

SIGHT REDUCTION TABLES
FOR
SMALL BOAT NAVIGATION

Original work by Hewitt Schlereth

Complement booklet-2
by Jean Villemagne

LATITUDES 30 °– 58 °, 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.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	88 16.1	- 15.6	• 89.5	87 22.0	+ 39.4	• 138.9	85 39.3	+ 54.2	• 156.5	83 46.2	+ 57.6	163.8	81 49.8	+ 58.7	167.7
31	88 00.5	- 38.5	• 59.4	88 01.4	+ 16.8	• 119.9	86 33.5	+ 49.9	• 150.1	84 43.8	+ 56.4	161.0	82 48.5	+ 58.4	166.2
32	87 22.0	- 49.0	• 40.1	88 18.2	- 15.9	• 89.5	87 23.4	+ 39.9	• 139.5	85 40.2	+ 54.4	• 156.9	83 46.9	+ 57.6	164.1
33	86 33.0	- 53.7	• 29.1	88 02.3	- 38.9	• 58.8	88 03.3	+ 17.2	• 120.4	86 34.6	+ 50.3	• 150.6	84 44.5	+ 56.6	161.4
34	85 39.3	- 55.9	22.5	87 23.4	- 49.3	• 39.4	88 20.5	- 16.2	• 89.4	87 24.9	+ 40.5	• 140.1	85 41.1	+ 54.7	• 157.4
35	84 43.4	- 57.2	18.1	86 34.1	- 53.9	• 28.5	88 04.3	- 39.4	• 58.2	88 05.4	+ 17.5	• 121.0	86 35.8	+ 50.6	• 151.2
36	83 46.2	- 57.9	15.1	85 40.2	- 56.1	22.0	87 24.9	- 49.7	• 38.8	88 22.9	- 16.5	• 89.4	87 26.4	+ 41.1	• 140.8
37	82 48.3	- 58.5	12.9	84 44.1	- 57.2	17.7	86 35.2	- 54.1	• 27.9	88 06.4	- 40.0	• 57.5	88 07.5	+ 17.9	• 121.6
38	81 49.8	- 58.7	11.2	83 46.9	- 58.1	14.7	85 41.1	- 56.2	21.4	87 26.4	- 50.0	• 38.0	88 25.4	- 16.8	• 89.4
39	80 51.1	- 59.0	9.8	82 48.8	- 58.5	12.5	84 44.9	- 57.4	17.2	86 36.4	- 54.3	• 27.3	88 08.6	- 40.6	• 56.8
40	79 52.1	- 59.2	8.7	81 50.3	- 58.8	10.9	83 47.5	- 58.1	14.3	85 42.1	- 56.4	20.9	87 28.0	- 50.4	• 37.2
41	78 52.9	- 59.4	7.9	80 51.5	- 59.1	9.5	82 49.4	- 58.6	12.2	84 45.7	- 57.6	16.8	86 37.6	- 54.6	• 26.6
42	77 53.5	- 59.4	7.1	79 52.4	- 59.2	8.5	81 50.8	- 58.9	10.5	83 48.1	- 58.1	13.9	85 43.0	- 56.5	20.3
43	76 54.1	- 59.5	6.5	78 53.2	- 59.3	7.6	80 51.9	- 59.1	9.3	82 50.0	- 58.7	11.8	84 46.5	- 57.7	16.3
44	75 54.6	- 59.5	5.9	77 53.9	- 59.5	6.9	79 52.8	- 59.2	8.2	81 51.3	- 58.9	10.2	83 48.8	- 58.3	13.5
45	74 55.1	- 59.7	5.4	76 54.4	- 59.5	6.3	78 53.6	- 59.4	7.4	80 52.4	- 59.1	9.0	82 50.5	- 58.7	11.4
46	73 55.4	- 59.6	5.0	75 54.9	- 59.6	5.7	77 54.2	- 59.4	6.6	79 53.3	- 59.3	7.9	81 51.8	- 58.9	9.9
47	72 55.8	- 59.7	4.7	74 55.3	- 59.6	5.2	76 54.8	- 59.6	6.0	78 54.0	- 59.4	7.1	80 52.9	- 59.2	8.6
48	71 56.1	- 59.7	4.3	73 55.7	- 59.7	4.8	75 55.2	- 59.6	5.5	77 54.6	- 59.5	6.4	79 53.7	- 59.4	7.6
49	70 56.4	- 59.8	4.0	72 56.0	- 59.7	4.5	74 55.6	- 59.6	5.1	76 55.1	- 59.6	5.8	78 54.3	- 59.4	6.8
50	69 56.6	- 59.8	3.8	71 56.3	- 59.7	4.1	73 56.0	- 59.7	4.6	75 55.5	- 59.6	5.3	77 54.9	- 59.5	6.2
51	68 56.8	- 59.8	3.5	70 56.6	- 59.8	3.9	72 56.3	- 59.8	4.3	74 55.9	- 59.7	4.8	76 55.4	- 59.6	5.6
52	67 57.0	- 59.8	3.3	69 56.8	- 59.8	3.6	71 56.5	- 59.7	4.0	73 56.2	- 59.7	4.5	75 55.8	- 59.6	5.1
53	66 57.2	- 59.8	3.1	68 57.0	- 59.8	3.4	70 56.8	- 59.8	3.7	72 56.5	- 59.7	4.1	74 56.2	- 59.7	4.6
54	65 57.4	- 59.9	2.9	67 57.2	- 59.8	3.1	69 57.0	- 59.8	3.4	71 56.8	- 59.8	3.8	73 56.5	- 59.7	4.3
55	64 57.5	- 59.8	2.7	66 57.4	- 59.8	2.9	68 57.2	- 59.8	3.2	70 57.0	- 59.8	3.5	72 56.8	- 59.8	3.9
56	63 57.7	- 59.9	2.5	65 57.6	- 59.9	2.7	67 57.4	- 59.8	3.0	69 57.2	- 59.8	3.3	71 57.0	- 59.8	3.6
57	62 57.8	- 59.8	2.4	64 57.7	- 59.8	2.6	66 57.6	- 59.9	2.8	68 57.4	- 59.8	3.0	70 57.2	- 59.8	3.3
58	61 58.0	- 59.9	2.3	63 57.9	- 59.9	2.4	65 57.7	- 59.8	2.6	67 57.6	- 59.8	2.8	69 57.4	- 59.8	3.1
59	60 58.1	- 59.9	2.1	62 58.0	- 59.9	2.3	64 57.9	- 59.9	2.4	66 57.8	- 59.9	2.6	68 57.6	- 59.8	2.9
60	59 58.2	- 59.9	2.0	61 58.1	- 59.9	2.1	63 58.0	- 59.9	2.3	65 57.9	- 59.8	2.5	67 57.8	- 59.8	2.7
61	58 58.3	- 59.9	1.9	60 58.2	- 59.9	2.0	62 58.1	- 59.8	2.1	64 58.1	- 59.9	2.3	66 58.0	- 59.9	2.5
62	57 58.4	- 59.9	1.8	59 58.3	- 59.9	1.9	61 58.3	- 59.9	2.0	63 58.2	- 59.9	2.1	65 58.1	- 59.9	2.3
63	56 58.5	- 59.9	1.7	58 58.4	- 59.9	1.8	60 58.4	- 59.9	1.9	62 58.3	- 59.9	2.0	64 58.2	- 59.8	2.1
64	55 58.6	- 59.9	1.6	57 58.5	- 59.9	1.7	59 58.5	- 59.9	1.8	61 58.4	- 59.9	1.9	63 58.4	- 59.9	2.0
65	54 58.7	- 60.0	1.5	56 58.6	- 59.9	1.6	58 58.6	- 59.9	1.6	60 58.5	- 59.9	1.7	62 58.5	- 59.9	1.9
66	53 58.7	- 59.9	1.4	55 58.7	- 59.9	1.5	57 58.7	- 59.9	1.5	59 58.6	- 59.9	1.6	61 58.6	- 59.9	1.7
67	52 58.8	- 59.9	1.3	54 58.8	- 59.9	1.4	56 58.8	- 60.0	1.4	58 58.7	- 59.9	1.5	60 58.7	- 59.9	1.6
68	51 58.9	- 59.9	1.2	53 58.9	- 60.0	1.3	55 58.8	- 59.9	1.3	57 58.8	- 59.9	1.4	59 58.8	- 59.9	1.5
69	50 59.0	- 60.0	1.1	52 58.9	- 59.9	1.2	54 58.9	- 59.9	1.2	56 58.9	- 59.9	1.3	58 58.9	- 60.0	1.4
70	49 59.0	- 59.9	1.1	51 59.0	- 59.9	1.1	53 59.0	- 59.9	1.2	55 59.0	- 60.0	1.2	57 58.9	- 59.9	1.3
71	48 59.1	- 59.9	1.0	50 59.1	- 60.0	1.0	52 59.1	- 60.0	1.1	54 59.0	- 59.9	1.1	56 59.0	- 59.9	1.2
72	47 59.2	- 60.0	0.9	49 59.1	- 59.9	1.0	51 59.1	- 59.9	1.0	53 59.1	- 59.9	1.1	55 59.1	- 59.9	1.1
73	46 59.2	- 59.9	0.9	48 59.2	- 59.9	0.9	50 59.2	- 59.9	0.9	52 59.2	- 60.0	1.0	54 59.2	- 60.0	1.0
74	45 59.3	- 60.0	0.8	47 59.3	- 60.0	0.8	49 59.3	- 60.0	0.9	51 59.2	- 59.9	0.9	53 59.2	- 59.9	0.9
75	44 59.3	- 59.9	0.7	46 59.3	- 59.9	0.8	48 59.3	- 59.9	0.8	50 59.3	- 59.9	0.8	52 59.3	- 59.9	0.9
76	43 59.4	- 60.0	0.7	45 59.4	- 60.0	0.7	47 59.4	- 60.0	0.7	49 59.4	- 60.0	0.8	51 59.4	- 60.0	0.8
77	42 59.4	- 59.9	0.6	44 59.4	- 59.9	0.6	46 59.4	- 59.9	0.7	48 59.4	- 59.9	0.7	50 59.4	- 59.9	0.7
78	41 59.5	- 60.0	0.6	43 59.5	- 60.0	0.6	45 59.5	- 60.0	0.6	47 59.5	- 60.0	0.6	49 59.5	- 60.0	0.6
79	40 59.5	- 59.9	0.5	42 59.5	- 59.9	0.5	44 59.5	- 59.9	0.5	46 59.5	- 59.9	0.6	48 59.5	- 59.9	0.6
80	39 59.6	- 60.0	0.5	41 59.6	- 60.0	0.5	43 59.6	- 60.0	0.5	45 59.6	- 60.0	0.5	47 59.6	- 60.0	0.5
81	38 59.6	- 59.9	0.4	40 59.6	- 59.9	0.4	42 59.6	- 59.9	0.4	44 59.6	- 59.9	0.4	46 59.6	- 59.9	0.5
82	37 59.7	- 60.0	0.4	39 59.7	- 60.0	0.4	41 59.7	- 60.0	0.4	43 59.7	- 60.0	0.4	45 59.7	- 60.0	0.4
83	36 59.7	- 59.9	0.3	38 59.7	- 59.9	0.3	40 59.7	- 59.9	0.3	42 59.7	- 59.9	0.3	44 59.7	- 59.9	0.3
84	35 59.8	- 60.0	0.3	37 59.8	- 60.0	0.3	39 59.8	- 60.0	0.3	41 59.8	- 60.0	0.3	43 59.8	- 60.0	0.3
85	34 59.8	- 60.0	0.2	36 59.8	- 60.0	0.2	38 59.8	- 60.0	0.2	40 59.8	- 60.0	0.2	42 59.8	- 60.0	0.2
86	33 59.8	- 59.9	0.2	35 59.8	- 59.9	0.2	37 59.8	- 59.9	0.2	39 59.8	- 59.9	0.2	41 59.8	- 59.9	0.2
87	32 59.9	- 60.0	0.1	34 59.9	- 60.0	0.1	36 59.9	- 60.0	0.1	38 59.9	- 60.0	0.1	40 59.9	- 60.0	0.1
88	31 59.9	- 59.9	0.1	33 59.9	- 59.9	0.1	35 59.9	- 59.9	0.1	37 59.9	- 59.9	0.1	39 59.9	- 59.9	0.1
89	31 00.0	- 60.0	0.0	33 00.0	- 60.0	0.0	35 00.0	- 60.0	0.0	37 00.0	- 60.0	0.0	39 00.0	- 60.0	0.0
90	30 00.0	- 60.0	0.0	32 00.0	- 60.0	0.0	34 00.0	- 60.0	0.0	36 00.0	- 60.0	0.0	38 00.0	- 60.0	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 2°, 358°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29	58.2	-60.0 178.0	27	58.3	-60.0 178.0	25	58.3	-59.9 178.1	23	58.4	-60.0 178.1	21	58.5	-60.0 178.1	30
28	58.2	-59.9 178.0	26	58.3	-60.0 178.1	24	58.4	-60.0 178.1	22	58.4	-59.9 178.1	20	58.5	-60.0 178.2	31
27	58.3	-60.0 178.1	25	58.3	-59.9 178.1	23	58.4	-60.0 178.1	21	58.5	-60.0 178.2	19	58.5	-60.0 178.2	32
26	58.3	-60.0 178.1	24	58.4	-60.0 178.1	22	58.4	-60.0 178.2	20	58.5	-60.0 178.2	18	58.5	-59.9 178.2	33
25	58.3	-59.9 178.2	23	58.4	-60.0 178.2	21	58.4	-59.9 178.2	19	58.5	-60.0 178.2	17	58.6	-60.0 178.3	34
24	58.4	-60.0 178.2	22	58.4	-59.9 178.2	20	58.5	-60.0 178.2	18	58.5	-59.9 178.3	16	58.6	-60.0 178.3	35
23	58.4	-60.0 178.2	21	58.5	-60.0 178.3	19	58.5	-60.0 178.3	17	58.6	-60.0 178.3	15	58.6	-60.0 178.3	36
22	58.4	-59.9 178.3	20	58.5	-60.0 178.3	18	58.5	-59.9 178.3	16	58.6	-60.0 178.3	14	58.6	-59.9 178.3	37
21	58.5	-60.0 178.3	19	58.5	-60.0 178.3	17	58.6	-60.0 178.3	15	58.6	-60.0 178.4	13	58.7	-60.0 178.4	38
20	58.5	-60.0 178.3	18	58.5	-59.9 178.4	16	58.6	-60.0 178.4	14	58.6	-59.9 178.4	12	58.7	-60.0 178.4	39
19	58.5	-59.9 178.4	17	58.6	-60.0 178.4	15	58.6	-60.0 178.4	13	58.7	-60.0 178.4	11	58.7	-60.0 178.4	40
18	58.6	-60.0 178.4	16	58.6	-60.0 178.4	14	58.6	-59.9 178.4	12	58.7	-60.0 178.5	10	58.7	-59.9 178.5	41
17	58.6	-60.0 178.4	15	58.6	-59.9 178.5	13	58.7	-60.0 178.5	11	58.7	-60.0 178.5	9	58.8	-60.0 178.5	42
16	58.6	-60.0 178.5	14	58.7	-60.0 178.5	12	58.7	-60.0 178.5	10	58.7	-59.9 178.5	8	58.8	-60.0 178.5	43
15	58.6	-59.9 178.5	13	58.7	-60.0 178.5	11	58.7	-60.0 178.5	9	58.8	-60.0 178.5	7	58.8	-60.0 178.5	44
14	58.7	-60.0 178.5	12	58.7	-60.0 178.5	10	58.7	-59.9 178.6	8	58.8	-60.0 178.6	6	58.8	-60.0 178.6	45
13	58.7	-60.0 178.6	11	58.7	-59.9 178.6	9	58.8	-60.0 178.6	7	58.8	-60.0 178.6	5	58.8	-59.9 178.6	46
12	58.7	-59.9 178.6	10	58.8	-60.0 178.6	8	58.8	-60.0 178.6	6	58.8	-59.9 178.6	4	58.9	-60.0 178.6	47
11	58.8	-60.0 178.6	9	58.8	-60.0 178.6	7	58.8	-59.9 178.6	5	58.9	-60.0 178.7	3	58.9	-60.0 178.7	48
10	58.8	-60.0 178.7	8	58.8	-60.0 178.7	6	58.9	-60.0 178.7	4	58.9	-60.0 178.7	2	58.9	-60.0 178.7	49
9	58.8	-60.0 178.7	7	58.8	-59.9 178.7	5	58.9	-60.0 178.7	3	58.9	-60.0 178.7	1	58.9	-59.9 178.7	50
8	58.8	-59.9 178.7	6	58.9	-60.0 178.7	4	58.9	-60.0 178.7	2	58.9	-59.9 178.7	0	59.0	-60.0 178.7	51
7	58.9	-60.0 178.8	5	58.9	-60.0 178.8	3	58.9	-59.9 178.8	1	59.0	-60.0 178.8	0	01.0	+60.0 1.2	52
6	58.9	-60.0 178.8	4	58.9	-59.9 178.8	2	59.0	-60.0 178.8	0	59.0	-60.0 178.8	1	01.0	+60.0 1.2	53
5	58.9	-59.9 178.8	3	59.0	-60.0 178.8	1	59.0	-60.0 178.8	0	01.0	+60.0 1.2	2	01.0	+59.9 1.2	54
4	59.0	-60.0 178.8	2	59.0	-60.0 178.9	0	59.0	-60.0 178.9	1	01.0	+59.9 1.1	3	00.9	+60.0 1.1	55
3	59.0	-60.0 178.9	1	59.0	-60.0 178.9	0	01.0	+59.9 1.1	2	00.9	+60.0 1.1	4	00.9	+60.0 1.1	56
2	59.0	-60.0 178.9	0	59.0	-59.9 178.9	1	00.9	+60.0 1.1	3	00.9	+60.0 1.1	5	00.9	+60.0 1.1	57
1	59.0	-59.9 178.9	0	00.9	+60.0 1.1	2	00.9	+60.0 1.1	4	00.9	+60.0 1.1	6	00.9	+60.0 1.1	58
0	59.1	-60.0 179.0	1	00.9	+60.0 1.0	3	00.9	+60.0 1.0	5	00.9	+60.0 1.0	7	00.9	+59.9 1.0	59
0	00.9	+60.0 1.0	2	00.9	+60.0 1.0	4	00.9	+59.9 1.0	6	00.9	+59.9 1.0	8	00.8	+60.0 1.0	60
1	00.9	+60.0 1.0	3	00.9	+59.9 1.0	5	00.8	+60.0 1.0	7	00.8	+60.0 1.0	9	00.8	+60.0 1.0	61
2	00.9	+59.9 0.9	4	00.8	+60.0 0.9	6	00.8	+60.0 0.9	8	00.8	+60.0 0.9	10	00.8	+60.0 1.0	62
3	00.8	+60.0 0.9	5	00.8	+60.0 0.9	7	00.8	+60.0 0.9	9	00.8	+60.0 0.9	11	00.8	+59.9 0.9	63
4	00.8	+60.0 0.9	6	00.8	+60.0 0.9	8	00.8	+59.9 0.9	10	00.8	+59.9 0.9	12	00.7	+60.0 0.9	64
5	00.8	+59.9 0.8	7	00.8	+59.9 0.9	9	00.7	+60.0 0.9	11	00.7	+60.0 0.9	13	00.7	+60.0 0.9	65
6	00.7	+60.0 0.8	8	00.7	+60.0 0.8	10	00.7	+60.0 0.8	12	00.7	+60.0 0.8	14	00.7	+60.0 0.8	66
7	00.7	+60.0 0.8	9	00.7	+60.0 0.8	11	00.7	+60.0 0.8	13	00.7	+60.0 0.8	15	00.7	+59.9 0.8	67
8	00.7	+60.0 0.8	10	00.7	+59.9 0.8	12	00.7	+59.9 0.8	14	00.7	+59.9 0.8	16	00.6	+60.0 0.8	68
9	00.7	+59.9 0.7	11	00.6	+60.0 0.7	13	00.6	+60.0 0.7	15	00.6	+60.0 0.7	17	00.6	+60.0 0.7	69
10	00.6	+60.0 0.7	12	00.6	+60.0 0.7	14	00.6	+60.0 0.7	16	00.6	+60.0 0.7	18	00.6	+60.0 0.7	70
11	00.6	+60.0 0.7	13	00.6	+60.0 0.7	15	00.6	+60.0 0.7	17	00.6	+60.0 0.7	19	00.6	+59.9 0.7	71
12	00.6	+59.9 0.6	14	00.6	+59.9 0.6	16	00.6	+59.9 0.6	18	00.6	+59.9 0.6	20	00.5	+60.0 0.7	72
13	00.5	+60.0 0.6	15	00.5	+60.0 0.6	17	00.5	+60.0 0.6	19	00.5	+60.0 0.6	21	00.5	+60.0 0.6	73
14	00.5	+60.0 0.6	16	00.5	+60.0 0.6	18	00.5	+60.0 0.6	20	00.5	+60.0 0.6	22	00.5	+60.0 0.6	74
15	00.5	+60.0 0.5	17	00.5	+60.0 0.5	19	00.5	+59.9 0.5	21	00.5	+59.9 0.6	23	00.5	+59.9 0.6	75
16	00.5	+59.9 0.5	18	00.5	+59.9 0.5	20	00.4	+60.0 0.5	22	00.4	+60.0 0.5	24	00.4	+60.0 0.5	76
17	00.4	+60.0 0.5	19	00.4	+60.0 0.5	21	00.4	+60.0 0.5	23	00.4	+60.0 0.5	25	00.4	+60.0 0.5	77
18	00.4	+60.0 0.4	20	00.4	+60.0 0.4	22	00.4	+60.0 0.4	24	00.4	+60.0 0.5	26	00.4	+60.0 0.5	78
19	00.4	+59.9 0.4	21	00.4	+59.9 0.4	23	00.4	+59.9 0.4	25	00.4	+59.9 0.4	27	00.4	+59.9 0.4	79
20	00.3	+60.0 0.4	22	00.3	+60.0 0.4	24	00.3	+60.0 0.4	26	00.3	+60.0 0.4	28	00.3	+60.0 0.4	80
21	00.3	+60.0 0.3	23	00.3	+60.0 0.3	25	00.3	+60.0 0.3	27	00.3	+60.0 0.4	29	00.3	+60.0 0.4	81
22	00.3	+59.9 0.3	24	00.3	+59.9 0.3	26	00.3	+59.9 0.3	28	00.3	+59.9 0.3	30	00.3	+59.9 0.3	82
23	00.2	+60.0 0.3	25	00.2	+60.0 0.3	27	00.2	+60.0 0.3	29	00.2	+60.0 0.3	31	00.2	+60.0 0.3	83
24	00.2	+60.0 0.2	26	00.2	+60.0 0.2	28	00.2	+60.0 0.2	30	00.2	+60.0 0.2	32	00.2	+60.0 0.2	84
25	00.2	+59.9 0.2	27	00.2	+59.9 0.2	29	00.2	+59.9 0.2	31	00.2	+59.9 0.2	33	00.2	+59.9 0.2	85
26	00.1	+60.0 0.2	28	00.1	+60.0 0.2	30	00.1	+60.0 0.2	32	00.1	+60.0 0.2	34	00.1	+60.0 0.2	86
27	00.1	+60.0 0.1	29	00.1	+60.0 0.1	31	00.1	+60.0 0.1	33	00.1	+60.0 0.1	35	00.1	+60.0 0.1	87
28	00.1	+59.9 0.1	30	00.1	+59.9 0.1	32	00.1	+59.9 0.1	34	00.1	+59.9 0.1	36	00.1	+59.9 0.1	88
29	00.0	+60.0 0.0	31	00.0	+60.0 0.0	33	00.0	+60.0 0.0	35	00.0	+60.0 0.0	37	00.0	+60.0 0.0	89
30	00.0	+60.0 0.0	32	00.0	+60.0 0.0	34	00.0	+60.0 0.0	36	00.0	+60.0 0.0	38	00.0	+60.0 0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 178°, 182°

2°, 358° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	79 52.1	+59.2	170.1	77 53.5	+59.5	171.7	75 54.6	+59.7	172.9	73 55.4	+59.8	173.7	71 56.1	+59.8	174.4
31	80 51.3	+59.0	169.2	78 53.0	+59.4	171.1	76 54.3	+59.6	172.4	74 55.2	+59.7	173.4	72 55.9	+59.8	174.2
32	81 50.3	+58.8	168.0	79 52.4	+59.3	170.3	77 53.9	+59.5	171.9	75 54.9	+59.7	173.0	73 55.7	+59.8	173.9
33	82 49.1	+58.4	166.5	80 51.7	+59.1	169.4	78 53.4	+59.4	171.3	76 54.6	+59.6	172.6	74 55.5	+59.7	173.5
34	83 47.5	+57.8	164.5	81 50.8	+58.9	168.2	79 52.8	+59.4	170.5	77 54.2	+59.6	172.1	75 55.2	+59.7	173.2
35	84 45.3	+56.8	161.8	82 49.7	+58.4	166.8	80 52.2	+59.1	169.6	78 53.8	+59.5	171.5	76 54.9	+59.7	172.7
36	85 42.1	+54.9	157.9	83 48.1	+58.0	164.8	81 51.3	+58.9	168.5	79 53.3	+59.3	170.7	77 54.6	+59.6	172.3
37	86 37.0	+51.0	151.8	84 46.1	+56.9	162.2	82 50.2	+58.6	167.1	80 52.6	+59.2	169.9	78 54.2	+59.5	171.7
38	87 28.0	+41.7	141.5	85 43.0	+55.2	158.4	83 48.8	+58.1	165.2	81 51.8	+59.0	168.8	79 53.7	+59.4	171.0
39	88 09.7	+18.4	122.3	86 38.2	+51.5	152.5	84 46.9	+57.1	162.7	82 50.8	+58.7	167.4	80 53.1	+59.2	170.1
40	88 28.1	-17.3	89.4	87 29.7	+42.2	142.3	85 44.0	+55.4	158.9	83 49.5	+58.2	165.6	81 52.3	+59.1	169.1
41	88 10.8	-41.1	56.0	88 11.9	+18.9	123.1	86 39.4	+51.9	153.1	84 47.7	+57.3	163.1	82 51.4	+58.8	167.8
42	87 29.7	-50.9	36.4	88 30.8	-17.7	89.3	87 31.3	+43.0	143.1	85 45.0	+55.7	159.5	83 50.2	+58.3	166.0
43	86 38.8	-54.8	25.9	88 13.1	-41.8	55.2	88 14.3	+19.4	123.9	86 40.7	+52.3	153.9	84 48.5	+57.5	163.6
44	85 44.0	-56.7	19.7	87 31.3	-51.2	35.5	88 33.7	-18.2	89.3	87 33.0	+43.7	144.0	85 46.0	+56.0	160.1
45	84 47.3	-57.8	15.8	86 40.1	-55.1	25.1	88 15.5	-42.5	54.3	88 16.7	+19.9	124.8	86 42.0	+52.8	154.6
46	83 49.5	-58.4	13.0	85 45.0	-56.9	19.1	87 33.0	-51.7	34.6	88 36.6	-18.7	89.3	87 34.8	+44.3	145.0
47	82 51.1	-58.8	11.0	84 48.1	-57.9	15.2	86 41.3	-55.3	24.3	88 17.9	-43.1	53.3	88 19.1	+20.6	125.8
48	81 52.3	-59.0	9.5	83 50.2	-58.5	12.6	85 46.0	-57.1	18.4	87 34.8	-52.2	33.6	88 39.7	-19.3	89.3
49	80 53.3	-59.2	8.3	82 51.7	-58.8	10.6	84 48.9	-58.0	14.7	86 42.6	-55.7	23.5	88 20.4	-43.9	52.2
50	79 54.1	-59.4	7.4	81 52.9	-59.1	9.1	83 50.9	-58.6	12.1	85 46.9	-57.2	17.8	87 36.5	-52.6	32.5
51	78 54.7	-59.4	6.6	80 53.8	-59.3	8.0	82 52.3	-58.9	10.2	84 49.7	-58.2	14.1	86 43.9	-56.0	22.7
52	77 55.3	-59.6	5.9	79 54.5	-59.4	7.0	81 53.4	-59.2	8.8	83 51.5	-58.6	11.6	85 47.9	-57.4	17.1
53	76 55.7	-59.6	5.3	78 55.1	-59.5	6.3	80 54.2	-59.3	7.6	82 52.9	-59.0	9.8	84 50.5	-58.3	13.5
54	75 56.1	-59.6	4.8	77 55.6	-59.6	5.6	79 54.9	-59.4	6.7	81 53.9	-59.2	8.4	83 52.2	-58.7	11.1
55	74 56.5	-59.7	4.4	76 56.0	-59.6	5.1	78 55.5	-59.5	6.0	80 54.7	-59.4	7.3	82 53.5	-59.1	9.3
56	73 56.8	-59.8	4.0	75 56.4	-59.7	4.6	77 56.0	-59.6	5.4	79 55.3	-59.4	6.4	81 54.4	-59.3	8.0
57	72 57.0	-59.7	3.7	74 56.7	-59.7	4.2	76 56.4	-59.7	4.8	78 55.9	-59.6	5.7	80 55.1	-59.4	6.9
58	71 57.3	-59.8	3.4	73 57.0	-59.7	3.8	75 56.7	-59.7	4.4	77 56.3	-59.6	5.1	79 55.7	-59.5	6.1
59	70 57.5	-59.8	3.2	72 57.3	-59.8	3.5	74 57.0	-59.7	4.0	76 56.7	-59.7	4.6	78 56.2	-59.6	5.4
60	69 57.7	-59.9	2.9	71 57.5	-59.8	3.2	73 57.3	-59.8	3.6	75 57.0	-59.7	4.1	77 56.6	-59.6	4.8
61	68 57.8	-59.8	2.7	70 57.7	-59.8	3.0	72 57.5	-59.8	3.3	74 57.3	-59.8	3.7	76 57.0	-59.7	4.3
62	67 58.0	-59.9	2.5	69 57.9	-59.9	2.7	71 57.7	-59.8	3.0	73 57.5	-59.8	3.4	75 57.3	-59.8	3.9
63	66 58.1	-59.8	2.3	68 58.0	-59.8	2.5	70 57.9	-59.8	2.8	72 57.7	-59.8	3.1	74 57.5	-59.7	3.5
64	65 58.3	-59.9	2.2	67 58.2	-59.9	2.3	69 58.1	-59.9	2.6	71 57.9	-59.8	2.8	73 57.8	-59.8	3.2
65	64 58.4	-59.9	2.0	66 58.3	-59.9	2.2	68 58.2	-59.8	2.4	70 58.1	-59.8	2.6	72 58.0	-59.8	2.9
66	63 58.5	-59.9	1.9	65 58.4	-59.8	2.0	67 58.4	-59.9	2.2	69 58.3	-59.9	2.4	71 58.2	-59.9	2.6
67	62 58.6	-59.9	1.7	64 58.6	-59.9	1.8	66 58.5	-59.9	2.0	68 58.4	-59.9	2.2	70 58.3	-59.8	2.4
68	61 58.7	-59.9	1.6	63 58.7	-59.9	1.7	65 58.6	-59.9	1.8	67 58.5	-59.8	2.0	69 58.5	-59.9	2.2
69	60 58.8	-59.9	1.5	62 58.8	-59.9	1.6	64 58.7	-59.9	1.7	66 58.7	-59.9	1.8	68 58.6	-59.9	2.0
70	59 58.9	-59.9	1.4	61 58.9	-59.9	1.5	63 58.8	-59.9	1.6	65 58.8	-59.9	1.7	67 58.7	-59.9	1.8
71	58 59.0	-59.9	1.3	60 59.0	-60.0	1.3	62 58.9	-59.9	1.4	64 58.9	-59.9	1.5	66 58.8	-59.9	1.7
72	57 59.1	-60.0	1.2	59 59.0	-59.9	1.2	61 59.0	-59.9	1.3	63 59.0	-59.9	1.4	65 58.9	-59.9	1.5
73	56 59.1	-59.9	1.1	58 59.1	-59.9	1.1	60 59.1	-59.9	1.2	62 59.1	-60.0	1.3	64 59.0	-59.9	1.4
74	55 59.2	-59.9	1.0	57 59.2	-59.9	1.0	59 59.2	-60.0	1.1	61 59.1	-59.9	1.2	63 59.1	-59.9	1.3
75	54 59.3	-60.0	0.9	56 59.3	-60.0	0.9	58 59.2	-59.9	1.0	60 59.2	-59.9	1.1	62 59.2	-59.9	1.1
76	53 59.3	-59.9	0.8	55 59.3	-59.9	0.9	57 59.3	-59.9	0.9	59 59.3	-59.9	1.0	61 59.3	-60.0	1.0
77	52 59.4	-59.9	0.7	54 59.4	-60.0	0.8	56 59.4	-60.0	0.8	58 59.4	-60.0	0.9	60 59.3	-59.9	0.9
78	51 59.5	-60.0	0.7	53 59.4	-59.9	0.7	55 59.4	-59.9	0.7	57 59.4	-59.9	0.8	59 59.4	-59.9	0.8
79	50 59.5	-59.9	0.6	52 59.5	-59.9	0.6	54 59.5	-59.9	0.7	56 59.5	-60.0	0.7	58 59.5	-60.0	0.7
80	49 59.6	-60.0	0.5	51 59.6	-60.0	0.6	53 59.6	-60.0	0.6	55 59.5	-59.9	0.6	57 59.5	-59.9	0.7
81	48 59.6	-59.9	0.5	50 59.6	-59.9	0.5	52 59.6	-59.9	0.5	54 59.6	-59.9	0.5	56 59.6	-59.9	0.6
82	47 59.7	-60.0	0.4	49 59.7	-60.0	0.4	51 59.7	-60.0	0.5	53 59.7	-60.0	0.5	55 59.7	-60.0	0.5
83	46 59.7	-59.9	0.4	48 59.7	-59.9	0.4	50 59.7	-59.9	0.4	52 59.7	-59.9	0.4	54 59.7	-59.9	0.4
84	45 59.8	-60.0	0.3	47 59.8	-60.0	0.3	49 59.8	-60.0	0.3	51 59.8	-60.0	0.3	53 59.8	-60.0	0.4
85	44 59.8	-60.0	0.2	46 59.8	-60.0	0.3	48 59.8	-60.0	0.3	50 59.8	-60.0	0.3	52 59.8	-60.0	0.3
86	43 59.8	-59.9	0.2	45 59.8	-59.9	0.2	47 59.8	-59.9	0.2	49 59.8	-59.9	0.2	51 59.8	-59.9	0.2
87	42 59.9	-60.0	0.1	44 59.9	-60.0	0.1	46 59.9	-60.0	0.2	48 59.9	-60.0	0.2	50 59.9	-60.0	0.2
88	41 59.9	-59.9	0.1	43 59.9	-59.9	0.1	45 59.9	-59.9	0.1	47 59.9	-59.9	0.1	49 59.9	-59.9	0.1
89	41 00.0	-60.0	0.0	43 00.0	-60.0	0.0	45 00.0	-60.0	0.0	47 00.0	-60.0	0.1	49 00.0	-60.0	0.1
90	40 00.0	-60.0	0.0	42 00.0	-60.0	0.0	44 00.0	-60.0	0.0	46 00.0	-60.0	0.0	48 00.0	-60.0	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 2°, 358°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
19 58.5 -60.0 178.2			17 58.6 -60.0 178.2			15 58.6 -59.9 178.2			13 58.7 -60.0 178.2			11 58.8 -60.0 178.2			30
18 58.5 -59.9 178.2			16 58.6 -60.0 178.2			14 58.7 -60.0 178.2			12 58.7 -60.0 178.2			10 58.8 -60.0 178.3			31
17 58.6 -60.0 178.2			15 58.6 -60.0 178.2			13 58.7 -60.0 178.3			11 58.7 -59.9 178.3			9 58.8 -60.0 178.3			32
16 58.6 -60.0 178.2			14 58.6 -59.9 178.3			12 58.7 -60.0 178.3			10 58.8 -60.0 178.3			8 58.8 -60.0 178.3			33
15 58.6 -60.0 178.3			13 58.7 -60.0 178.3			11 58.7 -60.0 178.3			9 58.8 -60.0 178.3			7 58.8 -60.0 178.3			34
14 58.6 -59.9 178.3			12 58.7 -60.0 178.3			10 58.7 -59.9 178.3			8 58.8 -60.0 178.3			6 58.8 -59.9 178.3			35
13 58.7 -60.0 178.3			11 58.7 -60.0 178.3			9 58.8 -60.0 178.4			7 58.8 -60.0 178.4			5 58.9 -60.0 178.4			36
12 58.7 -60.0 178.4			10 58.7 -59.9 178.4			8 58.8 -60.0 178.4			6 58.8 -60.0 178.4			4 58.9 -60.0 178.4			37
11 58.7 -60.0 178.4			9 58.8 -60.0 178.4			7 58.8 -60.0 178.4			5 58.8 -59.9 178.4			3 58.9 -60.0 178.4			38
10 58.7 -59.9 178.4			8 58.8 -60.0 178.4			6 58.8 -60.0 178.4			4 58.9 -60.0 178.4			2 58.9 -60.0 178.4			39
9 58.8 -60.0 178.4			7 58.8 -60.0 178.5			5 58.8 -59.9 178.5			3 58.9 -60.0 178.5			1 58.9 -60.0 178.5			40
8 58.8 -60.0 178.5			6 58.8 -60.0 178.5			4 58.9 -60.0 178.5			2 58.9 -60.0 178.5			0 58.9 -59.9 178.5			41
7 58.8 -60.0 178.5			5 58.8 -59.9 178.5			3 58.9 -60.0 178.5			1 58.9 -60.0 178.5			0 01.0 +60.0 1.5			42
6 58.8 -60.0 178.5			4 58.9 -60.0 178.5			2 58.9 -60.0 178.5			0 58.9 -59.9 178.5			1 01.0 +60.0 1.5			43
5 58.8 -59.9 178.6			3 58.9 -60.0 178.6			1 58.9 -60.0 178.6			0 01.0 +60.0 1.4			2 01.0 +60.0 1.4			44
4 58.9 -60.0 178.6			2 58.9 -60.0 178.6			0 58.9 -59.9 178.6			1 01.0 +60.0 1.4			3 01.0 +60.0 1.4			45
3 58.9 -60.0 178.6			1 58.9 -60.0 178.6			0 01.0 +60.0 1.4			2 01.0 +60.0 1.4			4 01.0 +60.0 1.4			46
2 58.9 -60.0 178.6			0 58.9 -59.9 178.6			0 01.0 +60.0 1.4			1 01.0 +60.0 1.4			5 01.0 +59.9 1.4			47
1 58.9 -60.0 178.7			0 01.0 +60.0 1.3			2 01.0 +60.0 1.3			4 01.0 +60.0 1.3			6 00.9 +60.0 1.3			48
0 58.9 -59.9 178.7			1 01.0 +60.0 1.3			3 01.0 +60.0 1.3			5 01.0 +59.9 1.3			7 00.9 +60.0 1.3			49
0 01.0 +60.0 1.3			2 01.0 +60.0 1.3			4 01.0 +60.0 1.3			6 00.9 +60.0 1.3			8 00.9 +60.0 1.3			50
1 01.0 +60.0 1.3			3 01.0 +60.0 1.3			5 01.0 +59.9 1.3			7 00.9 +60.0 1.3			9 00.9 +60.0 1.3			51
2 01.0 +60.0 1.2			4 01.0 +59.9 1.2			6 00.9 +60.0 1.2			8 00.9 +60.0 1.2			10 00.9 +60.0 1.3			52
3 01.0 +59.9 1.2			5 00.9 +60.0 1.2			7 00.9 +60.0 1.2			9 00.9 +60.0 1.2			11 00.9 +59.9 1.2			53
4 00.9 +60.0 1.2			6 00.9 +60.0 1.2			8 00.9 +60.0 1.2			10 00.9 +60.0 1.2			12 00.8 +60.0 1.2			54
5 00.9 +60.0 1.2			7 00.9 +60.0 1.2			9 00.9 +60.0 1.2			11 00.9 +59.9 1.2			13 00.8 +60.0 1.2			55
6 00.9 +60.0 1.1			8 00.9 +60.0 1.1			10 00.9 +59.9 1.1			12 00.8 +60.0 1.1			14 00.8 +60.0 1.2			56
7 00.9 +60.0 1.1			9 00.9 +59.9 1.1			11 00.8 +60.0 1.1			13 00.8 +60.0 1.1			15 00.8 +60.0 1.1			57
8 00.9 +59.9 1.1			10 00.8 +60.0 1.1			12 00.8 +60.0 1.1			14 00.8 +60.0 1.1			16 00.8 +60.0 1.1			58
9 00.8 +60.0 1.0			11 00.8 +60.0 1.0			13 00.8 +60.0 1.1			15 00.8 +60.0 1.1			17 00.8 +59.9 1.1			59
10 00.8 +60.0 1.0			12 00.8 +60.0 1.0			14 00.8 +60.0 1.0			16 00.8 +59.9 1.0			18 00.7 +60.0 1.1			60
11 00.8 +60.0 1.0			13 00.8 +60.0 1.0			15 00.8 +59.9 1.0			17 00.7 +60.0 1.0			19 00.7 +60.0 1.0			61
12 00.8 +59.9 1.0			14 00.8 +59.9 1.0			16 00.7 +60.0 1.0			18 00.7 +60.0 1.0			20 00.7 +60.0 1.0			62
13 00.7 +60.0 0.9			15 00.7 +60.0 0.9			17 00.7 +60.0 0.9			19 00.7 +60.0 1.0			21 00.7 +60.0 1.0			63
14 00.7 +60.0 0.9			16 00.7 +60.0 0.9			18 00.7 +60.0 0.9			20 00.7 +60.0 0.9			22 00.7 +59.9 0.9			64
15 00.7 +60.0 0.9			17 00.7 +60.0 0.9			19 00.7 +60.0 0.9			21 00.7 +60.0 0.9			23 00.6 +60.0 0.9			65
16 00.7 +60.0 0.8			18 00.7 +59.9 0.9			20 00.7 +59.9 0.9			22 00.6 +60.0 0.9			24 00.6 +60.0 0.9			66
17 00.7 +59.9 0.8			19 00.6 +60.0 0.8			21 00.6 +60.0 0.8			23 00.6 +60.0 0.8			25 00.6 +60.0 0.8			67
18 00.6 +60.0 0.8			20 00.6 +60.0 0.8			22 00.6 +60.0 0.8			24 00.6 +60.0 0.8			26 00.6 +60.0 0.8			68
19 00.6 +60.0 0.8			21 00.6 +60.0 0.8			23 00.6 +60.0 0.8			25 00.6 +60.0 0.8			27 00.6 +59.9 0.8			69
20 00.6 +60.0 0.7			22 00.6 +60.0 0.7			24 00.6 +59.9 0.7			26 00.5 +60.0 0.8			28 00.5 +60.0 0.8			70
21 00.6 +59.9 0.7			23 00.6 +59.9 0.7			25 00.5 +60.0 0.7			27 00.5 +60.0 0.7			29 00.5 +60.0 0.7			71
22 00.5 +60.0 0.7			24 00.5 +60.0 0.7			26 00.5 +60.0 0.7			28 00.5 +60.0 0.7			30 00.5 +60.0 0.7			72
23 00.5 +60.0 0.6			25 00.5 +60.0 0.6			27 00.5 +60.0 0.7			29 00.5 +60.0 0.7			31 00.5 +60.0 0.7			73
24 00.5 +60.0 0.6			26 00.5 +60.0 0.6			28 00.5 +59.9 0.6			30 00.5 +59.9 0.6			32 00.5 +59.9 0.6			74
25 00.5 +59.9 0.6			27 00.5 +59.9 0.6			29 00.4 +60.0 0.6			31 00.4 +60.0 0.6			33 00.4 +60.0 0.6			75
26 00.4 +60.0 0.5			28 00.4 +60.0 0.5			30 00.4 +60.0 0.6			32 00.4 +60.0 0.6			34 00.4 +60.0 0.6			76
27 00.4 +60.0 0.5			29 00.4 +60.0 0.5			31 00.4 +60.0 0.5			33 00.4 +60.0 0.5			35 00.4 +60.0 0.5			77
28 00.4 +60.0 0.5			30 00.4 +59.9 0.5			32 00.4 +59.9 0.5			34 00.4 +59.9 0.5			36 00.4 +59.9 0.5			78
29 00.4 +59.9 0.4			31 00.3 +60.0 0.4			33 00.3 +60.0 0.5			35 00.3 +60.0 0.5			37 00.3 +60.0 0.5			79
30 00.3 +60.0 0.4			32 00.3 +60.0 0.4			34 00.3 +60.0 0.4			36 00.3 +60.0 0.4			38 00.3 +60.0 0.4			80
31 00.3 +60.0 0.4			33 00.3 +60.0 0.4			35 00.3 +60.0 0.4			37 00.3 +60.0 0.4			39 00.3 +60.0 0.4			81
32 00.3 +59.9 0.3			34 00.3 +59.9 0.3			36 00.3 +59.9 0.3			38 00.3 +59.9 0.4			40 00.3 +59.9 0.4			82
33 00.2 +60.0 0.3			35 00.2 +60.0 0.3			37 00.2 +60.0 0.3			39 00.2 +60.0 0.3			41 00.2 +60.0 0.3			83
34 00.2 +60.0 0.3			36 00.2 +60.0 0.3			38 00.2 +60.0 0.3			40 00.2 +60.0 0.3			42 00.2 +60.0 0.3			84
35 00.2 +59.9 0.2			37 00.2 +59.9 0.2			39 00.2 +59.9 0.2			41 00.2 +59.9 0.2			43 00.2 +59.9 0.2			85
36 00.1 +60.0 0.2			38 00.1 +60.0 0.2			40 00.1 +60.0 0.2			42 00.1 +60.0 0.2			44 00.1 +60.0 0.2			86
37 00.1 +60.0 0.1			39 00.1 +60.0 0.1			41 00.1 +60.0 0.1			43 00.1 +60.0 0.1			45 00.1 +60.0 0.1			87
38 00.1 +59.9 0.1			40 00.1 +59.9 0.1			42 00.1 +59.9 0.1			44 00.1 +59.9 0.1			46 00.1 +59.9 0.1			88
39 00.0 +60.0 0.0			41 00.0 +60.0 0.0			43 00.0 +60.0 0.0			45 00.0 +60.0 0.0			47 00.0 +60.0 0.0			89
40 00.0 +60.0 0.0			42 00.0 +60.0 0.0			44 00.0 +60.0 0.0			46 00.0 +60.0 0.0			48 00.0 +60.0 0.0			90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 178°, 182°

2°, 358° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 56.6	+59.9	174.9	67 57.0	+59.9	175.4	65 57.4	+59.9	175.7	63 57.7	+59.9	176.1	61 58.0	+59.9	176.3
31	70 56.5	+59.8	174.7	68 56.9	+59.9	175.2	66 57.3	+59.9	175.6	64 57.6	+60.0	175.9	62 57.9	+60.0	176.2
32	71 56.3	+59.8	174.5	69 56.8	+59.9	175.0	67 57.2	+59.9	175.5	65 57.6	+59.9	175.8	63 57.9	+59.9	176.1
33	72 56.1	+59.9	174.3	70 56.7	+59.8	174.9	68 57.1	+59.9	175.3	66 57.5	+59.9	175.7	64 57.8	+59.9	176.0
34	73 56.0	+59.7	174.0	71 56.5	+59.9	174.6	69 57.0	+59.9	175.2	67 57.4	+59.9	175.6	65 57.7	+60.0	175.9
35	74 55.7	+59.8	173.7	72 56.4	+59.8	174.4	70 56.9	+59.9	175.0	68 57.3	+59.9	175.4	66 57.7	+59.9	175.8
36	75 55.5	+59.7	173.3	73 56.2	+59.8	174.1	71 56.8	+59.8	174.8	69 57.2	+59.9	175.3	67 57.6	+59.9	175.7
37	76 55.2	+59.7	172.9	74 56.0	+59.8	173.8	72 56.6	+59.9	174.5	70 57.1	+59.9	175.1	68 57.5	+59.9	175.5
38	77 54.9	+59.6	172.5	75 55.8	+59.8	173.5	73 56.5	+59.8	174.3	71 57.0	+59.9	174.9	69 57.4	+60.0	175.4
39	78 54.5	+59.6	171.9	76 55.6	+59.7	173.1	74 56.3	+59.8	174.0	72 56.9	+59.9	174.7	70 57.4	+59.9	175.2
40	79 54.1	+59.4	171.2	77 55.3	+59.6	172.7	75 56.1	+59.8	173.7	73 56.8	+59.8	174.5	71 57.3	+59.8	175.0
41	80 53.5	+59.4	170.4	78 54.9	+59.6	172.1	76 55.9	+59.7	173.3	74 56.6	+59.8	174.2	72 57.1	+59.9	174.8
42	81 52.9	+59.1	169.4	79 54.5	+59.5	171.5	77 55.6	+59.7	172.9	75 56.4	+59.8	173.9	73 57.0	+59.9	174.6
43	82 52.0	+58.9	168.1	80 54.0	+59.4	170.7	78 55.3	+59.6	172.4	76 56.2	+59.8	173.5	74 56.9	+59.8	174.4
44	83 50.9	+58.4	166.5	81 53.4	+59.2	169.7	79 54.9	+59.6	171.8	77 56.0	+59.7	173.1	75 56.7	+59.8	174.1
45	84 49.3	+57.6	164.1	82 52.6	+58.9	168.5	80 54.5	+59.4	171.0	78 55.7	+59.6	172.6	76 56.5	+59.8	173.7
46	85 46.9	+56.3	160.8	83 51.5	+58.6	166.9	81 53.9	+59.3	170.1	79 55.3	+59.6	172.0	77 56.3	+59.7	173.3
47	86 43.2	+53.3	155.4	84 50.1	+57.8	164.7	82 53.2	+59.0	168.9	80 54.9	+59.5	171.3	78 56.0	+59.7	172.9
48	87 36.5	+45.2	146.0	85 47.9	+56.6	161.4	83 52.2	+58.7	167.4	81 54.4	+59.3	170.5	79 55.7	+59.7	172.3
49	88 21.7	+21.2	126.8	86 44.5	+53.7	156.2	84 50.9	+58.0	165.2	82 53.7	+59.2	169.3	80 55.4	+59.5	171.7
50	88 42.9	-20.0	89.2	87 38.2	+46.0	147.0	85 48.9	+56.9	162.1	83 52.9	+58.8	167.9	81 54.9	+59.4	170.8
51	88 22.9	-44.7	51.1	88 24.2	+21.9	128.0	86 45.8	+54.2	157.1	84 51.7	+58.2	165.8	82 54.3	+59.2	169.8
52	87 38.2	-53.1	31.4	88 46.1	-20.6	89.2	87 40.0	+46.8	148.2	85 49.9	+57.1	162.8	83 53.5	+58.9	168.3
53	86 45.1	-56.2	21.8	88 25.5	-45.5	49.8	88 26.8	+22.7	129.2	86 47.0	+54.7	158.0	84 52.4	+58.4	166.4
54	85 48.9	-57.6	16.3	87 40.0	-53.6	30.2	88 49.5	-21.4	89.2	87 41.7	+47.6	149.3	85 50.8	+57.4	163.5
55	84 51.3	-58.4	12.9	86 46.4	-56.5	20.8	88 28.1	-46.4	48.5	88 29.3	+23.6	130.6	86 48.2	+55.2	159.0
56	83 52.9	-58.9	10.5	85 49.9	-57.9	15.6	87 41.7	-54.1	29.0	88 52.9	-22.3	89.2	87 43.4	+48.5	150.6
57	82 54.0	-59.1	8.8	84 52.0	-58.5	12.3	86 47.6	-56.8	19.9	88 30.6	-47.2	47.0	88 31.9	+24.5	132.1
58	81 54.9	-59.3	7.6	83 53.5	-58.9	10.0	85 50.8	-58.0	14.8	87 43.4	-54.6	27.7	88 56.4	-23.2	89.2
59	80 55.6	-59.5	6.5	82 54.6	-59.2	8.4	84 52.8	-58.6	11.6	86 48.8	-57.1	18.9	88 33.2	-48.2	45.4
60	79 56.1	-59.5	5.7	81 55.4	-59.4	7.1	83 54.2	-59.1	9.5	85 51.7	-58.1	14.0	87 45.0	-55.0	26.4
61	78 56.6	-59.6	5.1	80 56.0	-59.5	6.2	82 55.1	-59.2	7.9	84 53.6	-58.8	11.0	86 50.0	-57.4	17.8
62	77 57.0	-59.7	4.5	79 56.5	-59.6	5.4	81 55.9	-59.5	6.7	83 54.8	-59.1	8.9	85 52.6	-58.3	13.2
63	76 57.3	-59.7	4.0	78 56.9	-59.6	4.7	80 56.4	-59.5	5.8	82 55.7	-59.4	7.4	84 54.3	-58.9	10.3
64	75 57.6	-59.8	3.6	77 57.3	-59.7	4.2	79 56.9	-59.6	5.0	81 56.3	-59.5	6.3	83 55.4	-59.2	8.3
65	74 57.8	-59.8	3.3	76 57.6	-59.8	3.7	78 57.3	-59.7	4.4	80 56.8	-59.5	5.4	82 56.2	-59.4	6.9
66	73 58.0	-59.8	2.9	75 57.8	-59.7	3.4	77 57.6	-59.7	3.9	79 57.3	-59.7	4.7	81 56.8	-59.6	5.8
67	72 58.2	-59.8	2.7	74 58.1	-59.9	3.0	76 57.9	-59.8	3.5	78 57.6	-59.7	4.1	80 57.2	-59.6	5.0
68	71 58.4	-59.9	2.4	73 58.2	-59.8	2.7	75 58.1	-59.8	3.1	77 57.9	-59.8	3.6	79 57.6	-59.7	4.3
69	70 58.5	-59.8	2.2	72 58.4	-59.8	2.4	74 58.3	-59.8	2.8	76 58.1	-59.8	3.2	78 57.9	-59.7	3.7
70	69 58.7	-59.9	2.0	71 58.6	-59.9	2.2	73 58.5	-59.9	2.5	75 58.3	-59.8	2.8	77 58.2	-59.8	3.3
71	68 58.8	-59.9	1.8	70 58.7	-59.9	2.0	72 58.6	-59.8	2.2	74 58.5	-59.8	2.5	76 58.4	-59.8	2.9
72	67 58.9	-59.9	1.6	69 58.8	-59.9	1.8	71 58.8	-59.9	2.0	73 58.7	-59.9	2.2	75 58.6	-59.9	2.6
73	66 59.0	-59.9	1.5	68 58.9	-59.8	1.6	70 58.9	-59.9	1.8	72 58.8	-59.8	2.0	74 58.7	-59.8	2.3
74	65 59.1	-59.9	1.4	67 59.1	-60.0	1.5	69 59.0	-59.9	1.6	71 59.0	-59.9	1.8	73 58.9	-59.9	2.0
75	64 59.2	-59.9	1.2	66 59.1	-59.9	1.3	68 59.1	-59.9	1.4	70 59.1	-59.9	1.6	72 59.0	-59.9	1.8
76	63 59.3	-60.0	1.1	65 59.2	-59.9	1.2	67 59.2	-59.9	1.3	69 59.2	-59.9	1.4	71 59.1	-59.9	1.6
77	62 59.3	-59.9	1.0	64 59.3	-59.9	1.1	66 59.3	-59.9	1.2	68 59.3	-59.9	1.3	70 59.2	-59.9	1.4
78	61 59.4	-59.9	0.9	63 59.4	-59.9	0.9	65 59.4	-60.0	1.0	67 59.4	-60.0	1.1	69 59.3	-59.9	1.2
79	60 59.5	-60.0	0.8	62 59.5	-60.0	0.8	64 59.4	-59.9	0.9	66 59.4	-59.9	1.0	68 59.4	-59.9	1.1
80	59 59.5	-59.9	0.7	61 59.5	-59.9	0.7	63 59.5	-59.9	0.8	65 59.5	-59.9	0.9	67 59.5	-59.9	0.9
81	58 59.6	-60.0	0.6	60 59.6	-60.0	0.6	62 59.6	-60.0	0.7	64 59.6	-60.0	0.7	66 59.6	-60.0	0.8
82	57 59.6	-59.9	0.5	59 59.6	-59.9	0.6	61 59.6	-59.9	0.6	63 59.6	-59.9	0.6	65 59.6	-59.9	0.7
83	56 59.7	-60.0	0.4	58 59.7	-60.0	0.5	60 59.7	-60.0	0.5	62 59.7	-60.0	0.5	64 59.7	-60.0	0.6
84	55 59.7	-59.9	0.4	57 59.7	-59.9	0.4	59 59.7	-59.9	0.4	61 59.7	-59.9	0.4	63 59.7	-59.9	0.5
85	54 59.8	-60.0	0.3	56 59.8	-60.0	0.3	58 59.8	-60.0	0.3	60 59.8	-60.0	0.4	62 59.8	-60.0	0.4
86	53 59.8	-59.9	0.2	55 59.8	-59.9	0.2	57 59.8	-59.9	0.3	59 59.8	-59.9	0.3	61 59.8	-59.9	0.3
87	52 59.9	-60.0	0.2	54 59.9	-60.0	0.2	56 59.9	-60.0	0.2	58 59.9	-60.0	0.2	60 59.9	-60.0	0.2
88	51 59.9	-59.9	0.1	53 59.9	-59.9	0.1	55 59.9	-59.9	0.1	57 59.9	-59.9	0.1	59 59.9	-59.9	0.1
89	51 00.0	-60.0	0.1	53 00.0	-60.0	0.1	55 00.0	-60.0	0.1	57 00.0	-60.0	0.1	59 00.0	-60.0	0.1
90	50 00.0	-60.0	0.0	52 00.0	-60.0	0.0	54 00.0	-60.0	0.0	56 00.0	-60.0	0.0	58 00.0	-60.0	0.0

LATITUDE CONTRARY NAME

L.H.A. 2°, 358°

50°			52°			56°			58°			60°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9 58.8	-60.0	178.2	7 58.9	-60.0	178.3	3 59.0	-60.0	178.3	1 59.0	-60.0	178.3	0 00.9	+60.0	1.7	30
8 58.8	-60.0	178.3	6 58.9	-60.0	178.3	2 59.0	-60.0	178.3	0 59.0	-59.9	178.3	1 00.9	+60.0	1.7	31
7 58.8	-59.9	178.3	5 58.9	-60.0	178.3	1 59.0	-60.0	178.3	1 00.9	+60.0	1.7	2 00.9	+60.0	1.7	32
6 58.9	-60.0	178.3	4 58.9	-60.0	178.3	0 59.0	-60.0	178.3	1 00.9	+60.0	1.7	3 00.9	+60.0	1.7	33
5 58.9	-60.0	178.3	3 58.9	-60.0	178.3	0 01.0	+60.0	1.7	2 00.9	+60.0	1.7	4 00.9	+60.0	1.7	34
4 58.9	-60.0	178.4	2 58.9	-59.9	178.4	1 01.0	+59.9	1.6	3 00.9	+60.0	1.6	5 00.9	+60.0	1.6	35
3 58.9	-60.0	178.4	1 59.0	-60.0	178.4	2 00.9	+60.0	1.6	4 00.9	+60.0	1.6	6 00.9	+59.9	1.6	36
2 58.9	-60.0	178.4	0 59.0	-60.0	178.4	3 00.9	+60.0	1.6	5 00.9	+60.0	1.6	7 00.8	+60.0	1.6	37
1 58.9	-59.9	178.4	0 01.0	+60.0	1.6	4 00.9	+60.0	1.6	6 00.9	+60.0	1.6	8 00.8	+60.0	1.6	38
0 59.0	-60.0	178.4	1 01.0	+60.0	1.6	5 00.9	+60.0	1.6	7 00.9	+60.0	1.6	9 00.8	+60.0	1.6	39
0 01.0	+60.0	1.5	2 01.0	+60.0	1.5	6 00.9	+60.0	1.5	8 00.9	+59.9	1.5	10 00.8	+60.0	1.6	40
1 01.0	+60.0	1.5	3 01.0	+60.0	1.5	7 00.9	+60.0	1.5	9 00.8	+60.0	1.5	11 00.8	+60.0	1.5	41
2 01.0	+60.0	1.5	4 01.0	+59.9	1.5	8 00.9	+60.0	1.5	10 00.8	+60.0	1.5	12 00.8	+60.0	1.5	42
3 01.0	+60.0	1.5	5 00.9	+60.0	1.5	9 00.9	+60.0	1.5	11 00.8	+60.0	1.5	13 00.8	+60.0	1.5	43
4 01.0	+60.0	1.4	6 00.9	+60.0	1.4	10 00.9	+59.9	1.5	12 00.8	+60.0	1.5	14 00.8	+60.0	1.5	44
5 01.0	+59.9	1.4	7 00.9	+60.0	1.4	11 00.8	+60.0	1.4	13 00.8	+60.0	1.4	15 00.8	+60.0	1.5	45
6 00.9	+60.0	1.4	8 00.9	+60.0	1.4	12 00.8	+60.0	1.4	14 00.8	+60.0	1.4	16 00.8	+59.9	1.4	46
7 00.9	+60.0	1.4	9 00.9	+60.0	1.4	13 00.8	+60.0	1.4	15 00.8	+60.0	1.4	17 00.7	+60.0	1.4	47
8 00.9	+60.0	1.4	10 00.9	+60.0	1.4	14 00.8	+60.0	1.4	16 00.8	+60.0	1.4	18 00.7	+60.0	1.4	48
9 00.9	+60.0	1.3	11 00.9	+59.9	1.3	15 00.8	+60.0	1.4	17 00.8	+60.0	1.4	19 00.7	+60.0	1.4	49
10 00.9	+60.0	1.3	12 00.8	+60.0	1.3	16 00.8	+60.0	1.3	18 00.8	+59.9	1.4	20 00.7	+60.0	1.4	50
11 00.9	+59.9	1.3	13 00.8	+60.0	1.3	17 00.8	+60.0	1.3	19 00.7	+60.0	1.3	21 00.7	+60.0	1.3	51
12 00.8	+60.0	1.3	14 00.8	+60.0	1.3	18 00.8	+59.9	1.3	20 00.7	+60.0	1.3	22 00.7	+60.0	1.3	52
13 00.8	+60.0	1.2	15 00.8	+60.0	1.2	19 00.7	+60.0	1.3	21 00.7	+60.0	1.3	23 00.7	+60.0	1.3	53
14 00.8	+60.0	1.2	16 00.8	+60.0	1.2	20 00.7	+60.0	1.3	22 00.7	+60.0	1.3	24 00.7	+60.0	1.3	54
15 00.8	+60.0	1.2	17 00.8	+60.0	1.2	21 00.7	+60.0	1.2	23 00.7	+60.0	1.2	25 00.7	+60.0	1.3	55
16 00.8	+60.0	1.2	18 00.8	+59.9	1.2	22 00.7	+60.0	1.2	24 00.7	+60.0	1.2	26 00.7	+59.9	1.2	56
17 00.8	+60.0	1.1	19 00.7	+60.0	1.2	23 00.7	+60.0	1.2	25 00.7	+60.0	1.2	27 00.6	+60.0	1.2	57
18 00.8	+59.9	1.1	20 00.7	+60.0	1.1	24 00.7	+60.0	1.2	26 00.7	+59.9	1.2	28 00.6	+60.0	1.2	58
19 00.7	+60.0	1.1	21 00.7	+60.0	1.1	25 00.7	+60.0	1.1	27 00.6	+60.0	1.2	29 00.6	+60.0	1.2	59
20 00.7	+60.0	1.1	22 00.7	+60.0	1.1	26 00.7	+59.9	1.1	28 00.6	+60.0	1.1	30 00.6	+60.0	1.2	60
21 00.7	+60.0	1.0	23 00.7	+60.0	1.1	27 00.6	+60.0	1.1	29 00.6	+60.0	1.1	31 00.6	+60.0	1.1	61
22 00.7	+60.0	1.0	24 00.7	+59.9	1.0	28 00.6	+60.0	1.1	30 00.6	+60.0	1.1	32 00.6	+60.0	1.1	62
23 00.7	+59.9	1.0	25 00.6	+60.0	1.0	29 00.6	+60.0	1.0	31 00.6	+60.0	1.1	33 00.6	+60.0	1.1	63
24 00.6	+60.0	1.0	26 00.6	+60.0	1.0	30 00.6	+60.0	1.0	32 00.6	+60.0	1.0	34 00.6	+59.9	1.1	64
25 00.6	+60.0	0.9	27 00.6	+60.0	0.9	31 00.6	+60.0	1.0	33 00.6	+59.9	1.0	35 00.5	+60.0	1.0	65
26 00.6	+60.0	0.9	28 00.6	+60.0	0.9	32 00.6	+59.9	1.0	34 00.5	+60.0	1.0	36 00.5	+60.0	1.0	66
27 00.6	+60.0	0.9	29 00.6	+60.0	0.9	33 00.5	+60.0	0.9	35 00.5	+60.0	1.0	37 00.5	+60.0	1.0	67
28 00.6	+60.0	0.8	30 00.6	+59.9	0.9	34 00.5	+60.0	0.9	36 00.5	+60.0	0.9	38 00.5	+60.0	1.0	68
29 00.6	+59.9	0.8	31 00.5	+60.0	0.8	35 00.5	+60.0	0.9	37 00.5	+60.0	0.9	39 00.5	+60.0	0.9	69
30 00.5	+60.0	0.8	32 00.5	+60.0	0.8	36 00.5	+60.0	0.8	38 00.5	+60.0	0.9	40 00.5	+60.0	0.9	70
31 00.5	+60.0	0.8	33 00.5	+60.0	0.8	37 00.5	+60.0	0.8	39 00.5	+59.9	0.8	41 00.5	+59.9	0.9	71
32 00.5	+60.0	0.7	34 00.5	+60.0	0.7	38 00.5	+59.9	0.8	40 00.4	+60.0	0.8	42 00.4	+60.0	0.8	72
33 00.5	+59.9	0.7	35 00.5	+59.9	0.7	39 00.4	+60.0	0.8	41 00.4	+60.0	0.8	43 00.4	+60.0	0.8	73
34 00.4	+60.0	0.7	36 00.4	+60.0	0.7	40 00.4	+60.0	0.7	42 00.4	+60.0	0.7	44 00.4	+60.0	0.8	74
35 00.4	+60.0	0.6	37 00.4	+60.0	0.6	41 00.4	+60.0	0.7	43 00.4	+60.0	0.7	45 00.4	+60.0	0.7	75
36 00.4	+60.0	0.6	38 00.4	+60.0	0.6	42 00.4	+60.0	0.7	44 00.4	+60.0	0.7	46 00.4	+59.9	0.7	76
37 00.4	+60.0	0.6	39 00.4	+59.9	0.6	43 00.4	+59.9	0.6	45 00.4	+59.9	0.6	47 00.3	+60.0	0.7	77
38 00.4	+59.9	0.5	40 00.3	+60.0	0.5	44 00.3	+60.0	0.6	46 00.3	+60.0	0.6	48 00.3	+60.0	0.6	78
39 00.3	+60.0	0.5	41 00.3	+60.0	0.5	45 00.3	+60.0	0.5	47 00.3	+60.0	0.6	49 00.3	+60.0	0.6	79
40 00.3	+60.0	0.5	42 00.3	+60.0	0.5	46 00.3	+60.0	0.5	48 00.3	+60.0	0.5	50 00.3	+60.0	0.5	80
41 00.3	+60.0	0.4	43 00.3	+59.9	0.4	47 00.3	+59.9	0.5	49 00.3	+59.9	0.5	51 00.3	+59.9	0.5	81
42 00.3	+59.9	0.4	44 00.2	+60.0	0.4	48 00.2	+60.0	0.4	50 00.2	+60.0	0.4	52 00.2	+60.0	0.5	82
43 00.2	+60.0	0.3	45 00.2	+60.0	0.3	49 00.2	+60.0	0.4	51 00.2	+60.0	0.4	53 00.2	+60.0	0.4	83
44 00.2	+60.0	0.3	46 00.2	+60.0	0.3	50 00.2	+60.0	0.3	52 00.2	+60.0	0.3	54 00.2	+60.0	0.4	84
45 00.2	+59.9	0.2	47 00.2	+59.9	0.3	51 00.2	+59.9	0.3	53 00.2	+59.9	0.3	55 00.2	+59.9	0.3	85
46 00.1	+60.0	0.2	48 00.1	+60.0	0.2	52 00.1	+60.0	0.2	54 00.1	+60.0	0.2	56 00.1	+60.0	0.2	86
47 00.1	+60.0	0.2	49 00.1	+60.0	0.2	53 00.1	+60.0	0.2	55 00.1	+60.0	0.2	57 00.1	+60.0	0.2	87
48 00.1	+59.9	0.1	50 00.1	+59.9	0.1	54 00.1	+59.9	0.1	56 00.1	+59.9	0.1	58 00.1	+59.9	0.1	88
49 00.0	+60.0	0.1	51 00.0	+60.0	0.1	55 00.0	+60.0	0.1	57 00.0	+60.0	0.1	59 00.0	+60.0	0.1	89
50 00.0	+60.0	0.0	52 00.0	+60.0	0.0	56 00.0	+60.0	0.0	58 00.0	+60.0	0.0	60 00.0	+60.0	0.0	90
50°			52°			56°			58°			60°			

LATITUDE SAME NAME

L.H.A. 178°, 182°

4°, 356° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	86 32.2	- 7.5	• 89.0	86 01.9	+24.9	• 119.2	84 45.4	+ 43.8	• 138.6	83 07.7	+ 51.8	• 149.7	81 20.5	+ 55.4	• 156.3
31	86 24.7	- 22.8	• 72.8	86 26.8	+ 9.7	• 105.3	85 29.2	+ 36.5	• 130.6	83 59.5	+ 48.8	• 145.2	82 15.9	+ 54.0	• 153.6
32	86 01.9	- 34.4	• 58.7	86 36.5	- 7.6	• 88.9	86 05.7	+ 25.4	• 119.7	84 48.3	+ 44.3	• 139.2	83 09.9	+ 52.2	• 150.2
33	85 27.5	- 42.1	• 47.6	86 28.9	- 23.2	• 72.4	86 31.1	+ 9.9	• 105.6	85 32.6	+ 37.1	• 131.2	84 02.1	+ 49.3	• 145.7
34	84 45.4	- 47.2	• 39.3	86 05.7	- 34.8	• 58.1	86 41.0	- 7.7	• 88.9	86 09.7	+ 25.9	• 120.2	84 51.4	+ 44.8	• 139.8
35	83 58.2	- 50.5	• 33.0	85 30.9	- 42.6	• 46.9	86 33.3	- 23.6	• 72.0	86 35.6	+ 10.2	• 105.9	85 36.2	+ 37.7	• 131.8
36	83 07.7	- 52.8	• 28.1	84 48.3	- 47.5	• 38.6	86 09.7	- 35.3	• 57.5	86 45.8	- 7.8	• 88.8	86 13.9	+ 26.5	• 120.8
37	82 14.9	- 54.4	• 24.4	84 00.8	- 50.9	• 32.3	85 34.4	- 43.0	• 46.2	86 38.0	- 24.1	• 71.5	86 40.4	+ 10.5	• 106.3
38	81 20.5	- 55.4	• 21.4	83 09.9	- 53.0	• 27.5	84 51.4	- 48.0	• 37.8	86 13.9	- 35.9	• 56.8	86 50.9	- 8.1	• 88.8
39	80 25.1	- 56.3	• 19.0	82 16.9	- 54.5	• 23.8	84 03.4	- 51.1	• 31.6	85 38.0	- 43.5	• 45.4	86 42.8	- 24.5	• 71.0
40	79 28.8	- 56.9	• 17.0	81 22.4	- 55.6	• 20.9	83 12.3	- 53.3	• 26.8	84 54.5	- 48.3	• 37.0	86 18.3	- 36.5	• 56.0
41	78 31.9	- 57.4	• 15.4	80 26.8	- 56.5	• 18.5	82 19.0	- 54.7	• 23.2	84 06.2	- 51.5	• 30.8	85 41.8	- 44.0	• 44.6
42	77 34.5	- 57.7	• 13.9	79 30.3	- 57.0	• 16.5	81 24.3	- 55.8	• 20.3	83 14.7	- 53.6	• 26.1	84 57.8	- 48.8	• 36.2
43	76 36.8	- 58.1	• 12.7	78 33.3	- 57.5	• 14.9	80 28.5	- 56.6	• 18.0	82 21.1	- 54.9	• 22.5	84 09.0	- 51.9	• 30.0
44	75 38.7	- 58.3	• 11.7	77 35.8	- 57.8	• 13.5	79 31.9	- 57.2	• 16.0	81 26.2	- 56.0	• 19.7	83 17.1	- 53.8	• 25.4
45	74 40.4	- 58.5	• 10.8	76 38.0	- 58.2	• 12.3	78 34.7	- 57.5	• 14.4	80 30.2	- 56.7	• 17.4	82 23.3	- 55.2	• 21.9
46	73 41.9	- 58.7	• 9.9	75 39.8	- 58.3	• 11.3	77 37.2	- 58.0	• 13.1	79 33.5	- 57.3	• 15.5	81 28.1	- 56.1	• 19.1
47	72 43.2	- 58.8	• 9.2	74 41.5	- 58.6	• 10.4	76 39.2	- 58.2	• 11.9	78 36.2	- 57.7	• 13.9	80 32.0	- 56.9	• 16.8
48	71 44.4	- 58.9	• 8.6	73 42.9	- 58.7	• 9.6	75 41.0	- 58.4	• 10.9	77 38.5	- 58.0	• 12.6	79 35.1	- 57.4	• 15.0
49	70 45.5	- 59.1	• 8.0	72 44.2	- 58.9	• 8.9	74 42.6	- 58.7	• 10.0	76 40.5	- 58.3	• 11.5	78 37.7	- 57.8	• 13.4
50	69 46.4	- 59.1	• 7.5	71 45.3	- 58.9	• 8.2	73 43.9	- 58.7	• 9.2	75 42.2	- 58.5	• 10.5	77 39.9	- 58.2	• 12.1
51	68 47.3	- 59.2	• 7.0	70 46.4	- 59.1	• 7.7	72 45.2	- 58.9	• 8.5	74 43.7	- 58.7	• 9.6	76 41.7	- 58.3	• 11.0
52	67 48.1	- 59.2	• 6.5	69 47.3	- 59.2	• 7.1	71 46.3	- 59.1	• 7.9	73 45.0	- 58.9	• 8.8	75 43.4	- 58.6	• 10.0
53	66 48.9	- 59.3	• 6.1	68 48.1	- 59.2	• 6.7	70 47.2	- 59.1	• 7.3	72 46.1	- 58.9	• 8.1	74 44.8	- 58.8	• 9.2
54	65 49.8	- 59.4	• 5.7	67 48.9	- 59.3	• 6.2	69 48.1	- 59.2	• 6.8	71 47.2	- 59.1	• 7.5	73 46.0	- 58.9	• 8.4
55	64 50.2	- 59.4	• 5.4	66 49.6	- 59.3	• 5.8	68 48.9	- 59.2	• 6.4	70 48.1	- 59.1	• 7.0	72 47.1	- 59.0	• 7.8
56	63 50.8	- 59.5	• 5.1	65 50.3	- 59.4	• 5.5	67 49.7	- 59.3	• 5.9	69 49.0	- 59.3	• 6.5	71 48.1	- 59.1	• 7.2
57	62 51.3	- 59.5	• 4.8	64 50.9	- 59.5	• 5.1	66 50.4	- 59.4	• 5.5	68 49.7	- 59.3	• 6.0	70 49.0	- 59.2	• 6.6
58	61 51.8	- 59.5	• 4.5	63 51.4	- 59.4	• 4.8	65 51.0	- 59.4	• 5.2	67 50.4	- 59.3	• 5.6	69 49.8	- 59.2	• 6.2
59	60 52.3	- 59.5	• 4.2	62 52.0	- 59.5	• 4.5	64 51.6	- 59.5	• 4.9	66 51.1	- 59.4	• 5.2	68 50.6	- 59.4	• 5.7
60	59 52.8	- 59.6	• 4.0	61 52.5	- 59.6	• 4.2	63 52.1	- 59.5	• 4.5	65 51.7	- 59.5	• 4.9	67 51.2	- 59.4	• 5.3
61	58 53.2	- 59.6	• 3.8	60 52.9	- 59.6	• 4.0	62 52.6	- 59.5	• 4.3	64 52.2	- 59.4	• 4.6	66 51.8	- 59.4	• 4.9
62	57 53.6	- 59.6	• 3.5	59 53.3	- 59.6	• 3.7	61 53.1	- 59.6	• 4.0	63 52.8	- 59.6	• 4.3	65 52.4	- 59.5	• 4.6
63	56 54.0	- 59.7	• 3.3	58 53.7	- 59.6	• 3.5	60 53.5	- 59.6	• 3.7	62 53.2	- 59.5	• 4.0	64 52.9	- 59.5	• 4.3
64	55 54.3	- 59.6	• 3.1	57 54.1	- 59.6	• 3.3	59 53.9	- 59.6	• 3.5	61 53.7	- 59.6	• 3.7	63 53.4	- 59.5	• 4.0
65	54 54.7	- 59.7	• 2.9	56 54.5	- 59.7	• 3.1	58 54.3	- 59.6	• 3.3	60 54.1	- 59.6	• 3.5	62 53.9	- 59.6	• 3.7
66	53 55.0	- 59.7	• 2.8	55 54.8	- 59.6	• 2.9	57 54.7	- 59.7	• 3.1	59 54.5	- 59.6	• 3.2	61 54.3	- 59.6	• 3.5
67	52 55.3	- 59.7	• 2.6	54 55.2	- 59.7	• 2.7	56 55.0	- 59.6	• 2.9	58 54.9	- 59.7	• 3.0	60 54.7	- 59.6	• 3.2
68	51 55.6	- 59.7	• 2.4	53 55.5	- 59.7	• 2.5	55 55.4	- 59.7	• 2.7	57 55.2	- 59.7	• 2.8	59 55.1	- 59.7	• 3.0
69	50 55.9	- 59.8	• 2.3	52 55.8	- 59.7	• 2.4	54 55.7	- 59.7	• 2.5	56 55.5	- 59.6	• 2.6	58 55.4	- 59.7	• 2.8
70	49 56.1	- 59.7	• 2.1	51 56.1	- 59.8	• 2.2	53 56.0	- 59.8	• 2.3	55 55.9	- 59.7	• 2.4	57 55.7	- 59.6	• 2.6
71	48 56.4	- 59.7	• 2.0	50 56.3	- 59.7	• 2.1	52 56.2	- 59.7	• 2.2	54 56.2	- 59.8	• 2.3	56 56.1	- 59.7	• 2.4
72	47 56.7	- 59.8	• 1.8	49 56.6	- 59.8	• 1.9	51 56.5	- 59.7	• 2.0	53 56.4	- 59.7	• 2.1	55 56.4	- 59.8	• 2.2
73	46 56.9	- 59.8	• 1.7	48 56.8	- 59.7	• 1.8	50 56.8	- 59.8	• 1.9	52 56.7	- 59.7	• 1.9	54 56.6	- 59.7	• 2.0
74	45 57.1	- 59.8	• 1.6	47 57.1	- 59.8	• 1.6	49 57.0	- 59.7	• 1.7	51 57.0	- 59.8	• 1.8	53 56.9	- 59.7	• 1.9
75	44 57.3	- 59.7	• 1.5	46 57.3	- 59.8	• 1.5	48 57.3	- 59.8	• 1.6	50 57.2	- 59.7	• 1.6	52 57.2	- 59.8	• 1.7
76	43 57.6	- 59.8	• 1.3	45 57.5	- 59.8	• 1.4	47 57.5	- 59.8	• 1.4	49 57.5	- 59.8	• 1.5	51 57.4	- 59.8	• 1.6
77	42 57.8	- 59.8	• 1.2	44 57.7	- 59.8	• 1.3	46 57.7	- 59.8	• 1.3	48 57.7	- 59.8	• 1.4	50 57.6	- 59.7	• 1.4
78	41 58.0	- 59.8	• 1.1	43 57.9	- 59.8	• 1.2	45 57.9	- 59.8	• 1.2	47 57.9	- 59.8	• 1.2	49 57.9	- 59.8	• 1.3
79	40 58.2	- 59.8	• 1.0	42 58.1	- 59.8	• 1.0	44 58.1	- 59.8	• 1.1	46 58.1	- 59.8	• 1.1	48 58.1	- 59.8	• 1.2
80	39 58.4	- 59.9	• 0.9	41 58.3	- 59.8	• 0.9	43 58.3	- 59.8	• 1.0	45 58.3	- 59.8	• 1.0	47 58.3	- 59.8	• 1.0
81	38 58.5	- 59.8	• 0.8	40 58.5	- 59.8	• 0.8	42 58.5	- 59.8	• 0.9	44 58.5	- 59.8	• 0.9	46 58.5	- 59.8	• 0.9
82	37 58.7	- 59.8	• 0.7	39 58.7	- 59.8	• 0.7	41 58.7	- 59.8	• 0.7	43 58.7	- 59.8	• 0.8	45 58.7	- 59.8	• 0.8
83	36 58.9	- 59.8	• 0.6	38 58.9	- 59.8	• 0.6	40 58.9	- 59.8	• 0.6	42 58.9	- 59.9	• 0.7	44 58.9	- 59.9	• 0.7
84	35 59.1	- 59.9	• 0.5	37 59.1	- 59.9	• 0.5	39 59.1	- 59.9	• 0.5	41 59.0	- 59.8	• 0.6	43 59.0	- 59.8	• 0.6
85	34 59.2	- 59.8	• 0.4	36 59.2	- 59.8	• 0.4	38 59.2	- 59.8	• 0.4	40 59.2	- 59.8	• 0.5	42 59.2	- 59.8	• 0.5
86	33 59.4	- 59.9	• 0.3	35 59.4	- 59.9	• 0.3	37 59.4	- 59.9	• 0.4	39 59.4	- 59.9	• 0.4	41 59.4	- 59.9	• 0.4
87	32 59.5	- 59.8	• 0.2	34 59.5	- 59.8	• 0.3	36 59.5	- 59.8	• 0.3	38 59.5	- 59.8	• 0.3	40 59.5	- 59.8	• 0.3
88	31 59.7	- 59.8	• 0.2	33 59.7	- 59.8	• 0.2	35 59.7	- 59.8	• 0.2	37 59.7	- 59.8	• 0.2	39 59.7	- 59.8	• 0.2
89	30 59.9	- 59.9	• 0.1	32 59.9	- 59.9	• 0.1	34 59.9	- 59.9	• 0.1	36 59.9	- 59.9	• 0.1	38 59.9	- 59.9	• 0.1
90	30 00.0	- 59.9	• 0.0	32 00.0	- 59.9	• 0.0	34 00.0	- 59.9	• 0.0	36 00.0	- 59.9	• 0.0	38 00.0	- 59.9	• 0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 4°, 356°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29	52.8	-59.9 176.0	27	53.0	-59.8 176.1	25	53.3	-59.9 176.1	23	53.6	-59.9 176.2	21	53.8	-59.9 176.3	30
28	52.9	-59.9 176.1	26	53.2	-59.9 176.2	24	53.4	-59.8 176.2	22	53.7	-59.9 176.3	20	53.9	-59.9 176.4	31
27	53.0	-59.8 176.2	25	53.3	-59.9 176.2	23	53.6	-59.9 176.3	21	53.8	-59.9 176.3	19	54.0	-59.9 176.4	32
26	53.2	-59.9 176.2	24	53.4	-59.8 176.3	22	53.7	-59.9 176.4	20	53.9	-59.9 176.4	18	54.1	-59.9 176.5	33
25	53.3	-59.9 176.3	23	53.6	-59.9 176.4	21	53.8	-59.9 176.4	19	54.0	-59.9 176.5	17	54.2	-59.9 176.5	34
24	53.4	-59.8 176.4	22	53.7	-59.9 176.4	20	53.9	-59.9 176.5	18	54.1	-59.9 176.5	16	54.3	-59.9 176.6	35
23	53.6	-59.9 176.5	21	53.8	-59.9 176.5	19	54.0	-59.9 176.6	17	54.2	-59.9 176.6	15	54.4	-59.9 176.6	36
22	53.7	-59.9 176.5	20	53.9	-59.9 176.6	18	54.1	-59.9 176.6	16	54.3	-59.9 176.7	14	54.5	-59.9 176.7	37
21	53.8	-59.8 176.6	19	54.0	-59.8 176.6	17	54.2	-59.8 176.7	15	54.4	-59.8 176.7	13	54.6	-59.9 176.8	38
20	54.0	-59.9 176.7	18	54.2	-59.9 176.7	16	54.4	-59.9 176.8	14	54.6	-59.9 176.8	12	54.7	-59.9 176.8	39
19	54.1	-59.9 176.7	17	54.3	-59.9 176.8	15	54.5	-59.9 176.8	13	54.7	-59.9 176.8	11	54.8	-59.9 176.9	40
18	54.2	-59.9 176.8	16	54.4	-59.9 176.8	14	54.6	-59.9 176.9	12	54.8	-59.9 176.9	10	54.9	-59.9 176.9	41
17	54.3	-59.8 176.9	15	54.5	-59.9 176.9	13	54.7	-59.9 176.9	11	54.9	-59.9 177.0	9	55.0	-59.9 177.0	42
16	54.5	-59.9 176.9	14	54.6	-59.9 177.0	12	54.8	-59.9 177.0	10	55.0	-59.9 177.0	8	55.1	-59.9 177.0	43
15	54.6	-59.9 177.0	13	54.7	-59.9 177.0	11	54.9	-59.9 177.1	9	55.1	-59.9 177.1	7	55.2	-59.9 177.1	44
14	54.7	-59.9 177.1	12	54.8	-59.8 177.1	10	55.0	-59.9 177.1	8	55.2	-60.0 177.1	6	55.3	-59.9 177.2	45
13	54.8	-59.9 177.1	11	55.0	-59.9 177.2	9	55.1	-59.9 177.2	7	55.2	-59.9 177.2	5	55.4	-59.9 177.2	46
12	54.9	-59.9 177.2	10	55.1	-59.9 177.2	8	55.2	-59.9 177.2	6	55.3	-59.9 177.3	4	55.5	-59.9 177.3	47
11	55.0	-59.8 177.3	9	55.2	-59.9 177.3	7	55.3	-59.9 177.3	5	55.4	-59.9 177.3	3	55.6	-59.9 177.3	48
10	55.2	-59.9 177.3	8	55.3	-59.9 177.3	6	55.4	-59.9 177.4	4	55.5	-59.9 177.4	2	55.7	-59.9 177.4	49
9	55.3	-59.9 177.4	7	55.4	-59.9 177.4	5	55.5	-59.9 177.4	3	55.6	-59.9 177.4	1	55.8	-60.0 177.4	50
8	55.4	-59.9 177.5	6	55.5	-59.9 177.5	4	55.6	-59.9 177.5	2	55.7	-59.9 177.5	0	55.8	-59.9 177.5	51
7	55.5	-59.9 177.5	5	55.6	-59.9 177.5	3	55.7	-59.9 177.5	1	55.8	-59.9 177.5	0	04.1	+59.9 2.5	52
6	55.6	-59.9 177.6	4	55.7	-59.9 177.6	2	55.8	-59.9 177.6	0	55.9	-59.9 177.6	0	04.0	+59.9 2.4	53
5	55.7	-59.9 177.6	3	55.8	-59.9 177.6	1	55.9	-59.9 177.6	0	04.0	+59.9 2.3	2	03.9	+59.9 2.4	54
4	55.8	-59.9 177.7	2	55.9	-59.9 177.7	0	56.0	-59.9 177.7	1	03.9	+59.9 2.3	3	03.8	+59.9 2.3	55
3	55.9	-59.9 177.8	1	56.0	-59.9 177.8	0	56.1	-59.9 177.8	0	03.9	+59.9 2.2	2	03.7	+59.9 2.2	56
2	56.0	-59.8 177.8	0	56.1	-59.9 177.8	1	03.8	+59.9 2.2	3	03.7	+59.9 2.2	5	03.6	+59.9 2.2	57
1	56.2	-59.9 177.9	0	03.8	+59.9 2.1	2	03.7	+59.9 2.1	4	03.6	+59.9 2.1	6	03.5	+59.9 2.1	58
0	56.3	-59.9 177.9	1	03.7	+59.9 2.1	3	03.6	+59.9 2.1	5	03.5	+59.9 2.1	7	03.4	+59.9 2.1	59
0	03.6	+59.9 2.0	2	03.6	+59.8 2.0	4	03.5	+59.9 2.0	6	03.4	+59.9 2.0	8	03.3	+59.9 2.0	60
1	03.5	+59.9 1.9	3	03.4	+59.9 1.9	5	03.4	+59.9 1.9	7	03.3	+59.9 2.0	9	03.2	+59.9 2.0	61
2	03.4	+59.9 1.9	4	03.3	+59.9 1.9	6	03.3	+59.9 1.9	8	03.2	+59.9 1.9	10	03.1	+60.0 1.9	62
3	03.3	+59.9 1.8	5	03.2	+59.9 1.8	7	03.2	+59.9 1.8	9	03.1	+59.9 1.8	11	03.1	+59.9 1.8	63
4	03.2	+59.9 1.8	6	03.1	+59.9 1.8	8	03.1	+59.9 1.8	10	03.0	+59.9 1.8	12	03.0	+59.9 1.8	64
5	03.1	+59.9 1.7	7	03.0	+59.9 1.7	9	03.0	+59.9 1.7	11	02.9	+59.9 1.7	13	02.9	+59.9 1.7	65
6	03.0	+59.9 1.6	8	02.9	+59.9 1.6	10	02.9	+59.9 1.7	12	02.8	+59.9 1.7	14	02.8	+59.9 1.7	66
7	02.9	+59.8 1.6	9	02.8	+59.9 1.6	11	02.8	+59.9 1.6	13	02.7	+59.9 1.6	15	02.7	+59.9 1.6	67
8	02.7	+59.9 1.5	10	02.7	+59.9 1.5	12	02.7	+59.9 1.5	14	02.6	+59.9 1.5	16	02.6	+59.9 1.6	68
9	02.6	+59.9 1.5	11	02.6	+59.9 1.5	13	02.6	+59.8 1.5	15	02.5	+59.9 1.5	17	02.5	+59.9 1.5	69
10	02.5	+59.9 1.4	12	02.5	+59.9 1.4	14	02.4	+59.9 1.4	16	02.4	+59.9 1.4	18	02.4	+59.9 1.4	70
11	02.4	+59.9 1.3	13	02.4	+59.9 1.3	15	02.3	+59.9 1.3	17	02.3	+59.9 1.4	19	02.3	+59.9 1.4	71
12	02.3	+59.9 1.3	14	02.3	+59.8 1.3	16	02.2	+59.9 1.3	18	02.2	+59.9 1.3	20	02.2	+59.9 1.3	72
13	02.2	+59.9 1.2	15	02.1	+59.9 1.2	17	02.1	+59.9 1.2	19	02.1	+59.9 1.2	21	02.1	+59.9 1.3	73
14	02.1	+59.8 1.1	16	02.0	+59.9 1.1	18	02.0	+59.9 1.2	20	02.0	+59.9 1.2	22	02.0	+59.9 1.2	74
15	01.9	+59.9 1.1	17	01.9	+59.9 1.1	19	01.9	+59.9 1.1	21	01.9	+59.9 1.1	23	01.9	+59.8 1.1	75
16	01.8	+59.9 1.0	18	01.8	+59.9 1.0	20	01.8	+59.9 1.0	22	01.8	+59.9 1.0	24	01.7	+59.9 1.1	76
17	01.7	+59.9 0.9	19	01.7	+59.9 1.0	21	01.7	+59.9 1.0	23	01.7	+59.8 1.0	25	01.6	+59.9 1.0	77
18	01.6	+59.9 0.9	20	01.6	+59.9 0.9	22	01.6	+59.8 0.9	24	01.5	+59.9 0.9	26	01.5	+59.9 0.9	78
19	01.5	+59.8 0.8	21	01.5	+59.8 0.8	23	01.4	+59.9 0.8	25	01.4	+59.9 0.8	27	01.4	+59.9 0.9	79
20	01.3	+59.9 0.7	22	01.3	+59.9 0.7	24	01.3	+59.9 0.8	26	01.3	+59.9 0.8	28	01.3	+59.9 0.8	80
21	01.2	+59.9 0.7	23	01.2	+59.9 0.7	25	01.2	+59.9 0.7	27	01.2	+59.9 0.7	29	01.2	+59.9 0.7	81
22	01.1	+59.9 0.6	24	01.1	+59.9 0.6	26	01.1	+59.8 0.6	28	01.1	+59.8 0.6	30	01.1	+59.8 0.6	82
23	01.0	+59.8 0.5	25	01.0	+59.8 0.5	27	00.9	+59.9 0.5	29	00.9	+59.9 0.5	31	00.9	+59.9 0.6	83
24	00.8	+59.9 0.5	26	00.8	+59.9 0.5	28	00.8	+59.9 0.5	30	00.8	+59.9 0.5	32	00.8	+59.9 0.5	84
25	00.7	+59.9 0.4	27	00.7	+59.9 0.4	29	00.7	+59.9 0.4	31	00.7	+59.9 0.4	33	00.7	+59.9 0.4	85
26	00.6	+59.8 0.3	28	00.6	+59.8 0.3	30	00.6	+59.8 0.3	32	00.6	+59.8 0.3	34	00.6	+59.8 0.3	86
27	00.4	+59.9 0.2	29	00.4	+59.9 0.2	31	00.4	+59.9 0.2	33	00.4	+59.9 0.2	35	00.4	+59.9 0.3	87
28	00.3	+59.8 0.2	30	00.3	+59.8 0.2	32	00.3	+59.8 0.2	34	00.3	+59.8 0.2	36	00.3	+59.8 0.2	88
29	00.1	+59.9 0.1	31	00.1	+59.9 0.1	33	00.1	+59.9 0.1	35	00.1	+59.9 0.1	37	00.1	+59.9 0.1	89
30	00.0	+59.9 0.0	32	00.0	+59.9 0.0	34	00.0	+59.9 0.0	36	00.0	+59.9 0.0	38	00.0	+59.9 0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 176°, 184°

