9	5 19.6	+8.8	21.0	69
2 02.9	-5.9	160.1	0 10.1	-6.6	160.1	1 42.8	+7.3	19.9	3 35.6	+8.0	19.9	5 28.4	+8.7	20.0	70
1 57.0	-5.9	161.1	0 03.5	-6.6	161.1	1 50.1	+7.2	18.9	3 43.6	+7.9	18.9	5 37.1	+8.5	19.0	71
1 51.1	-6.0	162.1	0 03.1	+6.6	17.9	1 57.3	+7.2	17.9	3 51.5	+7.8	17.9	5 45.6	+8.5	18.0	72
1 45.1	-6.0	163.1	0 09.7	+6.6	16.9	2 04.5	+7.2	16.9	3 59.3	+7.8	16.9	5 54.1	+8.4	17.0	73
1 39.1	-6.1	164.1	0 16.3	+6.6	15.9	2 11.7	+7.2	15.9	4 07.1	+7.7	16.0	6 02.5	+8.3	16.0	74
1 33.0	-6.1	165.1	0 22.9	+6.6	14.9	2 18.9	+7.1	14.9	4 14.8	+7.7	15.0	6 10.8	+8.1	15.0	75
1 26.9	-6.1	166.1	0 29.5	+6.6	13.9	2 26.0	+7.1	13.9	4 22.5	+7.5	14.0	6 18.9	+8.0	14.0	76
1 20.8	-6.1	167.1	0 36.1	+6.6	12.9	2 33.1	+7.0	12.9	4 30.0	+7.5	13.0	6 26.9	+8.0	13.0	77
1 14.7	-6.1	168.1	0 42.7	+6.5	11.9	2 40.1	+7.0	11.9	4 37.5	+7.4	12.0	6 34.9	+7.8	12.0	78
1 08.6	-6.2	169.1	0 49.2	+6.6	10.9	2 47.1	+6.9	11.0	4 44.9	+7.3	11.0	6 42.7	+7.7	11.0	79
1 02.4	-6.2	170.1	0 55.8	+6.5	9.9	2 54.0	+6.9	10.0	4 52.2	+7.2	10.0	6 50.4	+7.5	10.0	80
0 56.2	-6.2	171.0	1 02.3	+6.5	9.0	3 00.9	+6.8	9.0	4 59.4	+7.1	9.0	6 57.9	+7.4	9.0	81
0 50.0	-6.2	172.0	1 08.8	+6.5	8.0	3 07.7	+6.7	8.0	5 06.5	+7.0	8.0	7 05.3	+7.4	8.0	82
0 43.8	-6.2	173.0	1 15.3	+6.5	7.0	3 14.4	+6.7	7.0	5 13.5	+7.0	7.0	7 12.7	+7.1	7.0	83
0 37.6	-6.3	174.0	1 21.8	+6.4	6.0	3 21.1	+6.7	6.0	5 20.5	+6.8	6.0	7 19.8	+7.1	6.0	84
0 31.3	-6.2	175.0	1 28.2	+6.4	5.0	3 27.8	+6.6	5.0	5 27.3	+6.8	5.0	7 26.9	+6.9	5.0	85
0 25.1	-6.3	176.0	1 34.6	+6.4	4.0	3 34.4	+6.5	4.0	5 34.1	+6.6	4.0	7 33.8	+6.7	4.0	86
0 18.8	-6.3	177.0	1 41.0	+6.4	3.0	3 40.9	+6.4	3.0	5 40.7	+6.5	3.0	7 40.5	+6.7	3.0	87
0 12.5	-6.2	178.0	1 47.4	+6.3	2.0	3 47.3	+6.4	2.0	5 47.2	+6.5	2.0	7 47.2	+6.5	2.0	88
0 06.3	-6.3	179.0	1 53.7	+6.3	1.0	3 53.7	+6.3	1.0	5 53.7	+6.3	1.0	7 53.7	+6.3	1.0	89
0 00.0	+6.3	0.0	2 00.0	+6.3	0.0	4 00.0	+6.2	0.0	6 00.0	+6.2	0.0	8 00.0	+6.2	0.0	90

LATITUDE SAME NAME

L.H.A. 96°, 264°

84°, 276° L.H.A.

LATITUDE SAME NAME

Dec. °	10°			12°			14°			16°			18°		
	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °
30	10 08.1	+6.0	61.0	11 05.9	+7.8	61.4	12 03.1	+9.6	61.7	12 59.6	+11.5	62.1	13 55.3	+13.4	62.5
31	10 14.1	+5.7	60.0	11 13.7	+7.6	60.4	12 12.7	+9.5	60.7	13 11.1	+11.2	61.1	14 08.7	+13.1	61.5
32	10 19.8	+5.6	59.0	11 21.3	+7.4	59.3	12 22.2	+9.1	59.7	13 22.3	+11.0	60.1	14 21.8	+12.8	60.5
33	10 25.4	+5.3	58.0	11 28.7	+7.1	58.3	12 31.3	+9.0	58.7	13 33.3	+10.8	59.1	14 34.6	+12.6	59.5
34	10 30.7	+5.2	57.0	11 35.8	+7.0	57.3	12 40.3	+8.7	57.7	13 44.1	+10.5	58.1	14 47.2	+12.3	58.5
35	10 35.9	+5.0	56.0	11 42.8	+6.7	56.3	12 49.0	+8.5	56.7	13 54.6	+10.3	57.1	14 59.5	+12.0	57.5
36	10 40.9	+4.8	55.0	11 49.5	+6.5	55.3	12 57.5	+8.3	55.7	14 04.9	+10.0	56.0	15 11.5	+11.8	56.5
37	10 45.7	+4.6	53.9	11 56.0	+6.3	54.3	13 05.8	+8.0	54.6	14 14.9	+9.8	55.0	15 23.3	+11.5	55.5
38	10 50.3	+4.3	52.9	12 02.3	+6.1	53.3	13 13.8	+7.8	53.6	14 24.7	+9.5	54.0	15 34.8	+11.2	54.4
39	10 54.6	+4.2	51.9	12 08.4	+5.9	52.2	13 21.6	+7.5	52.6	14 34.2	+9.2	53.0	15 46.0	+11.0	53.4
40	10 58.8	+4.0	50.9	12 14.3	+5.6	51.2	13 29.1	+7.3	51.6	14 43.4	+8.9	52.0	15 57.0	+10.6	52.4
41	11 02.8	+3.8	49.9	12 19.9	+5.4	50.2	13 36.4	+7.1	50.6	14 52.3	+8.7	50.9	16 07.6	+10.3	51.4
42	11 06.6	+3.6	48.9	12 25.3	+5.2	49.2	13 43.5	+6.7	49.5	15 01.0	+8.4	49.9	16 17.9	+10.1	50.4
43	11 10.2	+3.3	47.9	12 30.5	+4.9	48.2	13 50.2	+6.6	48.5	15 09.4	+8.2	48.9	16 28.0	+9.7	49.3
44	11 13.5	+3.2	46.8	12 35.4	+4.7	47.1	13 56.8	+6.2	47.5	15 17.6	+7.8	47.9	16 37.7	+9.5	48.3
45	11 16.7	+3.0	45.8	12 40.1	+4.5	46.1	14 03.0	+6.1	46.5	15 25.4	+7.6	46.8	16 47.2	+9.1	47.3
46	11 19.7	+2.7	44.8	12 44.6	+4.2	45.1	14 09.1	+5.7	45.4	15 33.0	+7.3	45.8	16 56.3	+8.8	46.2
47	11 22.4	+2.5	43.8	12 48.8	+4.0	44.1	14 14.8	+5.5	44.4	15 40.3	+7.0	44.8	17 05.1	+8.5	45.2
48	11 24.9	+2.4	42.8	12 52.8	+3.8	43.1	14 20.3	+5.2	43.4	15 47.3	+6.7	43.8	17 13.6	+8.2	44.2
49	11 27.3	+2.1	41.7	12 56.6	+3.5	42.0	14 25.5	+5.0	42.4	15 54.0	+6.4	42.7	17 21.8	+7.9	43.1
50	11 29.4	+1.9	40.7	13 00.1	+3.3	41.0	14 30.5	+4.7	41.3	16 00.4	+6.1	41.7	17 29.7	+7.5	42.1
51	11 31.3	+1.7	39.7	13 03.4	+3.1	40.0	14 35.2	+4.4	40.3	16 06.5	+5.8	40.7	17 37.2	+7.3	41.0
52	11 33.0	+1.4	38.7	13 06.5	+2.8	39.0	14 39.6	+4.1	39.3	16 12.3	+5.5	39.6	17 44.5	+6.8	40.0
53	11 34.4	+1.3	37.7	13 09.3	+2.5	37.9	14 43.7	+3.9	38.2	16 17.8	+5.2	38.6	17 51.3	+6.6	39.0
54	11 35.7	+1.0	36.6	13 11.8	+2.3	36.9	14 47.6	+3.6	37.2	16 23.0	+4.9	37.5	17 57.9	+6.2	37.9
55	11 36.7	+0.9	35.6	13 14.1	+2.1	35.9	14 51.2	+3.3	36.2	16 27.9	+4.6	36.5	18 04.1	+5.9	36.9
56	11 37.6	+0.6	34.6	13 16.2	+1.8	34.8	14 54.5	+3.1	35.1	16 32.5	+4.2	35.5	18 10.0	+5.5	35.8
57	11 38.2	+0.4	33.6	13 18.0	+1.6	33.8	14 57.6	+2.7	34.1	16 36.7	+4.0	34.4	18 15.5	+5.2	34.8
58	11 38.6	+0.2	32.6	13 19.6	+1.3	32.8	15 00.3	+2.5	33.1	16 40.7	+3.7	33.4	18 20.7	+4.9	33.7
59	11 38.8	-0.1	31.5	13 20.9	+1.1	31.8	15 02.8	+2.2	32.0	16 44.4	+3.3	32.3	18 25.6	+4.5	32.7
60	11 38.7	-0.2	30.5	13 22.0	+0.8	30.7	15 05.0	+1.9	31.0	16 47.7	+3.0	31.3	18 30.1	+4.1	31.6
61	11 38.5	-0.5	29.5	13 22.8	+0.6	29.7	15 06.9	+1.6	30.0	16 50.7	+2.7	30.2	18 34.2	+3.8	30.6
62	11 38.0	-0.7	28.5	13 23.4	+0.3	28.7	15 08.5	+1.4	28.9	16 53.4	+2.4	29.2	18 38.0	+3.5	29.5
63	11 37.3	-0.9	27.4	13 23.7	-0.1	27.7	15 09.9	+1.1	27.9	16 55.8	+2.1	28.2	18 41.5	+3.1	28.5
64	11 36.4	-1.1	26.4	13 23.8	-0.2	26.6	15 11.0	+0.8	26.9	16 57.9	+1.8	27.1	18 44.6	+2.7	27.4
65	11 35.3	-1.3	25.4	13 23.6	-0.4	25.6	15 11.8	+0.4	25.8	16 59.7	+1.4	26.1	18 47.3	+2.4	26.4
66	11 34.0	-1.6	24.4	13 23.2	-0.7	24.6	15 12.2	+0.3	24.8	17 01.1	+1.1	25.0	18 49.7	+2.0	25.3
67	11 32.4	-1.7	23.4	13 22.5	-0.9	23.5	15 12.5	-0.1	23.7	17 02.2	+0.8	24.0	18 51.7	+1.7	24.2
68	11 30.7	-2.0	22.3	13 21.6	-1.1	22.5	15 12.4	-0.4	22.7	17 03.0	+0.5	22.9	18 53.4	+1.3	23.2
69	11 28.7	-2.2	21.3	13 20.5	-1.5	21.5	15 12.0	-0.6	21.7	17 03.5	+0.1	21.9	18 54.7	+1.0	22.1
70	11 26.5	-2.3	20.3	13 19.0	-1.6	20.5	15 11.4	-0.9	20.6	17 03.6	-0.1	20.8	18 55.7	+0.6	21.1
71	11 24.2	-2.6	19.3	13 17.4	-1.9	19.4	15 10.5	-1.2	19.6	17 03.5	-0.5	19.8	18 56.3	+0.2	20.0
72	11 21.6	-2.9	18.3	13 15.5	-2.2	18.4	15 09.3	-1.5	18.6	17 03.0	-0.8	18.8	18 56.5	-0.1	19.0
73	11 18.7	-3.0	17.2	13 13.3	-2.4	17.4	15 07.8	-1.8	17.5	17 02.2	-1.2	17.7	18 56.4	-0.5	17.9
74	11 15.7	-3.2	16.2	13 10.9	-2.6	16.4	15 06.0	-2.0	16.5	17 01.0	-1.4	16.7	18 55.9	-0.8	16.8
75	11 12.5	-3.4	15.2	13 08.3	-2.9	15.3	15 04.0	-2.4	15.5	16 59.6	-1.8	15.6	18 55.1	-1.2	15.8
76	11 09.1	-3.7	14.2	13 05.4	-3.2	14.3	15 01.6	-2.6	14.4	16 57.8	-2.1	14.6	18 53.9	-1.6	14.7
77	11 05.4	-3.8	13.2	13 02.2	-3.3	13.3	14 59.0	-2.9	13.4	16 55.7	-2.4	13.5	18 52.3	-1.9	13.7
78	11 01.6	-4.1	12.2	12 58.9	-3.7	12.3	14 56.1	-3.2	12.4	16 53.3	-2.7	12.5	18 50.4	-2.2	12.6
79	10 57.5	-4.2	11.1	12 55.2	-3.8	11.2	14 52.9	-3.4	11.3	16 50.6	-3.1	11.4	18 48.2	-2.7	11.6
80	10 53.3	-4.5	10.1	12 51.4	-4.1	10.2	14 49.5	-3.8	10.3	16 47.5	-3.3	10.4	18 45.5	-3.0	10.5
81	10 48.8	-4.6	9.1	12 47.3	-4.3	9.2	14 45.7	-4.0	9.3	16 44.2	-3.7	9.3	18 42.5	-3.3	9.5
82	10 44.2	-4.9	8.1	12 43.0	-4.6	8.2	14 41.7	-4.2	8.2	16 40.5	-4.0	8.3	18 39.2	-3.7	8.4
83	10 39.3	-5.0	7.1	12 38.4	-4.8	7.1	14 37.5	-4.6	7.2	16 36.5	-4.3	7.3	18 35.5	-4.0	7.3
84	10 34.3	-5.3	6.1	12 33.6	-5.0	6.1	14 32.9	-4.8	6.2	16 32.2	-4.6	6.2	18 31.5	-4.4	6.3
85	10 29.0	-5.4	5.1	12 28.6	-5.3	5.1	14 28.1	-5.1	5.1	16 27.6	-4.9	5.2	18 27.1	-4.7	5.2
86	10 23.6	-5.6	4.0	12 23.3	-5.5	4.1	14 23.0	-5.4	4.1	16 22.7	-5.2	4.1	18 22.4	-5.1	4.2
87	10 18.0	-5.8	3.0	12 17.8	-5.7	3.1	14 17.6	-5.6	3.1	16 17.5	-5.6	3.1	18 17.3	-5.4	3.1
88	10 12.2	-6.0	2.0	12 12.1	-5.9	2.0	14 12.0	-5.9	2.1	16 11.9	-5.8	2.1	18 11.9	-5.8	2.1
89	10 06.2	-6.2	1.0	12 06.2	-6.2	1.0	14 06.1	-6.1	1.0	16 06.1	-6.1	1.0	18 06.1	-6.1	1.0
90	10 00.0	-6.4	0.0	12 00.0	-6.4	0.0	14 00.0	-6.4	0.0	16 00.0	-6.4	0.0	18 00.0	-6.4	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 84°, 276°

10°			12°			14°			16°			18°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0 08.0	-12.1	120.5	0 53.0	+13.8	59.5	1 53.9	+15.6	59.5	2 54.7	+17.4	59.6	3 55.4	+19.0	59.7	30
0 04.1	+12.1	58.5	1 06.8	+13.9	58.5	2 09.5	+15.6	58.5	3 12.1	+17.2	58.6	4 14.4	+19.0	58.7	31
0 16.2	+12.1	57.5	1 20.7	+13.8	57.5	2 25.1	+15.5	57.6	3 29.3	+17.3	57.7	4 33.4	+18.9	57.8	32
0 28.3	+12.1	56.5	1 34.5	+13.8	56.6	2 40.6	+15.5	56.6	3 46.6	+17.1	56.7	4 52.3	+18.8	56.8	33
0 40.4	+12.1	55.5	1 48.3	+13.8	55.6	2 56.1	+15.4	55.6	4 03.7	+17.1	55.7	5 11.1	+18.8	55.9	34
0 52.5	+12.1	54.6	2 02.1	+13.7	54.6	3 11.5	+15.4	54.7	4 20.8	+17.0	54.8	5 29.9	+18.6	54.9	35
1 04.6	+12.0	53.6	2 15.8	+13.7	53.6	3 26.9	+15.3	53.7	4 37.8	+17.0	53.8	5 48.5	+18.6	54.0	36
1 16.6	+12.1	52.6	2 29.5	+13.6	52.7	3 42.2	+15.3	52.7	4 54.8	+16.8	52.9	6 07.1	+18.4	53.0	37
1 28.7	+12.0	51.6	2 43.1	+13.6	51.7	3 57.5	+15.1	51.8	5 11.6	+16.8	51.9	6 25.5	+18.4	52.1	38
1 40.7	+11.9	50.6	2 56.7	+13.6	50.7	4 12.6	+15.2	50.8	5 28.4	+16.7	50.9	6 43.9	+18.2	51.1	39
1 52.6	+12.0	49.7	3 10.3	+13.5	49.7	4 27.8	+15.0	49.8	5 45.7	+16.5	50.0	7 02.1	+18.1	50.1	40
2 04.6	+11.9	48.7	3 23.8	+13.4	48.8	4 42.8	+15.0	48.9	6 01.6	+16.5	49.0	7 20.2	+18.0	49.2	41
2 16.5	+11.9	47.7	3 37.2	+13.4	47.8	4 57.8	+14.8	47.9	6 18.1	+16.4	48.0	7 38.2	+17.9	48.2	42
2 28.4	+11.8	46.7	3 50.6	+13.3	46.8	5 12.6	+14.8	46.9	6 34.5	+16.2	47.1	7 56.1	+17.7	47.3	43
2 40.2	+11.8	45.7	4 03.9	+13.2	45.8	5 27.4	+14.7	45.9	6 50.7	+16.2	46.1	8 13.8	+17.6	46.3	44
2 52.0	+11.7	44.8	4 17.1	+13.2	44.8	5 42.1	+14.6	45.0	7 06.9	+16.0	45.1	8 31.4	+17.5	45.3	45
3 03.7	+11.6	43.8	4 30.3	+13.0	43.9	5 56.7	+14.5	44.0	7 22.9	+15.9	44.2	8 48.9	+17.3	44.4	46
3 15.3	+11.7	42.8	4 43.3	+13.0	42.9	6 11.2	+14.4	43.0	7 38.8	+15.8	43.2	9 06.2	+17.1	43.4	47
3 27.0	+11.5	41.8	4 56.3	+12.9	41.9	6 25.6	+14.2	42.0	7 54.6	+15.6	42.2	9 23.3	+17.0	42.4	48
3 38.5	+11.5	40.8	5 09.2	+12.9	40.9	6 39.8	+14.2	41.1	8 10.2	+15.5	41.2	9 40.3	+16.8	41.4	49
3 50.0	+11.4	39.8	5 22.1	+12.7	39.9	6 54.0	+14.0	40.1	8 25.7	+15.3	40.3	9 57.1	+16.7	40.5	50
4 01.4	+11.4	38.9	5 34.8	+12.6	39.0	7 08.0	+13.9	39.1	8 41.0	+15.2	39.3	10 13.8	+16.4	39.5	51
4 12.8	+11.2	37.9	5 47.4	+12.5	38.0	7 21.9	+13.8	38.1	8 56.2	+15.0	38.3	10 30.2	+16.3	38.5	52
4 24.0	+11.2	36.9	5 59.9	+12.5	37.0	7 35.7	+13.6	37.1	9 11.2	+14.9	37.3	10 46.5	+16.2	37.5	53
4 35.2	+11.2	35.9	6 12.4	+12.3	36.0	7 49.3	+13.6	36.2	9 26.1	+14.7	36.3	11 02.7	+15.9	36.6	54
4 46.4	+11.0	34.9	6 24.7	+12.2	35.0	8 02.9	+13.3	35.2	9 40.8	+14.6	35.4	11 18.6	+15.7	35.6	55
4 57.4	+10.9	33.9	6 36.9	+12.1	34.0	8 16.2	+13.3	34.2	9 55.4	+14.4	34.4	11 34.3	+15.5	34.6	56
5 08.3	+10.9	32.9	6 49.0	+11.9	33.1	8 29.5	+13.0	33.2	10 09.8	+14.2	33.4	11 49.8	+15.4	33.6	57
5 19.2	+10.7	32.0	7 00.9	+11.9	32.1	8 42.5	+13.0	32.2	10 24.0	+14.0	32.4	12 05.2	+15.1	32.6	58
5 29.9	+10.7	31.0	7 12.8	+11.7	31.1	8 55.5	+12.7	31.2	10 38.0	+13.8	31.4	12 20.3	+14.9	31.6	59
5 40.6	+10.6	30.0	7 24.5	+11.6	30.1	9 08.2	+12.6	30.2	10 51.8	+13.6	30.4	12 35.2	+14.7	30.6	60
5 51.2	+10.4	29.0	7 36.1	+11.4	29.1	9 20.8	+12.5	29.3	11 05.4	+13.5	29.4	12 49.9	+14.4	29.6	61
6 01.6	+10.4	28.0	7 47.5	+11.3	28.1	9 33.3	+12.3	28.3	11 18.9	+13.2	28.4	13 04.3	+14.2	28.6	62
6 12.0	+10.2	27.0	7 58.8	+11.2	27.1	9 45.6	+12.1	27.3	11 32.1	+13.1	27.4	13 18.5	+14.0	27.6	63
6 22.2	+10.1	26.0	8 10.0	+11.0	26.1	9 57.7	+11.9	26.3	11 45.2	+12.8	26.4	13 32.5	+13.8	26.6	64
6 32.3	+10.0	25.0	8 21.0	+10.9	25.1	10 09.6	+11.7	25.3	11 58.0	+12.6	25.4	13 46.3	+13.5	25.6	65
6 42.3	+9.9	24.0	8 31.9	+10.7	24.1	10 21.3	+11.6	24.3	12 10.6	+12.4	24.4	13 59.8	+13.3	24.6	66
6 52.2	+9.8	23.0	8 42.6	+10.6	23.1	10 32.9	+11.4	23.3	12 23.0	+12.2	23.4	14 13.1	+13.0	23.6	67
7 02.0	+9.6	22.0	8 53.2	+10.4	22.2	10 44.3	+11.1	22.3	12 35.2	+12.0	22.4	14 26.3	+12.7	22.6	68
7 11.6	+9.5	21.1	9 03.6	+10.2	21.2	10 55.4	+11.0	21.3	12 47.2	+11.7	21.4	14 38.8	+12.5	21.6	69
7 21.1	+9.4	20.1	9 13.8	+10.1	20.2	11 06.4	+10.8	20.3	12 58.9	+11.5	20.4	14 51.3	+12.2	20.6	70
7 30.5	+9.3	19.1	9 23.9	+9.9	19.2	11 17.2	+10.6	19.3	13 10.4	+11.3	19.4	15 03.5	+12.0	19.6	71
7 39.8	+9.1	18.1	9 33.8	+9.7	18.2	11 27.8	+10.4	18.3	13 21.7	+11.0	18.4	15 15.5	+11.7	18.6	72
7 48.9	+8.9	17.1	9 43.5	+9.6	17.2	11 38.2	+10.1	17.3	13 32.7	+10.8	17.4	15 27.2	+11.4	17.6	73
7 57.8	+8.8	16.1	9 53.1	+9.4	16.2	11 48.3	+10.0	16.3	13 43.5	+10.5	16.4	15 38.6	+11.1	16.5	74
8 06.6	+8.7	15.1	10 02.5	+9.2	15.2	11 58.3	+9.7	15.3	13 54.0	+10.3	15.4	15 49.7	+10.8	15.5	75
8 15.3	+8.6	14.1	10 11.7	+9.0	14.1	12 08.0	+9.6	14.2	14 04.3	+10.0	14.4	16 00.5	+10.6	14.5	76
8 23.9	+8.3	13.1	10 20.7	+8.9	13.1	12 17.6	+9.3	13.2	14 14.3	+9.8	13.3	16 11.1	+10.2	13.5	77
8 32.2	+8.3	12.1	10 29.6	+8.6	12.1	12 26.9	+9.0	12.2	14 24.1	+9.5	12.3	16 21.3	+10.0	12.4	78
8 40.5	+8.0	11.1	10 38.2	+8.5	11.1	12 35.9	+8.9	11.2	14 33.6	+9.3	11.3	16 31.3	+9.6	11.4	79
8 48.5	+7.9	10.1	10 46.7	+8.2	10.1	12 44.8	+8.6	10.2	14 42.9	+8.9	10.3	16 40.9	+9.4	10.4	80
8 56.4	+7.8	9.1	10 54.9	+8.1	9.1	12 53.4	+8.4	9.2	14 51.8	+8.7	9.3	16 50.3	+9.0	9.4	81
9 04.2	+7.5	8.1	11 03.0	+7.8	8.1	13 01.8	+8.1	8.2	15 00.5	+8.5	8.2	16 59.3	+8.7	8.3	82
9 11.7	+7.5	7.1	11 10.8	+7.7	7.1	13 09.9	+7.9	7.2	15 09.0	+8.1	7.2	17 08.0	+8.4	7.3	83
9 19.2	+7.2	6.0	11 18.5	+7.4	6.1	13 17.8	+7.7	6.1	15 17.1	+7.9	6.2	17 16.4	+8.1	6.2	84
9 26.4	+7.1	5.0	11 25.9	+7.3	5.1	13 25.5	+7.4	5.1	15 25.0	+7.6	5.2	17 24.5	+7.7	5.2	85
9 33.5	+6.9	4.0	11 33.2	+7.0	4.1	13 32.9	+7.1	4.1	15 32.6	+7.3	4.1	17 32.2	+7.5	4.2	86
9 40.4	+6.7	3.0	11 40.2	+6.8	3.0	13 40.0	+6.9	3.1	15 39.9	+7.0	3.1	17 39.7	+7.1	3.1	87
9 47.1	+6.5	2.0	11 47.0	+6.6	2.0	13 46.9	+6.7	2.0	15 46.9	+6.7	2.0	17 46.8	+6.8	2.1	88
9 53.6	+6.4	1.0	11 53.6	+6.4	1.0	13 53.6	+6.4	1.0	15 53.6	+6.4	1.0	17 53.6	+6.4	1.0	89
10 00.0	+6.2	0.0	12 00.0	+6.2	0.0	14 00.0	+6.1	0.0	16 00.0	+6.1	0.0	18 00.0	+6.1	0.0	90