4°, 356° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	79 28.8	+57.1	160.7	77 34.5	+58.1	163.7	75 38.7	+58.7	165.9	73 41.9	+59.0	167.6	71 44.4	+59.3	168.9
31	80 25.9	+56.5	158.9	78 32.6	+57.7	162.5	76 37.4	+58.4	165.0	74 40.9	+58.9	166.9	72 43.7	+59.2	168.4
32	81 22.4	+55.5	156.8	79 30.3	+57.3	161.0	77 35.8	+58.2	164.0	75 39.8	+58.8	166.2	73 42.9	+59.1	167.8
33	82 17.9	+54.4	154.1	80 27.6	+56.7	159.3	78 34.0	+57.9	162.8	76 38.6	+58.6	165.3	74 42.0	+59.0	167.2
34	83 12.3	+52.5	150.7	81 24.3	+55.8	157.2	79 31.9	+57.4	161.4	77 37.2	+58.3	164.4	75 41.0	+58.9	166.5
35	84 04.8	+49.7	146.4	82 20.1	+54.6	154.6	80 29.3	+56.9	159.8	78 35.5	+58.0	163.2	76 39.9	+58.6	165.7
36	84 54.5	+45.4	140.5	83 14.7	+52.8	151.3	81 26.2	+56.0	157.7	79 33.5	+57.6	161.9	77 38.5	+58.4	164.7
37	85 39.9	+38.4	132.5	84 07.5	+50.3	147.0	82 22.2	+54.9	155.2	80 31.1	+57.0	160.2	78 36.9	+58.2	163.6
38	86 18.3	+27.1	121.5	84 57.8	+45.9	141.2	83 17.1	+53.3	152.0	81 28.1	+56.3	158.3	79 35.1	+57.7	162.3
39	86 45.4	+10.8	106.7	85 43.7	+39.1	133.3	84 10.4	+50.7	147.7	82 24.4	+55.2	155.8	80 32.8	+57.3	160.7
40	86 56.2	-8.3	88.7	86 22.8	+27.7	122.2	85 01.1	+46.6	142.0	83 19.6	+53.7	152.6	81 30.1	+56.5	158.8
41	86 47.9	-25.1	70.5	86 50.5	+11.2	107.1	85 47.7	+39.7	134.1	84 13.3	+51.1	148.5	82 26.6	+55.5	156.4
42	86 22.8	-37.1	55.2	87 01.7	-8.5	88.7	86 27.4	+28.5	123.0	85 04.4	+47.3	142.9	83 22.1	+54.1	153.3
43	85 45.7	-44.6	43.6	86 53.2	-25.8	69.9	86 55.9	+11.5	107.6	85 51.7	+40.5	135.0	84 16.2	+51.7	149.3
44	85 01.1	-49.3	35.3	86 27.4	-37.8	54.3	87 07.4	-8.8	88.6	86 32.2	+29.2	123.8	85 07.9	+47.8	143.8
45	84 11.8	-52.2	29.2	85 49.6	-45.2	42.7	86 58.6	-26.4	69.3	87 01.4	+11.9	108.2	85 55.7	+41.4	136.0
46	83 19.6	-54.1	24.6	85 04.4	-49.7	34.4	86 32.2	-38.5	53.3	87 13.3	-9.0	88.6	86 37.1	+30.0	124.8
47	82 25.5	-55.4	21.2	84 14.7	-52.6	28.3	85 53.7	-45.8	41.6	87 04.3	-27.2	68.6	87 07.1	+12.3	108.8
48	81 30.1	-56.4	18.4	83 22.1	-54.4	23.8	85 07.9	-50.3	33.4	86 37.1	-39.3	52.3	87 19.4	-9.3	88.5
49	80 33.7	-57.0	16.2	82 27.7	-55.6	20.4	84 17.6	-52.9	27.4	85 57.8	-46.5	40.6	87 10.1	-28.0	67.8
50	79 36.7	-57.5	14.4	81 32.1	-56.6	17.7	83 24.7	-54.7	23.0	85 11.3	-50.7	32.3	86 42.1	-40.1	51.2
51	78 39.2	-58.0	12.9	80 35.5	-57.2	15.6	82 30.0	-56.0	19.7	84 20.6	-53.4	26.4	86 02.0	-47.2	39.4
52	77 41.2	-58.2	11.6	79 38.3	-57.6	13.8	81 34.0	-56.7	17.0	83 27.2	-55.0	22.1	85 14.8	-51.3	31.2
53	76 43.0	-58.4	10.5	78 40.7	-58.1	12.3	80 37.3	-57.4	14.9	82 32.2	-56.2	18.9	84 23.5	-53.7	25.4
54	75 44.6	-58.7	9.6	77 42.6	-58.3	11.1	79 39.9	-57.8	13.2	81 36.0	-56.9	16.3	83 29.8	-55.4	21.2
55	74 45.9	-58.8	8.8	76 44.3	-58.6	10.0	78 42.1	-58.1	11.8	80 39.1	-57.6	14.3	82 34.4	-56.4	18.0
56	73 47.1	-59.0	8.0	75 45.7	-58.7	9.1	77 44.0	-58.5	10.6	79 41.5	-57.9	12.6	81 38.0	-57.2	15.5
57	72 48.1	-59.0	7.4	74 47.0	-58.9	8.3	76 45.5	-58.6	9.5	78 43.6	-58.3	11.2	80 40.8	-57.7	13.6
58	71 49.1	-59.2	6.8	73 48.1	-59.0	7.6	75 46.9	-58.8	8.7	77 45.3	-58.5	10.0	79 43.1	-58.1	12.0
59	70 49.9	-59.2	6.3	72 49.1	-59.1	7.0	74 48.1	-59.0	7.9	76 46.8	-58.7	9.0	78 45.0	-58.4	10.6
60	69 50.7	-59.4	5.8	71 50.0	-59.2	6.4	73 49.1	-59.0	7.2	75 48.1	-58.9	8.2	77 46.6	-58.6	9.5
61	68 51.3	-59.3	5.4	70 50.8	-59.3	5.9	72 50.1	-59.2	6.6	74 49.2	-59.1	7.4	76 48.0	-58.8	8.5
62	67 52.0	-59.4	5.0	69 51.5	-59.4	5.5	71 50.9	-59.3	6.0	73 50.1	-59.1	6.8	75 49.2	-59.0	7.7
63	66 52.6	-59.5	4.6	68 52.1	-59.4	5.0	70 51.6	-59.3	5.5	72 51.0	-59.2	6.2	74 50.2	-59.1	7.0
64	65 53.1	-59.5	4.3	67 52.7	-59.4	4.7	69 52.3	-59.4	5.1	71 51.8	-59.3	5.6	73 51.1	-59.2	6.3
65	64 53.6	-59.5	4.0	66 53.3	-59.5	4.3	68 52.9	-59.4	4.7	70 52.5	-59.4	5.2	72 51.9	-59.3	5.7
66	63 54.1	-59.6	3.7	65 53.8	-59.5	4.0	67 53.5	-59.5	4.3	69 53.1	-59.4	4.7	71 52.6	-59.3	5.2
67	62 54.5	-59.6	3.4	64 54.3	-59.6	3.7	66 54.0	-59.5	4.0	68 53.7	-59.5	4.3	70 53.3	-59.4	4.8
68	61 54.9	-59.6	3.2	63 54.7	-59.6	3.4	65 54.5	-59.6	3.7	67 54.2	-59.5	4.0	69 53.9	-59.5	4.4
69	60 55.3	-59.7	2.9	62 55.1	-59.6	3.1	64 54.9	-59.6	3.4	66 54.7	-59.6	3.7	68 54.4	-59.5	4.0
70	59 55.6	-59.7	2.7	61 55.5	-59.7	2.9	63 55.3	-59.6	3.1	65 55.1	-59.6	3.4	67 54.9	-59.6	3.6
71	58 55.9	-59.6	2.5	60 55.8	-59.6	2.7	62 55.7	-59.7	2.9	64 55.5	-59.6	3.1	66 55.3	-59.6	3.3
72	57 56.3	-59.7	2.3	59 56.2	-59.7	2.5	61 56.0	-59.6	2.6	63 55.9	-59.6	2.8	65 55.7	-59.6	3.0
73	56 56.6	-59.8	2.1	58 56.5	-59.7	2.3	60 56.4	-59.7	2.4	62 56.3	-59.7	2.6	64 56.1	-59.6	2.8
74	55 56.8	-59.7	2.0	57 56.8	-59.8	2.1	59 56.7	-59.7	2.2	61 56.6	-59.7	2.3	63 56.5	-59.7	2.5
75	54 57.1	-59.7	1.8	56 57.0	-59.7	1.9	58 57.0	-59.7	2.0	60 56.9	-59.7	2.1	62 56.8	-59.7	2.3
76	53 57.4	-59.8	1.6	55 57.3	-59.7	1.7	57 57.3	-59.8	1.8	59 57.2	-59.7	1.9	61 57.1	-59.7	2.1
77	52 57.6	-59.8	1.5	54 57.6	-59.8	1.6	56 57.5	-59.7	1.6	58 57.5	-59.8	1.7	60 57.4	-59.7	1.9
78	51 57.8	-59.7	1.3	53 57.8	-59.8	1.4	55 57.8	-59.8	1.5	57 57.7	-59.7	1.6	59 57.7	-59.8	1.7
79	50 58.1	-59.8	1.2	52 58.0	-59.8	1.3	54 58.0	-59.8	1.3	56 58.0	-59.8	1.4	58 57.9	-59.7	1.5
80	49 58.3	-59.8	1.1	51 58.2	-59.7	1.1	53 58.2	-59.8	1.2	55 58.2	-59.8	1.2	57 58.2	-59.8	1.3
81	48 58.5	-59.8	1.0	50 58.5	-59.8	1.0	52 58.4	-59.8	1.0	54 58.4	-59.8	1.1	56 58.4	-59.8	1.1
82	47 58.7	-59.8	0.8	49 58.7	-59.9	0.9	51 58.6	-59.8	0.9	53 58.6	-59.8	0.9	55 58.6	-59.8	1.0
83	46 58.9	-59.9	0.7	48 58.8	-59.8	0.7	50 58.8	-59.8	0.8	52 58.8	-59.8	0.8	54 58.8	-59.8	0.8
84	45 59.0	-59.8	0.6	47 59.0	-59.8	0.6	49 59.0	-59.8	0.6	51 59.0	-59.8	0.7	53 59.0	-59.8	0.7
85	44 59.2	-59.8	0.5	46 59.2	-59.8	0.5	48 59.2	-59.8	0.5	50 59.2	-59.8	0.6	52 59.2	-59.8	0.6
86	43 59.4	-59.9	0.4	45 59.4	-59.9	0.4	47 59.4	-59.9	0.4	49 59.4	-59.9	0.4	51 59.4	-59.9	0.5
87	42 59.5	-59.8	0.3	44 59.5	-59.8	0.3	46 59.5	-59.8	0.3	48 59.5	-59.8	0.3	50 59.5	-59.8	0.3
88	41 59.7	-59.8	0.2	43 59.7	-59.8	0.2	45 59.7	-59.8	0.2	47 59.7	-59.8	0.2	49 59.7	-59.8	0.2
89	40 59.9	-59.9	0.1	42 59.9	-59.9	0.1	44 59.9	-59.9	0.1	46 59.9	-59.9	0.1	48 59.9	-59.9	0.1
90	40 00.0	-59.9	0.0	42 00.0	-59.9	0.0	44 00.0	-59.9	0.0	46 00.0	-59.9	0.0	48 00.0	-59.9	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 4°, 356°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
19	54.1	-59.9	176.3	17	54.3	-59.9	176.4	15	54.6	-59.9	176.4	13	54.8	-59.9	176.4	11	55.0	-59.9	176.5	30
18	54.2	-59.9	176.4	16	54.4	-59.9	176.4	14	54.7	-60.0	176.5	12	54.9	-59.9	176.5	10	55.1	-59.9	176.5	31
17	54.3	-59.9	176.4	15	54.5	-59.9	176.5	13	54.7	-59.9	176.5	11	55.0	-60.0	176.5	9	55.2	-60.0	176.6	32
16	54.4	-59.9	176.5	14	54.6	-59.9	176.5	12	54.8	-59.9	176.6	10	55.0	-59.9	176.6	8	55.2	-59.9	176.6	33
15	54.5	-59.9	176.6	13	54.7	-59.9	176.6	11	54.9	-59.9	176.6	9	55.1	-59.9	176.6	7	55.3	-59.9	176.7	34
14	54.6	-59.9	176.6	12	54.8	-59.9	176.6	10	55.0	-59.9	176.7	8	55.2	-60.0	176.7	6	55.4	-60.0	176.7	35
13	54.7	-60.0	176.7	11	54.9	-60.0	176.7	9	55.1	-60.0	176.7	7	55.2	-59.9	176.7	5	55.4	-59.9	176.7	36
12	54.7	-59.9	176.7	10	54.9	-59.9	176.7	8	55.1	-59.9	176.8	6	55.3	-59.9	176.8	4	55.5	-59.9	176.8	37
11	54.8	-59.9	176.8	9	55.0	-59.9	176.8	7	55.2	-59.9	176.8	5	55.4	-59.9	176.8	3	55.6	-60.0	176.8	38
10	54.9	-59.9	176.8	8	55.1	-59.9	176.9	6	55.3	-59.9	176.9	4	55.5	-60.0	176.9	2	55.6	-59.9	176.9	39
9	55.0	-59.9	176.9	7	55.2	-59.9	176.9	5	55.4	-60.0	176.9	3	55.5	-60.0	176.9	1	55.7	-59.9	176.9	40
8	55.1	-59.9	176.9	6	55.3	-60.0	177.0	4	55.4	-59.9	177.0	2	55.6	-59.9	177.0	0	55.8	-60.0	177.0	41
7	55.2	-59.9	177.0	5	55.3	-59.9	177.0	3	55.5	-59.9	177.0	1	55.7	-60.0	177.0	0	55.8	-60.0	177.0	42
6	55.3	-59.9	177.1	4	55.4	-59.9	177.1	2	55.6	-59.9	177.1	0	55.7	-59.9	177.1	1	04.1	+59.9	2.9	43
5	55.4	-60.0	177.1	3	55.5	-59.9	177.1	1	55.7	-60.0	177.1	0	55.7	-59.9	177.1	2	04.0	+60.0	2.9	44
4	55.4	-59.9	177.2	2	55.6	-59.9	177.2	0	55.7	-59.9	177.2	0	04.2	+59.9	2.9	2	04.0	+60.0	2.8	45
3	55.5	-59.9	177.2	1	55.7	-59.9	177.2	0	04.2	+59.9	2.8	2	04.0	+60.0	2.8	4	03.9	+59.9	2.8	46
2	55.6	-59.9	177.3	0	55.8	-60.0	177.3	0	04.1	+59.9	2.7	3	04.0	+59.9	2.7	5	03.8	+60.0	2.7	47
1	55.7	-59.9	177.3	0	55.8	-60.0	177.3	2	04.0	+60.0	2.7	4	03.9	+59.9	2.7	6	03.8	+59.9	2.7	48
0	55.8	-59.9	177.4	1	04.1	+59.9	2.6	3	04.0	+59.9	2.6	5	03.8	+60.0	2.6	7	03.7	+59.9	2.6	49
0	04.1	+59.9	2.6	2	04.0	+59.9	2.6	4	03.9	+59.9	2.6	6	03.8	+59.9	2.6	8	03.6	+60.0	2.6	50
1	04.0	+60.0	2.5	3	03.9	+59.9	2.5	5	03.8	+59.9	2.5	7	03.7	+59.9	2.5	9	03.6	+59.9	2.5	51
2	04.0	+59.9	2.5	4	03.8	+60.0	2.5	6	03.7	+60.0	2.5	8	03.6	+59.9	2.5	10	03.5	+59.9	2.5	52
3	03.9	+59.9	2.4	5	03.8	+59.9	2.4	7	03.7	+59.9	2.4	9	03.5	+60.0	2.4	11	03.4	+60.0	2.5	53
4	03.8	+59.9	2.4	6	03.7	+59.9	2.4	8	03.6	+59.9	2.4	10	03.5	+59.9	2.4	12	03.4	+59.9	2.4	54
5	03.7	+59.9	2.3	7	03.6	+59.9	2.3	9	03.5	+59.9	2.3	11	03.4	+59.9	2.3	13	03.3	+59.9	2.4	55
6	03.6	+59.9	2.2	8	03.5	+59.9	2.3	10	03.4	+59.9	2.3	12	03.3	+60.0	2.3	14	03.2	+60.0	2.3	56
7	03.5	+59.9	2.2	9	03.4	+59.9	2.2	11	03.3	+60.0	2.2	13	03.3	+60.0	2.2	15	03.2	+59.9	2.3	57
8	03.4	+59.9	2.1	10	03.3	+60.0	2.2	12	03.3	+59.9	2.2	14	03.2	+59.9	2.2	16	03.1	+59.9	2.2	58
9	03.3	+60.0	2.1	11	03.3	+59.9	2.1	13	03.2	+59.9	2.1	15	03.1	+59.9	2.1	17	03.0	+59.9	2.2	59
10	03.3	+59.9	2.0	12	03.2	+59.9	2.0	14	03.1	+59.9	2.1	16	03.0	+59.9	2.1	18	02.9	+60.0	2.1	60
11	03.2	+59.9	2.0	13	03.1	+59.9	2.0	15	03.0	+59.9	2.0	17	02.9	+60.0	2.0	19	02.9	+59.9	2.1	61
12	03.1	+59.9	1.9	14	03.0	+59.9	1.9	16	02.9	+60.0	2.0	18	02.9	+59.9	2.0	20	02.8	+59.9	2.0	62
13	03.0	+59.9	1.9	15	02.9	+59.9	1.9	17	02.9	+59.9	1.9	19	02.8	+59.9	1.9	21	02.7	+59.9	1.9	63
14	02.9	+59.9	1.8	16	02.8	+60.0	1.8	18	02.8	+59.9	1.8	20	02.7	+59.9	1.8	22	02.6	+60.0	1.9	64
15	02.8	+59.9	1.7	17	02.8	+59.9	1.8	19	02.7	+59.9	1.8	21	02.6	+60.0	1.8	23	02.6	+59.9	1.8	65
16	02.7	+59.9	1.7	18	02.7	+59.9	1.7	20	02.6	+59.9	1.7	22	02.6	+59.9	1.8	24	02.5	+59.9	1.8	66
17	02.6	+59.9	1.6	19	02.6	+59.9	1.7	21	02.5	+59.9	1.7	23	02.5	+59.9	1.7	25	02.4	+59.9	1.7	67
18	02.5	+59.9	1.6	20	02.5	+59.9	1.6	22	02.4	+59.9	1.6	24	02.4	+59.9	1.6	26	02.3	+60.0	1.7	68
19	02.4	+59.9	1.5	21	02.4	+59.9	1.5	23	02.3	+60.0	1.6	25	02.3	+59.9	1.6	27	02.3	+59.9	1.6	69
20	02.3	+59.9	1.5	22	02.3	+59.9	1.5	24	02.3	+59.9	1.5	26	02.2	+59.9	1.5	28	02.2	+59.9	1.5	70
21	02.2	+59.9	1.4	23	02.2	+59.9	1.4	25	02.2	+59.9	1.4	27	02.1	+59.9	1.5	29	02.1	+59.9	1.5	71
22	02.1	+59.9	1.3	24	02.1	+59.9	1.4	26	02.1	+59.9	1.4	28	02.0	+59.9	1.4	30	02.0	+59.9	1.4	72
23	02.0	+59.9	1.3	25	02.0	+59.9	1.3	27	02.0	+59.9	1.3	29	01.9	+60.0	1.3	31	01.9	+59.9	1.4	73
24	01.9	+59.9	1.2	26	01.9	+59.9	1.2	28	01.9	+59.9	1.2	30	01.9	+59.9	1.3	32	01.8	+59.9	1.3	74
25	01.8	+59.9	1.1	27	01.8	+59.9	1.2	29	01.8	+59.9	1.2	31	01.8	+59.9	1.2	33	01.7	+59.9	1.2	75
26	01.7	+59.9	1.1	28	01.7	+59.9	1.1	30	01.7	+59.9	1.1	32	01.7	+59.9	1.1	34	01.6	+59.9	1.2	76
27	01.6	+59.9	1.0	29	01.6	+59.9	1.0	31	01.6	+59.9	1.0	33	01.6	+59.9	1.1	35	01.5	+59.9	1.1	77
28	01.5	+59.9	0.9	30	01.5	+59.9	1.0	32	01.5	+59.9	1.0	34	01.5	+59.9	1.0	36	01.4	+59.9	1.0	78
29	01.4	+59.9	0.9	31	01.4	+59.9	0.9	33	01.4	+59.9	0.9	35	01.4	+59.9	0.9	37	01.3	+59.9	1.0	79
30	01.3	+59.9	0.8	32	01.3	+59.9	0.8	34	01.3	+59.9	0.8	36	01.2	+59.9	0.9	38	01.2	+59.9	0.9	80
31	01.2	+59.9	0.7	33	01.2	+59.9	0.7	35	01.2	+59.9	0.8	37	01.1	+59.9	0.8	39	01.1	+59.9	0.8	81
32	01.1	+59.9	0.7	34	01.0	+59.9	0.7	36	01.0	+59.9	0.7	38	01.0	+59.9	0.7	40	01.0	+59.9	0.7	82
33	00.9	+59.9	0.6	35	00.9	+59.9	0.6	37	00.9	+59.9	0.6	39	00.9	+59.9	0.6	41	00.9	+59.9	0.6	83
34	00.8	+59.9	0.5	36	00.8	+59.9	0.5	38	00.8	+59.9	0.5	40	00.8	+59.9	0.5	42	00.8	+59.9	0.6	84
35	00.7	+59.9	0.4	37	00.7	+59.9	0.4	39	00.7	+59.9	0.4	41	00.7	+59.9	0.5	43	00.7	+59.9	0.5	85
36	00.6	+59.9	0.3	38	00.6	+59.9	0.4	40	00.5	+59.9	0.4	42	00.5	+59.9	0.4	44	00.5	+59.9	0.4	86
37	00.4	+59.9	0.3	39	00.4	+59.9	0.3	41	00.4	+59.9	0.3	43	00.4	+59.9	0.3	45	00.4	+59.9	0.3	87
38	00.3	+59.9	0.2	40	00.3	+59.9	0.2	42	00.3	+59.9	0.2	44	00.3	+59.9	0.2	46	00.3	+59.9	0.2	88
39	00.1	+59.9	0.1	41	00.1	+59.9	0.1	43	00.1	+59.9	0.1	45	00.1	+59.9	0.1	47	00.1	+59.9	0.1	89
40	00.0	+59.9	0.0	42	00.0	+59.9	0.0	44	00.0	+59.9	0.0	46	00.0	+59.9	0.0	48	00.0	+59.9	0.0	90
40°			42°			44°			46°			48°								

LATITUDE SAME NAME

L.H.A. 176°, 184°

4°, 356° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 46.4	+59.5	169.9	67 48.1	+59.6	170.8	65 49.6	+59.6	171.5	63 50.8	+59.7	172.1	61 51.8	+59.8	172.6
31	70 45.9	+59.4	169.5	68 47.7	+59.6	170.5	66 49.2	+59.7	171.3	64 50.5	+59.8	171.9	62 51.6	+59.8	172.5
32	71 45.3	+59.4	169.1	69 47.3	+59.5	170.1	67 48.9	+59.6	171.0	65 50.3	+59.7	171.7	63 51.4	+59.8	172.3
33	72 44.7	+59.2	168.6	70 46.8	+59.5	169.8	68 48.5	+59.6	170.7	66 50.0	+59.7	171.4	64 51.2	+59.8	172.1
34	73 43.9	+59.2	168.1	71 46.3	+59.4	169.3	69 48.1	+59.6	170.4	67 49.7	+59.6	171.2	65 51.0	+59.7	171.9
35	74 43.1	+59.1	167.5	72 45.7	+59.3	168.9	70 47.7	+59.5	170.0	68 49.3	+59.7	170.9	66 50.7	+59.7	171.6
36	75 42.2	+58.9	166.8	73 45.0	+59.2	168.4	71 47.2	+59.4	169.6	69 49.0	+59.6	170.6	67 50.4	+59.7	171.4
37	76 41.1	+58.8	166.0	74 44.2	+59.2	167.8	72 46.6	+59.4	169.2	70 48.6	+59.5	170.2	68 50.1	+59.7	171.1
38	77 39.9	+58.5	165.1	75 43.4	+59.0	167.1	73 46.0	+59.3	168.7	71 48.1	+59.5	169.9	69 49.8	+59.7	170.8
39	78 38.4	+58.3	164.0	76 42.4	+58.8	166.4	74 45.3	+59.3	168.1	72 47.6	+59.5	169.4	70 49.5	+59.6	170.5
40	79 36.7	+57.9	162.8	77 41.2	+58.7	165.5	75 44.6	+59.1	167.5	73 47.1	+59.3	169.0	71 49.1	+59.5	170.1
41	80 34.6	+57.5	161.2	78 39.9	+58.4	164.5	76 43.7	+58.9	166.7	74 46.4	+59.3	168.4	72 48.6	+59.5	169.7
42	81 32.1	+56.7	159.4	79 38.3	+58.1	163.2	77 42.6	+58.8	165.9	75 45.7	+59.2	167.8	73 48.1	+59.4	169.3
43	82 28.8	+55.9	157.1	80 36.4	+57.6	161.8	78 41.4	+58.5	164.9	76 44.9	+59.1	167.1	74 47.5	+59.4	168.8
44	83 24.7	+54.4	154.1	81 34.0	+57.1	160.0	79 39.9	+58.3	163.8	77 44.0	+58.9	166.3	75 46.9	+59.3	168.2
45	84 19.1	+52.2	150.1	82 31.1	+56.1	157.7	80 38.2	+57.8	162.4	78 42.9	+58.6	165.4	76 46.2	+59.1	167.6
46	85 11.3	+48.6	144.7	83 27.2	+54.9	154.8	81 36.0	+57.3	160.6	79 41.5	+58.5	164.3	77 45.3	+59.0	166.8
47	85 59.9	+42.2	137.0	84 22.1	+52.7	151.0	82 33.3	+56.5	158.5	80 40.0	+58.0	162.9	78 44.3	+58.8	165.9
48	86 42.1	+30.9	125.8	85 14.8	+49.3	145.7	83 29.8	+55.2	155.7	81 38.0	+57.5	161.3	79 43.1	+58.6	164.8
49	87 13.0	+12.7	109.5	86 04.1	+42.0	138.1	84 25.0	+53.3	151.9	82 35.5	+56.8	159.2	80 41.7	+58.2	163.6
50	87 25.7	-9.7	88.5	86 47.1	+31.9	126.9	85 18.3	+49.9	146.8	83 32.3	+55.6	156.5	81 39.9	+57.8	162.0
51	87 16.0	-28.9	67.0	87 19.0	+13.3	110.3	86 08.2	+44.1	139.3	84 27.9	+53.8	152.9	82 37.7	+57.0	160.0
52	86 47.1	-41.0	50.0	87 32.3	-10.2	88.4	86 52.3	+32.9	128.1	85 21.7	+50.7	147.9	83 34.7	+56.1	157.4
53	86 06.1	-47.8	38.1	87 22.1	-29.8	66.1	87 25.2	+13.8	111.2	86 12.4	+45.0	140.6	84 30.8	+54.3	154.0
54	85 18.3	-51.9	30.1	86 52.3	-42.0	48.7	87 39.0	-10.7	88.4	86 57.4	+34.0	129.4	85 25.1	+51.5	149.1
55	84 26.4	-54.1	24.4	86 10.3	-48.6	36.8	87 28.3	-30.9	65.1	87 31.4	+14.4	112.2	86 16.6	+46.0	142.0
56	83 32.3	-55.7	20.3	85 21.7	-52.4	28.8	86 57.4	-42.9	47.3	87 45.8	-11.2	88.3	87 02.6	+35.2	130.9
57	82 36.6	-56.7	17.2	84 29.3	-54.6	23.3	86 14.5	-49.4	35.4	87 34.6	-32.0	64.0	87 37.8	+15.0	113.3
58	81 39.9	-57.3	14.8	83 34.7	-56.0	19.3	85 25.1	-52.9	27.6	87 02.6	-43.9	45.8	87 52.8	-11.8	88.3
59	80 42.6	-57.9	12.9	82 38.7	-56.9	16.3	84 32.2	-55.0	22.2	86 18.7	-50.2	33.9	87 41.0	-33.2	62.7
60	79 44.7	-58.2	11.3	81 41.8	-57.6	14.0	83 37.2	-56.3	18.3	85 28.5	-53.5	26.2	87 07.8	-45.1	44.1
61	78 46.5	-58.6	10.0	80 44.2	-58.0	12.1	82 40.9	-57.2	15.4	84 35.0	-55.5	21.0	86 22.7	-50.9	32.4
62	77 47.9	-58.7	8.9	79 46.2	-58.4	10.6	81 43.7	-57.8	13.2	83 39.5	-56.6	17.2	85 31.8	-54.1	24.8
63	76 49.2	-58.9	8.0	78 47.8	-58.6	9.4	80 45.9	-58.2	11.4	82 42.9	-57.4	14.5	84 37.7	-55.9	19.8
64	75 50.3	-59.0	7.2	77 49.2	-58.8	8.3	79 47.7	-58.5	9.9	81 45.5	-58.0	12.3	83 41.8	-56.9	16.2
65	74 51.3	-59.2	6.5	76 50.4	-59.0	7.4	78 49.2	-58.8	8.7	80 47.5	-58.4	10.6	82 44.9	-57.7	13.5
66	73 52.1	-59.3	5.9	75 51.4	-59.2	6.7	77 50.4	-58.9	7.7	79 49.1	-58.6	9.2	81 47.2	-58.2	11.5
67	72 52.8	-59.3	5.3	74 52.2	-59.2	6.0	76 51.5	-59.1	6.9	78 50.5	-58.9	8.1	80 49.0	-58.5	9.8
68	71 53.5	-59.4	4.8	73 53.0	-59.3	5.4	75 52.4	-59.2	6.1	77 51.6	-59.0	7.1	79 50.5	-58.8	8.5
69	70 54.1	-59.5	4.4	72 53.7	-59.4	4.9	74 53.2	-59.3	5.5	76 52.6	-59.2	6.3	78 51.7	-59.0	7.4
70	69 54.6	-59.5	4.0	71 54.3	-59.4	4.4	73 53.9	-59.4	4.9	75 53.4	-59.3	5.6	77 52.7	-59.1	6.5
71	68 55.1	-59.5	3.6	70 54.9	-59.5	4.0	72 54.5	-59.4	4.4	74 54.1	-59.3	5.0	76 53.6	-59.2	5.7
72	67 55.6	-59.6	3.3	69 55.4	-59.6	3.6	71 55.1	-59.5	4.0	73 54.8	-59.5	4.5	75 54.4	-59.4	5.1
73	66 56.0	-59.6	3.0	68 55.8	-59.6	3.3	70 55.6	-59.6	3.6	72 55.3	-59.5	4.0	74 55.0	-59.4	4.5
74	65 56.4	-59.7	2.7	67 56.2	-59.6	2.9	69 56.0	-59.6	3.2	71 55.8	-59.5	3.6	73 55.6	-59.5	4.0
75	64 56.7	-59.7	2.4	66 56.6	-59.7	2.6	68 56.4	-59.6	2.9	70 56.3	-59.6	3.2	72 56.1	-59.6	3.5
76	63 57.0	-59.7	2.2	65 56.9	-59.6	2.4	67 56.8	-59.6	2.6	69 56.7	-59.6	2.8	71 56.5	-59.6	3.1
77	62 57.3	-59.7	2.0	64 57.3	-59.7	2.1	66 57.2	-59.7	2.3	68 57.1	-59.7	2.5	70 56.9	-59.6	2.8
78	61 57.6	-59.7	1.8	63 57.6	-59.8	1.9	65 57.5	-59.7	2.0	67 57.4	-59.7	2.2	69 57.3	-59.7	2.4
79	60 57.9	-59.8	1.6	62 57.8	-59.7	1.7	64 57.8	-59.7	1.8	66 57.7	-59.7	1.9	68 57.6	-59.7	2.1
80	59 58.1	-59.7	1.4	61 58.1	-59.8	1.5	63 58.1	-59.8	1.6	65 58.0	-59.7	1.7	67 57.9	-59.7	1.9
81	58 58.4	-59.8	1.2	60 58.3	-59.7	1.3	62 58.3	-59.8	1.4	64 58.3	-59.8	1.5	66 58.2	-59.7	1.6
82	57 58.6	-59.8	1.0	59 58.6	-59.8	1.1	61 58.5	-59.7	1.2	63 58.5	-59.8	1.3	65 58.5	-59.8	1.4
83	56 58.8	-59.8	0.9	58 58.8	-59.8	0.9	60 58.8	-59.8	1.0	62 58.7	-59.7	1.1	64 58.7	-59.8	1.2
84	55 59.0	-59.8	0.7	57 59.0	-59.8	0.8	59 59.0	-59.8	0.8	61 59.0	-59.8	0.9	63 58.9	-59.8	1.0
85	54 59.2	-59.8	0.6	56 59.2	-59.8	0.6	58 59.2	-59.8	0.7	60 59.2	-59.9	0.7	62 59.1	-59.8	0.8
86	53 59.4	-59.9	0.5	55 59.4	-59.9	0.5	57 59.4	-59.9	0.5	59 59.3	-59.8	0.6	61 59.3	-59.8	0.6
87	52 59.5	-59.8	0.3	54 59.5	-59.8	0.4	56 59.5	-59.8	0.4	58 59.5	-59.8	0.4	60 59.5	-59.8	0.4
88	51 59.7	-59.8	0.2	53 59.7	-59.8	0.2	55 59.7	-59.8	0.2	57 59.7	-59.9	0.3	59 59.7	-59.9	0.3
89	50 59.9	-59.9	0.1	52 59.9	-59.9	0.1	54 59.9	-59.9	0.1	56 59.8	-59.8	0.1	58 59.8	-59.8	0.1
90	50 00.0	-59.9	0.0	52 00.0	-59.9	0.0	54 00.0	-59.9	0.0	56 00.0	-59.9	0.0	58 00.0	-59.9	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 4°, 356°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9 55.3 -60.0 176.5			7 55.5 -60.0 176.5			5 55.7 -59.9 176.5			3 55.9 -59.9 176.5			1 56.2 -60.0 176.5			30
8 55.3 -59.9 176.5			6 55.5 -59.9 176.5			4 55.8 -60.0 176.6			2 56.0 -60.0 176.6			0 56.2 -60.0 176.6			31
7 55.4 -59.9 176.6			5 55.6 -59.9 176.6			3 55.8 -59.9 176.6			1 56.0 -59.9 176.6			0 03.8 +59.9 3.4			32
6 55.5 -60.0 176.6			4 55.7 -60.0 176.6			2 55.9 -60.0 176.6			0 56.1 -60.0 176.6			1 03.7 +60.0 3.4			33
5 55.5 -59.9 176.7			3 55.7 -59.9 176.7			1 55.9 -59.9 176.7			0 03.9 +59.9 3.3			2 03.7 +59.9 3.3			34
4 55.6 -60.0 176.7			2 55.8 -60.0 176.7			0 56.0 -60.0 176.7			1 03.8 +60.0 3.3			3 03.6 +60.0 3.3			35
3 55.6 -59.9 176.8			1 55.8 -59.9 176.8			0 04.0 +59.9 3.2			2 03.8 +59.9 3.2			4 03.6 +60.0 3.2			36
2 55.7 -59.9 176.8			0 55.9 -60.0 176.8			1 03.9 +60.0 3.2			3 03.7 +60.0 3.2			5 03.6 +59.9 3.2			37
1 55.8 -60.0 176.8			0 04.1 +59.9 3.2			2 03.9 +59.9 3.2			4 03.7 +60.0 3.2			6 03.5 +60.0 3.2			38
0 55.8 -59.9 176.9			1 04.0 +60.0 3.1			3 03.8 +60.0 3.1			5 03.7 +59.9 3.1			7 03.5 +59.9 3.1			39
0 04.1 +60.0 3.1			2 04.0 +59.9 3.1			4 03.8 +59.9 3.1			6 03.6 +60.0 3.1			8 03.4 +60.0 3.1			40
1 04.1 +59.9 3.0			3 03.9 +59.9 3.0			5 03.7 +60.0 3.0			7 03.6 +59.9 3.0			9 03.4 +59.9 3.1			41
2 04.0 +59.9 3.0			4 03.8 +60.0 3.0			6 03.7 +59.9 3.0			8 03.5 +60.0 3.0			10 03.3 +60.0 3.0			42
3 03.9 +60.0 2.9			5 03.8 +59.9 2.9			7 03.6 +60.0 2.9			9 03.5 +59.9 3.0			11 03.3 +60.0 3.0			43
4 03.9 +59.9 2.9			6 03.7 +60.0 2.9			8 03.6 +59.9 2.9			10 03.4 +60.0 2.9			12 03.3 +59.9 2.9			44
5 03.8 +60.0 2.8			7 03.7 +59.9 2.8			9 03.5 +60.0 2.9			11 03.4 +59.9 2.9			13 03.2 +60.0 2.9			45
6 03.8 +59.9 2.8			8 03.6 +60.0 2.8			10 03.5 +59.9 2.8			12 03.3 +60.0 2.8			14 03.2 +59.9 2.9			46
7 03.7 +59.9 2.7			9 03.6 +59.9 2.8			11 03.4 +60.0 2.8			13 03.3 +59.9 2.8			15 03.2 +60.0 2.8			47
8 03.6 +60.0 2.7			10 03.5 +59.9 2.7			12 03.4 +59.9 2.7			14 03.2 +60.0 2.8			16 03.1 +59.9 2.8			48
9 03.6 +59.9 2.7			11 03.4 +60.0 2.7			13 03.3 +60.0 2.7			15 03.2 +59.9 2.7			17 03.0 +60.0 2.7			49
10 03.5 +60.0 2.6			12 03.4 +59.9 2.6			14 03.3 +59.9 2.6			16 03.1 +60.0 2.7			18 03.0 +60.0 2.7			50
11 03.5 +59.9 2.6			13 03.3 +60.0 2.6			15 03.2 +60.0 2.6			17 03.1 +59.9 2.6			19 03.0 +59.9 2.7			51
12 03.4 +59.9 2.5			14 03.3 +59.9 2.5			16 03.2 +59.9 2.6			18 03.0 +60.0 2.6			20 02.9 +60.0 2.6			52
13 03.3 +60.0 2.5			15 03.2 +60.0 2.5			17 03.1 +59.9 2.5			19 03.0 +59.9 2.5			21 02.9 +59.9 2.6			53
14 03.3 +59.9 2.4			16 03.2 +59.9 2.4			18 03.0 +60.0 2.5			20 02.9 +60.0 2.5			22 02.8 +60.0 2.5			54
15 03.2 +59.9 2.4			17 03.1 +59.9 2.4			19 03.0 +59.9 2.4			21 02.9 +59.9 2.5			23 02.8 +59.9 2.5			55
16 03.1 +60.0 2.3			18 03.0 +60.0 2.4			20 02.9 +60.0 2.4			22 02.8 +60.0 2.4			24 02.7 +60.0 2.4			56
17 03.1 +59.9 2.3			19 03.0 +59.9 2.3			21 02.9 +59.9 2.3			23 02.8 +59.9 2.4			25 02.7 +59.9 2.4			57
18 03.0 +59.9 2.2			20 02.9 +59.9 2.3			22 02.8 +60.0 2.3			24 02.7 +60.0 2.3			26 02.6 +60.0 2.4			58
19 02.9 +60.0 2.2			21 02.8 +60.0 2.2			23 02.8 +59.9 2.2			25 02.7 +59.9 2.3			27 02.6 +59.9 2.3			59
20 02.9 +59.9 2.1			22 02.8 +59.9 2.2			24 02.7 +59.9 2.2			26 02.6 +59.9 2.2			28 02.5 +60.0 2.3			60
21 02.8 +59.9 2.1			23 02.7 +59.9 2.1			25 02.6 +60.0 2.1			27 02.5 +60.0 2.2			29 02.5 +59.9 2.2			61
22 02.7 +60.0 2.0			24 02.6 +60.0 2.1			26 02.6 +59.9 2.1			28 02.5 +59.9 2.1			30 02.4 +60.0 2.2			62
23 02.7 +59.9 2.0			25 02.6 +59.9 2.0			27 02.5 +59.9 2.0			29 02.4 +60.0 2.1			31 02.4 +59.9 2.1			63
24 02.6 +59.9 1.9			26 02.5 +59.9 2.0			28 02.4 +60.0 2.0			30 02.4 +59.9 2.0			32 02.3 +59.9 2.1			64
25 02.5 +59.9 1.9			27 02.4 +60.0 1.9			29 02.4 +59.9 1.9			31 02.3 +59.9 2.0			33 02.2 +60.0 2.0			65
26 02.4 +60.0 1.8			28 02.4 +59.9 1.8			30 02.3 +59.9 1.9			32 02.2 +60.0 1.9			34 02.2 +59.9 2.0			66
27 02.4 +59.9 1.8			29 02.3 +59.9 1.8			31 02.2 +60.0 1.8			33 02.2 +59.9 1.9			35 02.1 +60.0 1.9			67
28 02.3 +59.9 1.7			30 02.2 +60.0 1.7			32 02.2 +59.9 1.8			34 02.1 +59.9 1.8			36 02.1 +59.9 1.9			68
29 02.2 +59.9 1.6			31 02.2 +59.9 1.7			33 02.1 +59.9 1.7			35 02.0 +60.0 1.7			37 02.0 +59.9 1.8			69
30 02.1 +59.9 1.6			32 02.1 +59.9 1.6			34 02.0 +60.0 1.6			36 02.0 +59.9 1.7			38 01.9 +60.0 1.7			70
31 02.0 +60.0 1.5			33 02.0 +59.9 1.6			35 02.0 +59.9 1.6			37 01.9 +59.9 1.6			39 01.9 +59.9 1.7			71
32 02.0 +59.9 1.5			34 01.9 +59.9 1.5			36 01.9 +59.9 1.5			38 01.8 +60.0 1.6			40 01.8 +59.9 1.6			72
33 01.9 +59.9 1.4			35 01.8 +60.0 1.4			37 01.8 +59.9 1.5			39 01.8 +59.9 1.5			41 01.7 +59.9 1.5			73
34 01.8 +59.9 1.3			36 01.8 +59.9 1.4			38 01.7 +59.9 1.4			40 01.7 +59.9 1.4			42 01.6 +60.0 1.5			74
35 01.7 +59.9 1.3			37 01.7 +59.9 1.3			39 01.6 +60.0 1.3			41 01.6 +59.9 1.4			43 01.6 +59.9 1.4			75
36 01.6 +59.9 1.2			38 01.6 +59.9 1.2			40 01.6 +59.9 1.3			42 01.5 +59.9 1.3			44 01.5 +59.9 1.3			76
37 01.5 +59.9 1.1			39 01.5 +59.9 1.2			41 01.5 +59.9 1.2			43 01.4 +60.0 1.2			45 01.4 +59.9 1.3			77
38 01.4 +59.9 1.1			40 01.4 +59.9 1.1			42 01.4 +59.9 1.1			44 01.4 +59.9 1.2			46 01.3 +59.9 1.2			78
39 01.3 +59.9 1.0			41 01.3 +59.9 1.0			43 01.3 +59.9 1.0			45 01.3 +59.9 1.1			47 01.2 +60.0 1.1			79
40 01.2 +59.9 0.9			42 01.2 +59.9 0.9			44 01.2 +59.9 1.0			46 01.2 +59.9 1.0			48 01.2 +59.9 1.0			80
41 01.1 +59.9 0.8			43 01.1 +59.9 0.9			45 01.1 +59.9 0.9			47 01.1 +59.9 0.9			49 01.1 +59.9 1.0			81
42 01.0 +59.9 0.7			44 01.0 +59.9 0.8			46 01.0 +59.9 0.8			48 01.0 +59.9 0.8			50 01.0 +59.9 0.9			82
43 00.9 +59.9 0.7			45 00.9 +59.9 0.7			47 00.9 +59.9 0.7			49 00.9 +59.9 0.7			51 00.9 +59.9 0.8			83
44 00.8 +59.9 0.6			46 00.8 +59.9 0.6			48 00.8 +59.9 0.6			50 00.8 +59.9 0.7			52 00.8 +59.9 0.7			84
45 00.7 +59.8 0.5			47 00.7 +59.8 0.5			49 00.7 +59.8 0.5			51 00.6 +59.9 0.6			53 00.6 +59.9 0.6			85
46 00.5 +59.9 0.4			48 00.5 +59.9 0.4			50 00.5 +59.9 0.4			52 00.5 +59.9 0.5			54 00.5 +59.9 0.5			86
47 00.4 +59.9 0.3			49 00.4 +59.9 0.3			51 00.4 +59.9 0.3			53 00.4 +59.9 0.3			55 00.4 +59.9 0.4			87
48 00.3 +59.8 0.2			50 00.3 +59.8 0.2			52 00.3 +59.8 0.2			54 00.3 +59.8 0.2			56 00.3 +59.8 0.2			88
49 00.1 +59.9 0.1			51 00.1 +59.9 0.1			53 00.1 +59.9 0.1			55 00.1 +59.9 0.1			57 00.1 +59.9 0.1			89
50 00.0 +59.9 0.0			52 00.0 +59.9 0.0			54 00.0 +59.9 0.0			56 00.0 +59.8 0.0			58 00.0 +59.8 0.0			90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 176°, 184°

6°, 354° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	84 48.3	- 4.2	• 88.5	84 29.0	+ 18.3	• 109.7	83 31.8	+ 35.3	• 126.5	82 10.4	+ 45.4	• 138.3	80 35.1	+ 51.0	• 146.4
31	84 44.1	- 15.1	• 77.5	84 47.3	+ 7.4	• 99.5	84 07.1	+ 28.1	• 119.0	82 55.8	+ 41.4	• 133.3	81 26.1	+ 48.8	• 143.0
32	84 29.0	- 24.7	• 67.2	84 54.7	- 4.1	• 88.4	84 35.2	+ 18.7	• 110.0	83 37.2	+ 35.9	• 127.1	82 14.9	+ 45.9	• 138.9
33	84 04.3	- 32.5	• 58.1	84 50.6	- 15.4	• 77.2	84 53.9	+ 7.7	• 99.6	84 13.1	+ 28.6	• 119.5	83 00.8	+ 42.0	• 133.9
34	83 31.8	- 38.5	• 50.3	84 35.2	- 25.1	• 66.7	85 01.6	- 4.2	• 88.3	84 41.7	+ 19.2	• 110.4	83 42.8	+ 36.5	• 127.7
35	82 53.3	- 42.9	• 43.8	84 10.1	- 32.9	• 57.4	84 57.4	- 15.7	• 76.9	85 00.9	+ 7.9	• 99.8	84 19.3	+ 29.2	• 120.1
36	82 10.4	- 46.4	• 38.4	83 37.2	- 38.9	• 49.5	84 41.7	- 25.5	• 66.2	85 08.8	- 4.3	• 88.2	84 48.5	+ 19.7	• 110.8
37	81 24.0	- 48.9	• 33.9	82 58.3	- 43.4	• 43.0	84 16.2	- 33.4	• 56.7	85 04.5	- 16.0	• 76.5	85 08.2	+ 8.2	• 100.0
38	80 35.1	- 50.9	• 30.2	82 14.9	- 46.8	• 37.6	83 42.8	- 39.4	• 48.8	84 48.5	- 26.0	• 65.6	85 16.4	- 4.4	• 88.2
39	79 44.2	- 52.3	• 27.1	81 28.1	- 49.2	• 33.2	83 03.4	- 43.9	• 42.2	84 22.5	- 33.9	• 56.0	85 12.0	- 16.3	• 76.1
40	78 51.9	- 53.6	• 24.5	80 38.9	- 51.2	• 29.5	82 19.5	- 47.1	• 36.8	83 48.6	- 39.9	• 48.0	84 55.7	- 26.6	• 64.9
41	77 58.3	- 54.4	• 22.2	79 47.7	- 52.6	• 26.4	81 32.4	- 49.6	• 32.4	83 08.7	- 44.4	• 41.4	84 29.1	- 34.5	• 55.2
42	77 03.9	- 55.3	• 20.3	78 55.1	- 53.7	• 23.8	80 42.8	- 51.5	• 28.8	82 24.3	- 47.5	• 36.0	83 54.6	- 40.5	• 47.1
43	76 08.6	- 55.8	• 18.6	78 01.4	- 54.7	• 21.6	79 51.3	- 52.9	• 25.7	81 36.8	- 50.0	• 31.6	83 14.1	- 44.8	• 40.5
44	75 12.8	- 56.3	• 17.1	77 06.7	- 55.4	• 19.7	78 58.4	- 54.0	• 23.2	80 46.8	- 51.8	• 28.0	82 29.3	- 48.1	• 35.1
45	74 16.5	- 56.8	• 15.8	76 11.3	- 56.0	• 18.0	78 04.4	- 54.8	• 21.0	79 55.0	- 53.2	• 25.0	81 41.2	- 50.3	• 30.7
46	73 19.7	- 57.1	• 14.7	75 15.3	- 56.5	• 16.6	77 09.6	- 55.6	• 19.1	79 01.8	- 54.2	• 22.4	80 50.9	- 52.2	• 27.2
47	72 22.6	- 57.4	• 13.6	74 18.8	- 56.8	• 15.3	76 14.0	- 56.1	• 17.4	78 07.6	- 55.1	• 20.3	79 58.7	- 53.4	• 24.2
48	71 25.2	- 57.6	• 12.7	73 22.0	- 57.2	• 14.1	75 17.9	- 56.7	• 16.0	77 12.5	- 55.8	• 18.4	79 05.3	- 54.5	• 21.7
49	70 27.6	- 57.9	• 11.8	72 24.8	- 57.5	• 13.1	74 21.2	- 57.0	• 14.7	76 16.7	- 56.3	• 16.8	78 10.8	- 55.3	• 19.6
50	69 29.7	- 58.0	• 11.1	71 27.3	- 57.8	• 12.2	73 24.2	- 57.3	• 13.6	75 20.4	- 56.7	• 15.4	77 15.5	- 56.0	• 17.7
51	68 31.7	- 58.3	• 10.4	70 29.5	- 57.9	• 11.4	72 26.9	- 57.6	• 12.6	74 23.7	- 57.2	• 14.2	76 19.5	- 56.5	• 16.2
52	67 33.4	- 58.3	• 9.7	69 31.6	- 58.2	• 10.6	71 29.3	- 57.8	• 11.7	73 26.5	- 57.4	• 13.1	75 23.0	- 56.9	• 14.8
53	66 35.1	- 58.5	• 9.1	68 33.4	- 58.2	• 9.9	70 31.5	- 58.1	• 10.9	72 29.1	- 57.7	• 12.1	74 26.1	- 57.3	• 13.6
54	65 36.6	- 58.6	• 8.6	67 35.2	- 58.5	• 9.3	69 33.4	- 58.2	• 10.1	71 31.4	- 57.9	• 11.2	73 28.8	- 57.5	• 12.5
55	64 38.0	- 58.7	• 8.0	66 36.7	- 58.5	• 8.7	68 35.2	- 58.3	• 9.5	70 33.5	- 58.2	• 10.4	72 31.3	- 57.8	• 11.5
56	63 39.3	- 58.8	• 7.6	65 38.2	- 58.7	• 8.1	67 36.9	- 58.5	• 8.8	69 35.3	- 58.3	• 9.6	71 33.5	- 58.1	• 10.6
57	62 40.5	- 58.8	• 7.1	64 39.5	- 58.7	• 7.6	66 38.4	- 58.6	• 8.3	68 37.0	- 58.4	• 9.0	70 35.4	- 58.2	• 9.9
58	61 41.7	- 58.9	• 6.7	63 40.8	- 58.8	• 7.2	65 39.8	- 58.7	• 7.7	67 38.6	- 58.5	• 8.4	69 37.2	- 58.4	• 9.2
59	60 42.8	- 59.0	• 6.3	62 42.0	- 58.9	• 6.7	64 41.1	- 58.8	• 7.2	66 40.1	- 58.7	• 7.8	68 38.8	- 58.5	• 8.5
60	59 43.8	- 59.1	• 6.0	61 43.1	- 59.0	• 6.3	63 42.3	- 58.9	• 6.8	65 41.4	- 58.8	• 7.3	67 40.3	- 58.6	• 7.9
61	58 44.7	- 59.1	• 5.6	60 44.1	- 59.0	• 6.0	62 43.4	- 58.9	• 6.3	64 42.6	- 58.8	• 6.8	66 41.7	- 58.7	• 7.4
62	57 45.6	- 59.2	• 5.3	59 45.1	- 59.1	• 5.6	61 44.5	- 59.1	• 5.9	63 43.8	- 59.0	• 6.4	65 43.0	- 58.9	• 6.9
63	56 46.4	- 59.2	• 5.0	58 46.0	- 59.2	• 5.3	60 45.4	- 59.0	• 5.6	62 44.8	- 59.0	• 5.9	64 44.1	- 58.9	• 6.4
64	55 47.2	- 59.2	• 4.7	57 46.8	- 59.2	• 4.9	59 46.4	- 59.2	• 5.2	61 45.8	- 59.0	• 5.6	63 45.2	- 59.0	• 5.9
65	54 48.0	- 59.3	• 4.4	56 47.6	- 59.2	• 4.6	58 47.2	- 59.2	• 4.9	60 46.8	- 59.2	• 5.2	62 46.2	- 59.0	• 5.5
66	53 48.7	- 59.3	• 4.1	55 48.4	- 59.3	• 4.3	57 48.0	- 59.2	• 4.6	59 47.6	- 59.1	• 4.8	61 47.2	- 59.1	• 5.2
67	52 49.4	- 59.3	• 3.9	54 49.1	- 59.3	• 4.1	56 48.8	- 59.2	• 4.3	58 48.5	- 59.2	• 4.5	60 48.1	- 59.2	• 4.8
68	51 50.1	- 59.4	• 3.6	53 49.8	- 59.3	• 3.8	55 49.6	- 59.3	• 4.0	57 49.3	- 59.3	• 4.2	59 48.9	- 59.2	• 4.5
69	50 50.7	- 59.4	• 3.4	52 50.5	- 59.4	• 3.6	54 50.3	- 59.4	• 3.7	56 50.0	- 59.3	• 3.9	58 49.7	- 59.3	• 4.2
70	49 51.3	- 59.4	• 3.2	51 51.1	- 59.4	• 3.3	53 50.9	- 59.3	• 3.5	55 50.7	- 59.3	• 3.7	57 50.4	- 59.3	• 3.9
71	48 51.9	- 59.4	• 3.0	50 51.7	- 59.4	• 3.1	52 51.6	- 59.4	• 3.2	54 51.4	- 59.4	• 3.4	56 51.1	- 59.3	• 3.6
72	47 52.5	- 59.5	• 2.8	49 52.3	- 59.4	• 2.9	51 52.2	- 59.4	• 3.0	53 52.0	- 59.4	• 3.1	55 51.8	- 59.4	• 3.3
73	46 53.0	- 59.5	• 2.6	48 52.9	- 59.5	• 2.7	50 52.8	- 59.5	• 2.8	52 52.6	- 59.4	• 2.9	54 52.4	- 59.3	• 3.0
74	45 53.5	- 59.5	• 2.4	47 53.4	- 59.5	• 2.5	49 53.3	- 59.5	• 2.6	51 53.2	- 59.5	• 2.7	53 53.1	- 59.5	• 2.8
75	44 54.0	- 59.5	• 2.2	46 53.9	- 59.5	• 2.3	48 53.8	- 59.4	• 2.4	50 53.7	- 59.4	• 2.5	52 53.6	- 59.4	• 2.6
76	43 54.5	- 59.5	• 2.0	45 54.4	- 59.5	• 2.1	47 54.4	- 59.5	• 2.2	49 54.3	- 59.5	• 2.3	51 54.2	- 59.5	• 2.3
77	42 55.0	- 59.6	• 1.8	44 54.9	- 59.5	• 1.9	46 54.9	- 59.6	• 2.0	48 54.8	- 59.5	• 2.1	50 54.7	- 59.5	• 2.1
78	41 55.4	- 59.5	• 1.7	43 55.4	- 59.6	• 1.7	45 55.3	- 59.5	• 1.8	47 55.3	- 59.6	• 1.9	49 55.2	- 59.5	• 1.9
79	40 55.9	- 59.6	• 1.5	42 55.8	- 59.5	• 1.6	44 55.8	- 59.6	• 1.6	46 55.7	- 59.5	• 1.7	48 55.7	- 59.5	• 1.7
80	39 56.3	- 59.6	• 1.4	41 56.3	- 59.6	• 1.4	43 56.2	- 59.5	• 1.4	45 56.2	- 59.6	• 1.5	47 56.2	- 59.6	• 1.6
81	38 56.7	- 59.6	• 1.2	40 56.7	- 59.6	• 1.2	42 56.7	- 59.6	• 1.3	44 56.6	- 59.5	• 1.3	46 56.6	- 59.6	• 1.4
82	37 57.1	- 59.6	• 1.1	39 57.1	- 59.6	• 1.1	41 57.1	- 59.6	• 1.1	43 57.1	- 59.6	• 1.2	45 57.0	- 59.6	• 1.2
83	36 57.5	- 59.6	• 0.9	38 57.5	- 59.6	• 0.9	40 57.5	- 59.6	• 1.0	42 57.5	- 59.6	• 1.0	44 57.4	- 59.6	• 1.0
84	35 57.9	- 59.6	• 0.8	37 57.9	- 59.6	• 0.8	39 57.9	- 59.7	• 0.8	41 57.9	- 59.7	• 0.8	43 57.8	- 59.6	• 0.9
85	34 58.3	- 59.7	• 0.6	36 58.3	- 59.7	• 0.7	38 58.2	- 59.6	• 0.7	40 58.2	- 59.6	• 0.7	42 58.2	- 59.6	• 0.7
86	33 58.6	- 59.6	• 0.5	35 58.6	- 59.6	• 0.5	37 58.6	- 59.6	• 0.5	39 58.6	- 59.6	• 0.5	41 58.6	- 59.6	• 0.6
87	32 59.0	- 59.7	• 0.4	34 59.0	- 59.7	• 0.4	36 59.0	- 59.7	• 0.4	38 59.0	- 59.7	• 0.4	40 59.0	- 59.7	• 0.4
88	31 59.3	- 59.6	• 0.2	33 59.3	- 59.6	• 0.3	35 59.3	- 59.6	• 0.3	37 59.3	- 59.6	• 0.3	39 59.3	- 59.6	• 0.3
89	30 59.7	- 59.7	• 0.1	32 59.7	- 59.7	• 0.1	34 59.7	- 59.7	• 0.1	36 59.7	- 59.7	• 0.1	38 59.7	- 59.7	• 0.1
90	30 00.0	- 59.7	• 0.0	32 00.0	- 59.7	• 0.0	34 00.0	- 59.7	• 0.0	36 00.0	- 59.7	• 0.0	38 00.0	- 59.7	• 0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 6°, 354°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 43.7	-59.7	174.0	27 44.4	-59.7	174.1	25 45.0	-59.8	174.2	23 45.6	-59.8	174.3	21 46.2	-59.8	174.4	30
28 44.0	-59.6	174.1	26 44.7	-59.8	174.2	24 45.2	-59.7	174.3	22 45.8	-59.7	174.4	20 46.4	-59.8	174.5	31
27 44.4	-59.7	174.3	25 44.9	-59.7	174.4	23 45.5	-59.7	174.4	21 46.1	-59.8	174.5	19 46.6	-59.8	174.6	32
26 44.7	-59.7	174.4	24 45.2	-59.7	174.5	22 45.8	-59.7	174.5	20 46.3	-59.7	174.6	18 46.8	-59.7	174.7	33
25 45.0	-59.7	174.5	23 45.5	-59.7	174.6	21 46.1	-59.8	174.6	19 46.6	-59.8	174.7	17 47.1	-59.8	174.8	34
24 45.3	-59.7	174.6	22 45.8	-59.7	174.7	20 46.3	-59.7	174.7	18 46.8	-59.8	174.8	16 47.3	-59.8	174.9	35
23 45.6	-59.7	174.7	21 46.1	-59.8	174.8	19 46.6	-59.8	174.8	17 47.0	-59.7	174.9	15 47.5	-59.8	175.0	36
22 45.9	-59.7	174.8	20 46.3	-59.7	174.9	18 46.8	-59.7	174.9	16 47.3	-59.8	175.0	14 47.7	-59.7	175.1	37
21 46.2	-59.8	174.9	19 46.6	-59.7	175.0	17 47.1	-59.8	175.0	15 47.5	-59.8	175.1	13 48.0	-59.8	175.1	38
20 46.4	-59.7	175.0	18 46.9	-59.8	175.1	16 47.3	-59.7	175.1	14 47.7	-59.7	175.2	12 48.2	-59.8	175.2	39
19 46.7	-59.7	175.1	17 47.1	-59.7	175.2	15 47.6	-59.8	175.2	13 48.0	-59.8	175.3	11 48.4	-59.8	175.3	40
18 47.0	-59.7	175.2	16 47.4	-59.7	175.3	14 47.8	-59.8	175.3	12 48.2	-59.8	175.4	10 48.6	-59.8	175.4	41
17 47.3	-59.8	175.3	15 47.7	-59.8	175.4	13 48.0	-59.7	175.4	11 48.4	-59.7	175.4	9 48.8	-59.8	175.5	42
16 47.5	-59.7	175.4	14 47.9	-59.7	175.5	12 48.3	-59.8	175.5	10 48.7	-59.8	175.5	8 49.0	-59.8	175.6	43
15 47.8	-59.7	175.5	13 48.2	-59.8	175.6	11 48.5	-59.7	175.6	9 48.9	-59.8	175.6	7 49.2	-59.8	175.6	44
14 48.1	-59.8	175.6	12 48.4	-59.7	175.7	10 48.8	-59.8	175.7	8 49.1	-59.8	175.7	6 49.4	-59.8	175.7	45
13 48.3	-59.7	175.7	11 48.7	-59.8	175.7	9 49.0	-59.8	175.8	7 49.3	-59.8	175.8	5 49.6	-59.8	175.8	46
12 48.6	-59.8	175.8	10 48.9	-59.7	175.8	8 49.2	-59.7	175.9	6 49.5	-59.7	175.9	4 49.8	-59.8	175.9	47
11 48.8	-59.7	175.9	9 49.2	-59.8	175.9	7 49.5	-59.8	176.0	5 49.8	-59.8	176.0	3 50.0	-59.7	176.0	48
10 49.1	-59.7	176.0	8 49.4	-59.8	176.0	6 49.7	-59.8	176.0	4 50.0	-59.8	176.1	2 50.3	-59.8	176.1	49
9 49.4	-59.8	176.1	7 49.6	-59.7	176.1	5 49.9	-59.8	176.1	3 50.2	-59.8	176.1	1 50.5	-59.8	176.1	50
8 49.6	-59.7	176.2	6 49.9	-59.8	176.2	4 50.1	-59.7	176.2	2 50.4	-59.8	176.2	0 50.7	-59.8	176.2	51
7 49.9	-59.8	176.3	5 50.1	-59.7	176.3	3 50.4	-59.8	176.3	1 50.6	-59.8	176.3	0 50.9	+59.8	3.7	52
6 50.1	-59.7	176.4	4 50.4	-59.8	176.4	2 50.6	-59.8	176.4	0 50.8	-59.8	176.4	1 08.9	+59.8	3.6	53
5 50.4	-59.8	176.5	3 50.6	-59.8	176.5	1 50.8	-59.8	176.5	0 51.0	-59.7	176.6	2 08.7	+59.8	3.5	54
4 50.6	-59.7	176.6	2 50.8	-59.7	176.6	0 51.0	-59.7	176.6	0 09.0	+59.7	3.5	3 08.5	+59.8	3.4	55
3 50.9	-59.8	176.6	1 51.1	-59.8	176.6	0 08.7	+59.8	3.4	2 08.5	+59.8	3.4	4 08.3	+59.8	3.4	56
2 51.1	-59.7	176.7	0 08.5	+59.7	3.2	1 08.5	+59.8	3.3	3 08.3	+59.8	3.3	5 08.1	+59.8	3.3	57
1 51.4	-59.8	176.8	0 08.2	+59.8	3.1	2 08.3	+59.8	3.2	4 08.1	+59.8	3.2	6 07.9	+59.8	3.2	58
0 51.6	-59.8	176.9	1 08.2	+59.8	3.1	3 08.1	+59.7	3.1	5 07.9	+59.8	3.1	7 07.7	+59.8	3.1	59
0 08.2	+59.7	3.0	2 08.0	+59.8	3.0	4 07.8	+59.8	3.0	6 07.7	+59.7	3.0	8 07.5	+59.8	3.0	60
1 07.9	+59.8	2.9	3 07.8	+59.7	2.9	5 07.6	+59.8	2.9	7 07.4	+59.8	2.9	9 07.3	+59.8	2.9	61
2 07.7	+59.7	2.8	4 07.5	+59.8	2.8	6 07.4	+59.7	2.8	8 07.2	+59.8	2.8	10 07.1	+59.8	2.9	62
3 07.4	+59.8	2.7	5 07.3	+59.7	2.7	7 07.1	+59.8	2.7	9 07.0	+59.8	2.8	11 06.9	+59.8	2.8	63
4 07.2	+59.7	2.6	6 07.0	+59.8	2.6	8 06.9	+59.8	2.7	10 06.8	+59.8	2.7	12 06.7	+59.7	2.7	64
5 06.9	+59.8	2.5	7 06.8	+59.8	2.6	9 06.7	+59.7	2.6	11 06.6	+59.7	2.6	13 06.4	+59.8	2.6	65
6 06.7	+59.7	2.5	8 06.6	+59.7	2.5	10 06.4	+59.8	2.5	12 06.3	+59.8	2.5	14 06.2	+59.8	2.5	66
7 06.4	+59.8	2.4	9 06.3	+59.8	2.4	11 06.2	+59.8	2.4	13 06.1	+59.8	2.4	15 06.0	+59.8	2.4	67
8 06.2	+59.7	2.3	10 06.1	+59.7	2.3	12 06.0	+59.7	2.3	14 05.9	+59.8	2.3	16 05.8	+59.8	2.3	68
9 05.9	+59.8	2.2	11 05.8	+59.8	2.2	13 05.7	+59.8	2.2	15 05.7	+59.7	2.2	17 05.6	+59.7	2.2	69
10 05.7	+59.7	2.1	12 05.6	+59.7	2.1	14 05.5	+59.8	2.1	16 05.4	+59.8	2.1	18 05.3	+59.8	2.2	70
11 05.4	+59.8	2.0	13 05.3	+59.8	2.0	15 05.3	+59.7	2.0	17 05.2	+59.8	2.0	19 05.1	+59.8	2.1	71
12 05.2	+59.7	1.9	14 05.1	+59.7	1.9	16 05.0	+59.8	1.9	18 05.0	+59.7	1.9	20 04.9	+59.7	2.0	72
13 04.9	+59.7	1.8	15 04.8	+59.8	1.8	17 04.8	+59.7	1.8	19 04.7	+59.8	1.9	21 04.6	+59.8	1.9	73
14 04.6	+59.8	1.7	16 04.6	+59.7	1.7	18 04.5	+59.8	1.7	20 04.5	+59.7	1.8	22 04.4	+59.8	1.8	74
15 04.4	+59.7	1.6	17 04.3	+59.8	1.6	19 04.3	+59.7	1.6	21 04.2	+59.8	1.7	23 04.2	+59.7	1.7	75
16 04.1	+59.7	1.5	18 04.1	+59.7	1.5	20 04.0	+59.8	1.5	22 04.0	+59.7	1.6	24 03.9	+59.8	1.6	76
17 03.8	+59.8	1.4	19 03.8	+59.7	1.4	21 03.8	+59.7	1.4	23 03.7	+59.8	1.5	25 03.7	+59.7	1.5	77
18 03.6	+59.7	1.3	20 03.5	+59.8	1.3	22 03.5	+59.7	1.3	24 03.5	+59.7	1.4	26 03.4	+59.8	1.4	78
19 03.3	+59.7	1.2	21 03.3	+59.7	1.2	23 03.2	+59.8	1.2	25 03.2	+59.7	1.3	27 03.2	+59.7	1.3	79
20 03.0	+59.7	1.1	22 03.0	+59.7	1.1	24 03.0	+59.7	1.1	26 02.9	+59.8	1.2	28 02.9	+59.8	1.2	80
21 02.7	+59.7	1.0	23 02.7	+59.7	1.0	25 02.7	+59.7	1.0	27 02.7	+59.7	1.1	29 02.7	+59.7	1.1	81
22 02.4	+59.8	0.9	24 02.4	+59.7	0.9	26 02.4	+59.7	0.9	28 02.4	+59.7	0.9	30 02.4	+59.7	1.0	82
23 02.2	+59.7	0.8	25 02.1	+59.8	0.8	27 02.1	+59.7	0.8	29 02.1	+59.7	0.8	31 02.1	+59.7	0.9	83
24 01.9	+59.7	0.7	26 01.9	+59.7	0.7	28 01.8	+59.8	0.7	30 01.8	+59.7	0.7	32 01.8	+59.7	0.7	84
25 01.6	+59.7	0.6	27 01.6	+59.7	0.6	29 01.6	+59.7	0.6	31 01.5	+59.8	0.6	33 01.5	+59.7	0.6	85
26 01.3	+59.7	0.5	28 01.3	+59.7	0.5	30 01.3	+59.7	0.5	32 01.3	+59.7	0.5	34 01.2	+59.7	0.5	86
27 01.0	+59.6	0.4	29 01.0	+59.6	0.4	31 01.0	+59.6	0.4	33 01.0	+59.6	0.4	35 00.9	+59.7	0.4	87
28 00.6	+59.7	0.2	30 00.6	+59.7	0.2	32 00.6	+59.7	0.2	34 00.6	+59.7	0.3	36 00.6	+59.7	0.3	88
29 00.3	+59.7	0.1	31 00.3	+59.7	0.1	33 00.3	+59.7	0.1	35 00.3	+59.7	0.1	37 00.3	+59.7	0.1	89
30 00.0	+59.7	0.0	32 00.0	+59.7	0.0	34 00.0	+59.7	0.0	36 00.0	+59.7	0.0	38 00.0	+59.7	0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 174°, 186°

6°, 354° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	78 51.9	+54.1	152.0	77 03.9	+55.9	156.1	75 12.8	+57.2	159.2	73 19.7	+57.9	161.6	71 25.2	+58.5	163.5
31	79 46.0	+52.9	149.7	77 59.8	+55.3	154.5	76 10.0	+56.7	158.0	74 17.6	+57.7	160.7	72 23.7	+58.3	162.8
32	80 38.9	+51.4	146.9	78 55.1	+54.4	152.5	77 06.7	+56.2	156.6	75 15.3	+57.3	159.6	73 22.0	+58.0	162.0
33	81 30.3	+49.2	143.6	79 49.5	+53.3	150.2	78 02.9	+55.5	155.0	76 12.6	+57.0	158.4	74 20.0	+57.9	161.1
34	82 19.5	+46.5	139.5	80 42.8	+51.8	147.5	78 58.4	+54.8	153.1	77 09.6	+56.4	157.0	75 17.9	+57.5	160.0
35	83 06.0	+42.6	134.5	81 34.6	+49.7	144.2	79 53.2	+53.6	150.8	78 06.0	+55.8	155.5	76 15.4	+57.1	158.9
36	83 48.6	+37.2	128.4	82 24.3	+47.1	140.2	80 46.8	+52.2	148.1	79 01.8	+55.1	153.6	77 12.5	+56.7	157.5
37	84 25.8	+29.9	120.7	83 11.4	+43.2	135.3	81 39.0	+50.3	144.9	79 56.9	+54.0	151.4	78 09.2	+56.1	156.0
38	84 55.7	+20.2	111.3	83 54.6	+37.9	129.1	82 29.3	+47.6	140.9	80 50.9	+52.6	148.8	79 05.3	+55.3	154.2
39	85 15.9	+8.4	100.3	84 32.5	+30.6	121.3	83 16.9	+43.9	136.0	81 43.5	+50.8	145.6	80 00.6	+54.4	152.1
40	85 24.3	-4.5	88.1	85 03.1	+20.7	111.8	84 00.8	+38.6	129.9	82 34.3	+48.2	141.7	80 55.0	+53.1	149.5
41	85 19.8	-16.7	75.7	85 23.8	+8.7	100.5	84 39.4	+31.4	122.1	83 22.5	+44.6	136.9	81 48.1	+51.3	146.4
42	85 03.1	-27.2	64.2	85 32.5	-4.6	88.0	85 10.8	+21.3	112.4	84 07.1	+39.5	130.7	82 39.4	+48.8	142.6
43	84 35.9	-35.1	54.3	85 27.9	-17.1	75.2	85 32.1	+9.0	100.9	84 46.6	+32.1	122.9	83 28.2	+45.4	137.8
44	84 00.8	-41.1	46.1	85 10.8	-27.8	63.5	85 41.1	-4.7	87.9	85 18.7	+22.0	113.1	84 13.6	+40.3	131.6
45	83 19.7	-45.4	39.5	84 43.0	-35.9	53.4	85 36.4	-17.7	74.8	85 40.7	+9.3	101.2	84 53.9	+32.9	123.8
46	82 34.3	-48.5	34.2	84 07.1	-41.7	45.1	85 18.7	-28.5	62.7	85 50.0	-4.9	87.8	85 26.8	+22.8	113.8
47	81 45.8	-50.8	29.8	83 25.4	-46.0	38.5	84 50.2	-36.6	52.4	85 45.1	-18.3	74.2	85 49.6	+9.6	101.6
48	80 55.0	-52.5	26.3	82 39.4	-49.0	33.2	84 13.6	-42.5	44.0	85 26.8	-29.2	61.8	85 59.2	-5.1	87.8
49	80 02.5	-53.7	23.4	81 50.4	-51.2	28.9	83 31.1	-46.5	37.4	84 57.6	-37.4	51.3	85 54.1	-18.9	73.6
50	79 08.8	-54.8	20.9	80 59.2	-52.9	25.4	82 44.6	-49.6	32.1	84 20.2	-43.2	42.9	85 35.2	-30.1	60.8
51	78 14.0	-55.5	18.8	80 06.3	-54.0	22.5	81 55.0	-51.6	27.9	83 37.0	-47.2	36.3	85 05.1	-38.3	50.2
52	77 18.5	-56.2	17.0	79 12.3	-55.1	20.1	81 03.4	-53.2	24.5	82 49.8	-50.1	31.0	84 26.8	-43.9	41.7
53	76 22.3	-56.7	15.5	78 17.2	-55.7	18.1	80 10.2	-54.4	21.6	81 59.7	-52.1	26.9	83 42.9	-47.9	35.1
54	75 25.6	-57.0	14.1	77 21.5	-56.4	16.3	79 15.8	-55.4	19.3	81 07.6	-53.6	23.5	82 55.0	-50.6	29.9
55	74 28.6	-57.4	12.9	76 25.1	-56.9	14.8	78 20.4	-56.0	17.3	80 14.0	-54.8	20.7	82 04.4	-52.6	25.8
56	73 31.2	-57.7	11.9	75 28.2	-57.2	13.5	77 24.4	-56.5	15.6	79 19.2	-55.6	18.4	81 11.8	-54.0	22.5
57	72 33.5	-58.0	10.9	74 31.0	-57.5	12.3	76 27.9	-57.1	14.1	78 23.6	-56.2	16.4	80 17.8	-55.1	19.7
58	71 35.5	-58.1	10.1	73 33.5	-57.9	11.3	75 30.8	-57.4	12.8	77 27.4	-56.8	14.8	79 22.7	-55.9	17.5
59	70 37.4	-58.3	9.3	72 35.6	-58.0	10.4	74 33.4	-57.7	11.7	76 30.6	-57.2	13.3	78 26.8	-56.5	15.6
60	69 39.1	-58.5	8.6	71 37.6	-58.3	9.5	73 35.7	-57.9	10.7	75 33.4	-57.6	12.1	77 30.3	-57.0	14.0
61	68 40.6	-58.6	8.0	70 39.3	-58.4	8.8	72 37.8	-58.2	9.8	74 35.8	-57.8	11.0	76 33.3	-57.4	12.6
62	67 42.0	-58.7	7.4	69 40.9	-58.5	8.1	71 39.6	-58.3	9.0	73 38.0	-58.1	10.0	75 35.0	-57.7	11.4
63	66 43.3	-58.8	6.9	68 42.4	-58.7	7.5	70 41.3	-58.5	8.2	72 39.9	-58.3	9.2	74 38.2	-58.0	10.3
64	65 44.5	-58.9	6.4	67 43.7	-58.8	6.9	69 42.8	-58.7	7.6	71 41.6	-58.5	8.4	73 40.2	-58.3	9.4
65	64 45.6	-58.9	5.9	66 44.9	-58.8	6.4	68 44.1	-58.7	7.0	70 43.1	-58.6	7.7	72 41.9	-58.4	8.5
66	63 46.7	-59.1	5.5	65 46.1	-59.0	5.9	67 45.4	-58.9	6.4	69 44.5	-58.7	7.1	71 43.5	-58.5	7.8
67	62 47.6	-59.1	5.1	64 47.1	-59.0	5.5	66 46.5	-58.9	5.9	68 45.8	-58.8	6.5	70 45.0	-58.7	7.1
68	61 48.5	-59.1	4.8	63 48.1	-59.1	5.1	65 47.6	-59.0	5.5	67 47.0	-58.9	5.9	69 46.3	-58.8	6.5
69	60 49.4	-59.2	4.4	62 49.0	-59.2	4.7	64 48.6	-59.1	5.0	66 48.1	-59.1	5.5	68 47.5	-59.0	5.9
70	59 50.2	-59.3	4.1	61 49.8	-59.2	4.3	63 49.5	-59.2	4.6	65 49.0	-59.0	5.0	67 48.5	-59.0	5.4
71	58 50.9	-59.3	3.8	60 50.6	-59.2	4.0	62 50.3	-59.2	4.3	64 50.0	-59.2	4.6	66 49.5	-59.0	5.0
72	57 51.6	-59.3	3.5	59 51.4	-59.3	3.7	61 51.1	-59.3	3.9	63 50.8	-59.2	4.2	65 50.5	-59.2	4.5
73	56 52.3	-59.4	3.2	58 52.1	-59.4	3.4	60 51.8	-59.3	3.6	62 51.6	-59.3	3.8	64 51.3	-59.2	4.1
74	55 52.9	-59.4	2.9	57 52.7	-59.3	3.1	59 52.5	-59.3	3.3	61 52.3	-59.3	3.5	63 52.1	-59.3	3.8
75	54 53.5	-59.4	2.7	56 53.4	-59.4	2.8	58 53.2	-59.4	3.0	60 53.0	-59.3	3.2	62 52.8	-59.3	3.4
76	53 54.1	-59.5	2.5	55 54.0	-59.5	2.6	57 53.8	-59.4	2.7	59 53.7	-59.4	2.9	61 53.5	-59.3	3.1
77	52 54.6	-59.5	2.2	54 54.5	-59.4	2.3	56 54.4	-59.4	2.5	58 54.3	-59.4	2.6	60 54.2	-59.4	2.8
78	51 55.1	-59.5	2.0	53 55.1	-59.5	2.1	55 55.0	-59.5	2.2	57 54.9	-59.5	2.3	59 54.8	-59.5	2.5
79	50 55.6	-59.5	1.8	52 55.6	-59.5	1.9	54 55.5	-59.5	2.0	56 55.4	-59.5	2.1	58 55.3	-59.4	2.2
80	49 56.1	-59.5	1.6	51 56.1	-59.6	1.7	53 56.0	-59.5	1.8	55 55.9	-59.5	1.9	57 55.9	-59.5	2.0
81	48 56.6	-59.6	1.4	50 56.5	-59.5	1.5	52 56.5	-59.6	1.6	54 56.4	-59.5	1.6	56 56.4	-59.5	1.7
82	47 57.0	-59.6	1.2	49 57.0	-59.6	1.3	51 56.9	-59.5	1.4	53 56.9	-59.5	1.4	55 56.9	-59.6	1.5
83	46 57.4	-59.6	1.1	48 57.4	-59.6	1.1	50 57.4	-59.6	1.2	52 57.4	-59.6	1.2	54 57.3	-59.5	1.3
84	45 57.8	-59.6	0.9	47 57.8	-59.6	0.9	49 57.8	-59.6	1.0	51 57.8	-59.6	1.0	53 57.8	-59.6	1.1
85	44 58.2	-59.6	0.7	46 58.2	-59.6	0.8	48 58.2	-59.6	0.8	50 58.2	-59.6	0.8	52 58.2	-59.6	0.9
86	43 58.6	-59.6	0.6	45 58.6	-59.6	0.6	47 58.6	-59.6	0.6	49 58.6	-59.6	0.6	51 58.6	-59.6	0.7
87	42 59.0	-59.7	0.4	44 59.0	-59.7	0.4	46 59.0	-59.7	0.5	48 59.0	-59.7	0.5	50 59.0	-59.7	0.5
88	41 59.3	-59.6	0.3	43 59.3	-59.6	0.3	45 59.3	-59.6	0.3	47 59.3	-59.6	0.3	49 59.3	-59.6	0.3
89	40 59.7	-59.7	0.1	42 59.7	-59.7	0.1	44 59.7	-59.7	0.1	46 59.7	-59.7	0.2	48 59.7	-59.7	0.2
90	40 00.0	-59.7	0.0	42 00.0	-59.7	0.0	44 00.0	-59.7	0.0	46 00.0	-59.7	0.0	48 00.0	-59.7	0.0
	40°			42°			44°			46°			48°		

LATITUDE CONTRARY NAME

L.H.A. 6°, 354°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
19 46.7	-59.8	174.5	17 47.3	-59.8	174.5	15 47.8	-59.8	174.6	13 48.3	-59.8	174.7	11 48.8	-59.8	174.7	30
18 46.9	-59.8	174.6	16 47.5	-59.8	174.6	14 48.0	-59.8	174.7	12 48.5	-59.8	174.7	10 49.0	-59.8	174.8	31
17 47.1	-59.7	174.7	15 47.7	-59.8	174.7	13 48.2	-59.9	174.8	11 48.7	-59.9	174.8	9 49.2	-59.9	174.8	32
16 47.4	-59.8	174.7	14 47.9	-59.9	174.8	12 48.3	-59.8	174.8	10 48.8	-59.8	174.9	8 49.3	-59.8	174.9	33
15 47.6	-59.8	174.8	13 48.0	-59.8	174.9	11 48.5	-59.8	174.9	9 49.0	-59.8	175.0	7 49.5	-59.9	175.0	34
14 47.8	-59.8	174.9	12 48.2	-59.8	175.0	10 48.7	-59.8	175.0	8 49.2	-59.8	175.0	6 49.6	-59.8	175.1	35
13 48.0	-59.8	175.0	11 48.4	-59.8	175.0	9 48.9	-59.9	175.1	7 49.3	-59.8	175.1	5 49.8	-59.9	175.1	36
12 48.2	-59.8	175.1	10 48.6	-59.8	175.1	8 49.0	-59.8	175.2	6 49.5	-59.9	175.2	4 49.9	-59.9	175.2	37
11 48.4	-59.8	175.2	9 48.8	-59.8	175.2	7 49.2	-59.8	175.2	5 49.6	-59.8	175.3	3 50.0	-59.8	175.3	38
10 48.6	-59.8	175.3	8 49.0	-59.8	175.3	6 49.4	-59.8	175.3	4 49.8	-59.8	175.3	2 50.2	-59.9	175.3	39
9 48.8	-59.8	175.3	7 49.2	-59.8	175.4	5 49.6	-59.9	175.4	3 50.0	-59.9	175.4	1 50.3	-59.8	175.4	40
8 49.0	-59.8	175.4	6 49.4	-59.9	175.4	4 49.7	-59.8	175.5	2 50.1	-59.8	175.5	0 50.5	-59.9	175.5	41
7 49.2	-59.8	175.5	5 49.5	-59.8	175.5	3 49.9	-59.8	175.5	1 50.3	-59.9	175.5	0 09.4	+59.8	4.5	42
6 49.4	-59.8	175.6	4 49.7	-59.8	175.6	2 50.1	-59.9	175.6	0 50.4	-59.8	175.6	1 09.2	+59.9	4.4	43
5 49.6	-59.8	175.7	3 49.9	-59.8	175.7	1 50.2	-59.8	175.7	0 09.4	+59.9	4.3	2 09.1	+59.8	4.3	44
4 49.8	-59.8	175.7	2 50.1	-59.8	175.8	0 50.4	-59.8	175.8	1 09.3	+59.8	4.2	3 08.9	+59.9	4.2	45
3 50.0	-59.9	175.8	1 50.3	-59.8	175.8	0 09.4	+59.8	4.2	2 09.1	+59.8	4.2	4 08.8	+59.8	4.2	46
2 50.1	-59.8	175.9	0 50.5	-59.9	175.9	1 09.2	+59.9	4.1	3 08.9	+59.9	4.1	5 08.6	+59.9	4.1	47
1 50.3	-59.8	176.0	0 09.4	+59.8	4.0	2 09.1	+59.8	4.0	4 08.8	+59.8	4.0	6 08.5	+59.8	4.0	48
0 50.5	-59.8	176.1	1 09.2	+59.8	3.9	3 08.9	+59.8	3.9	5 08.6	+59.9	3.9	7 08.3	+59.9	4.0	49
0 09.3	+59.8	3.9	2 09.0	+59.8	3.9	4 08.7	+59.9	3.9	6 08.5	+59.8	3.9	8 08.2	+59.8	3.9	50
1 09.1	+59.8	3.8	3 08.8	+59.8	3.8	5 08.6	+59.8	3.8	7 08.3	+59.8	3.8	9 08.0	+59.9	3.8	51
2 08.9	+59.8	3.7	4 08.6	+59.9	3.7	6 08.4	+59.8	3.7	8 08.1	+59.9	3.7	10 07.9	+59.8	3.7	52
3 08.7	+59.8	3.6	5 08.5	+59.8	3.6	7 08.2	+59.8	3.6	9 08.0	+59.8	3.7	11 07.7	+59.9	3.7	53
4 08.5	+59.8	3.5	6 08.3	+59.8	3.5	8 08.0	+59.9	3.6	10 07.8	+59.8	3.6	12 07.6	+59.8	3.6	54
5 08.3	+59.8	3.5	7 08.1	+59.8	3.5	9 07.9	+59.8	3.5	11 07.9	+59.8	3.5	13 07.4	+59.9	3.5	55
6 08.1	+59.8	3.4	8 07.9	+59.8	3.4	10 07.7	+59.8	3.4	12 07.5	+59.8	3.4	14 07.3	+59.8	3.5	56
7 07.9	+59.8	3.3	9 07.7	+59.8	3.3	11 07.5	+59.8	3.3	13 07.3	+59.8	3.3	15 07.1	+59.8	3.4	57
8 07.7	+59.8	3.2	10 07.5	+59.8	3.2	12 07.3	+59.9	3.2	14 07.1	+59.9	3.3	16 06.9	+59.9	3.3	58
9 07.5	+59.8	3.1	11 07.3	+59.9	3.1	13 07.2	+59.8	3.2	15 07.0	+59.8	3.2	17 06.8	+59.8	3.2	59
10 07.3	+59.8	3.0	12 07.2	+59.8	3.1	14 07.0	+59.8	3.1	16 06.8	+59.8	3.1	18 06.6	+59.9	3.2	60
11 07.1	+59.8	3.0	13 07.0	+59.8	3.0	15 06.8	+59.8	3.0	17 06.6	+59.9	3.0	19 06.5	+59.8	3.1	61
12 06.9	+59.8	2.9	14 06.8	+59.8	2.9	16 06.6	+59.8	2.9	18 06.5	+59.8	3.0	20 06.3	+59.8	3.0	62
13 06.7	+59.8	2.8	15 06.6	+59.8	2.8	17 06.4	+59.8	2.8	19 06.3	+59.8	2.9	21 06.1	+59.9	2.9	63
14 06.5	+59.8	2.7	16 06.4	+59.8	2.7	18 06.2	+59.9	2.8	20 06.1	+59.8	2.8	22 06.0	+59.8	2.8	64
15 06.3	+59.8	2.6	17 06.2	+59.8	2.6	19 06.1	+59.8	2.7	21 05.9	+59.8	2.7	23 05.8	+59.8	2.8	65
16 06.1	+59.8	2.5	18 06.0	+59.8	2.6	20 05.9	+59.8	2.6	22 05.7	+59.9	2.6	24 05.6	+59.8	2.7	66
17 05.9	+59.8	2.4	19 05.8	+59.8	2.5	21 05.7	+59.8	2.5	23 05.6	+59.8	2.5	25 05.4	+59.9	2.6	67
18 05.7	+59.8	2.4	20 05.6	+59.8	2.4	22 05.5	+59.8	2.4	24 05.4	+59.8	2.5	26 05.3	+59.8	2.5	68
19 05.5	+59.8	2.3	21 05.4	+59.8	2.3	23 05.3	+59.8	2.3	25 05.2	+59.8	2.4	27 05.1	+59.8	2.4	69
20 05.3	+59.7	2.2	22 05.2	+59.8	2.2	24 05.1	+59.8	2.2	26 05.0	+59.8	2.3	28 04.9	+59.8	2.3	70
21 05.0	+59.8	2.1	23 05.0	+59.7	2.1	25 04.9	+59.8	2.2	27 04.8	+59.8	2.2	29 04.7	+59.8	2.2	71
22 04.8	+59.8	2.0	24 04.7	+59.8	2.0	26 04.7	+59.7	2.1	28 04.6	+59.8	2.1	30 04.5	+59.8	2.1	72
23 04.6	+59.8	1.9	25 04.5	+59.8	1.9	27 04.4	+59.8	2.0	29 04.4	+59.8	2.0	31 04.3	+59.8	2.0	73
24 04.4	+59.7	1.8	26 04.3	+59.8	1.8	28 04.2	+59.8	1.9	30 04.2	+59.8	1.9	32 04.1	+59.8	1.9	74
25 04.1	+59.8	1.7	27 04.1	+59.7	1.7	29 04.0	+59.8	1.8	31 04.0	+59.7	1.8	33 03.9	+59.8	1.8	75
26 03.9	+59.7	1.6	28 03.8	+59.8	1.6	30 03.8	+59.8	1.7	32 03.7	+59.8	1.7	34 03.7	+59.8	1.7	76
27 03.6	+59.8	1.5	29 03.6	+59.8	1.5	31 03.6	+59.7	1.6	33 03.5	+59.8	1.6	35 03.5	+59.7	1.6	77
28 03.4	+59.7	1.4	30 03.4	+59.7	1.4	32 03.3	+59.8	1.5	34 03.3	+59.7	1.5	36 03.2	+59.8	1.5	78
29 03.1	+59.8	1.3	31 03.1	+59.8	1.3	33 03.1	+59.7	1.4	35 03.0	+59.8	1.4	37 03.0	+59.8	1.4	79
30 02.9	+59.7	1.2	32 02.9	+59.7	1.2	34 02.8	+59.8	1.3	36 02.8	+59.8	1.3	38 02.8	+59.7	1.3	80
31 02.6	+59.8	1.1	33 02.6	+59.7	1.1	35 02.6	+59.7	1.1	37 02.6	+59.7	1.2	39 02.5	+59.8	1.2	81
32 02.4	+59.7	1.0	34 02.3	+59.8	1.0	36 02.3	+59.8	1.0	38 02.3	+59.8	1.1	40 02.3	+59.7	1.1	82
33 02.1	+59.7	0.9	35 02.1	+59.7	0.9	37 02.1	+59.7	0.9	39 02.1	+59.7	0.9	41 02.0	+59.8	1.0	83
34 01.8	+59.7	0.8	36 01.8	+59.7	0.8	38 01.8	+59.7	0.8	40 01.8	+59.7	0.8	42 01.8	+59.7	0.8	84
35 01.5	+59.7	0.6	37 01.5	+59.7	0.7	39 01.5	+59.7	0.7	41 01.5	+59.7	0.7	43 01.5	+59.7	0.7	85
36 01.2	+59.7	0.5	38 01.2	+59.7	0.5	40 01.2	+59.7	0.5	42 01.2	+59.7	0.6	44 01.2	+59.7	0.6	86
37 00.9	+59.7	0.4	39 00.9	+59.7	0.4	41 00.9	+59.7	0.4	43 00.9	+59.7	0.4	45 00.9	+59.7	0.4	87
38 00.6	+59.7	0.3	40 00.6	+59.7	0.3	42 00.6	+59.7	0.3	44 00.6	+59.7	0.3	46 00.6	+59.7	0.3	88
39 00.3	+59.7	0.1	41 00.3	+59.7	0.1	43 00.3	+59.7	0.1	45 00.3	+59.7	0.1	47 00.3	+59.7	0.2	89
40 00.0	+59.7	0.0	42 00.0	+59.7	0.0	44 00.0	+59.7	0.0	46 00.0	+59.7	0.0	48 00.0	+59.7	0.0	90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 174°, 186°

6°, 354° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 29.7	+58.8	165.0	67 33.4	+59.2	166.3	65 36.6	+59.3	167.3	63 39.3	+59.5	168.2	61 41.7	+59.6	169.0
31	70 28.5	+58.8	164.4	68 32.6	+59.0	165.8	66 35.9	+59.3	167.0	64 38.8	+59.4	167.9	62 41.3	+59.5	168.7
32	71 27.3	+58.5	163.8	69 31.6	+58.9	165.3	67 35.2	+59.1	166.6	65 38.2	+59.4	167.6	63 40.8	+59.5	168.5
33	72 25.8	+58.4	163.1	70 30.5	+58.8	164.8	68 34.3	+59.1	166.1	66 37.6	+59.3	167.2	64 40.3	+59.5	168.2
34	73 24.2	+58.3	162.3	71 29.3	+58.7	164.2	69 33.4	+59.1	165.6	67 36.9	+59.2	166.8	65 39.8	+59.4	167.9
35	74 22.5	+57.9	161.5	72 28.0	+58.5	163.5	70 32.5	+58.9	165.1	68 36.1	+59.2	166.4	66 39.2	+59.4	167.5
36	75 20.4	+57.7	160.5	73 26.5	+58.4	162.7	71 31.4	+58.8	164.5	69 35.3	+59.1	166.0	67 38.6	+59.3	167.2
37	76 18.1	+57.4	159.4	74 24.9	+58.1	161.9	72 30.2	+58.6	163.9	70 34.4	+59.1	165.5	68 37.9	+59.3	166.8
38	77 15.5	+56.9	158.1	75 23.0	+57.9	160.9	73 28.8	+58.5	163.2	71 33.5	+58.9	164.9	69 37.2	+59.2	166.3
39	78 12.4	+56.4	156.6	76 20.9	+57.6	159.9	74 27.3	+58.3	162.4	72 32.4	+58.8	164.3	70 36.4	+59.1	165.8
40	79 08.8	+55.6	154.8	77 18.5	+57.1	158.6	75 25.6	+58.1	161.4	73 31.2	+58.6	163.6	71 35.5	+59.0	165.3
41	80 04.4	+54.8	152.8	78 15.6	+56.7	157.2	76 23.7	+57.8	160.4	74 29.8	+58.4	162.8	72 34.5	+59.0	164.7
42	80 59.2	+53.5	150.3	79 12.3	+56.0	155.5	77 21.5	+57.3	159.2	75 28.2	+58.3	162.0	73 33.5	+58.7	164.1
43	81 52.7	+51.9	147.2	80 08.3	+55.1	153.5	78 18.8	+57.0	157.8	76 26.5	+57.9	161.0	74 32.2	+58.6	163.3
44	82 44.6	+49.5	143.5	81 03.4	+54.0	151.1	79 15.8	+56.3	156.2	77 24.4	+57.7	159.8	75 30.8	+58.4	162.5
45	83 34.1	+46.1	138.7	81 57.4	+52.4	148.1	80 12.1	+55.5	154.3	78 22.1	+57.1	158.5	76 29.2	+58.2	161.6
46	84 20.2	+41.1	132.6	82 49.8	+50.1	144.4	81 07.6	+54.4	151.9	79 19.2	+56.7	156.9	77 27.4	+57.8	160.5
47	85 01.3	+33.9	124.8	83 39.9	+46.9	139.8	82 02.0	+53.0	149.0	80 15.9	+55.9	155.1	78 25.2	+57.5	159.2
48	85 35.2	+23.5	114.6	84 26.8	+42.1	133.7	82 55.0	+50.8	145.4	81 11.8	+54.9	152.8	79 22.7	+56.9	157.7
49	85 58.7	+10.0	102.1	85 08.9	+34.8	125.8	83 45.8	+47.7	140.9	82 06.7	+53.5	150.0	80 19.6	+56.3	155.9
50	86 08.7	-5.3	87.7	85 43.7	+24.4	115.6	84 33.5	+43.1	134.9	83 00.2	+51.5	146.5	81 15.9	+55.4	153.7
51	86 03.4	-19.7	73.0	86 08.1	+10.3	102.6	85 16.6	+38.8	127.0	83 51.7	+48.6	142.0	82 11.3	+54.1	151.1
52	85 43.7	-31.0	59.8	86 18.4	-5.5	87.6	85 52.4	+25.3	116.6	84 40.3	+44.0	136.1	83 05.4	+52.2	147.7
53	85 12.7	-39.2	48.9	86 12.9	-20.5	72.3	86 17.7	+10.8	103.2	85 24.3	+37.0	128.3	83 57.6	+49.4	143.3
54	84 33.5	-44.7	40.4	85 52.4	-32.0	58.6	86 28.5	-5.9	87.6	86 01.3	+26.2	117.7	84 47.0	+45.1	137.5
55	83 48.8	-48.6	33.8	85 20.4	-40.1	47.6	86 22.6	-21.3	71.6	86 27.5	+11.3	103.9	85 32.1	+38.1	129.6
56	83 00.2	-51.2	28.7	84 40.3	-45.7	39.0	86 01.3	-33.1	57.4	86 38.8	-6.3	87.5	86 10.2	+27.4	118.9
57	82 09.0	-53.1	24.6	83 54.6	-49.2	32.5	85 28.2	-41.2	46.1	86 32.5	-22.3	70.7	86 37.6	+11.7	104.7
58	81 15.9	-54.4	21.4	83 05.4	-51.8	27.4	84 47.0	-46.5	37.5	86 10.2	-34.2	56.0	86 49.3	-6.7	87.5
59	80 21.5	-55.4	18.8	82 13.6	-53.6	23.5	84 00.5	-50.1	31.0	85 36.0	-42.3	44.6	86 42.6	-23.3	69.8
60	79 26.1	-56.2	16.6	81 20.0	-54.8	20.3	83 10.4	-52.4	26.1	84 53.7	-47.5	36.0	86 19.3	-35.6	54.5
61	78 29.9	-56.7	14.7	80 25.2	-55.8	17.7	82 18.0	-54.0	22.2	84 06.2	-50.8	29.6	85 43.7	-43.4	42.9
62	77 33.2	-57.3	13.2	79 29.4	-56.4	15.6	81 24.0	-55.2	19.2	83 15.4	-53.0	24.7	85 00.3	-48.4	34.3
63	76 35.9	-57.6	11.8	78 33.0	-57.1	13.8	80 28.8	-56.1	16.7	82 22.4	-54.5	21.0	84 11.9	-51.6	28.0
64	75 38.3	-57.9	10.6	77 35.9	-57.4	12.3	79 32.7	-56.8	14.6	81 27.9	-55.6	18.0	83 20.3	-53.6	23.3
65	74 40.4	-58.1	9.6	76 38.5	-57.8	11.0	78 35.9	-57.2	12.9	80 32.3	-56.5	15.6	82 26.7	-55.0	19.6
66	73 42.3	-58.4	8.7	75 40.7	-58.0	9.9	77 38.7	-57.7	11.5	79 35.8	-57.0	13.6	81 31.7	-56.1	16.8
67	72 43.9	-58.5	7.9	74 42.7	-58.3	8.9	76 41.0	-58.0	10.2	78 38.8	-57.5	12.0	80 35.6	-56.8	14.5
68	71 45.4	-58.7	7.2	73 44.4	-58.5	8.0	75 43.0	-58.2	9.1	77 41.3	-57.9	10.6	79 38.8	-57.3	12.6
69	70 46.7	-58.7	6.5	72 45.9	-58.7	7.3	74 44.8	-58.4	8.2	76 43.4	-58.2	9.4	78 41.5	-57.7	11.0
70	69 48.0	-59.0	5.9	71 47.2	-58.7	6.6	73 46.4	-58.7	7.4	75 45.2	-58.4	8.4	77 43.8	-58.1	9.7
71	68 49.0	-58.9	5.4	70 48.5	-58.9	5.9	72 47.7	-58.7	6.6	74 46.8	-58.5	7.4	76 45.7	-58.4	8.5
72	67 50.1	-59.1	4.9	69 49.6	-59.0	5.4	71 49.0	-58.9	5.9	73 48.3	-58.8	6.7	75 47.3	-58.5	7.6
73	66 51.0	-59.2	4.5	68 50.6	-59.1	4.9	70 50.1	-59.0	5.3	72 49.5	-58.9	5.9	74 48.8	-58.7	6.7
74	65 51.8	-59.2	4.0	67 51.5	-59.2	4.4	69 51.1	-59.1	4.8	71 50.6	-58.9	5.3	73 50.1	-58.9	5.9
75	64 52.6	-59.3	3.7	66 52.3	-59.2	3.9	68 52.0	-59.1	4.3	70 51.7	-59.1	4.7	72 51.2	-59.0	5.3
76	63 53.3	-59.3	3.3	65 53.1	-59.3	3.5	67 52.9	-59.3	3.9	69 52.6	-59.2	4.2	71 52.2	-59.1	4.7
77	62 54.0	-59.4	3.0	64 53.8	-59.3	3.2	66 53.6	-59.2	3.4	68 53.4	-59.2	3.7	70 53.1	-59.2	4.1
78	61 54.6	-59.4	2.6	63 54.5	-59.4	2.8	65 54.4	-59.4	3.1	67 54.2	-59.3	3.3	69 53.9	-59.2	3.6
79	60 55.2	-59.4	2.4	62 55.1	-59.4	2.5	64 55.0	-59.4	2.7	66 54.9	-59.4	2.9	68 54.7	-59.3	3.2
80	59 55.8	-59.5	2.1	61 55.7	-59.4	2.2	63 55.6	-59.4	2.4	65 55.5	-59.4	2.6	67 55.4	-59.4	2.8
81	58 56.3	-59.5	1.8	60 56.3	-59.5	1.9	62 56.2	-59.5	2.1	64 56.1	-59.4	2.2	66 56.0	-59.4	2.4
82	57 56.8	-59.5	1.6	59 56.8	-59.5	1.7	61 56.7	-59.5	1.8	63 56.7	-59.5	1.9	65 56.6	-59.5	2.0
83	56 57.3	-59.6	1.3	58 57.3	-59.6	1.4	60 57.2	-59.5	1.5	62 57.2	-59.5	1.6	64 57.1	-59.5	1.7
84	55 57.7	-59.5	1.1	57 57.7	-59.6	1.2	59 57.7	-59.6	1.3	61 57.7	-59.6	1.3	63 57.6	-59.5	1.4
85	54 58.2	-59.6	0.9	56 58.1	-59.5	1.0	58 58.1	-59.6	1.0	60 58.1	-59.6	1.1	62 58.1	-59.6	1.1
86	53 58.6	-59.7	0.7	55 58.6	-59.7	0.7	57 58.5	-59.6	0.8	59 58.5	-59.6	0.8	61 58.5	-59.6	0.9
87	52 58.9	-59.6	0.5	54 58.9	-59.6	0.5	56 58.9	-59.6	0.6	58 58.9	-59.6	0.6	60 58.9	-59.6	0.6
88	51 59.3	-59.6	0.3	53 59.3	-59.6	0.4	55 59.3	-59.6	0.4	57 59.3	-59.6	0.4	59 59.3	-59.6	0.4
89	50 59.7	-59.7	0.2	52 59.7	-59.7	0.2	54 59.7	-59.7	0.2	56 59.7	-59.7	0.2	58 59.7	-59.7	0.2
90	50 00.0	-59.7	0.0	52 00.0	-59.7	0.0	54 00.0	-59.7	0.0	56 00.0	-59.7	0.0	58 00.0	-59.7	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 6°, 354°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9 49.4 -59.9 174.7			7 49.9 -59.9 174.8			5 50.4 -59.9 174.8			3 50.9 -59.9 174.8			1 51.4 -60.0 174.8			30
8 49.5 -59.9 174.8			6 50.0 -59.9 174.8			4 50.5 -59.9 174.8			2 51.0 -59.9 174.9			0 51.4 -59.9 174.9			31
7 49.6 -59.8 174.9			5 50.1 -59.9 174.9			3 50.6 -59.9 174.9			1 51.1 -59.9 174.9			0 51.2 -59.9 175.0			32
6 49.8 -59.9 174.9			4 50.2 -59.8 175.0			2 50.7 -59.9 175.0			0 51.2 -59.9 175.0			1 08.4 +59.9 5.0			33
5 49.9 -59.9 175.0			3 50.4 -59.9 175.0			1 50.8 -59.9 175.0			0 50.9 -59.9 175.1			2 08.3 +59.9 5.0			34
4 50.0 -59.8 175.1			2 50.5 -59.9 175.1			0 50.7 -59.8 175.2			1 08.6 +59.9 4.9			3 08.2 +59.9 4.9			35
3 50.2 -59.9 175.1			1 50.6 -59.9 175.1			0 09.0 +59.8 4.9			2 08.5 +59.9 4.9			4 08.1 +59.9 4.9			36
2 50.3 -59.8 175.2			0 50.7 -59.8 175.2			1 08.8 +59.9 4.8			3 08.4 +59.9 4.8			5 08.0 +59.9 4.8			37
1 50.5 -59.9 175.3			0 09.1 +59.9 4.7			2 08.7 +59.9 4.7			4 08.3 +59.9 4.7			6 07.9 +59.9 4.8			38
0 50.6 -59.9 175.3			1 09.0 +59.9 4.7			3 08.6 +59.9 4.7			5 08.2 +59.9 4.7			7 07.8 +59.9 4.7			39
0 09.3 +59.8 4.6			2 08.9 +59.9 4.6			4 08.5 +59.9 4.6			6 08.1 +59.9 4.6			8 07.7 +59.9 4.6			40
1 09.1 +59.9 4.5			3 08.8 +59.8 4.5			5 08.4 +59.9 4.5			7 08.0 +59.9 4.6			9 07.6 +59.9 4.6			41
2 09.0 +59.9 4.5			4 08.6 +59.9 4.5			6 08.3 +59.9 4.5			8 07.9 +59.9 4.5			10 07.5 +59.9 4.5			42
3 08.9 +59.8 4.4			5 08.5 +59.9 4.4			7 08.2 +59.8 4.4			9 07.8 +59.9 4.4			11 07.4 +59.9 4.5			43
4 08.7 +59.9 4.3			6 08.4 +59.9 4.3			8 08.0 +59.9 4.4			10 07.7 +59.9 4.4			12 07.3 +59.9 4.4			44
5 08.6 +59.9 4.3			7 08.3 +59.8 4.3			9 07.9 +59.9 4.3			11 07.6 +59.9 4.3			13 07.2 +59.9 4.4			45
6 08.5 +59.8 4.2			8 08.1 +59.9 4.2			10 07.8 +59.9 4.2			12 07.5 +59.9 4.3			14 07.1 +59.9 4.3			46
7 08.3 +59.9 4.1			9 08.0 +59.9 4.1			11 07.7 +59.9 4.2			13 06.4 +59.9 3.5			15 07.0 +59.9 4.2			47
8 08.2 +59.8 4.1			10 07.9 +59.9 4.1			12 07.6 +59.9 4.1			14 07.3 +59.9 4.1			16 06.9 +59.9 4.2			48
9 08.0 +59.9 4.0			11 07.8 +59.8 4.0			13 07.5 +59.8 4.0			15 07.2 +59.8 4.1			17 06.8 +59.9 4.1			49
10 07.9 +59.9 3.9			12 07.6 +59.9 3.9			14 07.3 +59.9 4.0			16 07.0 +59.9 4.0			18 06.7 +59.9 4.1			50
11 07.8 +59.8 3.8			13 07.5 +59.9 3.9			15 07.2 +59.9 3.9			17 06.9 +59.9 3.9			19 06.6 +59.9 4.0			51
12 07.6 +59.9 3.8			14 07.4 +59.8 3.8			16 07.1 +59.9 3.8			18 06.8 +59.9 3.9			20 06.5 +59.9 3.9			52
13 07.5 +59.8 3.7			15 07.2 +59.9 3.7			17 07.0 +59.8 3.8			19 06.7 +59.9 3.8			21 06.4 +59.9 3.9			53
14 07.3 +59.9 3.6			16 07.1 +59.9 3.7			18 06.8 +59.9 3.7			20 06.6 +59.9 3.8			22 06.3 +59.9 3.8			54
15 07.2 +59.8 3.6			17 07.0 +59.8 3.6			19 06.7 +59.9 3.6			21 06.5 +59.9 3.6			23 06.2 +59.9 3.7			55
16 07.0 +59.9 3.5			18 06.8 +59.9 3.5			20 06.6 +59.9 3.6			22 06.4 +59.8 3.6			24 06.1 +59.9 3.7			56
17 06.9 +59.8 3.4			19 06.7 +59.8 3.5			21 06.5 +59.8 3.5			23 06.2 +59.9 3.5			25 06.0 +59.9 3.6			57
18 06.7 +59.9 3.3			20 06.5 +59.9 3.4			22 06.3 +59.9 3.4			24 06.1 +59.9 3.5			26 05.9 +59.9 3.5			58
19 06.6 +59.8 3.3			21 06.4 +59.9 3.3			23 06.2 +59.9 3.4			25 06.0 +59.9 3.4			27 05.8 +59.9 3.5			59
20 06.4 +59.9 3.2			22 06.3 +59.8 3.2			24 06.1 +59.8 3.3			26 05.9 +59.8 3.3			28 05.7 +59.9 3.4			60
21 06.3 +59.8 3.1			23 06.1 +59.9 3.2			25 05.9 +59.9 3.2			27 05.7 +59.9 3.3			29 05.5 +59.9 3.3			61
22 06.1 +59.9 3.0			24 06.0 +59.8 3.1			26 05.8 +59.8 3.1			28 05.6 +59.9 3.2			30 05.4 +59.9 3.3			62
23 06.0 +59.8 3.0			25 05.8 +59.9 3.0			27 05.6 +59.9 3.1			29 05.5 +59.8 3.1			31 05.3 +59.9 3.2			63
24 05.8 +59.8 2.9			26 05.7 +59.8 2.9			28 05.5 +59.9 3.0			30 05.3 +59.9 3.0			32 05.2 +59.8 3.1			64
25 05.6 +59.9 2.8			27 05.5 +59.8 2.8			29 05.4 +59.8 2.9			31 05.2 +59.9 3.0			33 05.0 +59.9 3.0			65
26 05.5 +59.8 2.7			28 05.3 +59.9 2.8			30 05.2 +59.8 2.8			32 05.1 +59.8 2.9			34 04.9 +59.9 2.9			66
27 05.3 +59.8 2.6			29 05.2 +59.8 2.7			31 05.0 +59.9 2.7			33 04.9 +59.9 2.8			35 04.8 +59.8 2.9			67
28 05.1 +59.9 2.5			30 05.0 +59.8 2.6			32 04.9 +59.8 2.6			34 04.8 +59.8 2.7			36 04.6 +59.9 2.8			68
29 05.0 +59.8 2.5			31 04.8 +59.9 2.5			33 04.7 +59.9 2.6			35 04.6 +59.9 2.6			37 04.5 +59.8 2.7			69
30 04.8 +59.8 2.4			32 04.7 +59.8 2.4			34 04.6 +59.8 2.5			36 04.5 +59.8 2.5			38 04.3 +59.9 2.6			70
31 04.6 +59.8 2.3			33 04.5 +59.8 2.3			35 04.4 +59.8 2.4			37 04.3 +59.8 2.4			39 04.2 +59.8 2.5			71
32 04.4 +59.8 2.2			34 04.3 +59.8 2.2			36 04.2 +59.9 2.3			38 04.1 +59.9 2.4			40 04.0 +59.9 2.4			72
33 04.2 +59.8 2.1			35 04.1 +59.9 2.1			37 04.1 +59.8 2.2			39 04.0 +59.8 2.3			41 03.9 +59.8 2.3			73
34 04.0 +59.8 2.0			36 04.0 +59.8 2.0			38 03.9 +59.8 2.1			40 03.8 +59.8 2.2			42 03.7 +59.8 2.2			74
35 03.8 +59.8 1.9			37 03.8 +59.8 1.9			39 03.7 +59.8 2.0			41 03.6 +59.8 2.1			43 03.5 +59.9 2.1			75
36 03.6 +59.8 1.8			38 03.6 +59.8 1.8			40 03.5 +59.8 1.9			42 03.4 +59.8 2.0			44 03.4 +59.8 2.0			76
37 03.4 +59.8 1.7			39 03.4 +59.7 1.7			41 03.3 +59.8 1.8			43 03.2 +59.8 1.8			45 03.2 +59.8 1.9			77
38 03.2 +59.8 1.6			40 03.1 +59.8 1.6			42 03.1 +59.8 1.7			44 03.0 +59.8 1.7			46 03.0 +59.8 1.8			78
39 03.0 +59.7 1.5			41 02.9 +59.8 1.5			43 02.9 +59.8 1.6			45 02.8 +59.8 1.6			47 02.8 +59.8 1.7			79
40 02.7 +59.8 1.4			42 02.7 +59.8 1.4			44 02.7 +59.7 1.4			46 02.6 +59.8 1.5			48 02.6 +59.8 1.6			80
41 02.5 +59.8 1.2			43 02.5 +59.7 1.3			45 02.4 +59.8 1.3			47 02.4 +59.8 1.4			49 02.4 +59.8 1.4			81
42 02.3 +59.7 1.1			44 02.2 +59.8 1.2			46 02.2 +59.8 1.2			48 02.2 +59.8 1.2			50 02.2 +59.7 1.3			82
43 02.0 +59.8 1.0			45 02.0 +59.7 1.0			47 02.0 +59.7 1.1			49 02.0 +59.7 1.1			51 01.9 +59.8 1.2			83
44 01.8 +59.7 0.9			46 01.7 +59.8 0.9			48 01.7 +59.8 0.9			50 01.7 +59.8 1.0			52 01.7 +59.7 1.0			84
45 01.5 +59.7 0.7			47 01.5 +59.7 0.8			49 01.5 +59.7 0.8			51 01.5 +59.7 0.8			53 01.4 +59.8 0.9			85
46 01.2 +59.7 0.6			48 01.2 +59.7 0.6			50 01.2 +59.7 0.7			52 01.2 +59.7 0.7			54 01.2 +59.7 0.7			86
47 00.9 +59.7 0.5			49 00.9 +59.7 0.5			51 00.9 +59.7 0.5			53 00.9 +59.7 0.5			55 00.9 +59.7 0.5			87
48 00.6 +59.7 0.3			50 00.6 +59.7 0.3			52 00.6 +59.7 0.3			54 00.6 +59.7 0.4			56 00.6 +59.7 0.4			88
49 00.3 +59.7 0.2			51 00.3 +59.7 0.2			53 00.3 +59.7 0.2			55 00.3 +59.7 0.2			57 00.3 +59.7 0.2			89
50 00.0 +59.7 0.0			52 00.0 +59.7 0.0			54 00.0 +59.7 0.0			56 00.0 +59.7 0.0			58 00.0 +59.7 0.0			90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 174°, 186°

8°, 352° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	83 04.4	-2.2	•88.0	82 51.5	+15.0	•104.2	82 07.7	+29.4	•118.4	81 00.3	+39.8	•129.6	79 37.1	+46.4	•138.0
31	83 02.2	-10.7	•79.7	83 06.5	+6.5	•96.2	82 37.1	+23.0	•111.8	81 40.1	+35.4	•124.6	80 23.5	+43.8	•134.4
32	82 51.5	-18.4	•71.7	83 13.0	-2.1	•87.9	83 00.1	+15.3	•104.4	82 15.5	+30.1	•118.8	81 07.3	+40.4	•130.1
33	82 33.1	-25.4	•64.2	83 10.9	-10.8	•79.4	83 15.4	+6.8	•96.3	82 45.6	+23.5	•112.2	81 47.7	+36.1	•125.1
34	82 07.7	-31.3	•57.4	83 00.1	-18.8	•71.2	83 22.2	-2.2	•87.8	83 09.1	+15.7	•104.6	82 23.8	+30.6	•119.3
35	81 36.4	-36.1	•51.4	82 41.3	-25.8	•63.6	83 20.0	-10.9	•79.1	83 24.8	+7.0	•96.4	82 54.4	+24.1	•112.6
36	81 00.3	-40.0	•46.1	82 15.5	-31.6	•56.7	83 09.1	-19.1	•70.8	83 31.8	-2.2	•87.6	83 18.5	+16.1	•104.9
37	80 20.3	-43.2	•41.5	81 43.9	-36.6	•50.6	82 50.0	-26.2	•63.0	83 29.6	-11.1	•78.8	83 34.6	+7.3	•96.5
38	79 37.1	-45.8	•37.5	81 07.3	-40.5	•45.3	82 23.8	-32.2	•56.0	83 18.5	-19.5	•70.2	83 41.9	-2.2	•87.5
39	78 51.3	-47.9	34.0	80 26.8	-43.6	40.7	81 51.6	-37.1	49.8	82 59.0	-26.7	62.3	83 39.7	-11.4	78.4
40	78 03.4	-49.6	31.0	79 43.2	-46.2	36.7	81 14.5	-40.9	44.4	82 32.3	-32.7	55.2	83 28.3	-19.9	69.7
41	77 13.8	-50.9	28.4	78 57.0	-48.2	33.2	80 33.6	-44.1	39.8	81 59.6	-37.6	48.9	83 08.4	-27.2	61.6
42	76 22.9	-52.1	26.1	78 08.8	-49.9	30.2	79 49.5	-46.6	35.8	81 22.0	-41.4	43.6	82 41.2	-33.3	54.3
43	75 30.8	-53.0	24.0	77 18.9	-51.2	27.6	79 02.9	-48.6	32.4	80 40.6	-44.6	38.9	82 07.9	-38.1	48.0
44	74 37.8	-53.8	22.2	76 27.7	-52.4	25.3	78 14.3	-50.2	29.4	79 56.0	-47.0	34.9	81 29.8	-42.1	42.6
45	73 44.0	-54.5	20.6	75 35.3	-53.2	23.3	77 24.1	-51.5	26.8	79 09.0	-49.0	31.5	80 47.7	-45.1	38.0
46	72 49.5	-55.0	19.1	74 42.1	-54.1	21.5	76 32.6	-52.7	24.5	78 20.0	-50.6	28.6	80 02.6	-47.5	34.0
47	71 54.5	-55.6	17.8	73 48.0	-54.6	19.9	75 39.9	-53.5	22.5	77 29.4	-51.9	26.0	79 15.1	-49.4	30.6
48	70 58.9	-55.9	16.6	72 53.4	-55.2	18.5	74 46.4	-54.2	20.8	76 37.5	-52.9	23.7	78 25.7	-50.9	27.5
49	70 03.0	-56.3	15.5	71 58.2	-55.7	17.2	73 52.2	-54.9	19.2	75 44.6	-53.7	21.8	77 34.8	-52.2	25.1
50	69 06.7	-56.6	14.5	71 02.5	-56.1	16.0	72 57.3	-55.4	17.8	74 50.9	-54.5	20.0	76 42.6	-53.2	22.9
51	68 10.1	-56.9	13.6	70 06.4	-56.5	14.9	72 01.9	-55.9	16.5	73 56.4	-55.1	18.5	75 49.4	-54.1	21.0
52	67 13.2	-57.2	12.8	69 09.9	-56.7	13.9	71 06.0	-56.2	15.3	73 01.3	-55.6	17.1	74 55.3	-54.7	19.2
53	66 16.0	-57.3	12.0	68 13.2	-57.0	13.0	70 09.8	-56.6	14.3	72 05.7	-56.1	15.8	74 00.6	-55.3	17.7
54	65 18.7	-57.6	11.3	67 17.2	-57.3	12.2	69 13.2	-56.9	13.3	71 09.6	-56.4	14.7	73 05.3	-55.8	16.3
55	64 21.1	-57.7	10.6	66 18.9	-57.4	11.5	68 16.3	-57.1	12.5	70 13.2	-56.7	13.6	72 09.5	-56.2	15.1
56	63 23.4	-57.8	10.0	65 21.5	-57.7	10.8	67 19.2	-57.4	11.6	69 16.5	-57.0	12.7	71 13.3	-56.6	14.0
57	62 25.6	-58.0	9.4	64 23.8	-57.8	10.1	66 21.8	-57.5	10.9	68 19.5	-57.3	11.8	70 16.7	-56.9	13.0
58	61 27.6	-58.1	8.9	63 26.0	-57.9	9.5	65 24.3	-57.8	10.2	67 22.2	-57.5	11.1	69 19.8	-57.2	12.1
59	60 29.5	-58.3	8.4	62 28.1	-58.1	8.9	64 26.5	-57.8	9.6	66 24.7	-57.6	10.3	68 22.6	-57.4	11.2
60	59 31.2	-58.3	7.9	61 30.0	-58.2	8.4	63 28.7	-58.1	9.0	65 27.1	-57.9	9.6	67 25.2	-57.6	10.4
61	58 32.9	-58.4	7.4	60 31.8	-58.3	7.9	62 30.6	-58.1	8.4	64 29.2	-57.9	9.0	66 27.6	-57.7	9.7
62	57 34.5	-58.5	7.0	59 33.5	-58.4	7.4	61 32.5	-58.3	7.9	63 31.3	-58.2	8.4	65 29.9	-58.0	9.1
63	56 36.0	-58.6	6.6	58 35.1	-58.4	7.0	60 34.2	-58.4	7.4	62 33.1	-58.2	7.9	64 31.9	-58.1	8.4
64	55 37.4	-58.7	6.2	57 36.7	-58.6	6.5	59 35.8	-58.4	6.9	61 34.9	-58.4	7.4	63 33.8	-58.2	7.9
65	54 38.7	-58.7	5.8	56 38.1	-58.6	6.1	58 37.4	-58.6	6.5	60 36.5	-58.4	6.9	62 35.6	-58.3	7.3
66	53 40.0	-58.7	5.5	55 39.5	-58.8	5.8	57 38.8	-58.6	6.1	59 38.1	-58.5	6.4	61 37.3	-58.4	6.8
67	52 41.3	-58.9	5.1	54 40.7	-58.7	5.4	56 40.2	-58.7	5.7	58 39.6	-58.6	6.0	60 38.9	-58.6	6.4
68	51 42.4	-58.9	4.8	53 42.0	-58.8	5.1	55 41.5	-58.8	5.3	57 41.0	-58.7	5.6	59 40.3	-58.6	5.9
69	50 43.5	-58.9	4.5	52 43.2	-58.9	4.7	54 42.7	-58.8	5.0	56 42.3	-58.8	5.2	58 41.7	-58.6	5.5
70	49 44.6	-58.9	4.2	51 44.3	-58.9	4.4	53 43.9	-58.9	4.6	55 43.5	-58.8	4.8	57 43.1	-58.8	5.1
71	48 45.7	-59.1	3.9	50 45.4	-59.0	4.1	52 45.0	-58.9	4.3	54 44.7	-58.9	4.5	56 44.3	-58.8	4.7
72	47 46.6	-59.0	3.7	49 46.4	-59.0	3.8	51 46.1	-59.0	4.0	53 45.8	-58.9	4.2	55 45.5	-58.9	4.4
73	46 47.6	-59.1	3.4	48 47.4	-59.1	3.5	50 47.1	-59.0	3.7	52 46.9	-59.0	3.9	54 46.6	-58.9	4.0
74	45 48.5	-59.1	3.2	47 48.3	-59.0	3.3	49 48.1	-59.0	3.4	51 47.9	-59.0	3.6	53 47.7	-59.0	3.7
75	44 49.4	-59.1	2.9	46 49.3	-59.2	3.0	48 49.1	-59.1	3.1	50 48.9	-59.1	3.3	52 48.7	-59.0	3.4
76	43 50.3	-59.2	2.7	45 50.1	-59.1	2.8	47 50.0	-59.1	2.9	49 49.8	-59.1	3.0	51 49.7	-59.1	3.1
77	42 51.1	-59.2	2.4	44 51.0	-59.2	2.5	46 50.9	-59.2	2.6	48 50.7	-59.1	2.7	50 50.6	-59.1	2.8
78	41 51.9	-59.2	2.2	43 51.8	-59.2	2.3	45 51.7	-59.2	2.4	47 51.6	-59.2	2.5	49 51.5	-59.2	2.6
79	40 52.7	-59.3	2.0	42 52.6	-59.2	2.1	44 52.5	-59.2	2.1	46 52.4	-59.2	2.2	48 52.3	-59.1	2.3
80	39 53.4	-59.2	1.8	41 53.4	-59.3	1.9	43 53.3	-59.2	1.9	45 53.2	-59.2	2.0	47 53.2	-59.2	2.1
81	38 54.2	-59.3	1.6	40 54.1	-59.3	1.7	42 54.1	-59.3	1.7	44 54.0	-59.2	1.8	46 54.0	-59.3	1.8
82	37 54.9	-59.3	1.4	39 54.8	-59.2	1.4	41 54.8	-59.3	1.5	43 54.8	-59.3	1.5	45 54.7	-59.2	1.6
83	36 55.6	-59.3	1.2	38 55.6	-59.4	1.2	40 55.5	-59.3	1.3	42 55.5	-59.3	1.3	44 55.5	-59.3	1.4
84	35 56.3	-59.4	1.0	37 56.2	-59.3	1.1	39 56.2	-59.3	1.1	41 56.2	-59.3	1.1	43 56.2	-59.3	1.2
85	34 56.9	-59.3	0.8	36 56.9	-59.3	0.9	38 56.9	-59.4	0.9	40 56.9	-59.4	0.9	42 56.9	-59.4	0.9
86	33 57.6	-59.4	0.7	35 57.6	-59.4	0.7	37 57.5	-59.3	0.7	39 57.5	-59.3	0.7	41 57.5	-59.3	0.7
87	32 58.2	-59.4	0.5	34 58.2	-59.4	0.5	36 58.2	-59.4	0.5	38 58.2	-59.4	0.5	40 58.2	-59.4	0.6
88	31 58.8	-59.4	0.3	33 58.8	-59.4	0.3	35 58.8	-59.4	0.3	37 58.8	-59.4	0.4	39 58.8	-59.4	0.4
89	30 59.4	-59.4	0.2	32 59.4	-59.4	0.2	34 59.4	-59.4	0.2	36 59.4	-59.4	0.2	38 59.4	-59.4	0.2
90	30 00.0	-59.4	0.0	32 00.0	-59.4	0.0	34 00.0	-59.4	0.0	36 00.0	-59.4	0.0	38 00.0	-59.4	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 8°, 352°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 31.1	-59.4	172.0	27 32.2	-59.4	172.2	25 33.3	-59.5	172.3	23 34.4	-59.6	172.4	21 35.4	-59.6	172.6	30
28 31.7	-59.5	172.2	26 32.8	-59.5	172.3	24 33.8	-59.5	172.5	22 34.8	-59.5	172.6	20 35.8	-59.6	172.7	31
27 32.2	-59.4	172.4	25 33.3	-59.5	172.5	23 34.3	-59.5	172.6	21 35.3	-59.6	172.7	19 36.2	-59.6	172.8	32
26 32.8	-59.5	172.5	24 33.8	-59.5	172.6	22 34.8	-59.6	172.7	20 35.7	-59.5	172.8	18 36.6	-59.6	172.9	33
25 33.3	-59.4	172.7	23 34.3	-59.5	172.8	21 35.2	-59.5	172.9	19 36.2	-59.6	173.0	17 37.0	-59.6	173.0	34
24 33.9	-59.5	172.8	22 34.8	-59.5	172.9	20 35.7	-59.5	173.0	18 36.6	-59.6	173.1	16 37.4	-59.6	173.2	35
23 34.4	-59.5	172.9	21 35.3	-59.5	173.0	19 36.2	-59.6	173.1	17 37.0	-59.6	173.2	15 37.8	-59.6	173.3	36
22 34.9	-59.5	173.1	20 35.8	-59.6	173.2	18 36.6	-59.6	173.3	16 37.4	-59.6	173.3	14 38.2	-59.6	173.4	37
21 35.4	-59.5	173.2	19 36.2	-59.5	173.3	17 37.0	-59.5	173.4	15 37.8	-59.6	173.5	13 38.6	-59.6	173.5	38
20 35.9	-59.5	173.4	18 36.7	-59.5	173.4	16 37.5	-59.6	173.5	14 38.2	-59.6	173.6	12 39.0	-59.6	173.6	39
19 36.4	-59.5	173.5	17 37.2	-59.6	173.6	15 37.9	-59.6	173.6	13 38.6	-59.6	173.7	11 39.4	-59.7	173.8	40
18 36.9	-59.5	173.6	16 37.6	-59.5	173.7	14 38.3	-59.5	173.8	12 39.0	-59.6	173.8	10 39.7	-59.6	173.9	41
17 37.4	-59.5	173.8	15 38.1	-59.6	173.8	13 38.8	-59.6	173.9	11 39.4	-59.6	173.9	9 40.1	-59.6	174.0	42
16 37.9	-59.6	173.9	14 38.5	-59.5	174.0	12 39.2	-59.6	174.0	10 39.8	-59.6	174.1	8 40.5	-59.6	174.1	43
15 38.3	-59.5	174.0	13 39.0	-59.6	174.1	11 39.6	-59.6	174.1	9 40.2	-59.6	174.2	7 40.9	-59.7	174.2	44
14 38.8	-59.5	174.2	12 39.4	-59.5	174.2	10 40.0	-59.6	174.3	8 40.6	-59.6	174.3	6 41.2	-59.6	174.3	45
13 39.3	-59.6	174.3	11 39.9	-59.6	174.3	9 40.4	-59.5	174.4	7 41.0	-59.6	174.4	5 41.6	-59.6	174.4	46
12 39.7	-59.5	174.4	10 40.3	-59.6	174.5	8 40.9	-59.6	174.5	6 41.4	-59.6	174.5	4 42.0	-59.6	174.5	47
11 40.2	-59.6	174.5	9 40.7	-59.5	174.6	7 41.3	-59.6	174.6	5 41.8	-59.6	174.6	3 42.3	-59.6	174.6	48
10 40.6	-59.5	174.7	8 41.2	-59.6	174.7	6 41.7	-59.6	174.7	4 42.2	-59.6	174.7	2 42.7	-59.7	174.8	49
9 41.1	-59.6	174.8	7 41.6	-59.6	174.8	5 42.1	-59.6	174.8	3 42.6	-59.6	174.9	1 43.3	-59.6	174.9	50
8 41.5	-59.5	174.9	6 42.0	-59.6	174.9	4 42.5	-59.6	175.0	2 42.9	-59.6	175.0	0 43.4	-59.6	175.0	51
7 42.0	-59.6	175.0	5 42.4	-59.5	175.1	3 42.9	-59.6	175.1	1 43.3	-59.6	175.1	0 16.2	+59.7	4.9	52
6 42.4	-59.5	175.2	4 42.9	-59.6	175.2	2 43.3	-59.6	175.2	0 43.7	-59.6	175.2	1 15.9	+59.6	4.8	53
5 42.9	-59.6	175.3	3 43.3	-59.6	175.3	1 43.7	-59.6	175.3	0 15.9	+59.6	4.7	2 15.5	+59.6	4.7	54
4 43.3	-59.5	175.4	2 43.7	-59.6	175.4	0 44.1	-59.6	175.4	1 15.5	+59.6	4.6	3 15.1	+59.7	4.6	55
3 43.8	-59.6	175.5	1 44.1	-59.6	175.5	0 15.5	+59.6	4.5	2 15.1	+59.7	4.5	4 14.8	+59.6	4.5	56
2 44.2	-59.6	175.6	0 44.5	-59.5	175.7	1 15.1	+59.6	4.3	3 14.8	+59.6	4.4	5 14.4	+59.7	4.4	57
1 44.6	-59.5	175.8	0 15.0	+59.6	4.2	2 14.7	+59.6	4.2	4 14.4	+59.6	4.2	6 14.1	+59.6	4.3	58
0 45.1	-59.6	175.9	1 14.6	+59.6	4.1	3 14.3	+59.6	4.1	5 14.0	+59.6	4.1	7 13.7	+59.6	4.1	59
0 14.5	+59.5	4.0	2 14.2	+59.6	4.0	4 13.9	+59.6	4.0	6 13.6	+59.6	4.0	8 13.3	+59.6	4.0	60
1 14.0	+59.6	3.9	3 13.8	+59.6	3.9	5 13.5	+59.6	3.9	7 13.2	+59.6	3.9	9 12.9	+59.7	3.9	61
2 13.6	+59.6	3.7	4 13.4	+59.5	3.8	6 13.1	+59.6	3.8	8 12.8	+59.6	3.8	10 12.6	+59.6	3.8	62
3 13.2	+59.5	3.6	5 12.9	+59.6	3.6	7 12.7	+59.6	3.7	9 12.4	+59.7	3.7	11 12.2	+59.6	3.7	63
4 12.7	+59.6	3.5	6 12.5	+59.6	3.5	8 12.3	+59.6	3.5	10 12.1	+59.6	3.6	12 11.8	+59.6	3.6	64
5 12.3	+59.6	3.4	7 12.1	+59.6	3.4	9 11.9	+59.6	3.4	11 11.7	+59.6	3.4	13 11.4	+59.7	3.5	65
6 11.9	+59.5	3.3	8 11.7	+59.5	3.3	10 11.5	+59.5	3.3	12 11.3	+59.6	3.3	14 11.1	+59.6	3.3	66
7 11.4	+59.6	3.1	9 11.2	+59.6	3.2	11 11.0	+59.6	3.2	13 10.9	+59.6	3.2	15 10.7	+59.6	3.2	67
8 11.0	+59.5	3.0	10 10.8	+59.6	3.0	12 10.6	+59.6	3.1	14 10.5	+59.5	3.1	16 10.3	+59.6	3.1	68
9 10.5	+59.6	2.9	11 10.4	+59.5	2.9	13 10.2	+59.6	2.9	15 10.0	+59.6	3.0	17 09.9	+59.6	3.0	69
10 10.1	+59.5	2.8	12 09.9	+59.6	2.8	14 09.8	+59.6	2.8	16 09.6	+59.6	2.8	18 09.5	+59.6	2.9	70
11 09.6	+59.6	2.6	13 09.5	+59.5	2.7	15 09.4	+59.5	2.7	17 09.2	+59.6	2.7	19 09.1	+59.6	2.7	71
12 09.2	+59.5	2.5	14 09.0	+59.6	2.5	16 08.9	+59.6	2.6	18 08.8	+59.6	2.6	20 08.7	+59.6	2.6	72
13 08.7	+59.5	2.4	15 08.6	+59.5	2.4	17 08.5	+59.5	2.4	19 08.4	+59.5	2.5	21 08.3	+59.5	2.5	73
14 08.2	+59.6	2.3	16 08.1	+59.6	2.3	18 08.0	+59.6	2.3	20 07.9	+59.6	2.3	22 07.8	+59.6	2.4	74
15 07.8	+59.5	2.1	17 07.7	+59.5	2.2	19 07.6	+59.5	2.2	21 07.5	+59.6	2.2	23 07.4	+59.6	2.2	75
16 07.3	+59.5	2.0	18 07.2	+59.6	2.0	20 07.1	+59.6	2.1	22 07.1	+59.5	2.1	24 07.0	+59.5	2.1	76
17 06.8	+59.5	1.9	19 06.8	+59.5	1.9	21 06.7	+59.5	1.9	23 06.6	+59.6	2.0	25 06.5	+59.6	2.0	77
18 06.3	+59.5	1.7	20 06.3	+59.5	1.8	22 06.2	+59.6	1.8	24 06.2	+59.5	1.8	26 06.1	+59.5	1.8	78
19 05.8	+59.6	1.6	21 05.8	+59.5	1.6	23 05.8	+59.5	1.7	25 05.7	+59.5	1.7	27 05.6	+59.6	1.7	79
20 05.4	+59.5	1.5	22 05.3	+59.5	1.5	24 05.3	+59.5	1.5	26 05.2	+59.6	1.5	28 05.2	+59.5	1.6	80
21 04.9	+59.5	1.3	23 04.8	+59.5	1.4	25 04.8	+59.5	1.4	27 04.8	+59.5	1.4	29 04.7	+59.5	1.4	81
22 04.4	+59.4	1.2	24 04.3	+59.5	1.2	26 04.3	+59.5	1.2	28 04.3	+59.5	1.3	30 04.2	+59.5	1.3	82
23 03.8	+59.5	1.1	25 03.8	+59.5	1.1	27 03.8	+59.5	1.1	29 03.8	+59.5	1.1	31 03.7	+59.6	1.1	83
24 03.3	+59.5	0.9	26 03.3	+59.5	0.9	28 03.3	+59.5	0.9	30 03.3	+59.5	1.0	32 03.3	+59.4	1.0	84
25 02.8	+59.4	0.8	27 02.8	+59.4	0.8	29 02.8	+59.4	0.8	31 02.8	+59.4	0.8	33 02.7	+59.5	0.8	85
26 02.2	+59.5	0.6	28 02.2	+59.5	0.6	30 02.2	+59.5	0.6	32 02.2	+59.5	0.7	34 02.2	+59.5	0.7	86
27 01.7	+59.4	0.5	29 01.7	+59.4	0.5	31 01.7	+59.4	0.5	33 01.7	+59.4	0.5	35 01.7	+59.4	0.5	87
28 01.1	+59.5	0.3	30 01.1	+59.5	0.3	32 01.1	+59.5	0.3	34 01.1	+59.5	0.3	36 01.1	+59.5	0.3	88
29 00.6	+59.4	0.2	31 00.6	+59.4	0.2	33 00.6	+59.4	0.2	35 00.6	+59.4	0.2	37 00.6	+59.4	0.2	89
30 00.0	+59.4	0.0	32 00.0	+59.4	0.0	34 00.0	+59.4	0.0	36 00.0	+59.4	0.0	38 00.0	+59.4	0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 172°, 188°

8°, 352° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	78 03.4	+ 50.7	144.4	76 22.9	+ 53.4	149.2	74 37.8	+ 55.2	153.0	72 49.5	+ 56.5	155.9	70 58.9	+ 57.4	158.3
31	78 54.1	+ 49.1	141.7	77 16.3	+ 52.5	147.2	75 33.0	+ 54.7	151.4	73 46.0	+ 56.1	154.7	71 56.3	+ 57.1	157.4
32	79 43.2	+ 47.0	138.6	78 08.8	+ 51.1	144.9	76 27.7	+ 53.8	149.7	74 42.1	+ 55.5	153.4	72 53.4	+ 56.7	156.3
33	80 30.2	+ 44.3	135.0	78 59.9	+ 49.6	142.3	77 21.5	+ 52.8	147.8	75 37.6	+ 55.0	152.0	73 50.1	+ 56.3	155.2
34	81 14.5	+ 41.1	130.7	79 49.5	+ 47.5	139.2	78 14.3	+ 51.6	145.5	76 32.6	+ 54.1	150.3	74 46.4	+ 55.9	153.9
35	81 55.6	+ 36.7	125.7	80 37.0	+ 45.0	135.6	79 05.9	+ 50.1	142.9	77 26.7	+ 53.3	148.4	75 42.3	+ 55.2	152.5
36	82 32.3	+ 31.4	119.9	81 22.0	+ 41.7	131.4	79 56.0	+ 48.1	139.9	78 20.0	+ 52.0	146.2	76 37.5	+ 54.6	150.9
37	83 03.7	+ 24.6	113.1	82 03.7	+ 37.5	126.4	80 44.1	+ 45.7	136.3	79 12.0	+ 50.6	143.6	77 32.1	+ 53.6	149.0
38	83 28.3	+ 16.6	105.3	82 41.2	+ 32.1	120.5	81 29.8	+ 42.4	132.1	80 02.6	+ 48.8	140.6	78 25.7	+ 52.6	146.9
39	83 44.9	+ 7.5	96.6	83 13.3	+ 25.3	113.6	82 12.2	+ 38.2	127.1	80 51.4	+ 46.3	137.1	79 18.3	+ 51.1	144.4
40	83 52.4	- 2.2	87.4	83 38.6	+ 17.1	105.7	82 50.4	+ 32.8	121.2	81 37.7	+ 43.1	132.9	80 09.4	+ 49.4	141.4
41	83 50.2	- 11.6	78.1	83 55.7	+ 7.7	96.8	83 23.2	+ 26.0	114.2	82 20.8	+ 39.0	127.9	80 58.8	+ 46.9	137.9
42	83 38.6	- 20.4	69.1	84 03.4	- 2.2	87.3	83 49.2	+ 17.6	106.1	82 59.8	+ 33.7	122.0	81 45.7	+ 44.0	133.8
43	83 18.2	- 27.8	60.8	84 01.2	- 12.0	77.7	84 06.8	+ 8.1	97.0	83 33.5	+ 26.7	114.9	82 29.7	+ 39.8	128.8
44	82 50.4	- 33.9	53.4	83 49.2	- 20.9	68.4	84 14.9	- 2.3	87.2	84 00.2	+ 18.2	106.6	83 09.5	+ 34.5	122.8
45	82 16.5	- 38.8	47.1	83 28.3	- 28.5	59.9	84 12.6	- 12.4	77.3	84 18.4	+ 8.3	97.2	83 44.0	+ 27.5	115.6
46	81 37.7	- 42.7	41.6	82 59.8	- 34.6	52.5	84 00.2	- 21.5	67.7	84 26.7	- 2.4	87.1	84 11.5	+ 18.9	107.2
47	80 55.0	- 45.6	37.0	82 25.2	- 39.5	46.0	83 38.7	- 29.2	59.0	84 24.3	- 12.8	76.8	84 30.4	+ 8.6	97.5
48	80 09.4	- 48.0	33.0	81 45.7	- 43.2	40.5	83 09.5	- 35.3	51.4	84 11.5	- 22.1	67.0	84 39.0	- 2.5	87.0
49	79 21.4	- 49.8	29.6	81 02.5	- 46.2	35.9	82 34.2	- 40.2	44.9	83 49.4	- 30.0	58.1	84 36.5	- 13.3	76.3
50	78 31.6	- 51.4	26.7	80 16.3	- 48.5	32.0	81 54.0	- 44.0	39.4	83 19.4	- 36.2	50.3	84 23.2	- 22.9	66.2
51	77 40.2	- 52.5	24.2	79 27.8	- 50.3	28.6	81 10.0	- 46.8	34.8	82 43.2	- 40.9	43.7	84 00.3	- 30.8	57.0
52	76 47.7	- 53.5	22.0	78 37.5	- 51.8	25.7	80 23.2	- 49.0	30.9	82 02.3	- 44.7	38.2	83 29.5	- 37.1	49.1
53	75 54.2	- 54.4	20.1	77 45.7	- 52.9	23.3	79 34.2	- 50.8	27.6	81 17.6	- 47.4	33.6	82 52.4	- 41.8	42.5
54	74 59.8	- 54.9	18.4	76 52.8	- 53.8	21.1	78 43.4	- 52.2	24.7	80 30.2	- 49.6	29.7	82 10.6	- 45.3	36.9
55	74 04.9	- 55.6	16.9	75 59.0	- 54.7	19.2	77 51.2	- 53.3	22.3	79 40.6	- 51.3	26.5	81 25.3	- 48.2	32.4
56	73 09.3	- 56.0	15.6	75 04.3	- 55.2	17.6	76 57.9	- 54.2	20.2	78 49.3	- 52.6	23.7	80 37.1	- 50.1	28.5
57	72 13.3	- 56.4	14.4	74 09.1	- 55.8	16.1	76 03.7	- 54.9	18.3	77 56.7	- 53.7	21.3	79 47.0	- 51.9	25.3
58	71 16.9	- 56.8	13.3	73 13.3	- 56.2	14.8	75 08.8	- 55.5	16.7	77 03.0	- 54.5	19.2	78 55.1	- 53.0	22.6
59	70 20.1	- 57.0	12.3	72 17.1	- 56.6	13.6	74 13.3	- 56.0	15.3	76 08.5	- 55.3	17.4	78 02.1	- 54.1	20.2
60	69 23.1	- 57.3	11.4	71 20.5	- 57.0	12.6	73 17.3	- 56.5	14.0	75 13.2	- 55.8	15.8	77 08.0	- 54.9	18.2
61	68 25.8	- 57.6	10.6	70 23.5	- 57.2	11.6	72 20.8	- 56.8	12.9	74 17.4	- 56.2	14.4	76 13.1	- 55.5	16.5
62	67 28.2	- 57.7	9.8	69 26.3	- 57.4	10.7	71 24.0	- 57.1	11.8	73 21.2	- 56.7	13.2	75 17.6	- 56.1	14.9
63	66 30.5	- 57.9	9.1	68 28.9	- 57.7	9.9	70 26.9	- 57.4	10.9	72 24.5	- 57.0	12.1	74 21.5	- 56.5	13.6
64	65 32.6	- 58.0	8.5	67 31.2	- 57.8	9.2	69 29.5	- 57.6	10.0	71 27.5	- 57.3	11.1	73 25.0	- 56.9	12.3
65	64 34.6	- 58.2	7.9	66 33.4	- 58.1	8.5	68 31.9	- 57.8	9.2	70 30.2	- 57.5	10.2	72 28.1	- 57.2	11.3
66	63 36.4	- 58.3	7.3	65 35.3	- 58.1	7.9	67 34.1	- 58.0	8.5	69 32.7	- 57.8	9.3	71 30.9	- 57.5	10.3
67	62 38.1	- 58.4	6.8	64 37.2	- 58.3	7.3	66 36.1	- 58.1	7.9	68 34.9	- 57.9	8.6	70 33.4	- 57.7	9.4
68	61 39.7	- 58.6	6.3	63 38.9	- 58.4	6.7	65 38.0	- 58.3	7.3	67 37.0	- 58.2	7.9	69 35.7	- 57.9	8.6
69	60 41.1	- 58.6	5.8	62 40.5	- 58.5	6.2	64 39.7	- 58.4	6.7	66 38.8	- 58.2	7.2	68 37.8	- 58.1	7.9
70	59 42.5	- 58.6	5.4	61 42.0	- 58.6	5.8	63 41.3	- 58.5	6.2	65 40.6	- 58.4	6.6	67 39.7	- 58.2	7.2
71	58 43.9	- 58.8	5.0	60 43.4	- 58.7	5.3	62 42.8	- 58.6	5.7	64 42.2	- 58.5	6.1	66 41.5	- 58.4	6.6
72	57 45.1	- 58.8	4.6	59 44.7	- 58.8	4.9	61 44.2	- 58.7	5.2	63 43.7	- 58.6	5.6	65 43.1	- 58.5	6.0
73	56 46.3	- 58.9	4.3	58 45.9	- 58.8	4.5	60 45.5	- 58.7	4.8	62 45.1	- 58.7	5.1	64 44.6	- 58.6	5.5
74	55 47.4	- 58.9	3.9	57 47.1	- 58.9	4.1	59 46.8	- 58.9	4.4	61 46.4	- 58.8	4.7	63 46.0	- 58.7	5.0
75	54 48.5	- 59.0	3.6	56 48.2	- 58.9	3.8	58 47.9	- 58.9	4.0	60 47.6	- 58.8	4.2	62 47.3	- 58.8	4.5
76	53 49.5	- 59.1	3.3	55 49.3	- 59.0	3.4	57 49.0	- 58.9	3.6	59 48.8	- 58.9	3.8	61 48.5	- 58.9	4.1
77	52 50.4	- 59.0	3.0	54 50.3	- 59.1	3.1	56 50.1	- 59.0	3.3	58 49.9	- 59.0	3.5	60 49.6	- 58.9	3.7
78	51 51.4	- 59.2	2.7	53 51.2	- 59.1	2.8	55 51.1	- 59.1	3.0	57 50.9	- 59.0	3.1	59 50.7	- 59.0	3.3
79	50 52.2	- 59.1	2.4	52 52.1	- 59.1	2.5	54 52.0	- 59.1	2.6	56 51.9	- 59.1	2.8	58 51.7	- 59.0	2.9
80	49 53.1	- 59.2	2.1	51 53.0	- 59.2	2.2	53 52.9	- 59.1	2.3	55 52.8	- 59.1	2.5	57 52.7	- 59.1	2.6
81	48 53.9	- 59.2	1.9	50 53.8	- 59.2	2.0	52 53.8	- 59.2	2.1	54 53.7	- 59.2	2.2	56 53.6	- 59.2	2.3
82	47 54.7	- 59.3	1.7	49 54.6	- 59.2	1.7	51 54.6	- 59.3	1.8	53 54.5	- 59.2	1.9	55 54.4	- 59.2	2.0
83	46 55.4	- 59.3	1.4	48 55.4	- 59.3	1.5	50 55.3	- 59.2	1.5	52 55.3	- 59.2	1.6	54 55.2	- 59.2	1.7
84	45 56.1	- 59.3	1.2	47 56.1	- 59.3	1.2	49 56.1	- 59.3	1.3	51 56.1	- 59.3	1.4	53 56.0	- 59.2	1.4
85	44 56.8	- 59.3	1.0	46 56.8	- 59.3	1.0	48 56.8	- 59.3	1.1	50 56.8	- 59.3	1.1	52 56.8	- 59.3	1.2
86	43 57.5	- 59.3	0.8	45 57.5	- 59.3	0.8	47 57.5	- 59.3	0.8	49 57.5	- 59.4	0.9	51 57.5	- 59.4	0.9
87	42 58.2	- 59.4	0.6	44 58.2	- 59.4	0.6	46 58.2	- 59.4	0.6	48 58.1	- 59.3	0.6	50 58.1	- 59.3	0.7
88	41 58.8	- 59.4	0.4	43 58.8	- 59.4	0.4	45 58.8	- 59.4	0.4	47 58.8	- 59.4	0.4	49 58.8	- 59.4	0.4
89	40 59.4	- 59.4	0.2	42 59.4	- 59.4	0.2	44 59.4	- 59.4	0.2	46 59.4	- 59.4	0.2	48 59.4	- 59.4	0.2
90	40 00.0	- 59.4	0.0	42 00.0	- 59.4	0.0	44 00.0	- 59.4	0.0	46 00.0	- 59.4	0.0	48 00.0	- 59.4	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 8°, 352°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
19 36.4 -59.6 172.6			17 37.4 -59.7 172.7			15 38.3 -59.6 172.8			13 39.3 -59.7 172.9			11 40.2 -59.7 172.9			30
18 36.8 -59.6 172.8			16 37.7 -59.6 172.8			14 38.7 -59.7 172.9			12 39.6 -59.7 173.0			10 40.5 -59.8 173.0			31
17 37.2 -59.7 172.9			15 38.1 -59.7 173.0			13 39.0 -59.7 173.0			11 39.9 -59.7 173.1			9 40.7 -59.7 173.1			32
16 37.5 -59.6 173.0			14 38.4 -59.6 173.1			12 39.3 -59.7 173.1			10 40.2 -59.8 173.2			8 41.0 -59.7 173.2			33
15 37.9 -59.6 173.1			13 38.8 -59.7 173.2			11 39.6 -59.7 173.2			9 40.4 -59.7 173.3			7 41.3 -59.8 173.3			34
14 38.3 -59.7 173.2			12 39.1 -59.7 173.3			10 39.9 -59.7 173.3			8 40.7 -59.7 173.4			6 41.5 -59.7 173.4			35
13 38.6 -59.6 173.3			11 39.4 -59.6 173.4			9 40.2 -59.7 173.4			7 41.0 -59.7 173.5			5 41.8 -59.7 173.5			36
12 39.0 -59.6 173.5			10 39.8 -59.7 173.5			8 40.5 -59.6 173.5			6 41.3 -59.7 173.6			4 42.1 -59.8 173.6			37
11 39.4 -59.7 173.6			9 40.1 -59.7 173.6			7 40.9 -59.7 173.6			5 41.6 -59.7 173.7			3 42.3 -59.7 173.7			38
10 39.7 -59.6 173.7			8 40.4 -59.6 173.7			6 41.2 -59.7 173.7			4 41.9 -59.7 173.8			2 42.6 -59.8 173.8			39
9 40.1 -59.7 173.8			7 40.8 -59.7 173.8			5 41.5 -59.7 173.8			3 42.2 -59.8 173.9			1 42.8 -59.7 173.9			40
8 40.4 -59.6 173.9			6 41.1 -59.7 173.9			4 41.8 -59.7 174.0			2 42.4 -59.7 174.0			0 43.1 -59.7 174.0			41
7 40.8 -59.7 174.0			5 41.4 -59.6 174.0			3 42.1 -59.7 174.1			1 42.7 -59.7 174.1			0 16.6 +59.8 5.9			42
6 41.1 -59.6 174.1			4 41.8 -59.7 174.1			2 42.4 -59.7 174.2			0 43.0 -59.7 174.2			1 16.4 +59.7 5.8			43
5 41.5 -59.7 174.2			3 42.1 -59.7 174.2			1 42.7 -59.7 174.3			0 16.7 +59.7 5.7			2 16.1 +59.8 5.8			44
4 41.8 -59.6 174.3			2 42.4 -59.7 174.3			0 43.0 -59.7 174.3			1 16.4 +59.8 5.6			3 15.9 +59.7 5.7			45
3 42.2 -59.7 174.4			1 42.7 -59.7 174.4			0 16.7 +59.7 5.5			2 16.2 +59.7 5.6			4 15.6 +59.7 5.6			46
2 42.5 -59.7 174.5			0 43.0 -59.6 174.6			1 16.4 +59.7 5.4			3 15.9 +59.7 5.5			5 15.3 +59.8 5.5			47
1 42.8 -59.6 174.7			0 16.6 +59.7 5.3			2 16.1 +59.7 5.3			4 15.6 +59.7 5.4			6 15.1 +59.7 5.4			48
0 43.2 -59.7 174.8			1 16.3 +59.7 5.2			3 15.8 +59.7 5.2			5 15.3 +59.7 5.3			7 14.8 +59.7 5.3			49
0 16.5 +59.6 5.1			2 16.0 +59.7 5.1			4 15.5 +59.7 5.1			6 15.0 +59.7 5.2			8 14.5 +59.8 5.2			50
1 16.1 +59.7 5.0			3 15.7 +59.6 5.0			5 15.2 +59.7 5.0			7 14.7 +59.8 5.1			9 14.3 +59.7 5.1			51
2 15.8 +59.6 4.9			4 15.3 +59.7 4.9			6 14.9 +59.7 4.9			8 14.5 +59.7 5.0			10 14.0 +59.7 5.0			52
3 15.4 +59.7 4.8			5 15.0 +59.7 4.8			7 14.6 +59.7 4.8			9 14.2 +59.7 4.9			11 13.7 +59.8 4.9			53
4 15.1 +59.7 4.7			6 14.7 +59.7 4.7			8 14.3 +59.7 4.7			10 13.9 +59.7 4.8			12 13.5 +59.7 4.8			54
5 14.8 +59.6 4.6			7 14.4 +59.6 4.6			9 14.0 +59.7 4.6			11 13.6 +59.7 4.7			13 13.2 +59.7 4.7			55
6 14.4 +59.7 4.5			8 14.0 +59.7 4.5			10 13.7 +59.7 4.5			12 13.3 +59.7 4.6			14 12.9 +59.7 4.6			56
7 14.1 +59.6 4.4			9 13.7 +59.7 4.4			11 13.4 +59.6 4.4			13 13.0 +59.7 4.5			15 12.6 +59.7 4.5			57
8 13.7 +59.7 4.3			10 13.4 +59.6 4.3			12 13.0 +59.7 4.3			14 12.7 +59.7 4.4			16 12.3 +59.8 4.4			58
9 13.4 +59.6 4.2			11 13.0 +59.7 4.2			13 12.7 +59.7 4.2			15 12.4 +59.7 4.3			17 12.1 +59.7 4.3			59
10 13.0 +59.7 4.1			12 12.7 +59.7 4.1			14 12.4 +59.7 4.1			16 12.1 +59.7 4.2			18 11.8 +59.7 4.2			60
11 12.7 +59.6 3.9			13 12.4 +59.6 4.0			15 12.1 +59.7 4.0			17 11.8 +59.7 4.1			19 11.5 +59.7 4.1			61
12 12.3 +59.6 3.8			14 12.0 +59.7 3.9			16 11.8 +59.6 3.9			18 11.5 +59.7 3.9			20 11.2 +59.7 4.0			62
13 11.9 +59.7 3.7			15 11.7 +59.6 3.8			17 11.4 +59.7 3.8			19 11.2 +59.6 3.8			21 10.9 +59.7 3.9			63
14 11.6 +59.6 3.6			16 11.3 +59.7 3.6			18 11.1 +59.7 3.7			20 10.8 +59.7 3.7			22 10.6 +59.7 3.8			64
15 11.2 +59.6 3.5			17 11.0 +59.6 3.5			19 10.8 +59.6 3.5			21 10.5 +59.6 3.6			23 10.3 +59.7 3.7			65
16 10.8 +59.7 3.4			18 10.6 +59.7 3.4			20 10.4 +59.7 3.5			22 10.2 +59.7 3.5			24 10.0 +59.7 3.6			66
17 10.5 +59.6 3.3			19 10.3 +59.6 3.3			21 10.1 +59.6 3.3			23 09.9 +59.6 3.4			25 09.7 +59.6 3.4			67
18 10.1 +59.6 3.1			20 09.9 +59.6 3.2			22 09.7 +59.7 3.2			24 09.5 +59.7 3.3			26 09.3 +59.7 3.3			68
19 09.7 +59.6 3.0			21 09.5 +59.7 3.1			23 09.4 +59.6 3.1			25 09.2 +59.6 3.2			27 09.0 +59.7 3.2			69
20 09.3 +59.6 2.9			22 09.2 +59.6 2.9			24 09.0 +59.7 3.0			26 08.8 +59.7 3.0			28 08.7 +59.6 3.1			70
21 08.9 +59.6 2.8			23 08.8 +59.6 2.8			25 08.7 +59.6 2.9			27 08.5 +59.6 2.9			29 08.3 +59.7 3.0			71
22 08.5 +59.6 2.7			24 08.4 +59.6 2.7			26 08.3 +59.6 2.7			28 08.1 +59.7 2.8			30 08.0 +59.6 2.9			72
23 08.1 +59.6 2.5			25 08.0 +59.6 2.6			27 07.9 +59.6 2.6			29 07.8 +59.6 2.7			31 07.6 +59.7 2.7			73
24 07.7 +59.6 2.4			26 07.6 +59.6 2.4			28 07.5 +59.6 2.5			30 07.4 +59.6 2.5			32 07.3 +59.6 2.6			74
25 07.3 +59.6 2.3			27 07.2 +59.6 2.3			29 07.1 +59.6 2.4			31 07.0 +59.6 2.4			33 06.9 +59.6 2.5			75
26 06.9 +59.6 2.1			28 06.8 +59.6 2.2			30 06.7 +59.6 2.2			32 06.6 +59.6 2.3			34 06.5 +59.7 2.3			76
27 06.5 +59.5 2.0			29 06.4 +59.6 2.1			31 06.3 +59.6 2.1			33 06.2 +59.6 2.1			35 06.2 +59.6 2.2			77
28 06.0 +59.6 1.9			30 06.0 +59.5 1.9			32 05.9 +59.6 2.0			34 05.8 +59.6 2.0			36 05.8 +59.6 2.1			78
29 05.6 +59.5 1.7			31 05.5 +59.6 1.8			33 05.5 +59.5 1.8			35 05.4 +59.6 1.9			37 05.4 +59.5 1.9			79
30 05.1 +59.6 1.6			32 05.1 +59.5 1.6			34 05.0 +59.6 1.7			36 05.0 +59.6 1.7			38 04.9 +59.6 1.8			80
31 04.7 +59.5 1.5			33 04.6 +59.6 1.5			35 04.6 +59.5 1.5			37 04.6 +59.5 1.6			39 04.5 +59.6 1.6			81
32 04.2 +59.5 1.3			34 04.2 +59.5 1.3			36 04.1 +59.6 1.4			38 04.1 +59.5 1.4			40 04.1 +59.5 1.5			82
33 03.7 +59.5 1.2			35 03.7 +59.5 1.2			37 03.7 +59.5 1.2			39 03.6 +59.6 1.3			41 03.6 +59.6 1.3			83
34 03.2 +59.5 1.0			36 03.2 +59.5 1.0			38 03.2 +59.5 1.1			40 03.2 +59.5 1.1			42 03.2 +59.5 1.1			84
35 02.7 +59.5 0.8			37 02.7 +59.5 0.9			39 02.7 +59.5 0.9			41 02.7 +59.5 0.9			43 02.7 +59.5 1.0			85
36 02.2 +59.5 0.7			38 02.2 +59.5 0.7			40 02.2 +59.5 0.7			42 02.2 +59.5 0.7			44 02.2 +59.5 0.8			86
37 01.7 +59.4 0.5			39 01.7 +59.4 0.5			41 01.7 +59.4 0.6			43 01.7 +59.4 0.6			45 01.7 +59.4 0.6			87
38 01.1 +59.5 0.4			40 01.1 +59.5 0.4			42 01.1 +59.5 0.4			44 01.1 +59.5 0.4			46 01.1 +59.5 0.4			88
39 00.6 +59.4 0.2			41 00.6 +59.4 0.2			43 00.6 +59.4 0.2			45 00.6 +59.4 0.2			47 00.6 +59.4 0.2			89
40 00.0 +59.4 0.0			42 00.0 +59.4 0.0			44 00.0 +59.4 0.0			46 00.0 +59.4 0.0			48 00.0 +59.4 0.0			90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 172°, 188°