LATITUDE SAME NAME

L.H.A. 96°, 264°

84°, 276° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	14 50.2	+15.2	63.0	15 44.3	+17.0	63.5	16 37.4	+18.9	64.0	17 29.4	+20.8	64.6	18 20.4	+22.7	65.1
31	15 05.4	+15.0	62.0	16 01.3	+16.8	62.5	16 56.3	+18.6	63.0	17 50.2	+20.5	63.6	18 43.1	+22.3	64.2
32	15 20.4	+14.7	61.0	16 18.1	+16.5	61.5	17 14.9	+18.4	62.0	18 10.7	+20.2	62.6	19 05.4	+22.0	63.2
33	15 35.1	+14.4	60.0	16 34.6	+16.2	60.5	17 33.3	+18.0	61.0	18 30.9	+19.8	61.6	19 27.4	+21.7	62.2
34	15 49.5	+14.1	59.0	16 50.8	+16.0	59.5	17 51.3	+17.7	60.0	18 50.7	+19.6	60.6	19 49.1	+21.4	61.2
35	16 03.6	+13.8	58.0	17 06.8	+15.6	58.5	18 09.0	+17.5	59.0	19 10.3	+19.2	59.6	20 10.5	+21.0	60.2
36	16 17.4	+13.5	57.0	17 22.4	+15.3	57.5	18 26.5	+17.1	58.0	19 29.5	+18.9	58.6	20 31.5	+20.7	59.2
37	16 30.9	+13.3	55.9	17 37.7	+15.0	56.4	18 43.6	+16.7	57.0	19 48.4	+18.6	57.6	20 52.2	+20.3	58.2
38	16 44.2	+12.9	54.9	17 52.7	+14.7	55.4	19 00.3	+16.5	56.0	20 07.0	+18.2	56.6	21 12.5	+20.0	57.2
39	16 57.1	+12.7	53.9	18 07.4	+14.4	54.4	19 16.8	+16.1	55.0	20 25.2	+17.8	55.6	21 32.5	+19.6	56.2
40	17 09.8	+12.3	52.9	18 21.8	+14.0	53.4	19 32.9	+15.7	53.9	20 43.0	+17.5	54.5	21 52.1	+19.2	55.2
41	17 22.1	+12.0	51.9	18 35.8	+13.7	52.4	19 48.6	+15.4	52.9	21 00.5	+17.1	53.5	22 11.3	+18.9	54.2
42	17 34.1	+11.7	50.8	18 49.5	+13.4	51.3	20 04.0	+15.1	51.9	21 17.6	+16.8	52.5	22 30.2	+18.4	53.1
43	17 45.8	+11.4	49.8	19 02.9	+13.0	50.3	20 19.1	+14.7	50.9	21 34.4	+16.3	51.5	22 48.6	+18.1	52.1
44	17 57.2	+11.1	48.8	19 15.9	+12.7	49.3	20 33.8	+14.3	49.8	21 50.7	+16.0	50.4	23 06.7	+17.6	51.1
45	18 08.3	+10.7	47.7	19 28.6	+12.3	48.2	20 48.1	+13.9	48.8	22 06.7	+15.6	49.4	23 24.3	+17.2	50.0
46	18 19.0	+10.4	46.7	19 40.9	+12.0	47.2	21 02.0	+13.6	47.7	22 22.3	+15.1	48.3	23 41.5	+16.8	49.0
47	18 29.4	+10.0	45.7	19 52.9	+11.6	46.2	21 15.6	+13.1	46.7	22 37.4	+14.8	47.3	23 58.3	+16.4	47.9
48	18 39.4	+9.7	44.6	20 04.5	+11.2	45.1	21 28.7	+12.8	45.7	22 52.2	+14.3	46.2	24 14.7	+15.9	46.9
49	18 49.1	+9.3	43.6	20 15.7	+10.8	44.1	21 41.5	+12.4	44.6	23 06.5	+14.0	45.2	24 30.6	+15.5	45.8
50	18 58.4	+9.0	42.5	20 26.5	+10.5	43.0	21 53.9	+12.0	43.5	23 20.5	+13.5	44.1	24 46.1	+15.1	44.8
51	19 07.4	+8.7	41.5	20 37.0	+10.1	42.0	22 05.9	+11.5	42.5	23 34.0	+13.0	43.1	25 01.2	+14.6	43.7
52	19 16.1	+8.3	40.4	20 47.1	+9.7	40.9	22 17.4	+11.2	41.4	23 47.0	+12.6	42.0	25 15.8	+14.1	42.6
53	19 24.4	+7.9	39.4	20 56.8	+9.3	39.9	22 28.6	+10.7	40.4	23 59.6	+12.2	40.9	25 29.9	+13.6	41.5
54	19 32.3	+7.5	38.3	21 06.1	+8.9	38.8	22 39.3	+10.3	39.3	24 11.8	+11.7	39.9	25 43.5	+13.2	40.5
55	19 39.8	+7.2	37.3	21 15.0	+8.6	37.7	22 49.6	+9.9	38.2	24 23.5	+11.3	38.8	25 56.7	+12.7	39.4
56	19 47.0	+6.9	36.2	21 23.6	+8.1	36.7	22 59.5	+9.5	37.2	24 34.8	+10.8	37.7	26 09.4	+12.2	38.3
57	19 53.9	+6.4	35.2	21 31.7	+7.7	35.6	23 09.0	+9.0	36.1	24 45.6	+10.3	36.6	26 21.6	+11.6	37.2
58	20 00.3	+6.1	34.1	21 39.4	+7.3	34.5	23 18.0	+8.5	35.0	24 55.9	+9.9	35.5	26 33.2	+11.2	36.1
59	20 06.4	+5.6	33.1	21 46.7	+6.9	33.5	23 26.5	+8.2	33.9	25 05.8	+9.4	34.4	26 44.4	+10.7	35.0
60	20 12.0	+5.3	32.0	21 53.6	+6.5	32.4	23 34.7	+7.6	32.9	25 15.2	+8.9	33.4	26 55.1	+10.2	33.9
61	20 17.3	+5.0	30.9	22 00.1	+6.0	31.3	23 42.3	+7.2	31.8	25 24.1	+8.4	32.3	27 05.3	+9.6	32.8
62	20 22.3	+4.5	29.9	22 06.1	+5.7	30.3	23 49.5	+6.8	30.7	25 32.5	+7.9	31.2	27 14.9	+9.1	31.7
63	20 26.8	+4.1	28.8	22 11.8	+5.2	29.2	23 56.3	+6.3	29.6	25 40.4	+7.4	30.1	27 24.0	+8.6	30.6
64	20 30.9	+3.8	27.7	22 17.0	+4.8	28.1	24 02.6	+5.9	28.5	25 47.8	+7.0	29.0	27 32.6	+8.0	29.5
65	20 34.7	+3.4	26.7	22 21.8	+4.3	27.0	24 08.5	+5.3	27.4	25 54.8	+6.4	27.9	27 40.6	+7.5	28.3
66	20 38.1	+2.9	25.6	22 26.1	+3.9	26.0	24 13.8	+5.0	26.3	26 01.2	+5.9	26.8	27 48.1	+7.0	27.2
67	20 41.0	+2.6	24.5	22 30.0	+3.5	24.9	24 18.8	+4.4	25.2	26 07.1	+5.4	25.6	27 55.1	+6.4	26.1
68	20 43.6	+2.2	23.5	22 33.5	+3.1	23.8	24 23.2	+4.0	24.1	26 12.5	+4.9	24.5	28 01.5	+5.9	25.0
69	20 45.8	+1.8	22.4	22 36.6	+2.6	22.7	24 27.2	+3.5	23.0	26 17.4	+4.4	23.4	28 07.4	+5.3	23.8
70	20 47.6	+1.3	21.3	22 39.2	+2.2	21.6	24 30.7	+3.0	22.0	26 21.8	+3.9	22.3	28 12.7	+4.7	22.7
71	20 48.9	+1.0	20.3	22 41.4	+1.8	20.5	24 33.7	+2.5	20.9	26 25.7	+3.3	21.2	28 17.4	+4.2	21.6
72	20 49.9	+0.6	19.2	22 43.2	+1.3	19.5	24 36.2	+2.1	19.8	26 29.0	+2.9	20.1	28 21.6	+3.6	20.4
73	20 50.5	+0.2	18.1	22 44.5	+0.9	18.4	24 38.3	+1.6	18.7	26 31.9	+2.3	19.0	28 25.2	+3.1	19.3
74	20 50.7	-0.2	17.1	22 45.4	+0.4	17.3	24 39.9	+1.1	17.6	26 34.2	+1.8	17.8	28 28.3	+2.5	18.2
75	20 50.5	-0.6	16.0	22 45.8	0.0	16.2	24 41.0	+0.6	16.5	26 36.0	+1.2	16.7	28 30.8	+1.9	17.0
76	20 49.9	-1.0	14.9	22 45.8	-0.4	15.1	24 41.6	+0.1	15.4	26 37.2	+0.8	15.6	28 32.7	+1.4	15.9
77	20 48.9	-1.4	13.8	22 45.4	-0.9	14.0	24 41.7	-0.3	14.3	26 38.0	+0.2	14.5	28 34.1	+0.8	14.8
78	20 47.5	-1.8	12.8	22 44.5	-1.3	13.0	24 41.4	-0.8	13.2	26 38.2	-0.3	13.4	28 34.9	+0.2	13.6
79	20 45.7	-2.2	11.7	22 43.2	-1.8	11.9	24 40.6	-1.4	12.1	26 37.9	-0.9	12.3	28 35.1	-0.4	12.5
80	20 43.5	-2.6	10.6	22 41.4	-2.2	10.8	24 39.2	-1.7	11.0	26 37.0	-1.3	11.1	28 34.7	-0.9	11.3
81	20 40.9	-3.0	9.6	22 39.2	-2.6	9.7	24 37.5	-2.3	9.9	26 35.7	-1.9	10.0	28 33.8	-1.5	10.2
82	20 37.9	-3.4	8.5	22 36.6	-3.1	8.6	24 35.2	-2.7	8.8	26 33.8	-2.4	8.9	28 32.3	-2.1	9.1
83	20 34.5	-3.7	7.4	22 33.5	-3.5	7.5	24 32.5	-3.3	7.7	26 31.4	-3.0	7.8	28 30.2	-2.6	7.9
84	20 30.8	-4.2	6.4	22 30.0	-3.9	6.5	24 29.2	-3.7	6.6	26 28.4	-3.4	6.7	28 27.6	-3.2	6.8
85	20 26.6	-4.6	5.3	22 26.1	-4.4	5.4	24 25.5	-4.1	5.5	26 25.0	-4.0	5.6	28 24.4	-3.8	5.7
86	20 22.0	-4.9	4.2	22 21.7	-4.8	4.3	24 21.4	-4.7	4.4	26 21.0	-4.5	4.4	28 20.6	-4.3	4.5
87	20 17.1	-5.3	3.2	22 16.9	-5.2	3.2	24 16.7	-5.1	3.3	26 16.5	-5.0	3.3	28 16.3	-4.9	3.4
88	20 11.8	-5.7	2.1	22 11.7	-5.6	2.1	24 11.6	-5.6	2.2	26 11.5	-5.5	2.2	28 11.4	-5.4	2.3
89	20 06.1	-6.1	1.1	22 06.1	-6.1	1.1	24 06.0	-6.0	1.1	26 06.0	-6.0	1.1	28 06.0	-6.0	1.1
90	20 00.0	-6.5	0.0	22 00.0	-6.5	0.0	24 00.0	-6.5	0.0	26 00.0	-6.5	0.0	28 00.0	-6.5	0.0

LATITUDE CONTRARY NAME

L.H.A. 84°, 276°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
4 55.8	+20.8	59.8	5 56.0	+22.4	60.0	6 55.8	+24.2	60.2	7 55.3	+25.8	60.4	8 54.3	+27.5	60.7	30
5 16.6	+20.6	58.9	6 18.4	+22.4	59.1	7 20.0	+24.0	59.3	8 21.1	+25.7	59.5	9 21.8	+27.3	59.8	31
5 37.2	+20.6	57.9	6 40.8	+22.2	58.1	7 44.0	+23.9	58.3	8 46.8	+25.5	58.6	9 49.1	+27.1	58.9	32
5 57.8	+20.5	57.0	7 03.0	+22.2	57.2	8 07.9	+23.7	57.4	9 12.3	+25.4	57.7	10 16.2	+27.0	58.0	33
6 18.3	+20.4	56.0	7 25.2	+22.0	56.2	8 31.6	+23.7	56.5	9 37.7	+25.2	56.7	10 43.2	+26.8	57.0	34
6 38.7	+20.3	55.1	7 47.2	+21.9	55.3	8 55.3	+23.5	55.6	10 02.9	+25.1	55.8	11 10.0	+26.7	56.1	35
6 59.0	+20.1	54.2	8 09.1	+21.7	54.4	9 18.8	+23.3	54.6	10 28.0	+24.9	54.9	11 36.7	+26.5	55.2	36
7 19.1	+20.1	53.2	8 30.8	+21.6	53.4	9 42.1	+23.2	53.7	10 52.9	+24.8	54.0	12 03.2	+26.3	54.3	37
7 39.2	+19.9	52.3	8 52.4	+21.5	52.5	10 05.3	+23.0	52.7	11 17.7	+24.6	53.1	12 29.5	+26.2	53.4	38
7 59.1	+19.8	51.3	9 13.9	+21.3	51.5	10 28.3	+22.9	51.8	11 42.3	+24.4	52.1	12 55.7	+25.9	52.5	39
8 18.9	+19.6	50.3	9 35.2	+21.2	50.6	10 51.2	+22.7	50.9	12 06.7	+24.2	51.2	13 21.6	+25.7	51.5	40
8 38.5	+19.5	49.4	9 56.4	+21.0	49.6	11 13.9	+22.5	49.9	12 30.9	+24.0	50.3	13 47.3	+25.6	50.6	41
8 58.0	+19.4	48.4	10 17.4	+20.9	48.7	11 36.4	+22.3	49.0	12 54.9	+23.8	49.3	14 12.9	+25.3	49.7	42
9 17.4	+19.2	47.5	10 38.3	+20.6	47.7	11 58.7	+22.2	48.0	13 18.7	+23.6	48.4	14 38.2	+25.1	48.7	43
9 36.6	+19.0	46.5	10 58.9	+20.5	46.8	12 20.9	+21.9	47.1	13 42.3	+23.4	47.4	15 03.3	+24.8	47.8	44
9 55.6	+18.9	45.6	11 19.4	+20.3	45.8	12 42.8	+21.8	46.1	14 05.7	+23.2	46.5	15 28.1	+24.6	46.9	45
10 14.5	+18.7	44.6	11 39.7	+20.2	44.9	13 04.6	+21.5	45.2	14 28.9	+23.0	45.5	15 52.7	+24.4	45.9	46
10 33.2	+18.5	43.6	11 59.9	+19.9	43.9	13 26.1	+21.3	44.2	14 51.9	+22.7	44.6	16 17.1	+24.1	45.0	47
10 51.7	+18.4	42.7	12 19.8	+19.7	42.9	13 47.4	+21.1	43.3	15 14.6	+22.4	43.6	16 41.2	+23.8	44.0	48
11 10.1	+18.1	41.7	12 39.5	+19.5	42.0	14 08.5	+20.9	42.3	15 37.0	+22.2	42.6	17 05.0	+23.6	43.0	49
11 28.2	+18.0	40.7	12 59.0	+19.3	41.0	14 29.4	+20.6	41.3	15 59.2	+22.0	41.7	17 28.6	+23.3	42.1	50
11 46.2	+17.8	39.7	13 18.3	+19.1	40.0	14 50.0	+20.3	40.3	16 21.2	+21.7	40.7	17 51.9	+23.0	41.1	51
12 04.0	+17.5	38.8	13 37.4	+18.8	39.1	15 10.3	+20.2	39.4	16 42.9	+21.4	39.7	18 14.9	+22.7	40.1	52
12 21.5	+17.4	37.8	13 56.2	+18.6	38.1	15 30.5	+19.8	38.4	17 04.3	+21.1	38.8	18 37.6	+22.4	39.2	53
12 38.9	+17.1	36.8	14 14.8	+18.4	37.1	15 50.3	+19.6	37.4	17 25.4	+20.8	37.8	19 00.0	+22.1	38.2	54
12 56.0	+17.0	35.8	14 33.2	+18.1	36.1	16 09.9	+19.3	36.4	17 46.2	+20.6	36.8	19 22.1	+21.7	37.2	55
13 13.0	+16.6	34.8	14 51.3	+17.8	35.1	16 29.2	+19.1	35.4	18 06.8	+20.2	35.8	19 43.8	+21.5	36.2	56
13 29.6	+16.5	33.9	15 09.1	+17.6	34.1	16 48.3	+18.7	34.5	18 27.0	+19.9	34.8	20 05.3	+21.1	35.2	57
13 46.1	+16.2	32.9	15 26.7	+17.4	33.1	17 07.0	+18.5	33.5	18 46.9	+19.7	33.8	20 26.4	+20.8	34.2	58
14 02.3	+16.0	31.9	15 44.1	+17.1	32.2	17 25.5	+18.2	32.5	19 06.6	+19.2	32.8	20 47.2	+20.4	33.2	59
14 18.3	+15.7	30.9	16 01.2	+16.7	31.2	17 43.7	+17.8	31.5	19 25.8	+18.9	31.8	21 07.6	+20.0	32.2	60
14 34.0	+15.5	29.9	16 17.9	+16.6	30.2	18 01.5	+17.6	30.5	19 44.8	+18.6	30.8	21 27.6	+19.7	31.2	61
14 49.5	+15.2	28.9	16 34.5	+16.2	29.2	18 19.1	+17.2	29.5	20 03.4	+18.3	29.8	21 47.3	+19.4	30.2	62
15 04.7	+15.0	27.9	16 50.7	+15.9	28.1	18 36.3	+17.0	28.5	20 21.7	+17.9	28.8	22 06.7	+18.9	29.2	63
15 19.7	+14.7	26.9	17 06.6	+15.6	27.1	18 53.3	+16.5	27.4	20 39.6	+17.6	27.8	22 25.6	+18.5	28.1	64
15 34.4	+14.4	25.9	17 22.2	+15.4	26.1	19 09.8	+16.3	26.4	20 57.2	+17.1	26.7	22 44.1	+18.2	27.1	65
15 48.8	+14.1	24.9	17 37.6	+15.0	25.1	19 26.1	+15.9	25.4	21 14.3	+16.9	25.7	23 02.3	+17.7	26.1	66
16 02.9	+13.9	23.9	17 52.6	+14.7	24.1	19 42.0	+15.5	24.4	21 31.2	+16.4	24.7	23 20.0	+17.4	25.0	67
16 16.8	+13.5	22.8	18 07.3	+14.3	23.1	19 57.5	+15.2	23.4	21 47.6	+16.0	23.7	23 37.4	+16.9	24.0	68
16 30.3	+13.3	21.8	18 21.6	+14.1	22.1	20 12.7	+14.9	22.3	22 03.6	+15.7	22.6	23 54.3	+16.5	22.9	69
16 43.6	+12.9	20.8	18 35.7	+13.7	21.0	20 27.6	+14.4	21.3	22 19.3	+15.2	21.6	24 10.8	+16.0	21.9	70
16 56.5	+12.7	19.8	18 49.4	+13.3	20.0	20 42.0	+14.1	20.3	22 34.5	+14.9	20.5	24 26.8	+15.6	20.8	71
17 09.2	+12.3	18.8	19 02.7	+13.1	19.0	20 56.1	+13.8	19.2	22 49.4	+14.4	19.5	24 42.4	+15.2	19.8	72
17 21.5	+12.1	17.7	19 15.8	+12.6	17.9	21 09.9	+13.3	18.2	23 03.8	+14.0	18.4	24 57.6	+14.7	18.7	73
17 33.6	+11.7	16.7	19 28.4	+12.4	16.9	21 23.2	+12.9	17.1	23 17.8	+13.6	17.4	25 12.3	+14.2	17.6	74
17 45.3	+11.4	15.7	19 40.8	+11.9	15.9	21 36.1	+12.6	16.1	23 31.4	+13.1	16.3	25 26.5	+13.7	16.6	75
17 56.7	+11.0	14.6	19 52.7	+11.6	14.8	21 48.7	+12.1	15.0	23 44.5	+12.7	15.2	25 40.2	+13.3	15.5	76
18 07.7	+10.8	13.6	20 04.3	+11.3	13.8	22 00.8	+11.8	14.0	23 57.2	+12.3	14.2	25 53.5	+12.8	14.4	77
18 18.5	+10.4	12.6	20 15.6	+10.8	12.7	22 12.6	+11.3	12.9	24 09.5	+11.8	13.1	26 06.3	+12.3	13.3	78
18 28.9	+10.0	11.5	20 26.4	+10.5	11.7	22 23.9	+10.9	11.8	24 21.3	+11.4	12.0	26 18.6	+11.8	12.2	79
18 38.9	+9.7	10.5	20 36.9	+10.1	10.6	22 34.8	+10.5	10.8	24 32.7	+10.9	10.9	26 30.4	+11.3	11.1	80
18 48.6	+9.4	9.5	20 47.0	+9.7	9.6	22 45.3	+10.1	9.7	24 43.6	+10.4	9.9	26 41.7	+10.8	10.0	81
18 58.0	+9.0	8.4	20 56.7	+9.3	8.5	22 55.4	+9.6	8.6	24 54.0	+9.9	8.8	26 52.5	+10.3	8.9	82
19 07.0	+8.7	7.4	21 06.0	+8.9	7.5	23 05.0	+9.2	7.6	25 03.9	+9.5	7.7	27 02.8	+9.8	7.8	83
19 15.7	+8.3	6.3	21 14.9	+8.6	6.4	23 14.2	+8.7	6.5	25 13.4	+9.0	6.6	27 12.6	+9.2	6.7	84
19 24.0	+7.9	5.3	21 23.5	+8.1	5.3	23 22.9	+8.4	5.4	25 22.4	+8.5	5.5	27 21.8	+8.7	5.6	85
19 31.9	+7.6	4.2	21 31.6	+7.7	4.3	23 31.3	+7.8	4.3	25 30.9	+8.0	4.4	27 30.5	+8.2	4.5	86
19 39.5	+7.2	3.2	21 39.3	+7.3	3.2	23 39.1	+7.4	3.3	25 38.9	+7.6	3.3	27 38.7	+7.7	3.4	87
19 46.7	+6.8	2.1	21 46.6	+6.9	2.1	23 46.5	+7.0	2.2	25 46.5	+7.0	2.2	27 46.4	+7.1	2.2	88
19 53.5	+6.5	1.1	21 53.5	+6.5	1.1	23 53.5	+6.5	1.1	25 53.5	+6.5	1.1	27 53.5	+6.5	1.1	89
20 00.0	+6.1	0.0	22 00.0	+6.1	0.0	24 00.0	+6.0	0.0	26 00.0	+6.0	0.0	28 00.0	+6.0	0.0	90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 96°, 264°

86°, 274° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	3 27.8	-2.1	59.9	4 27.8	-0.3	60.1	5 27.6	+1.5	60.2	6 27.0	+3.3	60.4	7 26.1	+5.2	60.6
31	3 25.7	-2.2	58.9	4 27.5	-0.4	59.1	5 29.1	+1.4	59.2	6 30.3	+3.2	59.4	7 31.3	+5.0	59.6
32	3 23.5	-2.3	57.9	4 27.1	-0.5	58.1	5 30.5	+1.2	58.2	6 33.5	+3.1	58.4	7 36.3	+4.8	58.6
33	3 21.2	-2.3	56.9	4 26.6	-0.6	57.1	5 31.7	+1.2	57.2	6 36.6	+3.0	57.4	7 41.1	+4.7	57.6
34	3 18.9	-2.4	55.9	4 26.0	-0.6	56.0	5 32.9	+1.1	56.2	6 39.6	+2.8	56.4	7 45.8	+4.6	56.6
35	3 16.5	-2.4	54.9	4 25.4	-0.7	55.0	5 34.0	+1.0	55.2	6 42.4	+2.7	55.4	7 50.4	+4.4	55.6
36	3 14.1	-2.5	53.9	4 24.7	-0.8	54.0	5 35.0	+0.9	54.2	6 45.1	+2.6	54.4	7 54.8	+4.3	54.6
37	3 11.6	-2.5	52.9	4 23.9	-0.9	53.0	5 35.9	+0.8	53.2	6 47.7	+2.4	53.4	7 59.1	+4.2	53.6
38	3 09.1	-2.6	51.9	4 23.0	-1.0	52.0	5 36.7	+0.7	52.2	6 50.1	+2.4	52.3	8 03.3	+4.0	52.6
39	3 06.5	-2.7	50.9	4 22.0	-1.0	51.0	5 37.4	+0.5	51.2	6 52.5	+2.2	51.3	8 07.3	+3.8	51.5
40	3 03.8	-2.7	49.9	4 21.0	-1.2	50.0	5 37.9	+0.5	50.2	6 54.7	+2.1	50.3	8 11.1	+3.7	50.5
41	3 01.1	-2.8	48.9	4 19.8	-1.2	49.0	5 38.4	+0.4	49.2	6 56.8	+1.9	49.3	8 14.8	+3.6	49.5
42	2 58.3	-2.8	47.9	4 18.6	-1.3	48.0	5 38.8	+0.3	48.2	6 58.7	+1.8	48.3	8 18.4	+3.4	48.5
43	2 55.5	-2.9	46.9	4 17.3	-1.3	47.0	5 39.1	+0.1	47.1	7 00.5	+1.7	47.3	8 21.8	+3.2	47.5
44	2 52.6	-3.0	45.9	4 16.0	-1.5	46.0	5 39.2	+0.1	46.1	7 02.2	+1.6	46.3	8 25.0	+3.1	46.5
45	2 49.6	-3.0	44.9	4 14.5	-1.5	45.0	5 39.3	-0.1	45.1	7 03.8	+1.4	45.3	8 28.1	+2.9	45.5
46	2 46.6	-3.0	43.9	4 13.0	-1.6	44.0	5 39.2	-0.1	44.1	7 05.2	+1.4	44.3	8 31.0	+2.8	44.5
47	2 43.6	-3.1	42.9	4 11.4	-1.7	43.0	5 39.1	-0.3	43.1	7 06.6	+1.1	43.3	8 33.8	+2.6	43.5
48	2 40.5	-3.1	41.9	4 09.7	-1.7	42.0	5 38.8	-0.3	42.1	7 07.7	+1.1	42.3	8 36.4	+2.4	42.5
49	2 37.4	-3.2	40.9	4 08.0	-1.8	41.0	5 38.5	-0.5	41.1	7 08.8	+0.9	41.3	8 38.8	+2.3	41.5
50	2 34.2	-3.2	39.9	4 06.2	-1.9	40.0	5 38.0	-0.5	40.1	7 09.7	+0.8	40.3	8 41.1	+2.2	40.4
51	2 31.0	-3.3	38.9	4 04.3	-2.0	39.0	5 37.5	-0.7	39.1	7 10.5	+0.6	39.3	8 43.3	+2.0	39.4
52	2 27.7	-3.3	37.9	4 02.3	-2.1	38.0	5 36.8	-0.8	38.1	7 11.1	+0.5	38.2	8 45.3	+1.8	38.4
53	2 24.4	-3.4	36.9	4 00.2	-2.1	37.0	5 36.0	-0.9	37.1	7 11.6	+0.4	37.2	8 47.1	+1.6	37.4
54	2 21.0	-3.4	35.9	3 58.1	-2.2	36.0	5 35.1	-0.9	36.1	7 12.0	+0.3	36.2	8 48.7	+1.5	36.4
55	2 17.6	-3.5	34.9	3 55.9	-2.2	35.0	5 34.2	-1.1	35.1	7 12.3	+0.1	35.2	8 50.2	+1.4	35.4
56	2 14.1	-3.5	33.9	3 53.7	-2.4	34.0	5 33.1	-1.2	34.1	7 12.4	0.0	34.2	8 51.6	+1.1	34.4
57	2 10.6	-3.5	32.9	3 51.3	-2.4	33.0	5 31.9	-1.3	33.1	7 12.4	-0.1	33.2	8 52.7	+1.0	33.4
58	2 07.1	-3.6	31.9	3 48.9	-2.5	32.0	5 30.6	-1.3	32.1	7 12.3	-0.3	32.2	8 53.7	+0.9	32.3
59	2 03.5	-3.6	30.9	3 46.4	-2.5	31.0	5 29.3	-1.5	31.1	7 12.0	-0.4	31.2	8 54.6	+0.6	31.3
60	1 59.9	-3.6	29.9	3 43.9	-2.6	30.0	5 27.8	-1.6	30.1	7 11.6	-0.6	30.2	8 55.2	+0.5	30.3
61	1 56.3	-3.7	28.9	3 41.3	-2.7	29.0	5 26.2	-1.7	29.1	7 11.0	-0.6	29.2	8 55.7	+0.4	29.3
62	1 52.6	-3.7	27.9	3 38.6	-2.8	28.0	5 24.5	-1.8	28.1	7 10.4	-0.8	28.2	8 56.1	+0.2	28.3
63	1 48.9	-3.8	26.9	3 35.8	-2.8	27.0	5 22.7	-1.8	27.1	7 09.6	-1.0	27.2	8 56.3	0.0	27.3
64	1 45.1	-3.7	25.9	3 33.0	-2.8	26.0	5 20.9	-2.0	26.1	7 08.6	-1.0	26.2	8 56.3	-0.2	26.3
65	1 41.4	-3.8	24.9	3 30.2	-3.0	25.0	5 18.9	-2.1	25.1	7 07.6	-1.2	25.1	8 56.1	-0.3	25.3
66	1 37.6	-3.9	23.9	3 27.2	-3.0	24.0	5 16.8	-2.1	24.0	7 06.4	-1.4	24.1	8 55.8	-0.4	24.3
67	1 33.7	-3.9	22.9	3 24.2	-3.1	23.0	5 14.7	-2.3	23.0	7 05.0	-1.4	23.1	8 55.4	-0.7	23.2
68	1 29.8	-3.9	22.0	3 21.1	-3.1	22.0	5 12.4	-2.4	22.0	7 03.6	-1.6	22.1	8 54.7	-0.8	22.2
69	1 25.9	-3.9	21.0	3 18.0	-3.2	21.0	5 10.0	-2.4	21.0	7 02.0	-1.7	21.1	8 53.9	-1.0	21.2
70	1 22.0	-3.9	20.0	3 14.8	-3.2	20.0	5 07.6	-2.6	20.0	7 00.3	-1.9	20.1	8 52.9	-1.1	20.2
71	1 18.1	-4.0	19.0	3 11.6	-3.3	19.0	5 05.0	-2.6	19.0	6 58.4	-1.9	19.1	8 51.8	-1.3	19.2
72	1 14.1	-4.0	18.0	3 08.3	-3.4	18.0	5 02.4	-2.8	18.0	6 56.5	-2.1	18.1	8 50.5	-1.4	18.2
73	1 10.1	-4.0	17.0	3 04.9	-3.4	17.0	4 59.6	-2.8	17.0	6 54.4	-2.3	17.1	8 49.1	-1.7	17.2
74	1 06.1	-4.0	16.0	3 01.5	-3.5	16.0	4 56.8	-2.9	16.0	6 52.1	-2.3	16.1	8 47.4	-1.8	16.2
75	1 02.1	-4.1	15.0	2 58.0	-3.5	15.0	4 53.9	-3.0	15.0	6 49.8	-2.5	15.1	8 45.6	-1.9	15.1
76	0 58.0	-4.1	14.0	2 54.5	-3.6	14.0	4 50.9	-3.1	14.0	6 47.3	-2.6	14.1	8 43.7	-2.1	14.1
77	0 53.9	-4.0	13.0	2 50.9	-3.7	13.0	4 47.8	-3.2	13.0	6 44.7	-2.7	13.1	8 41.6	-2.3	13.1
78	0 49.9	-4.1	12.0	2 47.2	-3.6	12.0	4 44.6	-3.2	12.0	6 42.0	-2.9	12.1	8 39.3	-2.4	12.1
79	0 45.8	-4.2	11.0	2 43.6	-3.8	11.0	4 41.4	-3.4	11.0	6 39.1	-2.9	11.0	8 36.9	-2.6	11.1
80	0 41.6	-4.1	10.0	2 39.8	-3.8	10.0	4 38.0	-3.4	10.0	6 36.2	-3.1	10.0	8 34.3	-2.7	10.1
81	0 37.5	-4.1	9.0	2 36.0	-3.8	9.0	4 34.6	-3.6	9.0	6 33.1	-3.2	9.0	8 31.6	-2.9	9.1
82	0 33.4	-4.2	8.0	2 32.2	-3.9	8.0	4 31.0	-3.6	8.0	6 29.9	-3.4	8.0	8 28.7	-3.1	8.1
83	0 29.2	-4.1	7.0	2 28.3	-3.9	7.0	4 27.4	-3.6	7.0	6 26.5	-3.4	7.0	8 25.6	-3.2	7.1
84	0 25.1	-4.2	6.0	2 24.4	-4.0	6.0	4 23.8	-3.8	6.0	6 23.1	-3.6	6.0	8 22.4	-3.3	6.1
85	0 20.9	-4.2	5.0	2 20.4	-4.0	5.0	4 20.0	-3.9	5.0	6 19.5	-3.6	5.0	8 19.1	-3.5	5.0
86	0 16.7	-4.1	4.0	2 16.4	-4.0	4.0	4 16.1	-3.9	4.0	6 15.9	-3.8	4.0	8 15.6	-3.7	4.0
87	0 12.6	-4.2	3.0	2 12.4	-4.1	3.0	4 12.2	-4.0	3.0	6 12.1	-3.9	3.0	8 11.9	-3.8	3.0
88	0 08.4	-4.2	2.0	2 08.3	-4.1	2.0	4 08.2	-4.1	2.0	6 08.2	-4.1	2.0	8 08.1	-4.0	2.0
89	0 04.2	-4.2	1.0	2 04.2	-4.2	1.0	4 04.1	-4.1	1.0	6 04.1	-4.1	1.0	8 04.1	-4.1	1.0
90	0 00.0	-4.2	0.0	2 00.0	-4.2	0.0	4 00.0	-4.2	0.0	6 00.0	-4.2	0.0	8 00.0	-4.3	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 86°, 274°