8°, 352° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 06.7	+58.0	160.2	67 13.2	+58.4	161.9	65 18.7	+58.8	163.2	63 23.4	+59.1	164.4	61 27.6	+59.2	165.4
31	70 04.7	+57.8	159.5	68 11.6	+58.3	161.3	66 17.5	+58.7	162.7	64 22.5	+59.0	164.0	62 26.8	+59.2	165.1
32	71 02.5	+57.5	158.7	69 09.9	+58.2	160.6	67 16.2	+58.6	162.2	65 21.5	+58.9	163.6	63 26.0	+59.2	164.7
33	72 00.0	+57.3	157.8	70 08.1	+57.9	159.9	68 14.8	+58.4	161.6	66 20.4	+58.8	163.1	64 25.2	+59.1	164.3
34	72 57.3	+57.0	156.8	71 06.0	+57.8	159.1	69 13.2	+58.3	161.0	67 19.2	+58.7	162.6	65 24.3	+59.0	163.9
35	73 54.3	+56.6	155.7	72 03.8	+57.5	158.3	70 11.5	+58.1	160.3	68 17.9	+58.6	162.0	66 23.3	+58.9	163.5
36	74 50.9	+56.1	154.5	73 01.3	+57.2	157.3	71 09.6	+58.0	159.6	69 16.5	+58.5	161.4	67 22.2	+58.9	163.0
37	75 47.0	+55.6	153.1	73 58.5	+56.8	156.3	72 07.6	+57.7	158.8	70 15.0	+58.3	160.8	68 21.1	+58.7	162.5
38	76 42.6	+54.9	151.5	74 55.3	+56.5	155.1	73 05.3	+57.4	157.9	71 13.3	+58.1	160.1	69 19.8	+58.6	161.9
39	77 37.5	+54.1	149.7	75 51.8	+55.9	153.7	74 02.7	+57.1	156.8	72 11.4	+57.9	159.3	70 18.4	+58.5	161.3
40	78 31.6	+53.0	147.6	76 47.7	+55.3	152.2	74 59.8	+56.8	155.7	73 09.3	+57.7	158.4	71 16.9	+58.3	160.6
41	79 24.6	+51.7	145.1	77 43.0	+54.5	150.4	75 56.6	+56.2	154.4	74 07.0	+57.3	157.4	72 15.2	+58.1	159.8
42	80 16.3	+49.9	142.3	78 37.5	+53.5	148.4	76 52.8	+55.7	152.9	75 04.3	+57.0	156.3	73 13.3	+57.9	159.0
43	81 06.2	+47.8	138.8	79 31.0	+52.2	146.0	77 48.5	+54.9	151.2	76 01.3	+56.6	155.1	74 11.2	+57.6	158.1
44	81 54.0	+44.7	134.7	80 23.2	+50.6	143.2	78 43.4	+54.0	149.2	76 57.9	+56.0	153.6	75 08.8	+57.3	157.0
45	82 38.7	+40.7	129.8	81 13.8	+48.5	139.8	79 37.4	+52.8	146.9	77 53.9	+55.4	152.0	76 06.1	+56.9	155.8
46	83 19.4	+35.4	123.7	82 02.3	+45.5	135.7	80 30.2	+51.2	144.1	78 49.3	+54.5	150.1	77 03.0	+56.4	154.4
47	83 54.8	+28.4	116.5	82 47.8	+41.7	130.8	81 21.4	+49.2	140.8	79 43.8	+53.3	147.8	77 59.4	+56.7	152.9
48	84 23.2	+19.5	107.8	83 29.5	+36.4	124.8	82 10.6	+46.5	136.8	80 37.1	+52.0	145.2	78 55.1	+56.0	151.0
49	84 42.7	+8.9	97.8	84 05.9	+29.3	117.4	82 57.1	+42.6	131.9	81 29.1	+49.9	141.9	79 50.1	+54.0	148.8
50	84 51.6	-2.6	86.9	84 35.2	+20.2	108.5	83 39.7	+37.4	125.9	82 19.0	+47.4	138.0	80 44.1	+52.6	146.2
51	84 49.0	-13.8	75.8	84 55.4	+9.2	98.2	84 17.1	+30.3	118.4	83 06.4	+43.6	133.1	81 36.7	+50.7	143.1
52	84 35.2	-23.7	65.3	85 04.6	-2.7	86.8	84 47.4	+21.0	109.3	83 50.0	+38.5	127.1	82 27.4	+48.3	139.3
53	84 11.5	-31.8	55.8	85 01.9	-14.5	75.2	85 08.4	+9.6	98.6	84 28.5	+31.4	119.5	83 15.7	+44.7	134.5
54	83 39.7	-38.0	47.8	84 47.4	-24.6	64.3	85 18.0	-3.0	86.8	84 59.9	+21.9	110.2	84 00.4	+39.6	128.4
55	83 01.7	-42.7	41.1	84 22.8	-32.8	54.6	85 15.0	-15.1	74.6	85 21.8	+9.9	99.1	84 40.0	+32.6	120.8
56	82 19.0	-46.1	35.6	83 50.0	-39.0	46.4	84 59.9	-25.6	63.2	85 31.7	-3.2	86.7	85 12.6	+22.8	111.3
57	81 32.9	-48.8	31.0	83 11.0	-43.6	39.7	84 34.3	-33.9	53.2	85 28.5	-15.9	73.9	85 35.4	+10.4	99.7
58	80 44.1	-50.8	27.3	82 27.4	-47.0	34.2	84 00.4	-40.1	44.9	85 12.6	-26.8	62.0	85 45.8	-3.5	86.6
59	79 53.3	-52.3	24.1	81 40.4	-49.5	29.7	83 20.3	-44.6	38.2	84 45.8	-35.1	51.8	85 42.3	-16.9	73.2
60	79 01.0	-53.6	21.4	80 50.9	-51.4	25.9	82 35.7	-47.8	32.7	84 10.7	-41.2	43.3	85 25.4	-28.0	60.7
61	78 07.4	-54.4	19.1	79 59.5	-52.8	22.8	81 47.9	-50.2	28.2	83 29.5	-45.5	36.5	84 57.4	-36.4	50.1
62	77 13.0	-55.3	17.2	79 06.7	-54.0	20.2	80 57.7	-52.1	24.6	82 44.0	-48.7	31.1	84 21.0	-42.4	41.6
63	76 17.7	-55.8	15.5	78 12.7	-54.9	18.0	80 05.6	-53.4	21.5	81 55.3	-51.0	26.7	83 38.6	-46.6	34.8
64	75 21.9	-56.4	14.0	77 17.8	-55.6	16.1	79 12.2	-54.4	19.0	81 04.3	-52.7	23.1	82 52.0	-49.6	29.4
65	74 25.5	-56.7	12.7	76 22.2	-56.2	14.5	78 17.8	-55.3	16.9	80 11.6	-53.9	20.2	82 02.4	-51.7	25.1
66	73 28.8	-57.2	11.5	75 26.0	-56.6	13.0	77 22.5	-56.0	15.0	79 17.7	-55.0	17.7	81 10.7	-53.3	21.7
67	72 31.6	-57.4	10.4	74 29.4	-57.0	11.7	76 26.5	-56.4	13.4	78 22.7	-55.7	15.7	80 17.4	-54.5	18.8
68	71 34.2	-57.6	9.5	73 32.4	-57.4	10.6	75 30.1	-56.9	12.0	77 27.0	-56.3	13.9	79 22.9	-55.4	16.4
69	70 36.6	-57.9	8.6	72 35.0	-57.6	9.6	74 33.2	-57.3	10.8	76 30.7	-56.8	12.3	78 27.5	-56.1	14.4
70	69 38.7	-58.1	7.9	71 37.4	-57.8	8.7	73 35.9	-57.6	9.7	75 33.9	-57.1	11.0	77 31.4	-56.7	12.7
71	68 40.6	-58.2	7.2	70 39.6	-58.1	7.9	72 38.3	-57.8	8.7	74 36.8	-57.6	9.8	76 34.7	-57.1	11.3
72	67 42.4	-58.4	6.5	69 41.5	-58.2	7.1	71 40.5	-58.0	7.9	73 39.2	-57.7	8.8	75 37.6	-57.4	10.0
73	66 44.0	-58.5	5.9	68 43.3	-58.4	6.4	70 42.5	-58.2	7.1	72 41.5	-58.1	7.9	74 40.2	-57.8	8.9
74	65 45.5	-58.6	5.4	67 44.9	-58.5	5.8	69 44.3	-58.4	6.4	71 43.4	-58.2	7.0	73 42.4	-58.0	7.9
75	64 46.9	-58.7	4.8	66 46.4	-58.6	5.2	68 45.9	-58.5	5.7	70 45.2	-58.4	6.3	72 44.4	-58.2	7.0
76	63 48.2	-58.8	4.4	65 47.8	-58.7	4.7	67 47.4	-58.7	5.1	69 46.8	-58.5	5.6	71 46.2	-58.4	6.2
77	62 49.4	-58.9	3.9	64 49.1	-58.8	4.2	66 48.7	-58.7	4.6	68 48.3	-58.6	5.0	70 47.8	-58.5	5.5
78	61 50.5	-58.9	3.5	63 50.3	-58.9	3.8	65 50.0	-58.9	4.1	67 49.7	-58.8	4.4	69 49.3	-58.7	4.8
79	60 51.6	-59.1	3.1	62 51.4	-59.0	3.3	64 51.1	-58.9	3.6	66 50.9	-58.9	3.9	68 50.6	-58.8	4.2
80	59 52.5	-59.0	2.8	61 52.4	-59.0	2.9	63 52.2	-59.0	3.1	65 52.0	-58.9	3.4	67 51.8	-58.9	3.7
81	58 53.5	-59.1	2.4	60 53.4	-59.1	2.6	62 53.2	-59.0	2.7	64 53.1	-59.0	2.9	66 52.9	-59.0	3.2
82	57 54.4	-59.2	2.1	59 54.3	-59.2	2.2	61 54.2	-59.1	2.4	63 54.1	-59.1	2.5	65 53.9	-59.0	2.7
83	56 55.2	-59.2	1.8	58 55.1	-59.2	1.9	60 55.1	-59.2	2.0	62 55.0	-59.2	2.1	64 54.9	-59.1	2.3
84	55 56.0	-59.3	1.5	57 55.9	-59.2	1.6	59 55.9	-59.2	1.7	61 55.8	-59.2	1.8	63 55.8	-59.2	1.9
85	54 56.7	-59.3	1.2	56 56.7	-59.3	1.3	58 56.7	-59.3	1.3	60 56.6	-59.2	1.4	62 56.6	-59.2	1.5
86	53 57.4	-59.3	0.9	55 57.4	-59.3	1.0	57 57.4	-59.3	1.0	59 57.4	-59.3	1.1	61 57.4	-59.3	1.2
87	52 58.1	-59.3	0.7	54 58.1	-59.3	0.7	56 58.1	-59.3	0.8	58 58.1	-59.3	0.8	60 58.1	-59.3	0.9
88	51 58.8	-59.4	0.5	53 58.8	-59.4	0.5	55 58.8	-59.4	0.5	57 58.8	-59.4	0.5	59 58.8	-59.4	0.6
89	50 59.4	-59.4	0.2	52 59.4	-59.4	0.2	54 59.4	-59.4	0.2	56 59.4	-59.4	0.3	58 59.4	-59.4	0.3
90	50 00.0	-59.4	0.0	52 00.0	-59.4	0.0	54 00.0	-59.4	0.0	56 00.0	-59.4	0.0	58 00.0	-59.4	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 8°, 352°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9 41.1 -59.8 173.0	7 42.0 -59.8 173.0	5 42.9 -59.8 173.0	3 43.8 -59.9 173.1	1 44.6 -59.8 173.1	30										
8 41.3 -59.7 173.1	6 42.2 -59.8 173.1	4 43.1 -59.8 173.1	2 43.9 -59.8 173.1	0 44.8 -59.8 173.1	31										
7 41.6 -59.8 173.2	5 42.4 -59.7 173.2	3 43.3 -59.8 173.2	1 44.1 -59.8 173.2	0 15.0 +59.9 6.8	32										
6 41.8 -59.7 173.3	4 42.7 -59.8 173.3	2 43.5 -59.8 173.3	0 44.3 -59.8 173.3	1 14.9 +59.8 6.7	33										
5 42.1 -59.8 173.3	3 42.9 -59.8 173.4	1 43.7 -59.8 173.4		2 14.7 +59.8 6.6	34										
4 42.3 -59.7 173.4	2 43.1 -59.8 173.4	0 43.9 -59.8 173.5	0 15.5 +59.8 6.6	3 14.5 +59.9 6.6	35										
3 42.6 -59.8 173.5	1 43.3 -59.8 173.5	0 15.9 +59.8 6.5	1 15.3 +59.8 6.5	4 14.4 +59.8 6.5	36										
2 42.8 -59.8 173.6	0 43.5 -59.7 173.6	1 15.7 +59.8 6.4	2 15.1 +59.9 6.5	5 14.2 +59.9 6.4	37										
1 43.0 -59.7 173.7	0 16.2 +59.8 6.3	2 15.5 +59.8 6.3	3 15.0 +59.8 6.4	6 14.1 +59.8 6.3	38										
0 43.3 -59.8 173.8	1 16.0 +59.8 6.2	3 15.3 +59.8 6.2	4 14.8 +59.8 6.3	7 13.9 +59.8 6.3	39										
0 16.5 +59.7 6.1	2 15.8 +59.8 6.1	4 15.1 +59.8 6.1	5 14.6 +59.8 6.2	8 13.7 +59.9 6.2	40										
1 16.2 +59.8 6.0	3 15.6 +59.7 6.0	5 14.9 +59.8 6.1	6 14.4 +59.8 6.2	9 13.6 +59.8 6.1	41										
2 16.0 +59.8 5.9	4 15.3 +59.8 6.0	6 14.7 +59.8 6.0	7 14.2 +59.8 6.1	10 13.4 +59.8 6.0	42										
3 15.8 +59.7 5.9	5 15.1 +59.8 5.9	7 14.5 +59.8 5.9	8 14.0 +59.9 6.0	11 13.2 +59.8 6.0	43										
4 15.5 +59.8 5.8	6 14.9 +59.8 5.8	8 14.3 +59.8 5.8	9 13.9 +59.8 5.9	12 13.0 +59.9 5.9	44										
5 15.3 +59.7 5.7	7 14.7 +59.8 5.7	9 14.1 +59.8 5.7	10 13.7 +59.8 5.8	13 12.9 +59.8 5.8	45										
6 15.0 +59.8 5.6	8 14.5 +59.7 5.6	10 13.9 +59.8 5.6	11 13.5 +59.8 5.8	14 12.7 +59.8 5.7	46										
7 14.8 +59.7 5.5	9 14.2 +59.8 5.5	11 13.7 +59.8 5.6	12 13.3 +59.8 5.7	15 12.5 +59.8 5.6	47										
8 14.5 +59.8 5.4	10 14.0 +59.8 5.4	12 13.5 +59.7 5.5	13 13.1 +59.8 5.6	16 12.3 +59.9 5.6	48										
9 14.3 +59.7 5.3	11 13.8 +59.7 5.3	13 13.2 +59.8 5.4	14 12.9 +59.8 5.5	17 12.2 +59.8 5.5	49										
10 14.0 +59.8 5.2	12 13.5 +59.8 5.3	14 13.0 +59.8 5.3	15 12.7 +59.8 5.4	18 12.0 +59.8 5.4	50										
11 13.8 +59.7 5.1	13 13.3 +59.8 5.2	15 12.8 +59.8 5.2	16 12.5 +59.8 5.3	19 11.8 +59.8 5.3	51										
12 13.5 +59.8 5.0	14 13.1 +59.7 5.1	16 12.6 +59.8 5.1	17 12.3 +59.8 5.1	20 11.6 +59.8 5.2	52										
13 13.3 +59.7 4.9	15 12.8 +59.8 5.0	17 12.4 +59.8 5.0	18 12.1 +59.8 5.2	21 11.4 +59.8 5.2	53										
14 13.0 +59.8 4.8	16 12.6 +59.8 4.9	18 12.2 +59.7 4.9	19 11.9 +59.8 5.1	22 11.2 +59.9 5.1	54										
15 12.8 +59.7 4.7	17 12.4 +59.7 4.8	19 11.9 +59.8 4.8	20 11.7 +59.8 4.8	23 11.1 +59.8 5.0	55										
16 12.5 +59.8 4.6	18 12.1 +59.8 4.7	20 11.7 +59.8 4.8	21 11.5 +59.8 4.9	24 10.9 +59.8 4.9	56										
17 12.3 +59.7 4.6	19 11.9 +59.7 4.6	21 11.5 +59.7 4.7	22 11.3 +59.8 4.8	25 10.7 +59.8 4.8	57										
18 12.0 +59.7 4.5	20 11.6 +59.8 4.5	22 11.2 +59.8 4.6	23 11.1 +59.8 4.7	26 10.5 +59.8 4.7	58										
19 11.7 +59.7 4.4	21 11.4 +59.7 4.4	23 11.0 +59.8 4.5	24 10.9 +59.7 4.6	27 10.3 +59.7 4.6	59										
20 11.4 +59.8 4.3	22 11.1 +59.8 4.3	24 10.8 +59.7 4.4	25 10.6 +59.8 4.5	28 10.0 +59.8 4.5	60										
21 11.2 +59.7 4.1	23 10.9 +59.7 4.2	25 10.5 +59.8 4.3	26 10.4 +59.8 4.4	29 09.8 +59.8 4.4	61										
22 10.9 +59.7 4.0	24 10.6 +59.7 4.1	26 10.3 +59.7 4.2	27 10.2 +59.8 4.3	30 09.6 +59.8 4.3	62										
23 10.6 +59.7 3.9	25 10.3 +59.8 4.0	27 10.0 +59.8 4.1	28 10.0 +59.7 4.3	31 09.4 +59.8 4.2	63										
24 10.3 +59.7 3.8	26 10.1 +59.7 3.9	28 09.8 +59.7 4.0	29 09.7 +59.8 4.1	32 09.2 +59.7 4.1	64										
25 10.0 +59.7 3.7	27 09.8 +59.7 3.8	29 09.5 +59.7 3.9	30 09.5 +59.7 4.0	33 08.9 +59.8 4.0	65										
26 09.7 +59.7 3.6	28 09.5 +59.7 3.7	30 09.2 +59.8 3.8	31 09.2 +59.8 3.9	34 08.7 +59.8 3.9	66										
27 09.4 +59.7 3.5	29 09.2 +59.7 3.6	31 09.0 +59.7 3.6	32 09.0 +59.7 3.8	35 08.5 +59.7 3.8	67										
28 09.1 +59.7 3.4	30 08.9 +59.7 3.5	32 08.7 +59.7 3.5	33 08.7 +59.8 3.7	36 08.2 +59.8 3.7	68										
29 08.8 +59.7 3.3	31 08.6 +59.7 3.3	33 08.4 +59.7 3.4	34 08.5 +59.7 3.6	37 08.0 +59.7 3.6	69										
30 08.5 +59.7 3.2	32 08.3 +59.7 3.2	34 08.1 +59.7 3.3	35 08.2 +59.7 3.5	38 07.7 +59.7 3.5	70										
31 08.2 +59.6 3.0	33 08.0 +59.7 3.1	35 07.8 +59.7 3.2	36 07.9 +59.7 3.4	39 07.4 +59.8 3.3	71										
32 07.8 +59.7 2.9	34 07.7 +59.7 3.0	36 07.5 +59.7 3.1	37 07.6 +59.7 3.3	40 07.2 +59.7 3.2	72										
33 07.5 +59.7 2.8	35 07.4 +59.6 2.9	37 07.2 +59.7 2.9	38 07.3 +59.7 3.1	41 06.9 +59.7 3.1	73										
34 07.2 +59.6 2.7	36 07.0 +59.7 2.7	38 06.9 +59.7 2.8	39 07.0 +59.7 3.0	42 06.6 +59.7 3.0	74										
35 06.8 +59.6 2.5	37 06.7 +59.6 2.6	39 06.6 +59.6 2.7	40 06.7 +59.7 2.9	43 06.3 +59.7 2.8	75										
36 06.4 +59.7 2.4	38 06.3 +59.7 2.5	40 06.2 +59.7 2.5	41 06.4 +59.7 2.7	44 06.0 +59.6 2.7	76										
37 06.1 +59.6 2.2	39 06.0 +59.6 2.3	41 05.9 +59.6 2.4	42 06.1 +59.7 2.6	45 05.6 +59.7 2.5	77										
38 05.7 +59.6 2.1	40 05.6 +59.6 2.2	42 05.5 +59.6 2.2	43 05.8 +59.6 2.5	46 05.3 +59.7 2.4	78										
39 05.3 +59.6 2.0	41 05.2 +59.6 2.0	43 05.1 +59.7 2.1	44 05.4 +59.7 2.3	47 05.0 +59.6 2.2	79										
40 04.9 +59.6 1.8	42 04.8 +59.6 1.9	44 04.8 +59.6 1.9	45 05.1 +59.6 2.2	48 04.6 +59.6 2.1	80										
41 04.5 +59.5 1.7	43 04.4 +59.6 1.7	45 04.4 +59.5 1.8	46 04.7 +59.6 2.0	49 04.2 +59.6 1.9	81										
42 04.0 +59.6 1.5	44 04.0 +59.6 1.5	46 03.9 +59.6 1.6	47 04.3 +59.6 1.8	50 03.8 +59.6 1.7	82										
43 03.6 +59.5 1.3	45 03.6 +59.5 1.4	47 03.5 +59.6 1.4	48 03.9 +59.6 1.7	51 03.4 +59.6 1.5	83										
44 03.1 +59.6 1.2	46 03.1 +59.5 1.2	48 03.1 +59.5 1.2	49 03.5 +59.5 1.5	52 03.0 +59.6 1.4	84										
45 02.7 +59.5 1.0	47 02.6 +59.5 1.0	49 02.6 +59.5 1.1	50 03.0 +59.6 1.3	53 02.6 +59.5 1.2	85										
46 02.2 +59.5 0.8	48 02.1 +59.5 0.8	50 02.1 +59.5 0.9	51 02.6 +59.5 1.1	54 02.1 +59.5 0.9	86										
47 01.7 +59.4 0.6	49 01.6 +59.5 0.6	51 01.6 +59.5 0.7	52 02.1 +59.5 0.9	55 01.6 +59.5 0.7	87										
48 01.1 +59.5 0.4	50 01.1 +59.5 0.4	52 01.1 +59.5 0.5	53 01.6 +59.5 0.7	56 01.1 +59.5 0.5	88										
49 00.6 +59.4 0.2	51 00.6 +59.4 0.2	53 00.6 +59.4 0.2	54 01.1 +59.5 0.5	57 00.6 +59.4 0.3	89										
50 00.0 +59.4 0.0	52 00.0 +59.4 0.0	54 00.0 +59.4 0.0	55 00.6 +59.4 0.2	58 00.0 +59.4 0.0	90										
50°	52°	54°	56°	58°											

LATITUDE SAME NAME

L.H.A. 172°, 188°

10°, 350° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	81 20.5	-0.8	•87.5	81 12.1	+13.0	•100.5	80 37.8	+25.4	•112.5	79 41.9	+35.2	•122.8	78 29.6	+42.3	•131.1
31	81 19.7	-7.6	•80.9	81 25.1	+6.3	•94.1	81 03.2	+19.7	•106.8	80 17.1	+31.0	•118.1	79 11.9	+39.5	•127.4
32	81 12.1	-14.1	•74.3	81 31.4	-0.8	•87.3	81 22.9	+13.4	•100.7	80 48.1	+26.0	•112.9	79 51.4	+35.9	•123.3
33	80 58.0	-20.2	•68.0	81 30.6	-7.7	•80.6	81 36.3	+6.5	•94.1	81 14.1	+20.2	•107.1	80 27.3	+31.6	•118.6
34	80 37.8	-25.6	•62.2	81 22.9	-14.3	•73.9	81 42.8	-0.7	•87.2	81 34.3	+13.8	•100.8	80 58.9	+26.6	•113.3
35	80 12.2	-30.3	•56.7	81 08.6	-20.5	•67.5	81 42.1	-7.8	•80.3	81 48.1	+6.7	•94.1	81 25.5	+20.8	•107.4
36	79 41.9	-34.4	•51.8	80 48.1	-26.0	•61.5	81 34.3	-14.6	•73.4	81 54.8	-0.6	•87.1	81 46.3	+14.2	•101.0
37	79 07.5	-37.9	•47.3	80 22.1	-30.7	•56.0	81 19.7	-20.8	•66.9	81 54.2	-7.9	•79.9	82 00.5	+6.9	•94.1
38	78 29.6	-40.8	•43.3	79 51.4	-34.9	•51.0	80 58.9	-26.4	•60.8	81 46.3	-14.9	•73.0	82 07.4	-0.5	•86.9
39	77 48.8	-43.3	•39.7	79 16.5	-38.3	•46.5	80 32.5	-31.2	•55.2	81 31.4	-21.2	•66.3	82 06.9	-8.1	•79.6
40	77 05.5	-45.3	•36.5	78 38.2	-41.2	•42.5	80 01.3	-35.3	•50.1	81 10.2	-26.9	•60.1	81 58.8	-15.2	•72.5
41	76 20.2	-47.1	•33.7	77 57.0	-43.7	•38.9	79 26.0	-38.8	•45.6	80 43.3	-31.7	•54.4	81 43.6	-21.6	•65.6
42	75 33.1	-48.6	•31.1	77 13.3	-45.7	•35.7	78 47.2	-41.7	•41.6	80 11.6	-35.9	•49.3	81 22.0	-27.4	•59.3
43	74 44.5	-49.9	•28.9	76 27.6	-47.5	•32.8	78 05.5	-44.2	•38.0	79 35.7	-39.3	•44.7	80 54.6	-32.4	•53.5
44	73 54.6	-50.9	•26.8	75 40.1	-48.9	•30.3	77 21.3	-46.1	•34.8	78 56.4	-42.2	•40.6	80 22.2	-36.4	•48.3
45	73 03.7	-51.8	•24.9	74 51.2	-50.1	•28.0	76 35.2	-47.9	•32.0	78 14.2	-44.6	•37.0	79 45.8	-39.9	•43.7
46	72 11.9	-52.6	•23.2	74 01.1	-51.2	•26.0	75 47.3	-49.2	•29.4	77 29.6	-46.6	•33.8	79 05.9	-42.8	•39.6
47	71 19.3	-53.3	•21.7	73 09.9	-52.1	•24.1	74 58.1	-50.5	•27.2	76 43.0	-48.3	•31.0	78 23.1	-45.1	•36.0
48	70 26.0	-53.9	•20.3	72 17.8	-52.9	•22.5	74 07.6	-51.5	•25.1	75 54.7	-49.6	•28.5	77 38.0	-47.1	•32.9
49	69 32.1	-54.4	•19.0	71 24.9	-53.5	•20.9	73 16.1	-52.4	•23.3	75 05.1	-50.9	•26.3	76 50.9	-48.7	•30.0
50	68 37.7	-54.9	•17.8	70 31.4	-54.1	•19.6	72 23.7	-53.1	•21.7	74 14.2	-51.8	•24.3	76 02.2	-50.0	•27.6
51	67 42.8	-55.3	•16.7	69 37.3	-54.6	•18.3	71 30.6	-53.8	•20.2	73 22.4	-52.7	•22.5	75 12.2	-51.2	•25.3
52	66 47.5	-55.6	•15.7	68 42.7	-55.1	•17.1	70 36.8	-54.3	•18.8	72 29.7	-53.4	•20.8	74 21.0	-52.2	•23.3
53	65 51.9	-55.9	•14.8	67 47.6	-55.4	•16.1	69 42.5	-54.8	•17.5	71 36.3	-54.0	•19.3	73 28.8	-53.0	•21.6
54	64 56.0	-56.3	•13.9	66 52.2	-55.8	•15.1	68 47.7	-55.3	•16.4	70 42.3	-54.5	•18.0	72 35.8	-53.7	•20.0
55	63 59.7	-56.4	•13.1	65 56.4	-56.1	•14.1	67 52.4	-55.6	•15.3	69 47.8	-55.1	•16.8	71 42.1	-54.2	•18.5
56	63 03.3	-56.7	•12.4	65 00.3	-56.4	•13.3	66 56.8	-56.0	•14.4	68 52.7	-55.4	•15.6	70 47.9	-54.9	•17.2
57	62 06.6	-57.0	•11.7	64 03.9	-56.6	•12.5	66 00.8	-56.2	•13.5	67 57.3	-55.8	•14.6	69 53.0	-55.2	•16.0
58	61 09.6	-57.1	•11.0	63 07.3	-56.8	•11.7	65 04.6	-56.5	•12.6	67 01.5	-56.2	•13.6	68 57.8	-55.7	•14.9
59	60 12.5	-57.2	•10.4	62 10.5	-57.1	•11.0	64 08.1	-56.8	•11.8	66 05.3	-56.4	•12.7	68 02.1	-56.0	•13.8
60	59 15.3	-57.4	•9.8	61 13.4	-57.2	•10.4	63 11.3	-56.9	•11.1	65 08.9	-56.7	•11.9	67 06.1	-56.3	•12.9
61	58 17.9	-57.6	•9.2	60 16.2	-57.4	•9.8	62 14.4	-57.2	•10.4	64 12.2	-56.9	•11.2	66 09.8	-56.6	•12.0
62	57 20.3	-57.7	•8.7	59 18.8	-57.5	•9.2	61 17.2	-57.3	•9.8	63 15.3	-57.1	•10.4	65 13.2	-56.8	•11.2
63	56 22.6	-57.8	•8.2	58 21.3	-57.6	•8.6	60 19.9	-57.5	•9.2	62 18.2	-57.2	•9.8	64 16.4	-57.1	•10.5
64	55 24.8	-57.9	•7.7	57 23.7	-57.8	•8.1	59 22.4	-57.6	•8.6	61 21.0	-57.5	•9.1	63 19.3	-57.2	•9.8
65	54 26.9	-58.0	•7.3	56 25.9	-57.9	•7.6	58 24.8	-57.8	•8.1	60 23.5	-57.6	•8.5	62 22.1	-57.4	•9.1
66	53 28.9	-58.1	•6.8	55 28.0	-58.0	•7.2	57 27.0	-57.9	•7.5	59 25.9	-57.7	•8.0	61 24.7	-57.6	•8.5
67	52 30.8	-58.2	•6.4	54 30.0	-58.1	•6.7	56 29.1	-57.9	•7.1	58 28.2	-57.9	•7.5	60 27.1	-57.7	•7.9
68	51 32.6	-58.2	•6.0	53 31.9	-58.1	•6.3	55 31.2	-58.1	•6.6	57 30.3	-57.9	•7.0	59 29.4	-57.8	•7.4
69	50 34.4	-58.4	•5.6	52 33.8	-58.3	•5.9	54 33.1	-58.2	•6.2	56 32.4	-58.1	•6.5	58 31.6	-58.0	•6.8
70	49 36.0	-58.4	•5.3	51 35.5	-58.3	•5.5	53 34.9	-58.2	•5.7	55 34.3	-58.2	•6.0	57 33.6	-58.1	•6.4
71	48 37.6	-58.4	•4.9	50 37.2	-58.4	•5.1	52 36.7	-58.3	•5.3	54 36.1	-58.2	•5.6	56 35.5	-58.1	•5.9
72	47 39.2	-58.5	•4.6	49 38.8	-58.5	•4.8	51 38.4	-58.4	•5.0	53 37.9	-58.3	•5.2	55 37.4	-58.3	•5.5
73	46 40.7	-58.6	•4.2	48 40.3	-58.5	•4.4	50 40.0	-58.5	•4.6	52 39.6	-58.5	•4.8	54 39.1	-58.3	•5.0
74	45 42.1	-58.6	•3.9	47 41.8	-58.6	•4.1	49 41.5	-58.5	•4.2	51 41.1	-58.4	•4.4	53 40.8	-58.4	•4.6
75	44 43.5	-58.7	•3.6	46 43.2	-58.6	•3.8	48 43.0	-58.6	•3.9	50 42.7	-58.6	•4.1	52 42.4	-58.5	•4.3
76	43 44.8	-58.7	•3.3	45 44.6	-58.7	•3.5	47 44.4	-58.6	•3.6	49 44.1	-58.6	•3.7	51 43.9	-58.6	•3.9
77	42 46.1	-58.7	•3.1	44 45.9	-58.7	•3.2	46 45.8	-58.7	•3.3	48 45.5	-58.6	•3.4	50 45.3	-58.6	•3.5
78	41 47.4	-58.8	•2.8	43 47.2	-58.7	•2.9	45 47.1	-58.8	•3.0	47 46.9	-58.7	•3.1	49 46.7	-58.6	•3.2
79	40 48.6	-58.8	•2.5	42 48.5	-58.8	•2.6	44 48.3	-58.7	•2.7	46 48.2	-58.7	•2.8	48 48.1	-58.8	•2.9
80	39 49.8	-58.9	•2.3	41 49.7	-58.9	•2.3	43 49.6	-58.8	•2.4	45 49.5	-58.8	•2.5	47 49.3	-58.7	•2.6
81	38 50.9	-58.9	•2.0	40 50.8	-58.8	•2.1	42 50.8	-58.9	•2.1	44 50.7	-58.9	•2.2	46 50.6	-58.8	•2.3
82	37 52.0	-58.9	•1.8	39 52.0	-58.9	•1.8	41 51.9	-58.9	•1.9	43 51.8	-58.8	•1.9	45 51.8	-58.9	•2.0
83	36 53.1	-58.9	•1.5	38 53.1	-59.0	•1.6	40 53.0	-58.9	•1.6	42 53.0	-58.9	•1.7	44 52.9	-58.9	•1.7
84	35 54.2	-59.0	•1.3	37 54.1	-58.9	•1.3	39 54.1	-59.0	•1.4	41 54.1	-59.0	•1.4	43 54.0	-58.9	•1.4
85	34 55.2	-59.0	•1.1	36 55.2	-59.0	•1.1	38 55.1	-58.9	•1.1	40 55.1	-58.9	•1.1	42 55.1	-59.0	•1.2
86	33 56.2	-59.0	•0.8	35 56.2	-59.0	•0.9	37 56.2	-59.0	•0.9	39 56.2	-59.0	•0.9	41 56.1	-59.0	•0.9
87	32 57.2	-59.1	•0.6	34 57.2	-59.1	•0.6	36 57.2	-59.1	•0.7	38 57.2	-59.1	•0.7	40 57.1	-59.0	•0.7
88	31 58.1	-59.0	•0.4	33 58.1	-59.0	•0.4	35 58.1	-59.0	•0.4	37 58.1	-59.0	•0.4	39 58.1	-59.0	•0.5
89	30 59.1	-59.1	•0.2	32 59.1	-59.1	•0.2	34 59.1	-59.1	•0.2	36 59.1	-59.1	•0.2	38 59.1	-59.1	•0.2
90	30 00.0	-59.1	•0.0	32 00.0	-59.1	•0.0	34 00.0	-59.1	•0.0	36 00.0	-59.1	•0.0	38 00.0	-59.1	•0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 10°, 350°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 14.9 -59.1 170.1			27 16.7 -59.2 170.3			25 18.4 -59.2 170.4			23 20.0 -59.3 170.6			21 21.6 -59.3 170.7			30
28 15.8 -59.1 170.3			26 17.5 -59.2 170.4			24 19.2 -59.3 170.6			22 20.7 -59.3 170.7			20 22.3 -59.4 170.9			31
27 16.7 -59.1 170.5			25 18.3 -59.2 170.6			23 19.9 -59.3 170.8			21 21.4 -59.3 170.9			19 22.9 -59.3 171.0			32
26 17.6 -59.2 170.7			24 19.1 -59.2 170.8			22 20.6 -59.2 170.9			20 22.1 -59.3 171.1			18 23.6 -59.4 171.2			33
25 18.4 -59.2 170.8			23 19.9 -59.2 171.0			21 21.4 -59.3 171.1			19 22.8 -59.3 171.2			17 24.2 -59.4 171.3			34
24 19.2 -59.2 171.0			22 20.7 -59.3 171.2			20 22.1 -59.3 171.3			18 23.5 -59.4 171.4			16 24.8 -59.4 171.5			35
23 20.0 -59.1 171.2			21 21.4 -59.2 171.3			19 22.8 -59.3 171.4			17 24.1 -59.3 171.5			15 25.4 -59.4 171.6			36
22 20.9 -59.3 171.4			20 22.2 -59.3 171.5			18 23.5 -59.3 171.6			16 24.8 -59.4 171.7			14 26.0 -59.4 171.8			37
21 21.6 -59.2 171.6			19 22.9 -59.2 171.7			17 24.2 -59.3 171.8			15 25.4 -59.4 171.8			13 26.6 -59.4 171.9			38
20 22.4 -59.2 171.7			18 23.7 -59.3 171.8			16 24.9 -59.4 171.9			14 26.0 -59.3 172.0			12 27.2 -59.4 172.1			39
19 23.2 -59.2 171.9			17 24.4 -59.3 172.0			15 25.5 -59.3 172.1			13 26.7 -59.4 172.1			11 27.8 -59.4 172.2			40
18 24.0 -59.3 172.1			16 25.1 -59.3 172.1			14 26.2 -59.3 172.2			12 27.3 -59.4 172.3			10 28.4 -59.4 172.3			41
17 24.7 -59.2 172.2			15 25.8 -59.3 172.3			13 26.9 -59.4 172.4			11 27.9 -59.4 172.4			9 29.0 -59.5 172.5			42
16 25.5 -59.3 172.4			14 26.5 -59.3 172.5			12 27.5 -59.3 172.5			10 28.5 -59.3 172.6			8 29.5 -59.4 172.6			43
15 26.2 -59.3 172.6			13 27.2 -59.3 172.6			11 28.2 -59.4 172.7			9 29.2 -59.4 172.7			7 30.1 -59.4 172.8			44
14 26.9 -59.2 172.7			12 27.9 -59.3 172.8			10 28.8 -59.3 172.8			8 30.7 -59.4 172.9			6 30.7 -59.4 172.9			45
13 27.7 -59.3 172.9			11 28.6 -59.3 172.9			9 29.5 -59.4 173.0			7 30.4 -59.4 173.0			5 31.3 -59.5 173.0			46
12 28.4 -59.3 173.0			10 29.3 -59.4 173.1			8 30.1 -59.3 173.1			6 31.0 -59.4 173.2			4 31.8 -59.4 173.2			47
11 29.1 -59.3 173.2			9 29.9 -59.3 173.2			7 30.8 -59.4 173.3			5 31.6 -59.4 173.3			3 32.4 -59.4 173.3			48
10 29.8 -59.3 173.3			8 30.6 -59.3 173.4			6 31.4 -59.4 173.4			4 32.2 -59.4 173.4			2 33.0 -59.5 173.5			49
9 30.5 -59.3 173.5			7 31.3 -59.4 173.5			5 32.0 -59.3 173.6			3 32.8 -59.4 173.6			1 33.5 -59.4 173.6			50
8 31.2 -59.3 173.7			6 31.9 -59.3 173.7			4 32.7 -59.4 173.7			2 33.4 -59.4 173.7			0 34.1 -59.4 173.7			51
7 31.9 -59.3 173.8			5 32.6 -59.3 173.8			3 33.3 -59.4 173.9			1 34.0 -59.4 173.9			0 25.3 +59.5 6.1			52
6 32.6 -59.3 174.0			4 33.3 -59.4 174.0			2 33.9 -59.4 174.0			0 34.6 -59.4 174.0			1 24.8 +59.4 6.0			53
5 33.3 -59.3 174.1			3 33.9 -59.3 174.1			1 34.5 -59.3 174.1			0 24.8 +59.4 5.9			2 24.2 +59.4 5.9			54
4 34.0 -59.3 174.3			2 34.6 -59.4 174.3			0 35.2 -59.4 174.3			1 24.2 +59.4 5.7			3 23.6 +59.5 5.7			55
3 34.7 -59.4 174.4			1 35.2 -59.3 174.4			0 24.2 +59.4 5.6			2 23.6 +59.4 5.6			4 23.1 +59.4 5.6			56
2 35.3 -59.3 174.6			0 35.9 -59.4 174.6			1 23.6 +59.4 5.4			3 23.0 +59.5 5.4			5 22.5 +59.4 5.5			57
1 36.0 -59.3 174.7			0 23.5 +59.3 5.3			2 23.0 +59.3 5.3			4 22.5 +59.4 5.3			6 21.9 +59.5 5.3			58
0 36.7 -59.3 174.9			1 22.8 +59.4 5.1			3 22.3 +59.4 5.1			5 21.9 +59.3 5.2			7 21.4 +59.4 5.2			59
0 22.6 +59.3 5.0			2 22.2 +59.3 5.0			4 21.7 +59.4 5.0			6 21.2 +59.4 5.0			8 20.8 +59.4 5.0			60
1 21.9 +59.3 4.8			3 21.5 +59.3 4.8			5 21.1 +59.3 4.9			7 20.6 +59.4 4.9			9 20.2 +59.4 4.9			61
2 21.2 +59.4 4.7			4 20.8 +59.4 4.7			6 20.4 +59.4 4.7			8 20.0 +59.4 4.7			10 19.6 +59.4 4.8			62
3 20.6 +59.3 4.5			5 20.2 +59.3 4.5			7 19.8 +59.4 4.6			9 19.4 +59.4 4.6			11 19.0 +59.5 4.6			63
4 19.9 +59.3 4.4			6 19.5 +59.4 4.4			8 19.2 +59.3 4.4			10 18.8 +59.4 4.4			12 18.5 +59.4 4.5			64
5 19.2 +59.3 4.2			7 18.9 +59.3 4.2			9 18.5 +59.4 4.3			11 18.2 +59.4 4.3			13 17.9 +59.4 4.3			65
6 18.5 +59.3 4.1			8 18.2 +59.3 4.1			10 17.9 +59.3 4.1			12 17.6 +59.4 4.1			14 17.3 +59.4 4.2			66
7 17.8 +59.3 3.9			9 17.5 +59.4 3.9			11 17.2 +59.4 4.0			13 17.0 +59.3 4.0			15 16.7 +59.3 4.0			67
8 17.1 +59.3 3.8			10 16.9 +59.3 3.8			12 16.6 +59.3 3.8			14 16.3 +59.4 3.8			16 16.0 +59.4 3.9			68
9 16.4 +59.3 3.6			11 16.2 +59.3 3.6			13 15.9 +59.4 3.7			15 15.7 +59.3 3.7			17 15.4 +59.4 3.7			69
10 15.7 +59.3 3.5			12 15.5 +59.3 3.5			14 15.3 +59.3 3.5			16 15.0 +59.4 3.5			18 14.8 +59.4 3.6			70
11 15.0 +59.3 3.3			13 14.8 +59.3 3.3			15 14.6 +59.3 3.4			17 14.4 +59.3 3.4			19 14.2 +59.3 3.4			71
12 14.3 +59.3 3.1			14 14.1 +59.3 3.2			16 13.9 +59.3 3.2			18 13.7 +59.4 3.2			20 13.5 +59.4 3.3			72
13 13.6 +59.3 3.0			15 13.4 +59.3 3.0			17 13.2 +59.4 3.0			19 13.1 +59.3 3.1			21 12.9 +59.3 3.1			73
14 12.9 +59.2 2.8			16 12.7 +59.3 2.9			18 12.6 +59.3 2.9			20 12.4 +59.3 2.9			22 12.2 +59.4 3.0			74
15 12.1 +59.3 2.7			17 12.0 +59.3 2.7			19 11.9 +59.3 2.7			21 11.7 +59.3 2.8			23 11.6 +59.3 2.8			75
16 11.4 +59.2 2.5			18 11.3 +59.2 2.5			20 11.2 +59.2 2.6			22 11.0 +59.3 2.6			24 10.9 +59.3 2.6			76
17 10.6 +59.3 2.3			19 10.5 +59.3 2.4			21 10.4 +59.3 2.4			23 10.3 +59.3 2.4			25 10.2 +59.3 2.5			77
18 09.9 +59.2 2.2			20 09.8 +59.3 2.2			22 09.7 +59.3 2.2			24 09.6 +59.3 2.3			26 09.5 +59.3 2.3			78
19 09.1 +59.3 2.0			21 09.1 +59.2 2.0			23 09.0 +59.2 2.1			25 08.9 +59.3 2.1			27 08.8 +59.3 2.1			79
20 08.4 +59.2 1.8			22 08.3 +59.2 1.9			24 08.2 +59.3 1.9			26 08.2 +59.2 1.9			28 08.1 +59.3 2.0			80
21 07.6 +59.2 1.7			23 07.5 +59.3 1.7			25 07.5 +59.2 1.7			27 07.4 +59.3 1.7			29 07.4 +59.2 1.8			81
22 06.8 +59.2 1.5			24 06.8 +59.2 1.5			26 06.7 +59.2 1.5			28 06.7 +59.2 1.6			30 06.6 +59.3 1.6			82
23 06.0 +59.2 1.3			25 06.0 +59.2 1.3			27 05.9 +59.2 1.4			29 05.9 +59.2 1.4			31 05.9 +59.2 1.4			83
24 05.2 +59.2 1.1			26 05.2 +59.1 1.2			28 05.1 +59.2 1.2			30 05.1 +59.2 1.2			32 05.1 +59.2 1.2			84
25 04.4 +59.1 1.0			27 04.3 +59.2 1.0			29 04.3 +59.2 1.0			31 04.3 +59.2 1.0			33 04.3 +59.2 1.0			85
26 03.5 +59.2 0.8			28 03.5 +59.2 0.8			30 03.5 +59.1 0.8			32 03.5 +59.1 0.8			34 03.5 +59.1 0.8			86
27 02.7 +59.1 0.6			29 02.7 +59.1 0.6			31 02.6 +59.2 0.6			33 02.6 +59.2 0.6			35 02.6 +59.2 0.6			87
28 01.8 +59.1 0.4			30 01.8 +59.1 0.4			32 01.8 +59.1 0.4			34 01.8 +59.1 0.4			36 01.8 +59.1 0.4			88
29 00.9 +59.1 0.2			31 00.9 +59.1 0.2			33 00.9 +59.1 0.2			35 00.9 +59.1 0.2			37 00.9 +59.1 0.2			89
30 00.0 +59.1 0.0			32 00.0 +59.1 0.0			34 00.0 +59.1 0.0			36 00.0 +59.1 0.0			38 00.0 +59.1 0.0			90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 170°, 190°

10°, 350° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	77 05.5	+47.3	137.7	75 33.1	+50.7	142.9	73 54.6	+53.2	147.1	72 11.9	+54.9	150.5	70 26.0	+56.1	153.3
31	77 52.8	+45.4	134.8	76 23.8	+49.5	140.7	74 47.8	+52.3	145.4	73 06.8	+54.3	149.2	71 22.1	+55.7	152.2
32	78 38.2	+43.0	131.6	77 13.3	+47.9	138.3	75 40.1	+51.3	143.5	74 01.1	+53.5	147.7	72 17.8	+55.2	151.0
33	79 21.2	+40.1	128.0	78 01.2	+46.0	135.4	76 31.4	+49.9	141.3	74 54.6	+52.7	146.0	73 13.0	+54.6	149.7
34	80 01.3	+36.6	123.8	78 47.2	+43.6	132.2	77 21.3	+48.5	138.9	75 47.3	+51.8	144.1	74 07.6	+54.0	148.2
35	80 37.9	+32.3	119.1	79 30.8	+40.8	128.6	78 09.8	+46.6	136.1	76 39.1	+50.5	142.0	75 01.6	+53.1	146.6
36	81 10.2	+27.3	113.8	80 11.6	+37.3	124.4	78 56.4	+44.3	132.9	77 29.6	+49.0	139.6	75 54.7	+52.2	144.7
37	81 37.5	+21.3	107.8	80 48.9	+33.1	119.7	79 40.7	+41.5	129.3	78 18.6	+47.3	136.8	76 46.9	+51.1	142.7
38	81 58.8	+14.6	101.2	81 22.0	+27.9	114.3	80 22.2	+38.1	125.1	79 05.9	+45.0	133.7	77 38.0	+49.7	140.3
39	82 13.4	+7.2	94.2	81 49.9	+22.0	108.2	81 00.3	+33.8	120.3	79 50.9	+42.3	130.0	78 27.7	+47.9	137.6
40	82 20.6	-0.5	86.8	82 11.9	+15.0	101.5	81 34.1	+28.7	114.9	80 33.2	+38.8	125.9	79 15.6	+45.7	134.5
41	82 20.1	-8.2	79.3	82 26.9	+7.5	94.3	82 02.8	+22.6	108.7	81 12.0	+34.7	121.1	80 01.3	+43.1	130.9
42	82 11.9	-15.6	71.9	82 34.4	-0.5	86.6	82 25.4	+15.5	101.8	81 46.7	+29.5	115.5	80 44.4	+39.7	126.7
43	81 56.3	-22.2	64.9	82 33.9	-8.5	78.9	82 40.9	+7.8	94.4	82 16.2	+23.2	109.2	81 24.1	+35.5	121.9
44	81 34.1	-28.0	58.4	82 25.4	-16.0	71.3	82 48.7	-0.6	86.5	82 39.4	+16.1	102.2	81 59.6	+30.3	116.3
45	81 06.1	-32.9	52.5	82 09.4	-22.7	64.1	82 48.1	-8.7	78.5	82 55.5	+8.0	94.5	82 29.9	+24.0	109.9
46	80 33.2	-37.1	47.3	81 46.7	-28.7	57.5	82 39.4	-16.4	70.7	83 03.5	-0.6	86.4	82 53.9	+16.6	102.6
47	79 56.1	-40.5	42.7	81 18.0	-33.6	51.5	82 23.0	-23.4	63.3	83 02.9	-9.0	78.1	83 10.5	+8.3	94.7
48	79 15.6	-43.4	38.6	80 44.4	-37.8	46.2	81 59.6	-29.4	56.5	82 53.9	-17.0	70.0	83 18.8	-0.6	86.3
49	78 32.2	-45.6	35.0	80 06.6	-41.2	41.6	81 30.2	-34.4	50.4	82 36.9	-24.1	62.4	83 18.2	-9.4	77.7
50	77 46.6	-47.6	31.8	79 25.4	-44.0	37.5	80 55.8	-38.5	45.1	82 12.8	-30.1	55.5	83 08.8	-17.6	69.3
51	76 59.0	-49.2	29.0	78 41.4	-46.2	33.9	80 17.3	-41.9	40.4	81 42.7	-35.3	49.3	82 51.2	-24.9	61.5
52	76 09.8	-50.5	26.6	77 55.2	-48.1	30.7	79 35.4	-44.6	36.3	81 07.4	-39.3	43.9	82 26.3	-31.0	54.3
53	75 19.3	-51.6	24.4	77 07.1	-49.6	28.0	78 50.8	-46.9	32.7	80 28.1	-42.6	39.1	81 55.3	-36.1	48.0
54	74 27.7	-52.5	22.4	76 17.5	-51.0	25.5	78 03.9	-48.6	29.6	79 45.5	-45.4	35.0	81 19.2	-40.2	42.6
55	73 35.2	-53.3	20.6	75 26.5	-52.0	23.3	77 15.3	-50.2	26.8	79 00.1	-47.4	31.5	80 39.0	-43.4	37.8
56	72 41.9	-54.0	19.1	74 34.5	-52.8	21.4	76 25.1	-51.4	24.4	78 12.7	-49.3	28.4	79 55.6	-46.1	33.7
57	71 47.9	-54.5	17.6	73 41.7	-53.7	19.7	75 33.7	-52.4	22.3	77 23.4	-50.7	25.7	79 09.5	-48.1	30.2
58	70 53.4	-55.1	16.3	72 48.0	-54.3	18.1	74 41.3	-53.3	20.4	76 32.7	-51.8	23.3	78 21.4	-49.9	27.1
59	69 58.3	-55.5	15.1	71 53.7	-54.8	16.7	73 48.0	-53.9	18.7	75 40.9	-52.9	21.2	77 31.5	-51.2	24.5
60	69 02.8	-55.9	14.1	70 58.9	-55.4	15.5	72 54.1	-54.7	17.2	74 48.0	-53.6	19.3	76 40.3	-52.4	22.1
61	68 06.9	-56.2	13.1	70 03.5	-55.7	14.3	71 59.4	-55.1	15.8	73 54.4	-54.4	17.7	75 47.9	-53.2	20.1
62	67 10.7	-56.5	12.1	69 07.8	-56.1	13.2	71 04.3	-55.6	14.6	73 00.0	-54.9	16.2	74 54.7	-54.1	18.3
63	66 14.2	-56.7	11.3	68 11.7	-56.4	12.3	70 08.7	-56.0	13.4	72 05.1	-55.4	14.8	74 00.6	-54.7	16.6
64	65 17.5	-57.0	10.5	67 15.3	-56.7	11.4	69 12.7	-56.3	12.4	71 09.7	-55.9	13.6	73 05.9	-55.3	15.2
65	64 20.5	-57.2	9.8	66 18.6	-56.9	10.5	68 16.4	-56.6	11.4	70 13.8	-56.2	12.5	72 10.6	-55.7	13.9
66	63 23.3	-57.4	9.1	65 21.7	-57.2	9.8	67 19.8	-56.9	10.6	69 17.6	-56.6	11.5	71 14.9	-56.1	12.7
67	62 25.9	-57.6	8.4	64 24.5	-57.3	9.0	66 22.9	-57.1	9.8	68 21.0	-56.8	10.6	70 18.8	-56.5	11.6
68	61 28.3	-57.6	7.8	63 27.2	-57.6	8.4	65 25.8	-57.3	9.0	67 24.2	-57.1	9.7	69 22.3	-56.8	10.6
69	60 30.7	-57.9	7.3	62 29.6	-57.7	7.7	64 28.5	-57.6	8.3	66 27.1	-57.3	9.0	68 25.5	-57.0	9.7
70	59 32.8	-57.9	6.7	61 31.9	-57.8	7.2	63 30.9	-57.6	7.7	65 29.8	-57.5	8.2	67 28.5	-57.3	8.9
71	58 34.9	-58.1	6.2	60 34.1	-57.9	6.6	62 33.3	-57.9	7.0	64 32.3	-57.7	7.6	66 31.2	-57.5	8.2
72	57 36.8	-58.2	5.7	59 36.2	-58.1	6.1	61 35.4	-57.9	6.5	63 34.6	-57.8	6.9	65 33.7	-57.7	7.5
73	56 38.6	-58.2	5.3	58 38.1	-58.2	5.6	60 37.5	-58.1	5.9	62 36.8	-58.0	6.3	64 36.0	-57.8	6.8
74	55 40.4	-58.4	4.9	57 39.9	-58.3	5.1	59 39.4	-58.2	5.4	61 38.8	-58.1	5.8	63 38.2	-58.0	6.2
75	54 42.0	-58.4	4.5	56 41.6	-58.3	4.7	58 41.2	-58.3	5.0	60 40.7	-58.2	5.3	62 40.2	-58.1	5.6
76	53 43.6	-58.5	4.1	55 43.3	-58.5	4.3	57 42.9	-58.4	4.5	59 42.5	-58.3	4.8	61 42.1	-58.2	5.1
77	52 45.1	-58.6	3.7	54 44.8	-58.5	3.9	56 44.5	-58.4	4.1	58 44.2	-58.4	4.3	60 43.9	-58.4	4.6
78	51 46.5	-58.6	3.3	53 46.3	-58.6	3.5	55 46.1	-58.6	3.7	57 45.8	-58.5	3.9	59 45.5	-58.4	4.1
79	50 47.9	-58.7	3.0	52 47.7	-58.6	3.1	54 47.5	-58.6	3.3	56 47.3	-58.5	3.5	58 47.1	-58.5	3.7
80	49 49.2	-58.7	2.7	51 49.1	-58.7	2.8	53 48.9	-58.6	2.9	55 48.8	-58.7	3.1	57 48.6	-58.6	3.2
81	48 50.5	-58.8	2.4	50 50.4	-58.8	2.5	52 50.3	-58.8	2.6	54 50.1	-58.7	2.7	56 50.0	-58.7	2.8
82	47 51.7	-58.8	2.1	49 51.6	-58.8	2.1	51 51.5	-58.8	2.2	53 51.4	-58.7	2.3	55 51.3	-58.7	2.5
83	46 52.9	-58.9	1.8	48 52.8	-58.9	1.8	50 52.7	-58.8	1.9	52 52.7	-58.9	2.0	54 52.6	-58.8	2.1
84	45 54.0	-58.9	1.5	47 53.9	-58.9	1.6	49 53.9	-58.9	1.6	51 53.8	-58.8	1.7	53 53.8	-58.9	1.8
85	44 55.1	-59.0	1.2	46 55.0	-58.9	1.3	48 55.0	-58.9	1.3	50 55.0	-58.9	1.4	52 54.9	-58.9	1.4
86	43 56.1	-59.0	1.0	45 56.1	-59.0	1.0	47 56.1	-59.0	1.0	49 56.1	-59.0	1.1	51 56.0	-58.9	1.1
87	42 57.1	-59.0	0.7	44 57.1	-59.0	0.7	46 57.1	-59.0	0.8	48 57.1	-59.0	0.8	50 57.1	-59.0	0.8
88	41 58.1	-59.0	0.5	43 58.1	-59.0	0.5	45 58.1	-59.0	0.5	47 58.1	-59.0	0.5	49 58.1	-59.0	0.5
89	40 59.1	-59.1	0.2	42 59.1	-59.1	0.2	44 59.1	-59.1	0.2	46 59.1	-59.1	0.3	48 59.1	-59.1	0.3
90	40 00.0	-59.1	0.0	42 00.0	-59.1	0.0	44 00.0	-59.1	0.0	46 00.0	-59.1	0.0	48 00.0	-59.1	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 10°, 350°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
19	23.2	-59.4	170.8	17	24.7	-59.4	170.9	15	26.2	-59.5	171.0	13	27.7	-59.6	171.1	11	29.1	-59.6	171.2	30
18	23.8	-59.4	171.0	16	25.3	-59.5	171.1	14	26.7	-59.5	171.2	12	28.1	-59.5	171.2	10	29.5	-59.6	171.3	31
17	24.4	-59.4	171.1	15	25.8	-59.5	171.2	13	27.2	-59.5	171.3	11	28.6	-59.6	171.4	9	29.9	-59.6	171.4	32
16	25.0	-59.5	171.3	14	26.3	-59.4	171.4	12	27.7	-59.5	171.4	10	29.0	-59.5	171.5	8	30.3	-59.5	171.5	33
15	25.5	-59.4	171.4	13	26.9	-59.5	171.5	11	28.2	-59.5	171.6	9	29.5	-59.6	171.6	7	30.8	-59.6	171.7	34
14	26.1	-59.4	171.6	12	27.4	-59.5	171.6	10	28.7	-59.5	171.7	8	29.9	-59.5	171.7	6	31.2	-59.6	171.8	35
13	26.7	-59.5	171.7	11	27.9	-59.4	171.8	9	29.2	-59.6	171.8	7	30.4	-59.6	171.9	5	31.6	-59.6	171.9	36
12	27.2	-59.4	171.8	10	28.5	-59.5	171.9	8	29.6	-59.5	171.9	6	30.8	-59.5	172.0	4	32.0	-59.6	172.0	37
11	27.8	-59.4	172.0	9	29.0	-59.5	172.0	7	30.1	-59.5	172.1	5	31.3	-59.6	172.1	3	32.4	-59.6	172.1	38
10	28.4	-59.5	172.1	8	29.5	-59.5	172.2	6	30.6	-59.5	172.2	4	31.7	-59.6	172.2	2	32.8	-59.6	172.2	39
9	28.9	-59.4	172.2	7	30.0	-59.5	172.3	5	31.1	-59.6	172.3	3	32.1	-59.6	172.3	1	33.2	-59.6	172.4	40
8	29.5	-59.5	172.4	6	30.5	-59.5	172.4	4	31.5	-59.5	172.4	2	32.6	-59.6	172.5	0	33.6	-59.6	172.5	41
7	30.0	-59.5	172.5	5	31.0	-59.5	172.6	3	32.0	-59.5	172.6	1	33.0	-59.5	172.6	0	26.0	+59.6	7.4	42
6	30.5	-59.4	172.7	4	31.5	-59.5	172.7	2	32.5	-59.5	172.7	0	33.5	-59.6	172.7	1	25.6	+59.6	7.3	43
5	31.1	-59.5	172.8	3	32.0	-59.5	172.8	1	33.0	-59.6	172.8	0	26.1	+59.6	7.2	2	25.2	+59.5	7.2	44
4	31.6	-59.5	172.9	2	32.5	-59.5	172.9	0	33.4	-59.5	172.9	1	25.7	+59.5	7.1	3	24.7	+59.6	7.1	45
3	32.1	-59.4	173.1	1	33.0	-59.5	173.1	0	26.1	+59.5	6.9	2	25.2	+59.6	6.9	4	24.3	+59.6	6.9	46
2	32.7	-59.5	173.2	0	33.5	-59.5	173.2	1	25.6	+59.6	6.8	3	24.8	+59.5	6.8	5	23.9	+59.6	6.8	47
1	33.2	-59.5	173.3	0	26.0	+59.5	6.7	2	25.2	+59.5	6.7	4	24.3	+59.6	6.7	6	23.5	+59.6	6.7	48
0	33.7	-59.4	173.5	1	25.5	+59.5	6.5	3	24.7	+59.5	6.6	5	23.9	+59.6	6.6	7	23.1	+59.6	6.6	49
0	25.7	+59.5	6.4	2	25.0	+59.5	6.4	4	24.2	+59.5	6.4	6	23.5	+59.5	6.4	8	22.7	+59.6	6.5	50
1	25.2	+59.4	6.3	3	24.5	+59.5	6.3	5	23.7	+59.6	6.3	7	23.0	+59.6	6.3	9	22.3	+59.6	6.4	51
2	24.6	+59.5	6.1	4	24.0	+59.5	6.2	6	23.3	+59.5	6.2	8	22.6	+59.5	6.2	10	21.9	+59.5	6.2	52
3	24.1	+59.5	6.0	5	23.5	+59.4	6.0	7	22.8	+59.5	6.0	9	22.1	+59.6	6.1	11	21.4	+59.6	6.1	53
4	23.6	+59.4	5.9	6	22.9	+59.5	5.9	8	22.3	+59.5	5.9	10	21.7	+59.5	6.0	12	21.0	+59.6	6.0	54
5	23.0	+59.5	5.7	7	22.4	+59.5	5.8	9	21.8	+59.5	5.8	11	21.2	+59.5	5.8	13	20.6	+59.6	5.9	55
6	22.5	+59.5	5.6	8	21.9	+59.5	5.6	10	21.3	+59.6	5.7	12	20.8	+59.5	5.7	14	20.2	+59.5	5.8	56
7	22.0	+59.4	5.5	9	21.4	+59.5	5.5	11	20.9	+59.5	5.5	13	20.3	+59.5	5.6	15	19.7	+59.6	5.6	57
8	21.4	+59.5	5.3	10	20.9	+59.5	5.4	12	20.4	+59.5	5.4	14	19.8	+59.6	5.4	16	19.3	+59.5	5.5	58
9	20.9	+59.4	5.2	11	20.4	+59.5	5.2	13	19.9	+59.5	5.3	15	19.4	+59.5	5.3	17	18.8	+59.6	5.4	59
10	20.3	+59.5	5.1	12	19.9	+59.4	5.1	14	19.4	+59.5	5.1	16	18.9	+59.5	5.2	18	18.4	+59.5	5.2	60
11	19.8	+59.4	4.9	13	19.3	+59.5	5.0	15	18.9	+59.5	5.0	17	18.4	+59.5	5.1	19	17.9	+59.6	5.1	61
12	19.2	+59.5	4.8	14	18.8	+59.5	4.8	16	18.4	+59.4	4.9	18	17.9	+59.5	4.9	20	17.5	+59.5	5.0	62
13	18.7	+59.4	4.6	15	18.3	+59.4	4.7	17	17.8	+59.5	4.7	19	17.4	+59.5	4.8	21	17.0	+59.5	4.9	63
14	18.1	+59.4	4.5	16	17.7	+59.5	4.5	18	17.3	+59.5	4.6	20	16.9	+59.5	4.7	22	16.5	+59.6	4.7	64
15	17.5	+59.4	4.4	17	17.2	+59.4	4.4	19	16.8	+59.5	4.5	21	16.4	+59.5	4.5	23	16.1	+59.5	4.6	65
16	16.9	+59.5	4.2	18	16.6	+59.5	4.3	20	16.3	+59.4	4.3	22	15.9	+59.5	4.4	24	15.6	+59.5	4.4	66
17	16.4	+59.4	4.1	19	16.1	+59.4	4.1	21	15.7	+59.5	4.2	23	15.4	+59.5	4.2	25	15.1	+59.5	4.3	67
18	15.8	+59.4	3.9	20	15.5	+59.4	4.0	22	15.2	+59.4	4.0	24	14.9	+59.5	4.1	26	14.6	+59.5	4.2	68
19	15.2	+59.4	3.8	21	14.9	+59.4	3.8	23	14.6	+59.5	3.9	25	14.4	+59.4	3.9	27	14.1	+59.5	4.0	69
20	14.6	+59.4	3.6	22	14.3	+59.4	3.7	24	14.1	+59.4	3.7	26	13.8	+59.5	3.8	28	13.6	+59.4	3.9	70
21	14.0	+59.3	3.5	23	13.7	+59.4	3.5	25	13.5	+59.4	3.6	27	13.3	+59.4	3.6	29	13.0	+59.5	3.7	71
22	13.3	+59.4	3.3	24	13.1	+59.4	3.4	26	12.9	+59.4	3.4	28	12.7	+59.4	3.5	30	12.5	+59.4	3.6	72
23	12.7	+59.4	3.2	25	12.5	+59.4	3.2	27	12.3	+59.4	3.3	29	12.1	+59.5	3.3	31	11.9	+59.5	3.4	73
24	12.1	+59.3	3.0	26	11.9	+59.4	3.1	28	11.7	+59.4	3.1	30	11.6	+59.4	3.2	32	11.4	+59.4	3.2	74
25	11.4	+59.4	2.8	27	11.3	+59.3	2.9	29	11.1	+59.4	3.0	31	11.0	+59.4	3.0	33	10.8	+59.4	3.1	75
26	10.8	+59.3	2.7	28	10.6	+59.4	2.7	30	10.5	+59.4	2.8	32	10.4	+59.3	2.8	34	10.2	+59.4	2.9	76
27	10.1	+59.3	2.5	29	10.0	+59.3	2.6	31	09.9	+59.3	2.6	33	09.7	+59.4	2.7	35	09.6	+59.4	2.7	77
28	09.4	+59.3	2.3	30	09.3	+59.3	2.4	32	09.2	+59.4	2.4	34	09.1	+59.4	2.5	36	09.0	+59.4	2.6	78
29	08.7	+59.3	2.2	31	08.6	+59.4	2.2	33	08.6	+59.3	2.3	35	08.5	+59.3	2.3	37	08.4	+59.3	2.4	79
30	08.0	+59.3	2.0	32	08.0	+59.2	2.0	34	07.9	+59.3	2.1	36	07.8	+59.3	2.1	38	07.7	+59.3	2.2	80
31	07.3	+59.3	1.8	33	07.2	+59.3	1.9	35	07.2	+59.3	1.9	37	07.1	+59.3	2.0	39	07.0	+59.4	2.0	81
32	06.6	+59.2	1.6	34	06.5	+59.3	1.7	36	06.5	+59.2	1.7	38	06.4	+59.3	1.8	40	06.4	+59.2	1.8	82
33	05.8	+59.2	1.4	35	05.8	+59.2	1.5	37	05.7	+59.3	1.5	39	05.7	+59.3	1.6	41	05.6	+59.3	1.6	83
34	05.0	+59.3	1.3	36	05.0	+59.2	1.3	38	05.0	+59.2	1.3	40	05.0	+59.2	1.4	42	04.9	+59.3	1.4	84
35	04.3	+59.2	1.1	37	04.2	+59.2	1.1	39	04.2	+59.2	1.1	41	04.2	+59.2	1.2	43	04.2	+59.2	1.2	85
36	03.5	+59.1	0.9	38	03.4	+59.2	0.9	40	03.4	+59.2	0.9	42	03.4	+59.2	0.9	44	03.4	+59.2	1.0	86
37	02.6	+59.2	0.7	39	02.6	+59.2	0.7	41	02.6	+59.2	0.7	43	02.6	+59.2	0.7	45	02.6	+59.2	0.7	87
38	01.8	+59.1	0.4	40	01.8	+59.1	0.5	42	01.8	+59.1	0.5	44	01.8	+59.1	0.5	46	01.8	+59.1	0.5	88
39	00.9	+59.1	0.2	41	00.9	+59.1	0.2	43	00.9	+59.1	0.2	45	00.9	+59.1	0.2	47	00.9	+59.1	0.3	89
40	00.0	+59.1	0.0	42	00.0	+59.1	0.0	44	00.0	+59.1	0.0	46	00.0	+59.1	0.0	48	00.0	+59.1	0.0	90
40°			42°			44°			46°			48°								

LATITUDE SAME NAME

L.H.A. 170°, 190°

10°, 350° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	68 37.7	+57.0	155.6	66 47.5	+57.7	157.6	64 56.0	+58.1	159.2	63 03.3	+58.5	160.6	61 09.6	+58.9	161.8
31	69 34.7	+56.7	154.7	67 45.2	+57.5	156.8	65 54.1	+58.1	158.6	64 01.8	+58.5	160.1	62 08.5	+58.8	161.4
32	70 31.4	+56.3	153.8	68 42.7	+57.2	156.1	66 52.2	+57.8	158.0	65 00.3	+58.3	159.6	63 07.3	+58.7	161.0
33	71 27.7	+56.0	152.7	69 39.9	+56.9	155.2	67 50.0	+57.7	157.3	65 58.6	+58.2	159.0	64 06.0	+58.6	160.5
34	72 23.7	+55.5	151.6	70 36.8	+56.7	154.3	68 47.7	+57.4	156.5	66 56.8	+58.0	158.4	65 04.6	+58.5	160.0
35	73 19.2	+55.0	150.3	71 33.5	+56.2	153.3	69 45.1	+57.2	155.7	67 54.8	+57.9	157.8	66 03.1	+58.4	159.5
36	74 14.2	+54.4	148.9	72 29.7	+55.9	152.2	70 42.3	+56.9	154.8	68 52.7	+57.7	157.1	67 01.5	+58.2	158.9
37	75 08.6	+53.6	147.3	73 25.6	+55.4	150.9	71 39.2	+56.6	153.9	69 50.4	+57.5	156.3	67 59.7	+58.1	158.3
38	76 02.2	+52.7	145.5	74 21.0	+54.7	149.5	72 35.8	+56.2	152.8	70 47.9	+57.1	155.4	68 57.8	+57.9	157.6
39	76 54.9	+51.7	143.4	75 15.7	+54.1	148.0	73 32.0	+55.7	151.6	71 45.0	+56.9	154.5	69 55.7	+57.7	156.8
40	77 46.6	+50.2	141.1	76 09.8	+53.2	146.2	74 27.7	+55.2	150.2	72 41.9	+56.5	153.4	70 53.4	+57.4	156.0
41	78 36.8	+48.6	138.4	77 03.0	+52.2	144.2	75 22.9	+54.6	148.7	73 38.4	+56.1	152.3	71 50.8	+57.2	155.1
42	79 25.4	+46.5	135.3	77 55.2	+50.9	141.9	76 17.5	+53.7	147.0	74 34.5	+55.6	151.0	72 48.0	+56.9	154.1
43	80 11.9	+43.9	131.8	78 46.1	+49.3	139.3	77 11.2	+52.7	145.1	75 30.1	+55.0	149.5	73 44.9	+56.4	153.0
44	80 55.8	+40.6	127.6	79 35.4	+47.3	136.3	78 03.9	+51.6	142.8	76 25.1	+54.2	147.9	74 41.3	+56.0	151.8
45	81 36.4	+36.4	122.7	80 22.7	+44.7	132.7	78 55.5	+50.0	140.3	77 19.3	+53.4	146.0	75 37.3	+55.4	150.4
46	82 12.8	+31.2	117.1	81 07.4	+41.6	128.6	79 45.5	+48.1	137.3	78 12.7	+52.1	143.8	76 32.7	+54.8	148.8
47	82 44.0	+24.8	110.6	81 49.0	+37.3	123.7	80 33.6	+45.6	133.8	79 04.8	+50.8	141.3	77 27.5	+53.9	147.0
48	83 08.8	+17.2	103.1	82 26.3	+32.2	118.0	81 19.2	+42.5	129.7	79 55.6	+48.9	138.4	78 21.4	+52.8	144.9
49	83 26.0	+8.6	94.9	82 58.5	+25.7	111.3	82 01.7	+38.4	124.8	80 44.5	+46.6	134.9	79 14.2	+51.5	142.4
50	83 34.6	-0.6	86.2	83 24.2	+17.8	103.7	82 40.1	+33.2	119.0	81 31.1	+43.5	130.8	80 05.7	+49.7	139.5
51	83 34.0	-9.8	77.2	83 42.0	+8.9	95.2	83 13.3	+26.6	112.2	82 14.6	+39.5	125.9	80 55.4	+47.5	136.2
52	83 24.2	-18.3	68.5	83 50.9	-0.7	86.1	83 39.9	+18.5	104.3	82 54.1	+34.2	120.1	81 42.9	+44.6	132.1
53	83 05.9	-25.8	60.4	83 50.2	-10.3	76.7	83 58.4	+9.2	95.5	83 28.3	+27.6	113.2	82 27.5	+40.6	127.2
54	82 40.1	-32.0	53.1	83 39.9	-19.1	67.7	84 07.6	-0.8	86.0	83 55.9	+19.3	105.1	83 08.1	+35.5	121.4
55	82 08.1	-37.0	46.7	83 20.8	-26.7	59.3	84 06.8	-10.9	76.2	84 15.2	+9.6	95.9	83 43.6	+28.7	114.3
56	81 31.1	-41.1	41.2	82 54.1	-33.1	51.8	83 55.9	-20.0	66.7	84 24.8	-1.0	85.9	84 12.3	+20.1	105.9
57	80 50.0	-44.3	36.4	82 21.0	-38.1	45.3	83 35.9	-27.8	58.0	84 23.8	-11.5	75.6	84 32.4	+9.9	96.3
58	80 05.7	-46.8	32.3	81 42.9	-42.0	39.7	83 08.1	-34.1	50.3	84 12.3	-21.0	65.7	84 42.3	-1.2	85.8
59	79 18.9	-48.9	28.8	81 00.9	-45.2	34.9	82 34.0	-39.2	43.7	83 51.3	-29.0	56.7	84 41.1	-12.2	74.9
60	78 30.0	-50.5	25.8	80 15.7	-47.6	30.9	81 54.8	-43.1	38.1	83 22.3	-35.4	48.8	84 28.9	-22.1	64.5
61	77 39.5	-51.7	23.2	79 28.1	-49.6	27.4	81 11.7	-46.1	33.4	82 46.9	-40.3	42.1	84 06.8	-30.3	55.2
62	76 47.8	-52.9	20.9	78 38.5	-51.1	24.5	80 25.6	-48.4	29.4	82 06.6	-44.1	36.4	83 36.5	-36.7	47.1
63	75 54.9	-53.7	18.9	77 47.4	-52.3	21.9	79 37.2	-50.3	25.9	81 22.5	-47.1	31.7	82 59.8	-41.6	40.3
64	75 01.2	-54.5	17.1	76 55.1	-53.4	19.7	78 46.9	-51.7	23.0	80 35.4	-49.3	27.7	82 18.2	-45.2	34.6
65	74 06.7	-55.1	15.5	76 01.7	-54.2	17.7	77 55.2	-53.0	20.5	79 46.1	-51.0	24.4	81 33.0	-48.1	30.0
66	73 11.6	-55.5	14.1	75 07.5	-54.8	16.0	77 02.2	-53.8	18.4	78 55.1	-52.4	21.6	80 44.9	-50.1	26.1
67	72 16.1	-56.1	12.9	74 12.7	-55.5	14.4	76 08.4	-54.7	16.5	78 02.7	-53.6	19.1	79 54.8	-51.8	22.8
68	71 20.0	-56.4	11.7	73 17.2	-55.9	13.1	75 13.7	-55.3	14.8	77 09.1	-54.3	17.0	79 03.0	-53.1	20.0
69	70 23.6	-56.7	10.7	72 21.3	-56.3	11.8	74 18.4	-55.8	13.3	76 14.8	-55.1	15.2	78 09.9	-54.1	17.7
70	69 26.9	-57.1	9.7	71 25.0	-56.7	10.7	73 22.6	-56.2	12.0	75 19.7	-55.7	13.6	77 15.8	-54.9	15.6
71	68 29.8	-57.2	8.9	70 28.3	-57.0	9.7	72 26.4	-56.7	10.8	74 24.0	-56.2	12.1	76 20.9	-55.6	13.9
72	67 32.6	-57.5	8.1	69 31.3	-57.3	8.8	71 29.7	-57.0	9.7	73 27.8	-56.6	10.9	75 25.3	-56.1	12.3
73	66 35.1	-57.7	7.3	68 34.0	-57.5	8.0	70 32.7	-57.2	8.8	72 31.2	-57.0	9.7	74 29.2	-56.5	10.9
74	65 37.4	-57.8	6.7	67 36.5	-57.6	7.2	69 35.5	-57.5	7.9	71 34.2	-57.2	8.7	73 32.7	-56.9	9.7
75	64 39.6	-58.0	6.0	66 38.9	-57.9	6.5	68 38.0	-57.7	7.1	70 37.0	-57.5	7.8	72 35.8	-57.3	8.6
76	63 41.6	-58.2	5.4	65 41.0	-58.0	5.9	67 40.3	-57.9	6.3	69 39.5	-57.7	6.9	71 38.5	-57.5	7.7
77	62 43.4	-58.2	4.9	64 43.0	-58.2	5.2	66 42.4	-58.0	5.7	68 41.8	-57.9	6.2	70 41.0	-57.7	6.8
78	61 45.2	-58.4	4.4	63 44.8	-58.3	4.7	65 44.4	-58.2	5.0	67 43.9	-58.1	5.5	69 43.3	-58.0	6.0
79	60 46.8	-58.4	3.9	62 46.5	-58.4	4.2	64 46.2	-58.3	4.5	66 45.8	-58.2	4.8	68 45.3	-58.1	5.2
80	59 48.4	-58.6	3.4	61 48.1	-58.4	3.7	63 47.9	-58.4	3.9	65 47.6	-58.4	4.2	67 47.2	-58.2	4.6
81	58 49.8	-58.6	3.0	60 49.7	-58.6	3.2	62 49.5	-58.6	3.4	64 49.2	-58.4	3.7	66 49.0	-58.4	4.0
82	57 51.2	-58.7	2.6	59 51.1	-58.7	2.8	61 50.9	-58.6	2.9	63 50.8	-58.6	3.1	65 50.6	-58.6	3.4
83	56 52.5	-58.8	2.2	58 52.4	-58.7	2.3	60 52.3	-58.7	2.5	62 52.2	-58.7	2.7	64 52.0	-58.6	2.9
84	55 53.7	-58.8	1.9	57 53.7	-58.8	2.0	59 53.6	-58.8	2.1	61 53.5	-58.7	2.2	63 53.4	-58.7	2.4
85	54 54.9	-58.9	1.5	56 54.9	-58.9	1.6	58 54.8	-58.8	1.7	60 54.8	-58.9	1.8	62 54.7	-58.8	1.9
86	53 56.0	-58.9	1.2	55 56.0	-58.9	1.2	57 56.0	-58.9	1.3	59 55.9	-58.9	1.4	61 55.9	-58.9	1.5
87	52 57.1	-59.0	0.9	54 57.1	-59.0	0.9	56 57.1	-59.0	1.0	58 57.0	-58.9	1.0	60 57.0	-58.9	1.1
88	51 58.1	-59.0	0.6	53 58.1	-59.0	0.6	55 58.1	-59.0	0.6	57 58.1	-59.0	0.7	59 58.1	-59.0	0.7
89	50 59.1	-59.1	0.3	52 59.1	-59.1	0.3	54 59.1	-59.1	0.3	56 59.1	-59.1	0.3	58 59.1	-59.1	0.3
90	50 00.0	-59.1	0.0	52 00.0	-59.1	0.0	54 00.0	-59.1	0.0	56 00.0	-59.1	0.0	58 00.0	-59.1	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 10°, 350°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9 30.5	-59.6	171.2	7 31.9	-59.7	171.3	5 33.3	-59.7	171.3	3 34.7	-59.8	171.3	1 36.0	-59.7	171.3	30
8 30.9	-59.6	171.3	6 32.2	-59.6	171.4	4 33.6	-59.7	171.4	2 34.9	-59.7	171.4	0 36.3	-59.8	171.4	31
7 31.3	-59.7	171.5	5 32.6	-59.7	171.5	3 33.9	-59.7	171.5	1 35.2	-59.7	171.5	0 23.5	+59.7	8.5	32
6 31.6	-59.6	171.6	4 32.9	-59.6	171.6	2 34.2	-59.7	171.6	0 35.5	-59.7	171.6	1 23.2	+59.8	8.4	33
5 32.0	-59.6	171.7	3 33.3	-59.7	171.7	1 34.5	-59.6	171.7	0 24.2	+59.7	8.3	2 23.0	+59.7	8.3	34
4 32.4	-59.6	171.8	2 33.6	-59.6	171.8	0 34.9	-59.7	171.8	1 23.9	+59.7	8.2	3 22.7	+59.8	8.2	35
3 32.8	-59.6	171.9	1 34.0	-59.7	171.9	0 24.8	+59.7	8.1	2 23.6	+59.8	8.1	4 22.5	+59.7	8.1	36
2 33.2	-59.7	172.0	0 34.3	-59.6	172.0	1 24.5	+59.7	8.0	3 23.4	+59.7	8.0	5 22.2	+59.7	8.0	37
1 33.5	-59.6	172.1	0 25.3	+59.7	7.9	2 24.2	+59.7	7.9	4 23.1	+59.7	7.9	6 21.9	+59.8	7.9	38
0 33.9	-59.6	172.2	1 25.0	+59.6	7.8	3 23.9	+59.7	7.8	5 22.8	+59.7	7.8	7 21.7	+59.7	7.8	39
0 25.7	+59.6	7.6	2 24.6	+59.7	7.7	4 23.6	+59.7	7.7	6 22.5	+59.7	7.7	8 21.4	+59.8	7.7	40
1 25.3	+59.7	7.5	3 24.3	+59.7	7.5	5 23.3	+59.6	7.6	7 22.2	+59.7	7.6	9 21.2	+59.7	7.6	41
2 25.0	+59.6	7.4	4 24.0	+59.6	7.4	6 22.9	+59.7	7.5	8 21.9	+59.7	7.5	10 20.9	+59.7	7.5	42
3 24.6	+59.6	7.3	5 23.6	+59.7	7.3	7 22.6	+59.7	7.4	9 21.6	+59.7	7.4	11 20.6	+59.8	7.4	43
4 24.2	+59.6	7.2	6 23.3	+59.6	7.2	8 22.3	+59.7	7.3	10 21.3	+59.8	7.3	12 20.4	+59.7	7.3	44
5 23.8	+59.7	7.1	7 22.9	+59.7	7.1	9 22.0	+59.7	7.1	11 21.1	+59.7	7.2	13 20.1	+59.7	7.2	45
6 23.5	+59.6	7.0	8 22.6	+59.6	7.0	10 21.7	+59.6	7.0	12 20.8	+59.7	7.1	14 19.8	+59.8	7.2	46
7 23.1	+59.6	6.9	9 22.2	+59.7	6.9	11 21.3	+59.7	6.9	13 20.5	+59.7	7.0	15 19.6	+59.7	7.1	47
8 22.7	+59.6	6.7	10 21.9	+59.6	6.8	12 21.0	+59.7	6.8	14 20.2	+59.7	6.9	16 19.3	+59.7	7.0	48
9 22.3	+59.6	6.6	11 21.5	+59.6	6.7	13 20.7	+59.7	6.7	15 19.9	+59.6	6.8	17 19.0	+59.7	6.9	49
10 21.9	+59.6	6.5	12 21.1	+59.7	6.6	14 20.4	+59.6	6.6	16 19.5	+59.7	6.7	18 18.7	+59.7	6.8	50
11 21.5	+59.6	6.4	13 20.8	+59.6	6.4	15 20.0	+59.7	6.5	17 19.2	+59.7	6.6	19 18.4	+59.8	6.6	51
12 21.1	+59.6	6.3	14 20.4	+59.6	6.3	16 19.7	+59.6	6.4	18 18.9	+59.6	6.4	20 18.2	+59.7	6.5	52
13 20.7	+59.7	6.2	15 20.0	+59.7	6.2	17 19.3	+59.7	6.3	19 18.6	+59.7	6.4	21 17.9	+59.7	6.4	53
14 20.4	+59.6	6.0	16 19.7	+59.6	6.1	18 19.0	+59.6	6.2	20 18.3	+59.7	6.2	22 17.6	+59.7	6.3	54
15 20.0	+59.5	5.9	17 19.3	+59.6	6.0	19 18.6	+59.7	6.1	21 18.0	+59.6	6.1	23 17.3	+59.7	6.2	55
16 19.5	+59.6	5.8	18 18.9	+59.6	5.9	20 18.3	+59.6	5.9	22 17.6	+59.7	6.0	24 17.0	+59.7	6.1	56
17 19.1	+59.6	5.7	19 18.5	+59.7	5.8	21 17.9	+59.7	5.8	23 17.3	+59.7	5.9	25 16.7	+59.6	6.0	57
18 18.7	+59.6	5.6	20 18.2	+59.6	5.6	22 17.6	+59.6	5.7	24 17.0	+59.6	5.8	26 16.3	+59.7	5.9	58
19 18.3	+59.6	5.4	21 17.8	+59.6	5.5	23 17.2	+59.6	5.6	25 16.6	+59.7	5.7	27 16.0	+59.7	5.8	59
20 17.9	+59.6	5.3	22 17.4	+59.6	5.4	24 16.8	+59.6	5.5	26 16.3	+59.6	5.6	28 15.7	+59.7	5.7	60
21 17.5	+59.5	5.2	23 17.0	+59.5	5.3	25 16.4	+59.7	5.3	27 15.9	+59.6	5.4	29 15.4	+59.6	5.5	61
22 17.0	+59.6	5.1	24 16.5	+59.6	5.1	26 16.1	+59.6	5.2	28 15.5	+59.7	5.3	30 15.0	+59.7	5.4	62
23 16.6	+59.5	4.9	25 16.1	+59.6	5.0	27 15.7	+59.6	5.1	29 15.2	+59.6	5.2	31 14.7	+59.6	5.3	63
24 16.1	+59.6	4.8	26 15.7	+59.6	4.9	28 15.3	+59.6	5.0	30 14.8	+59.6	5.1	32 14.3	+59.7	5.2	64
25 15.7	+59.5	4.7	27 15.3	+59.5	4.7	29 14.9	+59.5	4.8	31 14.4	+59.6	4.9	33 14.0	+59.6	5.0	65
26 15.2	+59.5	4.5	28 14.8	+59.6	4.6	30 14.4	+59.6	4.7	32 14.0	+59.6	4.8	34 13.6	+59.6	4.9	66
27 14.7	+59.6	4.4	29 14.4	+59.5	4.5	31 14.0	+59.6	4.6	33 13.6	+59.6	4.7	35 13.2	+59.6	4.8	67
28 14.3	+59.5	4.2	30 13.9	+59.6	4.3	32 13.6	+59.5	4.4	34 13.2	+59.6	4.5	36 12.8	+59.6	4.6	68
29 13.8	+59.5	4.1	31 13.5	+59.5	4.2	33 13.1	+59.6	4.3	35 12.8	+59.6	4.4	37 12.4	+59.6	4.5	69
30 13.3	+59.5	3.9	32 13.0	+59.5	4.0	34 12.7	+59.5	4.1	36 12.4	+59.5	4.2	38 12.0	+59.6	4.3	70
31 12.8	+59.4	3.8	33 12.5	+59.5	3.9	35 12.2	+59.5	4.0	37 11.9	+59.6	4.1	39 11.6	+59.6	4.2	71
32 12.2	+59.5	3.6	34 12.0	+59.5	3.7	36 11.7	+59.6	3.8	38 11.5	+59.5	3.9	40 11.2	+59.5	4.0	72
33 11.7	+59.5	3.5	35 11.5	+59.5	3.6	37 11.3	+59.5	3.7	39 11.0	+59.5	3.8	41 10.7	+59.6	3.9	73
34 11.2	+59.4	3.3	36 11.0	+59.4	3.4	38 10.8	+59.4	3.5	40 10.5	+59.5	3.6	42 10.3	+59.5	3.7	74
35 10.6	+59.4	3.2	37 10.4	+59.5	3.2	39 10.2	+59.5	3.3	41 10.0	+59.5	3.4	43 09.8	+59.5	3.5	75
36 10.0	+59.5	3.0	38 09.9	+59.4	3.1	40 09.7	+59.5	3.2	42 09.5	+59.5	3.2	44 09.3	+59.5	3.4	76
37 09.5	+59.4	2.8	39 09.3	+59.4	2.9	41 09.2	+59.4	3.0	43 09.0	+59.5	3.1	45 08.8	+59.5	3.2	77
38 08.9	+59.4	2.6	40 08.7	+59.4	2.7	42 08.6	+59.4	2.8	44 08.5	+59.4	2.9	46 08.3	+59.5	3.0	78
39 08.3	+59.3	2.4	41 08.1	+59.4	2.5	43 08.0	+59.4	2.6	45 07.9	+59.4	2.7	47 07.8	+59.4	2.8	79
40 07.6	+59.4	2.3	42 07.5	+59.4	2.3	44 07.4	+59.4	2.4	46 07.3	+59.4	2.5	48 07.2	+59.4	2.6	80
41 07.0	+59.3	2.1	43 06.9	+59.3	2.1	45 06.8	+59.4	2.2	47 06.7	+59.4	2.3	49 06.6	+59.4	2.4	81
42 06.3	+59.3	1.9	44 06.2	+59.3	1.9	46 06.2	+59.3	2.0	48 06.1	+59.3	2.1	50 06.0	+59.4	2.2	82
43 05.6	+59.3	1.7	45 05.5	+59.3	1.7	47 05.5	+59.3	1.8	49 05.4	+59.4	1.9	51 05.4	+59.3	1.9	83
44 04.9	+59.2	1.4	46 04.8	+59.3	1.5	48 04.8	+59.3	1.6	50 04.8	+59.2	1.6	52 04.7	+59.3	1.7	84
45 04.1	+59.3	1.2	47 04.1	+59.3	1.3	49 04.1	+59.2	1.3	51 04.0	+59.3	1.4	53 04.0	+59.3	1.4	85
46 03.4	+59.2	1.0	48 03.4	+59.2	1.0	50 03.3	+59.3	1.1	52 03.3	+59.2	1.1	54 03.3	+59.2	1.2	86
47 02.6	+59.2	0.8	49 02.6	+59.1	0.8	51 02.6	+59.1	0.8	53 02.5	+59.2	0.9	55 02.5	+59.2	0.9	87
48 01.8	+59.1	0.5	50 01.7	+59.2	0.5	52 01.7	+59.2	0.6	54 01.7	+59.2	0.6	56 01.7	+59.2	0.6	88
49 00.9	+59.1	0.3	51 00.9	+59.1	0.3	53 00.9	+59.1	0.3	55 00.9	+59.1	0.3	57 00.9	+59.1	0.3	89
50 00.0	+59.1	0.0	52 00.0	+59.1	0.0	54 00.0	+59.1	0.0	56 00.0	+59.1	0.0	58 00.0	+59.1	0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 170°, 190°

12°, 348° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	79 36.7	+ 0.3	• 87.0	79 31.6	+ 11.9	• 97.9	79 04.5	+ 22.6	• 108.2	78 17.8	+ 31.7	• 117.4	77 15.2	+ 38.8	• 125.3
31	79 37.0	- 5.4	• 81.4	79 43.5	+ 6.2	• 92.4	79 27.1	+ 17.6	• 103.2	78 49.5	+ 27.7	• 113.1	77 54.0	+ 35.9	• 121.8
32	79 31.6	- 10.9	• 75.9	79 49.7	+ 0.4	• 86.8	79 44.7	+ 12.3	• 97.9	79 17.2	+ 23.2	• 108.5	78 29.9	+ 32.4	• 117.8
33	79 20.7	- 16.2	• 70.6	79 50.1	- 5.4	• 81.1	79 57.0	+ 6.4	• 92.4	79 40.4	+ 18.1	• 103.4	79 02.3	+ 28.3	• 113.5
34	79 04.5	- 21.1	• 65.4	79 44.7	- 11.0	• 75.5	80 03.4	+ 0.6	• 86.6	79 58.5	+ 12.7	• 98.0	79 30.6	+ 23.8	• 108.8
35	78 43.4	- 25.6	• 60.6	79 33.7	- 16.5	• 70.0	80 04.0	- 5.5	• 80.8	80 11.2	+ 6.7	• 92.3	79 54.4	+ 18.6	• 103.6
36	78 17.8	- 29.5	• 56.0	79 17.2	- 21.4	• 64.8	79 58.5	- 11.2	• 75.1	80 17.9	+ 0.6	• 86.5	80 13.0	+ 13.0	• 98.1
37	77 48.3	- 33.1	• 51.8	78 55.8	- 25.9	• 59.9	79 47.3	- 16.7	• 69.5	80 18.5	- 5.5	• 80.5	80 26.0	+ 7.0	• 92.3
38	77 15.2	- 36.2	• 47.9	78 29.9	- 30.0	• 55.3	79 30.6	- 21.7	• 64.1	80 13.0	- 11.4	• 74.6	80 33.0	+ 0.8	• 86.3
39	76 39.0	- 38.8	• 44.4	77 59.9	- 33.5	• 51.0	79 08.9	- 26.4	• 59.1	80 01.6	- 17.0	• 68.9	80 33.8	- 5.6	• 80.2
40	76 00.2	- 41.2	• 41.2	77 26.4	- 36.5	• 47.1	78 42.5	- 30.4	• 54.4	79 44.6	- 22.2	• 63.4	80 28.2	- 11.6	• 74.2
41	75 19.0	- 43.2	38.2	76 49.9	- 39.3	• 43.5	78 12.1	- 34.0	• 50.1	79 22.4	- 26.8	• 58.3	80 16.6	- 17.4	• 68.3
42	74 35.8	- 44.9	35.6	76 10.6	- 41.6	• 40.3	77 38.1	- 37.0	• 46.2	78 55.6	- 30.9	• 53.6	79 59.2	- 22.6	• 62.7
43	73 50.9	- 46.5	33.1	75 29.0	- 43.6	37.3	77 01.1	- 39.8	• 42.6	78 24.7	- 34.5	• 49.2	79 36.6	- 27.4	• 57.5
44	73 04.4	- 47.7	30.9	74 45.4	- 45.3	34.7	76 21.3	- 42.1	• 39.3	77 50.2	- 37.6	• 45.2	79 09.2	- 31.5	• 52.6
45	72 16.7	- 49.0	28.9	74 00.1	- 46.9	32.2	75 39.2	- 44.0	36.4	77 12.6	- 40.3	• 41.6	78 37.7	- 35.1	• 48.2
46	71 27.7	- 49.9	27.0	73 13.2	- 48.1	30.0	74 55.2	- 45.8	33.7	76 32.3	- 42.5	• 38.3	78 02.6	- 38.2	• 44.2
47	70 37.8	- 50.8	25.3	72 25.1	- 49.3	28.0	74 09.4	- 47.2	31.3	75 49.8	- 44.6	35.4	77 24.4	- 40.8	• 40.6
48	69 47.0	- 51.6	23.7	71 35.8	- 50.2	26.1	73 22.2	- 48.5	29.1	75 05.2	- 46.2	32.7	76 43.6	- 43.1	• 37.3
49	68 55.4	- 52.2	22.3	70 45.6	- 51.1	24.5	72 33.7	- 49.6	27.1	74 19.0	- 47.6	30.3	76 00.5	- 45.1	34.3
50	68 03.2	- 52.9	21.0	69 54.5	- 51.9	22.9	71 44.1	- 50.6	25.2	73 31.4	- 48.9	28.1	75 15.4	- 46.7	31.7
51	67 10.3	- 53.4	19.7	69 02.6	- 52.5	21.5	70 53.5	- 51.4	23.6	72 42.5	- 50.0	26.1	74 28.7	- 48.1	29.3
52	66 16.9	- 53.9	18.6	68 10.1	- 53.1	20.1	70 02.1	- 52.1	22.0	71 52.5	- 50.9	24.3	73 40.6	- 49.3	27.1
53	65 23.0	- 54.3	17.5	67 17.0	- 53.6	18.9	69 10.0	- 52.8	20.6	71 01.6	- 51.8	22.6	72 51.3	- 50.4	25.1
54	64 28.7	- 54.7	16.5	66 23.4	- 54.1	17.8	68 17.2	- 53.4	19.3	70 09.8	- 52.4	21.1	72 00.9	- 51.3	23.3
55	63 34.0	- 55.0	15.5	65 29.3	- 54.5	16.7	67 23.8	- 53.9	18.1	69 17.4	- 53.1	19.7	71 09.6	- 52.0	21.7
56	62 39.0	- 55.4	14.7	64 34.8	- 54.9	15.7	66 29.9	- 54.3	17.0	68 24.3	- 53.7	18.4	70 17.6	- 52.8	20.2
57	61 43.6	- 55.6	13.8	63 39.9	- 55.2	14.8	65 35.6	- 54.7	15.9	67 30.6	- 54.1	17.2	69 24.8	- 53.4	18.8
58	60 48.0	- 55.9	13.1	62 44.7	- 55.5	13.9	64 40.9	- 55.1	14.9	66 36.5	- 54.5	16.1	68 31.4	- 53.9	17.5
59	59 52.1	- 56.1	12.3	61 49.2	- 55.8	13.1	63 45.8	- 55.4	14.0	65 42.0	- 55.0	15.1	67 37.5	- 54.4	16.3
60	58 56.0	- 56.4	11.6	60 53.4	- 56.1	12.3	62 50.4	- 55.7	13.2	64 47.0	- 55.3	14.1	66 43.1	- 54.8	15.2
61	57 59.6	- 56.5	11.0	59 57.3	- 56.2	11.6	61 54.7	- 56.0	12.4	63 51.7	- 55.6	13.2	65 48.3	- 55.2	14.2
62	57 03.1	- 56.7	10.3	59 01.1	- 56.5	10.9	60 58.7	- 56.2	11.6	62 56.1	- 55.9	12.4	64 53.1	- 55.5	13.3
63	56 06.4	- 56.9	9.7	58 04.6	- 56.7	10.3	60 02.5	- 56.4	10.9	62 00.2	- 56.1	11.6	63 57.6	- 55.8	12.4
64	55 09.5	- 57.0	9.2	57 07.9	- 56.8	9.7	59 06.1	- 56.6	10.2	61 04.1	- 56.4	10.9	63 01.8	- 56.1	11.6
65	54 12.5	- 57.1	8.6	56 11.1	- 57.0	9.1	58 09.5	- 56.8	9.6	60 07.7	- 56.5	10.2	62 05.7	- 56.3	10.8
66	53 15.4	- 57.3	8.1	55 14.1	- 57.1	8.5	57 12.7	- 56.9	9.0	59 11.2	- 56.8	9.5	61 09.4	- 56.5	10.1
67	52 18.1	- 57.4	7.6	54 17.0	- 57.3	8.0	56 15.8	- 57.2	8.4	58 14.4	- 56.9	8.9	60 12.9	- 56.8	9.4
68	51 20.7	- 57.5	7.2	53 19.7	- 57.4	7.5	55 18.6	- 57.2	7.9	57 17.5	- 57.1	8.3	59 16.1	- 56.9	8.8
69	50 23.2	- 57.6	6.7	52 22.3	- 57.5	7.0	54 21.4	- 57.4	7.3	56 20.4	- 57.3	7.7	58 19.2	- 57.1	8.2
70	49 25.6	- 57.7	6.3	51 24.8	- 57.6	6.5	53 24.0	- 57.5	6.8	55 23.1	- 57.4	7.2	57 22.1	- 57.2	7.6
71	48 27.9	- 57.8	5.9	50 27.2	- 57.7	6.1	52 26.5	- 57.6	6.4	54 25.7	- 57.5	6.7	56 24.9	- 57.4	7.0
72	47 30.1	- 57.9	5.5	49 29.5	- 57.8	5.7	51 28.9	- 57.7	5.9	53 28.2	- 57.6	6.2	55 27.5	- 57.5	6.5
73	46 32.2	- 57.9	5.1	48 31.7	- 57.8	5.3	50 31.2	- 57.8	5.5	52 30.6	- 57.7	5.7	54 30.0	- 57.6	6.0
74	45 34.3	- 58.0	4.7	47 33.9	- 58.0	4.9	49 33.4	- 57.9	5.1	51 32.9	- 57.8	5.3	53 32.4	- 57.7	5.5
75	44 36.3	- 58.1	4.3	46 35.9	- 58.0	4.5	48 35.5	- 57.9	4.7	50 35.1	- 57.9	4.9	52 34.7	- 57.9	5.1
76	43 38.2	- 58.2	4.0	45 37.9	- 58.1	4.1	47 37.6	- 58.1	4.3	49 37.2	- 58.0	4.5	51 36.8	- 57.9	4.6
77	42 40.0	- 58.2	3.6	44 39.8	- 58.2	3.8	46 39.5	- 58.1	3.9	48 39.2	- 58.0	4.1	50 38.9	- 58.0	4.2
78	41 41.8	- 58.2	3.3	43 41.6	- 58.2	3.4	45 41.4	- 58.2	3.5	47 41.2	- 58.2	3.7	49 40.9	- 58.1	3.8
79	40 43.6	- 58.3	3.0	42 43.4	- 58.3	3.1	44 43.2	- 58.2	3.2	46 43.0	- 58.2	3.3	48 42.8	- 58.1	3.4
80	39 45.3	- 58.4	2.7	41 45.1	- 58.3	2.8	43 45.0	- 58.3	2.9	45 44.8	- 58.2	3.0	47 44.7	- 58.2	3.1
81	38 46.9	- 58.4	2.4	40 46.8	- 58.4	2.5	42 46.7	- 58.3	2.5	44 46.6	- 58.3	2.6	46 46.5	- 58.3	2.7
82	37 48.5	- 58.4	2.1	39 48.4	- 58.4	2.2	41 48.4	- 58.4	2.2	43 48.3	- 58.4	2.3	45 48.2	- 58.4	2.4
83	36 50.1	- 58.5	1.8	38 50.0	- 58.4	1.9	40 50.0	- 58.5	1.9	42 49.9	- 58.4	2.0	44 49.8	- 58.4	2.0
84	35 51.6	- 58.5	1.5	37 51.6	- 58.5	1.6	39 51.5	- 58.5	1.6	41 51.5	- 58.5	1.7	43 51.4	- 58.4	1.7
85	34 53.1	- 58.6	1.3	36 53.1	- 58.6	1.3	38 53.0	- 58.5	1.3	40 53.0	- 58.5	1.4	42 53.0	- 58.6	1.4
86	33 54.5	- 58.6	1.0	35 54.5	- 58.6	1.0	37 54.5	- 58.6	1.1	39 54.5	- 58.6	1.1	41 54.4	- 58.5	1.1
87	32 55.9	- 58.6	0.7	34 55.9	- 58.6	0.8	36 55.9	- 58.6	0.8	38 55.9	- 58.6	0.8	40 55.9	- 58.6	0.8
88	31 57.3	- 58.6	0.5	33 57.3	- 58.6	0.5	35 57.3	- 58.6	0.5	37 57.3	- 58.6	0.5	39 57.3	- 58.6	0.5
89	30 58.7	- 58.7	0.2	32 58.7	- 58.7	0.2	34 58.7	- 58.7	0.3	36 58.7	- 58.7	0.3	38 58.7	- 58.7	0.3
90	30 00.0	- 58.7	0.0	32 00.0	- 58.7	0.0	34 00.0	- 58.7	0.0	36 00.0	- 58.7	0.0	38 00.0	- 58.7	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 12°, 348°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
28 55.3	-58.7	168.1	26 57.8	-58.8	168.3	25 00.2	-58.9	168.5	23 02.6	-59.0	168.7	21 04.9	-59.1	168.9	30
27 56.6	-58.8	168.4	25 59.0	-58.9	168.6	24 01.3	-58.9	168.7	22 03.6	-59.0	168.9	20 05.8	-59.1	169.1	31
26 57.8	-58.8	168.6	25 00.1	-58.8	168.8	23 02.4	-58.9	169.0	21 04.6	-59.0	169.1	19 06.7	-59.1	169.2	32
25 59.0	-58.8	168.8	24 01.3	-58.9	169.0	22 03.5	-59.0	169.2	20 05.6	-59.1	169.3	18 07.6	-59.1	169.4	33
25 00.2	-58.8	169.0	23 02.4	-58.9	169.2	21 04.5	-59.0	169.4	19 06.5	-59.0	169.5	17 08.5	-59.1	169.6	34
24 01.4	-58.8	169.3	22 03.5	-58.9	169.4	20 05.5	-59.0	169.6	18 07.5	-59.1	169.7	16 09.4	-59.1	169.8	35
23 02.6	-58.9	169.5	21 04.6	-58.9	169.6	19 06.5	-59.0	169.7	17 08.4	-59.0	169.9	15 10.3	-59.2	170.0	36
22 03.7	-58.8	169.7	20 05.7	-59.0	169.8	18 07.5	-59.0	169.9	16 09.4	-59.1	170.0	14 11.1	-59.1	170.1	37
21 04.9	-58.9	169.9	19 06.7	-58.9	170.0	17 08.5	-59.0	170.1	15 10.3	-59.1	170.2	13 12.0	-59.1	170.3	38
20 06.0	-58.9	170.1	18 07.8	-59.0	170.2	16 09.5	-59.0	170.3	14 11.2	-59.1	170.4	12 12.9	-59.2	170.5	39
19 07.1	-58.9	170.3	17 08.8	-59.0	170.4	15 10.5	-59.1	170.5	13 12.1	-59.1	170.6	11 13.7	-59.2	170.7	40
18 08.2	-58.9	170.5	16 09.8	-59.0	170.6	14 11.4	-59.0	170.7	12 13.0	-59.1	170.8	10 14.5	-59.1	170.8	41
17 09.3	-58.9	170.7	15 10.8	-58.9	170.8	13 12.4	-59.1	170.9	11 13.9	-59.1	170.9	9 15.4	-59.2	171.0	42
16 10.4	-59.0	170.9	14 11.9	-59.1	171.0	12 13.3	-59.0	171.0	10 14.8	-59.1	171.1	8 16.2	-59.2	171.2	43
15 11.4	-58.9	171.1	13 12.8	-59.0	171.2	11 14.3	-59.1	171.2	9 15.7	-59.2	171.3	7 17.0	-59.1	171.3	44
14 12.5	-59.0	171.3	12 13.8	-59.0	171.4	10 15.2	-59.1	171.4	8 16.5	-59.1	171.5	6 17.9	-59.2	171.5	45
13 13.5	-59.0	171.5	11 14.8	-59.0	171.5	9 16.1	-59.1	171.6	7 17.4	-59.1	171.6	5 18.7	-59.2	171.7	46
12 14.5	-58.9	171.7	10 15.8	-59.0	171.7	8 17.0	-59.0	171.8	6 18.3	-59.2	171.8	4 19.5	-59.2	171.8	47
11 15.6	-59.0	171.8	9 16.8	-59.1	171.9	7 18.0	-59.1	171.9	5 19.1	-59.1	172.0	3 20.3	-59.2	172.0	48
10 16.6	-59.0	172.0	8 17.7	-59.0	172.1	6 18.9	-59.1	172.1	4 20.0	-59.1	172.1	2 21.1	-59.2	172.2	49
9 17.6	-59.0	172.2	7 18.7	-59.1	172.3	5 19.8	-59.1	172.3	3 21.6	-59.2	172.6	1 21.9	-59.2	172.3	50
8 18.6	-59.0	172.4	6 19.6	-59.0	172.4	4 20.7	-59.1	172.5	2 21.7	-59.1	172.5	0 22.7	-59.1	172.5	51
7 19.6	-59.0	172.6	5 20.6	-59.1	172.6	3 21.6	-59.1	172.6	1 22.6	-59.2	172.6	0 36.4	+59.2	7.4	52
6 20.6	-59.0	172.8	4 21.5	-59.0	172.8	2 22.5	-59.1	172.8	0 23.4	-59.1	172.8	1 35.6	+59.2	7.2	53
5 21.6	-59.0	172.9	3 22.5	-59.1	173.0	1 23.4	-59.1	173.0	0 35.7	+59.2	7.0	2 34.8	+59.2	7.0	54
4 22.6	-59.1	173.1	2 23.4	-59.0	173.1	0 24.3	-59.1	173.2	1 34.9	+59.1	6.9	3 34.0	+59.2	6.9	55
3 23.5	-59.0	173.3	1 24.4	-59.1	173.3	0 34.8	+59.1	6.7	2 34.0	+59.2	6.7	4 33.2	+59.2	6.7	56
2 24.5	-59.0	173.5	0 25.3	-59.1	173.5	1 33.9	+59.1	6.5	1 33.2	+59.1	6.5	5 32.4	+59.2	6.5	57
1 25.5	-59.0	173.7	0 33.8	+59.0	6.3	2 33.0	+59.1	6.3	4 32.3	+59.1	6.3	6 31.6	+59.1	6.4	58
0 26.5	-59.0	173.9	1 32.8	+59.1	6.1	3 32.1	+59.1	6.2	5 31.4	+59.2	6.2	7 30.7	+59.2	6.2	59
0 32.5	+59.0	6.0	2 31.9	+59.0	6.0	4 31.2	+59.1	6.0	6 30.6	+59.1	6.0	8 29.9	+59.2	6.0	60
1 31.5	+59.1	5.8	3 30.9	+59.1	5.8	5 30.3	+59.1	5.8	7 29.7	+59.1	5.8	9 29.1	+59.1	5.9	61
2 30.6	+59.0	5.6	4 30.0	+59.0	5.6	6 29.4	+59.1	5.6	8 28.8	+59.2	5.7	10 28.2	+59.2	5.7	62
3 29.6	+59.0	5.4	5 29.0	+59.1	5.4	7 28.5	+59.1	5.5	9 28.0	+59.1	5.5	11 27.4	+59.2	5.5	63
4 28.6	+59.0	5.2	6 28.1	+59.0	5.3	8 27.6	+59.1	5.3	10 27.1	+59.1	5.3	12 26.6	+59.1	5.4	64
5 27.6	+59.0	5.1	7 27.1	+59.1	5.1	9 26.7	+59.0	5.1	11 26.2	+59.1	5.1	13 25.7	+59.1	5.2	65
6 26.6	+59.0	4.9	8 26.2	+59.0	4.9	10 25.7	+59.1	4.9	12 25.3	+59.1	5.0	14 24.8	+59.2	5.0	66
7 25.6	+59.0	4.7	9 25.2	+59.0	4.7	11 24.8	+59.1	4.8	13 24.4	+59.1	4.8	15 24.0	+59.1	4.8	67
8 24.6	+59.0	4.5	10 24.2	+59.1	4.5	12 23.9	+59.0	4.6	14 23.5	+59.1	4.6	16 23.1	+59.1	4.7	68
9 23.6	+59.0	4.3	11 23.3	+59.0	4.4	13 22.9	+59.1	4.4	15 22.6	+59.0	4.4	17 22.2	+59.1	4.5	69
10 22.6	+59.0	4.1	12 22.3	+59.0	4.2	14 22.0	+59.0	4.2	16 21.6	+59.1	4.3	18 21.3	+59.1	4.3	70
11 21.6	+59.0	4.0	13 21.3	+59.0	4.0	15 21.0	+59.0	4.0	17 20.7	+59.1	4.1	19 20.4	+59.1	4.1	71
12 20.6	+58.9	3.8	14 20.3	+59.0	3.8	16 20.0	+59.1	3.8	18 19.8	+59.0	3.9	20 19.5	+59.1	3.9	72
13 19.5	+59.0	3.6	15 19.3	+59.0	3.6	17 19.1	+59.0	3.7	19 18.8	+59.0	3.7	21 18.6	+59.0	3.7	73
14 18.5	+58.9	3.4	16 18.3	+59.0	3.4	18 18.1	+59.0	3.5	20 17.8	+59.1	3.5	22 17.6	+59.1	3.6	74
15 17.4	+59.0	3.2	17 17.3	+58.9	3.2	19 17.1	+58.9	3.3	21 16.9	+59.0	3.3	23 16.7	+59.0	3.4	75
16 16.4	+58.9	3.0	18 16.2	+59.0	3.0	20 16.0	+59.0	3.1	22 15.9	+59.0	3.1	24 15.7	+59.0	3.2	76
17 15.3	+58.9	2.8	19 15.2	+58.9	2.8	21 15.0	+59.0	2.9	23 14.9	+58.9	2.9	25 14.7	+59.0	3.0	77
18 14.2	+58.9	2.6	20 14.1	+58.9	2.6	22 14.0	+58.9	2.7	24 13.8	+59.0	2.7	26 13.7	+59.0	2.8	78
19 13.1	+58.9	2.4	21 13.0	+58.9	2.4	23 12.9	+58.9	2.5	25 12.8	+59.0	2.5	27 12.7	+59.0	2.6	79
20 12.0	+58.9	2.2	22 11.9	+58.9	2.2	24 11.8	+59.0	2.3	26 11.8	+58.9	2.3	28 11.7	+58.9	2.3	80
21 10.9	+58.9	2.0	23 10.8	+58.9	2.0	25 10.8	+58.9	2.1	27 10.7	+58.9	2.1	29 10.6	+58.9	2.1	81
22 09.8	+58.8	1.8	24 09.7	+58.9	1.8	26 09.7	+58.8	1.8	28 09.6	+58.9	1.9	30 09.5	+58.9	1.9	82
23 08.6	+58.8	1.6	25 08.6	+58.8	1.6	27 08.5	+58.9	1.6	29 08.5	+58.8	1.7	31 08.4	+58.9	1.7	83
24 07.4	+58.9	1.4	26 07.4	+58.8	1.4	28 07.4	+58.8	1.4	30 07.3	+58.9	1.4	32 07.3	+58.9	1.5	84
25 06.3	+58.8	1.1	27 06.2	+58.8	1.2	29 06.2	+58.8	1.2	31 06.2	+58.8	1.2	33 06.2	+58.8	1.2	85
26 05.1	+58.7	0.9	28 05.0	+58.8	0.9	30 05.0	+58.8	1.0	32 05.0	+58.8	1.0	34 05.0	+58.8	1.0	86
27 03.8	+58.8	0.7	29 03.8	+58.8	0.7	31 03.8	+58.8	0.7	33 03.8	+58.8	0.7	35 03.8	+58.8	0.8	87
28 02.6	+58.7	0.5	30 02.6	+58.7	0.5	32 02.6	+58.7	0.5	34 02.6	+58.7	0.5	36 02.6	+58.7	0.5	88
29 01.3	+58.7	0.2	31 01.3	+58.7	0.2	33 01.3	+58.7	0.2	35 01.3	+58.7	0.3	37 01.3	+58.7	0.3	89
30 00.0	+58.7	0.0	32 00.0	+58.7	0.0	34 00.0	+58.7	0.0	36 00.0	+58.7	0.0	38 00.0	+58.7	0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 168°, 192°

12°, 348° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	76 00.2	+44.2	*131.9	74 35.8	+48.2	137.3	73 04.4	+51.0	141.8	71 27.7	+53.2	145.5	69 47.0	+54.7	148.6
31	76 44.4	+42.0	*129.0	75 24.0	+46.6	135.0	73 55.4	+50.0	139.9	72 20.9	+52.3	144.0	70 41.7	+54.1	147.4
32	77 26.4	+39.6	*125.8	76 10.6	+44.8	132.4	74 45.4	+48.7	137.9	73 13.2	+51.5	142.4	71 35.8	+53.6	146.0
33	78 06.0	+36.5	*122.3	76 55.4	+42.7	*129.6	75 34.1	+47.2	135.6	74 04.7	+50.5	140.5	72 29.4	+52.8	144.6
34	78 42.5	+33.1	*118.3	77 38.1	+40.3	*126.4	76 21.3	+45.5	133.1	74 55.2	+49.3	138.5	73 22.2	+52.0	143.0
35	79 15.6	+29.0	*114.0	78 18.4	+37.2	*122.8	77 06.8	+43.4	*130.2	75 44.5	+47.8	136.3	74 14.2	+51.0	141.2
36	79 44.6	+24.4	*109.1	78 55.6	+33.8	*118.9	77 50.2	+41.0	*127.0	76 32.3	+46.2	133.7	75 05.2	+49.9	139.2
37	80 09.0	+19.2	*103.9	79 29.4	+29.8	*114.4	78 31.2	+38.0	*123.5	77 18.5	+44.1	*130.9	75 55.1	+48.5	137.0
38	80 28.2	+13.4	*98.3	79 59.2	+25.1	*109.6	79 09.2	+34.6	*119.5	78 02.6	+41.8	*127.7	76 43.6	+46.9	134.5
39	80 41.6	+7.3	*92.3	80 24.3	+19.7	*104.2	79 43.8	+30.5	*115.0	78 44.4	+38.8	*124.2	77 30.5	+44.9	*131.7
40	80 48.9	+0.8	*86.1	80 44.0	+13.9	*98.5	80 14.3	+25.8	*110.1	79 23.2	+35.4	*120.1	78 15.4	+42.5	*128.5
41	80 49.7	-5.7	*79.9	80 57.9	+7.5	*92.3	80 40.1	+20.4	*104.6	79 58.6	+31.3	*115.6	78 57.9	+39.7	*124.9
42	80 44.0	-11.9	*73.6	81 05.4	+0.8	*86.0	81 00.5	+14.3	*98.7	80 29.9	+26.6	*110.6	79 37.6	+36.3	*120.9
43	80 32.1	-17.8	*67.6	81 06.2	-5.7	*79.5	81 14.8	+7.7	*92.4	80 56.5	+21.0	*105.0	80 13.9	+32.2	*116.3
44	80 14.3	-23.1	*61.9	81 00.5	-12.3	*73.1	81 22.5	+1.0	*85.8	81 17.5	+14.8	*99.0	80 46.1	+27.3	*111.2
45	79 51.2	-28.0	*56.6	80 48.2	-18.3	*66.9	81 23.5	-6.0	*79.1	81 32.3	+8.0	*92.5	81 13.4	+21.7	*105.5
46	79 23.2	-32.1	*51.6	80 29.9	-23.7	*61.0	81 17.5	-12.6	*72.5	81 40.3	+1.0	*85.7	81 35.1	+15.3	*99.3
47	78 51.1	-35.7	*47.2	80 06.2	-28.6	*55.6	81 04.9	-18.8	*66.1	81 41.3	-6.2	*78.8	81 50.4	+8.3	*92.6
48	78 15.4	-38.9	*43.1	79 37.6	-32.8	*50.6	80 46.1	-24.4	*60.1	81 35.1	-13.1	*71.9	81 58.7	+1.0	*85.5
49	77 36.5	-41.4	*39.5	79 04.8	-36.4	*46.1	80 21.7	-29.4	*54.6	81 22.0	-19.4	*65.3	81 59.7	-6.5	*78.4
50	76 55.1	-43.7	*36.2	78 28.4	-39.5	*42.0	79 52.3	-33.5	*49.5	81 02.6	-25.1	*59.1	81 53.2	-13.5	*71.3
51	76 11.4	-45.6	*33.2	77 48.9	-42.2	*38.3	79 18.8	-37.2	*44.9	80 37.5	-30.2	*53.4	81 39.7	-20.2	*64.4
52	75 25.8	-47.2	*30.6	77 06.7	-44.3	*35.0	78 41.6	-40.3	*40.8	80 07.3	-34.4	*48.3	81 19.5	-25.9	*58.1
53	74 38.6	-48.6	*28.2	76 22.4	-46.1	*32.1	78 01.3	-42.8	*37.1	79 32.9	-38.0	*43.6	80 53.6	-31.0	*52.2
54	73 50.0	-49.8	*26.0	75 36.3	-47.8	*29.4	77 18.5	-44.9	*33.8	78 54.9	-41.0	*39.5	80 22.6	-35.3	*47.0
55	73 00.2	-50.8	*24.1	74 48.5	-49.1	*27.1	76 33.6	-46.8	*30.9	78 13.9	-43.5	*35.8	79 47.3	-38.9	*42.3
56	72 09.4	-51.6	*22.3	73 59.4	-50.2	*24.9	75 46.8	-48.4	*28.2	77 30.4	-45.7	*32.5	79 08.4	-41.8	*38.1
57	71 17.8	-52.5	*20.7	73 09.2	-51.3	*23.0	74 58.4	-49.6	*25.9	76 44.7	-47.4	*29.6	78 26.6	-44.4	*34.4
58	70 25.3	-53.1	*19.2	72 17.9	-52.0	*21.2	74 08.8	-50.7	*23.8	75 57.3	-48.9	*27.0	77 42.2	-46.4	*31.2
59	69 32.2	-53.7	*17.8	71 25.9	-52.9	*19.6	73 18.1	-51.7	*21.9	75 08.4	-50.2	*24.7	76 55.8	-48.1	*28.3
60	68 38.5	-54.2	*16.6	70 33.0	-53.4	*18.2	72 26.4	-52.5	*20.2	74 18.2	-51.3	*22.6	76 07.7	-49.5	*25.7
61	67 44.3	-54.6	*15.4	69 39.6	-54.0	*16.9	71 33.9	-53.2	*18.6	73 26.9	-52.1	*20.7	75 18.2	-50.8	*23.4
62	66 49.7	-55.1	*14.4	68 45.6	-54.5	*15.6	70 40.7	-53.8	*17.2	72 34.8	-52.9	*19.0	74 27.4	-51.7	*21.4
63	65 54.6	-55.4	*13.4	67 51.1	-55.0	*14.5	69 46.9	-54.3	*15.9	71 41.9	-53.6	*17.5	73 35.7	-52.6	*19.5
64	64 59.2	-55.8	*12.4	66 56.6	-55.3	*13.5	68 52.6	-54.9	*14.6	70 48.3	-54.2	*16.1	72 43.1	-53.4	*17.9
65	64 03.4	-56.0	*11.6	66 00.8	-55.6	*12.5	67 57.7	-55.2	*13.5	69 54.1	-54.7	*14.8	71 49.7	-54.0	*16.4
66	63 07.4	-56.2	*10.8	65 05.2	-56.0	*11.6	67 02.5	-55.6	*12.5	68 59.4	-55.1	*13.6	70 55.7	-54.6	*15.0
67	62 11.2	-56.6	*10.0	64 09.2	-56.2	*10.7	66 06.9	-55.9	*11.6	68 04.3	-55.5	*12.6	70 01.1	-55.0	*13.8
68	61 14.6	-56.7	*9.3	63 13.0	-56.5	*10.0	65 11.0	-56.2	*10.7	67 08.8	-55.9	*11.6	69 06.1	-55.4	*12.6
69	60 17.9	-56.9	*8.6	62 16.5	-56.7	*9.2	64 14.8	-56.4	*9.9	66 12.9	-56.2	*10.6	68 10.7	-55.9	*11.6
70	59 21.0	-57.1	*8.0	61 19.8	-56.9	*8.5	63 18.4	-56.7	*9.1	65 16.7	-56.4	*9.8	67 14.8	-56.1	*10.6
71	58 23.9	-57.2	*7.4	60 22.9	-57.1	*7.9	62 21.7	-56.9	*8.4	64 20.3	-56.7	*9.0	66 18.7	-56.4	*9.7
72	57 26.7	-57.4	*6.9	59 25.8	-57.3	*7.3	61 24.8	-57.1	*7.7	63 23.6	-56.9	*8.2	65 22.3	-56.7	*8.9
73	56 29.3	-57.5	*6.3	58 28.5	-57.3	*6.7	60 27.7	-57.3	*7.1	62 26.7	-57.1	*7.6	64 25.6	-56.9	*8.1
74	55 31.8	-57.6	*5.8	57 31.2	-57.6	*6.1	59 30.4	-57.4	*6.5	61 29.6	-57.3	*6.9	63 28.7	-57.1	*7.4
75	54 34.2	-57.8	*5.3	56 33.6	-57.6	*5.6	58 33.0	-57.5	*5.9	60 32.3	-57.4	*6.3	62 31.6	-57.3	*6.7
76	53 36.4	-57.8	*4.9	55 36.0	-57.8	*5.1	57 35.5	-57.7	*5.4	59 34.9	-57.6	*5.7	61 34.3	-57.5	*6.1
77	52 38.6	-58.0	*4.4	54 38.2	-57.9	*4.6	56 37.8	-57.8	*4.9	58 37.3	-57.7	*5.2	60 36.8	-57.6	*5.5
78	51 40.6	-58.0	*4.0	53 40.3	-57.9	*4.2	55 40.0	-57.9	*4.4	57 39.6	-57.8	*4.6	59 39.2	-57.7	*4.9
79	50 42.6	-58.1	*3.6	52 42.4	-58.1	*3.8	54 42.1	-58.0	*3.9	56 41.8	-57.9	*4.1	58 41.5	-57.9	*4.4
80	49 44.5	-58.2	*3.2	51 44.3	-58.1	*3.3	53 44.1	-58.1	*3.5	55 43.9	-58.1	*3.7	57 43.6	-58.0	*3.9
81	48 46.3	-58.2	*2.8	50 46.2	-58.3	*2.9	52 46.0	-58.2	*3.1	54 45.8	-58.1	*3.2	56 45.6	-58.1	*3.4
82	47 48.1	-58.4	*2.5	49 47.9	-58.3	*2.6	51 47.8	-58.2	*2.7	53 47.7	-58.2	*2.8	55 47.5	-58.2	*3.0
83	46 49.7	-58.3	*2.1	48 49.6	-58.3	*2.2	50 49.6	-58.4	*2.3	52 49.5	-58.3	*2.4	54 49.3	-58.2	*2.5
84	45 51.4	-58.5	*1.8	47 51.3	-58.4	*1.9	49 51.2	-58.4	*1.9	51 51.2	-58.4	*2.0	53 51.1	-58.4	*2.1
85	44 52.9	-58.5	*1.5	46 52.9	-58.5	*1.5	48 52.8	-58.4	*1.6	50 52.8	-58.5	*1.6	52 52.7	-58.4	*1.7
86	43 54.4	-58.5	*1.2	45 54.4	-58.5	*1.2	47 54.4	-58.5	*1.2	49 54.3	-58.5	*1.3	51 54.3	-58.5	*1.3
87	42 55.9	-58.6	*0.9	44 55.9	-58.6	*0.9	46 55.9	-58.6	*0.9	48 55.8	-58.5	*0.9	50 55.8	-58.5	*1.0
88	41 57.3	-58.6	*0.6	43 57.3	-58.6	*0.6	45 57.3	-58.6	*0.6	47 57.3	-58.6	*0.6	49 57.3	-58.6	*0.6
89	40 58.7	-58.7	*0.3	42 58.7	-58.7	*0.3	44 58.7	-58.7	*0.3	46 58.7	-58.7	*0.3	48 58.7	-58.7	*0.3
90	40 00.0	-58.7	*0.0	42 00.0	-58.7	*0.0	44 00.0	-58.7	*0.0	46 00.0	-58.7	*0.0	48 00.0	-58.7	*0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 12°, 348°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
19 07.1	-59.1	169.0	17 09.3	-59.2	169.1	15 11.4	-59.3	169.2	13 13.5	-59.3	169.3	11 15.6	-59.4	169.4	30
18 08.0	-59.2	169.2	16 10.1	-59.3	169.3	14 12.1	-59.3	169.4	12 14.2	-59.4	169.5	10 16.2	-59.4	169.6	31
17 08.8	-59.2	169.4	15 10.8	-59.2	169.5	13 12.8	-59.2	169.6	11 14.8	-59.3	169.6	9 16.8	-59.4	169.7	32
16 09.6	-59.1	169.5	14 11.6	-59.2	169.6	12 13.6	-59.3	169.7	10 15.5	-59.4	169.8	8 17.4	-59.4	169.9	33
15 10.5	-59.2	169.7	13 12.4	-59.3	169.8	11 14.3	-59.3	169.9	9 16.1	-59.3	169.9	7 18.0	-59.5	170.0	34
14 11.3	-59.2	169.9	12 13.1	-59.2	170.0	10 15.0	-59.3	170.0	8 16.8	-59.4	170.1	6 18.5	-59.4	170.1	35
13 12.1	-59.2	170.1	11 13.9	-59.3	170.1	9 15.7	-59.4	170.2	7 17.4	-59.4	170.2	5 19.1	-59.4	170.3	36
12 12.9	-59.2	170.2	10 14.6	-59.2	170.3	8 16.3	-59.3	170.3	6 18.0	-59.3	170.4	4 19.7	-59.4	170.4	37
11 13.7	-59.2	170.4	9 15.4	-59.3	170.4	7 17.0	-59.3	170.5	5 18.7	-59.4	170.5	3 20.3	-59.4	170.6	38
10 14.5	-59.2	170.5	8 16.1	-59.2	170.6	6 17.7	-59.3	170.6	4 19.3	-59.4	170.7	2 20.9	-59.4	170.7	39
9 15.3	-59.2	170.7	7 16.9	-59.3	170.8	5 18.4	-59.3	170.8	3 19.9	-59.3	170.8	1 21.5	-59.4	170.8	40
8 16.1	-59.2	170.9	6 17.6	-59.3	170.9	4 19.1	-59.3	170.9	2 20.6	-59.4	171.0	0 22.1	-59.5	171.0	41
7 16.9	-59.3	171.0	5 18.3	-59.3	171.1	3 19.8	-59.4	171.1	1 21.2	-59.4	171.1	0 37.4	+59.4	8.9	42
6 17.6	-59.2	171.2	4 19.0	-59.2	171.2	2 20.4	-59.3	171.2	0 21.8	-59.3	171.3	1 36.8	+59.4	8.7	43
5 18.4	-59.2	171.4	3 19.8	-59.3	171.4	1 21.1	-59.3	171.4	0 37.5	+59.4	8.6	2 36.2	+59.4	8.6	44
4 19.2	-59.3	171.5	2 20.5	-59.3	171.5	0 21.8	-59.3	171.5	1 36.9	+59.3	8.5	3 35.6	+59.4	8.5	45
3 19.9	-59.2	171.7	1 21.2	-59.3	171.7	0 37.5	+59.4	8.3	2 36.3	+59.3	8.3	4 35.0	+59.4	8.3	46
2 20.7	-59.2	171.8	0 21.9	-59.3	171.8	1 36.9	+59.3	8.2	3 35.6	+59.4	8.2	5 34.4	+59.4	8.2	47
1 21.5	-59.3	172.0	0 37.4	+59.2	8.0	2 36.2	+59.3	8.0	4 35.0	+59.4	8.0	6 33.8	+59.4	8.1	48
0 22.2	-59.2	172.2	1 36.6	+59.3	7.8	3 35.5	+59.3	7.9	5 34.4	+59.3	7.9	7 33.2	+59.5	7.9	49
0 37.0	+59.2	7.7	2 35.9	+59.3	7.7	4 34.8	+59.4	7.7	6 33.7	+59.4	7.7	8 32.7	+59.4	7.8	50
1 36.2	+59.3	7.5	3 35.2	+59.3	7.5	5 34.2	+59.3	7.6	7 33.1	+59.4	7.6	9 32.1	+59.4	7.6	51
2 35.5	+59.2	7.4	4 34.5	+59.2	7.4	6 33.5	+59.3	7.4	8 32.5	+59.3	7.4	10 31.5	+59.3	7.5	52
3 34.7	+59.2	7.2	5 33.7	+59.3	7.2	7 32.8	+59.3	7.3	9 31.8	+59.4	7.3	11 30.8	+59.4	7.3	53
4 33.9	+59.2	7.0	6 33.0	+59.3	7.1	8 32.1	+59.3	7.1	10 31.2	+59.3	7.1	12 30.2	+59.4	7.2	54
5 33.1	+59.3	6.9	7 32.3	+59.2	6.9	9 31.4	+59.3	6.9	11 30.2	+59.4	7.0	13 29.6	+59.4	7.0	55
6 32.4	+59.2	6.7	8 31.5	+59.3	6.8	10 30.7	+59.3	6.8	12 29.9	+59.3	6.8	14 29.0	+59.4	6.9	56
7 31.6	+59.2	6.6	9 30.8	+59.3	6.6	11 30.0	+59.3	6.6	13 29.2	+59.3	6.7	15 28.4	+59.3	6.7	57
8 30.8	+59.2	6.4	10 30.1	+59.2	6.4	12 29.3	+59.3	6.5	14 28.5	+59.4	6.5	16 27.7	+59.4	6.6	58
9 30.0	+59.2	6.2	11 29.3	+59.3	6.3	13 28.6	+59.3	6.3	15 27.9	+59.3	6.4	17 27.1	+59.4	6.4	59
10 29.2	+59.2	6.1	12 28.6	+59.2	6.1	14 27.9	+59.3	6.2	16 27.2	+59.3	6.2	18 26.5	+59.3	6.3	60
11 28.4	+59.2	5.9	13 27.8	+59.2	5.9	15 27.2	+59.2	6.0	17 26.5	+59.3	6.1	19 25.8	+59.3	6.1	61
12 27.6	+59.2	5.7	14 27.0	+59.3	5.8	16 26.4	+59.3	5.8	18 25.8	+59.3	5.9	20 25.1	+59.4	6.0	62
13 26.8	+59.2	5.6	15 26.3	+59.2	5.6	17 25.7	+59.2	5.7	19 25.1	+59.3	5.7	21 24.5	+59.3	5.8	63
14 26.0	+59.2	5.4	16 25.5	+59.2	5.5	18 24.9	+59.3	5.5	20 24.4	+59.3	5.6	22 23.8	+59.3	5.7	64
15 25.2	+59.2	5.2	17 24.7	+59.2	5.3	19 24.2	+59.2	5.3	21 23.7	+59.2	5.4	23 23.1	+59.3	5.5	65
16 24.4	+59.1	5.1	18 23.9	+59.2	5.1	20 23.4	+59.2	5.2	22 22.9	+59.3	5.2	24 22.4	+59.3	5.3	66
17 23.5	+59.2	4.9	19 23.1	+59.2	4.9	21 22.6	+59.3	5.0	23 22.2	+59.2	5.1	25 21.7	+59.3	5.2	67
18 22.7	+59.1	4.7	20 22.3	+59.2	4.8	22 21.9	+59.2	4.8	24 21.4	+59.3	4.9	26 21.0	+59.2	5.0	68
19 21.8	+59.2	4.5	21 21.5	+59.1	4.6	23 21.1	+59.2	4.7	25 20.7	+59.2	4.7	27 20.2	+59.3	4.8	69
20 21.0	+59.1	4.3	22 20.6	+59.2	4.4	24 20.3	+59.1	4.5	26 19.9	+59.2	4.6	28 19.5	+59.2	4.6	70
21 20.1	+59.1	4.2	23 19.8	+59.1	4.2	25 19.4	+59.2	4.3	27 19.1	+59.2	4.4	29 18.7	+59.3	4.5	71
22 19.2	+59.1	4.0	24 18.9	+59.1	4.0	26 18.6	+59.2	4.1	28 18.3	+59.2	4.2	30 18.0	+59.2	4.3	72
23 18.3	+59.1	3.8	25 18.0	+59.1	3.9	27 17.8	+59.1	3.9	29 17.5	+59.1	4.0	31 17.2	+59.2	4.1	73
24 17.4	+59.1	3.6	26 17.1	+59.1	3.7	28 16.9	+59.1	3.7	30 16.6	+59.2	3.8	32 16.4	+59.1	3.9	74
25 16.5	+59.0	3.4	27 16.2	+59.1	3.5	29 16.0	+59.1	3.5	31 15.8	+59.1	3.6	33 15.5	+59.2	3.7	75
26 15.5	+59.0	3.2	28 15.3	+59.1	3.3	30 15.1	+59.1	3.3	32 14.9	+59.1	3.4	34 14.7	+59.1	3.5	76
27 14.5	+59.1	3.0	29 14.4	+59.0	3.1	31 14.2	+59.1	3.1	33 14.0	+59.1	3.2	35 13.8	+59.1	3.3	77
28 13.6	+59.0	2.8	30 13.4	+59.0	2.9	32 13.3	+59.0	2.9	34 13.1	+59.1	3.0	36 12.9	+59.1	3.1	78
29 12.6	+58.9	2.6	31 12.4	+59.0	2.7	33 12.3	+59.0	2.7	35 12.2	+59.0	2.8	37 12.0	+59.1	2.9	79
30 11.5	+59.0	2.4	32 11.4	+59.0	2.4	34 11.3	+59.0	2.5	36 11.2	+59.0	2.6	38 11.1	+59.0	2.6	80
31 10.5	+59.0	2.2	33 10.4	+59.0	2.2	35 10.3	+59.0	2.3	37 10.2	+59.0	2.3	39 10.1	+59.0	2.4	81
32 09.5	+58.9	2.0	34 09.4	+58.9	2.0	36 09.3	+59.0	2.1	38 09.2	+59.0	2.1	40 09.1	+59.0	2.2	82
33 08.4	+58.9	1.7	35 08.3	+58.9	1.8	37 08.3	+58.9	1.8	39 08.2	+58.9	1.9	41 08.1	+59.0	1.9	83
34 07.3	+58.8	1.5	36 07.2	+58.9	1.5	38 07.2	+58.9	1.6	40 07.1	+58.9	1.6	42 07.1	+58.9	1.7	84
35 06.1	+58.9	1.3	37 06.1	+58.8	1.3	39 06.1	+58.8	1.3	41 06.0	+58.9	1.4	43 06.0	+58.9	1.4	85
36 05.0	+58.8	1.0	38 04.9	+58.9	1.1	40 04.9	+58.8	1.1	42 04.9	+58.8	1.1	44 04.9	+58.8	1.2	86
37 03.8	+58.7	0.8	39 03.8	+58.7	0.8	41 03.7	+58.8	0.8	43 03.7	+58.8	0.9	45 03.7	+58.8	0.9	87
38 02.5	+58.8	0.5	40 02.5	+58.8	0.5	42 02.5	+58.8	0.6	44 02.5	+58.8	0.6	46 02.5	+58.8	0.6	88
39 01.3	+58.7	0.3	41 01.3	+58.7	0.3	43 01.3	+58.7	0.3	45 01.3	+58.7	0.3	47 01.3	+58.7	0.3	89
40 00.0	+58.7	0.0	42 00.0	+58.7	0.0	44 00.0	+58.7	0.0	46 00.0	+58.7	0.0	48 00.0	+58.7	0.0	90

LATITUDE SAME NAME

L.H.A. 168°, 192°

12°, 348° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	68 03.2	+55.8	151.2	66 16.9	+56.7	153.4	64 28.7	+57.4	155.3	62 39.0	+57.9	156.9	60 48.0	+58.4	158.3
31	68 59.0	+55.5	150.2	67 13.6	+56.5	152.6	65 26.1	+57.3	154.6	63 36.9	+57.9	156.4	61 46.4	+58.3	157.9
32	69 54.5	+55.0	149.1	68 10.1	+56.2	151.7	66 23.4	+57.0	153.9	64 34.8	+57.6	155.7	62 44.7	+58.2	157.4
33	70 49.5	+54.6	147.9	69 06.3	+55.8	150.7	67 20.4	+56.8	153.1	65 32.4	+57.5	155.1	63 42.9	+58.0	156.8
34	71 44.1	+54.0	146.6	70 02.1	+55.4	149.7	68 17.2	+56.5	152.2	66 29.9	+57.3	154.4	64 40.9	+57.9	156.2
35	72 38.1	+53.3	145.2	70 57.5	+55.0	148.5	69 13.7	+56.1	151.3	67 27.2	+57.1	153.6	65 38.8	+57.7	155.6
36	73 31.4	+52.5	143.6	71 52.5	+54.4	147.3	70 09.8	+55.8	150.3	68 24.3	+56.8	152.8	66 36.5	+57.6	154.9
37	74 23.9	+51.5	141.9	72 46.9	+53.7	145.9	71 05.6	+55.3	149.2	69 21.1	+56.5	151.9	67 34.1	+57.3	154.2
38	75 15.4	+50.5	139.9	73 40.6	+53.1	144.3	72 00.9	+54.9	148.0	70 17.6	+56.1	150.9	68 31.4	+57.1	153.4
39	76 05.9	+49.2	137.7	74 33.7	+52.1	142.6	72 55.8	+54.2	146.6	71 13.7	+55.7	149.9	69 28.5	+56.8	152.6
40	76 55.1	+47.6	135.3	75 25.8	+51.1	140.7	73 50.0	+53.5	145.1	72 09.4	+55.3	148.7	70 25.3	+56.5	151.6
41	77 42.7	+46.7	132.5	76 16.9	+49.8	138.6	74 43.5	+52.8	143.4	73 04.7	+54.7	147.4	71 21.8	+56.1	150.6
42	78 28.4	+43.3	129.4	77 06.7	+48.4	136.2	75 36.3	+51.7	141.6	73 59.4	+54.1	145.9	72 17.9	+55.7	149.5
43	79 11.7	+40.6	125.8	77 55.1	+46.5	133.4	76 28.0	+50.5	139.5	74 53.5	+53.3	144.3	73 13.6	+55.2	148.2
44	79 52.3	+37.2	121.7	78 41.6	+44.2	130.3	77 18.5	+49.1	137.1	75 46.8	+52.3	142.5	74 08.8	+54.6	146.8
45	80 29.5	+33.1	117.1	79 25.8	+41.5	126.7	78 07.6	+47.3	134.4	76 39.1	+51.3	140.4	75 03.4	+53.9	145.2
46	81 02.6	+28.2	111.9	80 07.3	+38.2	122.7	78 54.9	+45.2	131.3	77 30.4	+49.8	138.1	75 57.3	+53.0	143.5
47	81 30.8	+22.4	106.1	80 45.5	+34.0	118.0	79 40.1	+42.5	127.8	78 20.2	+48.2	135.5	76 50.3	+51.9	141.5
48	81 53.2	+15.9	99.7	81 19.5	+29.1	112.7	80 22.6	+39.2	123.7	79 08.4	+46.1	132.4	77 42.2	+50.7	139.2
49	82 09.1	+8.6	92.7	81 48.6	+23.3	106.7	81 01.8	+35.0	119.0	79 54.5	+43.5	128.9	78 32.9	+49.0	136.6
50	82 17.7	+0.9	85.4	82 11.9	+16.4	100.1	81 36.8	+30.1	113.6	80 38.0	+40.2	124.8	79 21.9	+47.1	133.6
51	82 18.6	-6.7	77.9	82 28.3	+8.9	92.9	82 06.9	+24.1	107.5	81 18.2	+36.2	120.1	80 09.0	+44.5	130.1
52	82 11.9	-14.2	70.5	82 37.2	+0.9	85.3	82 31.0	+17.1	100.6	81 54.4	+31.2	114.6	80 53.5	+41.4	126.0
53	81 57.7	-20.9	63.5	82 38.1	-7.1	77.5	82 48.1	+9.2	93.1	82 25.6	+25.0	108.3	81 34.9	+37.3	121.3
54	81 36.8	-26.8	56.9	82 31.0	-14.8	69.8	82 57.3	+0.8	85.1	82 50.6	+17.7	101.2	82 12.2	+32.3	115.7
55	81 10.0	-32.0	50.9	82 16.2	-21.8	62.4	82 58.1	-7.5	77.0	83 08.3	+9.6	93.4	82 44.5	+26.0	109.3
56	80 38.0	-36.3	45.6	81 54.4	-27.8	55.7	82 50.6	-15.6	68.9	83 17.9	+0.7	85.0	83 10.5	+18.6	101.9
57	80 01.7	-39.8	40.8	81 26.6	-33.1	49.6	82 35.0	-22.8	61.3	83 18.6	-8.1	76.4	83 29.1	+9.9	93.7
58	79 21.9	-42.7	36.7	80 53.5	-37.3	44.1	82 12.2	-28.9	54.3	83 10.5	-16.4	68.0	83 39.0	+0.6	84.9
59	78 39.2	-45.2	33.0	80 16.2	-40.8	39.3	81 43.3	-34.2	48.0	82 54.1	-23.9	60.1	83 39.6	-8.7	75.8
60	77 54.0	-47.1	29.7	79 35.4	-43.7	35.1	81 09.1	-38.4	42.5	82 30.2	-30.1	52.8	83 30.9	-17.4	67.0
61	77 06.9	-48.8	26.9	78 51.7	-46.0	31.5	80 30.7	-41.9	37.7	82 00.1	-35.4	46.4	83 13.5	-25.1	58.7
62	76 18.1	-50.2	24.3	78 05.7	-47.9	28.2	79 48.8	-44.6	33.5	81 24.7	-39.7	40.8	82 48.4	-31.6	51.2
63	75 27.9	-51.3	22.1	77 17.8	-49.6	25.4	79 04.2	-47.0	29.9	80 45.0	-42.9	36.0	82 16.8	-36.7	44.6
64	74 36.6	-52.3	20.1	76 28.2	-50.8	22.9	78 17.2	-48.7	26.7	80 02.1	-45.7	31.8	81 40.1	-40.9	39.0
65	73 44.3	-53.2	18.3	75 37.4	-51.9	20.7	77 28.5	-50.3	23.9	79 16.4	-47.9	28.2	80 59.2	-44.2	34.1
66	72 51.1	-53.8	16.7	74 45.5	-52.9	18.8	76 38.2	-51.5	21.5	78 28.5	-49.6	25.0	80 15.0	-46.7	30.0
67	71 57.3	-54.4	15.2	73 52.6	-53.6	17.0	75 46.7	-52.5	19.3	77 38.9	-51.0	22.3	79 28.3	-48.8	26.4
68	71 02.9	-54.9	13.9	72 59.0	-54.2	15.4	74 54.2	-53.4	17.4	76 47.9	-52.2	19.9	78 39.5	-50.5	23.3
69	70 08.0	-55.4	12.7	72 04.8	-54.9	14.0	74 00.8	-54.1	15.7	75 55.7	-53.2	17.8	77 49.0	-51.8	20.7
70	69 12.6	-55.8	11.6	71 09.9	-55.3	12.7	73 06.7	-54.8	14.2	75 02.5	-53.9	16.0	76 57.2	-52.9	18.4
71	68 16.8	-56.1	10.5	70 14.6	-55.7	11.6	72 11.9	-55.2	12.8	74 08.6	-54.6	14.3	76 04.3	-53.7	16.3
72	67 20.7	-56.4	9.6	69 18.9	-56.1	10.5	71 16.7	-55.7	11.5	73 14.0	-55.2	12.9	75 10.6	-54.5	14.5
73	66 24.3	-56.7	8.7	68 22.8	-56.4	9.5	70 21.0	-56.1	10.4	72 18.8	-55.7	11.5	74 16.1	-55.1	13.0
74	65 27.6	-56.9	7.9	67 26.4	-56.7	8.6	69 24.9	-56.4	9.4	71 23.1	-56.0	10.3	73 21.0	-55.7	11.5
75	64 30.7	-57.1	7.2	66 29.7	-57.0	7.8	68 28.5	-56.7	8.4	70 27.1	-56.5	9.3	72 25.3	-56.0	10.3
76	63 33.6	-57.4	6.5	65 32.7	-57.1	7.0	67 31.8	-57.0	7.6	69 30.6	-56.7	8.3	71 29.3	-56.5	9.1
77	62 36.2	-57.5	5.8	64 35.6	-57.4	6.3	66 34.8	-57.2	6.8	68 33.9	-57.0	7.4	70 32.8	-56.8	8.1
78	61 38.7	-57.6	5.2	63 38.2	-57.5	5.6	65 37.6	-57.4	6.0	67 36.9	-57.3	6.5	69 36.0	-57.0	7.1
79	60 41.1	-57.8	4.6	62 40.7	-57.7	5.0	64 40.2	-57.6	5.3	66 39.6	-57.4	5.7	68 39.0	-57.3	6.3
80	59 43.3	-57.9	4.1	61 43.0	-57.9	4.4	63 42.6	-57.7	4.7	65 42.2	-57.7	5.0	67 41.7	-57.6	5.5
81	58 45.4	-58.0	3.6	60 45.1	-57.9	3.8	62 44.9	-57.9	4.1	64 44.5	-57.8	4.4	66 44.1	-57.7	4.7
82	57 47.4	-58.2	3.1	59 47.2	-58.1	3.3	61 47.0	-58.1	3.5	63 46.7	-57.9	3.8	65 46.4	-57.8	4.0
83	56 49.2	-58.2	2.7	58 49.1	-58.2	2.8	60 48.9	-58.1	3.0	62 48.8	-58.1	3.2	64 48.6	-58.1	3.4
84	55 51.0	-58.3	2.2	57 50.9	-58.3	2.3	59 50.8	-58.3	2.5	61 50.7	-58.2	2.6	63 50.5	-58.1	2.8
85	54 52.7	-58.4	1.8	56 52.6	-58.4	1.9	58 52.5	-58.3	2.0	60 52.5	-58.4	2.1	62 52.4	-58.3	2.3
86	53 54.3	-58.5	1.4	55 54.2	-58.4	1.5	57 54.2	-58.4	1.6	59 54.1	-58.4	1.7	61 54.1	-58.4	1.8
87	52 55.8	-58.5	1.0	54 55.8	-58.5	1.1	56 55.8	-58.6	1.1	58 55.7	-58.5	1.2	60 55.7	-58.5	1.3
88	51 57.3	-58.6	0.7	53 57.3	-58.6	0.7	55 57.2	-58.5	0.7	57 57.2	-58.5	0.8	59 57.2	-58.5	0.8
89	50 58.7	-58.7	0.3	52 58.7	-58.7	0.3	54 58.7	-58.7	0.4	56 58.7	-58.7	0.4	58 58.7	-58.7	0.4
90	50 00.0	-58.7	0.0	52 00.0	-58.7	0.0	54 00.0	-58.7	0.0	56 00.0	-58.7	0.0	58 00.0	-58.7	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 12°, 348°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9	17.6	-59.5 169.5	7	19.6	-59.5 169.5	5	21.6	-59.6 169.6	3	23.5	-59.5 169.6	1	25.5	-59.6 169.6	30
8	18.1	-59.4 169.6	6	20.1	-59.5 169.7	4	22.0	-59.5 169.7	2	24.0	-59.6 169.7	0	25.9	-59.7 169.7	31
7	18.7	-59.5 169.8	5	20.6	-59.5 169.8	3	22.5	-59.6 169.8	1	24.4	-59.6 169.8	0	33.8	+59.6 10.2	32
6	19.2	-59.4 169.9	4	21.1	-59.5 169.9	2	22.9	-59.5 169.9	0	24.8	-59.6 170.0	1	33.4	+59.6 10.0	33
5	19.8	-59.5 170.0	3	21.6	-59.5 170.1	1	23.4	-59.6 170.1	0	34.8	+59.6 9.9	2	33.0	+59.7 9.9	34
4	20.3	-59.4 170.2	2	22.1	-59.5 170.2	0	23.8	-59.5 170.2	1	34.4	+59.6 9.8	3	32.7	+59.6 9.8	35
3	20.9	-59.5 170.3	1	22.6	-59.5 170.3	0	35.7	+59.6 9.7	2	34.0	+59.6 9.7	4	32.3	+59.6 9.7	36
2	21.4	-59.5 170.4	0	23.1	-59.5 170.4	1	35.3	+59.5 9.6	3	33.6	+59.6 9.6	5	31.9	+59.7 9.6	37
1	21.9	-59.4 170.6	0	36.4	+59.6 9.4	2	34.8	+59.6 9.4	4	33.2	+59.6 9.5	6	31.6	+59.6 9.5	38
0	22.5	-59.5 170.7	1	36.0	+59.5 9.3	3	34.4	+59.5 9.3	5	32.8	+59.6 9.3	7	31.2	+59.6 9.4	39
0	37.0	+59.5 9.2	2	35.5	+59.5 9.2	4	33.9	+59.6 9.2	6	32.4	+59.6 9.2	8	30.8	+59.6 9.3	40
1	36.5	+59.4 9.0	3	35.0	+59.5 9.0	5	33.5	+59.5 9.1	7	32.0	+59.5 9.1	9	30.4	+59.7 9.2	41
2	35.9	+59.5 8.9	4	34.5	+59.5 8.9	6	33.0	+59.6 8.9	8	31.5	+59.6 9.0	10	30.1	+59.6 9.0	42
3	35.4	+59.4 8.8	5	34.0	+59.5 8.8	7	32.6	+59.5 8.8	9	31.1	+59.6 8.9	11	29.7	+59.6 8.9	43
4	34.8	+59.5 8.6	6	33.5	+59.5 8.7	8	32.1	+59.5 8.7	10	30.7	+59.6 8.7	12	29.3	+59.6 8.8	44
5	34.3	+59.4 8.5	7	33.0	+59.5 8.5	9	31.6	+59.6 8.6	11	30.3	+59.6 8.6	13	28.9	+59.6 8.7	45
6	33.7	+59.5 8.4	8	32.5	+59.5 8.4	10	31.2	+59.5 8.4	12	29.9	+59.5 8.5	14	28.5	+59.6 8.6	46
7	33.2	+59.5 8.2	9	32.0	+59.5 8.3	11	30.7	+59.5 8.3	13	29.4	+59.6 8.4	15	28.1	+59.6 8.5	47
8	32.7	+59.4 8.1	10	31.5	+59.4 8.1	12	30.2	+59.6 8.2	14	29.0	+59.6 8.3	16	27.7	+59.6 8.3	48
9	32.1	+59.4 8.0	11	30.9	+59.5 8.0	13	29.8	+59.5 8.1	15	28.6	+59.5 8.1	17	27.3	+59.6 8.2	49
10	31.5	+59.5 7.8	12	30.4	+59.5 7.9	14	29.3	+59.5 7.9	16	28.1	+59.6 8.0	18	26.9	+59.6 8.1	50
11	31.0	+59.4 7.7	13	29.9	+59.5 7.7	15	28.8	+59.5 7.8	17	27.7	+59.5 7.9	19	26.5	+59.6 8.0	51
12	30.4	+59.5 7.5	14	29.4	+59.4 7.6	16	28.3	+59.5 7.7	18	27.2	+59.6 7.8	20	26.1	+59.6 7.9	52
13	29.9	+59.4 7.4	15	28.8	+59.5 7.5	17	27.8	+59.5 7.5	19	26.8	+59.5 7.6	21	25.7	+59.6 7.7	53
14	29.3	+59.4 7.3	16	28.3	+59.5 7.3	18	27.3	+59.5 7.4	20	26.3	+59.5 7.5	22	25.3	+59.5 7.6	54
15	28.7	+59.4 7.1	17	27.8	+59.4 7.2	19	26.8	+59.5 7.3	21	25.8	+59.5 7.3	23	24.8	+59.6 7.5	55
16	28.1	+59.4 7.0	18	27.2	+59.5 7.0	20	26.3	+59.5 7.1	22	25.4	+59.5 7.2	24	24.4	+59.6 7.3	56
17	27.5	+59.4 6.8	19	26.7	+59.4 6.9	21	25.8	+59.5 7.0	23	24.9	+59.5 7.0	25	24.0	+59.5 7.2	57
18	26.9	+59.4 6.7	20	26.1	+59.5 6.8	22	25.3	+59.4 6.8	24	24.4	+59.5 6.9	26	23.5	+59.6 7.1	58
19	26.3	+59.4 6.5	21	25.6	+59.4 6.6	23	24.7	+59.5 6.7	25	23.9	+59.5 6.8	27	23.1	+59.5 6.9	59
20	25.7	+59.4 6.4	22	25.0	+59.4 6.5	24	24.2	+59.5 6.6	26	23.4	+59.5 6.6	28	22.6	+59.5 6.8	60
21	25.1	+59.4 6.2	23	24.4	+59.4 6.3	25	23.7	+59.4 6.4	27	22.9	+59.5 6.5	29	22.1	+59.5 6.6	61
22	24.5	+59.4 6.1	24	23.8	+59.4 6.2	26	23.1	+59.4 6.3	28	22.4	+59.4 6.4	30	21.6	+59.5 6.5	62
23	23.9	+59.3 5.9	25	23.2	+59.4 6.0	27	22.5	+59.5 6.1	29	21.8	+59.5 6.2	31	21.1	+59.5 6.3	63
24	23.2	+59.4 5.7	26	22.6	+59.4 5.8	28	22.0	+59.4 5.9	30	21.3	+59.4 6.1	32	20.6	+59.5 6.2	64
25	22.6	+59.3 5.6	27	22.0	+59.3 5.7	29	21.4	+59.4 5.8	31	20.7	+59.5 5.9	33	20.1	+59.5 6.0	65
26	21.9	+59.3 5.4	28	21.3	+59.4 5.5	30	20.8	+59.4 5.6	32	20.2	+59.4 5.7	34	19.6	+59.4 5.9	66
27	21.2	+59.3 5.2	29	20.7	+59.3 5.3	31	20.2	+59.3 5.5	33	19.6	+59.4 5.6	35	19.0	+59.5 5.7	67
28	20.5	+59.3 5.1	30	20.0	+59.4 5.2	32	19.5	+59.4 5.3	34	19.0	+59.4 5.4	36	18.5	+59.4 5.5	68
29	19.8	+59.3 4.9	31	19.4	+59.3 5.0	33	18.9	+59.3 5.1	35	18.4	+59.4 5.2	37	17.9	+59.4 5.4	69
30	19.1	+59.3 4.7	32	18.7	+59.3 4.8	34	18.2	+59.4 4.9	36	17.8	+59.4 5.1	38	17.3	+59.4 5.2	70
31	18.4	+59.2 4.5	33	18.0	+59.3 4.6	35	17.6	+59.3 4.8	37	17.2	+59.3 4.9	39	16.7	+59.4 5.0	71
32	17.6	+59.3 4.4	34	17.3	+59.2 4.5	36	16.9	+59.3 4.6	38	16.5	+59.3 4.7	40	16.1	+59.4 4.8	72
33	16.9	+59.2 4.2	35	16.5	+59.3 4.3	37	16.2	+59.3 4.4	39	15.8	+59.3 4.5	41	15.5	+59.3 4.6	73
34	16.1	+59.2 4.0	36	15.8	+59.2 4.1	38	15.5	+59.2 4.2	40	15.1	+59.3 4.3	42	14.8	+59.3 4.4	74
35	15.3	+59.2 3.8	37	15.0	+59.2 3.9	39	14.7	+59.3 4.0	41	14.4	+59.3 4.1	43	14.1	+59.3 4.2	75
36	14.5	+59.1 3.6	38	14.2	+59.2 3.7	40	14.0	+59.2 3.8	42	13.7	+59.2 3.9	44	13.4	+59.3 4.0	76
37	13.6	+59.2 3.4	39	13.4	+59.2 3.5	41	13.2	+59.2 3.6	43	12.9	+59.3 3.7	45	12.7	+59.2 3.8	77
38	12.8	+59.1 3.2	40	12.6	+59.1 3.2	42	12.4	+59.1 3.3	44	12.2	+59.2 3.5	46	11.9	+59.3 3.6	78
39	11.9	+59.1 2.9	41	11.7	+59.1 3.0	43	11.5	+59.2 3.1	45	11.4	+59.1 3.2	47	11.2	+59.1 3.3	79
40	11.0	+59.0 2.7	42	10.8	+59.1 2.8	44	10.7	+59.1 2.9	46	10.5	+59.2 3.0	48	10.3	+59.2 3.1	80
41	10.0	+59.1 2.5	43	09.9	+59.1 2.6	45	09.8	+59.1 2.6	47	09.7	+59.0 2.7	49	09.5	+59.1 2.9	81
42	09.1	+59.0 2.2	44	09.0	+59.0 2.3	46	08.9	+59.0 2.4	48	08.7	+59.1 2.5	50	08.6	+59.1 2.6	82
43	08.1	+58.9 2.0	45	08.0	+59.0 2.1	47	07.9	+59.0 2.1	49	07.8	+59.0 2.2	51	07.7	+59.1 2.3	83
44	07.0	+59.0 1.7	46	07.0	+58.9 1.8	48	06.9	+59.0 1.9	50	06.8	+59.0 1.9	52	06.8	+59.0 2.0	84
45	06.0	+58.9 1.5	47	05.9	+58.9 1.5	49	05.9	+58.9 1.6	51	05.8	+59.0 1.7	53	05.8	+58.9 1.7	85
46	04.9	+58.8 1.2	48	04.8	+58.9 1.2	50	04.8	+58.9 1.3	52	04.8	+58.9 1.4	54	04.7	+58.9 1.4	86
47	03.7	+58.8 0.9	49	03.7	+58.8 1.0	51	03.7	+58.8 1.0	53	03.7	+58.8 1.0	55	03.6	+58.9 1.1	87
48	02.5	+58.8 0.6	50	02.5	+58.8 0.6	52	02.5	+58.8 0.7	54	02.5	+58.8 0.7	56	02.5	+58.8 0.7	88
49	01.3	+58.7 0.3	51	01.3	+58.7 0.3	53	01.3	+58.7 0.3	55	01.3	+58.7 0.4	57	01.3	+58.7 0.4	89
50	00.0	+58.7 0.0	52	00.0	+58.7 0.0	54	00.0	+58.7 0.0	56	00.0	+58.7 0.0	58	00.0	+58.7 0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 168°, 192°

14°, 346° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	77 53.0	+ 1.2	• 86.5	77 50.6	+ 11.2	• 95.8	77 29.1	+ 20.6	• 104.8	76 50.0	+ 29.0	• 113.1	75 55.8	+ 35.9	• 120.5
31	77 54.2	- 3.6	• 81.7	78 01.8	+ 6.3	• 91.1	77 49.7	+ 16.3	• 100.4	77 19.0	+ 25.2	• 109.2	76 31.7	+ 32.9	• 117.1
32	77 50.6	- 8.4	• 77.0	78 08.1	+ 1.4	• 86.3	78 06.0	+ 11.5	• 95.8	77 44.2	+ 21.2	• 105.0	77 04.6	+ 29.7	• 113.5
33	77 42.2	- 13.1	• 72.3	78 09.5	- 3.5	• 81.4	78 17.5	+ 6.7	• 91.0	78 05.4	+ 16.8	• 100.5	77 34.3	+ 25.9	• 109.5
34	77 29.1	- 17.5	• 67.7	78 06.0	- 8.5	• 76.6	78 24.2	+ 1.5	• 86.1	78 22.2	+ 11.9	• 95.8	78 00.2	+ 21.8	• 105.2
35	77 11.6	- 21.6	• 63.4	77 57.5	- 13.3	• 71.8	78 25.7	- 3.5	• 81.1	78 34.1	+ 6.9	• 90.9	78 22.0	+ 17.2	• 100.7
36	76 50.0	- 25.4	• 59.2	77 44.2	- 17.7	• 67.1	78 22.2	- 8.6	• 76.1	78 41.0	+ 1.7	• 85.9	78 39.2	+ 12.3	• 95.9
37	76 24.6	- 28.8	• 55.3	77 26.5	- 21.9	• 62.7	78 13.6	- 13.4	• 71.2	78 42.7	- 3.5	• 80.8	78 51.5	+ 7.2	• 90.8
38	75 55.8	- 32.0	• 51.6	77 04.6	- 25.7	• 58.5	78 00.2	- 18.0	• 66.5	78 39.2	- 8.7	• 75.7	78 58.7	+ 1.8	• 85.7
39	75 23.8	- 34.7	• 48.2	76 38.9	- 29.3	• 54.5	77 42.2	- 22.3	• 62.0	78 30.5	- 13.6	• 70.7	79 00.5	- 3.5	• 80.4
40	74 49.1	- 37.2	• 45.0	76 09.6	- 32.3	• 50.8	77 19.9	- 26.1	• 57.7	78 16.9	- 18.4	• 65.8	78 57.0	- 8.8	• 75.2
41	74 11.9	- 39.3	• 42.1	75 37.3	- 35.2	• 47.3	76 53.8	- 29.7	• 53.6	77 58.5	- 22.6	• 61.2	78 48.2	- 14.0	• 70.1
42	73 32.6	- 41.4	• 39.4	75 02.1	- 37.6	• 44.1	76 24.1	- 32.8	• 49.9	77 35.9	- 26.7	• 56.8	78 34.2	- 18.7	• 65.1
43	72 51.2	- 43.0	• 36.9	74 24.5	- 39.8	• 41.2	75 51.3	- 35.7	• 46.4	77 09.2	- 30.1	• 52.7	78 15.5	- 23.1	• 60.4
44	72 08.2	- 44.6	• 34.6	73 44.7	- 41.7	• 38.4	75 15.6	- 38.1	• 43.2	76 39.1	- 33.4	• 48.9	77 52.4	- 27.2	• 55.9
45	71 23.6	- 45.8	• 32.4	73 03.0	- 43.5	• 35.9	74 37.5	- 40.2	• 40.2	76 05.7	- 36.2	• 45.4	77 25.2	- 30.7	• 51.8
46	70 37.8	- 47.1	• 30.4	72 19.5	- 44.9	• 33.6	73 57.3	- 42.3	• 37.4	75 29.5	- 38.6	• 42.1	76 54.5	- 33.9	• 47.9
47	69 50.7	- 48.2	• 28.6	71 34.6	- 46.3	• 31.5	73 15.0	- 43.8	• 34.9	74 50.9	- 40.8	• 39.1	76 20.6	- 36.8	• 44.3
48	69 02.5	- 49.1	• 26.9	70 48.3	- 47.4	• 29.5	72 31.2	- 45.4	• 32.6	74 10.1	- 42.7	• 36.4	75 43.8	- 39.2	• 41.1
49	68 13.4	- 49.9	• 25.3	70 00.9	- 48.5	• 27.7	71 45.8	- 46.7	• 30.5	73 27.4	- 44.4	• 33.9	75 04.6	- 41.4	• 38.0
50	67 23.5	- 50.6	• 23.9	69 12.4	- 49.4	• 26.0	70 59.1	- 47.8	• 28.5	72 43.0	- 45.8	• 31.6	74 23.2	- 43.2	• 35.3
51	66 32.9	- 51.4	• 22.5	68 23.0	- 50.3	• 24.4	70 11.3	- 48.9	• 26.7	71 57.2	- 47.1	• 29.4	73 40.0	- 44.9	• 32.8
52	65 41.5	- 51.9	• 21.2	67 32.7	- 50.9	• 23.0	69 22.4	- 49.8	• 25.0	71 10.1	- 48.3	• 27.5	72 55.1	- 46.4	• 30.5
53	64 49.6	- 52.5	• 20.0	66 41.8	- 51.6	• 21.6	68 32.6	- 50.5	• 23.5	70 21.8	- 49.3	• 25.7	72 08.7	- 47.6	• 28.4
54	63 57.1	- 53.0	• 18.9	65 50.2	- 52.2	• 20.3	67 42.1	- 51.3	• 22.0	69 32.5	- 50.1	• 24.0	71 21.1	- 48.7	• 26.4
55	63 04.1	- 53.4	• 17.8	64 58.0	- 52.8	• 19.1	66 50.8	- 51.9	• 20.7	68 42.4	- 50.9	• 22.5	70 32.4	- 49.6	• 24.6
56	62 10.7	- 53.8	• 16.8	64 05.2	- 53.2	• 18.0	65 58.9	- 52.5	• 19.4	67 51.5	- 51.6	• 21.0	69 42.8	- 50.6	• 23.0
57	61 16.9	- 54.1	• 15.9	63 12.0	- 53.6	• 17.0	65 06.4	- 53.0	• 18.2	66 59.9	- 52.2	• 19.7	68 52.2	- 51.2	• 21.4
58	60 22.8	- 54.6	• 15.0	62 18.4	- 54.0	• 16.0	64 13.4	- 53.5	• 17.1	66 07.7	- 52.8	• 18.5	68 01.0	- 52.0	• 20.0
59	59 28.2	- 54.8	• 14.2	61 24.4	- 54.4	• 15.1	63 19.9	- 53.8	• 16.1	65 14.9	- 53.3	• 17.3	67 09.0	- 52.6	• 18.7
60	58 33.4	- 55.0	• 13.4	60 30.0	- 54.7	• 14.2	62 26.1	- 54.3	• 15.2	64 21.6	- 53.7	• 16.2	66 16.4	- 53.1	• 17.5
61	57 38.4	- 55.4	• 12.7	59 35.3	- 55.0	• 13.4	61 31.8	- 54.6	• 14.2	63 27.9	- 54.2	• 15.2	65 23.3	- 53.5	• 16.4
62	56 43.0	- 55.5	• 11.9	58 40.3	- 55.3	• 12.6	60 37.2	- 54.9	• 13.4	62 33.7	- 54.5	• 14.3	64 29.8	- 54.0	• 15.3
63	55 47.5	- 55.8	• 11.3	57 45.0	- 55.5	• 11.9	59 42.3	- 55.2	• 12.6	61 39.2	- 54.8	• 13.4	63 35.8	- 54.4	• 14.3
64	54 51.7	- 56.0	• 10.6	56 49.5	- 55.7	• 11.2	58 47.1	- 55.4	• 11.8	60 44.4	- 55.1	• 12.5	62 41.4	- 54.8	• 13.4
65	53 55.7	- 56.2	• 10.0	55 53.8	- 56.0	• 10.5	57 51.7	- 55.7	• 11.1	59 49.3	- 55.4	• 11.7	61 46.6	- 55.0	• 12.5
66	52 59.5	- 56.3	• 9.4	54 57.8	- 56.1	• 9.9	56 56.0	- 55.9	• 10.4	58 53.9	- 55.7	• 11.0	60 51.6	- 55.4	• 11.7
67	52 03.2	- 56.5	• 8.8	54 01.7	- 56.3	• 9.3	56 00.1	- 56.1	• 9.7	57 58.2	- 55.8	• 10.3	59 56.2	- 55.6	• 10.9
68	51 06.7	- 56.6	• 8.3	53 05.4	- 56.5	• 8.7	55 04.0	- 56.3	• 9.1	57 02.4	- 56.1	• 9.6	59 00.6	- 55.9	• 10.1
69	50 10.1	- 56.8	• 7.8	52 08.9	- 56.6	• 8.1	54 07.7	- 56.5	• 8.5	56 06.3	- 56.3	• 8.9	58 04.7	- 56.0	• 9.4
70	49 13.3	- 56.9	• 7.3	51 12.3	- 56.7	• 7.6	53 11.2	- 56.6	• 7.9	55 10.0	- 56.4	• 8.3	57 08.7	- 56.3	• 8.8
71	48 16.4	- 57.0	• 6.8	50 15.6	- 56.9	• 7.1	52 14.6	- 56.8	• 7.4	54 13.6	- 56.7	• 7.7	56 12.4	- 56.5	• 8.1
72	47 19.4	- 57.1	• 6.3	49 18.7	- 57.0	• 6.6	51 17.8	- 56.9	• 6.9	53 16.9	- 56.7	• 7.2	55 15.9	- 56.6	• 7.5
73	46 22.3	- 57.2	• 5.9	48 21.7	- 57.2	• 6.1	50 20.9	- 57.0	• 6.4	52 20.2	- 56.9	• 6.6	54 19.3	- 56.8	• 7.0
74	45 25.1	- 57.3	• 5.5	47 24.5	- 57.2	• 5.7	49 23.9	- 57.1	• 5.9	51 23.3	- 57.1	• 6.1	53 22.5	- 56.9	• 6.4
75	44 27.8	- 57.4	• 5.0	46 27.3	- 57.3	• 5.2	48 26.8	- 57.3	• 5.4	50 26.2	- 57.1	• 5.6	52 25.6	- 57.0	• 5.9
76	43 30.4	- 57.5	• 4.6	45 30.0	- 57.4	• 4.8	47 29.5	- 57.3	• 5.0	49 29.1	- 57.3	• 5.2	51 28.6	- 57.2	• 5.4
77	42 32.9	- 57.6	• 4.2	44 32.6	- 57.5	• 4.4	46 32.2	- 57.4	• 4.5	48 31.8	- 57.4	• 4.7	50 31.4	- 57.3	• 4.9
78	41 35.3	- 57.6	• 3.9	43 35.1	- 57.6	• 4.0	45 34.8	- 57.6	• 4.1	47 34.4	- 57.4	• 4.3	49 34.1	- 57.4	• 4.4
79	40 37.7	- 57.7	• 3.5	42 37.5	- 57.7	• 3.6	44 37.2	- 57.6	• 3.7	46 37.0	- 57.6	• 3.9	48 36.7	- 57.5	• 4.0
80	39 40.0	- 57.8	• 3.1	41 39.8	- 57.7	• 3.2	43 39.6	- 57.7	• 3.3	45 39.4	- 57.6	• 3.4	47 39.2	- 57.6	• 3.6
81	38 42.2	- 57.8	• 2.8	40 42.1	- 57.8	• 2.9	42 41.9	- 57.7	• 3.0	44 41.8	- 57.7	• 3.1	46 41.6	- 57.7	• 3.2
82	37 44.4	- 57.9	• 2.4	39 44.3	- 57.9	• 2.5	41 44.2	- 57.8	• 2.6	43 44.1	- 57.8	• 2.7	45 43.9	- 57.7	• 2.8
83	36 46.5	- 57.9	• 2.1	38 46.4	- 57.9	• 2.2	40 46.4	- 57.9	• 2.2	42 46.3	- 57.9	• 2.3	44 46.2	- 57.9	• 2.4
84	35 48.6	- 58.0	• 1.8	37 48.5	- 57.9	• 1.8	39 48.5	- 58.0	• 1.9	41 48.4	- 57.9	• 1.9	43 48.3	- 57.9	• 2.0
85	34 50.6	- 58.0	• 1.5	36 50.6	- 58.1	• 1.5	38 50.5	- 58.0	• 1.6	40 50.5	- 58.0	• 1.6	42 50.4	- 57.9	• 1.6
86	33 52.6	- 58.1	• 1.2	35 52.5	- 58.0	• 1.2	37 52.5	- 58.0	• 1.2	39 52.5	- 58.1	• 1.3	41 52.5	- 58.1	• 1.3
87	32 54.5	- 58.1	• 0.9	34 54.5	- 58.1	• 0.9	36 54.5	- 58.2	• 0.9	38 54.4	- 58.1	• 0.9	40 54.4	- 58.1	• 1.0
88	31 56.4	- 58.2	• 0.6	33 56.4	- 58.2	• 0.6	35 56.3	- 58.1	• 0.6	37 56.3	- 58.1	• 0.6	39 56.3	- 58.1	• 0.6
89	30 58.2	- 58.2	• 0.3	32 58.2	- 58.2	• 0.3	34 58.2	- 58.2	• 0.3	36 58.2	- 58.2	• 0.3	38 58.2	- 58.2	• 0.3
90	30 00.0	- 58.2	• 0.0	32 00.0	- 58.2	• 0.0	34 00.0	- 58.2	• 0.0	36 00.0	- 58.2	• 0.0	38 00.0	- 58.2	• 0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 14°, 346°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
28 32.2	-58.3	166.2	26 35.6	-58.4	166.4	24 38.9	-58.5	166.7	22 42.1	-58.7	166.9	20 45.2	-58.8	167.1	30
27 33.9	-58.3	166.5	25 37.2	-58.4	166.7	23 40.4	-58.6	166.9	21 43.4	-58.6	167.1	19 46.4	-58.7	167.3	31
26 35.6	-58.3	166.7	24 38.8	-58.5	167.0	22 41.8	-58.6	167.2	20 44.8	-58.7	167.3	18 47.7	-58.8	167.5	32
25 37.3	-58.4	167.0	23 40.3	-58.5	167.2	21 43.2	-58.6	167.4	19 46.1	-58.7	167.5	17 48.9	-58.8	167.7	33
24 38.9	-58.4	167.3	22 41.8	-58.5	167.4	20 44.6	-58.6	167.6	18 47.4	-58.7	167.8	16 50.1	-58.8	167.9	34
23 40.5	-58.4	167.5	21 43.3	-58.5	167.7	19 46.0	-58.6	167.8	17 48.7	-58.7	168.0	15 51.3	-58.9	168.1	35
22 42.1	-58.5	167.8	20 44.8	-58.6	167.9	18 47.4	-58.7	168.1	16 50.0	-58.8	168.2	14 52.5	-58.9	168.3	36
21 43.6	-58.4	168.0	19 46.2	-58.5	168.2	17 48.7	-58.6	168.3	15 51.2	-58.7	168.4	13 53.6	-58.8	168.5	37
20 45.2	-58.5	168.2	18 47.7	-58.6	168.4	16 50.1	-58.7	168.5	14 52.5	-58.8	168.6	12 54.8	-58.8	168.7	38
19 46.7	-58.5	168.5	17 49.1	-58.6	168.6	15 51.4	-58.7	168.7	13 53.7	-58.8	168.8	11 56.0	-58.9	168.9	39
18 48.2	-58.5	168.7	16 50.5	-58.6	168.8	14 52.7	-58.7	168.9	12 54.9	-58.8	169.0	10 57.1	-58.9	169.1	40
17 49.7	-58.6	168.9	15 51.9	-58.7	169.1	13 54.0	-58.7	169.2	11 56.1	-58.7	169.2	9 58.2	-58.8	169.3	41
16 51.1	-58.5	169.2	14 53.2	-58.6	169.3	12 55.3	-58.7	169.4	10 57.4	-58.8	169.4	8 59.4	-58.9	169.5	42
15 52.6	-58.6	169.4	13 54.6	-58.7	169.5	11 56.6	-58.7	169.6	9 58.6	-58.9	169.7	8 00.5	-58.9	169.7	43
14 54.0	-58.6	169.6	12 55.9	-58.6	169.7	10 57.9	-58.8	169.8	8 59.7	-58.8	169.9	7 01.6	-58.9	169.9	44
13 55.4	-58.6	169.8	11 57.3	-58.7	169.9	9 59.1	-58.7	170.0	8 00.9	-58.7	170.0	6 02.7	-58.9	170.1	45
12 56.8	-58.6	170.1	10 58.6	-58.7	170.1	9 00.4	-58.8	170.2	7 02.1	-58.8	170.3	5 03.8	-58.9	170.3	46
11 58.2	-58.6	170.3	9 59.9	-58.7	170.4	8 01.6	-58.7	170.4	6 03.3	-58.8	170.4	4 04.9	-58.9	170.5	47
10 59.6	-58.6	170.5	9 01.2	-58.6	170.6	7 02.9	-58.8	170.6	5 04.5	-58.9	170.6	3 06.1	-58.9	170.7	48
10 01.0	-58.6	170.7	8 02.6	-58.7	170.8	6 04.1	-58.8	170.8	4 05.6	-58.8	170.8	2 07.2	-58.9	170.9	49
9 02.4	-58.7	170.9	7 03.9	-58.8	171.0	5 05.3	-58.7	171.0	3 08.3	-58.9	171.2	1 08.3	-58.9	171.1	50
8 03.7	-58.6	171.2	6 05.1	-58.7	171.2	4 06.6	-58.8	171.2	2 08.0	-58.9	171.2	0 09.4	-58.9	171.2	51
7 05.1	-58.7	171.4	5 06.4	-58.7	171.4	3 07.8	-58.8	171.4	1 09.7	-58.9	171.4	0 49.5	+58.9	8.6	52
6 06.4	-58.6	171.6	4 07.7	-58.7	171.6	2 09.0	-58.8	171.6	0 10.3	-58.9	171.6	1 48.4	+58.9	8.4	53
5 07.8	-58.7	171.8	3 09.0	-58.7	171.8	1 10.2	-58.8	171.8	0 48.6	+58.8	8.2	2 47.3	+58.9	8.2	54
4 09.1	-58.6	172.0	2 10.3	-58.7	172.0	0 11.4	-58.7	172.0	1 47.4	+58.8	8.0	3 46.2	+58.9	8.0	55
3 10.5	-58.7	172.2	1 11.6	-58.8	172.2	0 47.3	+58.8	7.8	2 46.2	+58.9	7.8	4 45.1	+58.9	7.8	56
2 11.8	-58.7	172.4	0 12.8	-58.7	172.4	1 46.1	+58.8	7.6	3 45.1	+58.8	7.6	5 44.0	+58.9	7.6	57
1 13.1	-58.7	172.6	0 45.9	+58.7	7.4	2 44.9	+58.8	7.4	4 43.9	+58.8	7.4	6 42.9	+58.9	7.4	58
0 14.4	-58.6	172.8	1 44.6	+58.7	7.2	3 43.7	+58.8	7.2	5 42.7	+58.9	7.2	7 41.8	+58.9	7.2	59
0 44.2	+58.7	6.9	2 43.3	+58.8	7.0	4 42.5	+58.7	7.0	6 41.6	+58.8	7.0	8 40.7	+58.8	7.0	60
1 42.9	+58.7	6.7	3 42.1	+58.7	6.7	5 41.2	+58.8	6.8	7 40.4	+58.8	6.8	9 39.5	+58.9	6.8	61
2 41.6	+58.6	6.5	4 40.8	+58.7	6.5	6 40.0	+58.7	6.6	8 39.2	+58.8	6.6	10 38.4	+58.9	6.6	62
3 40.2	+58.7	6.3	5 39.5	+58.7	6.3	7 38.7	+58.8	6.4	9 38.0	+58.8	6.4	11 37.3	+58.8	6.4	63
4 38.9	+58.6	6.1	6 38.2	+58.7	6.1	8 37.5	+58.8	6.2	10 36.8	+58.8	6.2	12 36.1	+58.8	6.2	64
5 37.5	+58.7	5.9	7 36.9	+58.7	5.9	9 36.3	+58.7	6.0	11 35.6	+58.8	6.0	13 34.9	+58.9	6.0	65
6 36.2	+58.6	5.7	8 35.6	+58.7	5.7	10 35.0	+58.7	5.7	12 34.4	+58.8	5.8	14 33.8	+58.8	5.8	66
7 34.8	+58.7	5.5	9 34.3	+58.7	5.5	11 33.7	+58.8	5.5	13 33.2	+58.7	5.6	15 32.6	+58.8	5.6	67
8 33.5	+58.6	5.3	10 33.0	+58.6	5.3	12 32.5	+58.7	5.3	14 31.9	+58.8	5.4	16 31.4	+58.8	5.4	68
9 32.1	+58.6	5.0	11 31.6	+58.7	5.1	13 31.2	+58.7	5.1	15 30.7	+58.7	5.2	17 30.2	+58.8	5.2	69
10 30.7	+58.7	4.8	12 30.3	+58.7	4.9	14 29.9	+58.7	4.9	16 29.4	+58.8	5.0	18 29.0	+58.7	5.0	70
11 29.4	+58.6	4.6	13 29.0	+58.6	4.6	15 28.6	+58.6	4.7	17 28.2	+58.7	4.7	19 27.7	+58.8	4.8	71
12 28.0	+58.6	4.4	14 27.6	+58.6	4.4	16 27.2	+58.7	4.5	18 26.9	+58.7	4.5	20 26.5	+58.7	4.6	72
13 26.6	+58.5	4.2	15 26.2	+58.7	4.2	17 25.9	+58.7	4.3	19 25.6	+58.7	4.3	21 25.2	+58.8	4.4	73
14 25.1	+58.6	3.9	16 24.9	+58.6	4.0	18 24.6	+58.6	4.0	20 24.3	+58.6	4.1	22 24.0	+58.7	4.1	74
15 23.7	+58.6	3.7	17 23.5	+58.6	3.8	19 23.2	+58.6	3.8	21 22.9	+58.7	3.9	23 22.7	+58.6	3.9	75
16 22.3	+58.5	3.5	18 22.1	+58.5	3.5	20 21.8	+58.6	3.6	22 21.6	+58.6	3.6	24 21.3	+58.7	3.7	76
17 20.8	+58.6	3.3	19 20.6	+58.6	3.3	21 20.4	+58.6	3.3	23 20.2	+58.6	3.4	25 20.0	+58.6	3.5	77
18 19.4	+58.5	3.0	20 19.2	+58.5	3.1	22 19.0	+58.6	3.1	24 18.8	+58.6	3.2	26 18.6	+58.7	3.2	78
19 17.9	+58.5	2.8	21 17.7	+58.5	2.8	23 17.6	+58.5	2.9	25 17.4	+58.6	2.9	27 17.3	+58.5	3.0	79
20 16.4	+58.4	2.6	22 16.2	+58.5	2.6	24 16.1	+58.5	2.6	26 16.0	+58.5	2.7	28 15.8	+58.6	2.7	80
21 14.8	+58.5	2.3	23 14.7	+58.5	2.4	25 14.6	+58.5	2.4	27 14.5	+58.5	2.4	29 14.4	+58.5	2.5	81
22 13.3	+58.4	2.1	24 13.2	+58.5	2.1	26 13.1	+58.5	2.2	28 13.0	+58.5	2.2	30 12.9	+58.6	2.2	82
23 11.7	+58.4	1.8	25 11.7	+58.4	1.9	27 11.6	+58.4	1.9	29 11.5	+58.5	1.9	31 11.5	+58.4	2.0	83
24 10.1	+58.4	1.6	26 10.1	+58.4	1.6	28 10.0	+58.4	1.6	30 10.0	+58.4	1.7	32 09.9	+58.5	1.7	84
25 08.5	+58.4	1.3	27 08.5	+58.3	1.4	29 08.4	+58.4	1.4	31 08.4	+58.4	1.4	33 08.4	+58.4	1.4	85
26 06.9	+58.3	1.1	28 06.8	+58.4	1.1	30 06.8	+58.4	1.1	32 06.8	+58.4	1.1	34 06.8	+58.3	1.2	86
27 05.2	+58.3	0.8	29 05.2	+58.3	0.8	31 05.2	+58.3	0.8	33 05.2	+58.3	0.9	35 05.1	+58.4	0.9	87
28 03.5	+58.3	0.5	30 03.5	+58.3	0.6	32 03.5	+58.3	0.6	34 03.5	+58.3	0.6	36 03.5	+58.3	0.6	88
29 01.8	+58.2	0.3	31 01.8	+58.2	0.3	33 01.8	+58.2	0.3	35 01.8	+58.2	0.3	37 01.8	+58.2	0.3	89
30 00.0	+58.2	0.0	32 00.0	+58.2	0.0	34 00.0	+58.2	0.0	36 00.0	+58.2	0.0	38 00.0	+58.2	0.0	90