0°			2°			4°			6°			8°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
3 27.8	-2.1	120.1	2 27.6	-3.9	120.2	1 27.3	-5.7	120.2	0 26.9	-7.5	120.2	0 33.6	+9.3	59.8	30
3 25.7	-2.2	121.1	2 23.7	-4.0	121.1	1 21.6	-5.8	121.2	0 19.4	-7.6	121.2	0 42.9	+9.3	58.8	31
3 23.5	-2.3	122.1	2 19.7	-4.0	122.1	1 15.8	-5.8	122.2	0 11.8	-7.5	122.2	0 52.2	+9.2	57.8	32
3 21.2	-2.3	123.1	2 15.7	-4.1	123.1	1 10.0	-5.8	123.2	0 04.3	-7.5	123.2	1 01.4	+9.3	56.8	33
3 18.9	-2.4	124.1	2 11.6	-4.1	124.1	1 04.2	-5.8	124.2	0 03.2	+7.5	55.8	1 10.7	+9.2	55.8	34
3 16.5	-2.4	125.1	2 07.5	-4.1	125.1	0 58.4	-5.8	125.2	0 10.7	+7.6	54.8	1 19.9	+9.2	54.8	35
3 14.1	-2.5	126.1	2 03.4	-4.2	126.1	0 52.6	-5.9	126.2	0 18.3	+7.5	53.8	1 29.1	+9.2	53.8	36
3 11.6	-2.5	127.1	1 59.2	-4.2	127.1	0 46.7	-5.8	127.2	0 25.8	+7.5	52.8	1 38.3	+9.1	52.8	37
3 09.1	-2.6	128.1	1 55.0	-4.2	128.1	0 40.9	-5.9	128.2	0 33.3	+7.5	51.8	1 47.4	+9.2	51.9	38
3 06.5	-2.7	129.1	1 50.8	-4.3	129.1	0 35.0	-5.9	129.2	0 40.8	+7.5	50.8	1 56.6	+9.1	50.9	39
3 03.8	-2.7	130.1	1 46.5	-4.3	130.1	0 29.1	-5.9	130.2	0 48.3	+7.5	49.8	2 05.7	+9.0	49.9	40
3 01.1	-2.8	131.1	1 42.2	-4.4	131.1	0 23.2	-5.9	131.2	0 55.8	+7.4	48.8	2 14.7	+9.0	48.9	41
2 58.3	-2.8	132.1	1 37.8	-4.3	132.1	0 17.3	-5.9	132.2	1 03.2	+7.5	47.9	2 23.7	+9.0	47.9	42
2 55.5	-2.9	133.1	1 33.5	-4.4	133.1	0 11.4	-5.9	133.1	1 10.7	+7.4	46.9	2 32.7	+8.9	46.9	43
2 52.6	-3.0	134.1	1 29.1	-4.5	134.1	0 05.5	-5.9	134.1	1 18.1	+7.4	45.9	2 41.6	+8.9	45.9	44
2 49.6	-3.0	135.1	1 24.6	-4.4	135.1	0 00.4	+5.9	44.9	1 25.5	+7.3	44.9	2 50.5	+8.8	44.9	45
2 46.6	-3.0	136.1	1 20.2	-4.5	136.1	0 06.3	+5.9	43.9	1 32.8	+7.4	43.9	2 59.3	+8.7	43.9	46
2 43.6	-3.1	137.1	1 15.7	-4.5	137.1	0 12.2	+5.9	42.9	1 40.2	+7.3	42.9	3 08.0	+8.8	42.9	47
2 40.5	-3.1	138.1	1 11.2	-4.5	138.1	0 18.1	+5.9	41.9	1 47.5	+7.3	41.9	3 16.8	+8.6	42.0	48
2 37.4	-3.2	139.1	1 06.7	-4.6	139.1	0 24.0	+5.9	40.9	1 54.8	+7.2	40.9	3 25.4	+8.6	41.0	49
2 34.2	-3.2	140.1	1 02.1	-4.5	140.1	0 29.9	+5.9	39.9	2 02.0	+7.2	39.9	3 34.0	+8.5	40.0	50
2 31.0	-3.3	141.1	0 57.6	-4.6	141.1	0 35.8	+5.9	38.9	2 09.2	+7.2	38.9	3 42.5	+8.5	39.0	51
2 27.7	-3.3	142.1	0 53.0	-4.6	142.1	0 41.7	+5.9	37.9	2 16.4	+7.1	37.9	3 51.0	+8.4	38.0	52
2 24.4	-3.4	143.1	0 48.4	-4.6	143.1	0 47.6	+5.8	36.9	2 23.5	+7.1	36.9	3 59.4	+8.3	37.0	53
2 21.0	-3.4	144.1	0 43.8	-4.6	144.1	0 53.4	+5.8	35.9	2 30.6	+7.0	35.9	4 07.7	+8.2	36.0	54
2 17.6	-3.5	145.1	0 39.2	-4.6	145.1	0 59.2	+5.8	34.9	2 37.6	+7.0	34.9	4 15.9	+8.2	35.0	55
2 14.1	-3.5	146.1	0 34.6	-4.7	146.1	1 05.0	+5.8	33.9	2 44.6	+6.9	34.0	4 24.1	+8.1	34.0	56
2 10.6	-3.5	147.1	0 29.9	-4.6	147.1	1 10.8	+5.8	32.9	2 51.5	+6.9	33.0	4 32.2	+8.0	33.0	57
2 07.1	-3.6	148.1	0 25.3	-4.7	148.1	1 16.6	+5.8	31.9	2 58.4	+6.9	32.0	4 40.2	+7.9	32.0	58
2 03.5	-3.6	149.1	0 20.6	-4.7	149.1	1 22.4	+5.7	30.9	3 05.3	+6.8	31.0	4 48.1	+7.9	31.0	59
1 59.9	-3.6	150.1	0 15.9	-4.6	150.1	1 28.1	+5.7	29.9	3 12.1	+6.7	30.0	4 56.0	+7.7	30.0	60
1 56.3	-3.7	151.1	0 11.3	-4.7	151.1	1 33.8	+5.6	28.9	3 18.8	+6.6	29.0	5 03.7	+7.7	29.0	61
1 52.6	-3.7	152.1	0 06.6	-4.7	152.1	1 39.4	+5.7	27.9	3 25.4	+6.6	28.0	5 11.4	+7.5	28.1	62
1 48.9	-3.8	153.1	0 01.9	-4.7	153.1	1 45.1	+5.6	26.9	3 32.0	+6.6	27.0	5 18.9	+7.5	27.1	63
1 45.1	-3.7	154.1	0 02.8	+4.7	25.9	1 50.7	+5.6	25.9	3 38.6	+6.4	26.0	5 26.4	+7.4	26.1	64
1 41.4	-3.8	155.1	0 07.5	+4.6	24.9	1 56.3	+5.5	25.0	3 45.0	+6.4	25.0	5 33.8	+7.2	25.1	65
1 37.6	-3.9	156.1	0 12.1	+4.7	23.9	2 01.8	+5.5	24.0	3 51.4	+6.4	24.0	5 41.0	+7.2	24.1	66
1 33.7	-3.9	157.1	0 16.8	+4.7	22.9	2 07.3	+5.5	23.0	3 57.8	+6.2	23.0	5 48.2	+7.1	23.1	67
1 29.8	-3.9	158.0	0 21.5	+4.6	21.9	2 12.8	+5.4	22.0	4 04.0	+6.2	22.0	5 55.3	+6.9	22.1	68
1 25.9	-3.9	159.0	0 26.1	+4.7	20.9	2 18.2	+5.4	21.0	4 10.2	+6.1	21.0	6 02.2	+6.9	21.1	69
1 22.0	-3.9	160.0	0 30.8	+4.6	20.0	2 23.6	+5.3	20.0	4 16.3	+6.1	20.0	6 09.1	+6.7	20.1	70
1 18.1	-4.0	161.0	0 35.4	+4.6	19.0	2 28.9	+5.3	19.0	4 22.4	+5.9	19.0	6 15.8	+6.6	19.1	71
1 14.1	-4.0	162.0	0 40.0	+4.7	18.0	2 34.2	+5.2	18.0	4 28.3	+5.9	18.0	6 22.4	+6.5	18.1	72
1 10.1	-4.0	163.0	0 44.7	+4.6	17.0	2 39.4	+5.2	17.0	4 34.2	+5.8	17.0	6 28.9	+6.4	17.1	73
1 06.1	-4.0	164.0	0 49.3	+4.6	16.0	2 44.6	+5.2	16.0	4 40.0	+5.7	16.0	6 35.3	+6.3	16.1	74
1 02.1	-4.1	165.0	0 53.9	+4.5	15.0	2 49.8	+5.1	15.0	4 45.7	+5.6	15.0	6 41.6	+6.1	15.1	75
0 58.0	-4.1	166.0	0 58.4	+4.6	14.0	2 54.9	+5.0	14.0	4 51.3	+5.6	14.0	6 47.7	+6.1	14.1	76
0 53.9	-4.0	167.0	1 03.0	+4.5	13.0	2 59.9	+5.0	13.0	4 56.9	+5.4	13.0	6 53.8	+5.9	13.1	77
0 49.9	-4.1	168.0	1 07.5	+4.5	12.0	3 04.9	+5.0	12.0	5 02.3	+5.3	12.0	6 59.7	+5.7	12.1	78
0 45.8	-4.2	169.0	1 12.0	+4.5	11.0	3 09.9	+4.8	11.0	5 07.6	+5.3	11.0	7 05.4	+5.7	11.1	79
0 41.6	-4.1	170.0	1 16.5	+4.5	10.0	3 14.7	+4.8	10.0	5 12.9	+5.2	10.0	7 11.1	+5.5	10.1	80
0 37.5	-4.1	171.0	1 21.0	+4.5	9.0	3 19.5	+4.8	9.0	5 18.1	+5.0	9.0	7 16.6	+5.4	9.1	81
0 33.4	-4.2	172.0	1 25.5	+4.4	8.0	3 24.3	+4.7	8.0	5 23.1	+5.0	8.0	7 22.0	+5.2	8.0	82
0 29.2	-4.1	173.0	1 29.9	+4.4	7.0	3 29.0	+4.6	7.0	5 28.1	+4.9	7.0	7 27.2	+5.1	7.0	83
0 25.1	-4.2	174.0	1 34.3	+4.3	6.0	3 33.6	+4.6	6.0	5 33.0	+4.7	6.0	7 32.3	+5.0	6.0	84
0 20.9	-4.2	175.0	1 38.6	+4.4	5.0	3 38.2	+4.5	5.0	5 37.7	+4.7	5.0	7 37.3	+4.8	5.0	85
0 16.7	-4.1	176.0	1 43.0	+4.3	4.0	3 42.7	+4.4	4.0	5 42.4	+4.6	4.0	7 42.1	+4.7	4.0	86
0 12.6	-4.2	177.0	1 47.3	+4.3	3.0	3 47.1	+4.4	3.0	5 47.0	+4.4	3.0	7 46.8	+4.5	3.0	87
0 08.4	-4.2	178.0	1 51.6	+4.2	2.0	3 51.5	+4.3	2.0	5 51.4	+4.4	2.0	7 51.3	+4.4	2.0	88
0 04.2	-4.2	179.0	1 55.8	+4.2	1.0	3 55.8	+4.2	1.0	5 55.8	+4.2	1.0	7 55.7	+4.3	1.0	89
0 00.0	+4.2	0.0	2 00.0	+4.2	0.0	4 00.0	+4.1	0.0	6 00.0	+4.1	0.0	8 00.0	+4.1	0.0	90

LATITUDE SAME NAME

L.H.A. 94°, 266°

86°, 274° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	8 24.8	+7.0	60.8	9 23.0	+8.8	61.1	10 20.7	+10.6	61.4	11 17.8	+12.5	61.8	12 14.2	+14.3	62.1
31	8 31.8	+6.8	59.8	9 31.8	+8.6	60.1	10 31.3	+10.5	60.4	11 30.3	+12.2	60.8	12 28.5	+14.1	61.1
32	8 38.6	+6.6	58.8	9 40.4	+8.5	59.1	10 41.8	+10.2	59.4	11 42.5	+12.0	59.8	12 42.6	+13.8	60.1
33	8 45.2	+6.5	57.8	9 48.9	+8.2	58.1	10 52.0	+10.0	58.4	11 54.5	+11.9	58.8	12 56.4	+13.7	59.1
34	8 51.7	+6.3	56.8	9 57.1	+8.1	57.1	11 02.0	+9.9	57.4	12 06.4	+11.6	57.8	13 10.1	+13.3	58.1
35	8 58.0	+6.2	55.8	10 05.2	+7.9	56.1	11 11.9	+9.6	56.4	12 18.0	+11.4	56.8	13 23.4	+13.2	57.1
36	9 04.2	+6.0	54.8	10 13.1	+7.7	55.1	11 21.5	+9.5	55.4	12 29.4	+11.1	55.8	13 36.6	+12.9	56.1
37	9 10.2	+5.8	53.8	10 20.8	+7.6	54.1	11 31.0	+9.2	54.4	12 40.5	+11.0	54.7	13 49.5	+12.6	55.1
38	9 16.0	+5.7	52.8	10 28.4	+7.3	53.1	11 40.2	+9.0	53.4	12 51.5	+10.7	53.7	14 02.1	+12.5	54.1
39	9 21.7	+5.5	51.8	10 35.7	+7.2	52.1	11 49.2	+8.8	52.4	13 02.2	+10.5	52.7	14 14.6	+12.1	53.1
40	9 27.2	+5.3	50.8	10 42.9	+6.9	51.1	11 58.0	+8.6	51.4	13 12.7	+10.2	51.7	14 26.7	+11.9	52.1
41	9 32.5	+5.2	49.8	10 49.8	+6.8	50.0	12 06.6	+8.4	50.4	13 22.9	+10.0	50.7	14 38.6	+11.6	51.1
42	9 37.7	+4.9	48.8	10 56.6	+6.5	49.0	12 15.0	+8.1	49.3	13 32.9	+9.8	49.7	14 50.2	+11.4	50.1
43	9 42.6	+4.8	47.7	11 03.1	+6.4	48.0	12 23.1	+8.0	48.3	13 42.7	+9.5	48.7	15 01.6	+11.1	49.1
44	9 47.4	+4.6	46.7	11 09.5	+6.1	47.0	12 31.1	+7.7	47.3	13 52.2	+9.2	47.7	15 12.7	+10.8	48.0
45	9 52.0	+4.5	45.7	11 15.6	+5.9	46.0	12 38.8	+7.4	46.3	14 01.4	+9.0	46.6	15 23.5	+10.6	47.0
46	9 56.5	+4.2	44.7	11 21.5	+5.8	45.0	12 46.2	+7.2	45.3	14 10.4	+8.7	45.6	15 34.1	+10.2	46.0
47	10 00.7	+4.1	43.7	11 27.3	+5.5	44.0	12 53.4	+7.0	44.3	14 19.1	+8.5	44.6	15 44.3	+10.0	45.0
48	10 04.8	+3.8	42.7	11 32.8	+5.3	42.9	13 00.4	+6.8	43.2	14 27.6	+8.2	43.6	15 54.3	+9.7	44.0
49	10 08.6	+3.7	41.7	11 38.1	+5.1	41.9	13 07.2	+6.5	42.2	14 35.8	+8.0	42.6	16 04.0	+9.3	42.9
50	10 12.3	+3.5	40.7	11 43.2	+4.9	40.9	13 13.7	+6.3	41.2	14 43.8	+7.6	41.5	16 13.3	+9.1	41.9
51	10 15.8	+3.3	39.6	11 48.1	+4.6	39.9	13 20.0	+6.0	40.2	14 51.4	+7.4	40.5	16 22.4	+8.8	40.9
52	10 19.1	+3.2	38.6	11 52.7	+4.5	38.9	13 26.0	+5.8	39.2	14 58.8	+7.1	39.5	16 31.2	+8.5	39.8
53	10 22.3	+2.9	37.6	11 57.2	+4.2	37.9	13 31.8	+5.5	38.1	15 05.9	+6.9	38.4	16 39.7	+8.2	38.8
54	10 25.2	+2.7	36.6	12 01.4	+4.0	36.8	13 37.3	+5.2	37.1	15 12.8	+6.5	37.4	16 47.9	+7.8	37.8
55	10 27.9	+2.6	35.6	12 05.4	+3.8	35.8	13 42.5	+5.1	36.1	15 19.3	+6.3	36.4	16 55.7	+7.6	36.7
56	10 30.5	+2.3	34.6	12 09.2	+3.5	34.8	13 47.6	+4.7	35.1	15 25.6	+6.0	35.4	17 03.3	+7.2	35.7
57	10 32.8	+2.2	33.5	12 12.7	+3.4	33.8	13 52.3	+4.5	34.0	15 31.6	+5.7	34.3	17 10.5	+6.9	34.7
58	10 35.0	+2.0	32.5	12 16.1	+3.1	32.8	13 56.8	+4.3	33.0	15 37.3	+5.4	33.3	17 17.4	+6.6	33.6
59	10 37.0	+1.7	31.5	12 19.2	+2.8	31.7	14 01.1	+4.0	32.0	15 42.7	+5.1	32.3	17 24.0	+6.3	32.6
60	10 38.7	+1.6	30.5	12 22.0	+2.7	30.7	14 05.1	+3.7	30.9	15 47.8	+4.9	31.2	17 30.3	+5.9	31.5
61	10 40.3	+1.4	29.5	12 24.7	+2.4	29.7	14 08.8	+3.5	29.9	15 52.7	+4.5	30.2	17 36.2	+5.7	30.5
62	10 41.7	+1.1	28.5	12 27.1	+2.2	28.7	14 12.3	+3.2	28.9	15 57.2	+4.2	29.1	17 41.9	+5.2	29.4
63	10 42.8	+1.0	27.4	12 29.3	+1.9	27.6	14 15.5	+2.9	27.9	16 01.4	+4.0	28.1	17 47.1	+5.0	28.4
64	10 43.8	+0.8	26.4	12 31.2	+1.7	26.6	14 18.4	+2.7	26.8	16 05.4	+3.6	27.1	17 52.1	+4.6	27.4
65	10 44.6	+0.6	25.4	12 32.9	+1.5	25.6	14 21.1	+2.4	25.8	16 09.0	+3.3	26.0	17 56.7	+4.3	26.3
66	10 45.2	+0.4	24.4	12 34.4	+1.3	24.6	14 23.5	+2.1	24.8	16 12.3	+3.0	25.0	18 01.0	+3.9	25.3
67	10 45.6	+0.1	23.4	12 35.7	+1.0	23.5	14 25.6	+1.8	23.7	16 15.3	+2.8	24.0	18 04.9	+3.6	24.2
68	10 45.7	0.0	22.4	12 36.7	+0.7	22.5	14 27.4	+1.6	22.7	16 18.1	+2.4	22.9	18 08.5	+3.3	23.2
69	10 45.7	-0.2	21.3	12 37.4	+0.6	21.5	14 29.0	+1.4	21.7	16 20.5	+2.1	21.9	18 11.8	+2.9	22.1
70	10 45.5	-0.4	20.3	12 38.0	+0.3	20.5	14 30.4	+1.0	20.6	16 22.6	+1.8	20.8	18 14.7	+2.5	21.1
71	10 45.1	-0.6	19.3	12 38.3	+0.1	19.4	14 31.4	+0.8	19.6	16 24.4	+1.5	19.8	18 17.2	+2.3	20.0
72	10 44.5	-0.8	18.3	12 38.4	-0.2	18.4	14 32.2	+0.5	18.6	16 25.9	+1.2	18.7	18 19.5	+1.8	18.9
73	10 43.7	-1.0	17.3	12 38.2	-0.4	17.4	14 32.7	+0.2	17.5	16 27.1	+0.8	17.7	18 21.3	+1.6	17.9
74	10 42.7	-1.2	16.3	12 37.8	-0.6	16.4	14 32.9	0.0	16.5	16 27.9	+0.6	16.7	18 22.9	+1.1	16.8
75	10 41.5	-1.4	15.2	12 37.2	-0.8	15.3	14 32.9	-0.3	15.5	16 28.5	+0.3	15.6	18 24.0	+0.9	15.8
76	10 40.1	-1.7	14.2	12 36.4	-1.1	14.3	14 32.6	-0.6	14.4	16 28.8	-0.1	14.6	18 24.9	+0.4	14.7
77	10 38.4	-1.8	13.2	12 35.3	-1.4	13.3	14 32.0	-0.8	13.4	16 28.7	-0.3	13.5	18 25.3	+0.2	13.7
78	10 36.6	-1.9	12.2	12 33.9	-1.5	12.3	14 31.2	-1.2	12.4	16 28.4	-0.7	12.5	18 25.5	-0.2	12.6
79	10 34.7	-2.2	11.2	12 32.4	-1.8	11.2	14 30.0	-1.3	11.3	16 27.7	-1.0	11.4	18 25.3	-0.6	11.6
80	10 32.5	-2.4	10.1	12 30.6	-2.1	10.2	14 28.7	-1.7	10.3	16 26.7	-1.3	10.4	18 24.7	-0.9	10.5
81	10 30.1	-2.6	9.1	12 28.5	-2.2	9.2	14 27.0	-1.9	9.3	16 25.4	-1.6	9.4	18 23.8	-1.3	9.5
82	10 27.5	-2.8	8.1	12 26.3	-2.5	8.2	14 25.1	-2.2	8.2	16 23.8	-1.9	8.3	18 22.5	-1.6	8.4
83	10 24.7	-2.9	7.1	12 23.8	-2.7	7.2	14 22.9	-2.5	7.2	16 21.9	-2.2	7.3	18 20.9	-1.9	7.4
84	10 21.8	-3.2	6.1	12 21.1	-3.0	6.1	14 20.4	-2.7	6.2	16 19.7	-2.5	6.2	18 19.0	-2.3	6.3
85	10 18.6	-3.3	5.1	12 18.1	-3.1	5.1	14 17.7	-3.1	5.1	16 17.2	-2.9	5.2	18 16.7	-2.7	5.3
86	10 15.3	-3.6	4.1	12 15.0	-3.4	4.1	14 14.6	-3.2	4.1	16 14.3	-3.1	4.2	18 14.0	-3.0	4.2
87	10 11.7	-3.7	3.0	12 11.6	-3.7	3.1	14 11.4	-3.6	3.1	16 11.2	-3.4	3.1	18 11.0	-3.3	3.2
88	10 08.0	-3.9	2.0	12 07.9	-3.8	2.0	14 07.8	-3.7	2.1	16 07.8	-3.8	2.1	18 07.7	-3.7	2.1
89	10 04.1	-4.1	1.0	12 04.1	-4.1	1.0	14 04.1	-4.1	1.0	16 04.0	-4.0	1.0	18 04.0	-4.0	1.0
90	10 00.0	-4.3	0.0	12 00.0	-4.3	0.0	14 00.0	-4.3	0.0	16 00.0	-4.3	0.0	18 00.0	-4.4	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 86°, 274°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
1 34.0	+11.0	59.8	2 34.3	+12.8	59.9	3 34.5	+14.6	60.0	4 34.4	+16.4	60.1	5 34.2	+18.1	60.2	30
1 45.0	+11.1	58.8	2 47.1	+12.8	58.9	3 49.1	+14.5	59.0	4 50.8	+16.3	59.1	5 52.3	+17.9	59.3	31
1 56.1	+11.0	57.8	2 59.9	+12.8	57.9	4 03.6	+14.5	58.0	5 07.1	+16.1	58.1	6 10.2	+17.9	58.3	32
2 07.1	+11.0	56.8	3 12.7	+12.6	56.9	4 18.1	+14.3	57.0	5 23.2	+16.1	57.2	6 28.1	+17.8	57.4	33
2 18.1	+10.9	55.9	3 25.3	+12.7	55.9	4 32.4	+14.4	56.1	5 39.3	+16.0	56.2	6 45.9	+17.7	56.4	34
2 29.0	+10.9	54.9	3 38.0	+12.5	55.0	4 46.8	+14.2	55.1	5 55.3	+15.9	55.2	7 03.6	+17.5	55.4	35
2 39.9	+10.8	53.9	3 50.5	+12.5	54.0	5 01.0	+14.1	54.1	6 11.2	+15.8	54.3	7 21.1	+17.4	54.5	36
2 50.7	+10.8	52.9	4 03.0	+12.4	53.0	5 15.1	+14.1	53.1	6 27.0	+15.7	53.3	7 38.5	+17.3	53.5	37
3 01.5	+10.7	51.9	4 15.4	+12.4	52.0	5 29.2	+13.9	52.2	6 42.7	+15.5	52.3	7 55.8	+17.2	52.5	38
3 12.2	+10.7	50.9	4 27.8	+12.3	51.0	5 43.1	+13.9	51.2	6 58.2	+15.5	51.4	8 13.0	+17.0	51.6	39
3 22.9	+10.6	50.0	4 40.1	+12.1	50.1	5 57.0	+13.7	50.2	7 13.7	+15.3	50.4	8 30.0	+16.9	50.6	40
3 33.5	+10.6	49.0	4 52.2	+12.1	49.1	6 10.7	+13.7	49.2	7 29.0	+15.2	49.4	8 46.9	+16.7	49.6	41
3 44.1	+10.5	48.0	5 04.3	+12.1	48.1	6 24.4	+13.5	48.2	7 44.2	+15.0	48.4	9 03.6	+16.6	48.7	42
3 54.6	+10.4	47.0	5 16.4	+11.9	47.1	6 37.9	+13.4	47.3	7 59.2	+14.9	47.5	9 20.2	+16.4	47.7	43
4 05.0	+10.4	46.0	5 28.3	+11.8	46.1	6 51.3	+13.3	46.3	8 14.1	+14.8	46.5	9 36.6	+16.2	46.7	44
4 15.4	+10.2	45.0	5 40.1	+11.7	45.1	7 04.6	+13.2	45.3	8 28.9	+14.6	45.5	9 52.8	+16.1	45.7	45
4 25.6	+10.2	44.0	5 51.8	+11.6	44.2	7 17.8	+13.0	44.3	8 43.5	+14.5	44.5	10 08.9	+15.9	44.7	46
4 35.8	+10.1	43.0	6 03.4	+11.5	43.2	7 30.8	+13.0	43.3	8 58.0	+14.3	43.5	10 24.8	+15.8	43.8	47
4 45.9	+10.1	42.1	6 14.9	+11.5	42.2	7 43.8	+12.7	42.3	9 12.3	+14.2	42.5	10 40.6	+15.5	42.8	48
4 56.0	+9.9	41.1	6 26.4	+11.2	41.2	7 56.5	+12.7	41.4	9 26.5	+14.0	41.6	10 56.1	+15.3	41.8	49
5 05.9	+9.8	40.1	6 37.6	+11.2	40.2	8 09.2	+12.5	40.4	9 40.5	+13.8	40.6	11 11.4	+15.2	40.8	50
5 15.7	+9.8	39.1	6 48.8	+11.1	39.2	8 21.7	+12.3	39.4	9 54.3	+13.6	39.6	11 26.6	+15.0	39.8	51
5 25.5	+9.7	38.1	6 59.9	+10.9	38.2	8 34.0	+12.2	38.4	10 07.9	+13.5	38.6	11 41.6	+14.7	38.8	52
5 35.2	+9.5	37.1	7 10.8	+10.8	37.2	8 46.2	+12.1	37.4	10 21.4	+13.3	37.6	11 56.3	+14.6	37.9	53
5 44.7	+9.5	36.1	7 21.6	+10.6	36.2	8 58.3	+11.8	36.4	10 34.7	+13.1	36.6	12 10.9	+14.3	36.9	54
5 54.2	+9.3	35.1	7 32.2	+10.6	35.3	9 10.1	+11.8	35.4	9 10.1	+11.8	35.4	12 25.2	+14.1	35.9	55
6 03.5	+9.3	34.1	7 42.8	+10.4	34.3	9 21.9	+11.5	34.4	11 00.7	+12.8	34.6	12 39.3	+13.9	34.9	56
6 12.8	+9.1	33.1	7 53.2	+10.2	33.3	9 33.4	+11.4	33.4	11 13.5	+12.5	33.6	12 53.2	+13.7	33.9	57
6 21.9	+9.0	32.1	8 03.4	+10.1	32.3	9 44.8	+11.2	32.4	11 26.0	+12.3	32.6	13 06.9	+13.4	32.9	58
6 30.9	+8.9	31.1	8 13.5	+10.0	31.3	9 56.0	+11.1	31.4	11 38.3	+12.1	31.6	13 20.3	+13.2	31.9	59
6 39.8	+8.8	30.1	8 23.5	+9.8	30.3	10 07.1	+10.8	30.4	10 07.1	+10.8	30.4	13 33.5	+13.0	30.9	60
6 48.6	+8.6	29.1	8 33.3	+9.7	29.3	10 17.9	+10.7	29.4	12 02.3	+11.7	29.6	13 46.5	+12.7	29.9	61
6 57.2	+8.6	28.2	8 43.0	+9.5	28.3	10 28.6	+10.5	28.4	12 14.0	+11.5	28.6	13 59.2	+12.5	28.9	62
7 05.8	+8.4	27.2	8 52.5	+9.3	27.3	10 39.1	+10.3	27.4	12 25.5	+11.2	27.6	14 11.7	+12.2	27.8	63
7 14.2	+8.2	26.2	9 01.8	+9.2	26.3	10 49.4	+10.0	26.4	12 36.7	+11.0	26.6	14 23.9	+11.9	26.8	64
7 22.4	+8.2	25.2	9 11.0	+9.0	25.3	10 59.4	+9.9	25.4	12 47.7	+10.8	25.6	14 35.8	+11.7	25.8	65
7 30.6	+8.0	24.2	9 20.0	+8.9	24.3	11 09.3	+9.7	24.4	12 58.5	+10.6	24.6	14 47.5	+11.5	24.8	66
7 38.6	+7.9	23.2	9 28.9	+8.6	23.3	11 19.0	+9.5	23.4	13 09.1	+10.3	23.6	14 59.0	+11.1	23.8	67
7 46.5	+7.7	22.2	9 37.5	+8.5	22.3	11 28.5	+9.3	22.4	13 19.4	+10.1	22.6	15 10.1	+10.9	22.8	68
7 54.2	+7.6	21.2	9 46.0	+8.4	21.3	11 37.8	+9.1	21.4	13 29.5	+9.8	21.6	15 21.0	+10.6	21.8	69
8 01.8	+7.4	20.2	9 54.4	+8.1	20.3	11 46.9	+8.9	20.4	13 39.3	+9.6	20.6	15 31.6	+10.3	20.7	70
8 09.2	+7.3	19.2	10 02.5	+8.0	19.3	11 55.8	+8.6	19.4	13 48.9	+9.3	19.5	15 41.9	+10.1	19.7	71
8 16.5	+7.1	18.2	10 10.5	+7.8	18.3	12 04.4	+8.4	18.4	13 58.2	+9.1	18.5	15 52.0	+9.7	18.7	72
8 23.6	+7.0	17.1	10 18.3	+7.6	17.2	12 12.8	+8.2	17.4	14 07.3	+8.8	17.5	16 01.7	+9.5	17.7	73
8 30.6	+6.8	16.1	10 25.9	+7.4	16.2	12 21.0	+8.0	16.3	14 16.1	+8.6	16.5	16 11.2	+9.1	16.6	74
8 37.4	+6.7	15.1	10 33.3	+7.2	15.2	12 29.0	+7.8	15.3	14 24.7	+8.3	15.5	16 20.3	+8.9	15.6	75
8 44.1	+6.5	14.1	10 40.5	+7.0	14.2	12 36.8	+7.5	14.3	14 33.0	+8.0	14.4	16 29.2	+8.5	14.6	76
8 50.6	+6.4	13.1	10 47.5	+6.8	13.2	12 44.3	+7.3	13.3	14 41.0	+7.8	13.4	16 37.7	+8.3	13.5	77
8 57.0	+6.2	12.1	10 54.3	+6.6	12.2	12 51.6	+7.0	12.3	14 48.8	+7.5	12.4	16 46.0	+7.9	12.5	78
9 03.2	+6.0	11.1	11 00.9	+6.4	11.2	12 58.6	+6.8	11.3	14 56.3	+7.2	11.4	16 53.9	+7.6	11.5	79
9 09.2	+5.9	10.1	11 07.3	+6.3	10.2	13 05.4	+6.6	10.2	15 03.5	+7.0	10.3	17 01.5	+7.4	10.4	80
9 15.1	+5.7	9.1	11 13.6	+6.0	9.2	13 12.0	+6.3	9.2	15 10.5	+6.6	9.3	17 08.9	+6.9	9.4	81
9 20.8	+5.5	8.1	11 19.6	+5.8	8.1	13 18.3	+6.1	8.2	15 17.1	+6.4	8.3	17 15.8	+6.7	8.4	82
9 26.3	+5.3	7.1	11 25.4	+5.6	7.1	13 24.4	+5.9	7.2	15 23.5	+6.1	7.2	17 22.5	+6.4	7.3	83
9 31.6	+5.2	6.1	11 31.0	+5.3	6.1	13 30.3	+5.6	6.2	15 29.6	+5.8	6.2	17 28.9	+6.0	6.3	84
9 36.8	+5.0	5.1	11 36.3	+5.2	5.1	13 35.9	+5.3	5.1	15 35.4	+5.5	5.2	17 34.9	+5.7	5.2	85
9 41.8	+4.8	4.0	11 41.5	+5.0	4.1	13 41.2	+5.1	4.1	15 40.9	+5.2	4.1	17 40.6	+5.3	4.2	86
9 46.6	+4.7	3.0	11 46.5	+4.7	3.1	13 46.3	+4.8	3.1	15 46.1	+4.9	3.1	17 45.9	+5.1	3.1	87
9 51.3	+4.4	2.0	11 51.2	+4.5	2.0	13 51.1	+4.6	2.1	15 51.0	+4.7	2.1	17 51.0	+4.6	2.1	88
9 55.7	+4.3	1.0	11 55.7	+4.3	1.0	13 55.7	+4.3	1.0	15 55.7	+4.3	1.0	17 55.6	+4.4	1.0	89
10 00.0	+4.1	0.0	12 00.0	+4.1	0.0	14 00.0	+4.1	0.0	16 00.0	+4.0	0.0	18 00.0	+4.0	0.0	90
10°			12°			14°			16°			18°			