LATITUDE SAME NAME

L.H.A. 166°, 194°

14°, 346° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	74 49.1	+41.4	•126.9	73 32.6	+45.6	132.3	72 08.2	+48.9	136.9	70 37.8	+51.3	140.8	69 02.5	+53.2	144.1
31	75 30.5	+39.1	•124.0	74 18.2	+43.9	130.0	72 57.1	+47.6	135.0	71 29.1	+50.4	139.2	69 55.7	+52.6	142.8
32	76 09.6	+36.6	•120.9	75 02.1	+42.1	•127.4	73 44.7	+46.3	132.9	72 19.5	+49.5	137.5	70 48.3	+51.9	141.4
33	76 46.2	+33.7	•117.6	75 44.2	+39.9	•124.6	74 31.0	+44.6	130.5	73 09.0	+48.3	135.6	71 40.2	+51.0	139.8
34	77 19.9	+30.4	•113.9	76 24.1	+37.3	•121.5	75 15.6	+42.8	128.0	73 57.3	+46.9	133.5	72 31.2	+50.0	138.1
35	77 50.3	+26.6	•109.8	77 01.4	+34.5	•118.0	75 58.4	+40.7	•125.1	74 44.2	+45.3	131.2	73 21.2	+48.9	136.2
36	78 16.9	+22.3	•105.5	77 35.9	+31.0	•114.3	76 39.1	+38.1	•122.0	75 29.5	+43.6	128.6	74 10.1	+47.6	134.2
37	78 39.2	+17.8	•100.9	78 06.9	+27.3	•110.3	77 17.2	+35.2	•118.6	76 13.1	+41.4	•125.8	74 57.7	+46.1	131.9
38	78 57.0	+12.7	•95.9	78 34.2	+23.1	•105.8	77 52.4	+31.8	•114.8	76 54.5	+38.9	•122.7	75 43.8	+44.3	129.3
39	79 09.7	+7.5	•90.8	78 57.3	+18.3	•101.1	78 24.2	+28.1	•110.7	77 33.4	+36.0	•119.2	76 28.1	+42.2	•126.5
40	79 17.2	+1.9	•85.5	79 15.6	+13.1	•96.1	78 52.3	+23.7	•106.2	78 09.4	+32.7	•115.4	77 10.3	+39.8	•123.4
41	79 19.1	-3.5	•80.1	79 28.7	+7.8	•90.8	79 16.0	+18.9	•101.4	78 42.1	+28.8	•111.3	77 50.1	+36.9	•120.0
42	79 15.6	-9.1	•74.7	79 36.5	+2.0	•85.3	79 34.9	+13.6	•96.2	79 10.9	+24.5	•106.7	78 27.0	+33.6	•116.1
43	79 06.5	-14.2	•69.5	79 38.5	-3.6	•79.8	79 48.5	+8.0	•90.8	79 35.4	+19.5	•101.7	79 00.6	+29.6	•111.9
44	78 52.3	-19.2	•64.4	79 34.9	-9.3	•74.2	79 56.5	+2.1	•85.1	79 54.9	+14.1	•96.4	79 30.2	+25.2	•107.2
45	78 33.1	-23.7	•59.5	79 25.6	-14.7	•68.8	79 58.6	-3.7	•79.4	80 09.0	+8.2	•90.8	79 55.4	+20.2	•102.1
46	78 09.4	-27.7	•55.0	79 10.9	-19.6	•63.6	79 54.9	-9.6	•73.7	80 17.2	+2.3	•85.0	80 15.6	+14.5	•96.6
47	77 41.7	-31.4	•50.7	78 51.3	-24.3	•58.6	79 45.3	-15.1	•68.1	80 19.5	-3.9	•79.0	80 30.1	+8.6	•90.8
48	77 10.3	-34.5	•46.8	78 27.0	-28.4	•53.9	79 30.2	-20.2	•62.7	80 15.6	-9.9	•73.1	80 38.7	+2.3	•84.8
49	76 35.8	-37.4	•43.2	77 58.6	-32.0	•49.6	79 10.0	-25.0	•57.6	80 05.7	-15.7	•67.3	80 41.0	-4.1	•78.6
50	75 58.4	-39.9	•39.9	77 26.6	-35.3	•45.7	78 45.0	-29.1	•52.9	79 50.0	-20.9	•61.8	80 36.9	-10.3	•72.5
51	75 18.5	-41.9	•36.9	76 51.3	-38.1	•42.0	78 15.9	-32.8	•48.5	79 29.1	-25.7	•56.5	80 26.6	-16.2	•66.5
52	74 36.6	-43.9	•34.1	76 13.2	-40.5	•38.7	77 43.1	-36.1	•44.4	79 03.4	-29.9	•51.7	80 10.4	-21.7	•60.8
53	73 52.7	-45.4	•31.6	75 32.7	-42.7	•35.7	77 07.0	-38.8	•40.8	78 33.5	-33.6	•47.2	79 48.7	-26.5	•55.4
54	73 07.3	-46.9	•29.3	74 50.0	-44.4	•32.9	76 28.2	-41.2	•37.4	77 59.9	-36.9	•43.1	79 22.2	-30.8	•50.4
55	72 20.4	-48.1	•27.2	74 05.6	-46.1	•30.4	75 47.0	-43.4	•34.4	77 23.0	-39.6	•39.4	78 51.4	-34.6	•45.9
56	71 32.3	-49.1	•25.3	73 19.5	-47.4	•28.1	75 03.6	-45.1	•31.7	76 43.4	-42.1	•36.1	78 16.8	-37.7	•41.8
57	70 43.2	-50.2	•23.5	72 32.1	-48.6	•26.0	74 18.5	-46.6	•29.2	76 01.3	-44.0	•33.1	77 39.1	-40.6	•38.0
58	69 53.0	-50.9	•21.9	71 43.5	-49.6	•24.1	73 31.9	-48.0	•26.9	75 17.3	-45.9	•30.3	76 58.5	-42.8	•34.7
59	69 02.1	-51.7	•20.4	70 53.9	-50.6	•22.4	72 43.9	-49.2	•24.8	74 31.4	-47.3	•27.8	76 15.7	-44.8	•31.6
60	68 10.4	-52.3	•19.0	70 03.3	-51.4	•20.8	71 54.7	-50.2	•22.9	73 44.1	-48.6	•25.6	75 30.9	-46.6	•28.9
61	67 18.1	-52.9	•17.7	69 11.9	-52.1	•19.3	71 04.5	-51.0	•21.2	72 55.5	-49.7	•23.5	74 44.3	-48.0	•26.5
62	66 25.2	-53.4	•16.5	68 19.8	-52.7	•17.9	70 13.5	-51.9	•19.6	72 05.8	-50.7	•21.7	73 56.3	-49.3	•24.2
63	65 31.8	-53.9	•15.4	67 27.1	-53.2	•16.6	69 21.6	-52.5	•18.2	71 15.1	-51.6	•20.0	73 07.0	-50.3	•22.2
64	64 37.9	-54.3	•14.3	66 33.9	-53.8	•15.5	68 29.1	-53.1	•16.8	70 23.5	-52.3	•18.4	72 16.7	-51.2	•20.4
65	63 43.6	-54.7	•13.4	65 40.1	-54.2	•14.4	67 36.0	-53.6	•15.6	69 31.2	-52.9	•17.0	71 25.5	-52.1	•18.7
66	62 48.9	-55.0	•12.4	64 45.9	-54.6	•13.3	66 42.4	-54.1	•14.4	68 38.3	-53.5	•15.7	70 33.4	-52.8	•17.2
67	61 53.9	-55.3	•11.6	63 51.3	-54.9	•12.4	65 48.3	-54.5	•13.3	67 44.8	-54.0	•14.5	69 40.6	-53.3	•15.8
68	60 58.6	-55.6	•10.8	62 56.4	-55.3	•11.5	64 53.8	-54.9	•12.3	66 50.8	-54.5	•13.3	68 47.3	-53.9	•14.5
69	60 03.0	-55.8	•10.0	62 01.1	-55.6	•10.6	63 58.9	-55.3	•11.4	65 56.3	-54.8	•12.3	67 53.4	-54.4	•13.3
70	59 07.2	-56.1	•9.3	61 05.5	-55.8	•9.9	63 03.6	-55.5	•10.5	65 01.5	-55.2	•11.3	66 59.0	-54.9	•12.2
71	58 11.1	-56.2	•8.6	60 09.7	-56.1	•9.1	62 08.1	-55.8	•9.7	64 06.3	-55.6	•10.4	66 04.1	-55.2	•11.2
72	57 14.9	-56.5	•7.9	59 13.6	-56.2	•8.4	61 12.3	-56.1	•8.9	63 10.7	-55.8	•9.5	65 08.9	-55.5	•10.2
73	56 18.4	-56.6	•7.3	58 17.4	-56.5	•7.7	60 16.2	-56.3	•8.2	62 14.9	-56.1	•8.7	64 13.4	-55.8	•9.4
74	55 21.8	-56.8	•6.7	57 20.9	-56.7	•7.1	59 19.9	-56.5	•7.5	61 18.8	-56.3	•8.0	63 17.6	-56.1	•8.5
75	54 25.0	-57.0	•6.2	56 24.2	-56.8	•6.5	58 23.4	-56.7	•6.9	60 22.5	-56.5	•7.3	62 21.5	-56.4	•7.8
76	53 28.0	-57.1	•5.6	55 27.4	-57.0	•5.9	57 26.7	-56.8	•6.2	59 26.0	-56.8	•6.6	61 25.1	-56.5	•7.0
77	52 30.9	-57.2	•5.1	54 30.4	-57.1	•5.4	56 29.9	-57.1	•5.7	58 29.2	-56.9	•6.0	60 28.6	-56.8	•6.3
78	51 33.7	-57.3	•4.6	53 33.3	-57.2	•4.9	55 32.8	-57.1	•5.1	57 32.3	-57.0	•5.4	59 31.8	-57.0	•5.7
79	50 36.4	-57.5	•4.2	52 36.1	-57.4	•4.4	54 35.7	-57.3	•4.6	56 35.3	-57.2	•4.8	58 34.8	-57.1	•5.1
80	49 38.9	-57.5	•3.7	51 38.7	-57.5	•3.9	53 38.4	-57.4	•4.1	55 38.1	-57.4	•4.3	57 37.7	-57.2	•4.5
81	48 41.4	-57.6	•3.3	50 41.2	-57.6	•3.4	52 41.0	-57.6	•3.6	54 40.7	-57.4	•3.8	56 40.5	-57.4	•3.9
82	47 43.8	-57.7	•2.9	49 43.6	-57.7	•3.0	51 43.4	-57.6	•3.1	53 43.3	-57.6	•3.3	55 43.1	-57.6	•3.4
83	46 46.1	-57.9	•2.5	48 45.9	-57.7	•2.6	50 45.8	-57.7	•2.7	52 45.7	-57.7	•2.8	54 45.5	-57.6	•2.9
84	45 48.2	-57.8	•2.1	47 48.2	-57.9	•2.2	49 48.1	-57.8	•2.2	51 48.0	-57.8	•2.3	53 47.9	-57.8	•2.5
85	44 50.4	-58.0	•1.7	46 50.3	-57.9	•1.8	48 50.3	-57.9	•1.8	50 50.2	-57.9	•1.9	52 50.1	-57.8	•2.0
86	43 52.4	-58.0	•1.3	45 52.4	-58.0	•1.4	47 52.4	-58.0	•1.4	49 52.3	-58.0	•1.5	51 52.3	-58.0	•1.6
87	42 54.4	-58.1	•1.0	44 54.4	-58.1	•1.0	46 54.4	-58.1	•1.1	48 54.3	-58.0	•1.1	50 54.3	-58.0	•1.2
88	41 56.3	-58.1	•0.7	43 56.3	-58.1	•0.7	45 56.3	-58.1	•0.7	47 56.3	-58.1	•0.7	49 56.3	-58.1	•0.8
89	40 58.2	-58.2	•0.3	42 58.2	-58.2	•0.3	44 58.2	-58.2	•0.3	46 58.2	-58.2	•0.4	48 58.2	-58.2	•0.4
90	40 00.0	-58.2	•0.0	42 00.0	-58.2	•0.0	44 00.0	-58.2	•0.0	46 00.0	-58.2	•0.0	48 00.0	-58.3	•0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 14°, 346°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
18 48.2	-58.9	167.2	16 51.1	-58.9	167.4	14 54.0	-59.0	167.5	12 56.8	-59.1	167.6	10 59.6	-59.2	167.7	30
17 49.3	-58.8	167.4	15 52.2	-59.0	167.6	13 55.0	-59.1	167.7	11 57.7	-59.1	167.8	10 00.4	-59.2	167.8	31
16 50.5	-58.9	167.6	14 53.2	-58.9	167.7	12 55.9	-59.0	167.8	10 58.6	-59.1	167.9	9 01.2	-59.1	168.0	32
15 51.6	-58.9	167.8	13 54.3	-59.0	167.9	11 56.9	-59.0	168.0	9 59.5	-59.1	168.1	8 02.1	-59.2	168.2	33
14 52.7	-58.9	168.0	12 55.3	-59.0	168.1	10 57.9	-59.1	168.2	9 00.4	-59.2	168.3	7 02.9	-59.2	168.3	34
13 53.8	-58.9	168.2	11 56.3	-58.9	168.3	9 58.8	-59.1	168.4	8 01.2	-59.1	168.5	6 03.7	-59.2	168.5	35
12 54.9	-58.9	168.4	10 57.4	-59.0	168.5	8 59.7	-59.0	168.6	7 02.1	-59.1	168.6	5 04.5	-59.2	168.7	36
11 56.0	-58.9	168.6	9 58.4	-59.0	168.7	8 00.7	-59.1	168.7	6 03.0	-59.2	168.8	4 05.3	-59.2	168.8	37
10 57.1	-58.9	168.8	8 59.4	-59.0	168.9	7 01.6	-59.1	168.9	5 03.8	-59.1	169.0	3 06.1	-59.3	169.0	38
9 58.2	-59.0	169.0	8 00.4	-59.0	169.1	6 02.5	-59.0	169.1	4 04.7	-59.1	169.1	2 06.8	-59.2	169.2	39
8 59.2	-58.9	169.2	7 01.4	-59.0	169.2	5 03.5	-59.1	169.3	3 05.6	-59.2	169.3	1 07.6	-59.2	169.3	40
8 00.3	-58.9	169.4	6 02.4	-59.1	169.4	4 04.4	-59.1	169.5	2 06.4	-59.1	169.5	0 08.4	-59.2	169.5	41
7 01.4	-59.0	169.6	5 03.3	-59.0	169.6	3 05.3	-59.1	169.6	1 07.3	-59.2	169.6	0 50.8	+59.2	10.4	42
6 02.4	-58.9	169.8	4 04.3	-59.0	169.8	2 06.2	-59.1	169.8	0 08.1	-59.1	169.8	1 50.0	+59.2	10.2	43
5 03.5	-59.0	169.9	3 05.3	-59.0	170.0	1 07.1	-59.0	170.0	0 51.0	+59.2	10.0	2 49.2	+59.2	10.0	44
4 04.5	-58.9	170.1	2 06.3	-59.0	170.1	0 08.1	-59.1	170.2	1 50.2	+59.1	9.9	3 48.4	+59.2	9.9	45
3 05.6	-59.0	170.3	1 07.3	-59.1	170.3	0 51.0	+59.1	9.7	2 49.3	+59.2	9.7	4 47.6	+59.2	9.7	46
2 06.6	-59.0	170.5	0 08.2	-59.0	170.5	1 50.1	+59.1	9.5	3 48.5	+59.1	9.5	5 46.8	+59.2	9.5	47
1 07.6	-58.9	170.7	0 50.8	+59.0	9.3	2 49.2	+59.1	9.3	4 47.6	+59.1	9.3	6 46.0	+59.2	9.4	48
0 08.7	-59.0	170.9	1 49.8	+59.0	9.1	3 48.3	+59.1	9.2	5 46.7	+59.2	9.2	7 45.2	+59.2	9.2	49
0 50.3	+58.9	8.9	2 48.8	+59.0	9.0	4 47.4	+59.0	9.0	6 45.9	+59.1	9.0	8 44.4	+59.2	9.1	50
1 49.2	+59.0	8.8	3 47.8	+59.1	8.8	5 46.4	+59.1	8.8	7 45.0	+59.1	8.8	9 43.6	+59.2	8.9	51
2 48.2	+59.0	8.6	4 46.9	+59.0	8.6	6 45.5	+59.1	8.6	8 44.1	+59.2	8.7	10 42.8	+59.1	8.7	52
3 47.2	+58.9	8.4	5 45.9	+59.0	8.4	7 44.6	+59.0	8.4	9 43.3	+59.1	8.5	11 41.9	+59.2	8.6	53
4 46.1	+59.0	8.2	6 44.9	+59.0	8.2	8 43.6	+59.1	8.3	10 42.4	+59.1	8.3	12 41.1	+59.2	8.4	54
5 45.1	+58.9	8.0	7 43.9	+59.0	8.0	9 42.7	+59.1	8.1	11 41.5	+59.1	8.1	13 40.3	+59.1	8.2	55
6 44.0	+59.0	7.8	8 42.9	+59.0	7.9	10 41.8	+59.0	7.9	12 40.6	+59.1	8.0	14 39.4	+59.2	8.0	56
7 43.0	+58.9	7.6	9 41.9	+59.0	7.7	11 40.8	+59.0	7.7	13 39.7	+59.0	7.7	15 38.6	+59.1	7.9	57
8 41.9	+58.9	7.5	10 40.9	+59.0	7.5	12 39.8	+59.1	7.6	14 38.8	+59.1	7.6	16 37.7	+59.2	7.7	58
9 40.8	+59.0	7.3	11 39.9	+58.9	7.3	13 38.9	+59.0	7.4	15 37.9	+59.1	7.4	17 36.9	+59.1	7.5	59
10 39.8	+58.9	7.1	12 38.8	+59.0	7.1	14 37.9	+59.0	7.2	16 37.0	+59.0	7.3	18 36.0	+59.1	7.3	60
11 38.7	+58.9	6.9	13 37.8	+59.0	6.9	15 36.9	+59.0	7.0	17 36.0	+59.1	7.1	19 35.1	+59.1	7.2	61
12 37.6	+58.9	6.7	14 36.8	+58.9	6.7	16 35.9	+59.0	6.8	18 35.1	+59.0	6.9	20 34.2	+59.1	7.0	62
13 36.5	+58.9	6.5	15 35.7	+59.0	6.5	17 34.9	+59.0	6.6	19 34.1	+59.1	6.7	21 33.3	+59.1	6.8	63
14 35.4	+58.9	6.3	16 34.7	+58.9	6.4	18 33.9	+59.0	6.4	20 33.2	+59.0	6.5	22 32.4	+59.0	6.6	64
15 34.3	+58.8	6.1	17 33.6	+58.9	6.2	19 32.9	+58.9	6.2	21 32.2	+59.0	6.3	23 31.4	+59.1	6.4	65
16 33.1	+58.9	5.9	18 32.5	+58.9	6.0	20 31.8	+59.0	6.0	22 31.2	+59.0	6.1	24 30.5	+59.0	6.2	66
17 32.0	+58.9	5.7	19 31.4	+58.9	5.8	21 30.8	+58.9	5.8	23 30.2	+58.9	5.9	25 29.5	+59.0	6.0	67
18 30.9	+58.8	5.5	20 30.3	+58.9	5.6	22 29.7	+58.9	5.6	24 29.1	+59.0	5.7	26 28.5	+59.0	5.8	68
19 29.7	+58.8	5.3	21 29.2	+58.8	5.3	23 28.6	+59.0	5.4	25 28.1	+58.9	5.5	27 27.5	+59.0	5.6	69
20 28.5	+58.8	5.1	22 28.0	+58.9	5.1	24 27.6	+58.8	5.2	26 27.0	+59.0	5.3	28 26.5	+59.0	5.4	70
21 27.3	+58.8	4.9	23 26.9	+58.8	4.9	25 26.4	+58.9	5.0	27 26.0	+58.9	5.1	29 25.5	+58.9	5.2	71
22 26.1	+58.8	4.6	24 25.7	+58.8	4.7	26 25.3	+58.8	4.8	28 24.9	+58.9	4.9	30 24.4	+59.0	5.0	72
23 24.9	+58.7	4.4	25 24.5	+58.8	4.5	27 24.1	+58.9	4.6	29 23.8	+58.8	4.7	31 23.4	+58.9	4.8	73
24 23.6	+58.8	4.2	26 23.3	+58.8	4.3	28 23.0	+58.8	4.3	30 22.6	+58.9	4.4	32 22.3	+58.8	4.5	74
25 22.4	+58.7	4.0	27 22.1	+58.7	4.0	29 21.8	+58.8	4.1	31 21.5	+58.8	4.2	33 21.1	+58.9	4.3	75
26 21.1	+58.7	3.7	28 20.8	+58.7	3.8	30 20.6	+58.7	3.9	32 20.3	+58.8	4.0	34 20.0	+58.8	4.1	76
27 19.8	+58.6	3.5	29 19.5	+58.7	3.6	31 19.3	+58.7	3.7	33 19.1	+58.7	3.7	35 18.8	+58.8	3.8	77
28 18.4	+58.7	3.3	30 18.2	+58.7	3.3	32 18.0	+58.7	3.4	34 17.8	+58.8	3.5	36 17.6	+58.8	3.6	78
29 17.1	+58.6	3.0	31 16.9	+58.7	3.1	33 16.7	+58.7	3.2	35 16.6	+58.7	3.2	37 16.4	+58.7	3.3	79
30 15.7	+58.6	2.8	32 15.6	+58.6	2.8	34 15.4	+58.6	2.9	36 15.3	+58.6	3.0	38 15.1	+58.7	3.1	80
31 14.3	+58.6	2.5	33 14.2	+58.6	2.6	35 14.0	+58.7	2.7	37 13.9	+58.6	2.7	39 13.8	+58.6	2.8	81
32 12.9	+58.5	2.3	34 12.8	+58.5	2.3	36 12.7	+58.5	2.4	38 12.5	+58.6	2.5	40 12.4	+58.6	2.5	82
33 11.4	+58.5	2.0	35 11.3	+58.5	2.1	37 11.2	+58.6	2.1	39 11.1	+58.6	2.2	41 11.0	+58.6	2.2	83
34 09.9	+58.4	1.8	36 09.8	+58.5	1.8	38 09.8	+58.4	1.8	40 09.7	+58.5	1.9	42 09.6	+58.6	2.0	84
35 08.3	+58.4	1.5	37 08.3	+58.4	1.5	39 08.2	+58.5	1.6	41 08.2	+58.5	1.6	43 08.2	+58.4	1.7	85
36 06.7	+58.4	1.2	38 06.7	+58.4	1.2	40 06.7	+58.4	1.3	42 06.7	+58.4	1.3	44 06.6	+58.5	1.3	86
37 05.1	+58.4	0.9	39 05.1	+58.4	0.9	41 05.1	+58.4	1.0	43 05.1	+58.3	1.0	45 05.1	+58.3	1.0	87
38 03.5	+58.3	0.6	40 03.5	+58.3	0.6	42 03.5	+58.3	0.7	44 03.4	+58.4	0.7	46 03.4	+58.3	0.7	88
39 01.8	+58.2	0.3	41 01.8	+58.2	0.3	43 01.8	+58.2	0.3	45 01.8	+58.2	0.3	47 01.7	+58.3	0.4	89
40 00.0	+58.2	0.0	42 00.0	+58.2	0.0	44 00.0	+58.2	0.0	46 00.0	+58.2	0.0	48 00.0	+58.2	0.0	90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 166°, 194°

14°, 346° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	67 23.5	+54.7	147.0	65 41.5	+55.8	149.4	63 57.1	+56.7	151.5	62 10.7	+57.4	153.3	60 22.8	+57.8	154.9
31	68 18.2	+54.2	145.9	66 37.3	+55.4	148.5	64 53.8	+56.4	150.7	63 08.1	+57.1	152.7	61 20.6	+57.8	154.4
32	69 12.4	+53.6	144.7	67 32.7	+55.1	147.5	65 50.2	+56.1	149.9	64 05.2	+57.0	152.0	62 18.4	+57.6	153.8
33	70 06.0	+53.1	143.4	68 27.8	+54.6	146.4	66 46.3	+55.8	149.0	65 02.2	+56.7	151.3	63 16.0	+57.4	153.2
34	70 59.1	+52.4	142.0	69 22.4	+54.1	145.3	67 42.1	+55.4	148.1	65 58.9	+56.4	150.5	64 13.4	+57.2	152.5
35	71 51.5	+51.5	140.5	70 16.5	+53.6	144.0	68 37.5	+55.0	147.1	66 55.3	+56.2	149.6	65 10.6	+57.1	151.8
36	72 43.0	+50.7	138.8	71 10.1	+52.8	142.7	69 32.5	+54.6	145.9	67 51.5	+55.8	148.7	66 07.7	+56.7	151.1
37	73 33.7	+49.5	136.9	72 02.9	+52.2	141.2	70 27.1	+54.0	144.7	68 47.3	+55.5	147.7	67 04.4	+56.6	150.3
38	74 23.2	+48.3	134.9	72 55.1	+51.2	139.5	71 21.1	+53.5	143.4	69 42.8	+55.0	146.6	68 01.0	+56.2	149.4
39	75 11.5	+46.9	132.6	73 46.3	+50.3	137.7	72 14.6	+52.7	141.9	70 37.8	+54.5	145.5	68 57.2	+55.8	148.4
40	75 58.4	+45.1	130.1	74 36.6	+49.0	135.7	73 07.3	+51.8	140.3	71 32.3	+54.0	144.2	69 53.0	+55.5	147.4
41	76 43.5	+43.1	127.3	75 25.6	+47.6	133.5	73 59.1	+50.9	138.6	72 26.3	+53.2	142.8	70 48.5	+55.0	146.3
42	77 26.6	+40.6	124.2	76 13.2	+45.9	131.0	74 50.0	+49.8	136.6	73 19.5	+52.6	141.2	71 43.5	+54.5	145.0
43	78 07.2	+37.8	120.7	76 59.1	+44.0	128.2	75 39.8	+48.4	134.4	74 12.1	+51.5	139.5	72 38.0	+53.9	143.6
44	78 45.0	+34.5	116.9	77 43.1	+41.6	125.1	76 28.2	+46.8	131.9	75 03.6	+50.5	137.5	73 31.9	+53.1	142.1
45	79 19.5	+30.5	112.6	78 24.7	+38.7	121.6	77 15.0	+44.9	129.2	75 54.1	+49.3	135.4	74 25.0	+52.3	140.4
46	79 50.0	+26.1	107.8	79 03.4	+35.5	117.7	77 59.9	+42.5	126.1	76 43.4	+47.6	133.0	75 17.3	+51.2	138.6
47	80 16.1	+20.8	102.6	79 38.9	+31.5	113.3	78 42.4	+39.8	122.6	77 31.0	+45.8	130.2	76 08.5	+50.0	136.5
48	80 36.9	+15.1	96.9	80 10.4	+26.9	108.5	79 22.2	+36.5	118.7	78 16.8	+43.6	127.2	76 58.5	+48.6	134.1
49	80 52.0	+8.8	90.9	80 37.3	+21.5	103.1	79 58.7	+32.5	114.2	79 00.4	+40.8	123.7	77 47.1	+46.8	131.4
50	81 00.8	+2.4	84.6	80 58.8	+15.7	97.3	80 31.2	+27.8	109.3	79 41.2	+37.6	119.7	78 33.9	+44.6	128.3
51	81 03.2	-4.4	78.2	81 14.5	+9.1	91.0	80 59.0	+22.4	103.7	80 18.8	+33.5	115.2	79 18.5	+42.0	124.9
52	80 58.8	-10.7	71.8	81 23.6	+2.4	84.5	81 21.4	+16.2	97.7	80 52.3	+28.9	110.1	80 00.5	+38.7	120.9
53	80 48.1	-16.9	65.6	81 26.0	-4.6	77.8	81 37.6	+9.5	91.2	81 21.2	+23.2	104.4	80 39.2	+34.7	116.3
54	80 31.2	-22.5	59.7	81 21.4	-11.4	71.1	81 47.1	+2.3	84.3	81 44.4	+16.9	98.2	81 13.9	+29.9	111.1
55	80 08.7	-27.5	54.2	81 10.0	-17.7	64.6	81 49.4	-5.0	77.3	82 01.3	+9.8	91.4	81 43.8	+24.2	105.3
56	79 41.2	-31.8	49.1	80 52.3	-23.4	58.5	81 44.4	-12.0	70.3	82 11.1	+2.2	84.2	82 08.0	+17.5	98.7
57	79 09.4	-35.5	44.5	80 28.9	-28.4	52.8	81 32.4	-18.5	63.6	82 13.3	-5.3	76.8	82 25.5	+10.2	91.6
58	78 33.9	-38.7	40.3	80 00.5	-32.9	47.6	81 13.9	-24.5	57.2	82 08.0	-12.8	69.5	82 35.7	+2.2	84.1
59	77 55.2	-41.5	36.5	79 27.6	-36.6	42.9	80 49.4	-29.6	51.4	81 55.2	-19.5	62.4	82 37.9	-5.9	76.3
60	77 13.7	-43.7	33.2	78 51.0	-39.8	38.7	80 19.8	-34.0	46.1	81 35.7	-25.6	55.8	82 32.0	-13.6	68.6
61	76 30.0	-45.7	30.2	78 11.2	-42.4	35.0	79 45.8	-37.8	41.3	81 10.1	-30.9	49.8	82 18.4	-20.7	61.2
62	75 44.3	-47.3	27.5	77 28.8	-44.6	31.6	79 08.0	-40.8	37.0	80 39.2	-35.3	44.4	81 57.7	-26.9	54.3
63	74 57.0	-48.7	25.0	76 44.2	-46.5	28.6	78 27.2	-43.4	33.3	80 03.9	-38.9	39.5	81 30.8	-32.3	48.1
64	74 08.3	-49.9	22.8	75 57.7	-48.1	25.9	77 43.8	-45.7	29.9	79 25.0	-42.1	35.3	80 58.5	-36.6	42.5
65	73 18.4	-50.9	20.9	75 09.6	-49.5	23.5	76 58.1	-47.4	27.0	78 42.9	-44.5	31.5	80 21.9	-40.3	37.7
66	72 27.5	-51.8	19.1	74 20.1	-50.6	21.4	76 10.7	-48.9	24.3	77 58.4	-46.6	28.2	79 41.6	-43.2	33.4
67	71 35.7	-52.6	17.4	73 29.5	-51.5	19.4	75 21.8	-50.2	22.0	77 11.8	-48.3	25.2	78 58.4	-45.7	29.6
68	70 43.1	-53.3	15.9	72 38.0	-52.4	17.7	74 31.6	-51.3	19.9	76 23.5	-49.8	22.7	78 12.7	-47.6	26.3
69	69 49.8	-53.8	14.6	71 45.6	-53.1	16.1	73 40.3	-52.2	18.0	75 33.7	-51.0	20.3	77 25.1	-49.3	23.5
70	68 56.0	-54.3	13.3	70 52.5	-53.8	14.6	72 48.1	-52.9	16.3	74 42.7	-51.9	18.3	76 35.8	-50.6	20.9
71	68 01.7	-54.8	12.2	69 58.7	-54.3	13.3	71 55.2	-53.7	14.7	73 50.8	-52.9	16.4	75 45.2	-51.7	18.7
72	67 06.9	-55.2	11.1	69 04.4	-54.7	12.1	71 01.5	-54.2	13.3	72 57.9	-53.5	14.8	74 53.5	-52.7	16.7
73	66 11.7	-55.6	10.1	68 09.7	-55.2	11.0	70 07.3	-54.8	12.0	72 04.4	-54.2	13.3	74 00.8	-53.5	14.9
74	65 16.1	-55.8	9.2	67 14.5	-55.6	9.9	69 12.5	-55.2	10.8	71 10.2	-54.8	11.9	73 07.3	-54.2	13.3
75	64 20.3	-56.1	8.3	66 18.9	-55.8	9.0	68 17.3	-55.5	9.7	70 15.4	-55.2	10.7	72 13.1	-54.7	11.8
76	63 24.2	-56.4	7.5	65 23.1	-56.2	8.1	67 21.8	-56.0	8.7	69 20.2	-55.6	9.5	71 18.4	-55.2	10.5
77	62 27.8	-56.6	6.8	64 26.9	-56.5	7.2	66 25.8	-56.2	7.8	68 24.6	-55.9	8.5	70 23.2	-55.7	9.3
78	61 31.2	-56.9	6.1	63 30.4	-56.6	6.5	65 29.6	-56.5	7.0	67 28.7	-56.3	7.5	69 27.5	-56.0	8.2
79	60 34.3	-57.0	5.4	62 33.8	-56.9	5.7	64 33.1	-56.7	6.2	66 32.4	-56.6	6.7	68 31.5	-56.4	7.2
80	59 37.3	-57.1	4.8	61 36.9	-57.1	5.1	63 36.4	-57.0	5.4	65 35.8	-56.8	5.8	67 35.1	-56.6	6.3
81	58 40.2	-57.4	4.2	60 39.8	-57.2	4.4	62 39.4	-57.1	4.7	64 39.0	-57.0	5.1	66 38.5	-56.9	5.5
82	57 42.8	-57.4	3.6	59 42.6	-57.4	3.8	61 42.3	-57.3	4.1	63 42.0	-57.3	4.4	65 41.6	-57.1	4.7
83	56 45.4	-57.6	3.1	58 45.2	-57.6	3.3	60 45.0	-57.5	3.5	62 44.7	-57.4	3.7	64 44.5	-57.4	4.0
84	55 47.8	-57.8	2.6	57 47.6	-57.6	2.7	59 47.5	-57.6	2.9	61 47.3	-57.5	3.1	63 47.1	-57.5	3.3
85	54 50.0	-57.8	2.1	56 50.0	-57.8	2.2	58 49.9	-57.8	2.3	60 49.8	-57.8	2.5	62 49.6	-57.6	2.6
86	53 52.2	-57.9	1.6	55 52.2	-57.9	1.7	57 52.1	-57.9	1.8	59 52.0	-57.8	1.9	61 52.0	-57.8	2.1
87	52 54.3	-58.0	1.2	54 54.3	-58.0	1.3	56 54.2	-57.9	1.3	58 54.2	-58.0	1.4	60 54.2	-58.0	1.5
88	51 56.3	-58.1	0.8	53 56.3	-58.1	0.8	55 56.3	-58.1	0.9	57 56.2	-58.0	0.9	59 56.2	-58.0	1.0
89	50 58.2	-58.2	0.4	52 58.2	-58.2	0.4	54 58.2	-58.2	0.4	56 58.2	-58.2	0.4	58 58.2	-58.2	0.5
90	50 00.0	-58.3	0.0	52 00.0	-58.3	0.0	54 00.0	-58.3	0.0	56 00.0	-58.3	0.0	58 00.0	-58.3	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 14°, 346°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9 02.4	-59.3	167.8	7 05.1	-59.3	167.8	5 07.8	-59.4	167.9	3 10.5	-59.5	167.9	1 13.1	-59.5	167.9	30
8 03.1	-59.2	167.9	6 05.8	-59.4	168.0	4 08.4	-59.4	168.0	2 11.0	-59.4	168.0	0 13.6	-59.5	168.0	31
7 03.9	-59.3	168.1	5 06.4	-59.3	168.1	3 09.0	-59.4	168.1	1 11.6	-59.5	168.2	0 45.9	+59.5	11.8	32
6 04.6	-59.3	168.2	4 07.1	-59.3	168.3	2 09.6	-59.4	168.3	0 12.1	-59.4	168.3	1 45.4	+59.5	11.7	33
5 05.3	-59.2	168.4	3 07.8	-59.4	168.4	1 10.2	-59.4	168.4	0 47.3	+59.5	11.6	2 44.9	+59.5	11.6	34
4 06.1	-59.3	168.5	2 08.4	-59.3	168.6	0 10.8	-59.4	168.6	1 46.8	+59.4	11.4	3 44.4	+59.5	11.5	35
3 06.8	-59.3	168.7	1 09.1	-59.3	168.7	0 48.6	+59.4	11.3	2 46.2	+59.5	11.3	4 43.9	+59.5	11.3	36
2 07.5	-59.2	168.9	0 09.8	-59.3	168.9	1 48.0	+59.3	11.1	3 45.7	+59.4	11.2	5 43.4	+59.5	11.2	37
1 08.3	-59.3	169.0	0 49.5	+59.4	11.0	2 47.3	+59.4	11.0	4 45.1	+59.5	11.0	6 42.9	+59.5	11.1	38
0 09.0	-59.3	169.2	1 48.9	+59.3	10.8	3 46.7	+59.4	10.9	5 44.6	+59.4	10.9	7 42.4	+59.5	10.9	39
0 50.3	+59.3	10.7	2 48.2	+59.3	10.7	4 46.1	+59.4	10.7	6 44.0	+59.5	10.8	8 41.9	+59.5	10.8	40
1 49.6	+59.2	10.5	3 47.5	+59.4	10.5	5 45.5	+59.4	10.6	7 43.5	+59.4	10.6	9 41.4	+59.5	10.7	41
2 48.8	+59.3	10.4	4 46.9	+59.3	10.4	6 44.9	+59.4	10.4	8 42.9	+59.4	10.5	10 40.9	+59.5	10.5	42
3 48.1	+59.3	10.2	5 46.2	+59.3	10.2	7 44.3	+59.3	10.3	9 42.3	+59.5	10.3	11 40.4	+59.4	10.4	43
4 47.4	+59.2	10.1	6 45.5	+59.3	10.1	8 43.6	+59.4	10.1	10 41.8	+59.4	10.2	12 39.8	+59.5	10.3	44
5 46.6	+59.3	9.9	7 44.8	+59.3	9.9	9 43.0	+59.4	10.0	11 41.2	+59.4	10.1	13 39.3	+59.5	10.1	45
6 45.9	+59.2	9.7	8 44.1	+59.4	9.8	10 42.4	+59.4	9.8	12 40.6	+59.4	9.9	14 38.8	+59.5	10.0	46
7 45.1	+59.3	9.6	9 43.5	+59.3	9.6	11 41.8	+59.3	9.7	13 40.0	+59.4	9.8	15 38.3	+59.4	9.9	47
8 44.4	+59.2	9.4	10 42.8	+59.3	9.5	12 41.1	+59.4	9.6	14 39.4	+59.4	9.6	16 37.7	+59.5	9.7	48
9 43.6	+59.3	9.3	11 42.1	+59.3	9.3	13 40.5	+59.3	9.4	15 38.8	+59.4	9.5	17 37.2	+59.4	9.6	49
10 42.9	+59.2	9.1	12 41.4	+59.3	9.2	14 39.8	+59.4	9.2	16 38.2	+59.3	9.3	18 36.6	+59.5	9.4	50
11 42.1	+59.3	8.9	13 40.7	+59.2	9.0	15 39.2	+59.3	9.1	17 37.6	+59.4	9.2	19 36.1	+59.4	9.3	51
12 41.4	+59.2	8.8	14 39.9	+59.3	8.9	16 38.5	+59.3	8.9	18 37.0	+59.4	9.0	20 35.5	+59.5	9.2	52
13 40.6	+59.2	8.6	15 39.2	+59.3	8.7	17 37.8	+59.4	8.8	19 36.4	+59.4	8.9	21 35.0	+59.4	9.0	53
14 39.8	+59.2	8.5	16 38.5	+59.3	8.5	18 37.2	+59.3	8.6	20 35.8	+59.4	8.7	22 34.4	+59.4	8.9	54
15 39.0	+59.2	8.3	17 37.8	+59.2	8.4	19 36.5	+59.3	8.5	21 35.2	+59.3	8.6	23 33.8	+59.4	8.7	55
16 38.2	+59.2	8.1	18 37.0	+59.3	8.2	20 35.8	+59.3	8.3	22 34.5	+59.4	8.4	24 33.2	+59.4	8.6	56
17 37.4	+59.2	7.9	19 36.3	+59.2	8.0	21 35.1	+59.3	8.1	23 33.9	+59.3	8.3	25 32.6	+59.4	8.4	57
18 36.6	+59.2	7.8	20 35.5	+59.3	7.9	22 34.4	+59.3	8.0	24 33.2	+59.3	8.1	26 32.0	+59.4	8.2	58
19 35.8	+59.2	7.6	21 34.8	+59.2	7.7	23 33.7	+59.2	7.8	25 32.5	+59.3	7.9	27 31.4	+59.3	8.1	59
20 35.0	+59.2	7.4	22 34.0	+59.2	7.5	24 32.9	+59.3	7.6	26 31.8	+59.3	7.8	28 30.7	+59.4	7.9	60
21 34.2	+59.1	7.2	23 33.2	+59.2	7.4	25 32.2	+59.2	7.5	27 31.1	+59.3	7.6	29 30.1	+59.3	7.7	61
22 33.3	+59.1	7.1	24 32.4	+59.2	7.2	26 31.4	+59.3	7.3	28 30.4	+59.3	7.4	30 29.4	+59.3	7.6	62
23 32.4	+59.2	6.9	25 31.6	+59.1	7.0	27 30.7	+59.2	7.1	29 29.7	+59.3	7.2	31 28.7	+59.3	7.4	63
24 31.6	+59.1	6.7	26 30.7	+59.2	6.8	28 29.9	+59.2	6.9	30 29.0	+59.2	7.1	32 28.0	+59.3	7.2	64
25 30.7	+59.1	6.5	27 29.9	+59.1	6.6	29 29.1	+59.2	6.7	31 28.2	+59.2	6.9	33 27.3	+59.3	7.0	65
26 29.8	+59.0	6.3	28 29.0	+59.2	6.4	30 28.3	+59.1	6.6	32 27.5	+59.2	6.7	34 26.6	+59.3	6.9	66
27 28.8	+59.1	6.1	29 28.2	+59.1	6.2	31 27.4	+59.2	6.4	33 26.7	+59.2	6.5	35 25.9	+59.2	6.7	67
28 27.9	+59.1	5.9	30 27.3	+59.0	6.0	32 26.6	+59.1	6.2	34 25.9	+59.1	6.3	36 25.1	+59.2	6.5	68
29 27.0	+59.0	5.7	31 26.3	+59.1	5.8	33 25.7	+59.1	6.0	35 25.0	+59.2	6.1	37 24.3	+59.3	6.3	69
30 26.0	+59.0	5.5	32 25.4	+59.1	5.6	34 24.8	+59.1	5.8	36 24.2	+59.1	5.9	38 23.6	+59.1	6.1	70
31 25.0	+59.0	5.3	33 24.5	+59.0	5.4	35 23.9	+59.1	5.5	37 23.3	+59.2	5.7	39 22.7	+59.2	5.8	71
32 24.0	+58.9	5.1	34 23.5	+59.0	5.2	36 23.0	+59.0	5.3	38 22.5	+59.0	5.5	40 21.9	+59.1	5.6	72
33 22.9	+59.0	4.9	35 22.5	+59.0	5.0	37 22.0	+59.0	5.1	39 21.5	+59.1	5.2	41 21.0	+59.1	5.4	73
34 21.9	+58.9	4.6	36 21.5	+58.9	4.7	38 21.0	+59.0	4.9	40 20.6	+59.0	5.0	42 20.1	+59.1	5.2	74
35 20.8	+58.9	4.4	37 20.4	+58.9	4.5	39 20.0	+59.0	4.6	41 19.6	+59.0	4.8	43 19.2	+59.0	4.9	75
36 19.7	+58.8	4.2	38 19.3	+58.9	4.3	40 19.0	+58.9	4.4	42 18.6	+59.0	4.5	44 18.2	+59.1	4.7	76
37 18.5	+58.9	3.9	39 18.2	+58.9	4.0	41 17.9	+58.9	4.2	43 17.6	+58.9	4.3	45 17.3	+58.9	4.4	77
38 17.4	+58.7	3.7	40 17.1	+58.8	3.8	42 16.8	+58.9	3.9	44 16.5	+58.9	4.0	46 16.2	+59.0	4.2	78
39 16.1	+58.8	3.4	41 15.9	+58.8	3.5	43 15.7	+58.8	3.6	45 15.4	+58.9	3.8	47 15.2	+58.9	3.9	79
40 14.9	+58.7	3.2	42 14.7	+58.8	3.3	44 14.5	+58.8	3.4	46 14.3	+58.8	3.5	48 14.1	+58.8	3.6	80
41 13.6	+58.7	2.9	43 13.5	+58.7	3.0	45 13.3	+58.7	3.1	47 13.1	+58.8	3.2	49 12.9	+58.8	3.3	81
42 12.3	+58.7	2.6	44 12.2	+58.7	2.7	46 12.0	+58.7	2.8	48 11.9	+58.7	2.9	50 11.7	+58.8	3.0	82
43 11.0	+58.6	2.3	45 10.9	+58.6	2.4	47 10.7	+58.7	2.5	49 10.6	+58.7	2.6	51 10.5	+58.7	2.7	83
44 09.6	+58.5	2.0	46 09.5	+58.5	2.1	48 09.4	+58.6	2.2	50 09.3	+58.6	2.3	52 09.2	+58.6	2.4	84
45 08.1	+58.5	1.7	47 08.0	+58.6	1.8	49 08.0	+58.5	1.8	51 07.9	+58.6	1.9	53 07.8	+58.6	2.0	85
46 06.6	+58.4	1.4	48 06.6	+58.4	1.4	50 06.5	+58.5	1.5	52 06.5	+58.5	1.6	54 06.4	+58.5	1.6	86
47 05.0	+58.4	1.1	49 05.0	+58.4	1.1	51 05.0	+58.4	1.2	53 05.0	+58.4	1.2	55 04.9	+58.5	1.3	87
48 03.4	+58.3	0.7	50 03.4	+58.3	0.8	52 03.4	+58.3	0.8	54 03.4	+58.3	0.8	56 03.4	+58.3	0.9	88
49 01.7	+58.3	0.4	51 01.7	+58.3	0.4	53 01.7	+58.3	0.4	55 01.7	+58.3	0.4	57 01.7	+58.3	0.4	89
50 00.0	+58.2	0.0	52 00.0	+58.2	0.0	54 00.0	+58.2	0.0	56 00.0	+58.2	0.0	58 00.0	+58.2	0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME

NAME L.H.A. 166°, 194°

16°, 344° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	76 09.3	+2.1	•86.0	76 09.2	+10.8	•94.1	75 52.3	+19.2	•102.1	75 19.5	+26.9	•109.6	74 32.6	+33.5	•116.4
31	76 11.4	-2.2	•81.8	76 20.0	+6.6	•90.0	76 11.5	+15.3	•98.1	75 46.4	+23.5	•106.0	75 06.1	+30.6	•113.2
32	76 09.2	-6.4	•77.6	76 26.6	+2.3	•85.7	76 26.8	+11.2	•94.0	76 09.9	+19.7	•102.2	75 36.7	+27.4	•109.8
33	76 02.8	-10.5	•73.5	76 28.9	-2.1	•81.5	76 38.0	+6.9	•89.8	76 29.6	+15.8	•98.2	76 04.2	+24.1	•106.2
34	75 52.3	-14.5	•69.4	76 26.8	-6.3	•77.2	76 44.9	+2.5	•85.5	76 45.4	+11.6	•94.0	76 28.3	+20.4	•102.3
35	75 37.8	-18.3	•65.5	76 20.5	-10.6	•73.0	76 47.4	-2.0	•81.1	76 57.0	+7.2	•89.7	76 48.7	+16.3	•98.3
36	75 19.5	-21.8	•61.7	76 09.9	-14.7	•68.8	76 45.4	-6.4	•76.8	77 04.2	+2.7	•85.3	77 05.0	+12.0	•94.0
37	74 57.7	-25.1	•58.0	75 55.2	-18.5	•64.8	76 39.0	-10.7	•72.4	77 06.9	-1.9	•80.8	77 17.0	+7.4	•89.6
38	74 32.6	-28.2	•54.6	75 36.7	-22.1	•60.9	76 28.3	-14.8	•68.2	77 05.0	-6.5	•76.3	77 24.4	+2.9	•85.1
39	74 04.4	-30.9	•51.3	75 14.6	-25.5	•57.2	76 13.5	-18.8	•64.1	76 58.5	-10.8	•71.9	77 27.3	-1.9	•80.5
40	73 33.5	-33.5	•48.2	74 49.1	-28.5	•53.7	75 54.7	-22.5	•60.2	76 47.7	-15.2	•67.6	77 25.4	-6.5	•75.9
41	73 00.0	-35.7	•45.4	74 20.6	-31.4	•50.4	75 32.2	-25.9	•56.4	76 32.5	-19.1	•63.4	77 18.9	-11.1	•71.3
42	72 24.3	-37.8	•42.7	73 49.2	-33.8	•47.3	75 06.3	-28.9	•52.8	76 13.4	-22.9	•59.3	77 07.8	-15.4	•66.9
43	71 46.5	-39.7	•40.1	73 15.4	-36.2	•44.4	74 37.4	-31.8	•49.5	75 50.5	-26.3	•55.5	76 52.4	-19.5	•62.6
44	71 06.8	-41.3	•37.8	72 39.2	-38.3	•41.7	74 05.6	-34.4	•46.3	75 24.2	-29.5	•51.9	76 32.9	-23.4	•58.5
45	70 25.5	-42.8	•35.6	72 00.9	-40.1	•39.1	73 31.2	-36.7	•43.4	74 54.7	-32.3	•48.5	76 09.5	-26.8	•54.6
46	69 42.7	-44.2	•33.5	71 20.8	-41.7	•36.8	72 54.5	-38.7	•40.7	74 22.4	-34.9	•45.3	75 42.7	-30.1	•50.9
47	68 58.5	-45.4	•31.6	70 39.1	-43.2	•34.6	72 15.8	-40.6	•38.1	73 47.5	-37.2	•42.3	75 12.6	-32.9	•47.4
48	68 13.1	-46.4	•29.8	69 55.9	-44.6	•32.5	71 35.2	-42.2	•35.7	73 10.3	-39.2	•39.6	74 39.7	-35.5	•44.2
49	67 26.7	-47.5	•28.1	69 11.3	-45.8	•30.6	70 53.0	-43.7	•33.5	72 31.1	-41.1	•37.0	74 04.2	-37.8	•41.2
50	66 39.2	-48.3	•26.6	68 25.5	-46.8	•28.8	70 09.3	-45.0	•31.5	71 50.0	-42.8	•34.6	73 26.4	-39.8	•38.4
51	65 50.9	-49.1	•25.1	67 38.7	-47.8	•27.1	69 24.3	-46.1	•29.5	71 07.2	-44.1	•32.4	72 46.6	-41.6	•35.9
52	65 01.8	-49.8	•23.7	66 50.9	-48.7	•25.6	68 38.2	-47.3	•27.8	70 23.1	-45.5	•30.4	72 05.0	-43.3	•33.5
53	64 12.0	-50.5	•22.4	66 02.2	-49.4	•24.1	67 50.9	-48.2	•26.1	69 37.6	-46.6	•28.5	71 21.7	-44.7	•31.3
54	63 21.5	-51.1	•21.2	65 12.8	-50.2	•22.7	67 02.7	-49.0	•24.5	68 51.0	-47.7	•26.7	70 37.0	-46.0	•29.2
55	62 30.4	-51.6	•20.0	64 22.6	-50.7	•21.4	66 13.7	-49.8	•23.1	68 03.3	-48.6	•25.0	69 51.0	-47.1	•27.3
56	61 38.8	-52.1	•18.9	63 31.9	-51.4	•20.2	65 23.9	-50.5	•21.7	67 14.7	-49.4	•23.5	69 03.9	-48.1	•25.6
57	60 46.7	-52.6	•17.9	62 40.5	-51.9	•19.1	64 33.4	-51.1	•20.5	66 25.3	-50.2	•22.0	68 15.8	-49.1	•23.9
58	59 54.1	-52.9	•16.9	61 48.6	-52.4	•18.0	63 42.3	-51.7	•19.3	65 35.1	-50.8	•20.7	67 26.7	-49.8	•22.4
59	59 01.2	-53.4	•16.0	60 56.2	-52.8	•17.0	62 50.6	-52.1	•18.1	64 44.3	-51.5	•19.4	66 36.9	-50.6	•21.0
60	58 07.8	-53.7	•15.1	60 03.4	-53.2	•16.0	61 58.5	-52.7	•17.1	63 52.8	-52.0	•18.2	65 46.3	-51.2	•19.6
61	57 14.1	-54.0	•14.3	59 10.2	-53.6	•15.1	61 05.8	-53.1	•16.1	63 00.8	-52.5	•17.1	64 55.1	-51.8	•18.4
62	56 20.1	-54.3	•13.5	58 16.6	-53.9	•14.2	60 12.7	-53.4	•15.1	62 08.3	-52.9	•16.1	64 03.3	-52.3	•17.2
63	55 25.8	-54.5	•12.7	57 22.7	-54.2	•13.4	59 19.3	-53.9	•14.2	61 15.4	-53.4	•15.1	63 11.0	-52.9	•16.1
64	54 31.3	-54.8	•12.0	56 28.5	-54.5	•12.6	58 25.4	-54.1	•13.3	60 22.0	-53.7	•14.1	62 18.1	-53.2	•15.1
65	53 36.5	-55.1	•11.3	55 34.0	-54.7	•11.9	57 31.3	-54.4	•12.5	59 28.3	-54.1	•13.3	61 24.9	-53.7	•14.1
66	52 41.4	-55.2	•10.7	54 39.3	-55.0	•11.2	56 36.9	-54.8	•11.8	58 34.2	-54.4	•12.4	60 31.2	-54.0	•13.2
67	51 46.2	-55.5	•10.0	53 44.3	-55.3	•10.5	55 42.1	-54.9	•11.0	57 39.8	-54.7	•11.6	59 37.2	-54.3	•12.3
68	50 50.7	-55.6	•9.4	52 49.0	-55.4	•9.8	54 47.2	-55.2	•10.3	56 45.1	-54.9	•10.9	58 42.9	-54.7	•11.5
69	49 55.1	-55.8	•8.8	51 53.6	-55.6	•9.2	53 52.0	-55.4	•9.6	55 50.2	-55.2	•10.1	57 48.2	-54.9	•10.7
70	48 59.3	-56.0	•8.3	50 58.0	-55.8	•8.6	52 56.6	-55.7	•9.0	54 55.0	-55.4	•9.4	56 53.3	-55.2	•9.9
71	48 03.3	-56.1	•7.7	50 02.2	-56.0	•8.0	52 00.9	-55.8	•8.4	53 59.6	-55.6	•8.8	55 58.1	-55.4	•9.2
72	47 07.2	-56.3	•7.2	49 06.2	-56.1	•7.5	51 05.1	-55.9	•7.8	53 04.0	-55.8	•8.1	55 02.7	-55.6	•8.5
73	46 10.9	-56.4	•6.7	48 10.1	-56.3	•6.9	50 09.2	-56.2	•7.2	52 08.2	-56.0	•7.5	54 07.1	-55.8	•7.9
74	45 14.5	-56.5	•6.2	47 13.8	-56.4	•6.4	49 13.0	-56.2	•6.7	51 12.2	-56.2	•7.0	53 11.3	-56.0	•7.3
75	44 18.0	-56.6	•5.7	46 17.4	-56.5	•5.9	48 16.8	-56.5	•6.2	50 16.0	-56.3	•6.4	52 15.3	-56.2	•6.7
76	43 21.4	-56.7	•5.3	45 20.9	-56.6	•5.4	47 20.3	-56.5	•5.6	49 19.7	-56.4	•5.9	51 19.1	-56.4	•6.1
77	42 24.7	-56.8	•4.8	44 24.3	-56.8	•5.0	46 23.8	-56.7	•5.2	48 23.3	-56.6	•5.4	50 22.7	-56.4	•5.6
78	41 27.9	-57.0	•4.4	43 27.5	-56.8	•4.5	45 27.1	-56.8	•4.7	47 26.7	-56.7	•4.9	49 26.3	-56.7	•5.1
79	40 30.9	-57.0	•4.0	42 30.7	-57.0	•4.1	44 30.3	-56.9	•4.2	46 30.0	-56.8	•4.4	48 29.6	-56.7	•4.6
80	39 33.9	-57.1	•3.6	41 33.7	-57.0	•3.7	43 33.4	-56.9	•3.8	45 33.2	-57.0	•3.9	47 32.9	-56.9	•4.1
81	38 36.8	-57.1	•3.2	40 36.7	-57.2	•3.3	42 36.5	-57.1	•3.4	44 36.2	-57.0	•3.5	46 36.0	-57.0	•3.6
82	37 39.7	-57.3	•2.8	39 39.5	-57.2	•2.9	41 39.4	-57.2	•2.9	43 39.2	-57.1	•3.0	45 39.0	-57.0	•3.1
83	36 42.4	-57.3	•2.4	38 42.3	-57.3	•2.5	40 42.2	-57.2	•2.5	42 42.1	-57.2	•2.6	44 42.0	-57.2	•2.7
84	35 45.1	-57.4	•2.0	37 45.0	-57.3	•2.1	39 45.0	-57.4	•2.1	41 44.9	-57.3	•2.2	43 44.8	-57.3	•2.3
85	34 47.7	-57.4	•1.7	36 47.7	-57.4	•1.7	38 47.6	-57.4	•1.8	40 47.6	-57.4	•1.8	42 47.5	-57.3	•1.9
86	33 50.3	-57.5	•1.3	35 50.3	-57.5	•1.4	37 50.2	-57.4	•1.4	39 50.2	-57.4	•1.4	41 50.2	-57.5	•1.5
87	32 52.8	-57.5	•1.0	34 52.8	-57.6	•1.0	36 52.8	-57.6	•1.0	38 52.8	-57.6	•1.1	40 52.7	-57.5	•1.1
88	31 55.3	-57.6	•0.6	33 55.2	-57.5	•0.7	35 55.2	-57.6	•0.7	37 55.2	-57.6	•0.7	39 55.2	-57.6	•0.7
89	30 57.7	-57.7	•0.3	32 57.7	-57.7	•0.3	34 57.6	-57.6	•0.3	36 57.6	-57.6	•0.3	38 57.6	-57.6	•0.4
90	30 00.0	-57.7	•0.0	32 00.0	-57.7	•0.0	34 00.0	-57.7	•0.0	36 00.0	-57.7	•0.0	38 00.0	-57.7	•0.0

LATITUDE CONTRARY NAME

L.H.A. 16°, 344°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
28 05.7	-57.7	164.3	26 10.1	-57.9	164.6	24 14.4	-58.1	164.8	22 18.5	-58.2	165.0	20 22.5	-58.4	165.2	30
27 08.0	-57.9	164.6	25 12.2	-58.0	164.9	23 16.3	-58.1	165.1	21 20.3	-58.3	165.3	19 24.1	-58.3	165.5	31
26 10.1	-57.8	164.9	24 14.2	-58.0	165.1	22 18.2	-58.2	165.4	20 22.0	-58.3	165.6	18 25.8	-58.5	165.7	32
25 12.3	-57.9	165.2	23 16.2	-58.0	165.4	21 20.0	-58.2	165.6	19 23.7	-58.3	165.8	17 27.3	-58.4	166.0	33
24 14.4	-57.9	165.5	22 18.2	-58.1	165.7	20 21.8	-58.2	165.9	18 25.4	-58.3	166.1	16 28.9	-58.4	166.2	34
23 16.5	-58.0	165.8	21 20.1	-58.1	166.0	19 23.6	-58.2	166.2	17 27.1	-58.4	166.3	15 30.5	-58.5	166.4	35
22 18.5	-58.0	166.1	20 22.0	-58.1	166.2	18 25.4	-58.2	166.4	16 28.7	-58.3	166.6	14 32.0	-58.5	166.7	36
21 20.5	-58.0	166.3	19 23.9	-58.1	166.5	17 27.2	-58.3	166.7	15 30.4	-58.4	166.8	13 33.5	-58.5	166.9	37
20 22.5	-58.0	166.6	18 25.8	-58.2	166.8	16 28.9	-58.3	166.9	14 32.0	-58.4	167.0	12 35.0	-58.5	167.1	38
19 24.5	-58.1	166.9	17 27.6	-58.2	167.0	15 30.6	-58.3	167.2	13 33.6	-58.4	167.3	11 36.5	-58.5	167.4	39
18 26.4	-58.0	167.1	16 29.4	-58.2	167.3	14 32.3	-58.3	167.4	12 35.2	-58.4	167.5	10 38.0	-58.5	167.6	40
17 28.4	-58.1	167.4	15 31.2	-58.2	167.5	13 34.0	-58.3	167.6	11 36.8	-58.5	167.7	9 39.5	-58.5	167.8	41
16 30.3	-58.2	167.7	14 33.0	-58.2	167.8	12 35.7	-58.3	167.9	10 38.3	-58.4	168.0	8 41.0	-58.6	168.0	42
15 32.1	-58.1	167.9	13 34.8	-58.3	168.0	11 37.4	-58.4	168.1	9 39.9	-58.4	168.2	7 42.4	-58.5	168.3	43
14 34.0	-58.2	168.2	12 36.5	-58.2	168.3	10 39.0	-58.4	168.4	8 41.5	-58.5	168.4	6 43.9	-58.6	168.5	44
13 35.8	-58.1	168.4	11 38.3	-58.3	168.5	9 40.6	-58.3	168.6	7 43.0	-58.5	168.7	5 45.3	-58.5	168.7	45
12 37.7	-58.2	168.7	10 40.0	-58.3	168.8	8 42.3	-58.4	168.8	6 44.5	-58.4	168.9	4 46.8	-58.6	168.9	46
11 39.5	-58.2	168.9	9 41.7	-58.3	169.0	7 43.9	-58.4	169.1	5 46.1	-58.4	169.1	3 48.2	-58.5	169.1	47
10 41.3	-58.2	169.2	8 43.4	-58.3	169.2	6 45.5	-58.4	169.3	4 47.6	-58.5	169.3	2 49.7	-58.6	169.4	48
9 43.1	-58.2	169.4	7 45.1	-58.3	169.5	5 47.1	-58.4	169.5	3 49.1	-58.5	169.6	1 51.1	-58.6	169.6	49
8 44.9	-58.3	169.7	6 46.8	-58.3	169.8	4 48.7	-58.4	169.8	2 50.2	-58.5	169.8	0 52.5	-58.5	169.8	50
7 46.6	-58.2	169.9	5 48.5	-58.3	170.0	3 50.3	-58.4	170.0	1 52.1	-58.5	170.0	0 06.0	+58.6	170.0	51
6 48.4	-58.2	170.2	4 50.2	-58.4	170.2	2 51.9	-58.4	170.2	0 53.6	-58.4	170.2	1 04.6	+58.6	9.8	52
5 50.2	-58.3	170.4	3 51.8	-58.3	170.4	1 53.5	-58.4	170.4	0 04.8	+58.5	9.5	2 03.2	+58.5	9.6	53
4 51.9	-58.3	170.6	2 53.5	-58.3	170.7	0 55.1	-58.4	170.7	1 03.3	+58.5	9.3	3 01.7	+58.6	9.3	54
3 53.6	-58.2	170.9	1 55.2	-58.4	170.9	0 03.3	+58.4	9.1	2 01.8	+58.5	9.1	4 00.3	+58.6	9.1	55
2 55.4	-58.3	171.1	0 56.8	-58.3	171.1	1 01.7	+58.5	8.9	3 00.3	+58.5	8.9	4 58.9	+58.5	8.9	56
1 57.1	-58.2	171.4	0 58.9	-58.3	171.6	2 00.2	+58.4	8.6	3 58.8	+58.5	8.7	5 57.4	+58.6	8.7	57
0 58.9	-58.3	171.6	0 59.9	+58.3	8.4	2 58.6	+58.4	8.4	4 57.3	+58.4	8.4	6 56.0	+58.5	8.5	58
0 00.6	-58.3	171.8	1 58.2	+58.3	8.2	3 57.0	+58.4	8.2	5 55.7	+58.5	8.2	7 54.5	+58.5	8.2	59
0 57.7	+58.2	7.9	2 56.5	+58.4	7.9	4 55.4	+58.4	8.0	6 54.2	+58.5	8.0	8 53.0	+58.6	8.0	60
1 55.9	+58.3	7.7	3 54.9	+58.3	7.7	5 53.8	+58.4	7.7	7 52.7	+58.4	7.8	9 51.6	+58.5	7.8	61
2 54.2	+58.3	7.4	4 53.2	+58.3	7.5	6 52.2	+58.3	7.5	8 51.1	+58.5	7.5	10 50.1	+58.5	7.6	62
3 52.5	+58.2	7.2	5 51.5	+58.3	7.2	7 50.5	+58.4	7.3	9 49.6	+58.4	7.3	11 48.6	+58.5	7.3	63
4 50.7	+58.3	7.0	6 49.8	+58.3	7.0	8 48.9	+58.4	7.0	10 48.0	+58.4	7.1	12 47.1	+58.5	7.1	64
5 49.0	+58.2	6.7	7 48.1	+58.3	6.8	9 47.3	+58.3	6.8	11 46.4	+58.5	6.8	13 45.6	+58.5	6.9	65
6 47.2	+58.2	6.5	8 46.4	+58.3	6.5	10 45.7	+58.3	6.6	12 44.9	+58.4	6.6	14 44.1	+58.4	6.7	66
7 45.4	+58.3	6.2	9 44.7	+58.3	6.3	11 44.0	+58.3	6.3	13 43.3	+58.4	6.4	15 42.5	+58.5	6.4	67
8 43.7	+58.2	6.0	10 43.0	+58.3	6.0	12 42.3	+58.4	6.1	14 41.7	+58.3	6.1	16 41.0	+58.4	6.2	68
9 41.9	+58.2	5.8	11 41.3	+58.2	5.8	13 40.7	+58.3	5.8	15 40.0	+58.4	5.9	17 39.4	+58.4	6.0	69
10 40.1	+58.2	5.5	12 39.5	+58.3	5.5	14 39.0	+58.3	5.6	16 38.4	+58.3	5.6	18 37.8	+58.4	5.7	70
11 38.3	+58.2	5.3	13 37.8	+58.2	5.3	15 37.3	+58.2	5.3	17 36.7	+58.4	5.4	19 36.2	+58.4	5.5	71
12 36.5	+58.1	5.0	14 36.0	+58.2	5.0	16 35.5	+58.3	5.1	18 35.1	+58.3	5.2	20 34.6	+58.3	5.2	72
13 34.6	+58.2	4.8	15 34.2	+58.2	4.8	17 33.8	+58.2	4.8	19 33.4	+58.3	4.9	21 32.9	+58.4	5.0	73
14 32.8	+58.1	4.5	16 32.4	+58.2	4.5	18 32.0	+58.3	4.6	20 31.7	+58.2	4.7	22 31.3	+58.3	4.7	74
15 30.9	+58.2	4.2	17 30.6	+58.2	4.3	19 30.3	+58.2	4.3	21 29.9	+58.3	4.4	23 29.6	+58.2	4.5	75
16 29.1	+58.1	4.0	18 28.8	+58.1	4.0	20 28.5	+58.1	4.1	22 28.2	+58.2	4.1	24 27.8	+58.3	4.2	76
17 27.2	+58.0	3.7	19 26.9	+58.1	3.8	21 26.6	+58.2	3.8	23 26.4	+58.2	3.9	25 26.1	+58.2	3.9	77
18 25.2	+58.1	3.5	20 25.0	+58.1	3.5	22 24.8	+58.1	3.6	24 24.6	+58.1	3.6	26 24.3	+58.2	3.7	78
19 23.3	+58.0	3.2	21 23.1	+58.1	3.2	23 22.9	+58.1	3.3	25 22.7	+58.1	3.3	27 22.5	+58.2	3.4	79
20 21.3	+58.0	2.9	22 21.2	+58.0	3.0	24 21.0	+58.1	3.0	26 20.8	+58.1	3.1	28 20.7	+58.1	3.1	80
21 19.3	+58.0	2.7	23 19.2	+58.0	2.7	25 19.1	+58.0	2.7	27 18.9	+58.1	2.8	29 18.8	+58.1	2.8	81
22 17.3	+58.0	2.4	24 17.2	+58.0	2.4	26 17.1	+58.0	2.5	28 17.0	+58.0	2.5	30 16.9	+58.0	2.5	82
23 15.3	+57.9	2.1	25 15.2	+57.9	2.1	27 15.1	+58.0	2.2	29 15.0	+58.0	2.2	31 14.9	+58.1	2.3	83
24 13.2	+57.9	1.8	26 13.1	+58.0	1.8	28 13.1	+57.9	1.9	30 13.0	+58.0	1.9	32 13.0	+57.9	2.0	84
25 11.1	+57.9	1.5	27 11.1	+57.8	1.5	29 11.0	+57.9	1.6	31 11.0	+57.9	1.6	33 10.9	+57.9	1.6	85
26 09.0	+57.8	1.2	28 08.9	+57.9	1.2	30 08.9	+57.8	1.3	32 08.9	+57.8	1.3	34 08.8	+57.9	1.3	86
27 06.8	+57.8	0.9	29 06.8	+57.8	0.9	31 06.7	+57.8	1.0	33 06.7	+57.8	1.0	35 06.7	+57.8	1.0	87
28 04.6	+57.7	0.6	30 04.6	+57.7	0.6	32 04.5	+57.8	0.7	34 04.5	+57.8	0.7	36 04.5	+57.8	0.7	88
29 02.3	+57.7	0.3	31 02.3	+57.7	0.3	33 02.3	+57.7	0.3	35 02.3	+57.7	0.3	37 02.3	+57.7	0.3	89
30 00.0	+57.7	0.0	32 00.0	+57.7	0.0	34 00.0	+57.6	0.0	36 00.0	+57.6	0.0	38 00.0	+57.6	0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 164°, 196°

16°, 344° L.H.A.

LATITUDE SAME NAME

Dec. °	40°			42°			44°			46°			48°		
	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °
30	73 33.5	+38.9	•122.5	72 24.3	+43.3	127.8	71 06.8	+46.9	132.5	69 42.7	+49.5	136.5	68 13.1	+51.8	140.0
31	74 12.4	+36.7	•119.8	73 07.6	+41.6	125.5	71 53.7	+45.5	130.5	70 32.2	+48.6	134.8	69 04.9	+51.0	138.6
32	74 49.1	+34.2	•116.8	73 49.2	+39.7	•123.0	72 39.2	+44.0	128.4	71 20.8	+47.5	133.0	69 55.9	+50.1	137.1
33	75 23.3	+31.4	•113.6	74 28.9	+37.4	•120.2	73 23.2	+42.4	126.0	72 08.3	+46.2	131.1	70 46.0	+49.2	135.4
34	75 54.7	+28.2	•110.2	75 06.3	+35.0	•117.2	74 05.6	+40.4	•123.5	72 54.5	+44.8	129.0	71 35.2	+48.2	133.7
35	76 22.9	+24.8	•106.5	75 41.3	+32.1	•114.0	74 46.0	+38.2	•120.8	73 39.3	+43.1	126.6	72 23.4	+46.9	131.7
36	76 47.7	+20.9	•102.5	76 13.4	+29.0	•110.5	75 24.2	+35.7	•117.8	74 22.4	+41.2	•124.1	73 10.3	+45.5	129.6
37	77 08.6	+16.8	•98.4	76 42.4	+25.4	•106.8	75 59.9	+33.0	•114.5	75 03.6	+39.1	•121.4	73 55.8	+43.9	127.3
38	77 25.4	+12.4	•94.0	77 07.8	+21.6	•102.8	76 32.9	+29.7	•111.0	75 42.7	+36.5	•118.4	74 39.7	+42.0	•124.8
39	77 37.8	+7.8	•89.5	77 29.4	+17.3	•98.5	77 02.6	+26.2	•107.2	76 19.2	+33.8	•115.1	75 21.7	+39.9	•122.0
40	77 45.6	+3.0	•84.8	77 46.7	+12.9	•94.1	77 28.8	+22.2	•103.1	76 53.0	+30.5	•111.5	76 01.6	+37.5	•119.0
41	77 48.6	-1.9	•80.1	77 59.6	+8.0	•89.4	77 51.0	+17.9	•96.8	77 23.5	+26.9	•107.6	76 39.1	+34.6	•115.7
42	77 46.7	-6.6	•75.4	78 07.6	+3.2	•84.6	78 08.9	+13.3	•94.2	77 50.4	+23.0	•103.5	77 13.7	+31.4	•112.1
43	77 40.1	-11.3	•70.7	78 10.8	-1.9	•79.8	78 22.2	+8.3	•89.4	78 13.4	+18.5	•99.0	77 45.1	+27.8	•108.2
44	77 28.8	-15.8	•66.1	78 08.9	-6.8	•74.9	78 30.5	+3.3	•84.4	78 31.9	+13.7	•94.3	78 12.9	+23.6	•103.9
45	77 13.0	-20.0	•61.7	78 02.1	-11.7	•70.1	78 33.8	-1.9	•79.4	78 45.6	+8.7	•89.3	78 36.5	+19.1	•99.3
46	76 53.0	-23.9	•57.5	77 50.4	-16.2	•65.4	78 31.9	-7.0	•74.4	78 54.3	+3.3	•84.2	78 55.6	+14.2	•94.5
47	76 29.1	-27.5	•53.5	77 34.2	-20.5	•60.9	78 24.9	-12.0	•69.4	78 57.6	-2.0	•79.0	79 09.8	+9.0	•89.3
48	76 01.6	-30.6	•49.8	77 13.7	-24.5	•56.5	78 12.9	-16.8	•64.6	78 55.6	-7.2	•73.8	79 18.8	+3.5	•84.0
49	75 31.0	-33.6	•46.3	76 49.2	-28.1	•52.5	77 56.1	-21.1	•59.9	78 48.4	-12.5	•68.7	79 22.3	-2.1	•78.6
50	74 57.4	-36.1	•43.1	76 21.1	-31.3	•48.7	77 35.0	-25.2	•55.5	78 35.9	-17.3	•63.7	79 20.2	-7.7	•73.2
51	74 21.3	-38.4	•40.0	75 49.8	-34.3	•45.1	77 09.8	-28.8	•51.3	78 18.6	-21.8	•58.9	79 12.5	-12.9	•67.9
52	73 42.9	-40.5	•37.2	75 15.5	-36.8	•41.8	76 41.0	-32.1	•47.5	77 56.8	-25.9	•54.4	78 59.6	-17.9	•62.7
53	73 02.4	-42.2	•34.7	74 38.7	-39.1	•38.8	76 08.9	-35.0	•43.9	77 30.9	-29.7	•50.1	78 41.7	-22.6	•57.8
54	72 20.2	-43.9	•32.3	73 59.6	-41.2	•36.0	75 33.9	-37.6	•40.5	77 01.2	-32.9	•46.2	78 19.1	-26.8	•53.1
55	71 36.3	-45.3	•30.1	73 18.4	-42.9	•33.4	74 56.3	-39.9	•37.5	76 28.3	-35.9	•42.5	77 52.3	-30.6	•48.8
56	70 51.0	-46.5	•28.0	72 35.5	-44.5	•31.0	74 16.4	-41.9	•34.7	75 52.4	-38.4	•39.2	77 21.7	-33.8	•44.8
57	70 04.5	-47.6	•26.1	71 51.0	-45.8	•28.8	73 34.5	-43.6	•32.1	75 14.0	-40.7	•36.1	76 47.9	-36.8	•41.1
58	69 16.9	-48.6	•24.4	71 05.2	-47.1	•26.8	72 50.9	-45.1	•29.7	74 33.3	-42.6	•33.3	76 11.1	-39.3	•37.7
59	68 28.3	-49.5	•22.8	70 18.1	-48.2	•24.9	72 05.8	-46.5	•27.5	73 50.7	-44.4	•30.7	75 31.8	-41.6	•34.6
60	67 38.8	-50.3	•21.2	69 29.9	-49.1	•23.2	71 19.3	-47.7	•25.5	73 06.3	-45.8	•28.3	74 50.2	-43.4	•31.8
61	66 48.5	-51.0	•19.8	68 40.8	-50.0	•21.6	70 31.6	-48.8	•23.6	72 20.5	-47.2	•26.1	74 06.8	-45.2	•29.2
62	65 57.5	-51.6	•18.5	67 50.8	-50.7	•20.1	69 42.8	-49.6	•21.9	71 33.3	-48.3	•24.1	73 21.6	-46.5	•26.9
63	65 05.9	-52.2	•17.3	67 00.1	-51.5	•18.7	68 53.2	-50.5	•20.3	70 45.0	-49.3	•22.3	72 35.1	-47.9	•24.7
64	64 13.7	-52.7	•16.1	66 08.6	-52.0	•17.4	68 02.7	-51.2	•18.9	69 55.7	-50.3	•20.6	71 47.2	-49.0	•22.7
65	63 21.0	-53.1	•15.1	65 16.6	-52.6	•16.2	67 11.5	-51.9	•17.5	69 05.4	-51.0	•19.1	70 58.2	-49.9	•20.9
66	62 27.9	-53.6	•14.0	64 24.0	-53.0	•15.0	66 19.6	-52.5	•16.2	68 14.4	-51.7	•17.6	70 08.3	-50.8	•19.3
67	61 34.3	-54.0	•13.1	63 31.0	-53.5	•14.0	65 27.1	-52.9	•15.0	67 22.7	-52.3	•16.3	69 17.5	-51.6	•17.7
68	60 40.3	-54.3	•12.2	62 37.5	-54.0	•13.0	64 34.2	-53.5	•13.9	66 30.4	-52.9	•15.0	68 25.9	-52.2	•16.3
69	59 46.0	-54.6	•11.3	61 43.5	-54.2	•12.0	63 40.7	-53.9	•12.9	65 37.5	-53.4	•13.8	67 33.7	-52.8	•15.0
70	58 51.4	-54.9	•10.5	60 49.3	-54.6	•11.1	62 46.8	-54.2	•11.9	64 44.1	-53.9	•12.8	66 40.9	-53.4	•13.8
71	57 56.5	-55.2	•9.7	59 54.7	-55.0	•10.3	61 52.6	-54.6	•11.0	63 50.2	-54.2	•11.7	65 47.5	-53.8	•12.6
72	57 01.3	-55.4	•9.0	58 59.7	-55.1	•9.5	60 58.0	-54.9	•10.1	62 56.0	-54.6	•10.8	64 53.7	-54.2	•11.6
73	56 05.9	-55.7	•8.3	58 04.6	-55.5	•8.8	60 03.1	-55.2	•9.3	62 01.4	-54.9	•9.9	63 59.5	-54.6	•10.6
74	55 10.2	-55.8	•7.6	57 09.1	-55.6	•8.1	59 07.9	-55.5	•8.5	61 06.5	-55.3	•9.0	63 04.9	-55.0	•9.7
75	54 14.4	-56.0	•7.0	56 13.5	-55.9	•7.4	58 12.4	-55.7	•7.8	60 11.2	-55.5	•8.3	62 09.9	-55.3	•8.8
76	53 18.4	-56.3	•6.4	55 17.6	-56.1	•6.7	57 16.7	-55.9	•7.1	59 15.7	-55.7	•7.5	61 14.6	-55.5	•8.0
77	52 22.1	-56.3	•5.8	54 21.5	-56.3	•6.1	56 20.8	-56.1	•6.4	58 20.0	-56.0	•6.8	60 19.1	-55.8	•7.2
78	51 25.8	-56.6	•5.3	53 25.2	-56.4	•5.5	55 24.7	-56.4	•5.8	57 24.0	-56.2	•6.1	59 23.3	-56.1	•6.5
79	50 29.2	-56.6	•4.7	52 28.8	-56.6	•5.0	54 28.3	-56.4	•5.2	56 27.8	-56.4	•5.5	58 27.2	-56.2	•5.8
80	49 32.6	-56.8	•4.2	51 32.2	-56.7	•4.4	53 31.9	-56.7	•4.6	55 31.4	-56.5	•4.9	57 31.0	-56.4	•5.1
81	48 35.8	-56.9	•3.7	50 35.5	-56.8	•3.9	52 35.2	-56.8	•4.1	54 34.9	-56.7	•4.3	56 34.6	-56.7	•4.5
82	47 38.9	-57.1	•3.3	49 38.7	-57.0	•3.4	51 38.4	-56.9	•3.5	53 38.2	-56.9	•3.7	55 37.9	-56.8	•3.9
83	46 41.8	-57.1	•2.8	48 41.7	-57.1	•2.9	50 41.5	-57.0	•3.0	52 41.3	-57.0	•3.2	54 41.1	-56.9	•3.3
84	45 44.7	-57.3	•2.4	47 44.6	-57.2	•2.5	49 44.5	-57.2	•2.6	51 44.3	-57.1	•2.7	53 44.2	-57.1	•2.8
85	44 47.4	-57.3	•1.9	46 47.4	-57.3	•2.0	48 47.3	-57.3	•2.1	50 47.2	-57.2	•2.2	52 47.1	-57.2	•2.3
86	43 50.1	-57.4	•1.5	45 50.1	-57.4	•1.6	47 50.0	-57.3	•1.6	49 50.0	-57.4	•1.7	51 49.9	-57.3	•1.8
87	42 52.7	-57.5	•1.1	44 52.7	-57.5	•1.2	46 52.7	-57.5	•1.2	48 52.6	-57.4	•1.3	50 52.6	-57.4	•1.3
88	41 55.2	-57.6	•0.7	43 55.2	-57.6	•0.8	45 55.2	-57.6	•0.8	47 55.2	-57.6	•0.8	49 55.2	-57.6	•0.9
89	40 57.6	-57.6	•0.4	42 57.6	-57.6	•0.4	44 57.6	-57.6	•0.4	46 57.6	-57.6	•0.4	48 57.6	-57.6	•0.4
90	40 00.0	-57.7	•0.0	42 00.0	-57.7	•0.0	44 00.0	-57.7	•0.0	46 00.0	-57.7	•0.0	48 00.0	-57.7	•0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 16°, 344°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
18	26.4	-58.5	165.4	16	30.3	-58.7	165.6	14	34.0	-58.7	165.7	12	37.7	-58.9	165.8	10	41.3	-58.9	165.9	30
17	27.9	-58.5	165.7	15	31.6	-58.6	165.8	13	35.3	-58.8	165.9	11	38.8	-58.8	166.0	9	42.4	-59.0	166.1	31
16	29.4	-58.5	165.9	14	33.0	-58.7	166.0	12	36.5	-58.7	166.1	10	40.0	-58.9	166.2	8	43.4	-58.9	166.3	32
15	30.9	-58.6	166.1	13	34.3	-58.6	166.2	11	37.8	-58.8	166.3	9	41.1	-58.8	166.4	7	44.5	-59.0	166.5	33
14	32.3	-58.5	166.3	12	35.7	-58.7	166.5	10	39.0	-58.8	166.6	8	42.3	-58.9	166.6	6	45.5	-59.0	166.7	34
13	33.8	-58.6	166.6	11	37.0	-58.7	166.7	9	40.2	-58.7	166.8	7	43.4	-58.9	166.8	5	46.5	-58.9	166.9	35
12	35.2	-58.6	166.8	10	38.3	-58.6	166.9	8	41.5	-58.8	167.0	6	44.5	-58.8	167.0	4	47.6	-59.0	167.1	36
11	36.6	-58.6	167.0	9	39.7	-58.7	167.1	7	42.7	-58.8	167.2	5	45.7	-58.9	167.2	3	48.6	-58.9	167.3	37
10	38.0	-58.6	167.2	8	41.0	-58.7	167.3	6	43.9	-58.8	167.4	4	46.8	-58.9	167.4	2	49.7	-59.0	167.4	38
9	39.4	-58.6	167.5	7	42.3	-58.7	167.5	5	45.1	-58.8	167.6	3	47.9	-58.9	167.6	1	50.7	-59.0	167.6	39
8	40.8	-58.6	167.7	6	43.6	-58.8	167.7	4	46.3	-58.8	167.8	2	49.0	-58.9	167.8	0	51.7	-59.0	167.8	40
7	42.2	-58.6	167.9	5	44.8	-58.7	167.9	3	47.5	-58.8	168.0	1	50.1	-58.9	168.0	0	07.3	+58.9	12.0	41
6	43.6	-58.7	168.1	4	46.1	-58.7	168.1	2	48.7	-58.8	168.2	0	51.2	-58.9	168.2	1	06.2	+59.0	11.8	42
5	44.9	-58.6	168.3	3	47.4	-58.7	168.3	1	49.9	-58.8	168.4	0	07.7	+58.8	11.6	2	05.2	+59.0	11.6	43
4	46.3	-58.7	168.5	2	48.7	-58.7	168.5	0	51.1	-58.8	168.6	1	06.5	+58.9	11.4	3	04.2	+58.9	11.5	44
3	47.6	+58.6	168.7	1	50.0	+58.8	168.8	0	07.7	+58.8	11.2	2	05.4	+58.9	11.2	4	03.1	+59.0	11.3	45
2	49.0	+58.6	168.9	0	51.2	+58.7	169.0	1	06.5	+58.9	11.0	3	04.3	+58.9	11.1	5	02.1	+59.0	11.1	46
1	50.4	+58.7	169.2	0	07.5	+58.7	10.8	2	05.4	+58.8	10.8	4	03.2	+58.9	10.9	6	01.1	+58.9	10.9	47
0	51.7	+58.6	169.4	1	06.2	+58.8	10.6	3	04.2	+58.8	10.6	5	02.1	+58.9	10.7	7	00.0	+59.0	10.7	48
0	06.9	+58.7	10.4	2	05.0	+58.7	10.4	4	03.0	+58.8	10.4	6	01.0	+58.8	10.5	7	59.0	+58.9	10.5	49
1	05.6	+58.6	10.2	3	03.7	+58.7	10.2	5	01.8	+58.8	10.2	6	59.8	+58.9	10.3	8	57.9	+59.0	10.3	50
2	04.2	+58.7	10.0	4	02.4	+58.7	10.0	6	00.6	+58.8	10.0	7	58.7	+58.9	10.1	9	56.9	+58.9	10.1	51
3	02.9	+58.6	9.8	5	01.1	+58.7	9.8	6	59.4	+58.7	9.8	8	57.6	+58.8	9.9	10	55.8	+58.9	10.0	52
4	01.5	+58.6	9.6	5	59.8	+58.7	9.6	7	58.1	+58.8	9.6	9	56.4	+58.9	9.7	11	54.7	+58.9	9.8	53
5	00.1	+58.7	9.4	6	58.5	+58.8	9.4	8	56.9	+58.8	9.4	10	55.3	+58.8	9.5	12	53.6	+59.0	9.6	54
5	58.8	+58.6	9.1	7	57.3	+58.7	9.2	9	55.7	+58.8	9.2	11	54.1	+58.9	9.3	13	52.6	+58.9	9.4	55
6	57.4	+58.6	8.9	8	56.0	+58.6	9.0	10	54.5	+58.7	9.0	12	53.0	+58.8	9.1	14	51.5	+58.8	9.2	56
7	56.0	+58.7	8.7	9	54.6	+58.7	8.8	11	53.2	+58.8	8.8	13	51.8	+58.8	8.9	15	50.3	+58.9	9.0	57
8	54.7	+58.6	8.5	10	53.3	+58.7	8.6	12	52.0	+58.7	8.6	14	50.6	+58.8	8.7	16	49.2	+58.9	8.8	58
9	53.3	+58.6	8.3	11	52.0	+58.7	8.3	13	50.7	+58.8	8.4	15	49.4	+58.8	8.5	17	48.1	+58.9	8.6	59
10	51.9	+58.6	8.1	12	50.7	+58.6	8.1	14	49.5	+58.7	8.2	16	48.2	+58.8	8.3	18	47.0	+58.8	8.4	60
11	50.5	+58.5	7.8	13	49.3	+58.7	7.9	15	48.2	+58.7	8.0	17	47.0	+58.8	8.1	19	45.8	+58.8	8.2	61
12	49.0	+58.6	7.6	14	48.0	+58.6	7.7	16	46.9	+58.7	7.8	18	45.8	+58.7	7.9	20	44.6	+58.8	8.0	62
13	47.6	+58.6	7.4	15	46.6	+58.6	7.5	17	45.6	+58.6	7.6	19	44.5	+58.8	7.6	21	43.4	+58.8	7.7	63
14	46.2	+58.5	7.2	16	45.2	+58.6	7.2	18	44.2	+58.7	7.3	20	43.3	+58.7	7.4	22	42.2	+58.8	7.5	64
15	44.7	+58.5	7.0	17	43.8	+58.6	7.0	19	42.9	+58.7	7.1	21	42.0	+58.7	7.2	23	41.0	+58.8	7.3	65
16	43.2	+58.6	6.7	18	42.4	+58.6	6.8	20	41.6	+58.6	6.9	22	40.7	+58.7	7.0	24	39.8	+58.7	7.1	66
17	41.8	+58.5	6.5	19	41.0	+58.5	6.6	21	40.2	+58.6	6.7	23	39.4	+58.6	6.8	25	38.5	+58.7	6.9	67
18	40.3	+58.4	6.3	20	39.5	+58.6	6.3	22	38.8	+58.6	6.4	24	38.0	+58.7	6.5	26	37.2	+58.7	6.6	68
19	38.7	+58.5	6.0	21	38.1	+58.5	6.1	23	37.4	+58.5	6.2	25	36.7	+58.6	6.3	27	35.9	+58.7	6.4	69
20	37.2	+58.4	5.8	22	36.6	+58.5	5.9	24	35.9	+58.6	6.0	26	35.3	+58.6	6.1	28	34.6	+58.7	6.2	70
21	35.6	+58.5	5.5	23	35.1	+58.5	5.6	25	34.5	+58.5	5.7	27	33.9	+58.6	5.8	29	33.3	+58.6	5.9	71
22	34.1	+58.4	5.3	24	33.6	+58.4	5.4	26	33.0	+58.5	5.5	28	32.5	+58.5	5.6	30	31.9	+58.6	5.7	72
23	32.5	+58.3	5.0	25	32.0	+58.4	5.1	27	31.5	+58.5	5.2	29	31.0	+58.5	5.3	31	30.5	+58.5	5.4	73
24	30.8	+58.4	4.8	26	30.4	+58.4	4.9	28	30.0	+58.4	5.0	30	29.5	+58.5	5.1	32	29.0	+58.6	5.2	74
25	29.2	+58.3	4.5	27	28.8	+58.4	4.6	29	28.4	+58.4	4.7	31	28.0	+58.5	4.8	33	27.6	+58.5	4.9	75
26	27.5	+58.3	4.3	28	27.2	+58.3	4.3	30	26.8	+58.4	4.4	32	26.5	+58.4	4.5	34	26.1	+58.4	4.6	76
27	25.8	+58.3	4.0	29	25.5	+58.3	4.1	31	25.2	+58.3	4.2	33	24.9	+58.4	4.3	35	24.5	+58.5	4.4	77
28	24.1	+58.2	3.7	30	23.8	+58.3	3.8	32	23.5	+58.3	3.9	34	23.3	+58.3	4.0	36	23.0	+58.3	4.1	78
29	22.3	+58.2	3.5	31	22.1	+58.2	3.5	33	21.8	+58.3	3.6	35	21.6	+58.3	3.7	37	21.3	+58.4	3.8	79
30	20.5	+58.1	3.2	32	20.3	+58.2	3.2	34	20.1	+58.2	3.3	36	19.9	+58.3	3.4	38	19.7	+58.3	3.5	80
31	18.6	+58.2	2.9	33	18.5	+58.1	3.0	35	18.3	+58.2	3.0	37	18.2	+58.2	3.1	39	18.0	+58.2	3.2	81
32	16.8	+58.0	2.6	34	16.6	+58.1	2.7	36	16.5	+58.1	2.7	38	16.4	+58.1	2.8	40	16.2	+58.2	2.9	82
33	14.8	+58.1	2.3	35	14.7	+58.1	2.4	37	14.6	+58.1	2.4	39	14.5	+58.1	2.5	41	14.4	+58.2	2.6	83
34	12.9	+58.0	2.0	36	12.8	+58.0	2.0	38	12.7	+58.1	2.1	40	12.6	+58.1	2.2	42	12.6	+58.0	2.2	84
35	10.9	+57.9	1.7	37	10.8	+58.0	1.7	39	10.8	+57.9	1.8	41	10.7	+58.0	1.8	43	10.6	+58.1	1.9	85
36	08.8	+57.9	1.4	38	08.8	+57.9	1.4	40	08.7	+57.9	1.4	42	08.7	+57.9	1.5	44	08.7	+57.9	1.5	86
37	06.7	+57.8	1.0	39	06.7	+57.8	1.1	41	06.6	+57.9	1.1	43	06.6	+57.9	1.1	45	06.6	+57.9	1.2	87
38	04.5	+57.8	0.7	40	04.5	+57.8	0.7	42	04.5	+57.8	0.7	44	04.5	+57.8	0.8	46	04.5	+57.8	0.8	88
39	02.3	+57.7	0.4	41	02.3	+57.7	0.4	43	02.3	+57.7	0.4	45	02.3	+57.7	0.4	47	02.3	+57.7	0.4	89
40	00.0	+57.6	0.0	42	00.0	+57.6	0.0	44	00.0	+57.6	0.0	46	00.0	+57.6	0.0	48	00.0	+57.6	0.0	90