LATITUDE SAME NAME

L.H.A. 94°, 266°

86°, 274° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	13 10.0	+16.1	62.5	14 04.9	-18.0	63.0	14 59.1	+19.7	63.4	15 52.3	+21.6	63.9	16 44.6	+23.4	64.4
31	13 26.1	+15.9	61.5	14 22.9	-17.7	62.0	15 18.8	+19.6	62.4	16 13.9	+21.3	62.9	17 08.0	+23.1	63.5
32	13 42.0	+15.6	60.5	14 40.6	-17.4	61.0	15 38.4	+19.2	61.5	16 35.2	+21.1	62.0	17 31.1	+22.9	62.5
33	13 57.6	+15.4	59.6	14 58.0	-17.2	60.0	15 57.6	+19.0	60.5	16 56.3	+20.8	61.0	17 54.0	+22.5	61.5
34	14 13.0	+15.2	58.6	15 15.2	-17.0	59.0	16 16.6	+18.7	59.5	17 17.1	+20.4	60.0	18 16.5	+22.3	60.6
35	14 28.2	+14.9	57.6	15 32.2	-16.6	58.0	16 35.3	+18.4	58.5	17 37.5	+20.2	59.0	18 38.8	+22.0	59.6
36	14 43.1	+14.6	56.6	15 48.8	-16.4	57.0	16 53.7	+18.2	57.5	17 57.7	+19.9	58.0	19 00.8	+21.6	58.6
37	14 57.7	+14.4	55.6	16 05.2	-16.1	56.0	17 11.9	+17.8	56.5	18 17.6	+19.6	57.0	19 22.4	+21.3	57.6
38	15 12.1	+14.1	54.5	16 21.3	-15.9	55.0	17 29.7	+17.6	55.5	18 37.2	+19.3	56.0	19 43.7	+21.0	56.6
39	15 26.2	+13.9	53.5	16 37.2	-15.5	54.0	17 47.3	+17.2	54.5	18 56.5	+18.9	55.0	20 04.7	+20.7	55.6
40	15 40.1	+13.5	52.5	16 52.7	-15.2	53.0	18 04.5	+16.9	53.5	19 15.4	+18.6	54.0	20 25.4	+20.3	54.6
41	15 53.6	+13.3	51.5	17 07.9	-15.0	52.0	18 21.4	+16.6	52.5	19 34.0	+18.3	53.0	20 45.7	+20.0	53.6
42	16 06.9	+13.0	50.5	17 22.9	-14.6	51.0	18 38.0	+16.3	51.5	19 52.3	+18.0	52.0	21 05.7	+19.6	52.6
43	16 19.9	+12.7	49.5	17 37.5	-14.3	50.0	18 54.3	+15.9	50.5	20 10.3	+17.5	51.0	21 25.3	+19.2	51.6
44	16 32.6	+12.4	48.5	17 51.8	-14.0	48.9	19 10.2	+15.6	49.4	20 27.8	+17.3	50.0	21 44.5	+18.9	50.6
45	16 45.0	+12.1	47.4	18 05.8	-13.7	47.9	19 25.8	+15.3	48.4	20 45.1	+16.8	49.0	22 03.4	+18.5	49.6
46	16 57.1	+11.8	46.4	18 19.5	-13.3	46.9	19 41.1	+14.9	47.4	21 01.9	+16.5	47.9	22 21.9	+18.0	48.5
47	17 08.9	+11.5	45.4	18 32.8	-13.0	45.9	19 56.0	+14.6	46.4	21 18.4	+16.1	46.9	22 39.9	+17.7	47.5
48	17 20.4	+11.1	44.4	18 45.8	-12.7	44.8	20 10.6	+14.1	45.3	21 34.5	+15.8	45.9	22 57.6	+17.3	46.5
49	17 31.5	+10.9	43.3	18 58.5	-12.3	43.8	20 24.7	+13.9	44.3	21 50.3	+15.3	44.8	23 14.9	+16.9	45.4
50	17 42.4	+10.5	42.3	19 10.8	-12.0	42.8	20 38.6	+13.4	43.3	22 05.6	+14.9	43.8	23 31.8	+16.4	44.4
51	17 52.9	+10.2	41.3	19 22.8	-11.6	41.7	20 52.0	+13.1	42.2	22 20.5	+14.6	42.7	23 48.2	+16.1	43.3
52	18 03.1	+9.9	40.2	19 34.4	-11.3	40.7	21 05.1	+12.7	41.2	22 35.1	+14.1	41.7	24 04.3	+15.5	42.3
53	18 13.0	+9.5	39.2	19 45.7	-10.9	39.6	21 17.8	+12.2	40.1	22 49.2	+13.7	40.6	24 19.8	+15.2	41.2
54	18 22.5	+9.2	38.2	19 56.6	-10.5	38.6	21 30.0	+11.9	39.1	23 02.9	+13.3	39.6	24 35.0	+14.7	40.2
55	18 31.7	+8.8	37.1	20 07.1	-10.1	37.5	21 41.9	+11.5	38.0	23 16.2	+12.8	38.5	24 49.7	+14.2	39.1
56	18 40.5	+8.5	36.1	20 17.2	-9.8	36.5	21 53.4	+11.1	37.0	23 29.0	+12.4	37.5	25 03.9	+13.8	38.0
57	18 49.0	+8.2	35.0	20 27.0	-9.4	35.4	22 04.5	+10.7	35.9	23 41.4	+12.0	36.4	25 17.7	+13.3	36.9
58	18 57.2	+7.7	34.0	20 36.4	-9.0	34.4	22 15.2	+10.3	34.8	23 53.4	+11.5	35.3	25 31.0	+12.8	35.9
59	19 04.9	+7.5	32.9	20 45.4	-8.7	33.3	22 25.5	+9.8	33.8	24 04.9	+11.1	34.2	25 43.8	+12.4	34.8
60	19 12.4	+7.1	31.9	20 54.1	-8.2	32.3	22 35.3	+9.4	32.7	24 16.0	+10.6	33.2	25 56.2	+11.8	33.7
61	19 19.5	+6.7	30.8	21 02.3	-7.8	31.2	22 44.7	+9.0	31.6	24 26.6	+10.2	32.1	26 08.0	+11.4	32.6
62	19 26.2	+6.3	29.8	21 10.1	-7.5	30.1	22 53.7	+8.6	30.6	24 36.8	+9.7	31.0	26 19.4	+10.9	31.5
63	19 32.5	+6.0	28.7	21 17.6	-7.0	29.1	23 02.3	+8.1	29.5	24 46.5	+9.2	29.9	26 30.3	+10.3	30.4
64	19 38.5	+5.6	27.7	21 24.6	-6.7	28.0	23 10.4	+7.7	28.4	24 55.7	+8.8	28.8	26 40.6	+9.9	29.3
65	19 44.1	+5.3	26.6	21 31.3	-6.2	26.9	23 18.1	+7.2	27.3	25 04.5	+8.2	27.7	26 50.5	+9.3	28.2
66	19 49.4	+4.8	25.6	21 37.5	-5.8	25.9	23 25.3	+6.8	26.2	25 12.7	+7.8	26.6	26 59.8	+8.8	27.1
67	19 54.2	+4.5	24.5	21 43.3	-5.4	24.8	23 32.1	+6.3	25.2	25 20.5	+7.3	25.5	27 08.6	+8.3	26.0
68	19 58.7	+4.1	23.4	21 48.7	-5.0	23.7	23 38.4	+5.9	24.1	25 27.8	+6.8	24.5	27 16.9	+7.7	24.9
69	20 02.8	+3.8	22.4	21 53.7	-4.6	22.7	23 44.3	+5.4	23.0	25 34.6	+6.3	23.3	27 24.6	+7.2	23.7
70	20 06.6	+3.3	21.3	21 58.3	-4.1	21.6	23 49.7	+5.0	21.9	25 40.9	+5.8	22.2	27 31.8	+6.7	22.6
71	20 09.9	+3.0	20.2	22 02.4	-3.7	20.5	23 54.7	+4.5	20.8	25 46.7	+5.3	21.1	27 38.5	+6.2	21.5
72	20 12.9	+2.6	19.2	22 06.1	-3.3	19.4	23 59.2	+4.0	19.7	25 52.0	+4.8	20.0	27 44.7	+5.5	20.4
73	20 15.5	+2.1	18.1	22 09.4	-2.9	18.4	24 03.2	+3.6	18.6	25 56.8	+4.3	18.9	27 50.2	+5.1	19.3
74	20 17.6	+1.9	17.0	22 12.3	-2.5	17.3	24 06.8	+3.1	17.5	26 01.1	+3.8	17.8	27 55.3	+4.5	18.1
75	20 19.5	+1.4	16.0	22 14.8	-2.0	16.2	24 09.9	+2.7	16.4	26 04.9	+3.3	16.7	27 59.8	+3.9	17.0
76	20 20.9	+1.0	14.9	22 16.8	-1.6	15.1	24 12.6	+2.1	15.3	26 08.2	+2.8	15.6	28 03.7	+3.4	15.9
77	20 21.9	+0.6	13.8	22 18.4	-1.1	14.0	24 14.7	+1.7	14.2	26 11.0	+2.2	14.5	28 07.1	+2.8	14.7
78	20 22.5	+0.3	12.8	22 19.5	-0.8	13.0	24 16.4	+1.3	13.2	26 13.2	+1.8	13.4	28 09.9	+2.3	13.6
79	20 22.8	-0.1	11.7	22 20.3	+0.3	11.9	24 17.7	+0.7	12.1	26 15.0	+1.2	12.3	28 12.2	+1.7	12.5
80	20 22.7	-0.6	10.6	22 20.6	-0.2	10.8	24 18.4	+0.3	11.0	26 16.2	+0.7	11.1	28 13.9	+1.1	11.3
81	20 22.1	-0.9	9.6	22 20.4	-0.5	9.7	24 18.7	-0.2	9.9	26 16.9	+0.2	10.0	28 15.0	+0.6	10.2
82	20 21.2	-1.3	8.5	22 19.9	-1.0	8.6	24 18.5	-0.7	8.8	26 17.1	-0.4	8.9	28 15.6	0.0	9.1
83	20 19.9	-1.7	7.4	22 18.9	-1.4	7.6	24 17.8	-1.1	7.7	26 16.7	-0.8	7.8	28 15.6	-0.5	7.9
84	20 18.2	-2.0	6.4	22 17.5	-1.9	6.5	24 16.7	-1.6	6.6	26 15.9	-1.4	6.7	28 15.1	-1.1	6.8
85	20 16.2	-2.5	5.3	22 15.6	-2.2	5.4	24 15.1	-2.1	5.5	26 14.5	-1.8	5.6	28 14.0	-1.7	5.7
86	20 13.7	-2.9	4.3	22 13.4	-2.7	4.3	24 13.0	-2.5	4.4	26 12.7	-2.4	4.4	28 12.3	-2.2	4.5
87	20 10.8	-3.2	3.2	22 10.7	-3.2	3.2	24 10.5	-3.1	3.3	26 10.3	-2.9	3.3	28 10.1	-2.8	3.4
88	20 07.6	-3.6	2.1	22 07.5	-3.5	2.2	24 07.4	-3.4	2.2	26 07.4	-3.5	2.2	28 07.3	-3.4	2.3
89	20 04.0	-4.0	1.1	22 04.0	-4.0	1.1	24 04.0	-4.0	1.1	26 03.9	-3.9	1.1	28 03.9	-3.9	1.1
90	20 00.0	-4.4	0.0	22 00.0	-4.4	0.0	24 00.0	-4.4	0.0	26 00.0	-4.4	0.0	28 00.0	-4.5	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 86°, 274°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
6 33.6	+19.8	60.4	7 32.7	+21.5	60.6	8 31.3	+23.2	60.9	9 29.4	+25.0	61.2	10 27.1	+26.6	61.5	30
6 53.4	+19.7	59.5	7 54.2	+21.4	59.7	8 54.5	+23.1	59.9	9 54.4	+24.8	60.2	10 53.7	+26.4	60.5	31
7 13.1	+19.6	58.5	8 15.6	+21.3	58.7	9 17.6	+23.0	59.0	10 19.2	+24.6	59.3	11 20.1	+26.3	59.6	32
7 32.7	+19.5	57.6	8 36.9	+21.1	57.8	9 40.6	+22.8	58.1	10 43.8	+24.4	58.4	11 46.4	+26.1	58.7	33
7 52.2	+19.3	56.6	8 58.0	+21.0	56.9	10 03.4	+22.6	57.1	11 08.2	+24.3	57.4	12 12.5	+25.9	57.8	34
8 11.5	+19.2	55.6	9 19.0	+20.8	55.9	10 26.0	+22.5	56.2	11 32.5	+24.1	56.5	12 38.4	+25.7	56.9	35
8 30.7	+19.0	54.7	9 39.8	+20.7	55.0	10 48.5	+22.3	55.2	11 56.6	+23.9	55.6	13 04.1	+25.5	55.9	36
8 49.7	+18.9	53.7	10 00.5	+20.5	54.0	11 10.8	+22.1	54.3	12 20.5	+23.7	54.6	13 29.6	+25.4	55.0	37
9 08.6	+18.8	52.8	10 21.0	+20.4	53.0	11 32.9	+21.9	53.4	12 44.2	+23.6	53.7	13 55.0	+25.1	54.1	38
9 27.4	+18.6	51.8	10 41.4	+20.1	52.1	11 54.8	+21.8	52.4	13 07.8	+23.3	52.8	14 20.1	+24.9	53.1	39
9 46.0	+18.4	50.8	11 01.5	+20.0	51.1	12 16.6	+21.5	51.4	13 31.1	+23.1	51.8	14 35.0	+24.6	52.2	40
10 04.4	+18.3	49.9	11 21.5	+19.8	50.2	12 38.1	+21.4	50.5	13 54.2	+22.9	50.9	15 09.6	+24.4	51.3	41
10 22.7	+18.1	48.9	11 41.3	+19.6	49.2	12 59.5	+21.1	49.5	14 17.1	+22.6	49.9	15 34.0	+24.2	50.3	42
10 40.8	+17.9	47.9	12 00.9	+19.5	48.2	13 20.6	+20.9	48.6	14 39.7	+22.4	48.9	15 58.2	+23.9	49.4	43
10 58.7	+17.7	47.0	12 20.4	+19.2	47.3	13 41.5	+20.7	47.6	15 02.1	+22.2	48.0	16 22.1	+23.7	48.4	44
11 16.4	+17.6	46.0	12 39.6	+19.0	46.3	14 02.2	+20.5	46.6	15 24.3	+21.9	47.2	16 45.8	+23.4	47.5	45
11 34.0	+17.3	45.0	12 58.6	+18.7	45.3	14 22.7	+20.2	45.7	15 46.2	+21.7	46.1	17 09.2	+23.1	46.5	46
11 51.3	+17.1	44.0	13 17.3	+18.6	44.4	14 42.9	+20.0	44.7	16 07.9	+21.4	45.1	17 32.3	+22.8	45.5	47
12 08.4	+17.0	43.1	13 35.9	+18.3	43.4	15 02.9	+19.7	43.7	16 29.3	+21.1	44.1	17 55.1	+22.6	44.5	48
12 25.4	+16.7	42.1	13 54.2	+18.1	42.4	15 22.6	+19.5	42.7	16 50.4	+20.9	43.1	18 17.7	+22.2	43.6	49
12 42.1	+16.5	41.1	14 12.3	+17.8	41.4	15 42.1	+19.2	41.8	17 11.3	+20.6	42.1	18 39.9	+22.0	42.6	50
12 58.6	+16.3	40.1	14 30.1	+17.6	40.4	16 01.3	+18.9	40.8	17 31.9	+20.2	41.2	19 01.9	+21.6	41.6	51
13 14.9	+16.0	39.1	14 47.7	+17.4	39.4	16 20.2	+18.7	39.8	17 52.1	+20.0	40.2	19 23.5	+21.3	40.6	52
13 30.9	+15.8	38.1	15 05.1	+17.1	38.4	16 38.9	+18.3	38.8	18 12.1	+19.7	39.2	19 44.8	+21.0	39.6	53
13 46.7	+15.6	37.1	15 22.2	+16.8	37.5	16 57.2	+18.1	37.8	18 31.8	+19.3	38.2	20 05.8	+20.7	38.6	54
14 02.3	+15.3	36.1	15 39.0	+16.6	36.5	17 15.3	+17.8	36.8	18 51.1	+19.1	37.2	20 26.5	+20.3	37.6	55
14 17.6	+15.1	35.1	15 55.6	+16.2	35.5	17 33.1	+17.5	35.8	19 10.2	+18.7	36.2	20 46.8	+19.9	36.6	56
14 32.7	+14.8	34.1	16 11.8	+16.0	34.5	17 50.6	+17.2	34.8	19 28.9	+18.4	35.2	21 06.7	+19.6	35.6	57
14 47.5	+14.6	33.1	16 27.8	+15.7	33.5	18 07.8	+16.8	33.8	19 47.8	+18.0	34.2	21 26.3	+19.2	34.6	58
15 02.1	+14.3	32.1	16 43.5	+15.5	32.4	18 24.6	+16.6	32.8	20 05.3	+17.7	33.2	21 45.5	+18.8	33.6	59
15 16.4	+14.0	31.1	16 59.0	+15.1	31.4	18 41.2	+16.2	31.8	20 23.0	+17.3	32.1	22 04.3	+18.5	32.6	60
15 30.4	+13.8	30.1	17 14.1	+14.8	30.4	18 57.4	+15.8	30.8	20 40.3	+17.0	31.1	22 22.8	+18.1	31.5	61
15 44.2	+13.5	29.1	17 28.9	+14.5	29.4	19 13.2	+15.6	29.7	20 57.3	+16.6	30.1	22 40.9	+17.6	30.5	62
15 57.7	+13.2	28.1	17 43.4	+14.2	28.4	19 28.8	+15.2	28.7	21 13.9	+16.2	29.1	22 58.5	+17.3	29.5	63
16 10.9	+12.9	27.1	17 57.6	+13.8	27.4	19 44.0	+14.8	27.7	21 30.1	+15.8	28.0	23 15.8	+16.9	28.4	64
16 23.8	+12.6	26.1	18 11.4	+13.6	26.3	19 58.8	+14.5	26.7	21 45.9	+15.5	27.0	23 32.7	+16.4	27.4	65
16 36.4	+12.3	25.0	18 25.0	+13.2	25.3	20 13.3	+14.1	25.6	22 01.4	+15.0	26.0	23 49.1	+16.0	26.3	66
16 48.7	+12.0	24.0	18 38.2	+12.8	24.3	20 27.4	+13.8	24.6	22 16.4	+14.6	24.9	24 05.1	+15.5	25.3	67
17 00.7	+11.7	23.0	18 51.0	+12.6	23.3	20 41.2	+13.3	23.5	22 31.0	+14.3	23.9	24 20.6	+15.2	24.2	68
17 12.4	+11.4	22.0	19 03.6	+12.1	22.2	20 54.5	+13.0	22.5	22 45.3	+13.8	22.8	24 35.8	+14.6	23.2	69
17 23.8	+11.0	20.9	19 15.7	+11.9	21.2	21 07.5	+12.6	21.5	22 59.1	+13.4	21.8	24 50.4	+14.2	22.1	70
17 34.8	+10.8	19.9	19 27.6	+11.4	20.1	21 20.1	+12.3	20.4	23 12.5	+13.0	20.7	25 04.6	+13.8	21.0	71
17 45.6	+10.4	18.9	19 39.0	+11.2	19.1	21 32.4	+11.8	19.4	23 25.5	+12.5	19.6	25 18.4	+13.3	19.9	72
17 56.0	+10.1	17.9	19 50.2	+10.7	18.1	21 44.2	+11.4	18.3	23 38.0	+12.1	18.6	25 31.7	+12.8	18.9	73
18 06.1	+9.8	16.8	20 00.9	+10.4	17.0	21 55.6	+11.0	17.2	23 50.1	+11.7	17.5	25 44.5	+12.3	17.8	74
18 15.9	+9.4	15.8	20 11.3	+10.0	16.0	22 06.6	+10.6	16.2	24 01.8	+11.2	16.4	25 56.8	+11.8	16.7	75
18 25.3	+9.1	14.7	20 21.3	+9.6	14.9	22 17.2	+10.2	15.1	24 13.0	+10.7	15.3	26 08.6	+11.4	15.6	76
18 34.4	+8.7	13.7	20 30.9	+9.3	13.9	22 27.4	+9.7	14.1	24 23.7	+10.3	14.3	26 20.0	+10.8	14.5	77
18 43.1	+8.4	12.6	20 40.2	+8.8	12.8	22 37.1	+9.4	13.0	24 34.0	+9.8	13.2	26 30.8	+10.3	13.4	78
18 51.5	+8.0	11.6	20 49.0	+8.5	11.7	22 46.5	+8.9	11.9	24 43.8	+9.4	12.1	26 41.1	+9.9	12.3	79
18 59.5	+7.7	10.6	20 57.5	+8.1	10.7	22 55.4	+8.4	10.8	24 53.2	+8.9	11.0	26 51.0	+9.3	11.2	80
19 07.2	+7.4	9.5	21 05.6	+7.6	9.6	23 03.8	+8.1	9.8	25 02.1	+8.4	9.9	27 00.3	+8.7	10.1	81
19 14.6	+6.9	8.5	21 13.2	+7.3	8.6	23 11.9	+7.6	8.7	25 10.5	+7.9	8.8	27 09.0	+8.3	9.0	82
19 21.5	+6.6	7.4	21 20.5	+6.9	7.5	23 19.5	+7.1	7.6	25 18.4	+7.4	7.7	27 17.3	+7.7	7.9	83
19 28.1	+6.3	6.3	21 27.4	+6.5	6.4	23 26.6	+6.7	6.5	25 25.8	+7.0	6.6	27 25.0	+7.2	6.7	84
19 34.4	+5.8	5.3	21 33.9	+6.0	5.4	23 33.3	+6.3	5.4	25 32.8	+6.4	5.5	27 32.2	+6.7	5.6	85
19 40.2	+5.5	4.2	21 39.9	+5.7	4.3	23 39.6	+5.8	4.4	25 39.2	+6.0	4.4	27 38.9	+6.1	4.5	86
19 45.7	+5.2	3.2	21 45.6	+5.2	3.2	23 45.4	+5.3	3.3	25 45.2	+5.4	3.3	27 45.0	+5.5	3.4	87
19 50.9	+4.7	2.1	21 50.8	+4.8	2.1	23 50.7	+4.9	2.2	25 50.6	+5.0	2.2	27 50.5	+5.0	2.3	88
19 55.6	+4.4	1.1	21 55.6	+4.4	1.1	23 55.6	+4.4	1.1	25 55.6	+4.4	1.1	27 55.5	+4.5	1.1	89
20 00.0	+4.0	0.0	22 00.0	+4.0	0.0	24 00.0	+4.0	0.0	26 00.0	+3.9	0.0	28 00.0	+3.9	0.0	90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 94°, 266°

88°, 272° L.H.A.

LATITUDE SAME NAME

Dec.	0°			2°			4°			6°			8°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	1 43.9	-1.0	60.0	2 43.9	+0.7	60.1	3 43.7	+2.6	60.2	4 43.3	+4.4	60.3	5 42.7	+6.2	60.4
31	1 42.9	-1.1	59.0	2 44.6	+0.7	59.1	3 46.3	+2.4	59.1	4 47.7	+4.3	59.3	5 48.9	+6.0	59.4
32	1 41.8	-1.2	58.0	2 45.3	+0.7	58.1	3 48.7	+2.5	58.1	4 52.0	+4.1	58.3	5 54.9	+6.0	58.4
33	1 40.6	-1.1	57.0	2 46.0	+0.6	57.0	3 51.2	+2.3	57.1	4 56.1	+4.1	57.3	6 00.9	+5.8	57.4
34	1 39.5	-1.2	56.0	2 46.6	+0.5	56.0	3 53.5	+2.3	56.1	5 00.2	+4.0	56.3	6 06.7	+5.8	56.4
35	1 38.3	-1.2	55.0	2 47.1	+0.5	55.0	3 55.8	+2.2	55.1	5 04.2	+4.0	55.3	6 12.5	+5.6	55.4
36	1 37.1	-1.3	54.0	2 47.6	+0.4	54.0	3 58.0	+2.1	54.1	5 08.2	+3.8	54.3	6 18.1	+5.5	54.4
37	1 35.8	-1.2	53.0	2 48.0	+0.4	53.0	4 00.1	+2.1	53.1	5 12.0	+3.7	53.3	6 23.6	+5.4	53.4
38	1 34.6	-1.3	52.0	2 48.4	+0.4	52.0	4 02.2	+1.9	52.1	5 15.7	+3.6	52.3	6 29.0	+5.3	52.4
39	1 33.3	-1.4	51.0	2 48.8	+0.2	51.0	4 04.1	+1.9	51.1	5 19.3	+3.6	51.3	6 34.3	+5.1	51.4
40	1 31.9	-1.3	50.0	2 49.0	+0.3	50.0	4 06.0	+1.9	50.1	5 22.9	+3.4	50.3	6 39.4	+5.1	50.4
41	1 30.6	-1.4	49.0	2 49.3	+0.2	49.0	4 07.9	+1.7	49.1	5 26.3	+3.3	49.3	6 44.5	+4.9	49.4
42	1 29.2	-1.4	48.0	2 49.5	+0.1	48.0	4 09.6	+1.7	48.1	5 29.6	+3.3	48.3	6 49.4	+4.8	48.4
43	1 27.8	-1.5	47.0	2 49.6	+0.1	47.0	4 11.3	+1.6	47.1	5 32.9	+3.1	47.3	6 54.2	+4.7	47.4
44	1 26.3	-1.5	46.0	2 49.7	0.0	46.0	4 12.9	+1.5	46.1	5 36.0	+3.0	46.2	6 58.9	+4.5	46.4
45	1 24.8	-1.4	45.0	2 49.7	0.0	45.0	4 14.4	+1.5	45.1	5 39.0	+2.9	45.2	7 03.4	+4.4	45.4
46	1 23.4	-1.6	44.0	2 49.7	-0.1	44.0	4 15.9	+1.3	44.1	5 41.9	+2.9	44.2	7 07.8	+4.3	44.4
47	1 21.8	-1.5	43.0	2 49.6	-0.1	43.0	4 17.2	+1.3	43.1	5 44.8	+2.7	43.2	7 12.1	+4.1	43.4
48	1 20.3	-1.6	42.0	2 49.5	-0.2	42.0	4 18.5	+1.2	42.1	5 47.5	+2.6	42.2	7 16.2	+4.0	42.4
49	1 18.7	-1.6	41.0	2 49.3	-0.3	41.0	4 19.7	+1.2	41.1	5 50.1	+2.5	41.2	7 20.2	+3.9	41.4
50	1 17.1	-1.6	40.0	2 49.0	-0.2	40.0	4 20.9	+1.0	40.1	5 52.6	+2.4	40.2	7 24.1	+3.8	40.4
51	1 15.5	-1.6	39.0	2 48.8	-0.4	39.0	4 21.9	+1.0	39.1	5 55.0	+2.3	39.2	7 27.9	+3.6	39.4
52	1 13.9	-1.7	38.0	2 48.4	-0.4	38.0	4 22.9	+0.9	38.1	5 57.3	+2.1	38.2	7 31.5	+3.4	38.4
53	1 12.2	-1.7	37.0	2 48.0	-0.4	37.0	4 23.8	+0.8	37.1	5 59.4	+2.1	37.2	7 34.9	+3.4	37.4
54	1 10.5	-1.7	36.0	2 47.6	-0.5	36.0	4 24.6	+0.7	36.1	6 01.5	+2.0	36.2	7 38.3	+3.1	36.3
55	1 08.8	-1.7	35.0	2 47.1	-0.5	35.0	4 25.3	+0.7	35.1	6 03.5	+1.8	35.2	7 41.4	+3.1	35.3
56	1 07.1	-1.8	34.0	2 46.6	-0.6	34.0	4 26.0	+0.6	34.1	6 05.3	+1.8	34.2	7 44.5	+2.9	34.3
57	1 05.3	-1.7	33.0	2 46.0	-0.7	33.0	4 26.6	+0.5	33.1	6 07.1	+1.6	33.2	7 47.4	+2.8	33.3
58	1 03.6	-1.8	32.0	2 45.3	-0.6	32.0	4 27.1	+0.4	32.1	6 08.7	+1.5	32.2	7 50.2	+2.6	32.3
59	1 01.8	-1.8	31.0	2 44.7	-0.8	31.0	4 27.5	+0.3	31.1	6 10.2	+1.4	31.2	7 52.8	+2.5	31.3
60	1 00.0	-1.8	30.0	2 43.9	-0.8	30.0	4 27.8	+0.2	30.1	6 11.6	+1.3	30.2	7 55.3	+2.3	30.3
61	0 58.2	-1.9	29.0	2 43.1	-0.8	29.0	4 28.0	+0.2	29.1	6 12.9	+1.1	29.2	7 57.6	+2.2	29.3
62	0 56.3	-1.8	28.0	2 42.3	-0.9	28.0	4 28.2	+0.1	28.1	6 14.0	+1.1	28.2	7 59.8	+2.0	28.3
63	0 54.5	-1.9	27.0	2 41.4	-0.9	27.0	4 28.3	0.0	27.1	6 15.1	+0.9	27.2	8 01.8	+1.9	27.3
64	0 52.6	-1.9	26.0	2 40.5	-1.0	26.0	4 28.3	-0.1	26.1	6 16.0	+0.9	26.2	8 03.7	+1.7	26.3
65	0 50.7	-1.9	25.0	2 39.5	-1.1	25.0	4 28.2	-0.2	25.1	6 16.9	+0.7	25.1	8 05.4	+1.6	25.3
66	0 48.8	-1.9	24.0	2 38.4	-1.1	24.0	4 28.0	-0.2	24.1	6 17.6	+0.6	24.1	8 07.0	+1.5	24.2
67	0 46.9	-2.0	23.0	2 37.3	-1.1	23.0	4 27.8	-0.4	23.1	6 18.2	+0.4	23.1	8 08.5	+1.3	23.2
68	0 44.9	-1.9	22.0	2 36.2	-1.2	22.0	4 27.4	-0.4	22.1	6 18.6	+0.4	22.1	8 09.8	+1.1	22.2
69	0 43.0	-2.0	21.0	2 35.0	-1.2	21.0	4 27.0	-0.5	21.1	6 19.0	+0.2	21.1	8 10.9	+1.0	21.2
70	0 41.0	-1.9	20.0	2 33.8	-1.3	20.0	4 26.5	-0.5	20.1	6 19.2	+0.2	20.1	8 11.9	+0.8	20.2
71	0 39.1	-2.0	19.0	2 32.5	-1.3	19.0	4 26.0	-0.7	19.0	6 19.4	0.0	19.1	8 12.7	+0.7	19.2
72	0 37.1	-2.0	18.0	2 31.2	-1.4	18.0	4 25.3	-0.7	18.0	6 19.4	-0.1	18.1	8 13.4	+0.6	18.2
73	0 35.1	-2.0	17.0	2 29.8	-1.4	17.0	4 24.6	-0.8	17.0	6 19.3	-0.2	17.1	8 14.0	+0.4	17.2
74	0 33.1	-2.0	16.0	2 28.4	-1.4	16.0	4 23.8	-0.9	16.0	6 19.1	-0.4	16.1	8 14.4	+0.2	16.2
75	0 31.1	-2.1	15.0	2 27.0	-1.5	15.0	4 22.9	-1.0	15.0	6 18.7	-0.4	15.1	8 14.6	+0.1	15.2
76	0 29.0	-2.0	14.0	2 25.5	-1.6	14.0	4 21.9	-1.1	14.0	6 18.3	-0.6	14.1	8 14.7	-0.1	14.1
77	0 27.0	-2.1	13.0	2 23.9	-1.6	13.0	4 20.8	-1.1	13.0	6 17.7	-0.6	13.1	8 14.6	-0.2	13.1
78	0 24.9	-2.0	12.0	2 22.3	-1.6	12.0	4 19.7	-1.2	12.0	6 17.1	-0.8	12.1	8 14.4	-0.4	12.1
79	0 22.9	-2.1	11.0	2 20.7	-1.7	11.0	4 18.5	-1.3	11.0	6 16.3	-1.0	11.1	8 14.0	-0.5	11.1
80	0 20.8	-2.0	10.0	2 19.0	-1.7	10.0	4 17.2	-1.4	10.0	6 15.3	-1.0	10.1	8 13.5	-0.7	10.1
81	0 18.8	-2.1	9.0	2 17.3	-1.8	9.0	4 15.8	-1.4	9.0	6 14.3	-1.1	9.0	8 12.8	-0.8	9.1
82	0 16.7	-2.1	8.0	2 15.5	-1.8	8.0	4 14.4	-1.6	8.0	6 13.2	-1.3	8.0	8 12.0	-1.0	8.1
83	0 14.6	-2.1	7.0	2 13.7	-1.8	7.0	4 12.8	-1.6	7.0	6 11.9	-1.3	7.0	8 11.0	-1.1	7.1
84	0 12.5	-2.0	6.0	2 11.9	-1.9	6.0	4 11.2	-1.7	6.0	6 10.6	-1.5	6.0	8 09.9	-1.3	6.1
85	0 10.5	-2.1	5.0	2 10.0	-1.9	5.0	4 09.5	-1.7	5.0	6 09.1	-1.6	5.0	8 08.6	-1.4	5.0
86	0 08.4	-2.1	4.0	2 08.1	-2.0	4.0	4 07.8	-1.9	4.0	6 07.5	-1.7	4.0	8 07.2	-1.6	4.0
87	0 06.3	-2.1	3.0	2 06.1	-2.0	3.0	4 05.9	-1.9	3.0	6 05.8	-1.8	3.0	8 05.6	-1.7	3.0
88	0 04.2	-2.1	2.0	2 04.1	-2.0	2.0	4 04.0	-1.9	2.0	6 04.0	-2.0	2.0	8 03.9	-1.9	2.0
89	0 02.1	-2.1	1.0	2 02.1	-2.1	1.0	4 02.1	-2.1	1.0	6 02.0	-2.0	1.0	8 02.0	-2.0	1.0
90	0 00.0	-2.1	0.0	2 00.0	-2.1	0.0	4 00.0	-2.1	0.0	6 00.0	-2.1	0.0	8 00.0	-2.2	0.0

LATITUDE CONTRARY NAME

L.H.A. 88°, 272°

0°			2°			4°			6°			8°			Dec. °
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
1 43.9	-1.0	120.0	0 43.9	-2.9	120.1	0 16.3	+4.6	59.9	1 16.3	+6.5	60.0	2 16.4	+8.2	60.0	30
1 42.9	-1.1	121.0	0 41.0	-2.9	121.1	0 20.9	+4.7	58.9	1 22.8	+6.4	59.0	2 24.6	+8.2	59.0	31
1 41.8	-1.2	122.0	0 38.1	-2.9	122.1	0 25.6	+4.6	57.9	1 29.2	+6.5	58.0	2 32.8	+8.2	58.0	32
1 40.6	-1.1	123.0	0 35.2	-2.9	123.0	0 30.2	+4.7	56.9	1 35.7	+6.3	57.0	2 41.0	+8.1	57.0	33
1 39.5	-1.2	124.0	0 32.3	-2.9	124.0	0 34.9	+4.6	56.0	1 42.0	+6.4	56.0	2 49.1	+8.1	56.1	34
1 38.3	-1.2	125.0	0 29.4	-2.9	125.0	0 39.5	+4.6	55.0	1 48.4	+6.3	55.0	2 57.2	+8.0	55.1	35
1 37.1	-1.3	126.0	0 26.5	-2.9	126.0	0 44.1	+4.6	54.0	1 54.7	+6.3	54.0	3 05.2	+8.0	54.1	36
1 35.8	-1.2	127.0	0 23.6	-3.0	127.0	0 48.7	+4.6	53.0	2 01.0	+6.2	53.0	3 13.2	+7.9	53.1	37
1 34.6	-1.3	128.0	0 20.6	-2.9	128.0	0 53.3	+4.6	52.0	2 07.2	+6.2	52.0	3 21.1	+7.8	52.1	38
1 33.3	-1.4	129.0	0 17.7	-3.0	129.0	0 57.9	+4.6	51.0	2 13.4	+6.2	51.0	3 28.9	+7.8	51.1	39
1 31.9	-1.3	130.0	0 14.7	-2.9	130.0	1 02.5	+4.5	50.0	2 19.6	+6.1	50.0	3 36.7	+7.7	50.1	40
1 30.6	-1.4	131.0	0 11.8	-3.0	131.0	1 07.0	+4.5	49.0	2 25.7	+6.1	49.0	3 44.4	+7.6	49.1	41
1 29.2	-1.4	132.0	0 08.8	-2.9	132.0	1 11.5	+4.5	48.0	2 31.8	+6.1	48.0	3 52.0	+7.6	48.1	42
1 27.8	-1.5	133.0	0 05.9	-3.0	133.0	1 16.0	+4.5	47.0	2 37.9	+6.0	47.0	3 59.6	+7.5	47.1	43
1 26.3	-1.5	134.0	0 02.9	-3.0	134.0	1 20.5	+4.4	46.0	2 43.9	+5.9	46.0	4 07.1	+7.4	46.1	44
1 24.8	-1.4	135.0	0 00.1	+2.9	45.0	1 24.9	+4.5	45.0	2 49.8	+5.9	45.0	4 14.5	+7.4	45.1	45
1 23.4	-1.6	136.0	0 03.0	+3.0	44.0	1 29.4	+4.4	44.0	2 55.7	+5.8	44.0	4 21.9	+7.3	44.1	46
1 21.8	-1.5	137.0	0 06.0	+2.9	43.0	1 33.8	+4.3	43.0	3 01.5	+5.8	43.0	4 29.2	+7.2	43.1	47
1 20.3	-1.6	138.0	0 08.9	+3.0	42.0	1 38.1	+4.4	42.0	3 07.3	+5.7	42.0	4 36.4	+7.1	42.1	48
1 18.7	-1.6	139.0	0 11.9	+2.9	41.0	1 42.5	+4.3	41.0	3 13.0	+5.7	41.0	4 43.5	+7.0	41.1	49
1 17.1	-1.6	140.0	0 14.8	+3.0	40.0	1 46.8	+4.3	40.0	3 18.7	+5.6	40.1	4 50.5	+6.9	40.1	50
1 15.5	-1.6	141.0	0 17.8	+2.9	39.0	1 51.1	+4.2	39.0	3 24.3	+5.5	39.1	4 57.4	+6.9	39.1	51
1 13.9	-1.7	142.0	0 20.7	+3.0	38.0	1 55.3	+4.2	38.0	3 29.8	+5.5	38.1	5 04.3	+6.7	38.1	52
1 12.2	-1.7	143.0	0 23.7	+2.9	37.0	1 59.5	+4.2	37.0	3 35.3	+5.4	37.1	5 11.0	+6.7	37.2	53
1 10.5	-1.7	144.0	0 26.6	+2.9	36.0	2 03.7	+4.1	36.0	3 40.7	+5.4	36.1	5 17.7	+6.6	36.2	54
1 08.8	-1.7	145.0	0 29.5	+2.9	35.0	2 07.8	+4.1	35.0	3 46.1	+5.3	35.1	5 24.3	+6.4	35.2	55
1 07.1	-1.8	146.0	0 32.4	+2.9	34.0	2 11.9	+4.1	34.0	3 51.4	+5.2	34.1	5 30.7	+6.4	34.2	56
1 05.3	-1.7	147.0	0 35.3	+2.9	33.0	2 16.0	+4.0	33.0	3 56.6	+5.1	33.1	5 37.1	+6.3	33.2	57
1 03.6	-1.8	148.0	0 38.2	+2.9	32.0	2 20.0	+4.0	32.0	4 01.7	+5.1	32.1	5 43.4	+6.1	32.2	58
1 01.8	-1.8	149.0	0 41.1	+2.9	31.0	2 24.0	+3.9	31.0	4 06.8	+5.0	31.1	5 49.5	+6.1	31.2	59
1 00.0	-1.8	150.0	0 44.0	+2.8	30.0	2 27.9	+3.9	30.0	4 11.8	+4.9	30.1	5 55.6	+5.9	30.2	60
0 58.2	-1.9	151.0	0 46.8	+2.8	29.0	2 31.8	+3.8	29.0	4 16.7	+4.8	29.1	6 01.5	+5.9	29.2	61
0 56.3	-1.8	152.0	0 49.6	+2.9	28.0	2 35.6	+3.8	28.0	4 21.5	+4.8	28.1	6 07.4	+5.7	28.2	62
0 54.5	-1.9	153.0	0 52.5	+2.8	27.0	2 39.4	+3.7	27.0	4 26.3	+4.8	27.1	6 13.1	+5.6	27.2	63
0 52.6	-1.9	154.0	0 55.3	+2.8	26.0	2 43.1	+3.7	26.0	4 30.9	+4.6	26.1	6 18.7	+5.5	26.2	64
0 50.7	-1.9	155.0	0 58.1	+2.7	25.0	2 46.8	+3.7	25.0	4 35.5	+4.6	25.1	6 24.2	+5.4	25.2	65
0 48.8	-1.9	156.0	1 00.8	+2.8	24.0	2 50.5	+3.6	24.0	4 40.1	+4.4	24.1	6 29.6	+5.3	24.1	66
0 46.9	-2.0	157.0	1 03.6	+2.7	23.0	2 54.1	+3.5	23.0	4 44.5	+4.3	23.1	6 34.9	+5.1	23.1	67
0 44.9	-1.9	158.0	1 06.3	+2.7	22.0	2 57.6	+3.5	22.0	4 48.8	+4.3	22.1	6 40.0	+5.0	22.1	68
0 43.0	-2.0	159.0	1 09.0	+2.7	21.0	3 01.1	+3.4	21.0	4 53.1	+4.1	21.1	6 45.0	+4.9	21.1	69
0 41.0	-1.9	160.0	1 11.7	+2.7	20.0	3 04.5	+3.4	20.0	4 57.2	+4.1	20.1	6 49.9	+4.8	20.1	70
0 39.1	-2.0	161.0	1 14.4	+2.7	19.0	3 07.9	+3.3	19.0	5 01.3	+4.0	19.1	6 54.7	+4.7	19.1	71
0 37.1	-2.0	162.0	1 17.1	+2.6	18.0	3 11.2	+3.2	18.0	5 05.3	+3.9	18.1	6 59.4	+4.5	18.1	72
0 35.1	-2.0	163.0	1 19.7	+2.6	17.0	3 14.4	+3.2	17.0	5 09.2	+3.8	17.1	7 03.9	+4.4	17.1	73
0 33.1	-2.0	164.0	1 22.3	+2.6	16.0	3 17.6	+3.2	16.0	5 13.0	+3.7	16.1	7 08.3	+4.2	16.1	74
0 31.1	-2.1	165.0	1 24.9	+2.5	15.0	3 20.8	+3.0	15.0	5 16.7	+3.6	15.1	7 12.5	+4.2	15.1	75
0 29.0	-2.0	166.0	1 27.4	+2.5	14.0	3 23.8	+3.1	14.0	5 20.3	+3.5	14.1	7 16.7	+4.0	14.1	76
0 27.0	-2.1	167.0	1 29.9	+2.5	13.0	3 26.9	+2.9	13.0	5 23.8	+3.4	13.1	7 20.7	+3.8	13.1	77
0 24.9	-2.0	168.0	1 32.4	+2.5	12.0	3 29.8	+2.9	12.0	5 27.2	+3.3	12.0	7 24.5	+3.8	12.1	78
0 22.9	-2.1	169.0	1 34.9	+2.4	11.0	3 32.7	+2.8	11.0	5 30.5	+3.2	11.0	7 28.3	+3.5	11.1	79
0 20.8	-2.0	170.0	1 37.3	+2.5	10.0	3 35.5	+2.8	10.0	5 33.7	+3.1	10.0	7 31.8	+3.5	10.1	80
0 18.8	-2.1	171.0	1 39.8	+2.3	9.0	3 38.3	+2.7	9.0	5 36.8	+3.0	9.0	7 35.3	+3.3	9.1	81
0 16.7	-2.1	172.0	1 42.1	+2.4	8.0	3 41.0	+2.6	8.0	5 39.8	+2.9	8.0	7 38.6	+3.2	8.1	82
0 14.6	-2.1	173.0	1 44.5	+2.3	7.0	3 43.6	+2.5	7.0	5 42.7	+2.8	7.0	7 41.8	+3.0	7.1	83
0 12.5	-2.0	174.0	1 46.8	+2.3	6.0	3 46.1	+2.5	6.0	5 45.5	+2.7	6.0	7 44.8	+2.9	6.1	84
0 10.5	-2.1	175.0	1 49.1	+2.2	5.0	3 48.6	+2.4	5.0	5 48.2	+2.6	5.0	7 47.7	+2.8	5.0	85
0 08.4	-2.1	176.0	1 51.3	+2.3	4.0	3 51.0	+2.4	4.0	5 50.8	+2.4	4.0	7 50.5	+2.6	4.0	86
0 06.3	-2.1	177.0	1 53.6	+2.1	3.0	3 53.4	+2.3	3.0	5 53.2	+2.4	3.0	7 53.1	+2.4	3.0	87
0 04.2	-2.1	178.0	1 55.7	+2.2	2.0	3 55.7	+2.2	2.0	5 55.6	+2.3	2.0	7 55.5	+2.3	2.0	88
0 02.1	-2.1	179.0	1 57.9	+2.1	1.0	3 57.9	+2.1	1.0	5 57.9	+2.1	1.0	7 57.8	+2.2	1.0	89
0 00.0	+2.1	0.0	2 00.0	+2.1	0.0	4 00.0	+2.1	0.0	6 00.0	+2.0	0.0	8 00.0	+2.0	0.0	90

LATITUDE SAME NAME

L.H.A. 92°, 268°

88°, 272° L.H.A.

LATITUDE SAME NAME

Dec. °	10°			12°			14°			16°			18°		
	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °
30	6 41.7	+8.0	60.6	7 40.4	+9.8	60.8	8 38.6	+11.6	61.1	9 36.4	+13.4	61.4	10 33.6	+15.2	61.7
31	6 49.7	+7.9	59.6	7 50.2	+9.6	59.9	8 50.2	+11.5	60.1	9 49.8	+13.2	60.4	10 48.8	+15.0	60.7
32	6 57.6	+7.7	58.6	7 59.8	+9.6	58.9	9 01.7	+11.3	59.1	10 03.0	+13.1	59.4	11 03.8	+14.9	59.7
33	7 05.3	+7.6	57.6	8 09.4	+9.3	57.9	9 13.0	+11.1	58.1	10 16.1	+12.9	58.4	11 18.7	+14.6	58.7
34	7 12.9	+7.5	56.6	8 18.7	+9.2	56.9	9 24.1	+11.0	57.1	10 29.0	+12.7	57.4	11 33.3	+14.5	57.7
35	7 20.4	+7.3	55.6	8 27.9	+9.1	55.9	9 35.1	+10.8	56.1	10 41.7	+12.5	56.4	11 47.8	+14.2	56.8
36	7 27.7	+7.2	54.6	8 37.0	+8.9	54.9	9 45.9	+10.6	55.1	10 54.2	+12.3	55.4	12 02.0	+14.1	55.8
37	7 34.9	+7.1	53.6	8 45.9	+8.8	53.9	9 56.5	+10.4	54.1	11 06.5	+12.2	54.4	12 16.1	+13.8	54.8
38	7 42.0	+7.0	52.6	8 54.7	+8.6	52.9	10 06.9	+10.3	53.1	11 18.7	+11.9	53.4	12 29.9	+13.6	53.8
39	7 49.0	+6.7	51.6	9 03.3	+8.4	51.9	10 17.2	+10.0	52.1	11 30.6	+11.7	52.4	12 43.5	+13.4	52.8
40	7 55.7	+6.7	50.6	9 11.7	+8.3	50.9	10 27.2	+9.9	51.1	11 42.3	+11.5	51.4	12 56.9	+13.1	51.8
41	8 02.4	+6.5	49.6	9 20.0	+8.1	49.9	10 37.1	+9.7	50.1	11 53.8	+11.3	50.4	13 10.0	+12.9	50.8
42	8 08.9	+6.3	48.6	9 28.1	+7.9	48.8	10 46.8	+9.5	49.1	12 05.1	+11.1	49.4	13 22.9	+12.7	49.8
43	8 15.2	+6.3	47.6	9 36.0	+7.7	47.8	10 56.3	+9.3	48.1	12 16.2	+10.9	48.4	13 35.6	+12.4	48.8
44	8 21.5	+6.0	46.6	9 43.7	+7.6	46.8	11 05.6	+9.1	47.1	12 27.1	+10.6	47.4	13 48.0	+12.2	47.8
45	8 27.5	+5.9	45.6	9 51.3	+7.4	45.8	11 14.7	+8.9	46.1	12 37.7	+10.4	46.4	14 00.2	+11.9	46.7
46	8 33.4	+5.7	44.6	9 58.7	+7.2	44.8	11 23.6	+8.7	45.1	12 48.1	+10.2	45.4	14 12.1	+11.7	45.7
47	8 39.1	+5.6	43.6	10 05.9	+7.0	43.8	11 32.3	+8.5	44.1	12 58.3	+9.9	44.4	14 23.8	+11.4	44.7
48	8 44.7	+5.4	42.6	10 12.9	+6.9	42.8	11 40.8	+8.3	43.1	13 08.2	+9.7	43.4	14 35.2	+11.2	43.7
49	8 50.1	+5.3	41.6	10 19.8	+6.8	41.8	11 49.1	+8.0	42.1	13 17.9	+9.5	42.4	14 46.4	+10.9	42.7
50	8 55.4	+5.1	40.6	10 26.4	+6.5	40.8	11 57.1	+7.8	41.0	13 27.4	+9.2	41.3	14 57.3	+10.6	41.7
51	9 00.5	+4.9	39.6	10 32.9	+6.3	39.8	12 04.9	+7.7	40.0	13 36.6	+9.0	40.3	15 07.9	+10.4	40.7
52	9 05.4	+4.8	38.5	10 39.2	+6.0	38.8	12 12.6	+7.4	39.0	13 45.6	+8.7	39.3	15 18.3	+10.0	39.6
53	9 10.2	+4.6	37.5	10 45.2	+5.9	37.7	12 20.0	+7.1	38.0	13 54.3	+8.5	38.3	15 28.3	+9.8	38.6
54	9 14.8	+4.4	36.5	10 51.1	+5.7	36.7	12 27.1	+7.0	37.0	14 02.8	+8.2	37.3	15 38.1	+9.5	37.6
55	9 19.2	+4.3	35.5	10 56.8	+5.5	35.7	12 34.1	+6.7	36.0	14 11.0	+8.0	36.2	15 47.6	+9.2	36.6
56	9 23.5	+4.1	34.5	11 02.3	+5.2	34.7	12 40.8	+6.5	34.9	14 19.0	+7.7	35.2	15 56.8	+8.9	35.5
57	9 27.6	+3.9	33.5	11 07.5	+5.1	33.7	12 47.3	+6.2	33.9	14 26.7	+7.4	34.2	16 05.7	+8.7	34.5
58	9 31.5	+3.7	32.5	11 12.6	+4.9	32.7	12 53.5	+6.0	32.9	14 34.1	+7.1	33.2	16 14.4	+8.3	33.5
59	9 35.2	+3.6	31.5	11 17.5	+4.6	31.7	12 59.5	+5.8	31.9	14 41.2	+6.9	32.1	16 22.7	+8.0	32.4
60	9 38.8	+3.4	30.5	11 22.1	+4.5	30.6	13 05.3	+5.5	30.9	14 48.1	+6.6	31.1	16 30.7	+7.7	31.4
61	9 42.2	+3.2	29.4	11 26.6	+4.2	29.6	13 10.8	+5.3	29.8	14 54.7	+6.4	30.1	16 38.4	+7.4	30.4
62	9 45.4	+3.0	28.4	11 30.8	+4.0	28.6	13 16.1	+5.0	28.8	15 01.1	+6.0	29.1	16 45.8	+7.1	29.3
63	9 48.4	+2.8	27.4	11 34.8	+3.9	27.6	13 21.1	+4.8	27.8	15 07.1	+5.8	28.0	16 52.9	+6.8	28.3
64	9 51.2	+2.7	26.4	11 38.7	+3.6	26.6	13 25.9	+4.5	26.8	15 12.9	+5.5	27.0	16 59.7	+6.5	27.3
65	9 53.9	+2.5	25.4	11 42.3	+3.3	25.6	13 30.4	+4.3	25.7	15 18.4	+5.2	26.0	17 06.2	+6.1	26.2
66	9 56.4	+2.3	24.4	11 45.6	+3.2	24.5	13 34.7	+4.1	24.7	15 23.6	+5.0	24.9	17 12.3	+5.9	25.2
67	9 58.7	+2.1	23.4	11 48.8	+2.9	23.5	13 38.8	+3.7	23.7	15 28.6	+4.6	23.9	17 18.2	+5.5	24.1
68	10 00.8	+1.9	22.3	11 51.7	+2.8	22.5	13 42.5	+3.6	22.7	15 33.2	+4.3	22.9	17 23.7	+5.2	23.1
69	10 02.7	+1.8	21.3	11 54.5	+2.5	21.5	13 46.1	+3.2	21.6	15 37.5	+4.1	21.8	17 28.9	+4.8	22.1
70	10 04.5	+1.5	20.3	11 57.0	+2.2	20.4	13 49.3	+3.1	20.6	15 41.6	+3.8	20.8	17 33.7	+4.5	21.0
71	10 06.0	+1.4	19.3	11 59.2	+2.1	19.4	13 52.4	+2.7	19.6	15 45.4	+3.4	19.8	17 38.2	+4.2	20.0
72	10 07.4	+1.2	18.3	12 01.3	+1.8	18.4	13 55.1	+2.5	18.6	15 48.8	+3.2	18.7	17 42.4	+3.9	18.9
73	10 08.6	+1.0	17.3	12 03.1	+1.7	17.4	13 57.6	+2.3	17.5	15 52.0	+2.9	17.7	17 46.3	+3.5	17.9
74	10 09.6	+0.8	16.3	12 04.8	+1.4	16.4	13 59.9	+1.9	16.5	15 54.9	+2.6	16.6	17 49.8	+3.2	16.8
75	10 10.4	+0.6	15.2	12 06.2	+1.1	15.3	14 01.8	+1.8	15.5	15 57.5	+2.2	15.6	17 53.0	+2.8	15.8
76	10 11.0	+0.5	14.2	12 07.3	+1.0	14.3	14 03.6	+1.4	14.4	15 59.7	+2.0	14.6	17 55.8	+2.6	14.7
77	10 11.5	+0.2	13.2	12 08.3	+0.7	13.3	14 05.0	+1.2	13.4	16 01.7	+1.7	13.5	17 58.4	+2.1	13.7
78	10 11.7	+0.1	12.2	12 09.0	+0.5	12.3	14 06.2	+0.9	12.4	16 03.4	+1.4	12.5	18 00.5	+1.9	12.6
79	10 11.8	-0.2	11.2	12 09.5	+0.2	11.2	14 07.1	+0.7	11.3	16 04.8	+1.1	11.4	18 02.4	+1.5	11.6
80	10 11.6	-0.3	10.2	12 09.7	+0.1	10.2	14 07.8	+0.4	10.3	16 05.9	+0.7	10.4	18 03.9	+1.1	10.5
81	10 11.3	-0.5	9.1	12 09.8	-0.2	9.2	14 08.2	+0.2	9.3	16 06.6	+0.5	9.4	18 05.0	+0.8	9.5
82	10 10.8	-0.7	8.1	12 09.6	-0.4	8.2	14 08.4	-0.2	8.2	16 07.1	+0.2	8.3	18 05.8	+0.5	8.4
83	10 10.1	-0.9	7.1	12 09.2	-0.7	7.2	14 08.2	-0.4	7.2	16 07.3	-0.2	7.3	18 06.3	+0.1	7.4
84	10 09.2	-1.0	6.1	12 08.5	-0.8	6.1	14 07.8	-0.6	6.2	16 07.1	-0.4	6.2	18 06.4	-0.2	6.3
85	10 08.2	-1.3	5.1	12 07.7	-1.1	5.1	14 07.2	-0.9	5.2	16 06.7	-0.7	5.2	18 06.2	-0.6	5.3
86	10 06.9	-1.5	4.1	12 06.6	-1.3	4.1	14 06.3	-1.2	4.1	16 06.0	-1.1	4.2	18 05.6	-0.9	4.2
87	10 05.4	-1.6	3.0	12 05.3	-1.6	3.1	14 05.1	-1.4	3.1	16 04.9	-1.3	3.1	18 04.7	-1.2	3.2
88	10 03.8	-1.8	2.0	12 03.7	-1.7	2.0	14 03.7	-1.7	2.1	16 03.6	-1.7	2.1	18 03.5	-1.6	2.1
89	10 02.0	-2.0	1.0	12 02.0	-2.0	1.0	14 02.0	-2.0	1.0	16 01.9	-1.9	1.0	18 01.9	-1.9	1.1
90	10 00.0	-2.2	0.0	12 00.0	-2.2	0.0	14 00.0	-2.2	0.0	16 00.0	-2.2	0.0	18 00.0	-2.3	0.0

10°

12°

14°

16°

18°

LATITUDE CONTRARY NAME

L.H.A. 88°, 272°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.					
°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°					
3	16.3	+10.0	60.1	4	16.0	+11.8	60.2	5	15.5	+13.6	60.4	6	14.6	+15.4	60.5	7	13.5	+17.1	60.7	30
3	26.3	+10.0	59.1	4	27.8	+11.7	59.2	5	29.1	+13.5	59.4	6	30.0	+15.3	59.6	7	30.6	+17.0	59.8	31
3	36.3	+9.9	58.1	4	39.5	+11.7	58.2	5	42.6	+13.4	58.4	6	45.3	+15.1	58.6	7	47.6	+16.9	58.8	32
3	46.2	+9.8	57.1	4	51.2	+11.6	57.3	5	56.0	+13.3	57.4	6	60.4	+15.0	57.6	7	64.5	+16.7	57.8	33
3	56.0	+9.8	56.1	5	02.8	+11.5	56.3	6	09.3	+13.2	56.4	7	15.4	+14.9	56.6	8	21.2	+16.6	56.9	34
4	05.8	+9.7	55.2	5	14.3	+11.4	55.3	6	22.5	+13.0	55.5	7	30.3	+14.8	55.7	8	37.8	+16.5	55.9	35
4	15.5	+9.7	54.2	5	25.7	+11.3	54.3	6	35.5	+13.0	54.5	7	45.1	+14.6	54.7	8	54.3	+16.2	54.9	36
4	25.2	+9.5	53.2	5	37.0	+11.2	53.3	6	48.5	+12.8	53.5	7	59.7	+14.5	53.7	8	70.5	+16.2	53.9	37
4	34.7	+9.5	52.2	5	48.2	+11.1	52.3	6	60.3	+12.8	52.5	7	72.1	+14.4	52.7	8	83.5	+16.0	53.0	38
4	44.2	+9.4	51.2	5	59.3	+10.9	51.3	6	72.1	+12.6	51.5	7	83.6	+14.2	51.7	8	94.7	+15.8	52.0	39
4	53.6	+9.3	50.2	6	10.2	+10.9	50.4	7	26.7	+12.4	50.5	8	42.8	+14.0	50.8	9	58.5	+15.6	51.0	40
5	02.9	+9.2	49.2	6	21.1	+10.8	49.4	7	39.1	+12.4	49.6	8	56.8	+13.9	49.8	9	74.1	+15.4	50.0	41
5	12.1	+9.1	48.2	6	31.9	+10.6	48.4	7	51.5	+12.2	48.6	8	69.5	+13.7	48.8	9	92.5	+15.3	49.1	42
5	21.2	+9.0	47.2	6	42.5	+10.6	47.4	8	03.7	+12.0	47.6	9	24.4	+13.6	47.8	10	44.8	+15.1	48.1	43
5	30.2	+8.9	46.2	6	53.1	+10.4	46.4	8	15.7	+11.9	46.6	9	38.0	+13.4	46.8	10	59.9	+14.9	47.1	44
5	39.1	+8.8	45.2	7	03.5	+10.3	45.4	8	27.6	+11.8	45.6	9	51.4	+13.2	45.8	11	74.8	+14.7	46.1	45
5	47.9	+8.7	44.3	7	13.8	+10.1	44.4	8	39.4	+11.6	44.6	10	04.6	+13.1	44.8	11	29.5	+14.5	45.1	46
5	56.6	+8.7	43.3	7	23.9	+10.1	43.4	8	51.0	+11.4	43.6	10	17.7	+12.8	43.8	11	44.0	+14.3	44.1	47
6	05.3	+8.5	42.3	7	34.0	+9.8	42.4	9	02.4	+11.3	42.6	10	30.5	+12.7	42.9	11	58.3	+14.1	43.1	48
6	13.8	+8.3	41.3	7	43.8	+9.8	41.4	9	13.7	+11.1	41.6	10	43.2	+12.5	41.9	12	72.4	+13.9	42.1	49
6	22.1	+8.3	40.3	7	53.6	+9.6	40.4	9	24.8	+11.0	40.6	10	55.7	+12.3	40.8	12	26.3	+13.6	41.1	50
6	30.4	+8.2	39.3	8	03.2	+9.5	39.4	9	35.8	+10.7	39.6	11	08.0	+12.1	39.9	12	39.9	+13.5	40.1	51
6	38.6	+8.0	38.3	8	12.7	+9.3	38.4	9	46.5	+10.6	38.6	11	20.1	+11.9	38.9	12	53.4	+13.2	39.1	52
6	46.6	+7.9	37.3	8	22.0	+9.1	37.4	9	57.1	+10.5	37.6	11	32.0	+11.7	37.9	13	06.6	+13.0	38.1	53
6	54.5	+7.8	36.3	8	31.1	+9.1	36.4	10	07.6	+10.2	36.6	11	43.7	+11.5	36.9	13	19.6	+12.7	37.1	54
7	02.3	+7.7	35.3	8	40.2	+8.8	35.4	10	17.8	+10.1	35.6	11	55.2	+12.3	35.9	13	32.3	+12.5	36.1	55
7	10.0	+7.5	34.3	8	49.0	+8.7	34.4	10	27.9	+9.8	34.6	12	06.5	+11.0	34.9	13	44.8	+12.2	35.1	56
7	17.5	+7.4	33.3	8	57.7	+8.5	33.4	10	37.7	+9.7	33.6	12	17.5	+10.9	33.9	13	57.0	+12.0	34.1	57
7	24.9	+7.2	32.3	9	06.2	+8.4	32.4	10	47.4	+9.5	32.6	12	28.4	+10.6	32.8	14	09.0	+11.8	33.1	58
7	32.1	+7.2	31.3	9	14.6	+8.2	31.4	10	56.9	+9.3	31.6	12	39.0	+10.4	31.8	14	20.8	+11.5	32.1	59
7	39.3	+7.0	30.3	9	22.8	+8.1	30.4	11	06.2	+9.1	30.6	12	49.4	+10.1	30.8	14	32.3	+11.2	31.1	60
7	46.3	+6.8	29.3	9	30.9	+7.8	29.4	11	15.3	+8.9	29.6	12	59.5	+9.9	29.8	14	43.5	+11.0	30.1	61
7	53.1	+6.7	28.3	9	38.7	+7.7	28.4	11	24.2	+8.7	28.6	13	09.4	+9.7	28.8	14	54.5	+10.7	29.0	62
7	59.8	+6.6	27.3	9	46.4	+7.5	27.4	11	32.9	+8.4	27.6	13	19.1	+9.4	27.8	15	05.2	+10.4	28.0	63
8	06.4	+6.4	26.3	9	53.9	+7.3	26.4	11	41.3	+8.3	26.6	13	28.5	+9.2	26.8	15	15.6	+10.1	27.0	64
8	12.8	+6.2	25.3	10	01.2	+7.2	25.4	11	49.6	+8.0	25.6	13	37.7	+9.0	25.8	15	25.7	+9.9	26.0	65
8	19.0	+6.2	24.3	10	08.4	+7.0	24.4	11	57.6	+7.8	24.6	13	46.7	+8.7	24.7	15	35.6	+9.6	25.0	66
8	25.2	+5.9	23.3	10	15.4	+6.7	23.4	12	05.4	+7.6	23.5	13	55.4	+8.4	23.7	15	45.2	+9.2	23.9	67
8	31.1	+5.8	22.2	10	22.1	+6.6	22.4	12	13.0	+7.4	22.5	14	03.8	+8.2	22.7	15	54.4	+9.0	22.9	68
8	36.9	+5.7	21.2	10	28.7	+6.4	21.4	12	20.4	+7.2	21.5	14	12.0	+7.9	21.7	16	03.4	+8.7	21.9	69
8	42.6	+5.4	20.2	10	35.1	+6.2	20.3	12	27.6	+6.9	20.5	14	19.9	+7.7	20.7	16	12.1	+8.4	20.9	70
8	48.0	+5.4	19.2	10	41.3	+6.0	19.3	12	34.5	+6.7	19.5	14	27.6	+7.4	19.6	16	20.5	+8.1	19.8	71
8	53.4	+5.1	18.2	10	47.3	+5.8	18.3	12	41.2	+6.5	18.5	14	35.0	+7.1	18.6	16	28.6	+7.8	18.8	72
8	58.5	+5.0	17.2	10	53.1	+5.6	17.3	12	47.7	+6.2	17.4	14	42.1	+6.8	17.6	16	36.4	+7.5	17.8	73
9	03.5	+4.9	16.2	10	58.7	+5.4	16.3	12	53.9	+6.0	16.4	14	48.9	+6.6	16.6	16	43.9	+7.2	16.7	74
9	08.4	+4.6	15.2	11	04.1	+5.2	15.3	12	59.9	+5.7	15.4	14	55.5	+6.3	15.5	16	51.1	+6.9	15.7	75
9	13.0	+4.5	14.2	11	09.3	+5.0	14.3	13	05.6	+5.5	14.4	15	01.8	+6.1	14.5	16	58.0	+6.5	14.6	76
9	17.5	+4.3	13.2	11	14.3	+4.8	13.3	13	11.1	+5.3	13.4	15	07.9	+5.7	13.5	17	04.5	+6.3	13.6	77
9	21.8	+4.2	12.2	11	19.1	+4.6	12.2	13	16.4	+5.0	12.3	15	13.6	+5.5	12.4	17	10.8	+5.9	12.6	78
9	26.0	+4.0	11.1	11	23.7	+4.4	11.2	13	21.4	+4.8	11.3	15	19.1	+5.1	11.4	17	16.7	+5.6	11.5	79
9	30.0	+3.8	10.1	11	28.1	+4.2	10.2	13	26.2	+4.5	10.3	15	24.2	+4.9	10.4	17	22.3	+5.2	10.5	80
9	33.8	+3.6	9.1	11	32.3	+3.9	9.2	13	30.7	+4.3	9.3	15	29.1	+4.6	9.3	17	27.5	+5.0	9.4	81
9	37.4	+3.5	8.1	11	36.2	+3.7	8.2	13	35.0	+4.0	8.2	15	33.7	+4.4	8.3	17	32.5	+4.6	8.4	82
9	40.9	+3.2	7.1	11	39.9	+3.6	7.1	13	39.0	+3.8	7.2	15	38.1	+4.0	7.3	17	37.1	+4.3	7.3	83
9	44.1	+3.1	6.1	11	43.5	+3.3	6.1	13	42.8	+3.5	6.2	15	42.1	+3.7	6.2	17	41.4	+3.9	6.3	84
9	47.2	+3.0	5.1	11	46.8	+3.1	5.1	13	46.3	+3.2	5.1	15	45.8	+3.4	5.2	17	45.3	+3.6	5.2	85
9	50.2	+2.7	4.1	11	49.9	+2.8	4.1	13	49.5	+3.0	4.1	15	49.2	+3.2	4.2	17	48.9	+3.3	4.2	86
9	52.9	+2.5	3.0	11	52.7	+2.7	3.1	13	52.5	+2.8	3.1	15	52.4	+2.8	3.1	17	52.2	+2.9	3.2	87
9	55.4	+2.4	2.0	11	55.4	+2.4	2.0	13	55.3	+2.5	2.1	15	55.2	+2.6	2.1	17	55.1	+2.6	2.1	88
9	57.8	+2.2	1.0	11	57.8	+2.2	1.0	13	57.8	+2.2	1.0	15	57.8	+2.2	1.0	17	57.7	+2.3	1.1	89
10	00.0	+2.0	0.0	12	00.0	+2.0	0.0	14	00.0	+2.0	0.0	16	00.0	+1.9	0.0	18	00.0	+1.9	0.0	90
10°			12°			14°			16°			18°								

LATITUDE SAME NAME

L.H.A. 92°, 268°

88°, 272° L.H.A.