LATITUDE SAME NAME

L.H.A. 164°, 196°

16°, 344° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	66 39.2	+53.5	143.0	65 01.8	+54.8	145.6	63 21.5	+55.8	147.8	61 38.8	+56.6	149.8	59 54.1	+57.3	151.6
31	67 32.7	+52.8	141.8	65 56.6	+54.3	144.6	64 17.3	+55.5	147.0	62 35.4	+56.5	149.1	60 51.4	+57.2	151.0
32	68 25.5	+52.3	140.5	66 50.9	+53.9	143.5	65 12.8	+55.2	146.1	63 31.9	+56.1	148.4	61 48.6	+57.0	150.3
33	69 17.8	+51.5	139.2	67 44.8	+53.4	142.4	66 08.0	+54.7	145.2	64 28.0	+55.9	147.6	62 45.6	+56.7	149.7
34	70 09.3	+50.8	137.7	68 38.2	+52.7	141.2	67 02.7	+54.4	144.1	65 23.9	+55.6	146.7	63 42.3	+56.5	148.9
35	71 00.1	+49.9	136.1	69 30.9	+52.2	139.8	67 57.1	+53.9	143.0	66 19.5	+55.2	145.8	64 38.8	+56.3	148.2
36	71 50.0	+48.8	134.3	70 23.1	+51.3	138.4	68 51.0	+53.3	141.8	67 14.7	+54.8	144.8	65 35.1	+56.0	147.4
37	72 38.8	+47.6	132.4	71 14.4	+50.6	136.8	69 44.3	+52.7	140.5	68 09.5	+54.4	143.7	66 31.1	+55.6	146.5
38	73 26.4	+46.3	130.3	72 05.0	+49.5	135.1	70 37.0	+52.0	139.1	69 03.9	+53.9	142.6	67 26.7	+55.3	145.5
39	74 12.7	+44.7	128.1	72 54.5	+48.4	133.2	71 29.0	+51.2	137.6	69 57.8	+53.2	141.3	68 22.0	+54.9	144.5
40	74 57.4	+42.9	125.6	73 42.9	+47.1	131.2	72 20.2	+50.2	135.9	70 51.0	+52.7	139.9	69 16.9	+54.4	143.4
41	75 40.3	+40.8	122.8	74 30.0	+45.5	128.9	73 10.4	+49.2	134.1	71 43.7	+51.8	138.4	70 11.3	+53.9	142.1
42	76 21.1	+38.4	119.8	75 15.5	+43.8	126.4	73 59.6	+47.8	132.0	72 35.5	+51.0	136.8	71 05.2	+53.2	140.8
43	76 59.5	+35.5	116.4	75 59.3	+41.7	123.6	74 47.4	+46.5	129.8	73 26.5	+49.9	135.0	71 58.4	+52.5	139.4
44	77 35.0	+32.3	112.8	76 41.0	+39.3	120.6	75 33.9	+44.7	127.3	74 16.4	+48.7	133.0	72 50.9	+51.7	137.8
45	78 07.3	+28.6	108.8	77 20.3	+36.5	117.2	76 18.6	+42.6	124.6	75 05.1	+47.3	130.8	73 42.6	+50.7	136.0
46	78 35.9	+24.5	104.4	77 56.8	+33.3	113.5	77 01.2	+40.3	121.5	75 52.4	+45.7	128.3	74 33.3	+49.6	134.0
47	79 00.4	+19.8	99.7	78 30.1	+29.5	109.4	77 41.5	+37.6	118.1	76 38.1	+43.6	125.6	75 22.9	+48.2	131.9
48	79 20.2	+14.7	94.7	78 59.6	+25.3	105.0	78 19.1	+34.3	114.4	77 21.7	+41.4	122.5	76 11.1	+46.6	129.4
49	79 34.9	+9.2	89.4	79 24.9	+20.5	100.1	78 53.4	+30.5	110.2	78 03.1	+38.6	119.1	76 57.7	+44.7	126.7
50	79 44.1	+3.5	83.9	79 45.4	+15.2	94.9	79 23.9	+26.1	105.6	78 41.7	+35.4	115.3	77 42.4	+42.5	123.7
51	79 47.6	-2.2	78.2	80 00.6	+9.6	89.4	79 50.0	+21.3	100.6	79 17.1	+31.5	111.1	78 24.9	+39.7	120.3
52	79 45.4	-8.0	72.6	80 10.2	+3.6	83.7	80 11.3	+15.8	95.3	79 48.6	+27.1	106.4	79 04.6	+36.5	116.4
53	79 37.4	-13.5	67.1	80 13.8	-2.5	77.8	80 27.1	+9.8	89.5	80 15.7	+22.1	101.3	79 41.1	+32.7	112.1
54	79 23.9	-18.7	61.7	80 11.3	-8.5	71.9	80 36.9	+3.7	83.5	80 37.8	+16.4	95.6	80 13.8	+28.2	107.3
55	79 05.2	-23.5	56.6	80 02.8	-14.2	66.2	80 40.6	-2.8	77.4	80 54.2	+10.2	89.6	80 42.0	+22.9	102.0
56	78 41.7	-27.7	51.8	79 48.6	-19.5	60.6	80 37.8	-9.0	71.2	81 04.4	+3.6	83.4	81 04.9	+17.1	96.1
57	78 14.0	-31.6	47.4	79 29.1	-24.5	55.3	80 28.8	-15.0	65.2	81 08.0	-3.1	76.9	81 22.0	+10.5	89.8
58	77 42.4	-34.8	43.3	79 04.6	-28.7	50.4	80 13.8	-20.5	59.4	81 04.9	-9.6	70.4	81 32.5	+3.6	83.2
59	77 07.6	-37.8	39.6	78 35.9	-32.7	45.9	79 53.3	-25.5	54.0	80 55.3	-15.9	64.1	81 36.1	-3.5	76.4
60	76 29.8	-40.3	36.2	78 03.2	-35.9	41.7	79 27.8	-30.0	48.9	80 39.4	-21.6	58.1	81 32.6	-10.4	69.6
61	75 49.5	-42.4	33.1	77 27.3	-38.8	38.0	78 57.8	-33.7	44.3	80 17.8	-26.8	52.4	81 22.2	-16.9	62.9
62	75 07.1	-44.3	30.3	76 48.5	-41.3	34.5	78 24.1	-37.2	40.1	79 51.0	-31.2	47.3	81 05.3	-22.9	56.6
63	74 22.8	-46.0	27.4	76 07.2	-43.4	31.4	77 46.9	-39.9	36.3	79 19.8	-35.0	42.5	80 42.4	-28.1	50.8
64	73 36.8	-47.4	25.4	75 23.8	-45.3	28.6	77 07.0	-42.4	32.8	78 44.8	-38.4	38.3	80 14.3	-32.6	45.5
65	72 49.4	-48.5	23.2	74 38.5	-46.8	26.1	76 24.6	-44.4	29.7	78 06.4	-41.1	34.4	79 41.7	-36.4	40.6
66	72 00.9	-49.7	21.3	73 51.7	-48.1	23.8	75 40.2	-46.2	26.9	77 25.3	-43.5	31.0	79 05.3	-39.7	36.3
67	71 11.2	-50.6	19.5	73 03.6	-49.4	21.7	74 54.0	-47.7	24.4	76 41.8	-45.5	27.9	78 25.6	-42.4	32.5
68	70 20.6	-51.4	17.9	72 14.2	-50.3	19.8	74 06.3	-49.0	22.1	75 56.3	-47.2	25.1	77 43.2	-44.7	29.0
69	69 29.2	-52.1	16.4	71 23.9	-51.2	18.0	73 17.3	-50.1	20.1	75 09.1	-48.6	22.7	76 58.5	-46.6	26.0
70	68 37.1	-52.7	15.0	70 32.7	-52.0	16.4	72 27.2	-51.0	18.2	74 20.5	-49.9	20.4	76 11.9	-48.2	23.3
71	67 44.4	-53.3	13.7	69 40.7	-52.7	15.0	71 36.2	-51.9	16.5	73 30.6	-50.8	18.4	75 23.7	-49.6	20.8
72	66 51.1	-53.8	12.5	68 48.0	-53.3	13.6	70 44.3	-52.6	15.0	72 39.8	-51.8	16.6	74 34.1	-50.6	18.7
73	65 57.3	-54.3	11.4	67 54.7	-53.8	12.4	69 51.7	-53.3	13.5	71 48.0	-52.6	15.0	73 43.5	-51.7	16.7
74	65 03.0	-54.6	10.4	67 00.9	-54.2	11.2	68 58.4	-53.8	12.2	70 55.4	-53.2	13.4	72 51.8	-52.5	14.9
75	64 08.4	-55.0	9.4	66 06.7	-54.7	10.1	68 04.6	-54.3	11.0	70 02.2	-53.8	12.1	71 59.3	-53.2	13.3
76	63 13.4	-55.3	8.5	65 12.0	-55.1	9.1	67 10.3	-54.7	9.9	69 08.4	-54.3	10.8	71 06.1	-53.9	11.9
77	62 18.1	-55.6	7.7	64 16.9	-55.3	8.2	66 15.6	-55.1	8.9	68 14.1	-54.8	9.6	70 12.2	-54.4	10.5
78	61 22.5	-55.9	6.9	63 21.6	-55.7	7.3	65 20.5	-55.5	7.9	67 19.3	-55.2	8.5	69 17.8	-54.9	9.3
79	60 26.6	-56.1	6.1	62 25.9	-56.0	6.5	64 25.0	-55.7	7.0	66 24.1	-55.6	7.5	68 22.9	-55.2	8.2
80	59 30.5	-56.3	5.4	61 29.9	-56.2	5.8	63 29.3	-56.1	6.2	65 28.5	-55.8	6.6	67 27.7	-55.7	7.2
81	58 34.2	-56.6	4.7	60 33.7	-56.4	5.0	62 33.2	-56.3	5.4	64 32.7	-56.2	5.8	66 32.0	-56.0	6.2
82	57 37.6	-56.7	4.1	59 37.3	-56.6	4.4	61 36.9	-56.5	4.6	63 36.5	-56.4	5.0	65 36.0	-56.2	5.3
83	56 40.9	-56.8	3.5	58 40.7	-56.8	3.7	60 40.4	-56.7	3.9	62 40.1	-56.6	4.2	64 39.8	-56.5	4.5
84	55 44.1	-57.1	2.9	57 43.9	-57.0	3.1	59 43.7	-56.9	3.3	61 43.5	-56.8	3.5	63 43.3	-56.8	3.7
85	54 47.0	-57.1	2.4	56 46.9	-57.1	2.5	58 46.8	-57.1	2.7	60 46.7	-57.1	2.8	62 46.5	-57.0	3.0
86	53 49.9	-57.3	1.9	55 49.8	-57.3	2.0	57 49.7	-57.2	2.1	59 49.6	-57.2	2.2	61 49.5	-57.1	2.3
87	52 52.6	-57.4	1.4	54 52.5	-57.4	1.4	56 52.5	-57.4	1.5	58 52.4	-57.3	1.6	60 52.4	-57.3	1.7
88	51 55.2	-57.6	0.9	53 55.1	-57.5	0.9	55 55.1	-57.5	1.0	57 55.1	-57.5	1.0	59 55.1	-57.5	1.1
89	50 57.6	-57.6	0.4	52 57.6	-57.6	0.5	54 57.6	-57.6	0.5	56 57.6	-57.6	0.5	58 57.6	-57.6	0.5
90	50 00.0	-57.7	0.0	52 00.0	-57.7	0.0	54 00.0	-57.7	0.0	56 00.0	-57.7	0.0	58 00.0	-57.7	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 16°, 344°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
8 44.9	-59.1	166.0	6 48.4	-59.1	166.1	4 51.9	-59.2	166.1	2 55.4	-59.3	166.2	0 58.9	-59.4	166.2	30
7 45.8	-59.0	166.2	5 49.3	-59.1	166.3	3 52.7	-59.2	166.3	1 56.1	-59.3	166.3	0 00.5	+59.4	13.7	31
6 46.8	-59.0	166.4	4 50.2	-59.2	166.4	2 53.5	-59.2	166.5	0 56.8	-59.3	166.5	0 59.9	+59.3	13.5	32
5 47.8	-59.1	166.6	3 51.0	-59.1	166.6	1 54.3	-59.2	166.6	0 02.5	+59.2	13.4	1 59.2	+59.4	13.4	33
4 48.7	-59.0	166.7	2 51.9	-59.1	166.8	0 55.1	-59.2	166.8	1 01.7	+59.3	13.2	2 58.6	+59.3	13.2	34
3 49.7	-59.1	166.9	1 52.8	-59.2	166.9	0 04.1	+59.2	13.0	2 01.0	+59.3	13.1	3 57.9	+59.4	13.1	35
2 50.6	-59.0	167.1	0 53.6	-59.1	167.1	1 03.3	+59.2	12.9	3 00.3	+59.3	12.9	4 57.3	+59.3	12.9	36
1 51.6	-59.1	167.3	0 05.5	+59.1	12.7	2 02.5	+59.2	12.7	3 59.6	+59.3	12.7	5 56.6	+59.4	12.8	37
0 52.5	-59.0	167.5	1 04.6	+59.1	12.5	3 01.7	+59.2	12.6	4 58.9	+59.2	12.6	6 56.0	+59.3	12.6	38
0 06.5	+59.1	12.4	2 03.7	+59.2	12.4	4 00.9	+59.2	12.4	5 58.1	+59.3	12.4	7 55.3	+59.4	12.5	39
1 05.6	+59.0	12.2	3 02.9	+59.1	12.2	5 00.1	+59.2	12.2	6 57.4	+59.3	12.3	8 54.7	+59.3	12.3	40
2 04.6	+59.1	12.0	4 02.0	+59.1	12.0	5 59.3	+59.2	12.1	7 56.7	+59.3	12.1	9 54.0	+59.3	12.2	41
3 03.7	+59.0	11.8	5 01.1	+59.1	11.9	6 58.5	+59.2	11.9	8 56.0	+59.2	12.0	10 53.3	+59.4	12.0	42
4 02.7	+59.1	11.7	6 00.2	+59.2	11.7	7 57.7	+59.2	11.7	9 55.2	+59.3	11.8	11 52.7	+59.3	11.9	43
5 01.8	+59.0	11.5	6 59.4	+59.1	11.5	8 56.9	+59.2	11.6	10 54.5	+59.2	11.6	12 52.0	+59.3	11.7	44
6 00.8	+59.0	11.3	7 58.5	+59.1	11.4	9 56.1	+59.2	11.4	11 53.7	+59.3	11.5	13 51.3	+59.3	11.6	45
6 59.8	+59.1	11.1	8 57.6	+59.1	11.2	10 55.3	+59.2	11.2	12 53.0	+59.2	11.3	14 50.6	+59.3	11.4	46
7 58.9	+59.0	10.9	9 56.7	+59.1	11.0	11 54.5	+59.1	11.1	13 52.2	+59.3	11.2	15 49.9	+59.3	11.3	47
8 57.9	+59.0	10.8	10 55.8	+59.1	10.8	12 53.6	+59.2	10.9	14 51.5	+59.2	11.0	16 49.2	+59.3	11.1	48
9 56.9	+59.1	10.6	11 54.9	+59.1	10.7	13 52.8	+59.2	10.7	15 50.7	+59.2	10.8	17 48.5	+59.3	10.9	49
10 56.0	+59.0	10.4	12 54.0	+59.1	10.5	14 52.0	+59.1	10.6	16 49.9	+59.2	10.7	18 47.8	+59.3	10.8	50
11 55.0	+59.0	10.2	13 53.1	+59.0	10.3	15 51.1	+59.1	10.4	17 49.1	+59.2	10.5	19 47.1	+59.3	10.6	51
12 54.0	+59.0	10.0	14 52.1	+59.1	10.1	16 50.2	+59.2	10.2	18 48.3	+59.2	10.3	20 46.4	+59.2	10.5	52
13 53.0	+59.0	9.8	15 51.2	+59.0	9.9	17 49.4	+59.1	10.0	19 47.5	+59.2	10.2	21 45.6	+59.3	10.3	53
14 52.0	+58.9	9.6	16 50.2	+59.1	9.7	18 48.5	+59.1	9.9	20 46.7	+59.2	10.0	22 44.9	+59.2	10.1	54
15 50.9	+59.0	9.5	17 49.3	+59.0	9.6	19 47.6	+59.1	9.7	21 45.9	+59.1	9.8	23 44.1	+59.2	9.9	55
16 49.9	+59.0	9.3	18 48.3	+59.0	9.4	20 46.7	+59.1	9.5	22 45.0	+59.2	9.6	24 43.3	+59.2	9.8	56
17 48.9	+58.9	9.1	19 47.3	+59.1	9.2	21 45.8	+59.1	9.3	23 44.2	+59.1	9.4	25 42.5	+59.2	9.6	57
18 47.8	+58.9	8.9	20 46.4	+58.9	9.0	22 44.9	+59.0	9.1	24 43.3	+59.1	9.3	26 41.7	+59.2	9.4	58
19 46.7	+59.0	8.7	21 45.3	+59.0	8.8	23 43.9	+59.1	8.9	25 42.4	+59.2	9.1	27 40.9	+59.2	9.2	59
20 45.7	+58.9	8.5	22 44.3	+59.0	8.6	24 43.0	+59.0	8.7	26 41.6	+59.0	8.9	28 40.1	+59.1	9.0	60
21 44.6	+58.9	8.3	23 43.3	+59.0	8.4	25 42.0	+59.0	8.5	27 40.6	+59.1	8.7	29 39.2	+59.2	8.8	61
22 43.5	+58.8	8.1	24 42.3	+58.9	8.2	26 41.0	+59.0	8.3	28 39.7	+59.1	8.5	30 38.4	+59.1	8.7	62
23 42.3	+58.9	7.9	25 41.2	+58.9	8.0	27 40.0	+59.0	8.1	29 38.8	+59.0	8.3	31 37.5	+59.1	8.5	63
24 41.2	+58.8	7.6	26 40.1	+58.9	7.8	28 39.0	+58.9	7.9	30 37.8	+59.0	8.1	32 36.6	+59.1	8.2	64
25 40.0	+58.8	7.4	27 39.0	+58.9	7.6	29 37.9	+59.0	7.7	31 36.8	+59.0	7.9	33 35.7	+59.0	8.0	65
26 38.8	+58.8	7.2	28 37.9	+58.8	7.3	30 36.9	+58.9	7.5	32 35.8	+59.0	7.6	34 34.7	+59.1	7.8	66
27 37.6	+58.8	7.0	29 36.7	+58.9	7.1	31 35.8	+58.9	7.3	33 34.8	+59.0	7.4	35 33.8	+59.0	7.6	67
28 36.4	+58.8	6.8	30 35.6	+58.8	6.9	32 34.7	+58.9	7.0	34 33.8	+58.9	7.2	36 32.8	+59.0	7.4	68
29 35.2	+58.7	6.5	31 34.4	+58.8	6.7	33 33.6	+58.8	6.8	35 32.7	+58.9	7.0	37 31.8	+58.9	7.2	69
30 33.9	+58.7	6.3	32 33.2	+58.7	6.4	34 32.4	+58.8	6.6	36 31.6	+58.9	6.7	38 30.7	+59.0	6.9	70
31 32.6	+58.7	6.0	33 31.9	+58.8	6.2	35 31.2	+58.8	6.3	37 30.5	+58.8	6.5	39 29.7	+58.9	6.7	71
32 31.3	+58.6	5.8	34 30.7	+58.7	5.9	36 30.0	+58.7	6.1	38 29.3	+58.8	6.2	40 28.6	+58.8	6.4	72
33 29.9	+58.6	5.5	35 29.4	+58.6	5.7	37 28.7	+58.8	5.8	39 28.1	+58.8	6.0	41 27.4	+58.9	6.2	73
34 28.5	+58.6	5.3	36 28.0	+58.6	5.4	38 27.5	+58.6	5.6	40 26.9	+58.7	5.7	42 26.3	+58.8	5.9	74
35 27.1	+58.6	5.0	37 26.6	+58.6	5.2	39 26.1	+58.7	5.3	41 25.6	+58.7	5.5	43 25.1	+58.7	5.6	75
36 25.7	+58.5	4.8	38 25.2	+58.6	4.9	40 24.8	+58.6	5.0	42 24.3	+58.7	5.2	44 23.8	+58.7	5.4	76
37 24.2	+58.4	4.5	39 23.8	+58.5	4.6	41 23.4	+58.6	4.7	43 23.0	+58.6	4.9	45 22.5	+58.7	5.1	77
38 22.6	+58.5	4.2	40 22.3	+58.5	4.3	42 22.0	+58.5	4.4	44 21.6	+58.6	4.6	46 21.2	+58.6	4.8	78
39 21.1	+58.4	3.9	41 20.8	+58.4	4.0	43 20.5	+58.4	4.1	45 20.2	+58.5	4.3	47 19.8	+58.6	4.5	79
40 19.5	+58.3	3.6	42 19.2	+58.4	3.7	44 18.9	+58.5	3.8	46 18.7	+58.4	4.0	48 18.4	+58.5	4.1	80
41 17.8	+58.3	3.3	43 17.6	+58.3	3.4	45 17.4	+58.3	3.5	47 17.1	+58.4	3.6	49 16.9	+58.4	3.8	81
42 16.1	+58.2	3.0	44 15.9	+58.3	3.1	46 15.7	+58.3	3.2	48 15.5	+58.4	3.3	50 15.3	+58.4	3.4	82
43 14.3	+58.2	2.6	45 14.2	+58.2	2.7	47 14.0	+58.3	2.8	49 13.9	+58.2	2.9	51 13.7	+58.3	3.1	83
44 12.5	+58.1	2.3	46 12.4	+58.1	2.4	48 12.3	+58.1	2.5	50 12.1	+58.2	2.6	52 12.0	+58.2	2.7	84
45 10.6	+58.0	2.0	47 10.5	+58.1	2.0	49 10.4	+58.1	2.1	51 10.3	+58.2	2.2	53 10.2	+58.2	2.3	85
46 08.6	+58.0	1.6	48 08.6	+57.9	1.7	50 08.5	+58.0	1.7	52 08.5	+58.0	1.8	54 08.4	+58.0	1.9	86
47 06.6	+57.9	1.2	49 06.5	+58.0	1.3	51 06.5	+57.9	1.3	53 06.5	+57.9	1.4	55 06.4	+58.0	1.4	87
48 04.5	+57.8	0.8	50 04.5	+57.8	0.9	52 04.4	+57.9	0.9	54 04.4	+57.9	0.9	56 04.4	+57.9	1.0	88
49 02.3	+57.7	0.4	51 02.3	+57.7	0.4	53 02.3	+57.7	0.5	55 02.3	+57.7	0.5	57 02.3	+57.7	0.5	89
50 00.0	+57.6	0.0	52 00.0	+57.6	0.0	54 00.0	+57.6	0.0	56 00.0	+57.6	0.0	58 00.0	+57.6	0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 164°, 196°

18°, 342° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	74 25.7	+2.8	•85.5	74 27.6	+10.7	•92.7	74 14.6	+18.2	•99.8	73 47.2	+25.3	•106.6	73 06.6	+31.5	•112.9
31	74 28.5	-0.9	•81.7	74 38.3	+6.9	•89.0	74 32.8	+14.7	•96.2	74 12.5	+22.1	•103.3	73 38.1	+28.8	•109.9
32	74 27.6	-4.6	•78.0	74 45.2	+3.1	•85.2	74 47.5	+11.1	•92.6	74 34.6	+18.7	•99.8	74 06.9	+25.9	•106.8
33	74 23.0	-8.4	•74.3	74 48.3	-0.8	•81.4	74 58.6	+7.2	•88.8	74 53.3	+15.2	•96.2	74 32.8	+22.7	•103.4
34	74 14.6	-12.0	•70.6	74 47.5	-4.6	•77.6	75 05.8	+3.3	•84.9	75 08.5	+11.5	•92.5	74 55.5	+19.4	•99.9
35	74 02.6	-15.4	•67.0	74 42.9	-8.3	•73.8	75 09.1	-0.6	•81.0	75 20.0	+7.5	•88.6	75 14.9	+15.7	•96.2
36	73 47.2	-18.7	•63.6	74 34.6	-12.1	•70.1	75 08.5	-4.5	•77.1	75 27.5	+3.6	•84.7	75 30.6	+11.8	•92.4
37	73 28.5	-21.9	•60.2	74 22.5	-15.6	•66.4	75 04.0	-8.5	•73.3	75 31.1	-0.5	•80.7	75 42.4	+7.9	•88.5
38	73 06.6	-24.7	•56.9	74 06.9	-19.0	•62.8	74 55.5	-12.1	•69.4	75 30.6	-4.6	•76.7	75 50.3	+3.7	•84.4
39	72 41.9	-27.6	•53.8	73 47.9	-22.1	•59.4	74 43.4	-15.9	•65.7	75 26.0	-8.5	•72.7	75 54.0	-0.4	•80.3
40	72 14.3	-30.0	•50.9	73 25.8	-25.1	•56.1	74 27.5	-19.2	•62.1	75 17.5	-12.4	•68.8	75 53.6	-4.5	•76.2
41	71 44.3	-32.3	•48.1	73 00.7	-27.9	•53.0	74 08.3	-22.5	•58.6	75 05.1	-16.1	•65.0	75 49.1	-8.7	•72.2
42	71 12.0	-34.5	•45.4	72 32.8	-30.4	•50.0	73 45.8	-25.5	•55.2	74 49.0	-19.6	•61.3	75 40.4	-12.6	•68.1
43	70 37.5	-36.4	•42.9	72 02.4	-32.8	•47.1	73 20.3	-28.3	•52.0	74 29.4	-22.9	•57.7	75 27.8	-16.4	•64.2
44	70 01.1	-38.1	•40.3	71 29.6	-34.8	•44.5	72 52.0	-30.9	•49.0	74 06.5	-25.9	•54.3	75 11.4	-20.0	•60.4
45	69 23.0	-39.8	•38.4	70 54.8	-36.9	•41.9	72 21.1	-33.2	•46.1	73 40.6	-28.8	•51.0	74 51.4	-23.4	•56.8
46	68 43.2	-41.2	•36.3	70 17.9	-38.6	•39.6	71 47.9	-35.4	•43.4	73 11.8	-31.4	•47.9	74 28.0	-26.5	•53.3
47	68 02.0	-42.6	•34.3	69 39.3	-40.2	•37.3	71 12.5	-37.3	•40.9	72 40.4	-33.7	•45.0	74 01.5	-29.3	•50.0
48	67 19.4	-43.8	•32.4	68 59.1	-41.6	•35.2	70 35.2	-39.1	•38.5	72 06.7	-36.0	•42.3	73 32.2	-32.0	•46.9
49	66 35.6	-44.9	•30.7	68 17.5	-43.0	•33.2	69 56.1	-40.7	•36.2	71 30.7	-37.8	•39.7	73 00.2	-34.3	•43.9
50	65 50.7	-45.8	•29.0	67 34.5	-44.2	•31.4	69 15.4	-42.1	•34.1	70 52.9	-39.6	•37.3	72 25.9	-36.5	•41.2
51	65 04.9	-46.8	•27.5	66 50.3	-45.3	•29.6	68 33.3	-43.4	•32.1	70 13.3	-41.2	•35.1	71 49.4	-38.4	•38.6
52	64 18.1	-47.6	•26.0	66 05.0	-46.2	•28.0	67 49.9	-44.7	•30.3	69 32.1	-42.7	•33.0	71 11.0	-40.2	•36.1
53	63 30.5	-48.4	•24.6	65 18.8	-47.2	•26.4	67 05.2	-45.7	•28.5	68 49.4	-43.9	•31.0	70 30.8	-41.8	•33.9
54	62 42.1	-49.1	•23.3	64 31.6	-48.0	•25.0	66 19.5	-46.6	•26.9	68 05.5	-45.1	•29.1	69 49.0	-43.2	•31.8
55	61 53.0	-49.6	•22.1	63 43.6	-48.7	•23.6	65 32.9	-47.6	•25.4	67 20.4	-46.2	•27.4	69 05.8	-44.5	•29.8
56	61 03.4	-50.3	•20.9	62 54.9	-49.4	•22.3	64 45.3	-48.3	•23.9	66 34.2	-47.1	•25.8	68 21.3	-45.6	•27.9
57	60 13.1	-50.8	•19.8	62 05.5	-50.0	•21.1	63 57.0	-49.1	•22.5	65 47.1	-48.0	•24.2	67 35.7	-46.7	•26.2
58	59 22.3	-51.3	•18.7	61 15.5	-50.6	•19.9	63 07.9	-49.8	•21.2	64 59.1	-48.7	•22.8	66 49.0	-47.6	•24.6
59	58 31.0	-51.8	•17.7	60 24.9	-51.1	•18.8	62 18.1	-50.3	•20.0	64 10.4	-49.5	•21.4	66 01.4	-48.4	•23.1
60	57 39.2	-52.1	•16.8	59 33.8	-51.5	•17.8	61 27.8	-51.0	•18.9	63 20.9	-50.2	•20.1	65 13.0	-49.2	•21.6
61	56 47.1	-52.6	•15.9	58 42.3	-52.1	•16.8	60 36.8	-51.4	•17.8	62 30.7	-50.7	•18.9	64 23.8	-49.9	•20.3
62	55 54.5	-52.8	•15.0	57 50.2	-52.4	•15.8	59 45.4	-51.9	•16.7	61 40.0	-51.2	•17.8	63 33.9	-50.5	•19.0
63	55 01.7	-53.3	•14.2	56 57.8	-52.8	•14.9	58 53.5	-52.3	•15.8	60 48.8	-51.8	•16.7	62 43.4	-51.2	•17.8
64	54 08.4	-53.5	•13.4	56 05.0	-53.1	•14.1	58 01.2	-52.7	•14.8	59 57.0	-52.2	•15.7	61 52.2	-51.6	•16.7
65	53 14.9	-53.8	•12.6	55 11.9	-53.5	•13.2	57 08.5	-53.0	•13.9	59 04.8	-52.6	•14.7	61 00.6	-52.1	•15.6
66	52 21.1	-54.0	•11.9	54 18.4	-53.7	•12.4	56 15.5	-53.4	•13.1	58 12.2	-53.0	•13.8	60 08.5	-52.5	•14.6
67	51 27.1	-54.4	•11.2	53 24.7	-54.1	•11.7	55 22.1	-53.7	•12.3	57 19.2	-53.4	•12.9	59 16.0	-53.0	•13.7
68	50 32.7	-54.5	•10.5	52 30.6	-54.2	•11.0	54 28.4	-54.0	•11.5	56 25.8	-53.6	•12.1	58 23.0	-53.3	•12.8
69	49 38.2	-54.7	•9.8	51 36.4	-54.5	•10.3	53 34.4	-54.3	•10.7	55 32.2	-54.0	•11.3	57 29.7	-53.6	•11.9
70	48 43.5	-55.0	•9.2	50 41.9	-54.8	•9.6	52 40.1	-54.5	•10.0	54 38.2	-54.3	•10.5	56 36.1	-54.0	•11.1
71	47 48.5	-55.1	•8.6	49 47.1	-54.9	•9.0	51 45.6	-54.7	•9.4	53 43.9	-54.5	•9.8	55 42.1	-54.3	•10.3
72	46 53.4	-55.3	•8.0	48 52.2	-55.1	•8.3	50 50.9	-55.0	•8.7	52 49.4	-54.7	•9.1	54 47.8	-54.5	•9.5
73	45 58.1	-55.4	•7.5	47 57.1	-55.3	•7.8	49 55.9	-55.1	•8.1	51 54.7	-55.0	•8.4	53 53.3	-54.7	•8.8
74	45 02.7	-55.6	•6.9	47 01.8	-55.5	•7.2	49 00.8	-55.3	•7.5	50 59.7	-55.1	•7.8	52 58.6	-55.0	•8.1
75	44 07.1	-55.8	•6.4	46 06.3	-55.6	•6.6	48 05.5	-55.5	•6.9	50 04.6	-55.4	•7.2	52 03.6	-55.2	•7.5
76	43 11.3	-55.9	•5.9	45 10.7	-55.8	•6.1	47 10.0	-55.7	•6.3	49 09.2	-55.5	•6.6	51 08.4	-55.4	•6.8
77	42 15.4	-56.0	•5.4	44 14.9	-55.9	•5.6	46 14.3	-55.8	•5.8	48 13.7	-55.7	•6.0	50 13.0	-55.6	•6.2
78	41 19.4	-56.1	•4.9	43 19.0	-56.0	•5.1	45 18.5	-55.9	•5.2	47 18.0	-55.9	•5.4	49 17.4	-55.7	•5.7
79	40 23.3	-56.2	•4.4	42 23.0	-56.2	•4.6	44 22.6	-56.1	•4.7	46 22.1	-56.0	•4.9	48 21.7	-55.9	•5.1
80	39 27.1	-56.3	•4.0	41 26.8	-56.3	•4.1	43 26.5	-56.2	•4.2	45 26.1	-56.1	•4.4	47 25.8	-56.1	•4.5
81	38 30.8	-56.5	•3.5	40 30.5	-56.3	•3.6	42 30.3	-56.3	•3.8	44 30.0	-56.2	•3.9	46 29.7	-56.2	•4.0
82	37 34.3	-56.5	•3.1	39 34.2	-56.5	•3.2	41 34.0	-56.5	•3.3	43 33.8	-56.4	•3.4	45 33.5	-56.3	•3.5
83	36 37.8	-56.6	•2.7	38 37.7	-56.6	•2.8	40 37.5	-56.5	•2.8	42 37.4	-56.5	•2.9	44 37.2	-56.4	•3.0
84	35 41.2	-56.7	•2.3	37 41.1	-56.6	•2.3	39 41.0	-56.6	•2.4	41 40.9	-56.6	•2.5	43 40.8	-56.6	•2.6
85	34 44.5	-56.7	•1.9	36 44.5	-56.8	•1.9	38 44.4	-56.7	•2.0	40 44.3	-56.7	•2.0	42 44.2	-56.6	•2.1
86	33 47.8	-56.9	•1.5	35 47.7	-56.8	•1.5	37 47.7	-56.8	•1.6	39 47.6	-56.8	•1.6	41 47.6	-56.8	•1.7
87	32 50.9	-56.9	•1.1	34 50.9	-56.9	•1.1	36 50.9	-56.9	•1.2	38 50.8	-56.8	•1.2	40 50.8	-56.8	•1.2
88	31 54.0	-57.0	•0.7	33 54.0	-57.0	•0.7	35 54.0	-57.0	•0.8	37 54.0	-57.0	•0.8	39 54.0	-57.0	•0.8
89	30 57.0	-57.0	•0.4	32 57.0	-57.0	•0.4	34 57.0	-57.0	•0.4	36 57.0	-57.0	•0.4	38 57.0	-57.0	•0.4
90	30 00.0	-57.1	•0.0	32 00.0	-57.1	•0.0	34 00.0	-57.1	•0.0	36 00.0	-57.1	•0.0	38 00.0	-57.1	•0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 18°, 342°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
27 36.0	-57.2	162.4	25 41.5	-57.4	162.7	23 46.8	-57.6	163.0	21 52.0	-57.8	163.2	19 57.0	-57.9	163.5	30
26 38.8	-57.3	162.8	24 44.1	-57.5	163.0	22 49.2	-57.7	163.3	20 54.2	-57.8	163.5	18 59.1	-58.0	163.7	31
25 41.5	-57.3	163.1	23 46.6	-57.5	163.4	21 51.5	-57.6	163.6	19 56.4	-57.9	163.8	18 01.1	-58.0	164.0	32
24 44.2	-57.4	163.4	22 49.1	-57.6	163.7	20 53.9	-57.7	163.9	18 58.5	-57.9	164.1	17 03.1	-58.1	164.3	33
23 46.8	-57.4	163.7	21 51.5	-57.5	164.0	19 56.2	-57.8	164.2	18 00.6	-57.9	164.4	16 05.0	-58.0	164.5	34
22 49.4	-57.4	164.1	20 54.0	-57.6	164.3	18 58.4	-57.8	164.5	17 02.7	-57.9	164.6	15 07.0	-58.1	164.8	35
21 52.0	-57.5	164.4	19 56.4	-57.7	164.6	18 00.6	-57.8	164.8	16 04.8	-57.9	164.9	14 08.9	-58.1	165.1	36
20 54.5	-57.5	164.7	18 58.7	-57.6	164.9	17 02.8	-57.8	165.0	15 06.9	-58.0	165.2	13 10.8	-58.1	165.3	37
19 57.0	-57.5	165.0	18 01.1	-57.7	165.2	16 05.0	-57.8	165.3	14 08.9	-58.0	165.5	12 12.7	-58.1	165.6	38
18 59.5	-57.6	165.3	17 03.4	-57.7	165.5	15 07.2	-57.9	165.6	13 10.9	-58.0	165.7	11 14.6	-58.1	165.8	39
18 01.9	-57.6	165.6	16 05.7	-57.8	165.7	14 09.3	-57.8	165.9	12 12.9	-58.1	166.0	10 16.5	-58.2	166.1	40
17 04.3	-57.6	165.9	15 07.9	-57.7	166.0	13 11.5	-57.9	166.1	11 14.9	-58.0	166.2	9 18.3	-58.1	166.3	41
16 06.7	-57.6	166.2	14 10.2	-57.8	166.3	12 13.6	-58.0	166.4	10 16.9	-58.0	166.5	8 20.2	-58.2	166.6	42
15 09.1	-57.7	166.5	13 12.4	-57.8	166.6	11 15.6	-57.9	166.7	9 18.9	-58.1	166.8	7 22.0	-58.1	166.8	43
14 11.4	-57.6	166.7	12 14.6	-57.8	166.9	10 17.7	-57.9	166.9	8 20.8	-58.0	167.0	6 23.9	-58.2	167.1	44
13 13.8	-57.7	167.0	11 16.8	-57.8	167.1	9 19.8	-58.0	167.2	7 23.9	-58.0	167.3	5 25.7	-58.2	167.3	45
12 16.1	-57.8	167.3	10 19.0	-57.9	167.4	8 21.8	-57.9	167.5	6 24.7	-58.1	167.5	4 27.5	-58.2	167.6	46
11 18.3	-57.7	167.6	9 21.1	-57.8	167.7	7 23.9	-58.0	167.7	5 26.6	-58.1	167.8	3 29.3	-58.2	167.8	47
10 20.6	-57.7	167.9	8 23.3	-57.9	167.9	6 25.9	-58.0	168.0	4 28.5	-58.1	168.0	2 31.1	-58.2	168.1	48
9 22.9	-57.8	168.1	7 25.4	-57.9	168.2	5 27.9	-57.9	168.2	3 30.4	-58.0	168.3	1 32.9	-58.1	168.3	49
8 25.1	-57.8	168.4	6 27.5	-57.8	168.5	4 30.0	-58.0	168.5	2 32.4	-58.1	168.5	0 34.8	-58.2	168.5	50
7 27.3	-57.7	168.7	5 29.7	-57.9	168.7	3 32.0	-58.0	168.8	1 34.3	-58.1	168.8	0 23.4	+58.2	11.2	51
6 29.6	-57.8	169.0	4 31.8	-57.9	169.0	2 34.0	-58.0	169.0	0 36.2	-58.1	169.0	1 21.6	+58.2	11.0	52
5 31.8	-57.8	169.2	3 33.9	-57.9	169.3	1 36.0	-58.0	169.3	0 21.9	+58.1	10.7	2 19.8	+58.2	10.7	53
4 34.0	-57.8	169.5	2 36.0	-57.9	169.5	0 38.0	-58.0	169.5	1 20.0	+58.1	10.5	3 18.0	+58.2	10.5	54
3 36.2	-57.8	169.8	1 38.1	-57.9	169.8	0 20.0	+58.0	10.2	2 18.1	+58.1	10.2	4 16.2	+58.2	10.2	55
2 38.4	-57.8	170.0	0 40.2	-57.9	170.0	1 18.0	+58.0	10.0	3 16.2	+58.1	10.0	5 14.4	+58.2	10.0	56
1 40.6	-57.8	170.3	0 17.7	+57.9	9.7	2 16.0	+58.0	9.7	4 14.3	+58.1	9.7	6 12.6	+58.1	9.7	57
0 42.8	-57.9	170.6	1 15.6	+57.9	9.4	3 14.0	+58.0	9.4	5 12.4	+58.0	9.5	7 10.7	+58.2	9.5	58
0 15.1	+57.8	9.2	2 13.5	+57.9	9.2	4 12.0	+58.0	9.2	6 10.4	+58.1	9.2	8 08.9	+58.1	9.3	59
1 12.9	+57.8	8.9	3 11.4	+57.9	8.9	5 10.0	+57.9	8.9	7 08.5	+58.1	9.0	9 07.0	+58.2	9.0	60
2 10.7	+57.8	8.6	4 09.3	+57.9	8.6	6 07.9	+58.0	8.7	8 06.6	+58.0	8.7	10 05.2	+58.1	8.8	61
3 08.5	+57.8	8.4	5 07.2	+57.9	8.4	7 05.9	+58.0	8.4	9 04.6	+58.1	8.4	11 03.3	+58.1	8.5	62
4 06.3	+57.8	8.1	6 05.1	+57.9	8.1	8 03.9	+57.9	8.1	10 02.7	+58.0	8.2	12 01.4	+58.1	8.2	63
5 04.1	+57.8	7.8	7 03.0	+57.8	7.8	9 01.8	+58.0	7.9	11 00.7	+58.0	7.9	12 59.5	+58.1	8.0	64
6 01.9	+57.8	7.5	8 00.8	+57.9	7.6	9 59.8	+57.9	7.6	11 58.7	+58.0	7.7	13 57.6	+58.1	7.7	65
6 59.7	+57.7	7.3	8 58.7	+57.8	7.3	10 57.7	+57.9	7.4	12 56.7	+58.0	7.4	14 55.7	+58.0	7.5	66
7 57.4	+57.8	7.0	9 56.5	+57.9	7.0	11 55.6	+57.9	7.1	13 54.7	+58.0	7.1	15 53.7	+58.1	7.2	67
8 55.2	+57.7	6.7	10 54.4	+57.8	6.8	12 53.5	+57.9	6.8	14 52.7	+57.9	6.9	16 51.8	+58.0	6.9	68
9 52.9	+57.8	6.5	11 52.2	+57.8	6.5	13 51.4	+57.9	6.5	15 50.6	+57.9	6.6	17 49.8	+58.0	6.7	69
10 50.7	+57.7	6.2	12 50.0	+57.8	6.2	14 49.3	+57.8	6.3	16 48.5	+57.9	6.3	18 47.8	+58.0	6.4	70
11 48.4	+57.7	5.9	13 47.8	+57.7	5.9	15 47.1	+57.8	6.0	17 46.4	+57.9	6.1	19 45.8	+57.9	6.1	71
12 46.1	+57.7	5.6	14 45.5	+57.8	5.7	16 44.9	+57.8	5.7	18 44.3	+57.9	5.8	20 43.7	+57.9	5.9	72
13 43.8	+57.7	5.3	15 43.3	+57.7	5.4	17 42.7	+57.8	5.4	19 42.2	+57.8	5.5	21 41.6	+57.9	5.6	73
14 41.5	+57.6	5.1	16 41.0	+57.7	5.1	18 40.5	+57.8	5.2	20 40.0	+57.8	5.2	22 39.5	+57.9	5.3	74
15 39.1	+57.6	4.8	17 38.7	+57.7	4.8	19 38.3	+57.7	4.9	21 37.8	+57.8	4.9	23 37.4	+57.8	5.0	75
16 36.7	+57.6	4.5	18 36.4	+57.6	4.5	20 36.0	+57.7	4.6	22 35.6	+57.7	4.6	24 35.2	+57.8	4.7	76
17 34.3	+57.6	4.2	19 34.0	+57.6	4.2	21 33.7	+57.6	4.3	23 33.3	+57.7	4.3	25 33.0	+57.7	4.4	77
18 31.9	+57.5	3.9	20 31.6	+57.6	3.9	22 31.3	+57.7	4.0	24 31.0	+57.7	4.0	26 30.7	+57.8	4.1	78
19 29.4	+57.6	3.6	21 29.2	+57.6	3.6	23 29.0	+57.6	3.7	25 28.7	+57.6	3.7	27 28.5	+57.6	3.8	79
20 27.0	+57.4	3.3	22 26.8	+57.5	3.3	24 26.6	+57.5	3.4	26 26.3	+57.6	3.4	28 26.1	+57.7	3.5	80
21 24.4	+57.5	3.0	23 24.3	+57.5	3.0	25 24.1	+57.5	3.1	27 23.9	+57.6	3.1	29 23.8	+57.5	3.2	81
22 21.9	+57.4	2.7	24 21.8	+57.4	2.7	26 21.6	+57.5	2.8	28 21.5	+57.5	2.8	30 21.3	+57.6	2.9	82
23 19.3	+57.4	2.4	25 19.2	+57.4	2.4	27 19.1	+57.4	2.4	29 19.0	+57.5	2.5	31 18.9	+57.5	2.5	83
24 16.7	+57.3	2.0	26 16.6	+57.4	2.1	28 16.5	+57.4	2.1	30 16.5	+57.4	2.1	32 16.4	+57.4	2.2	84
25 14.0	+57.3	1.7	27 14.0	+57.3	1.7	29 13.9	+57.3	1.8	31 13.9	+57.3	1.8	33 13.8	+57.4	1.8	85
26 11.3	+57.3	1.4	28 11.3	+57.2	1.4	30 11.2	+57.3	1.4	32 11.2	+57.3	1.5	34 11.2	+57.3	1.5	86
27 08.6	+57.2	1.0	29 08.5	+57.3	1.1	31 08.5	+57.2	1.1	33 08.5	+57.2	1.1	35 08.5	+57.2	1.1	87
28 05.8	+57.1	0.7	30 05.8	+57.1	0.7	32 05.7	+57.2	0.7	34 05.7	+57.2	0.7	36 05.7	+57.2	0.8	88
29 02.9	+57.1	0.4	31 02.9	+57.1	0.4	33 02.9	+57.1	0.4	35 02.9	+57.1	0.4	37 02.9	+57.1	0.4	89
30 00.0	+57.0	0.0	32 00.0	+57.0	0.0	34 00.0	+57.0	0.0	36 00.0	+57.0	0.0	38 00.0	+57.0	0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 162°, 198°

18°, 342° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	72 14.3	+36.9	•118.7	71 12.0	+41.3	123.9	70 01.1	+45.0	128.4	68 43.2	+47.9	132.5	67 19.4	+50.3	136.0
31	72 51.2	+34.6	•116.0	71 53.3	+39.5	121.6	70 46.1	+43.5	126.5	69 31.1	+46.8	130.8	68 09.7	+49.4	134.6
32	73 25.8	+32.2	•113.2	72 32.8	+37.6	•119.1	71 29.6	+42.1	124.3	70 17.9	+45.7	129.0	68 59.1	+48.6	133.0
33	73 58.0	+29.5	•110.2	73 10.4	+35.4	•116.5	72 11.7	+40.3	122.1	71 03.6	+44.3	127.0	69 47.7	+47.5	131.4
34	74 27.5	+26.6	•107.0	73 45.8	+33.0	•113.6	72 52.0	+38.3	•119.6	71 47.9	+42.8	124.9	70 35.2	+46.4	129.6
35	74 54.1	+23.4	•103.6	74 18.8	+30.2	•110.6	73 30.3	+36.2	•116.9	72 30.7	+41.1	122.6	71 21.6	+45.1	127.6
36	75 17.5	+19.9	•100.0	74 49.0	+27.4	•107.3	74 06.5	+33.8	•114.1	73 11.8	+39.2	•120.1	72 06.7	+43.6	125.5
37	75 37.4	+16.2	•96.3	75 16.4	+24.0	•103.9	74 40.3	+31.1	•111.0	73 51.0	+37.0	•117.5	72 50.3	+41.9	123.2
38	75 53.6	+12.3	•92.4	75 40.4	+20.6	•100.2	75 11.4	+28.1	•107.7	74 28.0	+34.6	•114.6	73 32.2	+40.0	120.8
39	76 05.9	+8.2	•88.3	76 01.0	+16.7	•96.4	75 39.5	+24.7	•104.2	75 02.6	+31.9	•111.5	74 12.2	+38.0	•118.1
40	76 14.1	+3.9	•84.2	76 17.7	+12.7	•92.4	76 04.2	+21.2	•100.5	75 34.5	+28.9	•108.1	74 50.2	+35.4	•115.2
41	76 18.0	-0.3	•80.0	76 30.4	+8.5	•88.2	76 25.4	+17.3	•96.5	76 03.4	+25.5	•104.6	75 25.6	+32.8	•112.0
42	76 17.7	-4.6	•75.8	76 38.9	+4.1	•84.0	76 42.7	+13.2	•92.4	76 28.9	+21.9	•100.7	75 58.4	+29.7	•108.6
43	76 13.1	-8.9	•71.6	76 43.0	-0.3	•79.6	76 55.9	+8.8	•88.1	76 50.8	+17.9	•96.7	76 28.1	+26.4	•105.0
44	76 04.2	-12.9	•67.4	76 42.7	-4.7	•75.3	77 04.7	+4.3	•83.7	77 08.7	+13.6	•92.5	76 54.5	+22.5	•101.1
45	75 51.3	-16.8	•63.4	76 38.0	-9.1	•70.9	77 09.0	-0.3	•79.2	77 22.3	+9.1	•88.0	77 17.0	+18.5	•96.9
46	75 34.5	-20.4	•59.5	76 28.9	-13.2	•66.7	77 08.7	-4.9	•74.8	77 31.4	+4.4	•83.5	77 35.5	+14.1	•92.6
47	75 14.1	-23.9	•55.8	76 15.7	-17.3	•62.5	77 03.8	-9.3	•70.3	77 35.8	-0.3	•78.9	77 49.6	+9.4	•88.0
48	74 50.2	-27.1	•52.2	75 58.4	-21.0	•58.6	76 54.5	-13.7	•65.9	77 35.5	-5.1	•74.2	77 59.0	+4.6	•83.3
49	74 23.1	-30.0	•48.9	75 37.4	-24.5	•54.7	76 40.8	-17.8	•61.6	77 30.4	-9.7	•69.6	78 03.6	-0.4	•78.5
50	73 53.1	-32.6	•45.7	75 12.9	-27.8	•51.1	76 23.0	-21.7	•57.5	77 20.7	-14.1	•65.1	78 03.2	-5.3	•73.6
51	73 20.5	-35.0	•42.7	74 45.1	-30.6	•47.7	76 01.3	-25.2	•53.6	77 06.6	-18.4	•60.7	77 57.9	-10.1	•68.9
52	72 45.5	-37.1	•39.9	74 14.5	-33.3	•44.5	75 36.1	-28.4	•49.9	76 48.2	-22.4	•56.4	77 47.8	-14.8	•64.2
53	72 08.4	-39.1	•37.3	73 41.2	-35.7	•41.5	75 07.7	-31.5	•46.4	76 25.8	-26.0	•52.4	77 33.0	-19.1	•59.6
54	71 29.3	-40.8	•34.9	73 05.5	-37.9	•38.6	74 36.2	-34.1	•43.2	75 59.8	-29.3	•48.6	77 13.9	-23.1	•55.3
55	70 48.5	-42.4	•32.6	72 27.6	-39.8	•36.0	74 02.1	-36.4	•40.1	75 30.5	-32.2	•45.1	76 50.8	-26.9	•51.2
56	70 06.1	-43.8	•30.5	71 47.8	-41.5	•33.6	73 25.7	-38.7	•37.3	74 58.3	-35.0	•41.8	76 23.9	-30.2	•47.3
57	69 22.3	-45.1	•28.5	71 06.3	-43.0	•31.3	72 47.0	-40.5	•34.7	74 23.3	-37.3	•38.7	75 53.7	-33.2	•43.7
58	68 37.2	-46.1	•26.7	70 23.3	-44.4	•29.2	72 06.5	-42.2	•32.2	73 46.0	-39.5	•35.9	75 20.5	-35.9	•40.3
59	67 51.1	-47.2	•25.0	69 38.9	-45.7	•27.2	71 24.3	-43.8	•29.9	73 06.5	-41.3	•33.2	74 44.6	-38.2	•37.2
60	67 03.9	-48.1	•23.4	68 53.2	-46.8	•25.4	70 40.5	-45.1	•27.8	72 25.2	-43.0	•30.8	74 06.4	-40.4	•34.3
61	66 15.8	-48.9	•21.8	68 06.4	-47.7	•23.7	69 55.4	-46.3	•25.9	71 42.2	-44.5	•28.5	73 26.0	-42.1	•31.7
62	65 26.9	-49.7	•20.4	67 18.7	-48.6	•22.1	69 09.1	-47.4	•24.1	70 57.7	-45.8	•26.4	72 43.9	-43.9	•29.3
63	64 37.2	-50.4	•19.1	66 30.1	-49.5	•20.6	68 21.7	-48.3	•22.4	70 11.9	-47.0	•24.5	72 00.0	-45.3	•27.0
64	63 46.8	-50.9	•17.9	65 40.6	-50.1	•19.2	67 33.4	-49.2	•20.8	69 24.9	-48.0	•22.7	71 14.7	-46.5	•24.9
65	62 55.9	-51.5	•16.7	64 50.5	-50.8	•17.9	66 44.2	-49.9	•19.3	68 36.9	-49.0	•21.0	70 28.2	-47.7	•23.0
66	62 04.4	-52.0	•15.6	63 59.7	-51.4	•16.7	65 54.3	-50.7	•17.9	67 47.9	-49.7	•19.4	69 40.5	-48.7	•21.2
67	61 12.4	-52.5	•14.5	63 08.3	-52.0	•15.5	65 03.6	-51.3	•16.6	66 58.2	-50.6	•18.0	68 51.8	-49.6	•19.6
68	60 19.9	-52.9	•13.5	62 16.3	-52.4	•14.4	64 12.3	-51.9	•15.4	66 07.6	-51.1	•16.6	68 02.2	-50.4	•18.0
69	59 27.0	-53.3	•12.6	61 23.9	-52.8	•13.4	63 20.4	-52.3	•14.3	65 16.5	-51.8	•15.4	67 11.8	-51.1	•16.6
70	58 33.7	-53.6	•11.7	60 31.1	-53.3	•12.4	62 28.1	-52.9	•13.2	64 24.7	-52.4	•14.2	66 20.7	-51.7	•15.3
71	57 40.1	-54.0	•10.8	59 37.8	-53.6	•11.5	61 35.2	-53.2	•12.2	63 32.3	-52.8	•13.0	65 29.0	-52.3	•14.0
72	56 46.1	-54.3	•10.0	58 44.2	-54.0	•10.6	60 42.0	-53.6	•11.3	62 39.5	-53.2	•12.0	64 36.7	-52.8	•12.9
73	55 51.8	-54.5	•9.3	57 50.2	-54.3	•9.8	59 48.4	-54.0	•10.3	61 46.3	-53.7	•11.0	63 43.9	-53.3	•11.8
74	54 57.3	-54.8	•8.5	56 55.9	-54.6	•9.0	58 54.4	-54.4	•9.5	60 52.6	-54.0	•10.1	62 50.6	-53.7	•10.8
75	54 02.5	-55.0	•7.8	56 01.3	-54.8	•8.2	58 00.0	-54.6	•8.7	59 58.6	-54.4	•9.2	61 56.9	-54.0	•9.8
76	53 07.5	-55.2	•7.2	55 06.5	-55.1	•7.5	57 05.4	-54.8	•7.9	59 04.2	-54.6	•8.4	61 02.9	-54.4	•8.9
77	52 12.3	-55.5	•6.5	54 11.4	-55.2	•6.8	56 10.6	-55.2	•7.2	58 09.6	-55.0	•7.6	60 08.5	-54.8	•8.0
78	51 16.8	-55.6	•5.9	53 16.2	-55.5	•6.2	55 15.4	-55.3	•6.5	57 14.6	-55.2	•6.8	59 13.7	-55.0	•7.2
79	50 21.2	-55.8	•5.3	52 20.7	-55.7	•5.5	54 20.1	-55.6	•5.8	56 19.4	-55.4	•6.1	58 18.7	-55.3	•6.4
80	49 25.4	-56.0	•4.7	51 25.0	-55.9	•4.9	53 24.5	-55.8	•5.2	55 24.0	-55.7	•5.4	57 23.4	-55.5	•5.7
81	48 29.4	-56.1	•4.2	50 29.1	-56.0	•4.4	52 28.7	-55.9	•4.6	54 28.3	-55.8	•4.8	56 27.9	-55.8	•5.0
82	47 33.3	-56.3	•3.7	49 33.1	-56.2	•3.8	51 32.8	-56.1	•4.0	53 32.5	-56.1	•4.2	55 32.1	-55.9	•4.4
83	46 37.0	-56.3	•3.1	48 36.9	-56.4	•3.3	50 36.7	-56.3	•3.4	52 36.4	-56.2	•3.6	54 36.2	-56.1	•3.7
84	45 40.7	-56.6	•2.6	47 40.5	-56.4	•2.7	49 40.4	-56.4	•2.9	51 40.2	-56.3	•3.0	53 40.1	-56.4	•3.1
85	44 44.1	-56.6	•2.2	46 44.1	-56.6	•2.3	48 44.0	-56.6	•2.3	50 43.9	-56.6	•2.4	52 43.7	-56.4	•2.5
86	43 47.5	-56.7	•1.7	45 47.5	-56.7	•1.8	47 47.4	-56.7	•1.8	49 47.3	-56.6	•1.9	51 47.3	-56.6	•2.0
87	42 50.8	-56.8	•1.3	44 50.8	-56.9	•1.3	46 50.7	-56.8	•1.4	48 50.7	-56.8	•1.4	50 50.7	-56.8	•1.5
88	41 54.0	-57.0	•0.8	43 53.9	-56.9	•0.9	45 53.9	-56.9	•0.9	47 53.9	-56.9	•0.9	49 53.9	-56.9	•1.0
89	40 57.0	-57.0	•0.4	42 57.0	-57.0	•0.4	44 57.0	-57.0	•0.4	46 57.0	-57.0	•0.5	48 57.0	-57.0	•0.5
90	40 00.0	-57.1	•0.0	42 00.0	-57.1	•0.0	44 00.0	-57.1	•0.0	46 00.0	-57.1	•0.0	48 00.0	-57.1	•0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 18°, 342°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
18	01.9	-58.1	163.7	16	06.7	-58.2	163.8	14	11.4	-58.4	164.0	12	16.1	-58.6	164.1	10	20.6	-58.7	164.2	30
17	03.8	-58.1	163.9	15	08.5	-58.3	164.1	13	13.0	-58.4	164.2	11	17.5	-58.5	164.3	9	21.9	-58.6	164.4	31
16	05.7	-58.2	164.2	14	10.2	-58.3	164.3	12	14.6	-58.4	164.4	10	19.0	-58.6	164.6	8	23.3	-58.7	164.6	32
15	07.5	-58.2	164.4	13	11.9	-58.3	164.6	11	16.2	-58.5	164.7	9	20.4	-58.6	164.8	7	24.6	-58.7	164.9	33
14	09.3	-58.2	164.7	12	13.6	-58.4	164.8	10	17.7	-58.4	164.9	8	21.8	-58.5	165.0	6	25.9	-58.7	165.1	34
13	11.1	-58.2	164.9	11	15.2	-58.3	165.0	9	19.3	-58.5	165.1	7	23.3	-58.6	165.2	5	27.2	-58.7	165.3	35
12	12.9	-58.2	165.2	10	16.9	-58.4	165.3	8	20.8	-58.5	165.4	6	24.7	-58.6	165.4	4	28.5	-58.7	165.5	36
11	14.7	-58.2	165.4	9	18.5	-58.3	165.5	7	22.3	-58.4	165.6	5	26.1	-58.6	165.6	3	29.8	-58.7	165.7	37
10	16.5	-58.3	165.7	8	20.2	-58.4	165.8	6	23.9	-58.5	165.8	4	27.5	-58.6	165.9	2	31.1	-58.7	165.9	38
9	18.2	-58.2	165.9	7	21.8	-58.3	166.0	5	25.4	-58.5	166.0	3	28.9	-58.6	166.1	1	32.4	-58.7	166.1	39
8	20.0	-58.3	166.2	6	23.5	-58.4	166.2	4	26.9	-58.5	166.3	2	30.3	-58.6	166.3	0	33.7	-58.7	166.3	40
7	21.7	-58.2	166.4	5	25.1	-58.4	166.5	3	28.4	-58.5	166.5	1	31.7	-58.6	166.5	0	25.0	+58.7	13.5	41
6	23.5	-58.3	166.6	4	26.7	-58.4	166.7	2	29.9	-58.5	166.7	0	33.1	-58.6	166.7	0	23.7	+58.7	13.3	42
5	25.2	-58.3	166.9	3	28.3	-58.4	166.9	1	31.4	-58.5	166.9	0	25.5	+58.6	13.1	2	22.4	+58.7	13.1	43
4	26.9	-58.3	167.1	2	29.9	-58.4	167.1	0	32.9	-58.5	167.2	1	24.1	+58.6	12.8	3	21.1	+58.7	12.9	44
3	28.6	-58.3	167.4	1	31.5	-58.4	167.4	0	25.6	+58.5	12.6	2	22.7	+58.6	12.6	4	19.8	+58.7	12.7	45
2	30.3	-58.3	167.6	0	33.1	-58.4	167.6	1	24.1	+58.5	12.4	3	21.3	+58.6	12.4	5	18.5	+58.7	12.4	46
1	32.0	-58.3	167.8	0	25.3	+58.4	12.2	2	22.6	+58.5	12.2	4	19.9	+58.6	12.2	6	17.2	+58.6	12.2	47
0	33.7	-58.3	168.1	1	23.7	+58.4	11.9	3	21.1	+58.5	12.0	5	18.5	+58.6	12.0	7	15.8	+58.7	12.0	48
0	24.6	+58.3	11.7	2	22.1	+58.4	11.7	4	19.6	+58.5	11.7	6	17.1	+58.5	11.8	8	14.5	+58.7	11.8	49
1	22.9	+58.3	11.5	3	20.5	+58.4	11.5	5	18.1	+58.4	11.5	7	15.6	+58.6	11.6	9	13.2	+58.7	11.6	50
2	21.2	+58.2	11.2	4	18.9	+58.3	11.2	6	16.5	+58.5	11.3	8	14.2	+58.6	11.3	10	11.9	+58.6	11.4	51
3	19.4	+58.3	11.0	5	17.2	+58.4	11.0	7	15.0	+58.5	11.1	9	12.8	+58.5	11.1	11	10.5	+58.7	11.2	52
4	17.7	+58.3	10.7	6	15.6	+58.4	10.8	8	13.5	+58.5	10.8	10	11.3	+58.6	10.9	12	09.2	+58.6	11.0	53
5	16.0	+58.3	10.5	7	14.0	+58.4	10.5	9	12.0	+58.4	10.6	11	09.9	+58.5	10.7	13	07.8	+58.6	10.7	54
6	14.3	+58.3	10.3	8	12.4	+58.3	10.3	10	10.4	+58.5	10.4	12	08.4	+58.6	10.4	14	06.4	+58.6	10.5	55
7	12.6	+58.2	10.0	9	10.7	+58.4	10.1	11	08.9	+58.4	10.1	13	07.0	+58.5	10.2	15	05.0	+58.6	10.3	56
8	10.8	+58.3	9.8	10	09.1	+58.3	9.8	12	07.3	+58.4	9.9	14	05.5	+58.5	10.0	16	03.6	+58.6	10.1	57
9	09.1	+58.2	9.5	11	07.4	+58.3	9.6	13	05.7	+58.4	9.7	15	04.0	+58.5	9.8	17	02.2	+58.6	9.9	58
10	07.3	+58.3	9.3	12	05.7	+58.3	9.4	14	04.1	+58.4	9.4	16	02.5	+58.5	9.5	18	00.8	+58.6	9.6	59
11	05.6	+58.2	9.1	13	04.0	+58.3	9.1	15	02.5	+58.4	9.2	17	01.0	+58.4	9.3	18	59.4	+58.5	9.4	60
12	03.8	+58.2	8.8	14	02.3	+58.3	8.9	16	00.9	+58.4	9.0	17	59.4	+58.5	9.1	19	57.9	+58.5	9.2	61
13	02.0	+58.2	8.6	15	00.6	+58.3	8.6	16	59.3	+58.3	8.7	18	57.9	+58.4	8.8	20	56.4	+58.5	8.9	62
14	00.2	+58.2	8.3	15	58.9	+58.3	8.4	17	57.6	+58.3	8.5	19	56.3	+58.4	8.6	21	54.9	+58.5	8.7	63
14	58.4	+58.1	8.1	16	57.2	+58.2	8.1	18	55.9	+58.3	8.2	20	54.7	+58.4	8.3	22	53.4	+58.5	8.5	64
15	56.5	+58.2	7.8	17	55.4	+58.2	7.9	19	54.2	+58.3	8.0	21	53.1	+58.3	8.1	23	51.9	+58.4	8.2	65
16	54.7	+58.1	7.5	18	53.6	+58.2	7.6	20	52.5	+58.3	7.7	22	51.4	+58.4	7.8	24	50.3	+58.4	8.0	66
17	52.8	+58.1	7.3	19	51.8	+58.2	7.4	21	50.8	+58.2	7.5	23	49.8	+58.3	7.6	25	48.7	+58.4	7.7	67
18	50.9	+58.1	7.0	20	50.0	+58.1	7.1	22	49.0	+58.3	7.2	24	48.1	+58.3	7.3	26	47.1	+58.3	7.5	68
19	49.0	+58.0	6.8	21	48.1	+58.2	6.9	23	47.3	+58.1	7.0	25	46.4	+58.2	7.1	27	45.4	+58.4	7.2	69
20	47.0	+58.1	6.5	22	46.3	+58.0	6.6	24	45.4	+58.2	6.7	26	44.6	+58.2	6.8	28	43.8	+58.3	6.9	70
21	45.1	+58.0	6.2	23	44.3	+58.1	6.3	25	43.6	+58.1	6.4	27	42.8	+58.2	6.5	29	42.1	+58.2	6.7	71
22	43.1	+57.9	5.9	24	42.4	+58.0	6.0	26	41.7	+58.1	6.1	28	41.0	+58.2	6.2	30	40.3	+58.2	6.4	72
23	41.0	+58.0	5.7	25	40.4	+58.1	5.8	27	39.8	+58.1	5.9	29	39.2	+58.1	6.0	31	38.5	+58.2	6.1	73
24	39.0	+57.9	5.4	26	38.5	+57.9	5.5	28	37.9	+58.0	5.6	30	37.3	+58.1	5.7	32	36.7	+58.2	5.8	74
25	36.9	+57.9	5.1	27	36.4	+58.0	5.2	29	35.9	+58.0	5.3	31	35.4	+58.0	5.4	33	34.9	+58.1	5.5	75
26	34.8	+57.8	4.8	28	34.4	+57.8	4.9	30	33.9	+58.0	5.0	32	33.4	+58.0	5.1	34	33.0	+58.0	5.2	76
27	32.6	+57.8	4.5	29	32.2	+57.9	4.6	31	31.9	+57.9	4.7	33	31.4	+58.0	4.8	35	31.0	+58.0	4.9	77
28	30.4	+57.8	4.2	30	30.1	+57.8	4.3	32	29.8	+57.8	4.4	34	29.4	+57.9	4.5	36	29.0	+58.0	4.6	78
29	28.2	+57.7	3.9	31	27.9	+57.8	4.0	33	27.6	+57.8	4.1	35	27.3	+57.9	4.2	37	27.0	+57.9	4.3	79
30	25.9	+57.7	3.6	32	25.7	+57.7	3.6	34	25.4	+57.8	3.7	36	25.2	+57.8	3.8	38	24.9	+57.8	3.9	80
31	23.6	+57.6	3.2	33	23.4	+57.6	3.3	35	23.2	+57.7	3.4	37	23.0	+57.7	3.5	39	22.7	+57.8	3.6	81
32	21.2	+57.6	2.9	34	21.0	+57.6	3.0	36	20.9	+57.6	3.1	38	20.7	+57.7	3.1	40	20.5	+57.7	3.2	82
33	18.8	+57.5	2.6	35	18.6	+57.6	2.6	37	18.5	+57.6	2.7	39	18.4	+57.6	2.8	41	18.2	+57.7	2.9	83
34	16.3	+57.4	2.2	36	16.2	+57.5	2.3	38	16.1	+57.5	2.4	40	16.0	+57.5	2.4	42	15.9	+57.5	2.5	84
35	13.7	+57.4	1.9	37	13.7	+57.4	1.9	39	13.6	+57.4	2.0	41	13.5	+57.5	2.1	43	13.4	+57.5	2.1	85
36	11.1	+57.4	1.5	38	11.1	+57.3	1.6	40	11.0	+57.4	1.6	42	11.0	+57.4	1.7	44	10.9	+57.4	1.7	86
37	08.5	+57.2	1.2	39	08.4	+57.3	1.2	41	08.4	+57.3	1.2	43	08.4	+57.3	1.3	45	08.3	+57.4	1.3	87
38	05.7	+57.2	0.8	40	05.7	+57.2	0.8	42	05.7	+57.2	0.8	44	05.7	+57.2	0.9	46	05.7	+57.2	0.9	88
39	02.9	+57.1	0.4	41	02.9	+57.1	0.4	43	02.9	+57.1	0.4	45	02.9	+57.1	0.4	47	02.9	+57.1	0.5	89
40	00.0	+57.0	0.0	42	00.0	+57.0	0.0	44	00.0	+57.0	0.0	46	00.0	+57.0	0.0	48	00.0	+57.0	0.0	90

LATITUDE SAME NAME

L.H.A. 162°, 198°

18°, 342° L.H.A.