LATITUDE SAME NAME

Dec. °	20°			22°			24°			26°			28°		
	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °
30	11 30.2	+17.0	62.0	12 26.1	+18.8	62.4	13 21.3	+20.6	62.8	14 15.7	+22.4	63.3	15 09.3	+24.2	63.7
31	11 47.2	+16.8	61.1	12 44.9	+18.6	61.4	13 41.9	+20.4	61.9	14 38.1	+22.2	62.3	15 33.5	+23.9	62.8
32	12 04.0	+16.6	60.1	13 03.5	+18.4	60.5	14 02.3	+20.2	60.9	15 00.3	+21.9	61.3	15 57.4	+23.7	61.8
33	12 20.6	+16.5	59.1	13 21.9	+18.2	59.5	14 22.5	+19.9	59.9	15 22.2	+21.7	60.4	16 21.1	+23.5	60.9
34	12 37.1	+16.2	58.1	13 40.1	+18.0	58.5	14 42.4	+19.7	58.9	15 43.9	+21.5	59.4	16 44.6	+23.1	59.9
35	12 53.3	+15.9	57.1	13 58.1	+17.7	57.5	15 02.1	+19.4	58.0	16 05.4	+21.1	58.4	17 07.7	+22.9	58.9
36	13 09.2	+15.8	56.1	14 15.8	+17.4	56.5	15 21.5	+19.2	57.0	16 26.5	+20.9	57.5	17 30.6	+22.6	58.0
37	13 25.0	+15.5	55.1	14 33.2	+17.2	55.5	15 40.7	+18.9	56.0	16 47.4	+20.6	56.5	17 53.2	+22.4	57.0
38	13 40.5	+15.3	54.1	14 50.4	+17.0	54.6	15 59.6	+18.7	55.0	17 08.0	+20.4	55.5	18 15.6	+22.0	56.0
39	13 55.8	+15.0	53.1	15 07.4	+16.7	53.6	16 18.3	+18.3	54.0	17 28.4	+20.0	54.5	18 37.6	+21.7	55.0
40	14 10.8	+14.8	52.2	15 24.1	+16.4	52.6	16 36.6	+18.1	53.0	17 48.4	+19.7	53.5	18 59.3	+21.4	54.1
41	14 25.6	+14.5	51.2	15 40.5	+16.2	51.6	16 54.7	+17.8	52.0	18 08.1	+19.5	52.5	19 20.7	+21.1	53.1
42	14 40.1	+14.3	50.1	15 56.7	+15.9	50.6	17 12.5	+17.5	51.0	18 27.6	+19.1	51.5	19 41.8	+20.7	52.1
43	14 54.4	+14.0	49.1	16 12.6	+15.6	49.6	17 30.0	+17.2	50.0	18 46.7	+18.8	50.5	20 02.5	+20.5	51.1
44	15 08.4	+13.7	48.1	16 28.2	+15.3	48.6	17 47.2	+16.9	49.0	19 05.5	+18.5	49.5	20 23.0	+20.0	50.1
45	15 22.1	+13.5	47.1	16 43.5	+15.0	47.6	18 04.1	+16.6	48.0	19 24.0	+18.1	48.5	20 43.0	+19.8	49.1
46	15 35.6	+13.2	46.1	16 58.5	+14.7	46.5	18 20.7	+16.2	47.0	19 42.1	+17.8	47.5	21 02.8	+19.3	48.1
47	15 48.8	+12.9	45.1	17 13.2	+14.4	45.5	18 36.9	+15.9	46.0	19 59.9	+17.5	46.5	21 22.1	+19.0	47.0
48	16 01.7	+12.6	44.1	17 27.6	+14.1	44.5	18 52.8	+15.6	45.0	20 17.4	+17.1	45.5	21 41.1	+18.6	46.0
49	16 14.3	+12.4	43.1	17 41.7	+13.8	43.5	19 08.4	+15.3	43.9	20 34.5	+16.7	44.5	21 59.7	+18.3	45.0
50	16 26.7	+12.0	42.1	17 55.5	+13.4	42.5	19 23.7	+14.9	42.9	20 51.2	+16.4	43.4	22 18.0	+17.8	44.0
51	16 38.7	+11.7	41.0	18 08.9	+13.2	41.4	19 38.6	+14.5	41.9	21 07.6	+15.9	42.4	22 35.8	+17.4	42.9
52	16 50.4	+11.4	40.0	18 22.1	+12.8	40.4	19 53.1	+14.2	40.9	21 23.5	+15.6	41.4	22 53.2	+17.1	41.9
53	17 01.8	+11.2	39.0	18 34.9	+12.4	39.4	20 07.3	+13.9	39.8	21 39.1	+15.3	40.3	23 10.3	+16.6	40.9
54	17 13.0	+10.8	38.0	18 47.3	+12.2	38.4	20 21.2	+13.4	38.8	21 54.4	+14.8	39.3	23 26.9	+16.2	39.8
55	17 23.8	+10.5	36.9	18 59.5	+11.7	37.3	20 34.6	+13.1	37.8	22 09.2	+14.4	38.2	23 43.1	+15.8	38.8
56	17 34.3	+10.1	35.9	19 11.2	+11.5	36.3	20 47.7	+12.7	36.7	22 23.6	+14.0	37.2	23 58.9	+15.3	37.7
57	17 44.4	+9.9	34.9	19 22.7	+11.0	35.2	21 00.4	+12.3	35.7	22 37.6	+13.6	36.1	24 14.2	+14.9	36.6
58	17 54.3	+9.5	33.8	19 33.7	+10.8	34.2	21 12.7	+12.0	34.6	22 51.2	+13.2	35.1	24 29.1	+14.5	35.6
59	18 03.8	+9.1	32.8	19 44.5	+10.3	33.2	21 24.7	+11.5	33.6	23 04.4	+12.8	34.0	24 43.6	+14.0	34.5
60	18 12.9	+8.9	31.7	19 54.8	+10.0	32.1	21 36.2	+11.2	32.5	23 17.2	+12.3	33.0	24 57.6	+13.5	33.4
61	18 21.8	+8.5	30.7	20 04.8	+9.6	31.1	21 47.4	+10.7	31.5	23 29.5	+11.9	31.9	25 11.1	+13.1	32.4
62	18 30.3	+8.1	29.7	20 14.4	+9.2	30.0	21 58.1	+10.3	30.4	23 41.4	+11.4	30.8	25 24.2	+12.6	31.3
63	18 38.4	+7.8	28.6	20 23.6	+8.9	29.0	22 08.4	+9.9	29.3	23 52.8	+11.0	29.7	25 36.8	+12.1	30.2
64	18 46.2	+7.5	27.6	20 32.5	+8.4	27.9	22 18.3	+9.5	28.3	24 03.8	+10.6	28.7	25 48.9	+11.6	29.1
65	18 53.7	+7.1	26.5	20 40.9	+8.1	26.8	22 27.8	+9.1	27.2	24 14.4	+10.1	27.6	26 00.5	+11.2	28.0
66	19 00.8	+6.8	25.5	20 49.0	+7.7	25.8	22 36.9	+8.7	26.1	24 24.5	+9.6	26.5	26 11.7	+10.6	26.9
67	19 07.6	+6.3	24.4	20 56.7	+7.3	24.7	22 45.6	+8.2	25.1	24 34.1	+9.2	25.4	26 22.3	+10.1	25.8
68	19 13.9	+6.1	23.4	21 04.0	+6.9	23.7	22 53.8	+7.8	24.0	24 43.3	+8.7	24.3	26 32.4	+9.7	24.7
69	19 20.0	+5.6	22.3	21 10.9	+6.5	22.6	23 01.6	+7.3	22.9	24 52.0	+8.2	23.3	26 42.1	+9.1	23.6
70	19 25.6	+5.3	21.3	21 17.4	+6.1	21.5	23 08.9	+6.9	21.8	25 00.2	+7.7	22.2	26 51.2	+8.6	22.5
71	19 30.9	+5.0	20.2	21 23.5	+5.7	20.5	23 15.8	+6.5	20.7	25 07.9	+7.3	21.1	26 59.8	+8.0	21.4
72	19 35.9	+4.5	19.1	21 29.2	+5.2	19.4	23 22.3	+6.0	19.7	25 15.2	+6.7	20.0	27 07.8	+7.6	20.3
73	19 40.4	+4.2	18.1	21 34.4	+4.9	18.3	23 28.3	+5.5	18.6	25 21.9	+6.3	18.9	27 15.4	+7.0	19.2
74	19 44.6	+3.8	17.0	21 39.3	+4.4	17.2	23 33.8	+5.1	17.5	25 28.2	+5.8	17.8	27 22.4	+6.4	18.1
75	19 48.4	+3.5	16.0	21 43.7	+4.1	16.2	23 38.9	+4.7	16.4	25 34.0	+5.2	16.7	27 28.8	+6.0	17.0
76	19 51.9	+3.0	14.9	21 47.8	+3.6	15.1	23 43.6	+4.2	15.3	25 39.2	+4.8	15.6	27 34.8	+5.4	15.8
77	19 54.9	+2.7	13.8	21 51.4	+3.2	14.0	23 47.8	+3.7	14.2	25 44.0	+4.3	14.5	27 40.2	+4.8	14.7
78	19 57.6	+2.3	12.8	21 54.6	+2.8	12.9	23 51.5	+3.3	13.1	25 48.3	+3.8	13.3	27 45.0	+4.3	13.6
79	19 59.9	+1.9	11.7	21 57.4	+2.3	11.9	23 54.8	+2.8	12.0	25 52.1	+3.3	12.2	27 49.3	+3.8	12.5
80	20 01.8	+1.6	10.6	21 59.7	+2.0	10.8	23 57.6	+2.3	10.9	25 55.4	+2.7	11.1	27 53.1	+3.2	11.3
81	20 03.4	+1.1	9.6	22 01.7	+1.5	9.7	23 59.9	+1.9	9.9	25 58.1	+2.3	10.0	27 56.3	+2.6	10.2
82	20 04.5	+0.8	8.5	22 03.2	+1.1	8.6	24 01.8	+1.4	8.8	26 00.4	+1.7	8.9	27 58.9	+2.1	9.1
83	20 05.3	+0.4	7.5	22 04.3	+0.6	7.6	24 03.2	+1.0	7.7	26 02.1	+1.3	7.8	28 01.0	+1.5	7.9
84	20 05.7	0.0	6.4	22 04.9	+0.3	6.5	24 04.2	+0.4	6.6	26 03.4	+0.7	6.7	28 02.5	+1.0	6.8
85	20 05.7	-0.4	5.3	22 05.2	-0.2	5.4	24 04.6	0.0	5.5	26 04.1	+0.2	5.6	28 03.5	+0.4	5.7
86	20 05.3	-0.7	4.3	22 05.0	-0.6	4.3	24 04.6	-0.4	4.4	26 04.3	-0.3	4.5	28 03.9	-0.1	4.5
87	20 04.6	-1.2	3.2	22 04.4	-1.1	3.2	24 04.2	-0.9	3.3	26 04.0	-0.8	3.3	28 03.8	-0.7	3.4
88	20 03.4	-1.5	2.1	22 03.3	-1.4	2.2	24 03.3	-1.4	2.2	26 03.2	-1.4	2.2	28 03.1	-1.3	2.3
89	20 01.9	-1.9	1.1	22 01.9	-1.9	1.1	24 01.9	-1.9	1.1	26 01.8	-1.8	1.1	28 01.8	-1.8	1.1
90	20 00.0	-2.3	0.0	22 00.0	-2.3	0.0	24 00.0	-2.3	0.0	26 00.0	-2.3	0.0	28 00.0	-2.4	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 88°, 272°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
8 11.9	+18.9	61.0	9 09.9	+20.6	61.2	10 07.4	+22.3	61.5	11 04.2	+24.1	61.9	12 00.5	+25.8	62.2	30
8 30.8	+18.8	60.0	9 30.5	+20.5	60.3	10 29.7	+22.2	60.6	11 28.3	+23.9	60.9	12 26.3	+25.6	61.3	31
8 49.6	+18.5	59.1	9 51.0	+20.3	59.3	10 51.9	+22.0	59.7	11 52.2	+23.7	60.0	12 51.9	+25.4	60.4	32
9 08.1	+18.5	58.1	10 11.3	+20.2	58.4	11 13.9	+21.9	58.7	12 15.9	+23.6	59.1	13 17.3	+25.2	59.5	33
9 26.6	+18.3	57.1	10 31.5	+19.9	57.4	11 35.8	+21.6	57.8	12 39.5	+23.3	58.1	13 42.5	+25.0	58.5	34
9 44.9	+18.1	56.2	10 51.4	+19.8	56.5	11 57.4	+21.5	56.8	13 02.8	+23.1	57.2	14 07.5	+24.8	57.6	35
10 03.0	+17.9	55.2	11 11.2	+19.6	55.5	12 18.9	+21.2	55.8	13 25.9	+22.9	56.2	14 32.3	+24.5	56.6	36
10 20.9	+17.8	54.2	11 30.8	+19.4	54.5	12 40.1	+21.1	54.9	13 48.8	+22.7	55.3	14 56.8	+24.3	55.7	37
10 38.7	+17.6	53.3	11 50.2	+19.3	53.6	13 01.2	+20.8	53.9	14 11.5	+22.5	54.3	15 21.1	+24.1	54.8	38
10 56.3	+17.4	52.3	12 09.5	+19.0	52.6	13 22.0	+20.7	53.0	14 34.0	+22.2	53.4	15 45.2	+23.8	53.8	39
11 13.7	+17.2	51.3	12 28.5	+18.8	51.6	13 42.7	+20.3	52.0	14 56.2	+22.0	52.4	16 09.0	+23.6	52.8	40
11 30.9	+17.1	50.3	12 47.3	+18.6	50.7	14 03.0	+20.2	51.0	15 18.2	+21.7	51.4	16 32.6	+23.3	51.9	41
11 48.0	+16.8	49.4	13 05.9	+18.3	49.7	14 23.2	+19.9	50.1	15 39.9	+21.5	50.5	16 55.9	+23.1	50.9	42
12 04.8	+16.6	48.4	13 24.2	+18.2	48.7	14 43.1	+19.7	49.1	16 01.4	+21.2	49.5	17 19.0	+22.7	50.0	43
12 21.4	+16.4	47.4	13 42.4	+17.9	47.7	15 02.8	+19.4	48.1	16 22.6	+21.0	48.5	17 41.7	+22.5	49.0	44
12 37.8	+16.2	46.4	14 00.3	+17.7	46.7	15 22.2	+19.2	47.1	16 43.6	+20.6	47.6	18 04.2	+22.2	48.0	45
12 54.0	+16.0	45.4	14 18.0	+17.4	45.8	15 41.4	+18.9	46.1	17 04.2	+20.4	46.6	18 26.4	+21.8	47.0	46
13 10.0	+15.7	44.4	14 35.4	+17.2	44.8	16 00.3	+18.6	45.2	17 24.6	+20.1	45.6	18 48.2	+21.6	46.1	47
13 25.7	+15.5	43.4	14 52.6	+16.9	43.8	16 18.9	+18.4	44.2	17 44.7	+19.8	44.6	19 09.8	+21.3	45.1	48
13 41.2	+15.3	42.4	15 09.5	+16.7	42.8	16 37.3	+18.1	43.2	18 04.5	+19.5	43.6	19 31.1	+20.9	44.1	49
13 56.5	+15.0	41.4	15 26.2	+16.4	41.8	16 55.4	+17.8	42.2	18 24.0	+19.2	42.2	19 52.0	+20.6	43.1	50
14 11.5	+14.8	40.4	15 42.6	+16.1	40.8	17 13.2	+17.4	41.2	18 43.2	+18.8	41.6	20 12.6	+20.2	42.1	51
14 26.3	+14.5	39.4	15 58.7	+15.8	39.8	17 30.6	+17.2	40.2	19 02.0	+18.6	40.6	20 32.8	+19.9	41.1	52
14 40.8	+14.2	38.4	16 14.5	+15.6	38.8	17 47.8	+16.9	39.2	19 20.6	+18.2	39.6	20 52.7	+19.6	40.1	53
14 55.0	+14.0	37.4	16 30.1	+15.3	37.8	18 04.7	+16.6	38.2	19 38.8	+17.8	38.6	21 12.3	+19.2	39.1	54
15 09.0	+13.8	36.4	16 45.4	+14.9	36.8	18 21.3	+16.2	37.2	19 56.6	+17.6	37.6	21 31.5	+18.8	38.0	55
15 22.8	+13.4	35.4	17 00.3	+14.7	35.8	18 37.5	+15.9	36.1	20 14.2	+17.1	36.6	21 50.3	+18.4	37.0	56
15 36.2	+13.2	34.4	17 15.0	+14.4	34.7	18 53.4	+15.6	35.1	20 31.3	+16.8	35.5	22 08.7	+18.0	36.0	57
15 49.4	+12.9	33.4	17 29.4	+14.0	33.7	19 09.0	+15.2	34.1	20 48.1	+16.4	34.5	22 26.7	+17.7	35.0	58
16 02.3	+12.6	32.4	17 43.4	+13.8	32.7	19 24.2	+14.9	33.1	21 04.5	+16.1	33.5	22 44.4	+17.2	33.9	59
16 14.9	+12.3	31.4	17 57.2	+13.4	31.7	19 39.1	+14.5	32.0	21 20.6	+15.7	32.4	23 01.6	+16.9	32.9	60
16 27.2	+12.0	30.3	18 10.6	+13.1	30.7	19 53.6	+14.2	31.0	21 36.3	+15.3	31.4	23 18.5	+16.4	31.8	61
16 39.2	+11.8	29.3	18 23.7	+12.8	29.6	20 07.8	+13.8	30.0	21 51.6	+14.9	30.4	23 34.9	+16.0	30.8	62
16 51.0	+11.4	28.3	18 36.5	+12.4	28.6	20 21.6	+13.5	28.9	22 06.5	+14.5	29.3	23 50.9	+15.6	29.7	63
17 02.4	+11.1	27.3	18 48.9	+12.1	27.6	20 35.1	+13.1	27.9	22 21.0	+14.1	28.3	24 06.5	+15.1	28.7	64
17 13.5	+10.8	26.2	19 01.0	+11.7	26.5	20 48.2	+12.7	26.9	22 35.1	+13.7	27.2	24 21.6	+14.7	27.6	65
17 24.3	+10.4	25.2	19 12.7	+11.4	25.5	21 00.9	+12.3	25.8	22 48.7	+13.3	26.2	24 36.3	+14.2	26.6	66
17 34.7	+10.2	24.2	19 24.1	+11.0	24.5	21 13.2	+11.9	24.8	23 02.0	+12.8	25.1	24 50.5	+13.8	25.5	67
17 44.9	+9.8	23.1	19 35.1	+10.7	23.4	21 25.1	+11.5	23.7	23 14.8	+12.4	24.0	25 04.3	+13.3	24.4	68
17 54.7	+9.5	22.1	19 45.8	+10.3	22.4	21 36.6	+11.2	22.7	23 27.2	+12.0	23.0	25 17.6	+12.8	23.3	69
18 04.2	+9.2	21.1	19 56.1	+9.9	21.3	21 47.8	+10.7	21.6	23 39.2	+11.5	21.9	25 30.4	+12.4	22.3	70
18 13.4	+8.8	20.0	20 06.0	+9.6	20.3	21 58.5	+10.3	20.5	23 50.7	+11.1	20.8	25 42.8	+11.8	21.2	71
18 22.2	+8.5	19.0	20 15.6	+9.2	19.2	22 08.8	+9.9	19.5	24 01.8	+10.7	19.8	25 54.6	+11.4	20.1	72
18 30.7	+8.1	17.9	20 24.8	+8.8	18.2	22 18.7	+9.5	18.4	24 12.5	+10.1	18.7	26 06.0	+10.9	19.0	73
18 38.8	+7.8	16.9	20 33.6	+8.4	17.1	22 28.2	+9.0	17.3	24 22.6	+9.8	17.6	26 16.9	+10.4	17.9	74
18 46.6	+7.4	15.9	20 42.0	+8.0	16.1	22 37.2	+8.7	16.3	24 32.4	+9.2	16.5	26 27.3	+9.9	16.8	75
18 54.0	+7.1	14.8	20 50.0	+7.6	15.0	22 45.9	+8.2	15.2	24 41.6	+8.8	15.4	26 37.2	+9.4	15.7	76
19 01.1	+6.8	13.8	20 57.6	+7.3	13.9	22 54.1	+7.7	14.1	24 50.4	+8.3	14.3	26 46.6	+8.8	14.6	77
19 07.9	+6.3	12.7	21 04.9	+6.8	12.9	23 01.8	+7.4	13.0	24 58.7	+7.8	13.3	26 55.4	+8.4	13.5	78
19 14.2	+6.0	11.7	21 11.7	+6.5	11.8	23 09.2	+6.8	12.0	25 06.5	+7.3	12.2	27 03.8	+7.8	12.4	79
19 20.2	+5.7	10.6	21 18.2	+6.0	10.7	23 16.0	+6.5	10.9	25 13.8	+6.9	11.1	27 11.6	+7.3	11.3	80
19 25.9	+5.3	9.5	21 24.2	+5.6	9.7	23 22.5	+6.0	9.8	25 20.7	+6.4	10.0	27 18.9	+6.7	10.1	81
19 31.2	+4.9	8.5	21 29.8	+5.3	8.6	23 28.5	+5.5	8.7	25 27.1	+5.8	8.9	27 25.6	+6.2	9.0	82
19 36.1	+4.5	7.4	21 35.1	+4.8	7.5	23 34.0	+5.1	7.6	25 32.9	+5.4	7.8	27 31.8	+5.7	7.9	83
19 40.6	+4.2	6.4	21 39.9	+4.4	6.5	23 39.1	+4.6	6.5	25 38.3	+4.9	6.7	27 37.5	+5.1	6.8	84
19 44.8	+3.8	5.3	21 44.3	+4.0	5.4	23 43.7	+4.2	5.5	25 43.2	+4.4	5.5	27 42.6	+4.6	5.6	85
19 48.6	+3.4	4.2	21 48.3	+3.5	4.3	23 47.9	+3.7	4.4	25 47.6	+3.8	4.4	27 47.2	+4.0	4.5	86
19 52.0	+3.1	3.2	21 51.8	+3.2	3.2	23 51.6	+3.3	3.3	25 51.4	+3.4	3.3	27 51.2	+3.5	3.4	87
19 55.1	+2.6	2.1	21 55.0	+2.7	2.2	23 54.9	+2.8	2.2	25 54.8	+2.9	2.2	27 54.7	+2.9	2.3	88
19 57.7	+2.3	1.1	21 57.7	+2.3	1.1	23 57.7	+2.3	1.1	25 57.7	+2.3	1.1	27 57.6	+2.4	1.1	89
20 00.0	+1.9	0.0	22 00.0	+1.9	0.0	24 00.0	+1.9	0.0	26 00.0	+1.8	0.0	28 00.0	+1.8	0.0	90
20°			22°			24°			26°			28°			

LATITUDE SAME NAME

L.H.A. 92°, 268°

90°, 270° L.H.A.

LATITUDE SAME NAME

Dec. °	0°			2°			4°			6°			8°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	0 00.0	0.0	60.0	1 00.0	+1.8	60.0	1 59.9	+3.6	60.1	2 59.8	+5.4	60.1	3 59.4	+7.2	60.2
31	0 00.0	0.0	59.0	1 01.8	+1.8	59.0	2 03.5	+3.6	59.1	3 05.2	+5.3	59.1	4 06.6	+7.2	59.2
32	0 00.0	0.0	58.0	1 03.6	+1.7	58.0	2 07.1	+3.5	58.1	3 10.5	+5.3	58.1	4 13.8	+7.0	58.3
33	0 00.0	0.0	57.0	1 05.3	+1.8	57.0	2 10.6	+3.5	57.1	3 15.8	+5.3	57.1	4 20.8	+7.0	57.3
34	0 00.0	0.0	56.0	1 07.1	+1.7	56.0	2 14.1	+3.5	56.1	3 21.1	+5.1	56.1	4 27.8	+6.9	56.3
35	0 00.0	0.0	55.0	1 08.8	+1.7	55.0	2 17.6	+3.4	55.1	3 26.2	+5.1	55.1	4 34.7	+6.8	55.3
36	0 00.0	0.0	54.0	1 10.5	+1.7	54.0	2 21.0	+3.4	54.1	3 31.3	+5.1	54.1	4 41.5	+6.8	54.3
37	0 00.0	0.0	53.0	1 12.2	+1.7	53.0	2 24.4	+3.3	53.1	3 36.4	+5.0	53.2	4 48.3	+6.6	53.3
38	0 00.0	0.0	52.0	1 13.9	+1.6	52.0	2 27.7	+3.3	52.1	3 41.4	+4.9	52.2	4 54.9	+6.6	52.3
39	0 00.0	0.0	51.0	1 15.5	+1.6	51.0	2 31.0	+3.2	51.1	3 46.3	+4.9	51.2	5 01.5	+6.4	51.3
40	0 00.0	0.0	50.0	1 17.1	+1.6	50.0	2 34.2	+3.2	50.1	3 51.2	+4.7	50.2	5 07.9	+6.4	50.3
41	0 00.0	0.0	49.0	1 18.7	+1.6	49.0	2 37.4	+3.1	49.1	3 55.9	+4.7	49.2	5 14.3	+6.3	49.3
42	0 00.0	0.0	48.0	1 20.3	+1.5	48.0	2 40.5	+3.1	48.1	4 00.6	+4.7	48.2	5 20.6	+6.2	48.3
43	0 00.0	0.0	47.0	1 21.8	+1.6	47.0	2 43.6	+3.0	47.1	4 05.3	+4.5	47.2	5 26.8	+6.1	47.3
44	0 00.0	0.0	46.0	1 23.4	+1.4	46.0	2 46.6	+3.0	46.1	4 09.8	+4.5	46.2	5 32.9	+6.0	46.3
45	0 00.0	0.0	45.0	1 24.8	+1.5	45.0	2 49.6	+3.0	45.1	4 14.3	+4.4	45.2	5 38.9	+5.8	45.3
46	0 00.0	0.0	44.0	1 26.3	+1.5	44.0	2 52.6	+2.9	44.1	4 18.7	+4.4	44.2	5 44.7	+5.8	44.3
47	0 00.0	0.0	43.0	1 27.8	+1.4	43.0	2 55.5	+2.8	43.1	4 23.1	+4.2	43.2	5 50.5	+5.7	43.3
48	0 00.0	0.0	42.0	1 29.2	+1.4	42.0	2 58.3	+2.8	42.1	4 27.3	+4.2	42.2	5 56.2	+5.6	42.3
49	0 00.0	0.0	41.0	1 30.6	+1.3	41.0	3 01.1	+2.7	41.1	4 31.5	+4.1	41.2	6 01.8	+5.4	41.3
50	0 00.0	0.0	40.0	1 31.9	+1.3	40.0	3 03.8	+2.7	40.1	4 35.6	+4.0	40.2	6 07.2	+5.3	40.3
51	0 00.0	0.0	39.0	1 33.2	+1.4	39.0	3 06.5	+2.6	39.1	4 39.6	+3.9	39.2	6 12.5	+5.3	39.3
52	0 00.0	0.0	38.0	1 34.6	+1.2	38.0	3 09.1	+2.5	38.1	4 43.5	+3.8	38.2	6 17.8	+5.1	38.3
53	0 00.0	0.0	37.0	1 35.8	+1.3	37.0	3 11.6	+2.5	37.1	4 47.3	+3.8	37.2	6 22.9	+5.0	37.3
54	0 00.0	0.0	36.0	1 37.1	+1.2	36.0	3 14.1	+2.4	36.1	4 51.1	+3.6	36.1	6 27.9	+4.9	36.3
55	0 00.0	0.0	35.0	1 38.3	+1.2	35.0	3 16.5	+2.4	35.1	4 54.7	+3.6	35.1	6 32.8	+4.7	35.3
56	0 00.0	0.0	34.0	1 39.5	+1.1	34.0	3 18.9	+2.3	34.1	4 58.3	+3.5	34.1	6 37.5	+4.7	34.3
57	0 00.0	0.0	33.0	1 40.6	+1.2	33.0	3 21.2	+2.3	33.1	5 01.8	+3.3	33.1	6 42.2	+4.5	33.3
58	0 00.0	0.0	32.0	1 41.8	+1.1	32.0	3 23.5	+2.2	32.1	5 05.1	+3.3	32.1	6 46.7	+4.4	32.3
59	0 00.0	0.0	31.0	1 42.9	+1.0	31.0	3 25.7	+2.1	31.1	5 08.4	+3.2	31.1	6 51.1	+4.3	31.2
60	0 00.0	0.0	30.0	1 43.9	+1.0	30.0	3 27.8	+2.1	30.1	5 11.6	+3.1	30.1	6 55.4	+4.1	30.2
61	0 00.0	0.0	29.0	1 44.9	+1.0	29.0	3 29.9	+2.0	29.1	5 14.7	+3.0	29.1	6 59.5	+4.0	29.2
62	0 00.0	0.0	28.0	1 45.9	+1.0	28.0	3 31.9	+1.9	28.1	5 17.7	+2.9	28.1	7 03.5	+3.9	28.2
63	0 00.0	0.0	27.0	1 46.9	+1.0	27.0	3 33.8	+1.9	27.1	5 20.6	+2.9	27.1	7 07.4	+3.8	27.2
64	0 00.0	0.0	26.0	1 47.9	+0.9	26.0	3 35.7	+1.8	26.1	5 23.5	+2.7	26.1	7 11.2	+3.6	26.2
65	0 00.0	0.0	25.0	1 48.8	+0.8	25.0	3 37.5	+1.7	25.1	5 26.2	+2.6	25.1	7 14.8	+3.5	25.2
66	0 00.0	0.0	24.0	1 49.6	+0.9	24.0	3 39.2	+1.7	24.1	5 28.8	+2.5	24.1	7 18.3	+3.3	24.2
67	0 00.0	0.0	23.0	1 50.5	+0.8	23.0	3 40.9	+1.6	23.1	5 31.3	+2.4	23.1	7 21.6	+3.2	23.2
68	0 00.0	0.0	22.0	1 51.3	+0.7	22.0	3 42.5	+1.5	22.0	5 33.7	+2.3	22.1	7 24.8	+3.1	22.2
69	0 00.0	0.0	21.0	1 52.0	+0.8	21.0	3 44.0	+1.5	21.0	5 36.0	+2.2	21.1	7 27.9	+3.0	21.2
70	0 00.0	0.0	20.0	1 52.8	+0.7	20.0	3 45.5	+1.4	20.0	5 38.2	+2.1	20.1	7 30.9	+2.8	20.2
71	0 00.0	0.0	19.0	1 53.5	+0.6	19.0	3 46.9	+1.3	19.0	5 40.3	+2.0	19.1	7 33.7	+2.7	19.2
72	0 00.0	0.0	18.0	1 54.1	+0.7	18.0	3 48.2	+1.3	18.0	5 42.3	+1.9	18.1	7 36.4	+2.5	18.2
73	0 00.0	0.0	17.0	1 54.8	+0.5	17.0	3 49.5	+1.2	17.0	5 44.2	+1.8	17.1	7 38.9	+2.4	17.2
74	0 00.0	0.0	16.0	1 55.3	+0.6	16.0	3 50.7	+1.1	16.0	5 46.0	+1.7	16.1	7 41.3	+2.2	16.1
75	0 00.0	0.0	15.0	1 55.9	+0.5	15.0	3 51.8	+1.1	15.0	5 47.7	+1.6	15.1	7 43.5	+2.2	15.1
76	0 00.0	0.0	14.0	1 56.4	+0.5	14.0	3 52.9	+0.9	14.0	5 49.3	+1.4	14.1	7 45.7	+1.9	14.1
77	0 00.0	0.0	13.0	1 56.9	+0.5	13.0	3 53.8	+0.9	13.0	5 50.7	+1.4	13.1	7 47.6	+1.8	13.1
78	0 00.0	0.0	12.0	1 57.4	+0.4	12.0	3 54.7	+0.9	12.0	5 52.1	+1.3	12.1	7 49.4	+1.7	12.1
79	0 00.0	0.0	11.0	1 57.8	+0.4	11.0	3 55.6	+0.7	11.0	5 53.4	+1.1	11.1	7 51.1	+1.6	11.1
80	0 00.0	0.0	10.0	1 58.2	+0.3	10.0	3 56.3	+0.7	10.0	5 54.5	+1.1	10.1	7 52.7	+1.4	10.1
81	0 00.0	0.0	9.0	1 58.5	+0.3	9.0	3 57.0	+0.7	9.0	5 55.6	+0.9	9.0	7 54.1	+1.2	9.1
82	0 00.0	0.0	8.0	1 58.8	+0.3	8.0	3 57.7	+0.5	8.0	5 56.5	+0.8	8.0	7 55.3	+1.1	8.1
83	0 00.0	0.0	7.0	1 59.1	+0.2	7.0	3 58.2	+0.5	7.0	5 57.3	+0.7	7.0	7 56.4	+1.0	7.1
84	0 00.0	0.0	6.0	1 59.3	+0.2	6.0	3 58.7	+0.4	6.0	5 58.0	+0.6	6.0	7 57.4	+0.8	6.1
85	0 00.0	0.0	5.0	1 59.5	+0.2	5.0	3 59.1	+0.3	5.0	5 58.6	+0.5	5.0	7 58.2	+0.6	5.0
86	0 00.0	0.0	4.0	1 59.7	+0.1	4.0	3 59.4	+0.3	4.0	5 59.1	+0.4	4.0	7 58.8	+0.5	4.0
87	0 00.0	0.0	3.0	1 59.8	+0.1	3.0	3 59.7	+0.2	3.0	5 59.5	+0.3	3.0	7 59.3	+0.4	3.0
88	0 00.0	0.0	2.0	1 59.9	+0.1	2.0	3 59.9	+0.1	2.0	5 59.8	+0.1	2.0	7 59.7	+0.2	2.0
89	0 00.0	0.0	1.0	2 00.0	0.0	1.0	4 00.0	0.0	1.0	5 59.9	+0.1	1.0	7 59.9	+0.1	1.0
90	0 00.0	0.0	0.0	2 00.0	0.0	0.0	4 00.0	0.0	0.0	6 00.0	-0.1	0.0	8 00.0	-0.1	0.0
	0°			2°			4°			6°			8°		

LATITUDE CONTRARY NAME

L.H.A. 90°, 270°

0°				2°				4°				6°				8°				Dec. °
H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	
0	00.0	0.0	120.0	1	00.0	+1.8	60.0	1	59.9	+3.6	60.1	2	59.8	+5.4	60.1	3	59.4	+7.2	60.2	30
0	00.0	0.0	121.0	1	01.8	+1.8	59.0	2	03.5	+3.6	59.1	3	05.2	+5.3	59.1	4	06.6	+7.2	59.2	31
0	00.0	0.0	122.0	1	03.6	+1.7	58.0	2	07.1	+3.5	58.1	3	10.5	+5.3	58.1	4	13.8	+7.0	58.3	32
0	00.0	0.0	123.0	1	05.3	+1.8	57.0	2	10.6	+3.5	57.1	3	15.8	+5.3	57.1	4	20.8	+7.0	57.3	33
0	00.0	0.0	124.0	1	07.1	+1.7	56.0	2	14.1	+3.5	56.1	3	21.1	+5.1	56.1	4	27.8	+6.9	56.3	34
0	00.0	0.0	125.0	1	08.8	+1.7	55.0	2	17.6	+3.4	55.1	3	26.2	+5.1	55.1	4	34.7	+6.8	55.3	35
0	00.0	0.0	126.0	1	10.5	+1.7	54.0	2	21.0	+3.4	54.1	3	31.3	+5.1	54.1	4	41.5	+6.8	54.3	36
0	00.0	0.0	127.0	1	12.2	+1.7	53.0	2	24.4	+3.3	53.1	3	36.4	+5.0	53.2	4	48.3	+6.6	53.3	37
0	00.0	0.0	128.0	1	13.9	+1.6	52.0	2	27.7	+3.3	52.1	3	41.4	+4.9	52.2	4	54.9	+6.6	52.3	38
0	00.0	0.0	129.0	1	15.5	+1.6	51.0	2	31.0	+3.2	51.1	3	46.3	+4.9	51.2	5	01.5	+6.4	51.3	39
0	00.0	0.0	130.0	1	17.1	+1.6	50.0	2	34.2	+3.2	50.1	3	51.2	+4.7	50.2	5	07.9	+6.4	50.3	40
0	00.0	0.0	131.0	1	18.7	+1.6	49.0	2	37.4	+3.1	49.1	3	55.9	+4.7	49.2	5	14.3	+6.3	49.3	41
0	00.0	0.0	132.0	1	20.3	+1.5	48.0	2	40.5	+3.1	48.1	4	00.6	+4.7	48.2	5	20.6	+6.2	48.3	42
0	00.0	0.0	133.0	1	21.8	+1.6	47.0	2	43.6	+3.0	47.1	4	05.3	+4.5	47.2	5	26.8	+6.1	47.3	43
0	00.0	0.0	134.0	1	23.4	+1.4	46.0	2	46.6	+3.0	46.1	4	09.8	+4.5	46.2	5	32.9	+6.0	46.3	44
0	00.0	0.0	135.0	1	24.8	+1.5	45.0	2	49.6	+3.0	45.1	4	14.3	+4.4	45.2	5	38.9	+5.8	45.3	45
0	00.0	0.0	136.0	1	26.3	+1.5	44.0	2	52.6	+2.9	44.1	4	18.7	+4.4	44.2	5	44.7	+5.8	44.3	46
0	00.0	0.0	137.0	1	27.8	+1.4	43.0	2	55.5	+2.8	43.1	4	23.1	+4.2	43.2	5	50.5	+5.7	43.3	47
0	00.0	0.0	138.0	1	29.2	+1.4	42.0	2	58.3	+2.8	42.1	4	27.3	+4.2	42.2	5	56.2	+5.6	42.3	48
0	00.0	0.0	139.0	1	30.6	+1.3	41.0	3	01.1	+2.7	41.1	4	31.5	+4.1	41.2	6	01.8	+5.4	41.3	49
0	00.0	0.0	140.0	1	31.9	+1.4	40.0	3	03.8	+2.7	40.1	4	35.6	+4.0	40.2	6	07.2	+5.3	40.3	50
0	00.0	0.0	141.0	1	33.3	+1.3	39.0	3	06.5	+2.6	39.1	4	39.6	+3.9	39.2	6	12.5	+5.3	39.3	51
0	00.0	0.0	142.0	1	34.6	+1.2	38.0	3	09.1	+2.5	38.1	4	43.5	+3.8	38.2	6	17.8	+5.1	38.3	52
0	00.0	0.0	143.0	1	35.8	+1.3	37.0	3	11.6	+2.5	37.1	4	47.3	+3.8	37.2	6	22.9	+5.0	37.3	53
0	00.0	0.0	144.0	1	37.1	+1.2	36.0	3	14.1	+2.4	36.1	4	51.1	+3.6	36.1	6	27.9	+4.9	36.3	54
0	00.0	0.0	145.0	1	38.3	+1.2	35.0	3	16.5	+2.4	35.1	4	54.7	+3.6	35.1	6	32.8	+4.7	35.3	55
0	00.0	0.0	146.0	1	39.5	+1.1	34.0	3	18.9	+2.3	34.1	4	58.3	+3.5	34.1	6	37.5	+4.7	34.3	56
0	00.0	0.0	147.0	1	40.6	+1.2	33.0	3	21.2	+2.3	33.1	5	01.8	+3.3	33.1	6	42.2	+4.5	33.3	57
0	00.0	0.0	148.0	1	41.8	+1.1	32.0	3	23.5	+2.2	32.1	5	05.1	+3.3	32.1	6	46.7	+4.4	32.3	58
0	00.0	0.0	149.0	1	42.9	+1.0	31.0	3	25.7	+2.1	31.1	5	08.4	+3.2	31.1	6	51.1	+4.3	31.2	59
0	00.0	0.0	150.0	1	43.9	+1.0	30.0	3	27.8	+2.1	30.1	5	11.6	+3.1	30.1	6	55.4	+4.1	30.2	60
0	00.0	0.0	151.0	1	44.9	+1.0	29.0	3	29.9	+2.0	29.1	5	14.7	+3.0	29.1	6	59.5	+4.0	29.2	61
0	00.0	0.0	152.0	1	45.9	+1.0	28.0	3	31.9	+1.9	28.1	5	17.7	+2.9	28.1	7	03.5	+3.9	28.2	62
0	00.0	0.0	153.0	1	46.9	+1.0	27.0	3	33.8	+1.9	27.1	5	20.6	+2.9	27.1	7	07.4	+3.8	27.2	63
0	00.0	0.0	154.0	1	47.9	+0.9	26.0	3	35.7	+1.8	26.1	5	23.5	+2.7	26.1	7	11.2	+3.6	26.2	64
0	00.0	0.0	155.0	1	48.8	+0.8	25.0	3	37.5	+1.7	25.1	5	26.2	+2.6	25.1	7	14.8	+3.5	25.2	65
0	00.0	0.0	156.0	1	49.6	+0.9	24.0	3	39.2	+1.7	24.1	5	28.8	+2.5	24.1	7	18.3	+3.3	24.2	66
0	00.0	0.0	157.0	1	50.5	+0.8	23.0	3	40.9	+1.6	23.1	5	31.3	+2.4	23.1	7	21.6	+3.2	23.2	67
0	00.0	0.0	158.0	1	51.3	+0.7	22.0	3	42.5	+1.5	22.0	5	33.7	+2.3	22.1	7	24.8	+3.1	22.2	68
0	00.0	0.0	159.0	1	52.0	+0.8	21.0	3	44.0	+1.5	21.0	5	36.0	+2.2	21.0	7	27.9	+3.0	21.2	69
0	00.0	0.0	160.0	1	52.8	+0.7	20.0	3	45.5	+1.4	20.0	5	38.2	+2.1	20.1	7	30.9	+2.8	20.2	70
0	00.0	0.0	161.0	1	53.5	+0.6	19.0	3	46.9	+1.3	19.0	5	40.3	+2.0	19.1	7	33.7	+2.7	19.2	71
0	00.0	0.0	162.0	1	54.1	+0.7	18.0	3	48.2	+1.3	18.0	5	42.3	+1.9	18.1	7	36.4	+2.5	18.2	72
0	00.0	0.0	163.0	1	54.8	+0.5	17.0	3	49.5	+1.2	17.0	5	44.2	+1.8	17.1	7	38.9	+2.4	17.2	73
0	00.0	0.0	164.0	1	55.3	+0.6	16.0	3	50.7	+1.1	16.0	5	46.0	+1.7	16.1	7	41.3	+2.2	16.1	74
0	00.0	0.0	165.0	1	55.9	+0.5	15.0	3	51.8	+1.1	15.0	5	47.7	+1.6	15.1	7	43.5	+2.2	15.1	75
0	00.0	0.0	166.0	1	56.4	+0.5	14.0	3	52.9	+0.9	14.0	5	49.3	+1.4	14.1	7	45.7	+1.9	14.1	76
0	00.0	0.0	167.0	1	56.9	+0.5	13.0	3	53.8	+0.9	13.0	5	50.7	+1.4	13.1	7	47.6	+1.8	13.1	77
0	00.0	0.0	168.0	1	57.4	+0.4	12.0	3	54.7	+0.9	12.0	5	52.1	+1.3	12.1	7	49.4	+1.7	12.1	78
0	00.0	0.0	169.0	1	57.8	+0.4	11.0	3	55.6	+0.7	11.0	5	53.4	+1.1	11.1	7	51.1	+1.6	11.1	79
0	00.0	0.0	170.0	1	58.2	+0.3	10.0	3	56.3	+0.7	10.0	5	54.5	+1.1	10.1	7	52.7	+1.4	10.1	80
0	00.0	0.0	171.0	1	58.5	+0.3	9.0	3	57.0	+0.7	9.0	5	55.6	+0.9	9.0	7	54.1	+1.2	9.1	81
0	00.0	0.0	172.0	1	58.8	+0.3	8.0	3	57.7	+0.5	8.0	5	56.5	+0.8	8.0	7	55.3	+1.1	8.1	82
0	00.0	0.0	173.0	1	59.1	+0.2	7.0	3	58.2	+0.5	7.0	5	57.3	+0.7	7.0	7	56.4	+1.0	7.1	83
0	00.0	0.0	174.0	1	59.3	+0.2	6.0	3	58.7	+0.4	6.0	5	58.0	+0.6	6.0	7	57.4	+0.8	6.1	84
0	00.0	0.0	175.0	1	59.5	+0.2	5.0	3	59.1	+0.3	5.0	5	58.6	+0.5	5.0	7	58.2	+0.6	5.0	85
0	00.0	0.0	176.0	1	59.7	+0.1	4.0	3	59.4	+0.3	4.0	5	59.1	+0.4	4.0	7	58.8	+0.5	4.0	86
0	00.0	0.0	177.0	1	59.8	+0.1	3.0	3	59.7	+0.2	3.0	5	59.5	+0.3	3.0	7	59.3	+0.4	3.0	87
0	00.0	0.0	178.0	1	59.9	+0.1	2.0	3	59.9	+0.1	2.0	5	59.8	+0.1	2.0	7	59.7	+0.2	2.0	88
0	00.0	0.0	179.0	2	00.0	0.0	1.0	4	00.0	0.0	1.0	5	59.9	+0.1	1.0	7	59.9	+0.1	1.0	89
0	00.0	0.0	180.0	2	00.0	0.0	0.0	4	00.0	0.0	0.0	6	00.0	-0.1	0.0	8	00.0	-0.1	0.0	90

LATITUDE SAME NAME

L.H.A. 90°, 270°

90°, 270° L.H.A.

LATITUDE SAME NAME

Dec.	10°			12°			14°			16°			18°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	4 58.9	+9.0	60.4	5 58.0	+10.8	60.5	6 56.9	+12.6	60.7	7 55.3	+14.4	61.0	8 53.3	+16.2	61.2
31	5 07.9	+8.9	59.4	6 08.8	+10.7	59.6	7 09.5	+12.4	59.8	8 09.7	+14.2	60.0	9 09.5	+16.0	60.3
32	5 16.8	+8.8	58.4	6 19.5	+10.6	58.6	7 21.9	+12.4	58.8	8 23.9	+14.1	59.0	9 25.5	+15.8	59.3
33	5 25.6	+8.7	57.4	6 30.1	+10.5	57.6	7 34.3	+12.2	57.8	8 38.0	+14.0	58.0	9 41.3	+15.7	58.3
34	5 34.3	+8.7	56.4	6 40.6	+10.3	56.6	7 46.5	+12.1	56.8	8 52.0	+13.8	57.0	9 57.0	+15.6	57.3
35	5 43.0	+8.5	55.4	6 50.9	+10.3	55.6	7 58.6	+11.9	55.8	9 05.8	+13.6	56.1	10 12.6	+15.3	56.3
36	5 51.5	+8.4	54.4	7 01.2	+10.1	54.6	8 10.5	+11.8	54.8	9 19.4	+13.5	55.1	10 27.9	+15.2	55.4
37	5 59.9	+8.3	53.4	7 11.3	+10.0	53.6	8 22.3	+11.6	53.8	9 32.9	+13.3	54.1	10 43.1	+14.9	54.4
38	6 08.2	+8.2	52.4	7 21.3	+9.8	52.6	8 33.9	+11.5	52.8	9 46.2	+13.2	53.1	10 58.0	+14.8	53.4
39	6 16.4	+8.1	51.4	7 31.1	+9.7	51.6	8 45.4	+11.4	51.8	9 59.4	+12.9	52.1	11 12.8	+14.6	52.4
40	6 24.5	+8.0	50.4	7 40.8	+9.6	50.6	8 56.8	+11.1	50.8	10 12.3	+12.8	51.1	11 27.4	+14.4	51.4
41	6 32.5	+7.8	49.4	7 50.4	+9.4	49.6	9 07.9	+11.1	49.9	10 25.1	+12.6	50.1	11 41.8	+14.2	50.4
42	6 40.3	+7.8	48.4	7 59.8	+9.3	48.6	9 19.0	+10.8	48.9	10 37.7	+12.4	49.1	11 56.0	+14.0	49.4
43	6 48.1	+7.6	47.4	8 09.1	+9.1	47.6	9 29.8	+10.7	47.9	10 50.1	+12.2	48.1	12 10.0	+13.7	48.4
44	6 55.7	+7.5	46.4	8 18.2	+9.0	46.6	9 40.5	+10.5	46.9	11 02.3	+12.1	47.1	12 23.7	+13.6	47.4
45	7 03.2	+7.3	45.4	8 27.2	+8.9	45.6	9 51.0	+10.3	45.9	11 14.4	+11.8	46.1	12 37.3	+13.3	46.4
46	7 10.5	+7.3	44.4	8 36.1	+8.7	44.6	10 01.3	+10.2	44.9	11 26.2	+11.6	45.1	12 50.6	+13.1	45.4
47	7 17.8	+7.1	43.4	8 44.8	+8.5	43.6	10 11.5	+9.9	43.9	11 37.8	+11.4	44.1	13 03.7	+12.9	44.4
48	7 24.9	+6.9	42.4	8 53.3	+8.4	42.6	10 21.4	+9.8	42.9	11 49.2	+11.2	43.1	13 16.6	+12.6	43.4
49	7 31.8	+6.9	41.4	9 01.7	+8.2	41.6	10 31.2	+9.6	41.9	12 00.4	+11.0	42.1	13 29.2	+12.4	42.4
50	7 38.7	+6.6	40.4	9 09.9	+8.0	40.6	10 40.8	+9.4	40.9	12 11.4	+10.8	41.1	13 41.6	+12.1	41.4
51	7 45.3	+6.6	39.4	9 17.9	+7.9	39.6	10 50.2	+9.2	39.8	12 22.2	+10.5	40.1	13 53.7	+11.9	40.4
52	7 51.9	+6.4	38.4	9 25.8	+7.8	38.6	10 59.4	+9.0	38.8	12 32.7	+10.3	39.1	14 05.6	+11.7	39.4
53	7 58.3	+6.3	37.4	9 33.5	+7.5	37.6	11 08.4	+8.8	37.8	12 43.0	+10.1	38.1	14 17.3	+11.4	38.4
54	8 04.6	+6.1	36.4	9 41.0	+7.4	36.6	11 17.2	+8.6	36.8	12 53.1	+9.9	37.1	14 28.7	+11.1	37.4
55	8 10.7	+5.9	35.4	9 48.4	+7.1	35.6	11 25.8	+8.4	35.8	13 03.0	+9.6	36.1	14 39.8	+10.8	36.4
56	8 16.6	+5.8	34.4	9 55.5	+7.0	34.6	11 34.2	+8.2	34.8	13 12.6	+9.4	35.1	14 50.6	+10.6	35.3
57	8 22.4	+5.7	33.4	10 02.5	+6.8	33.6	11 42.4	+7.9	33.8	13 22.0	+9.1	34.0	15 01.2	+10.3	34.3
58	8 28.1	+5.5	32.4	10 09.3	+6.6	32.6	11 50.3	+7.8	32.8	13 31.1	+8.9	33.0	15 11.5	+10.1	33.3
59	8 33.6	+5.3	31.4	10 15.9	+6.5	31.6	11 58.1	+7.5	31.8	13 40.0	+8.6	32.0	15 21.6	+9.7	32.3
60	8 38.9	+5.2	30.4	10 22.4	+6.2	30.6	12 05.6	+7.3	30.8	13 48.6	+8.4	31.0	15 31.3	+9.5	31.3
61	8 44.1	+5.1	29.4	10 28.6	+6.1	29.5	12 12.9	+7.1	29.7	13 57.0	+8.1	30.0	15 40.8	+9.2	30.2
62	8 49.2	+4.8	28.4	10 34.7	+5.8	28.5	12 20.0	+6.9	28.7	14 05.1	+7.9	28.9	15 50.0	+8.9	29.2
63	8 54.0	+4.7	27.4	10 40.5	+5.7	27.5	12 26.9	+6.6	27.7	14 13.0	+7.6	27.9	15 58.9	+8.6	28.2
64	8 58.7	+4.6	26.3	10 46.2	+5.5	26.5	12 33.5	+6.4	26.7	14 20.6	+7.4	26.9	16 07.5	+8.3	27.2
65	9 03.3	+4.4	25.3	10 51.7	+5.2	25.5	12 39.9	+6.2	25.7	14 28.0	+7.1	25.9	16 15.8	+8.1	26.1
66	9 07.7	+4.2	24.3	10 56.9	+5.1	24.5	12 46.1	+5.9	24.6	14 35.1	+6.8	24.9	16 23.9	+7.7	25.1
67	9 11.9	+4.0	23.3	11 02.0	+4.9	23.5	12 52.0	+5.7	23.6	14 41.9	+6.5	23.8	16 31.6	+7.4	24.1
68	9 15.9	+3.9	22.3	11 06.9	+4.6	22.4	12 57.7	+5.5	22.6	14 48.4	+6.3	22.8	16 39.0	+7.1	23.0
69	9 19.8	+3.7	21.3	11 11.5	+4.5	21.4	13 03.2	+5.2	21.6	14 54.7	+6.0	21.8	16 46.1	+6.7	22.0
70	9 23.5	+3.5	20.3	11 16.0	+4.2	20.4	13 08.4	+5.0	20.6	15 00.7	+5.7	20.7	16 52.8	+6.5	20.9
71	9 27.0	+3.4	19.3	11 20.2	+4.1	19.4	13 13.4	+4.7	19.5	15 06.4	+5.4	19.7	16 59.3	+6.2	19.9
72	9 30.4	+3.1	18.3	11 24.3	+3.8	18.4	13 18.1	+4.5	18.5	15 11.8	+5.2	18.7	17 05.5	+5.8	18.9
73	9 33.5	+3.0	17.2	11 28.1	+3.6	17.4	13 22.6	+4.2	17.5	15 17.0	+4.9	17.6	17 11.3	+5.5	17.8
74	9 36.5	+2.9	16.2	11 31.7	+3.4	16.3	13 26.8	+4.0	16.5	15 21.9	+4.6	16.6	17 16.8	+5.2	16.8
75	9 39.4	+2.6	15.2	11 35.1	+3.2	15.3	13 30.8	+3.8	15.4	15 26.5	+4.3	15.6	17 22.0	+4.9	15.7
76	9 42.0	+2.5	14.2	11 38.3	+3.0	14.3	13 34.6	+3.4	14.4	15 30.8	+4.0	14.5	17 26.9	+4.5	14.7
77	9 44.5	+2.3	13.2	11 41.3	+2.7	13.3	13 38.0	+3.3	13.4	15 34.8	+3.7	13.5	17 31.4	+4.2	13.6
78	9 46.8	+2.1	12.2	11 44.0	+2.6	12.3	13 41.3	+3.0	12.4	15 38.5	+3.4	12.5	17 35.6	+3.9	12.6
79	9 48.9	+1.9	11.2	11 46.6	+2.3	11.2	13 44.3	+2.7	11.3	15 41.9	+3.1	11.4	17 39.5	+3.5	11.6
80	9 50.8	+1.7	10.2	11 48.9	+2.1	10.2	13 47.0	+2.5	10.3	15 45.0	+2.9	10.4	17 43.0	+3.3	10.5
81	9 52.5	+1.6	9.1	11 51.0	+1.9	9.2	13 49.5	+2.2	9.3	15 47.9	+2.5	9.4	17 46.3	+2.8	9.5
82	9 54.1	+1.4	8.1	11 52.9	+1.7	8.2	13 51.7	+1.9	8.2	15 50.4	+2.3	8.3	17 49.1	+2.6	8.4
83	9 55.5	+1.2	7.1	11 54.6	+1.4	7.2	13 53.6	+1.7	7.2	15 52.7	+1.9	7.3	17 51.7	+2.2	7.4
84	9 56.7	+1.0	6.1	11 56.0	+1.2	6.1	13 55.3	+1.4	6.2	15 54.6	+1.6	6.2	17 53.9	+1.9	6.3
85	9 57.7	+0.8	5.1	11 57.2	+1.0	5.1	13 56.7	+1.2	5.2	15 56.2	+1.4	5.2	17 55.8	+1.5	5.3
86	9 58.5	+0.7	4.1	11 58.2	+0.8	4.1	13 57.9	+0.9	4.1	15 57.6	+1.0	4.2	17 57.3	+1.2	4.2
87	9 59.2	+0.4	3.0	11 59.0	+0.6	3.1	13 58.8	+0.7	3.1	15 58.6	+0.8	3.1	17 58.5	+0.8	3.2
88	9 59.6	+0.3	2.0	11 59.6	+0.3	2.0	13 59.5	+0.4	2.1	15 59.4	+0.4	2.1	17 59.3	+0.5	2.1
89	9 59.9	+0.1	1.0	11 59.9	+0.1	1.0	13 59.9	+0.1	1.0	15 59.8	+0.2	1.0	17 59.8	+0.2	1.1
90	10 00.0	-0.1	0.0	12 00.0	-0.1	0.0	14 00.0	-0.1	0.0	16 00.0	-0.2	0.0	18 00.0	-0.2	0.0
	10°			12°			14°			16°			18°		

LATITUDE CONTRARY NAME

L.H.A. 90°, 270°

10°			12°			14°			16°			18°			Dec. °					
l	c	d	Z	l	c	d	Z	l	c	d	Z	l	c	d		Z				
4	58.9	+9.0	60.4	5	58.0	+10.8	60.5	6	56.9	+12.6	60.7	7	55.3	+14.4	61.0	8	53.3	+16.2	61.2	30
5	07.9	+8.9	59.4	6	08.8	+10.7	59.6	7	09.5	+12.4	59.8	8	09.7	+14.2	60.0	9	09.5	+16.0	60.3	31
5	16.8	+8.8	58.4	6	19.5	+10.6	58.6	7	21.9	+12.4	58.8	8	23.9	+14.1	59.0	9	25.5	+15.8	59.3	32
5	25.6	+8.7	57.4	6	30.1	+10.5	57.6	7	34.3	+12.2	57.8	8	38.0	+14.0	58.0	9	41.3	+15.7	58.3	33
5	34.3	+8.7	56.4	6	40.6	+10.3	56.6	7	46.5	+12.1	56.8	8	52.0	+13.8	57.0	9	57.0	+15.6	57.3	34
5	43.0	+8.5	55.4	6	50.9	+10.3	55.6	7	58.6	+11.9	55.8	9	05.8	+13.6	56.1	10	12.6	+15.3	56.3	35
5	51.5	+8.4	54.4	7	01.2	+10.1	54.6	8	10.5	+11.8	54.8	9	19.4	+13.5	55.1	10	27.9	+15.2	55.4	36
5	59.9	+8.3	53.4	7	11.3	+10.0	53.6	8	22.3	+11.6	53.8	9	32.9	+13.3	54.1	10	43.1	+14.9	54.4	37
6	08.2	+8.2	52.4	7	21.3	+9.8	52.6	8	33.9	+11.5	52.8	9	46.2	+13.2	53.1	10	58.0	+14.8	53.4	38
6	16.4	+8.1	51.4	7	31.1	+9.7	51.6	8	45.4	+11.4	51.8	9	59.4	+12.9	52.1	11	12.8	+13.6	52.4	39
6	24.5	+8.0	50.4	7	40.8	+9.6	50.6	8	56.8	+11.1	50.8	10	12.3	+12.8	51.1	11	27.4	+14.4	51.4	40
6	32.5	+7.8	49.4	7	50.4	+9.4	49.6	9	07.9	+11.1	49.9	10	25.1	+12.6	50.1	11	41.8	+14.2	50.4	41
6	40.3	+7.8	48.4	7	59.8	+9.3	48.6	9	19.0	+10.8	48.9	10	37.7	+12.4	49.1	11	56.0	+14.0	49.4	42
6	48.1	+7.6	47.4	8	09.1	+9.1	47.6	9	29.8	+10.7	47.9	10	50.1	+12.2	48.1	12	10.0	+13.7	48.4	43
6	55.7	+7.5	46.4	8	18.2	+9.0	46.6	9	40.5	+10.5	46.9	11	02.3	+12.1	47.1	12	23.7	+13.6	47.4	44
7	03.2	+7.3	45.4	8	27.2	+8.9	45.6	9	51.0	+10.3	45.9	11	14.4	+11.8	46.1	12	37.3	+13.3	46.4	45
7	10.5	+7.3	44.4	8	36.1	+8.7	44.6	10	01.3	+10.2	44.9	11	26.2	+11.6	45.1	12	50.6	+13.1	45.4	46
7	17.8	+7.1	43.4	8	44.8	+8.5	43.6	10	11.5	+9.9	43.9	11	37.8	+11.4	44.1	13	03.7	+12.9	44.4	47
7	24.9	+6.9	42.4	8	53.3	+8.4	42.6	10	21.4	+9.8	42.9	11	49.2	+11.2	43.1	13	16.6	+12.6	43.4	48
7	31.8	+6.9	41.4	9	01.7	+8.2	41.6	10	31.2	+9.6	41.9	12	00.4	+11.0	42.1	13	29.2	+12.4	42.4	49
7	38.7	+6.6	40.4	9	09.9	+8.0	40.6	10	40.8	+9.4	40.9	12	11.4	+10.8	41.1	13	41.6	+12.1	41.4	50
7	45.3	+6.6	39.4	9	17.9	+7.9	39.6	10	50.2	+9.2	39.8	12	22.2	+10.5	40.1	13	53.7	+11.9	40.4	51
7	51.9	+6.4	38.4	9	25.8	+7.7	38.6	10	59.4	+9.0	38.8	12	32.7	+10.3	39.1	14	05.0	+11.0	39.4	52
7	58.3	+6.3	37.4	9	33.5	+7.5	37.6	11	08.4	+8.8	37.8	12	43.0	+10.1	38.1	14	17.3	+11.4	38.4	53
8	04.6	+6.1	36.4	9	41.0	+7.4	36.6	11	17.2	+8.6	36.8	12	53.1	+9.9	37.1	14	28.7	+11.1	37.4	54
8	10.7	+5.9	35.4	9	48.4	+7.1	35.6	11	25.8	+8.4	35.8	13	03.0	+9.6	36.1	14	39.8	+10.8	36.4	55
8	16.6	+5.8	34.4	9	55.5	+7.0	34.6	11	34.2	+8.2	34.8	13	12.6	+9.4	35.1	14	50.6	+10.6	35.3	56
8	22.4	+5.7	33.4	10	02.5	+6.8	33.6	11	42.4	+7.9	33.8	13	22.0	+9.1	34.0	15	01.2	+10.3	34.3	57
8	28.1	+5.5	32.4	10	09.3	+6.6	32.6	11	50.3	+7.8	32.8	13	31.1	+8.9	33.0	15	11.5	+10.1	33.3	58
8	33.6	+5.3	31.4	10	15.9	+6.5	31.6	11	58.1	+7.5	31.8	13	40.0	+8.6	32.0	15	21.6	+9.7	32.3	59
8	38.9	+5.2	30.4	10	22.4	+6.2	30.6	12	05.6	+7.3	30.8	13	48.6	+8.4	31.0	15	31.3	+9.5	31.3	60
8	44.1	+5.1	29.4	10	28.6	+6.1	29.5	12	12.9	+7.1	29.7	13	57.0	+8.1	30.0	15	40.8	+9.2	30.2	61
8	49.2	+4.8	28.4	10	34.7	+5.8	28.5	12	20.0	+6.9	28.7	14	05.1	+7.9	28.9	15	50.0	+8.9	29.2	62
8	54.0	+4.7	27.4	10	40.5	+5.7	27.5	12	26.9	+6.6	27.7	14	13.0	+7.6	27.9	15	58.9	+8.6	28.2	63
8	58.7	+4.6	26.3	10	46.2	+5.5	26.5	12	33.5	+6.4	26.7	14	20.6	+7.4	26.9	16	07.5	+8.3	27.2	64
9	03.3	+4.4	25.3	10	51.7	+5.2	25.5	12	39.9	+6.2	25.7	14	28.0	+7.1	25.9	16	15.8	+8.1	26.1	65
9	07.7	+4.2	24.3	10	56.9	+5.1	24.5	12	46.1	+5.9	24.6	14	35.1	+6.8	24.9	16	23.9	+7.7	25.1	66
9	11.9	+4.0	23.3	11	02.0	+4.9	23.5	12	52.0	+5.7	23.6	14	41.9	+6.5	23.8	16	31.6	+7.4	24.1	67
9	15.9	+3.9	22.3	11	06.9	+4.6	22.4	12	57.7	+5.5	22.6	14	48.4	+6.3	22.8	16	39.0	+7.1	23.0	68
9	19.8	+3.7	21.3	11	11.5	+4.5	21.4	13	03.2	+5.2	21.6	14	54.7	+6.0	21.8	16	46.1	+6.7	22.0	69
9	23.5	+3.5	20.3	11	16.0	+4.2	20.4	13	08.4	+5.0	20.6	15	00.7	+5.7	20.7	16	52.8	+6.5	20.9	70
9	27.0	+3.4	19.3	11	20.2	+4.1	19.4	13	13.4	+4.7	19.5	15	06.4	+5.4	19.7	16	59.3	+6.2	19.9	71
9	30.4	+3.1	18.3	11	24.3	+3.8	18.4	13	18.1	+4.5	18.5	15	11.8	+5.2	18.7	17	05.5	+5.8	18.9	72
9	33.5	+3.0	17.2	11	28.1	+3.6	17.4	13	22.6	+4.2	17.5	15	17.0	+4.9	17.6	17	11.3	+5.5	17.8	73
9	36.5	+2.9	16.2	11	31.7	+3.4	16.3	13	26.8	+4.0	16.5	15	21.9	+4.6	16.6	17	16.8	+5.2	16.8	74
9	39.4	+2.6	15.2	11	35.1	+3.2	15.3	13	30.8	+3.8	15.4	15	26.5	+4.3	15.6	17	22.0	+4.9	15.7	75
9	42.0	+2.5	14.2	11	38.3	+3.0	14.3	13	34.6	+3.4	14.4	15	30.8	+4.0	14.5	17	26.9	+4.5	14.7	76
9	44.5	+2.3	13.2	11	41.3	+2.7	13.3	13	38.0	+3.3	13.4	15	34.8	+3.7	13.5	17	31.4	+4.2	13.6	77
9	46.8	+2.1	12.2	11	44.0	+2.6	12.3	13	41.3	+3.0	12.4	15	38.5	+3.4	12.5	17	35.6	+3.9	12.6	78
9	48.9	+1.9	11.2	11	46.6	+2.3	11.2	13	44.3	+2.7	11.3	15	41.9	+3.1	11.4	17	39.5	+3.5	11.6	79
9	50.8	+1.7	10.2	11	48.9	+2.1	10.2	13	47.0	+2.5	10.3	15	45.0	+2.9	10.4	17	43.0	+3.3	10.5	80
9	52.5	+1.6	9.1	11	51.0	+1.9	9.2	13	49.5	+2.2	9.3	15	47.9	+2.5	9.4	17	46.3	+2.8	9.5	81
9	54.1	+1.4	8.1	11	52.9	+1.7	8.2	13	51.7	+1.9	8.2	15	50.4	+2.3	8.3	17	49.1	+2.6	8.4	82
9	55.5	+1.2	7.1	11	54.6	+1.4	7.2	13	53.6	+1.7	7.2	15	52.7	+1.9	7.3	17	51.7	+2.2	7.4	83
9	56.7	+1.0	6.1	11	56.0	+1.2	6.1	13	55.3	+1.4	6.2	15	54.6	+1.6	6.2	17	53.9	+1.9	6.3	84
9	57.7	+0.8	5.1	11	57.2	+1.0	5.1	13	56.7	+1.2	5.2	15	56.2	+1.4	5.2	17	55.8	+1.5	5.3	85
9	58.5	+0.7	4.1	11	58.2	+0.8	4.1	13	57.9	+0.9	4.1	15	57.6	+1.0	4.2	17	57.3	+1.2	4.2	86
9	59.2	+0.4	3.0	11	59.0	+0.6	3.1	13	58.8	+0.7	3.1	15	58.6	+0.8	3.1	17	58.5	+0.8	3.2	87
9	59.6	+0.3	2.0	11	59.6	+0.3	2.0	13	59.5	+0.4	2.1	15	59.4	+0.4	2.1	17	59.3	+0.5	2.1	88
9	59.9	+0.1	1.0	11	59.9	+0.1	1.0	13	59.9	+0.1	1.0	15	59.8	+0.2	1.0	17	59.8	+0.2	1.1	89
10	00.0	-0.1	0.0	12	00.0	-0.1	0.0	14	00.0	-0.1	0.0	16	00.0	-0.2	0.0	18	00.0	-0.2	0.0	90

LATITUDE SAME NAME

L.H.A. 90°, 270°

90°, 270° L.H.A.

LATITUDE SAME NAME

Dec.	20°			22°			24°			26°			28°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	9 50.8	+17.9	61.5	10 47.7	+19.8	61.8	11 44.0	+21.5	62.2	12 39.7	+23.2	62.6	13 34.6	+25.0	63.0
31	10 08.7	+17.8	60.5	11 07.5	+19.5	60.9	12 05.5	+21.3	61.2	13 02.9	+23.1	61.6	13 59.6	+24.7	62.1
32	10 26.5	+17.6	59.6	11 27.0	+19.3	59.9	12 26.8	+21.1	60.3	13 26.0	+22.8	60.7	14 24.3	+24.6	61.1
33	10 44.1	+17.5	58.6	11 46.3	+19.2	58.9	12 47.9	+20.9	59.3	13 48.8	+22.6	59.7	14 48.9	+24.3	60.2
34	11 01.6	+17.2	57.6	12 05.5	+19.0	58.0	13 08.8	+20.7	58.4	14 11.4	+22.4	58.8	15 13.2	+24.1	59.2
35	11 18.8	+17.0	56.7	12 24.5	+18.7	57.0	13 29.5	+20.4	57.4	14 33.8	+22.1	57.8	15 37.3	+23.8	58.3
36	11 35.8	+16.9	55.7	12 43.2	+18.5	56.0	13 49.9	+20.2	56.4	14 55.9	+21.9	56.9	16 01.1	+23.6	57.3
37	11 52.7	+16.6	54.7	13 01.7	+18.4	55.1	14 10.1	+20.0	55.5	15 17.8	+21.7	55.9	16 24.7	+23.3	56.4
38	12 09.3	+16.5	53.7	13 20.1	+18.0	54.1	14 30.1	+19.8	54.5	15 39.5	+21.4	54.9	16 48.0	+23.1	55.4
39	12 25.8	+16.2	52.7	13 38.1	+17.9	53.1	14 49.9	+19.5	53.5	16 00.9	+21.1	54.0	17 11.1	+22.7	54.4
40	12 42.0	+16.0	51.7	13 56.0	+17.6	52.1	15 09.4	+19.2	52.5	16 22.0	+20.8	53.0	17 33.8	+22.5	53.5
41	12 58.0	+15.8	50.8	14 13.6	+17.4	51.1	15 28.6	+19.0	51.5	16 42.8	+20.6	52.0	17 56.3	+22.2	52.5
42	13 13.8	+15.5	49.8	14 31.0	+17.1	50.1	15 47.6	+18.7	50.6	17 03.4	+20.3	51.0	18 18.5	+21.9	51.5
43	13 29.3	+15.4	48.8	14 48.1	+16.9	49.2	16 06.3	+18.4	49.6	17 23.7	+20.1	50.0	18 40.4	+21.6	50.5
44	13 44.7	+15.0	47.8	15 05.0	+16.6	48.2	16 24.7	+18.2	48.6	17 43.8	+19.7	49.0	19 02.0	+21.3	49.5
45	13 59.7	+14.9	46.8	15 21.6	+16.4	47.2	16 42.9	+17.9	47.6	18 03.5	+19.4	48.1	19 23.3	+20.9	48.6
46	14 14.6	+14.5	45.8	15 38.0	+16.0	46.2	17 00.8	+17.5	46.6	18 22.9	+19.1	47.1	19 44.2	+20.7	47.6
47	14 29.1	+14.4	44.8	15 54.0	+15.8	45.2	17 18.3	+17.3	45.6	18 42.0	+18.7	46.1	20 04.9	+20.2	46.6
48	14 43.5	+14.0	43.8	16 09.8	+15.6	44.2	17 35.6	+17.0	44.6	19 00.7	+18.5	45.1	20 25.1	+20.0	45.6
49	14 57.5	+13.8	42.8	16 25.4	+15.2	43.2	17 52.6	+16.7	43.6	19 19.2	+18.1	44.0	20 45.1	+19.6	44.6
50	15 11.3	+13.6	41.8	16 40.6	+14.9	42.1	18 09.3	+16.3	42.6	19 37.3	+17.8	43.0	21 04.7	+19.2	43.5
51	15 24.9	+13.2	40.8	16 55.5	+14.7	41.1	18 25.6	+16.0	41.6	19 55.1	+17.4	42.0	21 23.9	+18.8	42.5
52	15 38.1	+13.0	39.7	17 10.2	+14.3	40.1	18 41.6	+15.7	40.5	20 12.5	+17.1	41.0	21 42.7	+18.5	41.5
53	15 51.1	+12.7	38.7	17 24.5	+14.0	39.1	18 57.3	+15.4	39.5	20 29.6	+16.7	40.0	22 01.2	+18.1	40.5
54	16 03.8	+12.4	37.7	17 38.5	+13.7	38.1	19 12.7	+15.0	38.5	20 46.3	+16.4	39.0	22 19.3	+17.7	39.4
55	16 16.2	+12.1	36.7	17 52.2	+13.4	37.1	19 27.7	+14.7	37.5	21 02.7	+15.9	37.9	22 37.0	+17.3	38.4
56	16 28.3	+11.8	35.7	18 05.6	+13.0	36.0	19 42.4	+14.3	36.4	21 18.6	+15.6	36.9	22 54.3	+16.9	37.4
57	16 40.1	+11.6	34.6	18 18.6	+12.8	35.0	19 56.7	+14.0	35.4	21 34.2	+15.3	35.8	23 11.2	+16.5	36.3
58	16 51.7	+11.2	33.6	18 31.4	+12.4	34.0	20 10.7	+13.6	34.4	21 49.5	+14.8	34.8	23 27.7	+16.1	35.3
59	17 02.9	+10.9	32.6	18 43.8	+12.0	32.9	20 24.3	+13.2	33.3	22 04.3	+14.4	33.8	23 43.8	+15.6	34.2
60	17 13.8	+10.5	31.6	18 55.8	+11.7	31.9	20 37.5	+12.8	32.3	22 18.7	+14.0	32.7	23 59.4	+15.2	33.2
61	17 24.3	+10.3	30.5	19 07.5	+11.4	30.9	20 50.3	+12.5	31.2	22 32.7	+13.6	31.7	24 14.6	+14.7	32.1
62	17 34.6	+10.0	29.5	19 18.9	+11.0	29.8	21 02.8	+12.1	30.2	22 46.3	+13.2	30.6	24 29.3	+14.3	31.1
63	17 44.6	+9.6	28.5	19 29.9	+10.6	28.8	21 14.9	+11.7	29.2	22 59.5	+12.7	29.5	24 43.6	+13.9	30.0
64	17 54.2	+9.3	27.4	19 40.5	+10.3	27.7	21 26.6	+11.3	28.1	23 12.2	+12.4	28.5	24 57.5	+13.4	28.9
65	18 03.5	+8.9	26.4	19 50.8	+9.9	26.7	21 37.9	+10.9	27.0	23 24.6	+11.9	27.4	25 10.9	+12.9	27.8
66	18 12.4	+8.6	25.4	20 00.7	+9.6	25.7	21 48.8	+10.4	26.0	23 36.5	+11.4	26.4	25 23.8	+12.4	26.8
67	18 21.0	+8.3	24.3	20 10.3	+9.1	24.6	21 59.2	+10.1	24.9	23 47.9	+11.0	25.3	25 36.2	+12.0	25.7
68	18 29.3	+7.9	23.3	20 19.4	+8.8	23.5	22 09.3	+9.7	23.9	23 58.9	+10.6	24.2	25 48.2	+11.5	24.6
69	18 37.2	+7.6	22.2	20 28.2	+8.4	22.5	22 19.0	+9.2	22.8	24 09.5	+10.1	23.1	25 59.7	+11.0	23.5
70	18 44.8	+7.3	21.2	20 36.6	+8.1	21.4	22 28.2	+8.8	21.7	24 19.6	+9.6	22.0	26 10.7	+10.5	22.4
71	18 52.1	+6.9	20.1	20 44.7	+7.6	20.4	22 37.0	+8.4	20.7	24 29.2	+9.2	21.0	26 21.2	+9.9	21.3
72	18 59.0	+6.5	19.1	20 52.3	+7.2	19.3	22 45.4	+8.0	19.6	24 38.4	+8.7	19.9	26 31.1	+9.5	20.2
73	19 05.5	+6.2	18.0	20 59.5	+6.9	18.2	22 53.4	+7.5	18.5	24 47.1	+8.2	18.8	26 40.6	+9.0	19.1
74	19 11.7	+5.8	17.0	21 06.4	+6.4	17.2	23 00.9	+7.1	17.4	24 55.3	+7.8	17.7	26 49.6	+8.4	18.0
75	19 17.5	+5.4	15.9	21 12.8	+6.0	16.1	23 08.0	+6.7	16.3	25 03.1	+7.3	16.6	26 58.0	+7.9	16.9
76	19 22.9	+5.1	14.9	21 18.8	+5.7	15.1	23 14.7	+6.2	15.3	25 10.4	+6.8	15.5	27 05.9	+7.4	15.8
77	19 28.0	+4.7	13.8	21 24.5	+5.2	14.0	23 20.9	+5.7	14.2	25 17.2	+6.3	14.4	27 13.3	+6.9	14.7
78	19 32.7	+4.3	12.7	21 29.7	+4.8	12.9	23 26.6	+5.3	13.1	25 23.5	+5.8	13.3	27 20.2	+6.3	13.5
79	19 37.0	+4.0	11.7	21 34.5	+4.4	11.8	23 31.9	+4.9	12.0	25 29.3	+5.3	12.2	27 26.5	+5.8	12.4
80	19 41.0	+3.6	10.6	21 38.9	+4.0	10.8	23 36.8	+4.4	10.9	25 34.6	+4.8	11.1	27 32.3	+5.2	11.3
81	19 44.6	+3.2	9.6	21 42.9	+3.6	9.7	23 41.2	+3.9	9.8	25 39.4	+4.3	10.0	27 37.5	+4.7	10.2
82	19 47.8	+2.9	8.5	21 46.5	+3.2	8.6	23 45.1	+3.5	8.7	25 43.7	+3.8	8.9	27 42.2	+4.2	9.0
83	19 50.7	+2.4	7.4	21 49.7	+2.7	7.5	23 48.6	+3.0	7.7	25 47.5	+3.3	7.8	27 46.4	+3.6	7.9
84	19 53.1	+2.1	6.4	21 52.4	+2.3	6.5	23 51.6	+2.6	6.6	25 50.8	+2.8	6.7	27 50.0	+3.0	6.8
85	19 55.2	+1.8	5.3	21 54.7	+1.9	5.4	23 54.2	+2.1	5.5	25 53.6	+2.3	5.6	27 53.0	+2.5	5.7
86	19 57.0	+1.3	4.3	21 56.6	+1.5	4.3	23 56.3	+1.6	4.4	25 55.9	+1.8	4.4	27 55.5	+2.0	4.5
87	19 58.3	+0.9	3.2	21 58.1	+1.1	3.2	23 57.9	+1.2	3.3	25 57.7	+1.3	3.3	27 57.5	+1.4	3.4
88	19 59.2	+0.6	2.1	21 59.2	+0.6	2.2	23 59.1	+0.7	2.2	25 59.0	+0.7	2.2	27 58.9	+0.8	2.3
89	19 59.8	+0.2	1.1	21 59.8	+0.2	1.1	23 59.8	+0.2	1.1	25 59.7	+0.3	1.1	27 59.7	+0.3	1.1
90	20 00.0	-0.2	0.0	22 00.0	-0.2	0.0	24 00.0	-0.2	0.0	26 00.0	-0.3	0.0	28 00.0	-0.3	0.0
	20°			22°			24°			26°			28°		

LATITUDE CONTRARY NAME

L.H.A. 90°, 270°

l c d Z			l c d Z			l c d Z			l c d Z			l c d Z			Dec. °					
°	'	"	°	'	"	°	'	"	°	'	"	°	'	"						
9	50.8	+17.9	61.5	10	47.7	+19.8	61.8	11	44.0	+21.5	62.2	12	39.7	+23.2	62.6	13	34.6	+25.0	63.0	30
10	08.7	+17.8	60.5	11	07.5	+19.5	60.9	12	05.5	+21.3	61.2	13	02.9	+23.1	61.6	13	59.6	+24.7	62.1	31
10	26.5	+17.6	59.6	11	27.0	+19.3	59.9	12	26.8	+21.1	60.3	13	26.0	+22.8	60.7	14	24.3	+24.6	61.1	32
10	44.1	+17.5	58.6	11	46.3	+19.2	58.9	12	47.9	+20.9	59.3	13	48.8	+22.6	59.7	14	48.9	+24.3	60.2	33
11	01.6	+17.2	57.6	12	05.5	+19.0	58.0	13	08.8	+20.7	58.4	14	11.4	+22.4	58.8	15	13.2	+24.1	59.2	34
11	18.8	+17.0	56.7	12	24.5	+18.7	57.0	13	29.5	+20.4	57.4	14	33.8	+22.1	57.8	15	37.3	+23.8	58.3	35
11	35.8	+16.9	55.7	12	43.2	+18.5	56.0	13	49.9	+20.2	56.4	14	55.9	+21.9	56.9	16	01.1	+23.6	57.3	36
11	52.7	+16.6	54.7	13	01.7	+18.4	55.1	14	10.1	+20.0	55.5	15	17.8	+21.7	55.9	16	24.7	+23.3	56.4	37
12	09.3	+16.5	53.7	13	20.1	+18.0	54.1	14	30.1	+19.8	54.5	15	39.5	+21.4	54.9	16	48.0	+23.1	55.4	38
12	25.8	+16.2	52.7	13	38.1	+17.9	53.1	14	49.9	+19.5	53.5	16	00.9	+21.1	54.0	17	11.1	+22.7	54.4	39
12	42.0	+16.0	51.7	13	56.0	+17.6	52.1	15	09.4	+19.2	52.5	16	22.0	+20.9	53.0	17	33.8	+22.5	53.5	40
12	58.0	+15.8	50.8	14	13.6	+17.4	51.1	15	28.6	+19.0	51.5	16	42.9	+20.5	52.0	17	56.3	+22.2	52.5	41
13	13.8	+15.5	49.8	14	31.0	+17.1	50.1	15	47.6	+18.7	50.6	17	03.4	+20.3	51.0	18	18.5	+21.9	51.5	42
13	29.3	+15.4	48.8	14	48.1	+16.9	49.2	16	06.3	+18.4	49.6	17	23.7	+20.1	50.0	18	40.4	+21.6	50.5	43
13	44.7	+15.0	47.8	15	05.0	+16.6	48.2	16	24.7	+18.2	48.6	17	43.8	+19.7	49.0	19	02.0	+21.3	49.5	44
13	59.7	+14.9	46.8	15	21.6	+16.4	47.2	16	42.9	+17.9	47.6	18	03.5	+19.4	48.1	19	23.3	+20.9	48.6	45
14	14.6	+14.5	45.8	15	38.0	+16.0	46.2	17	00.8	+17.5	46.6	18	22.9	+19.1	47.1	19	44.2	+20.7	47.6	46
14	29.1	+14.4	44.8	15	54.0	+15.8	45.2	17	18.3	+17.3	45.6	18	42.0	+18.7	46.1	20	04.9	+20.2	46.6	47
14	43.5	+14.0	43.8	16	09.8	+15.6	44.2	17	35.6	+17.0	44.6	19	00.7	+18.5	45.1	20	25.1	+20.0	45.6	48
14	57.5	+13.8	42.8	16	25.4	+15.2	43.2	17	52.6	+16.7	43.6	19	19.2	+18.1	44.0	20	45.1	+19.6	44.6	49
15	11.3	+13.6	41.8	16	40.6	+14.9	42.1	18	09.3	+16.3	42.6	19	37.3	+17.8	43.0	21	04.7	+19.2	43.5	50
15	24.9	+13.2	40.8	16	55.5	+14.7	41.1	18	25.6	+16.0	41.6	19	55.1	+17.4	42.0	21	23.9	+18.8	42.5	51
15	38.1	+13.0	39.7	17	10.2	+14.3	40.1	18	41.6	+15.7	40.5	20	12.5	+17.1	41.0	21	42.7	+18.5	41.5	52
15	51.1	+12.7	38.7	17	24.5	+14.0	39.1	18	57.3	+15.4	39.5	20	29.6	+16.7	40.0	22	01.2	+18.1	40.5	53
16	03.8	+12.4	37.7	17	38.5	+13.7	38.1	19	12.7	+15.0	38.5	20	46.3	+16.4	39.0	22	19.3	+17.7	39.4	54
16	16.2	+12.1	36.7	17	52.2	+13.4	37.1	19	27.7	+14.7	37.5	21	02.7	+15.9	37.9	22	30.7	+17.3	38.4	55
16	28.3	+11.8	35.7	18	05.6	+13.0	36.0	19	42.4	+14.3	36.4	21	18.6	+15.6	36.9	22	54.3	+16.9	37.4	56
16	40.1	+11.6	34.6	18	18.6	+12.8	35.0	19	56.7	+14.0	35.4	21	34.2	+15.3	35.8	23	11.2	+16.5	36.3	57
16	51.7	+11.2	33.6	18	31.4	+12.4	34.0	20	10.7	+13.6	34.4	21	49.5	+14.8	34.8	23	27.7	+16.1	35.3	58
17	02.9	+10.9	32.6	18	43.8	+12.0	32.9	20	24.3	+13.2	33.3	22	04.3	+14.4	33.8	23	43.8	+15.6	34.2	59
17	13.8	+10.5	31.6	18	55.8	+11.7	31.9	20	37.5	+12.8	32.3	22	18.7	+14.0	32.7	23	59.4	+15.2	33.2	60
17	24.3	+10.3	30.5	19	07.5	+11.4	30.9	20	50.3	+12.5	31.2	22	32.7	+13.6	31.7	24	14.6	+14.7	32.1	61
17	34.6	+10.0	29.5	19	18.9	+11.0	29.8	21	02.8	+12.1	30.2	22	46.3	+13.2	30.6	24	29.3	+14.3	31.1	62
17	44.6	+9.6	28.5	19	29.9	+10.6	28.8	21	14.9	+11.7	29.2	22	59.5	+12.7	29.5	24	43.6	+13.9	30.0	63
17	54.2	+9.3	27.4	19	40.5	+10.3	27.7	21	26.6	+11.3	28.1	23	12.2	+12.4	28.5	24	57.5	+13.4	28.9	64
18	03.5	+8.9	26.4	19	50.8	+9.9	26.7	21	37.9	+10.9	27.0	23	24.6	+11.9	27.4	25	10.9	+12.9	27.8	65
18	12.4	+8.6	25.4	20	00.7	+9.6	25.7	21	48.8	+10.4	26.0	23	36.5	+11.4	26.4	25	23.8	+12.4	26.8	66
18	21.0	+8.3	24.3	20	10.3	+9.1	24.6	21	59.2	+10.1	24.9	23	47.9	+11.0	25.3	25	36.2	+12.0	25.7	67
18	29.3	+7.9	23.3	20	19.4	+8.8	23.5	22	09.3	+9.7	23.9	23	58.9	+10.6	24.2	25	48.2	+11.5	24.6	68
18	37.2	+7.6	22.2	20	28.2	+8.4	22.5	22	19.0	+9.2	22.8	24	09.5	+10.1	23.1	25	59.7	+11.0	23.5	69
18	44.8	+7.3	21.2	20	36.6	+8.1	21.4	22	28.2	+8.8	21.7	24	19.6	+9.6	22.0	26	10.7	+10.5	22.4	70
18	52.1	+6.9	20.1	20	44.7	+7.6	20.4	22	37.0	+8.4	20.7	24	29.2	+9.2	21.0	26	21.2	+9.9	21.3	71
18	59.0	+6.5	19.1	20	52.3	+7.2	19.3	22	45.4	+8.0	19.6	24	38.4	+8.7	19.9	26	31.1	+9.5	20.2	72
19	05.5	+6.2	18.0	20	59.5	+6.9	18.2	22	53.4	+7.5	18.5	24	47.1	+8.2	18.8	26	40.6	+9.0	19.1	73
19	11.7	+5.8	17.0	21	06.4	+6.4	17.2	23	00.9	+7.1	17.4	24	55.3	+7.8	17.7	26	49.6	+8.4	18.0	74
19	17.5	+5.4	15.9	21	12.8	+6.0	16.1	23	08.0	+6.7	16.3	25	03.1	+7.3	16.6	26	58.0	+7.9	16.9	75
19	22.9	+5.1	14.9	21	18.8	+5.7	15.1	23	14.7	+6.2	15.3	25	10.4	+6.8	15.5	27	05.9	+7.4	15.8	76
19	28.0	+4.7	13.8	21	24.5	+5.2	14.0	23	20.9	+5.7	14.2	25	17.2	+6.3	14.4	27	13.3	+6.9	14.7	77
19	32.7	+4.3	12.7	21	29.7	+4.8	12.9	23	26.6	+5.3	13.1	25	23.5	+5.8	13.3	27	20.2	+6.3	13.5	78
19	37.0	+4.0	11.7	21	34.5	+4.4	11.8	23	31.9	+4.9	12.0	25	29.3	+5.3	12.2	27	26.5	+5.8	12.4	79
19	41.0	+3.6	10.6	21	38.9	+4.0	10.8	23	36.8	+4.4	10.9	25	34.6	+4.8	11.1	27	32.3	+5.2	11.3	80
19	44.6	+3.2	9.6	21	42.9	+3.6	9.7	23	41.2	+3.9	9.8	25	39.4	+4.3	10.0	27	37.5	+4.7	10.2	81
19	47.8	+2.9	8.5	21	46.5	+3.2	8.6	23	45.1	+3.5	8.7	25	43.7	+3.8	8.9	27	42.2	+4.2	9.0	82
19	50.7	+2.4	7.4	21	49.7	+2.7	7.5	23	48.6	+3.0	7.7	25	47.5	+3.3	7.8	27	46.4	+3.6	7.9	83
19	53.1	+2.1	6.4	21	52.4	+2.3	6.5	23	51.6	+2.6	6.6	25	50.8	+2.8	6.7	27	50.0	+3.0	6.8	84
19	55.2	+1.8	5.3	21	54.7	+1.9	5.4	23	54.2	+2.1	5.5	25	53.6	+2.3	5.6	27	53.0	+2.5	5.7	85
19	57.0	+1.3	4.3	21	56.6	+1.5	4.3	23	56.3	+1.6	4.4	25	55.9	+1.8	4.4	27	55.5	+2.0	4.5	86
19	58.3	+0.9	3.2	21	58.1	+1.1	3.2	23	57.9	+1.2	3.3	25	57.9	+1.3	3.3	27	57.5	+1.4	3.4	87
19	59.2	+0.6	2.1	21	59.2	+0.6	2.2	23	59.1	+0.7	2.2	25	59.0	+0.7	2.2	27	58.9	+0.8	2.3	88
19	59.8	+0.2	1.1	21	59.8	+0.2	1.1	23	59.8	+0.2	1.1	25	59.7	+0.3	1.1	27	59.7	+0.3	1.1	89
20	00.0	-0.2	0.0	22	00.0	-0.2	0.0	24	00.0	-0.2	0.0	26	00.0	-0.3	0.0	28	00.0	-0.3	0.0	90
20°			22°			24°			26°			28°								

LATITUDE SAME NAME

L.H.A. 90°, 270°