LATITUDE SAME NAME

Dec. °	50°			52°			54°			56°			58°		
	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °	Hc °	d '	Z °
30	65 50.7	+52.2	139.2	64 18.1	+53.7	141.9	62 42.1	+54.9	144.3	61 03.4	+55.9	146.4	59 22.3	+56.7	148.3
31	66 42.9	+51.6	137.9	65 11.8	+53.2	140.8	63 37.0	+54.6	143.4	61 59.3	+55.6	145.7	60 19.0	+56.5	147.7
32	67 34.5	+50.8	136.6	66 05.0	+52.7	139.7	64 31.6	+54.2	142.5	62 54.9	+55.4	144.9	61 15.5	+56.3	147.0
33	68 25.3	+50.1	135.2	66 57.7	+52.2	138.5	65 25.8	+53.7	141.4	63 50.3	+55.0	144.0	62 11.8	+56.1	146.2
34	69 15.4	+49.3	133.7	67 49.9	+51.4	137.2	66 19.5	+53.3	140.4	64 45.3	+54.7	143.1	63 07.9	+55.8	145.5
35	70 04.7	+48.2	132.0	68 41.3	+50.8	135.9	67 12.8	+52.7	139.2	65 40.0	+54.2	142.1	64 03.7	+55.4	144.6
36	70 52.9	+47.1	130.2	69 32.1	+49.9	134.4	68 05.5	+52.1	137.9	66 34.2	+53.8	141.0	64 59.1	+55.2	143.8
37	71 40.0	+45.9	128.3	70 22.0	+49.0	132.7	68 57.6	+51.4	136.6	67 28.0	+53.3	139.9	65 54.3	+54.7	142.8
38	72 25.9	+44.4	126.2	71 11.0	+47.8	131.0	69 49.0	+50.6	135.1	68 21.3	+52.7	138.7	66 49.0	+54.4	141.8
39	73 10.3	+42.8	123.9	71 58.8	+46.7	129.1	70 39.6	+49.7	133.5	69 14.0	+52.1	137.4	67 43.4	+53.8	140.7
40	73 53.1	+41.0	121.5	72 45.5	+45.3	127.0	71 29.3	+48.7	131.8	70 06.1	+51.3	135.9	68 37.2	+53.4	139.5
41	74 34.1	+38.8	118.8	73 30.8	+43.7	124.7	72 18.0	+47.5	129.9	70 57.4	+50.4	134.4	69 30.6	+52.7	138.2
42	75 12.9	+36.4	115.9	74 14.5	+41.9	122.3	73 05.5	+46.1	127.9	71 47.8	+49.5	132.7	70 23.3	+52.0	136.8
43	75 49.3	+33.7	112.7	74 56.4	+39.7	119.6	73 51.6	+44.6	125.6	72 37.3	+48.4	130.8	71 15.3	+51.2	135.3
44	76 23.0	+30.6	109.2	75 36.1	+37.4	116.6	74 36.2	+42.9	123.1	73 25.7	+47.0	128.8	72 06.5	+50.3	133.7
45	76 53.6	+27.1	105.5	76 13.5	+34.7	113.4	75 19.1	+40.7	120.4	74 12.7	+45.6	126.6	72 56.8	+49.2	131.8
46	77 20.7	+23.4	101.5	76 48.2	+31.5	109.9	75 59.8	+38.4	117.5	74 58.3	+43.8	124.1	73 46.0	+48.0	129.8
47	77 44.1	+19.1	97.2	77 19.7	+28.1	106.1	76 38.2	+35.7	114.2	75 42.1	+41.8	121.4	74 34.0	+46.5	127.6
48	78 03.2	+14.5	92.7	77 47.8	+24.1	102.0	77 13.9	+32.6	110.7	76 23.9	+39.5	118.4	75 20.5	+44.9	125.2
49	78 17.7	+9.8	88.0	78 11.9	+19.8	97.6	77 46.5	+29.0	106.8	77 03.4	+36.7	115.2	76 05.4	+42.9	122.5
50	78 27.5	+4.6	83.1	78 31.7	+15.1	92.9	78 15.5	+24.9	102.6	77 40.1	+33.6	111.6	76 48.3	+40.6	119.5
51	78 32.1	-0.4	78.1	78 46.8	+10.0	88.0	78 40.4	+20.5	98.0	78 13.7	+30.0	107.6	77 28.9	+37.9	116.2
52	78 31.7	-5.6	73.1	78 56.8	+4.8	82.9	79 00.9	+15.7	93.2	78 43.7	+25.9	103.2	78 06.8	+34.7	112.5
53	78 26.1	-10.6	68.1	79 01.6	-0.7	77.7	79 16.6	+10.3	88.0	79 09.6	+21.3	98.5	78 41.5	+31.1	108.5
54	78 15.5	-15.5	63.2	79 00.9	-5.9	72.4	79 26.9	+4.8	82.7	79 30.9	+16.2	93.5	79 12.6	+26.9	104.0
55	78 00.0	-19.9	58.5	78 55.0	-11.3	67.2	79 31.7	-0.8	77.2	79 47.1	+10.7	88.1	79 39.5	+22.1	99.1
56	77 40.1	-24.0	54.0	78 43.7	-16.1	62.1	79 30.9	-6.4	71.7	79 57.8	+4.9	82.5	80 01.6	+16.8	93.9
57	77 16.1	-27.8	49.8	78 27.6	-20.8	57.3	79 24.5	-11.9	66.3	80 02.7	-1.1	76.8	80 18.4	+11.0	88.2
58	76 48.3	-31.2	45.8	78 06.8	-25.1	52.7	79 12.6	-17.1	61.0	80 01.6	-7.0	71.0	80 29.4	+4.9	82.3
59	76 17.1	-34.2	42.2	77 41.7	-28.9	48.3	78 55.5	-21.8	56.0	79 54.6	-12.7	65.3	80 34.3	-1.4	76.3
60	75 42.9	-36.9	38.8	77 12.8	-32.3	44.3	78 33.7	-26.2	51.2	79 41.9	-18.1	59.8	80 32.9	-7.7	70.2
61	75 06.0	-39.2	35.6	76 40.5	-35.3	40.5	78 07.5	-30.1	46.7	79 23.8	-23.0	54.5	80 25.2	-13.6	64.2
62	74 26.8	-41.3	32.8	76 05.2	-37.9	37.1	77 37.4	-33.5	42.6	79 00.8	-27.4	49.6	80 11.6	-19.2	58.4
63	73 45.5	-43.1	30.1	75 27.3	-40.3	34.0	77 03.9	-36.4	38.8	78 33.4	-31.4	45.0	79 52.4	-24.3	52.9
64	73 02.4	-44.8	27.7	74 47.0	-42.3	31.1	76 27.5	-39.2	35.3	78 02.0	-34.8	40.8	79 28.1	-28.9	47.8
65	72 17.6	-46.1	25.4	74 04.7	-44.1	28.4	75 48.3	-41.4	32.2	77 27.2	-37.7	37.0	78 59.2	-32.7	43.1
66	71 31.5	-47.3	23.4	73 20.6	-45.6	26.0	75 06.9	-43.3	29.3	76 49.5	-40.4	33.5	78 26.5	-36.2	38.8
67	70 44.2	-48.4	21.5	72 35.0	-47.0	23.8	74 23.6	-45.1	26.7	76 09.1	-42.6	30.3	77 50.3	-39.2	35.0
68	69 55.8	-49.4	19.7	71 48.0	-48.1	21.8	73 38.5	-46.6	24.3	75 26.5	-44.4	27.4	77 11.1	-41.7	31.5
69	69 06.4	-50.3	18.1	70 59.9	-49.2	19.9	72 51.9	-47.8	22.1	74 42.1	-46.2	24.8	76 29.4	-43.8	28.3
70	68 16.1	-51.0	16.6	70 10.7	-50.1	18.2	72 04.1	-49.0	20.1	73 55.9	-47.5	22.4	75 45.6	-45.6	25.4
71	67 25.1	-51.6	15.2	69 20.6	-50.9	16.6	71 15.1	-50.0	18.2	73 08.4	-48.8	20.3	75 00.0	-47.2	22.9
72	66 33.5	-52.3	13.9	68 29.7	-51.7	15.1	70 25.1	-50.8	16.6	72 19.6	-49.8	18.3	74 12.8	-48.6	20.5
73	65 41.2	-52.8	12.7	67 38.0	-52.2	13.7	69 34.3	-51.6	15.0	71 29.8	-50.8	16.5	73 24.2	-49.7	18.4
74	64 48.4	-53.3	11.5	66 45.8	-52.9	12.5	68 42.7	-52.3	13.6	70 39.0	-51.6	14.9	72 34.5	-50.7	16.5
75	63 55.1	-53.8	10.5	65 52.9	-53.3	11.3	67 50.4	-52.9	12.2	69 47.4	-52.3	13.4	71 43.8	-51.6	14.8
76	63 01.3	-54.1	9.5	64 59.6	-53.8	10.2	66 57.5	-53.4	11.0	68 55.1	-52.9	12.0	70 52.2	-52.3	13.2
77	62 07.2	-54.5	8.5	64 05.8	-54.2	9.2	66 04.1	-53.8	9.9	68 02.2	-53.5	10.7	69 59.9	-53.0	11.7
78	61 12.7	-54.8	7.7	63 11.6	-54.6	8.2	65 10.3	-54.3	8.8	67 08.7	-53.9	9.5	69 06.9	-53.6	10.4
79	60 17.9	-55.1	6.8	62 17.0	-54.9	7.3	64 16.0	-54.7	7.8	66 14.8	-54.5	8.4	68 13.3	-54.0	9.1
80	59 22.8	-55.4	6.0	61 22.1	-55.2	6.4	63 21.3	-55.1	6.9	65 20.3	-54.8	7.4	67 19.3	-54.6	8.0
81	58 27.4	-55.6	5.3	60 26.9	-55.5	5.6	62 26.2	-55.3	6.0	64 25.5	-55.1	6.4	66 24.7	-54.9	6.9
82	57 31.8	-55.9	4.6	59 31.4	-55.8	4.9	61 30.9	-55.6	5.2	63 30.4	-55.5	5.5	65 29.8	-55.3	6.0
83	56 35.9	-56.0	3.9	58 35.6	-55.9	4.1	60 35.3	-55.9	4.4	62 34.9	-55.7	4.7	64 34.5	-55.6	5.0
84	55 39.9	-56.3	3.3	57 39.7	-56.2	3.5	59 39.4	-56.1	3.7	61 39.2	-56.0	3.9	63 38.9	-55.9	4.2
85	54 43.6	-56.4	2.7	56 43.5	-56.4	2.8	58 43.3	-56.3	3.0	60 43.2	-56.3	3.2	62 43.0	-56.2	3.4
86	53 47.2	-56.6	2.1	55 47.1	-56.5	2.2	57 47.0	-56.5	2.3	59 46.9	-56.4	2.5	61 46.8	-56.4	2.6
87	52 50.6	-56.7	1.5	54 50.6	-56.7	1.6	56 50.5	-56.7	1.7	58 50.5	-56.7	1.8	60 50.4	-56.6	1.9
88	51 53.9	-56.9	1.0	53 53.9	-56.9	1.0	55 53.8	-56.8	1.1	57 53.8	-56.8	1.2	59 53.8	-56.8	1.2
89	50 57.0	-57.0	0.5	52 57.0	-57.0	0.5	54 57.0	-57.0	0.5	56 57.0	-57.0	0.6	58 57.0	-57.0	0.6
90	50 00.0	-57.1	0.0	52 00.0	-57.1	0.0	54 00.0	-57.1	0.0	56 00.0	-57.1	0.0	58 00.0	-57.1	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 18°, 342°

50°			52°			54°			56°			58°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
8	25.1	-58.8	164.3	6	29.6	-58.9	164.4	4	34.0	-59.0	164.4	2	38.4	-59.1	164.5	0	42.8	-59.2	164.5	30
7	26.3	-58.8	164.5	5	30.7	-58.9	164.6	3	35.0	-59.0	164.6	1	39.3	-59.1	164.6	0	16.4	+59.2	15.4	31
6	27.5	-58.7	164.7	4	31.8	-58.9	164.8	2	36.0	-59.0	164.8	0	40.2	-59.1	164.8	1	15.6	+59.2	15.2	32
5	28.8	-58.8	164.9	3	32.9	-58.9	165.0	1	37.0	-59.0	165.0	0	18.9	+59.1	15.0	2	14.8	+59.2	15.0	33
4	30.0	-58.8	165.1	2	34.0	-58.9	165.1	0	38.0	-59.0	165.2	1	18.0	+59.1	14.8	3	14.0	+59.2	14.9	34
3	31.2	-58.8	165.3	1	35.1	-58.9	165.3	0	21.0	+59.0	14.7	2	17.1	+59.1	14.7	4	13.2	+59.2	14.7	35
2	32.4	-58.8	165.5	0	36.2	-58.9	165.5	1	20.0	+59.0	14.5	3	16.2	+59.1	14.5	5	12.4	+59.2	14.5	36
1	33.6	-58.8	165.7	0	22.7	+58.9	14.3	2	19.0	+59.0	14.3	4	15.3	+59.1	14.3	6	11.6	+59.1	14.4	37
0	34.8	-58.9	165.9	1	21.6	+58.9	14.1	3	18.0	+59.0	14.1	5	14.4	+59.1	14.2	7	10.7	+59.2	14.2	38
0	24.1	+58.8	13.9	2	20.5	+58.9	13.9	4	17.0	+59.0	13.9	6	13.5	+59.1	14.0	8	09.9	+59.2	14.0	39
1	22.9	+58.8	13.7	3	19.4	+58.9	13.7	5	16.0	+59.0	13.8	7	12.6	+59.0	13.8	9	09.1	+59.1	13.9	40
2	21.7	+58.8	13.5	4	18.3	+58.9	13.5	6	15.0	+59.0	13.6	8	11.6	+59.1	13.6	10	08.2	+59.2	13.7	41
3	20.5	+58.8	13.3	5	17.2	+58.9	13.3	7	14.0	+59.0	13.4	9	10.7	+59.1	13.5	11	07.4	+59.2	13.5	42
4	19.3	+58.8	13.1	6	16.1	+58.9	13.1	8	13.0	+59.0	13.2	10	09.8	+59.1	13.3	12	06.6	+59.1	13.4	43
5	18.1	+58.7	12.9	7	15.0	+58.9	12.9	9	12.0	+58.9	13.0	11	08.9	+59.0	13.1	13	05.7	+59.2	13.2	44
6	16.8	+58.8	12.7	8	13.9	+58.9	12.8	10	10.9	+59.0	12.8	12	07.9	+59.1	12.9	14	04.9	+59.1	13.0	45
7	15.6	+58.8	12.5	9	12.8	+58.9	12.6	11	09.9	+58.9	12.6	13	07.0	+59.0	12.7	15	04.0	+59.1	12.8	46
8	14.4	+58.8	12.3	10	11.7	+58.8	12.4	12	08.8	+59.0	12.4	14	06.0	+59.0	12.6	16	03.1	+59.1	12.7	47
9	13.2	+58.8	12.1	11	10.5	+58.9	12.2	13	07.8	+58.9	12.3	15	05.0	+59.1	12.4	17	02.2	+59.1	12.5	48
10	12.0	+58.7	11.9	12	09.4	+58.8	12.0	14	06.7	+59.0	12.1	16	04.1	+59.0	12.2	18	01.3	+59.1	12.3	49
11	10.7	+58.8	11.7	13	08.2	+58.9	11.8	15	05.7	+58.9	11.9	17	03.1	+59.0	12.0	19	00.4	+59.1	12.1	50
12	09.5	+58.7	11.5	14	07.1	+58.8	11.6	16	04.6	+58.9	11.7	18	02.1	+59.0	11.8	19	59.5	+59.1	11.9	51
13	08.2	+58.8	11.3	15	05.9	+58.8	11.4	17	03.5	+58.9	11.5	19	01.1	+59.0	11.6	20	58.6	+59.1	11.8	52
14	07.0	+58.7	11.1	16	04.7	+58.8	11.2	18	02.4	+58.9	11.3	20	00.1	+58.9	11.4	21	57.7	+59.0	11.6	53
15	05.7	+58.7	10.8	17	03.5	+58.8	11.0	19	01.3	+58.9	11.1	20	59.0	+59.0	11.2	22	56.7	+59.1	11.4	54
16	04.4	+58.7	10.6	18	02.3	+58.8	10.7	20	00.2	+58.8	10.9	21	58.0	+58.9	11.0	23	55.8	+59.0	11.2	55
17	03.1	+58.7	10.4	19	01.1	+58.8	10.5	20	59.0	+58.9	10.7	22	56.9	+59.0	10.8	24	54.8	+59.0	11.0	56
18	01.8	+58.6	10.2	19	59.9	+58.7	10.3	21	57.9	+58.8	10.5	23	55.9	+58.9	10.6	25	53.8	+59.0	10.8	57
19	00.4	+58.7	10.0	20	58.6	+58.7	10.1	22	56.7	+58.8	10.2	24	54.8	+58.9	10.4	26	52.8	+58.9	10.6	58
19	59.1	+58.6	9.8	21	57.3	+58.7	9.9	23	55.5	+58.8	10.0	25	53.7	+58.8	10.2	27	51.7	+59.0	10.4	59
20	57.7	+58.6	9.5	22	56.0	+58.7	9.7	24	54.3	+58.8	9.8	26	52.5	+58.9	10.0	28	50.7	+58.9	10.2	60
21	56.3	+58.6	9.3	23	54.7	+58.7	9.4	25	53.1	+58.8	9.6	27	51.4	+58.8	9.8	29	49.6	+58.9	9.9	61
22	54.9	+58.6	9.1	24	53.4	+58.7	9.2	26	51.9	+58.7	9.4	28	50.2	+58.8	9.5	30	48.5	+58.9	9.7	62
23	53.5	+58.6	8.8	25	52.1	+58.6	9.0	27	50.6	+58.7	9.1	29	49.0	+58.8	9.3	31	47.4	+58.9	9.5	63
24	52.1	+58.5	8.6	26	50.7	+58.6	8.7	28	49.3	+58.7	8.9	30	47.8	+58.8	9.1	32	46.3	+58.8	9.3	64
25	50.6	+58.5	8.3	27	49.3	+58.6	8.5	29	48.0	+58.6	8.7	31	46.6	+58.7	8.8	33	45.1	+58.8	9.0	65
26	49.1	+58.5	8.1	28	47.9	+58.6	8.2	30	46.6	+58.7	8.4	32	45.3	+58.7	8.6	34	43.9	+58.8	8.8	66
27	47.6	+58.5	7.8	29	46.5	+58.5	8.0	31	45.3	+58.6	8.2	33	44.0	+58.7	8.3	35	42.7	+58.8	8.6	67
28	46.1	+58.4	7.6	30	45.0	+58.5	7.7	32	43.9	+58.5	7.9	34	42.7	+58.6	8.1	36	41.5	+58.7	8.3	68
29	44.5	+58.4	7.3	31	43.5	+58.4	7.5	33	42.4	+58.6	7.7	35	41.3	+58.6	7.8	37	40.2	+58.7	8.0	69
30	42.9	+58.3	7.1	32	41.9	+58.5	7.2	34	41.0	+58.5	7.4	36	39.9	+58.6	7.6	38	38.9	+58.6	7.8	70
31	41.2	+58.4	6.8	33	40.4	+58.4	6.9	35	39.5	+58.4	7.1	37	38.5	+58.6	7.3	39	37.5	+58.6	7.5	71
32	39.6	+58.2	6.5	34	38.8	+58.3	6.7	36	37.9	+58.5	6.8	38	37.1	+58.4	7.0	40	36.1	+58.6	7.2	72
33	37.8	+58.3	6.2	35	37.1	+58.3	6.4	37	36.4	+58.3	6.5	39	35.5	+58.5	6.7	41	34.7	+58.5	6.9	73
34	36.1	+58.2	5.9	36	35.4	+58.3	6.1	38	34.7	+58.4	6.3	40	34.0	+58.4	6.4	42	33.2	+58.5	6.6	74
35	34.3	+58.2	5.6	37	33.7	+58.2	5.8	39	33.1	+58.3	6.0	41	32.4	+58.4	6.1	43	31.7	+58.4	6.3	75
36	32.5	+58.1	5.3	38	31.9	+58.2	5.5	40	31.4	+58.2	5.6	42	30.8	+58.3	5.8	44	30.1	+58.4	6.0	76
37	30.6	+58.0	5.0	39	30.1	+58.1	5.2	41	29.6	+58.2	5.3	43	29.1	+58.2	5.5	45	28.5	+58.3	5.7	77
38	28.6	+58.0	4.7	40	28.2	+58.1	4.8	42	27.8	+58.1	5.0	44	27.3	+58.2	5.2	46	26.8	+58.2	5.4	78
39	26.6	+58.0	4.4	41	26.3	+58.0	4.5	43	25.9	+58.1	4.7	45	25.5	+58.1	4.8	47	25.0	+58.2	5.0	79
40	24.6	+57.9	4.0	42	24.3	+57.9	4.2	44	24.0	+57.9	4.3	46	23.6	+58.1	4.5	48	23.2	+58.1	4.6	80
41	22.5	+57.8	3.7	43	22.2	+57.9	3.8	45	21.9	+58.0	3.9	47	21.7	+57.9	4.1	49	21.3	+58.1	4.3	81
42	20.3	+57.8	3.3	44	20.1	+57.8	3.4	46	19.9	+57.8	3.6	48	19.6	+57.9	3.7	50	19.4	+57.9	3.9	82
43	18.1	+57.7	3.0	45	17.9	+57.7	3.1	47	17.7	+57.8	3.2	49	17.5	+57.8	3.3	51	17.3	+57.9	3.5	83
44	15.8	+57.6	2.6	46	15.6	+57.7	2.7	48	15.5	+57.7	2.8	50	15.3	+57.8	2.9	52	15.2	+57.7	3.0	84
45	13.4	+57.5	2.2	47	13.3	+57.5	2.3	49	13.2	+57.6	2.4	51	13.1	+57.6	2.5	53	12.9	+57.7	2.6	85
46	10.9	+57.4	1.8	48	10.8	+57.5	1.9	50	10.8	+57.4	1.9	52	10.7	+57.5	2.0	54	10.6	+57.5	2.1	86
47	08.3	+57.3	1.4	49	08.3	+57.3	1.4	51	08.2	+57.4	1.5	53	08.2	+57.4	1.5	55	08.1	+57.5	1.6	87
48	05.6	+57.3	0.9	50	05.6	+57.3	1.0	52	05.6	+57.3	1.0	54	05.6	+57.3	1.1	56	05.6	+57.3	1.1	88
49	02.9	+57.1	0.5	51	02.9	+57.1	0.5	53	02.9	+57.1	0.5	55	02.9	+57.1	0.5	57	02.9	+57.1	0.6	89
50	00.0	+57.0	0.0	52	00.0	+57.0	0.0	54	00.0	+57.0	0.0	56	00.0	+57.0	0.0	58	00.0	+57.0	0.0	90
50°			52°			54°			56°			58°								

LATITUDE SAME NAME

L.H.A. 162°, 198°

20°, 340° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	72 42.1	+ 3.6	• 85.0	72 45.9	+ 10.6	• 91.4	72 36.3	+ 17.5	• 97.8	72 13.6	+ 23.9	• 104.0	71 38.6	+ 29.8	• 109.9
31	72 45.7	+ 0.2	• 81.6	72 56.5	+ 7.3	• 88.1	72 53.8	+ 14.3	• 94.6	72 37.5	+ 21.1	• 101.0	72 08.4	+ 27.4	• 107.1
32	72 45.9	- 3.1	• 78.2	73 03.8	+ 3.9	• 84.7	73 08.1	+ 11.0	• 91.2	72 58.6	+ 18.1	• 97.8	72 35.8	+ 24.6	• 104.1
33	72 42.8	- 6.5	• 74.9	73 07.7	+ 0.4	• 81.2	73 19.1	+ 7.6	• 87.8	73 16.7	+ 14.8	• 94.5	73 00.4	+ 21.7	• 101.1
34	72 36.3	- 9.8	• 71.5	73 08.1	- 3.0	• 77.8	73 26.7	+ 4.2	• 84.4	73 31.5	+ 11.4	• 91.1	73 22.1	+ 18.6	• 97.8
35	72 26.5	- 12.9	• 68.2	73 05.1	- 6.5	• 74.3	73 30.9	+ 0.6	• 80.9	73 42.9	+ 8.0	• 87.6	73 40.7	+ 15.3	• 94.5
36	72 13.6	- 16.1	• 65.0	72 58.6	- 9.8	• 70.9	73 31.5	- 2.9	• 77.3	73 50.9	+ 4.4	• 84.1	73 56.0	+ 11.9	• 91.0
37	71 57.5	- 18.9	• 61.9	72 48.8	- 13.0	• 67.6	73 28.6	- 6.5	• 73.8	73 55.3	+ 0.7	• 80.5	74 07.9	+ 8.3	• 87.4
38	71 38.6	- 21.8	• 58.8	72 35.8	- 16.2	• 64.3	73 22.1	- 9.9	• 70.3	73 56.0	- 2.8	• 76.9	74 16.2	+ 4.6	• 83.8
39	71 16.8	- 24.4	• 55.9	72 19.6	- 19.2	• 61.1	73 12.2	- 13.2	• 66.9	73 53.2	- 6.5	• 73.3	74 20.8	+ 0.9	• 80.1
40	70 52.4	- 26.8	• 53.1	72 00.4	- 22.1	• 58.0	72 59.0	- 16.4	• 63.5	73 46.7	- 10.0	• 69.7	74 21.7	- 2.8	• 76.4
41	70 25.6	- 29.2	• 50.4	71 38.3	- 24.7	• 55.0	72 42.6	- 19.5	• 60.3	73 36.7	- 13.4	• 66.2	74 18.9	- 6.5	• 72.7
42	69 56.4	- 31.3	• 47.8	71 13.6	- 27.2	• 52.2	72 23.1	- 22.4	• 57.1	73 23.3	- 16.7	• 62.8	74 12.4	- 10.2	• 69.0
43	69 25.1	- 33.3	• 45.4	70 46.4	- 29.5	• 49.4	72 00.7	- 25.1	• 54.1	73 06.6	- 19.8	• 59.4	74 02.2	- 13.7	• 65.4
44	68 51.8	- 35.1	• 43.0	70 16.9	- 31.8	• 46.8	71 35.6	- 27.6	• 51.2	72 46.8	- 22.8	• 56.2	73 48.5	- 17.0	• 61.9
45	68 16.7	- 36.8	• 40.8	69 45.1	- 33.7	• 44.3	71 08.0	- 30.0	• 48.4	72 24.0	- 25.6	• 53.1	73 31.5	- 20.3	• 58.5
46	67 39.9	- 38.3	• 38.7	69 11.4	- 35.5	• 42.0	70 38.0	- 32.2	• 45.8	71 58.4	- 28.1	• 50.2	73 11.2	- 23.2	• 55.2
47	67 01.6	- 39.8	• 36.7	68 35.9	- 37.2	• 39.7	70 05.8	- 34.1	• 43.3	71 30.3	- 30.5	• 47.3	72 48.0	- 26.1	• 52.1
48	66 21.8	- 41.0	• 34.8	67 58.7	- 38.8	• 37.6	69 31.7	- 36.1	• 40.9	70 59.8	- 32.7	• 44.7	72 21.9	- 28.6	• 49.1
49	65 40.8	- 42.3	• 33.0	67 19.9	- 40.2	• 35.6	68 55.6	- 37.7	• 38.6	70 27.1	- 34.7	• 42.1	71 53.3	- 31.1	• 46.2
50	64 58.5	- 43.4	• 31.3	66 39.7	- 41.5	• 33.7	68 17.9	- 39.2	• 36.5	69 52.4	- 36.6	• 39.7	71 22.2	- 33.3	• 43.5
51	64 15.1	- 44.4	• 29.7	65 58.2	- 42.7	• 31.9	67 38.7	- 40.7	• 34.5	69 15.8	- 38.2	• 37.4	70 48.9	- 35.3	• 40.9
52	63 30.7	- 45.3	• 28.2	65 15.5	- 43.8	• 30.2	66 58.0	- 42.0	• 32.6	68 37.6	- 39.8	• 35.3	70 13.6	- 37.2	• 38.5
53	62 45.4	- 46.1	• 26.7	64 31.7	- 44.8	• 28.6	66 16.0	- 43.1	• 30.8	67 57.8	- 41.2	• 33.3	69 36.4	- 38.8	• 36.2
54	61 59.3	- 47.0	• 25.3	63 46.9	- 45.7	• 27.1	65 32.9	- 44.3	• 29.1	67 16.6	- 42.5	• 31.4	68 57.6	- 40.4	• 34.1
55	61 12.3	- 47.6	• 24.0	63 01.2	- 46.5	• 25.6	64 48.6	- 45.2	• 27.4	66 34.1	- 43.7	• 29.6	68 17.2	- 41.8	• 32.0
56	60 24.7	- 48.4	• 22.8	62 14.7	- 47.3	• 24.2	64 03.4	- 46.1	• 25.9	65 50.4	- 44.7	• 27.9	67 35.4	- 43.0	• 30.1
57	59 36.3	- 48.9	• 21.6	61 27.4	- 48.0	• 22.9	63 17.3	- 47.0	• 24.5	65 05.7	- 45.7	• 26.3	66 52.4	- 44.2	• 28.3
58	58 47.4	- 49.5	• 20.5	60 39.4	- 48.7	• 21.7	62 30.3	- 47.7	• 23.1	64 20.0	- 46.6	• 24.7	66 08.2	- 45.3	• 26.6
59	57 57.9	- 50.1	• 19.4	59 50.7	- 49.3	• 20.5	61 42.6	- 48.4	• 21.8	63 33.4	- 47.4	• 23.3	65 22.9	- 46.2	• 25.0
60	57 07.8	- 50.5	• 18.4	59 01.4	- 49.8	• 19.4	60 54.2	- 49.1	• 20.6	62 46.0	- 48.1	• 21.9	64 36.7	- 47.1	• 23.5
61	56 17.3	- 50.9	• 17.4	58 11.6	- 50.4	• 18.3	60 05.1	- 49.6	• 19.4	61 57.9	- 48.9	• 20.7	63 49.6	- 47.9	• 22.1
62	55 26.4	- 51.4	• 16.4	57 21.2	- 50.8	• 17.3	59 15.5	- 50.2	• 18.3	61 09.0	- 49.4	• 19.4	63 01.7	- 48.6	• 20.7
63	54 35.0	- 51.8	• 15.5	56 30.4	- 51.3	• 16.3	58 25.3	- 50.7	• 17.2	60 19.6	- 50.1	• 18.3	62 13.1	- 49.3	• 19.5
64	53 43.2	- 52.1	• 14.7	55 39.1	- 51.6	• 15.4	57 34.6	- 51.2	• 16.2	59 29.5	- 50.5	• 17.2	61 23.8	- 49.8	• 18.3
65	52 51.1	- 52.4	• 13.8	54 47.5	- 52.1	• 14.5	56 43.4	- 51.5	• 15.3	58 39.0	- 51.1	• 16.1	60 34.0	- 50.5	• 17.1
66	51 58.7	- 52.8	• 13.1	53 55.4	- 52.4	• 13.7	55 51.9	- 52.0	• 14.4	57 47.9	- 51.5	• 15.1	59 43.5	- 50.9	• 16.0
67	51 05.9	- 53.0	• 12.3	53 03.0	- 52.7	• 12.8	54 59.9	- 52.3	• 13.5	56 56.4	- 51.9	• 14.2	58 52.6	- 51.5	• 15.0
68	50 12.9	- 53.3	• 11.5	52 10.3	- 53.0	• 12.1	54 07.6	- 52.7	• 12.6	56 04.5	- 52.3	• 13.3	58 01.1	- 51.8	• 14.0
69	49 19.6	- 53.6	• 10.8	51 17.3	- 53.3	• 11.3	53 14.9	- 53.0	• 11.8	55 12.2	- 52.6	• 12.4	57 09.3	- 52.3	• 13.1
70	48 26.0	- 53.8	• 10.2	50 24.0	- 53.5	• 10.6	52 21.9	- 53.3	• 11.0	54 19.6	- 53.0	• 11.6	56 17.0	- 52.6	• 12.2
71	47 32.2	- 54.0	• 9.5	49 30.5	- 53.8	• 9.9	51 28.6	- 53.5	• 10.3	53 26.6	- 53.3	• 10.8	55 24.4	- 53.0	• 11.3
72	46 38.2	- 54.3	• 8.9	48 36.7	- 54.1	• 9.2	50 35.1	- 53.8	• 9.6	52 33.3	- 53.5	• 10.0	54 31.4	- 53.3	• 10.5
73	45 43.9	- 54.4	• 8.2	47 42.6	- 54.2	• 8.5	49 41.3	- 54.1	• 8.9	51 39.8	- 53.9	• 9.3	53 38.1	- 53.6	• 9.7
74	44 49.5	- 54.6	• 7.6	46 48.4	- 54.4	• 7.9	48 47.2	- 54.3	• 8.2	50 45.9	- 54.1	• 8.6	52 44.5	- 53.8	• 9.0
75	43 54.9	- 54.8	• 7.1	45 54.0	- 54.7	• 7.3	47 52.9	- 54.4	• 7.6	49 51.8	- 54.3	• 7.9	51 50.7	- 54.2	• 8.2
76	43 00.1	- 54.9	• 6.5	44 59.3	- 54.8	• 6.7	46 58.5	- 54.7	• 7.0	48 57.5	- 54.5	• 7.2	50 56.5	- 54.3	• 7.5
77	42 05.2	- 55.1	• 6.0	44 04.5	- 55.0	• 6.1	46 03.8	- 54.9	• 6.4	48 03.0	- 54.7	• 6.6	50 02.2	- 54.6	• 6.9
78	41 10.1	- 55.2	• 5.4	43 09.5	- 55.1	• 5.6	45 08.9	- 55.0	• 5.8	47 08.3	- 54.9	• 6.0	49 07.6	- 54.7	• 6.2
79	40 14.9	- 55.4	• 4.9	42 14.4	- 55.3	• 5.1	44 13.9	- 55.2	• 5.2	46 13.4	- 55.1	• 5.4	48 12.9	- 55.0	• 5.6
80	39 19.5	- 55.5	• 4.4	41 19.1	- 55.4	• 4.5	43 18.7	- 55.3	• 4.7	45 18.3	- 55.2	• 4.8	47 17.9	- 55.2	• 5.0
81	38 24.0	- 55.6	• 3.9	40 23.7	- 55.5	• 4.0	42 23.4	- 55.5	• 4.2	44 23.1	- 55.4	• 4.3	46 22.7	- 55.3	• 4.4
82	37 28.4	- 55.7	• 3.4	39 28.2	- 55.7	• 3.5	41 27.9	- 55.6	• 3.6	43 27.7	- 55.5	• 3.8	45 27.4	- 55.4	• 3.9
83	36 32.7	- 55.8	• 3.0	38 32.5	- 55.8	• 3.1	40 32.3	- 55.7	• 3.1	42 32.2	- 55.7	• 3.2	44 32.0	- 55.7	• 3.4
84	35 36.9	- 56.0	• 2.5	37 36.7	- 55.8	• 2.6	39 36.6	- 55.8	• 2.7	41 36.5	- 55.8	• 2.7	43 36.3	- 55.7	• 2.8
85	34 40.9	- 56.0	• 2.1	36 40.9	- 56.0	• 2.1	38 40.8	- 56.0	• 2.2	40 40.7	- 55.9	• 2.3	42 40.6	- 55.9	• 2.3
86	33 44.9	- 56.1	• 1.6	35 44.9	- 56.1	• 1.7	37 44.8	- 56.0	• 1.7	39 44.8	- 56.1	• 1.8	41 44.7	- 56.0	• 1.8
87	32 48.8	- 56.2	• 1.2	34 48.8	- 56.2	• 1.2	36 48.8	- 56.2	• 1.3	38 48.7	- 56.1	• 1.3	40 48.7	- 56.1	• 1.4
88	31 52.6	- 56.3	• 0.8	33 52.6	- 56.3	• 0.8	35 52.6	- 56.3	• 0.8	37 52.6	- 56.3	• 0.9	39 52.6	- 56.3	• 0.9
89	30 56.3	- 56.3	• 0.4	32 56.3	- 56.3	• 0.4	34 56.3	- 56.3	• 0.4	36 56.3	- 56.3	• 0.4	38 56.3	- 56.3	• 0.4
90	30 00.0	- 56.4	• 0.0	32 00.0	- 56.4	• 0.0	34 00.0	- 56.4	• 0.0	36 00.0	- 56.4	• 0.0	38 00.0	- 56.4	• 0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 20°, 340°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
27 03.0	-56.6	160.6	25 09.7	-56.8	160.9	23 16.2	-57.1	161.2	21 22.5	-57.3	161.5	19 28.7	-57.5	161.7	30
26 06.4	-56.7	160.9	24 12.9	-56.9	161.2	22 19.1	-57.1	161.5	20 25.2	-57.3	161.8	18 31.2	-57.5	162.0	31
25 09.7	-56.7	161.3	23 16.0	-57.0	161.6	21 22.0	-57.2	161.9	19 27.9	-57.4	162.1	17 33.7	-57.6	162.3	32
24 13.0	-56.8	161.7	22 19.0	-57.0	161.9	20 24.8	-57.2	162.2	18 30.5	-57.4	162.4	16 36.1	-57.6	162.6	33
23 16.2	-56.8	162.0	21 22.0	-57.0	162.3	19 27.6	-57.2	162.5	17 33.1	-57.4	162.7	15 38.5	-57.6	162.9	34
22 19.4	-56.9	162.4	20 25.0	-57.1	162.6	18 30.4	-57.3	162.8	16 35.7	-57.6	163.0	14 40.9	-57.7	163.2	35
21 22.5	-56.9	162.7	19 27.9	-57.1	162.9	17 33.1	-57.3	163.1	15 38.2	-57.4	163.3	13 43.2	-57.6	163.5	36
20 25.6	-56.9	163.1	18 30.8	-57.1	163.3	16 35.8	-57.3	163.4	14 40.8	-57.6	163.6	12 45.6	-57.7	163.7	37
19 28.7	-57.0	163.4	17 33.7	-57.2	163.6	15 38.5	-57.4	163.7	13 43.2	-57.5	163.9	11 47.9	-57.7	164.0	38
18 31.7	-57.0	163.7	16 36.5	-57.2	163.9	14 41.1	-57.3	164.1	12 45.7	-57.5	164.2	10 50.2	-57.7	164.3	39
17 34.7	-57.0	164.0	15 39.3	-57.2	164.2	13 43.8	-57.4	164.4	11 48.2	-57.6	164.5	9 52.5	-57.7	164.6	40
16 37.7	-57.1	164.4	14 42.1	-57.3	164.5	12 46.4	-57.4	164.7	10 50.6	-57.6	164.8	8 54.8	-57.7	164.9	41
15 40.6	-57.1	164.7	13 44.8	-57.3	164.8	11 49.0	-57.5	164.9	9 53.0	-57.6	165.0	7 57.1	-57.8	165.1	42
14 43.5	-57.1	165.0	12 47.5	-57.3	165.1	10 51.5	-57.4	165.2	8 55.4	-57.6	165.3	6 59.3	-57.7	165.4	43
13 46.4	-57.2	165.3	11 50.2	-57.3	165.4	9 54.1	-57.5	165.5	7 57.8	-57.6	165.6	6 01.6	-57.8	165.7	44
12 49.2	-57.2	165.6	10 52.9	-57.3	165.7	8 56.6	-57.5	165.8	7 00.2	-57.6	165.9	5 02.5	-57.7	165.9	45
11 52.0	-57.2	165.9	9 55.6	-57.4	166.0	7 59.1	-57.5	166.1	6 02.6	-57.6	166.2	4 06.1	-57.8	166.2	46
10 54.8	-57.2	166.3	8 58.2	-57.3	166.3	7 01.6	-57.5	166.4	5 05.0	-57.6	166.5	3 08.3	-57.8	166.5	47
9 57.6	-57.2	166.6	8 00.9	-57.4	166.6	6 04.1	-57.5	166.7	4 07.3	-57.6	166.7	2 10.5	-57.8	166.8	48
9 00.4	-57.3	166.9	7 03.5	-57.4	166.9	5 06.6	-57.5	167.0	3 09.7	-57.7	167.0	1 12.7	-57.7	167.0	49
8 03.1	-57.2	167.2	6 06.1	-57.4	167.2	4 09.1	-57.5	167.3	2 12.0	-57.6	167.3	0 15.0	-57.8	167.3	50
7 05.9	-57.3	167.5	5 08.7	-57.4	167.5	3 11.6	-57.6	167.6	1 14.4	-57.7	167.6	0 42.8	+57.8	167.8	51
6 08.6	-57.3	167.8	4 11.3	-57.4	167.8	2 14.0	-57.5	167.8	0 16.7	-57.6	167.8	1 40.6	+57.8	167.8	52
5 11.3	-57.3	168.1	3 13.9	-57.4	168.1	1 16.5	-57.6	168.1	0 40.9	+57.7	167.9	2 38.4	+57.7	167.9	53
4 14.0	-57.3	168.4	2 16.5	-57.4	168.4	0 18.9	-57.5	168.4	1 38.6	+57.7	167.9	3 36.1	+57.8	167.9	54
3 16.7	-57.3	168.7	1 19.1	-57.4	168.7	0 35.8	+57.4	168.7	0 38.6	+57.5	168.0	4 33.9	+57.8	168.0	55
2 19.4	-57.3	169.0	0 21.7	-57.5	169.0	1 36.1	+57.6	169.0	3 33.9	+57.7	168.0	5 31.7	+57.7	168.0	56
1 22.1	-57.3	169.3	0 35.8	+57.4	169.3	2 33.7	+57.5	169.3	4 31.6	+57.6	168.0	6 29.4	+57.8	168.0	57
0 24.8	-57.3	169.6	1 33.2	+57.4	169.6	3 31.2	+57.5	169.6	5 29.2	+57.6	168.0	7 27.2	+57.7	168.0	58
0 32.5	+57.3	170.1	2 30.6	+57.4	170.1	4 28.7	+57.5	170.1	6 26.8	+57.6	168.0	8 24.9	+57.7	168.0	59
1 29.8	+57.3	9.8	3 28.0	+57.4	9.9	5 26.2	+57.5	9.9	7 24.4	+57.7	9.9	9 22.6	+57.7	10.0	60
2 27.1	+57.3	9.6	4 25.4	+57.4	9.6	6 23.7	+57.5	9.6	8 22.1	+57.6	9.6	10 20.3	+57.7	9.7	61
3 24.4	+57.3	9.3	5 22.8	+57.4	9.3	7 21.2	+57.5	9.3	9 20.1	+57.5	9.4	11 18.0	+57.7	9.4	62
4 21.7	+57.3	9.0	6 20.2	+57.4	9.0	8 18.7	+57.5	9.0	10 17.2	+57.6	9.1	12 15.7	+57.7	9.1	63
5 19.0	+57.2	8.7	7 17.6	+57.4	8.7	9 16.2	+57.5	8.7	11 14.8	+57.6	8.8	13 13.4	+57.6	8.9	64
6 16.2	+57.3	8.4	8 15.0	+57.3	8.4	10 13.7	+57.4	8.4	12 12.4	+57.5	8.5	14 11.0	+57.7	8.6	65
7 13.5	+57.3	8.1	9 12.3	+57.4	8.1	11 11.1	+57.5	8.2	13 09.9	+57.5	8.2	15 08.7	+57.6	8.3	66
8 10.8	+57.2	7.8	10 09.7	+57.3	7.8	12 08.6	+57.4	7.9	14 07.4	+57.5	7.9	16 06.3	+57.5	8.0	67
9 08.0	+57.2	7.5	11 07.0	+57.3	7.5	13 06.0	+57.4	7.6	15 04.9	+57.5	7.6	17 03.8	+57.6	7.7	68
10 05.2	+57.3	7.2	12 04.3	+57.3	7.2	14 03.4	+57.3	7.3	16 02.4	+57.4	7.3	18 01.4	+57.5	7.4	69
11 02.5	+57.2	6.8	13 01.6	+57.3	6.9	15 00.7	+57.4	7.0	16 59.8	+57.4	7.0	18 58.9	+57.5	7.1	70
11 59.7	+57.1	6.5	13 58.9	+57.2	6.6	15 58.1	+57.3	6.7	17 57.2	+57.4	6.7	19 56.4	+57.5	6.8	71
12 56.8	+57.2	6.2	14 56.1	+57.2	6.3	16 55.4	+57.3	6.3	18 54.6	+57.4	6.4	20 53.9	+57.4	6.5	72
13 54.0	+57.1	5.9	15 53.3	+57.2	6.0	17 52.7	+57.2	6.0	19 52.0	+57.3	6.1	21 51.3	+57.4	6.2	73
14 51.1	+57.1	5.6	16 50.5	+57.2	5.7	18 49.9	+57.3	5.7	20 49.3	+57.3	5.8	22 48.7	+57.4	5.9	74
15 48.2	+57.1	5.3	17 47.7	+57.1	5.3	19 47.2	+57.2	5.4	21 46.6	+57.3	5.5	23 46.1	+57.3	5.6	75
16 45.3	+57.0	5.0	18 44.8	+57.1	5.0	20 44.4	+57.1	5.1	22 43.9	+57.2	5.1	24 43.4	+57.3	5.2	76
17 42.3	+57.0	4.6	19 41.9	+57.1	4.7	21 41.5	+57.1	4.7	23 41.1	+57.2	4.8	25 40.7	+57.2	4.9	77
18 39.3	+57.0	4.3	20 39.0	+57.0	4.4	22 38.6	+57.1	4.4	24 38.3	+57.1	4.5	26 37.9	+57.2	4.6	78
19 36.3	+56.9	4.0	21 36.0	+57.0	4.0	23 35.7	+57.0	4.1	25 35.4	+57.1	4.1	27 35.1	+57.1	4.2	79
20 33.2	+56.9	3.6	22 33.0	+56.9	3.7	24 32.7	+57.0	3.7	26 32.5	+57.0	3.8	28 32.2	+57.1	3.9	80
21 30.1	+56.9	3.3	23 29.9	+56.9	3.3	25 29.7	+57.0	3.4	27 29.5	+57.0	3.5	29 29.3	+57.0	3.5	81
22 27.0	+56.8	3.0	24 26.8	+56.9	3.0	26 26.7	+56.9	3.0	28 26.5	+56.9	3.1	30 26.3	+57.0	3.2	82
23 23.8	+56.8	2.6	25 23.7	+56.8	2.6	27 23.6	+56.8	2.7	29 23.4	+56.9	2.7	31 23.3	+56.9	2.8	83
24 20.6	+56.7	2.2	26 20.5	+56.7	2.3	28 20.4	+56.8	2.3	30 20.3	+56.8	2.4	32 20.2	+56.8	2.4	84
25 17.3	+56.6	1.9	27 17.2	+56.7	1.9	29 17.2	+56.7	2.0	31 17.1	+56.7	2.0	33 17.0	+56.8	2.0	85
26 13.9	+56.7	1.5	28 13.9	+56.6	1.6	30 13.9	+56.6	1.6	32 13.8	+56.7	1.6	34 13.8	+56.6	1.7	86
27 10.6	+56.5	1.2	29 10.5	+56.6	1.2	31 10.5	+56.6	1.2	33 10.5	+56.6	1.2	35 10.4	+56.7	1.3	87
28 07.1	+56.5	0.8	30 07.1	+56.5	0.8	32 07.1	+56.5	0.8	34 07.1	+56.5	0.8	36 07.1	+56.5	0.8	88
29 03.6	+56.4	0.4	31 03.6	+56.4	0.4	33 03.6	+56.4	0.4	35 03.6	+56.4	0.4	37 03.6	+56.4	0.4	89
30 00.0	+56.3	0.0	32 00.0	+56.3	0.0	34 00.0	+56.3	0.0	36 00.0	+56.3	0.0	38 00.0	+56.3	0.0	90

LATITUDE SAME NAME

L.H.A. 160°, 200°

20°, 340° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	70 52.4	+35.1	•115.3	69 56.4	+39.5	120.3	68 51.8	+43.2	124.8	67 39.9	+46.3	128.8	66 21.8	+48.9	132.4
31	71 27.5	+32.9	•112.8	70 35.9	+37.7	118.1	69 35.0	+41.9	122.8	68 26.2	+45.2	127.1	67 10.7	+48.0	130.9
32	72 00.4	+30.6	•110.1	71 13.6	+35.8	•115.7	70 16.9	+40.2	120.7	69 11.4	+44.0	125.3	67 58.7	+47.0	129.3
33	72 31.0	+28.0	•107.3	71 49.4	+33.7	•113.1	70 57.1	+38.5	118.5	69 55.4	+42.6	123.3	68 45.7	+46.0	127.6
34	72 59.0	+25.3	•104.3	72 23.1	+31.4	•110.4	71 35.6	+36.7	•116.1	70 38.0	+41.1	121.2	69 31.7	+44.7	125.8
35	73 24.3	+22.4	•101.2	72 54.5	+28.8	•107.6	72 12.3	+34.5	•113.6	71 19.1	+39.3	119.0	70 16.4	+43.4	123.9
36	73 46.7	+19.2	•97.9	73 23.3	+26.0	•104.6	72 46.8	+32.1	•110.8	71 58.4	+37.5	•116.6	70 59.8	+41.9	121.8
37	74 05.9	+15.8	•94.5	73 49.3	+23.1	•101.4	73 18.9	+29.6	•107.9	72 35.9	+35.3	•114.0	71 41.7	+40.2	119.6
38	74 21.7	+12.4	•90.9	74 12.4	+19.8	•98.0	73 48.5	+26.8	•104.9	73 11.2	+33.1	•111.3	72 21.9	+38.4	•117.2
39	74 34.1	+8.6	•87.3	74 32.2	+16.4	•94.5	74 15.3	+23.8	•101.6	73 44.3	+30.4	•108.3	73 00.3	+36.2	•114.6
40	74 42.7	+4.8	•83.5	74 48.6	+12.7	•90.9	74 39.1	+20.4	•98.2	74 14.7	+27.6	•105.2	73 36.5	+33.9	•111.8
41	74 47.5	+1.1	•79.7	75 01.3	+9.0	•87.1	74 59.5	+16.9	•94.6	74 42.3	+24.4	•101.9	74 10.4	+31.3	•108.8
42	74 48.6	-2.9	•75.9	75 10.3	+5.0	•83.3	75 16.4	+13.2	•90.8	75 06.7	+21.2	•98.4	74 41.7	+28.4	•105.7
43	74 45.7	-6.6	•72.1	75 15.3	+1.1	•79.4	75 29.6	+9.3	•87.0	75 27.9	+17.4	•94.7	75 10.1	+25.3	•102.3
44	74 39.1	-10.4	•68.4	75 16.4	-2.8	•75.4	75 38.9	+5.3	•83.0	75 45.3	+13.7	•90.9	75 35.4	+21.8	•98.7
45	74 28.7	-14.0	•64.7	75 13.6	-6.9	•71.5	75 44.2	+1.1	•79.0	75 59.0	+9.6	•86.9	75 57.2	+18.0	•94.9
46	74 14.7	-17.5	•61.0	75 06.7	-10.6	•67.6	75 45.3	-2.9	•74.9	76 08.6	+5.5	•82.8	76 15.2	+14.2	•90.9
47	73 57.2	-20.7	•57.6	74 56.1	-14.4	•63.8	75 42.4	-7.0	•70.9	76 14.1	+1.1	•78.6	76 29.4	+9.9	•86.8
48	73 36.5	-23.8	•54.2	74 41.7	-17.9	•60.1	75 35.4	-11.1	•66.9	76 15.2	-3.0	•74.4	76 39.3	+5.6	•82.5
49	73 12.7	-26.6	•51.0	74 23.8	-21.3	•56.5	75 24.3	-14.8	•62.9	76 12.2	-7.4	•70.2	76 44.9	+1.2	•78.2
50	72 46.1	-29.3	•47.9	74 02.5	-24.4	•53.1	75 09.5	-18.5	•59.1	76 04.8	-11.4	•66.1	76 46.1	-3.3	•73.8
51	72 16.8	-31.7	•45.0	73 38.1	-27.3	•49.8	74 51.0	-21.9	•55.4	75 53.4	-15.4	•62.0	76 42.8	-7.6	•69.5
52	71 45.1	-34.0	•42.3	73 10.8	-30.0	•46.7	74 29.1	-25.1	•51.9	75 38.0	-19.1	•58.1	76 35.2	-12.0	•65.2
53	71 11.1	-35.9	39.7	72 40.8	-32.4	•43.7	74 04.0	-28.1	•48.6	75 18.9	-22.6	•54.3	76 23.2	-16.0	•61.0
54	70 35.2	-37.9	37.2	72 08.4	-34.7	•41.0	73 35.9	-30.7	•45.4	74 56.3	-25.9	•50.7	76 07.2	-19.8	•56.9
55	69 57.3	-39.5	34.9	71 33.7	-36.7	38.3	73 05.2	-33.2	•42.4	74 30.4	-28.9	•47.3	75 47.4	-23.5	•53.0
56	69 17.8	-41.0	32.8	70 57.0	-38.5	35.9	72 32.0	-35.5	•39.6	74 01.5	-31.6	•44.0	75 23.9	-26.8	•49.3
57	68 36.8	-42.4	30.7	70 18.5	-40.2	33.6	71 56.5	-37.5	36.9	73 29.9	-34.1	•41.0	74 57.1	-29.8	•45.8
58	67 54.4	-43.6	28.8	69 38.3	-41.7	31.4	71 19.0	-39.3	34.5	72 55.8	-36.3	•38.1	74 27.3	-32.5	•42.6
59	67 10.8	-44.8	27.0	68 56.6	-43.1	29.4	70 39.7	-40.9	32.1	72 19.5	-38.3	35.5	73 54.8	-35.0	•39.5
60	66 26.0	-45.8	25.3	68 13.5	-44.3	27.5	69 58.8	-42.5	30.0	71 41.2	-40.2	33.0	73 19.8	-37.3	•36.6
61	65 40.2	-46.8	23.7	67 29.2	-45.4	25.7	69 16.3	-43.7	27.9	71 01.0	-41.7	30.6	72 42.5	-39.2	33.9
62	64 53.4	-47.6	22.2	66 43.8	-46.4	24.0	68 32.6	-45.0	26.0	70 19.3	-43.3	28.5	72 03.3	-41.1	31.4
63	64 05.8	-48.4	20.8	65 57.4	-47.4	22.4	67 47.6	-46.1	24.3	69 36.0	-44.5	26.5	71 22.2	-42.6	29.1
64	63 17.4	-49.1	19.5	65 10.0	-48.1	20.9	67 01.5	-47.1	22.6	68 51.5	-45.7	24.6	70 39.6	-44.0	26.9
65	62 28.3	-49.7	18.2	64 21.9	-49.0	19.5	66 14.4	-47.9	21.0	68 05.8	-46.8	22.8	69 55.6	-45.4	24.9
66	61 38.6	-50.4	17.0	63 32.9	-49.6	18.2	65 26.5	-48.7	19.6	67 19.0	-47.7	21.1	69 10.2	-46.4	23.0
67	60 48.2	-50.8	15.9	62 43.3	-50.2	17.0	64 37.8	-49.5	18.2	66 31.3	-48.6	19.6	68 23.8	-47.5	21.3
68	59 57.4	-51.4	14.8	61 53.1	-50.8	15.8	63 48.3	-50.2	16.9	65 42.7	-49.3	18.1	67 36.3	-48.4	19.7
69	59 06.0	-51.8	13.8	61 02.3	-51.3	14.7	62 58.1	-50.7	15.6	64 53.4	-50.1	16.8	66 47.9	-49.3	18.1
70	58 14.2	-52.3	12.8	60 11.0	-51.8	13.6	62 07.4	-51.3	14.5	64 03.3	-50.7	15.5	65 58.6	-50.0	16.7
71	57 21.9	-52.6	11.9	59 19.2	-52.3	12.6	61 16.1	-51.8	13.4	63 12.6	-51.2	14.3	65 08.6	-50.6	15.4
72	56 29.3	-53.0	11.0	58 26.9	-52.6	11.7	60 24.3	-52.2	12.4	62 21.4	-51.8	13.2	64 18.0	-51.3	14.1
73	55 36.3	-53.3	10.2	57 34.3	-53.0	10.7	59 32.1	-52.7	11.4	61 29.6	-52.3	12.1	63 26.7	-51.8	12.9
74	54 43.0	-53.6	9.4	56 41.3	-53.4	9.9	58 39.4	-53.0	10.4	60 37.3	-52.7	11.1	62 34.9	-52.3	11.8
75	53 49.4	-53.9	8.6	55 47.9	-53.6	9.1	57 46.4	-53.4	9.6	59 44.6	-53.1	10.1	61 42.6	-52.7	10.8
76	52 55.5	-54.2	7.9	54 54.3	-54.0	8.3	56 53.0	-53.8	8.7	58 51.5	-53.5	9.2	60 49.9	-53.2	9.8
77	52 01.3	-54.4	7.2	54 00.3	-54.2	7.5	55 59.2	-54.0	7.9	57 58.0	-53.8	8.3	59 56.7	-53.6	8.8
78	51 06.9	-54.6	6.5	53 06.1	-54.5	6.8	55 05.2	-54.3	7.1	57 04.2	-54.1	7.5	59 03.1	-53.9	7.9
79	50 12.3	-54.9	5.9	52 11.6	-54.7	6.1	54 10.9	-54.6	6.4	56 10.1	-54.4	6.7	58 09.2	-54.2	7.1
80	49 17.4	-55.0	5.2	51 16.9	-54.9	5.4	53 16.3	-54.8	5.7	55 15.7	-54.7	6.0	57 15.0	-54.5	6.3
81	48 22.4	-55.3	4.6	50 22.0	-55.2	4.8	52 21.5	-55.0	5.0	54 21.0	-54.9	5.3	56 20.5	-54.8	5.5
82	47 27.1	-55.4	4.0	49 26.8	-55.3	4.2	51 26.5	-55.2	4.4	53 26.1	-55.1	4.6	55 25.7	-55.0	4.8
83	46 31.7	-55.5	3.5	48 31.5	-55.5	3.6	50 31.3	-55.5	3.8	52 31.0	-55.3	3.9	54 30.7	-55.2	4.1
84	45 36.2	-55.7	2.9	47 36.0	-55.6	3.0	49 35.8	-55.5	3.2	51 35.7	-55.6	3.3	53 35.5	-55.5	3.5
85	44 40.5	-55.9	2.4	46 40.4	-55.8	2.5	48 40.3	-55.8	2.6	50 40.1	-55.7	2.7	52 40.0	-55.7	2.8
86	43 44.6	-55.9	1.9	45 44.6	-56.0	2.0	47 44.5	-55.9	2.0	49 44.4	-55.9	2.1	51 44.3	-55.8	2.2
87	42 48.7	-56.2	1.4	44 48.6	-56.1	1.4	46 48.6	-56.1	1.5	48 48.5	-56.0	1.6	50 48.5	-56.0	1.6
88	41 52.5	-56.2	0.9	43 52.5	-56.2	0.9	45 52.5	-56.2	1.0	47 52.5	-56.2	1.0	49 52.5	-56.2	1.1
89	40 56.3	-56.3	0.5	42 56.3	-56.3	0.5	44 56.3	-56.3	0.5	46 56.3	-56.3	0.5	48 56.3	-56.3	0.5
90	40 00.0	-56.4	0.0	42 00.0	-56.4	0.0	44 00.0	-56.4	0.0	46 00.0	-56.4	0.0	48 00.0	-56.4	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 20°, 340°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
17 34.7	-57.7	161.9	15 40.6	-57.9	162.1	13 46.4	-58.1	162.2	11 52.0	-58.2	162.4	9 57.6	-58.3	162.5	30
16 37.0	-57.7	162.2	14 42.7	-57.9	162.4	12 48.3	-58.1	162.5	10 53.8	-58.2	162.6	8 59.3	-58.4	162.7	31
15 39.3	-57.8	162.5	13 44.8	-57.9	162.6	11 50.2	-58.0	162.8	9 55.6	-58.2	162.9	8 00.9	-58.4	163.0	32
14 41.5	-57.7	162.8	12 46.9	-57.9	162.9	10 52.2	-58.1	163.0	8 57.4	-58.3	163.1	7 02.5	-58.4	163.2	33
13 43.8	-57.8	163.0	11 49.0	-58.0	163.2	9 54.1	-58.1	163.3	7 59.1	-58.2	163.4	6 04.1	-58.4	163.4	34
12 46.0	-57.8	163.3	10 51.0	-58.0	163.4	8 56.0	-58.2	163.5	7 00.9	-58.3	163.6	5 05.7	-58.4	163.7	35
11 48.2	-57.8	163.6	9 53.0	-57.9	163.7	7 57.8	-58.1	163.8	6 02.6	-58.3	163.8	4 07.3	-58.4	163.9	36
10 50.4	-57.9	163.9	8 55.1	-58.0	163.9	6 59.7	-58.1	164.0	5 04.3	-58.2	164.1	3 08.9	-58.4	164.1	37
9 52.5	-57.8	164.1	7 57.1	-58.0	164.2	6 01.6	-58.1	164.3	4 06.1	-58.3	164.3	2 10.5	-58.4	164.4	38
8 54.7	-57.9	164.4	6 59.1	-58.0	164.5	5 03.5	-58.2	164.5	3 07.8	-58.3	164.6	1 12.1	-58.4	164.6	39
7 56.8	-57.8	164.7	6 01.1	-58.0	164.7	4 05.3	-58.1	164.8	2 09.5	-58.3	164.8	0 13.7	-58.4	164.8	40
6 59.0	-57.9	164.9	5 03.1	-58.0	165.0	3 07.2	-58.2	165.0	1 11.2	-58.3	165.0	0 44.7	+58.4	15.0	41
6 01.1	-57.9	165.2	4 05.1	-58.1	165.2	2 09.0	-58.1	165.3	0 12.9	-58.2	165.3	1 43.1	+58.4	14.7	42
5 03.2	-57.9	165.5	3 07.0	-58.0	165.5	1 10.9	-58.2	165.5	0 45.3	+58.3	14.5	2 41.5	+58.4	14.5	43
4 05.3	-57.9	165.7	2 09.0	-58.0	165.7	0 12.7	-58.2	165.8	1 43.6	+58.3	14.2	3 39.9	+58.4	14.3	44
3 07.4	-57.9	166.0	1 11.0	-58.1	166.0	0 45.5	+58.1	14.0	2 41.9	+58.3	14.0	4 38.3	+58.4	14.0	45
2 09.5	-57.9	166.2	0 12.9	-58.0	166.3	1 43.6	+58.2	13.8	3 40.2	+58.2	13.8	5 36.7	+58.4	13.8	46
1 11.6	-57.9	166.5	0 45.1	+58.0	13.5	2 41.8	+58.1	13.5	4 38.4	+58.3	13.5	6 35.1	+58.4	13.6	47
0 13.7	-57.9	166.8	1 43.1	+58.0	13.2	3 39.9	+58.2	13.3	5 36.7	+58.3	13.3	7 33.5	+58.4	13.3	48
0 44.2	+57.9	13.0	2 41.1	+58.1	13.0	4 38.1	+58.1	13.0	6 35.0	+58.2	13.1	8 31.9	+58.3	13.1	49
1 42.1	+57.9	12.7	3 39.2	+58.0	12.7	5 36.2	+58.1	12.8	7 33.2	+58.3	12.8	9 30.2	+58.4	12.9	50
2 40.0	+57.9	12.4	4 37.2	+58.0	12.5	6 34.3	+58.2	12.5	8 31.5	+58.2	12.6	10 28.6	+58.3	12.6	51
3 37.9	+57.9	12.2	5 35.2	+58.0	12.2	7 32.5	+58.1	12.3	9 29.7	+58.2	12.3	11 26.9	+58.4	12.4	52
4 35.8	+57.9	11.9	6 33.2	+58.0	12.0	8 30.6	+58.1	12.0	10 27.9	+58.3	12.1	12 25.3	+58.3	12.2	53
5 33.7	+57.9	11.7	7 31.2	+58.0	11.7	9 28.7	+58.1	11.8	11 26.2	+58.2	11.8	13 23.6	+58.3	11.9	54
6 31.6	+57.8	11.4	8 29.2	+58.0	11.4	10 26.8	+58.1	11.5	12 24.4	+58.3	11.6	14 21.9	+58.3	11.7	55
7 29.4	+57.9	11.1	9 27.2	+57.9	11.2	11 24.9	+58.0	11.3	13 22.6	+58.1	11.3	15 20.2	+58.3	11.4	56
8 27.3	+57.8	10.9	10 25.1	+58.0	10.9	12 22.9	+58.1	11.0	14 20.7	+58.2	11.1	16 18.5	+58.2	11.2	57
9 25.1	+57.9	10.6	11 23.1	+57.9	10.7	13 21.0	+58.0	10.7	15 18.9	+58.1	10.8	17 16.7	+58.3	10.9	58
10 23.0	+57.8	10.3	12 21.0	+58.0	10.4	14 19.0	+58.1	10.5	16 17.0	+58.2	10.6	18 15.0	+58.2	10.7	59
11 20.8	+57.8	10.0	13 19.0	+57.9	10.1	15 17.1	+58.0	10.2	17 15.2	+58.1	10.3	19 13.2	+58.2	10.4	60
12 18.6	+57.8	9.8	14 16.9	+57.9	9.9	16 15.1	+58.0	9.9	18 13.3	+58.0	10.1	20 11.4	+58.2	10.2	61
13 16.4	+57.8	9.5	15 14.8	+57.8	9.6	17 13.1	+57.9	9.7	19 11.3	+58.1	9.8	21 09.6	+58.1	9.9	62
14 14.2	+57.7	9.2	16 12.6	+57.9	9.3	18 11.0	+58.0	9.4	20 09.4	+58.0	9.5	22 07.7	+58.1	9.6	63
15 11.9	+57.8	8.9	17 10.5	+57.8	9.0	19 09.0	+57.9	9.1	21 07.4	+58.0	9.2	23 05.8	+58.1	9.4	64
16 09.7	+57.7	8.7	18 08.3	+57.8	8.7	20 06.9	+57.9	8.9	22 05.4	+58.0	9.0	24 03.9	+58.1	9.1	65
17 07.4	+57.7	8.4	19 06.1	+57.8	8.5	21 04.8	+57.8	8.6	23 03.4	+58.0	8.7	25 02.0	+58.1	8.8	66
18 05.1	+57.6	8.1	20 03.9	+57.7	8.2	22 02.6	+57.9	8.3	24 01.4	+57.9	8.4	26 00.1	+58.0	8.6	67
19 02.7	+57.7	7.8	21 01.6	+57.7	7.9	23 00.5	+57.8	8.0	24 59.3	+57.9	8.1	26 58.1	+57.9	8.3	68
20 00.4	+57.6	7.5	21 59.3	+57.7	7.6	23 58.3	+57.7	7.7	25 57.2	+57.8	7.8	27 56.0	+58.0	8.0	69
20 58.0	+57.6	7.2	22 57.0	+57.7	7.3	24 56.0	+57.8	7.4	26 55.0	+57.8	7.5	28 54.0	+57.9	7.7	70
21 55.6	+57.5	6.9	23 54.7	+57.6	7.0	25 53.8	+57.7	7.1	27 52.8	+57.8	7.2	29 51.9	+57.8	7.4	71
22 53.1	+57.5	6.6	24 52.3	+57.6	6.7	26 51.5	+57.6	6.8	28 50.6	+57.7	6.9	30 49.7	+57.8	7.1	72
23 50.6	+57.5	6.3	25 49.9	+57.5	6.4	27 49.1	+57.6	6.5	29 48.3	+57.7	6.6	31 47.5	+57.8	6.8	73
24 48.1	+57.4	6.0	26 47.4	+57.5	6.1	28 46.7	+57.6	6.2	30 46.0	+57.7	6.3	32 45.3	+57.7	6.4	74
25 45.5	+57.4	5.6	27 44.9	+57.5	5.7	29 44.3	+57.5	5.9	31 43.7	+57.5	6.0	33 43.0	+57.6	6.1	75
26 42.9	+57.3	5.3	28 42.4	+57.4	5.4	30 41.8	+57.5	5.5	32 41.2	+57.6	5.6	34 40.6	+57.6	5.8	76
27 40.2	+57.3	5.0	29 39.8	+57.3	5.1	31 39.3	+57.4	5.2	33 38.8	+57.4	5.3	35 38.2	+57.6	5.4	77
28 37.5	+57.2	4.6	30 37.1	+57.3	4.7	32 36.7	+57.3	4.8	34 36.2	+57.5	5.0	36 35.8	+57.5	5.1	78
29 34.7	+57.2	4.3	31 34.4	+57.2	4.4	33 34.0	+57.3	4.5	35 33.7	+57.3	4.6	37 33.3	+57.4	4.7	79
30 31.9	+57.2	4.0	32 31.6	+57.2	4.0	34 31.3	+57.3	4.1	36 31.0	+57.3	4.2	38 30.7	+57.3	4.4	80
31 29.1	+57.0	3.6	33 28.8	+57.1	3.7	35 28.6	+57.1	3.8	37 28.3	+57.2	3.9	39 28.0	+57.3	4.0	81
32 26.1	+57.0	3.2	34 25.9	+57.1	3.3	36 25.7	+57.1	3.4	38 25.5	+57.1	3.5	40 25.3	+57.2	3.6	82
33 23.1	+57.0	2.9	35 23.0	+56.9	2.9	37 22.8	+57.0	3.0	39 22.6	+57.1	3.1	41 22.5	+57.1	3.2	83
34 20.1	+56.8	2.5	36 19.9	+56.9	2.5	38 19.8	+57.0	2.6	40 19.7	+57.0	2.7	42 19.6	+57.0	2.8	84
35 16.9	+56.8	2.1	37 16.8	+56.9	2.1	39 16.8	+56.8	2.2	41 16.7	+56.8	2.3	43 16.6	+56.9	2.3	85
36 13.7	+56.7	1.7	38 13.7	+56.7	1.7	40 13.6	+56.8	1.8	42 13.5	+56.8	1.8	44 13.5	+56.8	1.9	86
37 10.4	+56.6	1.3	39 10.4	+56.6	1.3	41 10.4	+56.6	1.4	43 10.3	+56.7	1.4	45 10.3	+56.7	1.5	87
38 07.0	+56.6	0.9	40 07.0	+56.6	0.9	42 07.0	+56.6	0.9	44 07.0	+56.6	1.0	46 07.0	+56.6	1.0	88
39 03.6	+56.4	0.4	41 03.6	+56.4	0.5	43 03.6	+56.4	0.5	45 03.6	+56.4	0.5	47 03.6	+56.4	0.5	89
40 00.0	+56.3	0.0	42 00.0	+56.3	0.0	44 00.0	+56.3	0.0	46 00.0	+56.3	0.0	48 00.0	+56.3	0.0	90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 160°, 200°

20°, 340° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	64 58.5	+ 50.9	135.6	63 30.7	+ 52.7	138.4	61 59.3	+ 54.0	140.9	60 24.7	+ 55.1	143.1	58 47.4	+ 56.1	145.1
31	65 49.4	+ 50.3	134.3	64 23.4	+ 52.1	137.3	62 53.3	+ 53.6	140.0	61 19.8	+ 54.9	142.3	59 43.5	+ 55.9	144.4
32	66 39.7	+ 49.5	132.9	65 15.5	+ 51.6	136.1	63 46.9	+ 53.2	139.0	62 14.7	+ 54.5	141.5	60 39.4	+ 55.6	143.7
33	67 29.2	+ 48.7	131.5	66 07.1	+ 50.9	134.9	64 40.1	+ 52.8	137.9	63 09.2	+ 54.2	140.6	61 35.0	+ 55.3	142.9
34	68 17.9	+ 47.8	129.9	66 58.0	+ 50.2	133.6	65 32.9	+ 52.1	136.8	64 03.4	+ 53.7	139.6	62 30.3	+ 55.0	142.1
35	69 05.7	+ 46.7	128.3	67 48.2	+ 49.4	132.1	66 25.0	+ 51.6	135.6	64 57.1	+ 53.3	138.6	63 25.3	+ 54.7	141.2
36	69 52.4	+ 45.6	126.5	68 37.6	+ 48.5	130.6	67 16.6	+ 50.9	134.2	65 50.4	+ 52.8	137.5	64 20.0	+ 54.3	140.3
37	70 38.0	+ 44.2	124.5	69 26.1	+ 47.5	129.0	68 07.5	+ 50.1	132.9	66 43.2	+ 52.2	136.3	65 14.3	+ 53.9	139.3
38	71 22.2	+ 42.8	122.5	70 13.6	+ 46.4	127.2	68 57.6	+ 49.3	131.3	67 35.4	+ 51.6	135.0	66 08.2	+ 53.4	138.2
39	72 05.0	+ 41.1	120.2	71 00.0	+ 45.1	125.3	69 46.9	+ 48.3	129.7	68 27.0	+ 50.8	133.6	67 01.6	+ 52.8	137.1
40	72 46.1	+ 39.2	117.8	71 45.1	+ 43.6	123.2	70 35.2	+ 47.2	128.0	69 17.8	+ 50.1	132.2	67 54.4	+ 52.3	135.8
41	73 25.3	+ 37.2	115.2	72 28.7	+ 42.1	121.0	71 22.4	+ 46.0	126.1	70 07.9	+ 49.1	130.6	68 46.7	+ 51.6	134.5
42	74 02.5	+ 34.8	112.4	73 10.8	+ 40.2	118.6	72 08.4	+ 44.5	124.0	70 57.0	+ 48.1	128.9	69 38.3	+ 50.8	133.1
43	74 37.3	+ 32.2	109.4	73 51.0	+ 38.1	115.9	72 52.9	+ 43.0	121.8	71 45.1	+ 46.9	127.0	70 29.1	+ 49.9	131.5
44	75 09.5	+ 29.3	106.2	74 29.1	+ 35.8	113.1	73 35.9	+ 41.2	119.4	72 32.0	+ 45.5	124.9	71 19.0	+ 49.0	129.8
45	75 38.8	+ 26.0	102.7	75 04.9	+ 33.1	110.1	74 17.1	+ 39.2	116.8	73 17.5	+ 44.0	122.7	72 08.0	+ 47.8	128.0
46	76 04.8	+ 22.6	99.0	75 38.0	+ 30.2	106.8	74 56.3	+ 36.8	113.9	74 01.5	+ 42.2	120.3	72 55.8	+ 46.5	126.0
47	76 27.4	+ 18.7	95.1	76 08.2	+ 27.0	103.2	75 33.1	+ 34.1	110.8	74 43.7	+ 40.2	117.7	73 42.3	+ 45.0	123.8
48	76 46.1	+ 14.6	91.0	76 35.2	+ 23.3	99.4	76 07.2	+ 31.2	107.4	75 23.9	+ 37.9	114.8	74 27.3	+ 43.3	121.4
49	77 00.7	+ 10.3	86.7	76 58.5	+ 19.3	95.4	76 38.4	+ 27.9	103.8	76 01.8	+ 35.2	111.7	75 10.6	+ 41.3	118.7
50	77 11.0	+ 5.7	82.3	77 17.8	+ 15.2	91.1	77 06.3	+ 24.1	99.9	76 37.0	+ 32.3	108.2	75 51.9	+ 39.0	115.8
51	77 16.7	+ 1.1	77.8	77 33.0	+ 10.5	86.7	77 30.4	+ 20.1	95.7	77 09.3	+ 28.8	104.5	76 30.9	+ 36.4	112.6
52	77 17.8	- 3.5	73.3	77 43.5	+ 5.9	82.1	77 50.5	+ 15.6	91.3	77 38.1	+ 25.0	100.5	77 07.3	+ 33.4	109.1
53	77 14.3	- 8.0	68.7	77 49.4	+ 1.1	77.4	78 06.1	+ 10.9	86.7	78 03.1	+ 20.8	96.2	77 40.7	+ 29.8	105.3
54	77 06.3	- 12.5	64.3	77 50.5	- 3.8	72.6	78 17.0	+ 6.0	81.9	78 23.9	+ 16.2	91.6	78 10.5	+ 26.0	101.2
55	76 53.8	- 16.8	59.9	77 46.7	- 8.6	67.9	78 23.0	+ 0.9	77.0	78 40.1	+ 11.2	86.7	78 36.5	+ 21.6	96.7
56	76 37.0	- 20.7	55.7	77 38.1	- 13.2	63.3	78 23.9	- 4.2	72.0	78 51.3	+ 6.1	81.7	78 58.1	+ 16.7	91.9
57	76 16.3	- 24.4	51.7	77 24.9	- 17.6	58.7	78 19.7	- 9.2	67.0	78 57.4	+ 0.7	76.5	79 14.8	+ 11.6	86.8
58	75 51.9	- 27.7	47.9	77 07.3	- 21.6	54.4	78 10.5	- 14.0	62.2	78 58.1	- 4.7	71.3	79 26.4	+ 6.1	81.5
59	75 24.2	- 30.8	44.3	76 45.7	- 25.5	50.3	77 56.5	- 18.5	57.5	78 53.4	- 9.9	66.1	79 32.5	+ 0.5	76.0
60	74 53.4	- 33.6	41.0	76 20.2	- 28.8	46.4	77 38.0	- 22.7	53.0	78 43.5	- 14.9	61.0	79 33.0	- 5.2	70.5
61	74 19.8	- 36.0	37.9	75 51.4	- 31.9	42.7	77 15.3	- 26.6	48.7	78 28.6	- 19.6	56.1	79 27.8	- 10.8	65.1
62	73 43.8	- 38.3	35.0	75 19.5	- 34.7	39.3	76 48.7	- 30.0	44.7	78 09.0	- 23.9	51.4	79 17.0	- 15.9	59.7
63	73 05.5	- 40.2	32.3	74 44.8	- 37.2	36.2	76 18.7	- 33.2	41.0	77 45.1	- 27.9	47.0	79 01.1	- 20.9	54.6
64	72 25.3	- 42.0	29.8	74 07.6	- 39.3	33.2	75 45.5	- 35.9	37.6	77 17.2	- 31.3	42.9	78 40.2	- 25.3	49.7
65	71 43.3	- 43.6	27.4	73 28.3	- 41.3	30.5	75 09.6	- 38.3	34.4	76 45.9	- 34.5	39.1	78 14.9	- 29.3	45.2
66	70 59.7	- 44.9	25.3	72 47.0	- 43.0	28.0	74 31.3	- 40.5	31.4	76 11.4	- 37.2	35.6	77 45.6	- 32.8	41.0
67	70 14.8	- 46.1	23.3	72 04.0	- 44.5	25.7	73 50.8	- 42.4	28.7	75 34.2	- 39.6	32.4	77 12.8	- 35.9	37.1
68	69 28.7	- 47.3	21.4	71 19.5	- 45.8	23.6	73 08.4	- 44.0	26.2	74 54.6	- 41.8	29.5	76 36.9	- 38.6	33.6
69	68 41.4	- 48.3	19.7	70 33.7	- 47.0	21.6	72 24.4	- 45.5	23.9	74 12.8	- 43.5	26.8	75 58.3	- 41.0	30.4
70	67 53.1	- 49.1	18.1	69 46.7	- 48.1	19.8	71 38.9	- 46.8	21.8	73 29.3	- 45.2	24.3	75 17.3	- 43.0	27.4
71	67 04.0	- 49.9	16.6	68 58.6	- 49.1	18.1	70 52.1	- 48.0	19.9	72 44.1	- 46.5	22.0	74 34.3	- 44.7	24.7
72	66 14.1	- 50.6	15.2	68 09.5	- 49.8	16.5	70 04.1	- 48.9	18.1	71 57.6	- 47.8	20.0	73 49.6	- 46.3	22.3
73	65 23.5	- 51.3	13.9	67 19.7	- 50.7	15.0	69 15.2	- 49.8	16.4	71 09.8	- 48.8	18.0	73 03.3	- 47.7	20.1
74	64 32.2	- 51.8	12.7	66 29.0	- 51.2	13.7	68 25.4	- 50.7	14.9	70 21.0	- 49.8	16.3	72 15.6	- 48.7	18.0
75	63 40.4	- 52.4	11.5	65 37.8	- 51.9	12.4	67 34.7	- 51.3	13.4	69 31.2	- 50.7	14.7	71 26.9	- 49.8	16.2
76	62 48.0	- 52.8	10.4	64 45.9	- 52.5	11.2	66 43.4	- 52.0	12.1	68 40.5	- 51.4	13.2	70 37.1	- 50.7	14.4
77	61 55.2	- 53.3	9.4	63 53.4	- 52.9	10.1	65 51.4	- 52.5	10.8	67 49.1	- 52.0	11.8	69 46.4	- 51.5	12.9
78	61 01.9	- 53.6	8.4	63 00.5	- 53.4	9.0	64 58.9	- 53.0	9.7	66 57.1	- 52.7	10.5	68 54.9	- 52.2	11.4
79	60 08.3	- 54.1	7.5	62 07.1	- 53.7	8.0	64 05.9	- 53.5	8.6	66 04.4	- 53.1	9.3	68 02.7	- 52.7	10.1
80	59 14.2	- 54.3	6.7	61 13.4	- 54.2	7.1	63 12.4	- 53.9	7.6	65 11.3	- 53.7	8.1	67 10.0	- 53.3	8.8
81	58 19.9	- 54.6	5.8	60 19.2	- 54.4	6.2	62 18.5	- 54.3	6.6	64 17.6	- 54.0	7.1	66 16.7	- 53.8	7.6
82	57 25.3	- 54.9	5.1	59 24.8	- 54.8	5.4	61 24.2	- 54.6	5.7	63 23.6	- 54.4	6.1	65 22.9	- 54.3	6.6
83	56 30.4	- 55.2	4.3	58 30.0	- 55.0	4.6	60 29.6	- 54.9	4.9	62 29.2	- 54.8	5.2	64 28.6	- 54.6	5.6
84	55 35.2	- 55.4	3.6	57 35.0	- 55.3	3.8	59 34.7	- 55.2	4.0	61 34.4	- 55.1	4.3	63 34.0	- 55.0	4.6
85	54 39.8	- 55.6	3.0	56 39.7	- 55.6	3.1	58 39.5	- 55.5	3.3	60 39.3	- 55.4	3.5	62 39.0	- 55.3	3.7
86	53 44.2	- 55.8	2.3	55 44.1	- 55.7	2.4	57 44.0	- 55.7	2.6	59 43.9	- 55.6	2.7	61 43.7	- 55.5	2.9
87	52 48.4	- 55.9	1.7	54 48.4	- 56.0	1.8	56 48.3	- 55.9	1.9	58 48.3	- 55.9	2.0	60 48.2	- 55.9	2.1
88	51 52.5	- 56.2	1.1	53 52.4	- 56.1	1.2	55 52.4	- 56.1	1.2	57 52.4	- 56.1	1.3	59 52.3	- 56.0	1.4
89	50 56.3	- 56.3	0.5	52 56.3	- 56.3	0.6	54 56.3	- 56.3	0.6	56 56.3	- 56.3	0.6	58 56.3	- 56.3	0.7
90	50 00.0	- 56.5	0.0	52 00.0	- 56.5	0.0	54 00.0	- 56.5	0.0	56 00.0	- 56.5	0.0	58 00.0	- 56.5	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 20°, 340°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
8 03.1	-58.5	162.6	6 08.6	-58.6	162.7	4 14.0	-58.7	162.7	2 19.4	-58.8	162.8	0 24.8	-59.0	162.8	30
7 04.6	-58.5	162.8	5 10.0	-58.7	162.9	3 15.3	-58.8	162.9	1 20.6	-58.9	162.9	0 34.2	+59.0	17.0	31
6 06.1	-58.5	163.0	4 11.3	-58.6	163.1	2 16.5	-58.8	163.1	0 21.7	-58.9	163.1	1 33.2	+59.0	16.9	32
5 07.6	-58.5	163.3	3 12.7	-58.7	163.3	1 17.7	-58.8	163.3	0 37.2	+58.9	16.7	2 32.2	+59.0	16.7	33
4 09.1	-58.5	163.5	2 14.0	-58.6	163.5	0 18.9	-58.7	163.5	1 36.1	+58.9	16.5	3 31.2	+59.0	16.5	34
3 10.6	-58.6	163.7	1 15.4	-58.7	163.7	0 39.8	+58.8	16.3	2 35.0	+58.9	16.3	4 30.2	+59.0	16.3	35
2 12.0	-58.5	163.9	0 16.7	-58.6	163.9	1 38.6	+58.8	16.1	3 33.9	+58.9	16.1	5 29.2	+59.0	16.1	36
1 13.5	-58.5	164.1	0 41.9	+58.7	15.9	2 37.4	+58.7	15.9	4 32.8	+58.9	15.9	6 28.2	+59.0	16.0	37
0 15.0	-58.6	164.4	1 40.6	+58.6	15.6	3 36.1	+58.8	15.7	5 31.7	+58.9	15.7	7 27.2	+59.0	15.8	38
0 43.6	+58.5	15.4	2 39.2	+58.7	15.4	4 34.9	+58.8	15.5	6 30.6	+58.8	15.5	8 26.2	+58.9	15.6	39
1 42.1	+58.5	15.2	3 37.9	+58.6	15.2	5 33.7	+58.7	15.3	7 29.4	+58.9	15.3	9 25.1	+59.0	15.4	40
2 40.6	+58.6	15.0	4 36.5	+58.7	15.0	6 32.4	+58.8	15.1	8 28.3	+58.9	15.1	10 24.1	+59.0	15.2	41
3 39.2	+58.5	14.8	5 35.2	+58.6	14.8	7 31.2	+58.7	14.9	9 27.2	+58.8	14.9	11 23.1	+59.0	15.0	42
4 37.7	+58.5	14.5	6 33.8	+58.7	14.6	8 29.9	+58.8	14.7	10 26.0	+58.9	14.7	12 22.1	+58.9	14.8	43
5 36.2	+58.5	14.3	7 32.5	+58.6	14.4	9 28.7	+58.7	14.4	11 24.9	+58.8	14.5	13 21.0	+59.0	14.6	44
6 34.7	+58.5	14.1	8 31.1	+58.6	14.2	10 27.4	+58.8	14.2	12 23.7	+58.9	14.3	14 20.0	+59.0	14.5	45
7 33.2	+58.5	13.9	9 29.7	+58.6	13.9	11 26.2	+58.7	14.0	13 22.6	+58.8	14.1	15 18.9	+58.9	14.3	46
8 31.7	+58.5	13.6	10 28.3	+58.6	13.7	12 24.9	+58.7	13.8	14 21.4	+58.8	13.9	16 17.8	+58.9	14.1	47
9 30.2	+58.5	13.4	11 26.9	+58.6	13.5	13 23.6	+58.7	13.6	15 20.2	+58.8	13.7	17 16.7	+58.9	13.9	48
10 28.7	+58.5	13.2	12 25.5	+58.6	13.3	14 22.3	+58.7	13.4	16 19.0	+58.8	13.5	18 15.6	+58.9	13.7	49
11 27.2	+58.5	13.0	13 24.1	+58.6	13.1	15 21.0	+58.6	13.2	17 17.8	+58.8	13.2	19 14.5	+58.9	13.5	50
12 25.7	+58.4	12.7	14 22.7	+58.5	12.8	16 19.6	+58.7	13.0	18 16.6	+58.7	13.1	20 13.4	+58.9	13.3	51
13 24.1	+58.4	12.5	15 21.2	+58.6	12.6	17 18.3	+58.7	12.7	19 15.3	+58.8	12.9	21 12.3	+58.8	13.1	52
14 22.5	+58.5	12.3	16 19.8	+58.5	12.4	18 17.0	+58.6	12.5	20 14.1	+58.7	12.7	22 11.1	+58.8	12.8	53
15 21.0	+58.4	12.0	17 18.3	+58.5	12.2	19 15.6	+58.6	12.3	21 12.8	+58.7	12.5	23 09.9	+58.9	12.6	54
16 19.4	+58.4	11.8	18 16.8	+58.5	11.9	20 14.2	+58.6	12.1	22 11.5	+58.7	12.2	24 08.8	+58.7	12.4	55
17 17.8	+58.4	11.6	19 15.3	+58.5	11.7	21 12.8	+58.6	11.8	23 10.2	+58.7	12.0	25 07.5	+58.8	12.2	56
18 16.2	+58.3	11.3	20 13.8	+58.5	11.5	22 11.4	+58.5	11.6	24 08.9	+58.6	11.8	26 06.3	+58.8	12.0	57
19 14.5	+58.4	11.1	21 12.3	+58.4	11.2	23 09.9	+58.6	11.4	25 07.5	+58.7	11.5	27 05.1	+58.7	11.7	58
20 12.9	+58.3	10.8	22 10.7	+58.4	11.0	24 08.5	+58.5	11.1	26 06.2	+58.6	11.3	28 03.8	+58.7	11.5	59
21 11.2	+58.3	10.6	23 09.1	+58.4	10.7	25 07.0	+58.5	10.9	27 04.8	+58.6	11.1	29 02.5	+58.7	11.3	60
22 09.5	+58.3	10.3	24 07.5	+58.4	10.5	26 05.5	+58.4	10.6	28 03.4	+58.5	10.8	30 01.2	+58.7	11.0	61
23 07.8	+58.2	10.1	25 05.9	+58.3	10.2	27 03.9	+58.5	10.4	29 01.9	+58.6	10.6	30 59.9	+58.6	10.8	62
24 06.0	+58.2	9.8	26 04.2	+58.3	10.0	28 02.4	+58.4	10.1	30 00.5	+58.5	10.3	31 58.5	+58.6	10.5	63
25 04.2	+58.2	9.5	27 02.5	+58.3	9.7	29 00.8	+58.4	9.9	30 59.0	+58.5	10.1	32 57.1	+58.6	10.3	64
26 02.4	+58.2	9.3	28 00.8	+58.3	9.4	29 59.2	+58.3	9.6	31 57.5	+58.4	9.8	33 55.7	+58.5	10.0	65
27 00.6	+58.1	9.0	28 59.1	+58.2	9.2	30 57.5	+58.3	9.3	32 55.9	+58.4	9.5	34 54.2	+58.5	9.8	66
27 58.7	+58.1	8.7	29 57.3	+58.2	8.9	31 55.8	+58.3	9.1	33 54.3	+58.4	9.3	35 52.7	+58.4	9.5	67
28 56.8	+58.0	8.4	30 55.5	+58.1	8.6	32 54.1	+58.2	8.8	34 52.7	+58.3	9.0	36 51.1	+58.5	9.2	68
29 54.8	+58.1	8.1	31 53.6	+58.1	8.3	33 52.3	+58.2	8.5	35 51.0	+58.3	8.7	37 49.6	+58.3	8.9	69
30 52.9	+57.9	7.8	32 51.7	+58.1	8.0	34 50.5	+58.2	8.2	36 49.3	+58.2	8.4	38 47.9	+58.4	8.6	70
31 50.8	+58.0	7.5	33 49.8	+58.0	7.7	35 48.7	+58.1	7.9	37 47.5	+58.2	8.1	39 46.3	+58.3	8.3	71
32 48.8	+57.9	7.2	34 47.8	+58.0	7.4	36 46.8	+58.0	7.6	38 45.7	+58.1	7.8	40 44.6	+58.2	8.0	72
33 46.7	+57.8	6.9	35 45.8	+57.9	7.1	37 44.8	+58.0	7.3	39 43.8	+58.1	7.5	41 42.8	+58.2	7.7	73
34 44.5	+57.8	6.6	36 43.7	+57.9	6.8	38 42.8	+58.0	6.9	40 41.9	+58.1	7.1	42 41.0	+58.1	7.4	74
35 42.3	+57.7	6.3	37 41.6	+57.8	6.4	39 40.8	+57.9	6.6	41 40.0	+57.9	6.8	43 39.1	+58.0	7.0	75
36 40.0	+57.7	5.9	38 39.4	+57.7	6.1	40 38.7	+57.8	6.3	42 37.9	+57.9	6.5	44 37.1	+58.0	6.7	76
37 37.7	+57.6	5.6	39 37.1	+57.7	5.7	41 36.5	+57.7	5.9	43 35.8	+57.9	6.1	45 35.1	+57.9	6.3	77
38 35.3	+57.5	5.2	40 34.8	+57.6	5.4	42 34.2	+57.7	5.5	44 33.7	+57.7	5.7	46 33.0	+57.9	5.9	78
39 32.8	+57.5	4.9	41 32.4	+57.5	5.0	43 31.9	+57.6	5.2	45 31.4	+57.7	5.3	47 30.9	+57.7	5.5	79
40 30.3	+57.4	4.5	42 29.9	+57.5	4.6	44 29.5	+57.6	4.8	46 29.1	+57.6	4.9	48 28.6	+57.7	5.1	80
41 27.7	+57.3	4.1	43 27.4	+57.4	4.2	45 27.1	+57.4	4.4	47 26.7	+57.5	4.5	49 26.3	+57.6	4.7	81
42 25.0	+57.3	3.7	44 24.8	+57.3	3.8	46 24.5	+57.4	4.0	48 24.2	+57.4	4.1	50 23.9	+57.5	4.3	82
43 22.3	+57.1	3.3	45 22.1	+57.2	3.4	47 21.9	+57.2	3.5	49 21.6	+57.3	3.7	51 21.4	+57.3	3.8	83
44 19.4	+57.1	2.9	46 19.3	+57.1	3.0	48 19.1	+57.1	3.1	50 18.9	+57.2	3.2	52 18.7	+57.3	3.4	84
45 16.5	+56.9	2.4	47 16.4	+56.9	2.5	49 16.2	+57.1	2.6	51 16.1	+57.1	2.7	53 16.0	+57.1	2.9	85
46 13.4	+56.8	2.0	48 13.3	+56.9	2.1	50 13.3	+56.9	2.1	52 13.2	+56.9	2.2	54 13.1	+56.9	2.3	86
47 10.2	+56.8	1.5	49 10.2	+56.7	1.6	51 10.2	+56.7	1.6	53 10.1	+56.8	1.7	55 10.0	+56.9	1.8	87
48 07.0	+56.5	1.0	50 06.9	+56.6	1.1	52 06.9	+56.6	1.1	54 06.9	+56.6	1.2	56 06.9	+56.6	1.2	88
49 03.5	+56.5	0.5	51 03.5	+56.5	0.5	53 03.5	+56.5	0.6	55 03.5	+56.5	0.6	57 03.5	+56.5	0.6	89
50 00.0	+56.3	0.0	52 00.0	+56.3	0.0	54 00.0	+56.3	0.0	56 00.0	+56.3	0.0	58 00.0	+56.3	0.0	90

LATITUDE SAME NAME

L.H.A. 160°, 200°

22°, 338° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	70 58.6	+4.3	•84.4	71 04.2	+10.7	•90.3	70 57.5	+17.0	•96.1	70 38.9	+23.0	•101.7	70 08.9	+28.5	•107.2
31	71 02.9	+1.3	•81.4	71 14.9	+7.6	•87.2	71 14.5	+14.1	•93.1	71 01.9	+20.4	•98.9	70 37.4	+26.2	•104.6
32	71 04.2	-1.8	•78.3	71 22.5	+4.6	•84.1	71 28.6	+11.1	•90.1	71 22.3	+17.5	•96.0	71 03.6	+23.7	•101.8
33	71 02.4	-4.9	•75.2	71 27.1	+1.5	•81.0	71 39.7	+8.1	•87.0	71 39.8	+14.6	•93.0	71 27.3	+20.9	•99.0
34	70 57.5	-7.8	•72.2	71 28.6	-1.6	•77.8	71 47.8	+4.9	•83.8	71 54.4	+11.6	•89.9	71 48.2	+18.2	•96.0
35	70 49.7	-10.8	•69.1	71 27.0	-4.7	•74.7	71 52.7	+1.7	•80.6	72 06.0	+8.4	•86.7	72 06.4	+15.1	•92.9
36	70 38.9	-13.6	•66.1	71 22.3	-7.9	•71.6	71 54.4	-1.5	•77.4	72 14.4	+5.2	•83.5	72 21.5	+12.0	•89.7
37	70 25.3	-16.4	•63.2	71 14.4	-10.8	•68.5	71 52.9	-4.7	•74.2	72 19.6	+1.9	•80.2	72 33.5	+8.8	•86.5
38	70 08.9	-19.0	•60.4	71 03.6	-13.7	•65.4	71 48.2	-7.8	•71.0	72 21.5	-1.4	•76.9	72 42.3	+5.4	•83.2
39	69 49.9	-21.6	•57.6	70 49.9	-16.6	•62.5	71 40.4	-10.9	•67.8	72 20.1	-4.6	•73.6	72 47.7	+2.1	•79.8
40	69 28.3	-23.9	•54.9	70 33.3	-19.2	•59.5	71 29.5	-13.9	•64.7	72 15.5	-7.9	•70.3	72 49.8	-1.3	•76.4
41	69 04.4	-26.2	•52.3	70 14.1	-21.9	•56.7	71 15.6	-16.8	•61.6	72 07.6	-11.1	•67.1	72 48.5	-4.6	•73.0
42	68 38.2	-28.4	•49.8	69 52.2	-24.2	•54.0	70 58.8	-19.5	•58.7	71 56.5	-14.1	•63.9	72 43.9	-8.0	•69.7
43	68 09.8	-30.3	•47.4	69 28.0	-26.6	•51.4	70 39.3	-22.2	•55.8	71 42.4	-17.1	•60.8	72 35.9	-11.3	•66.4
44	67 39.5	-32.2	•45.1	69 01.4	-28.7	•48.8	70 17.1	-24.6	•53.0	71 25.3	-19.9	•57.8	72 24.6	-14.4	•63.1
45	67 07.3	-33.9	•42.9	68 32.7	-30.7	•46.4	69 52.5	-27.0	•50.3	71 05.4	-22.5	•54.8	72 10.2	-17.4	•59.9
46	66 33.4	-35.5	•40.9	68 02.0	-32.6	•44.1	69 25.5	-29.1	•47.8	70 42.9	-25.1	•52.0	71 52.8	-20.3	•56.8
47	65 57.9	-37.0	•38.8	67 29.4	-34.3	•41.9	68 56.4	-31.2	•45.3	70 17.8	-27.4	•49.3	71 32.5	-23.0	•53.8
48	65 20.9	-38.4	•36.9	66 55.1	-36.0	•39.7	68 25.2	-33.1	•43.0	69 50.4	-29.7	•46.7	71 09.5	-25.6	•50.9
49	64 42.5	-39.6	•35.1	66 19.1	-37.4	•37.7	67 52.1	-34.8	•40.7	69 20.7	-31.7	•44.2	70 43.9	-28.0	•48.1
50	64 02.9	-40.9	•33.4	65 41.7	-38.9	•35.8	67 17.3	-36.4	•38.6	68 49.0	-33.6	•41.8	70 15.9	-30.2	•45.5
51	63 22.0	-41.9	•31.7	65 02.8	-40.1	•34.0	66 40.9	-38.0	•36.6	68 15.4	-35.4	•39.5	69 45.7	-32.3	•43.0
52	62 40.1	-43.0	•30.2	64 22.7	-41.2	•32.2	66 02.9	-39.3	•34.6	67 40.0	-36.9	•37.4	69 13.4	-34.2	•40.6
53	61 57.1	-43.9	•28.6	63 41.5	-42.4	•30.6	65 23.6	-40.6	•32.8	67 03.1	-38.5	•35.3	68 39.2	-36.0	•38.3
54	61 13.2	-44.7	•27.2	62 59.1	-43.4	•29.0	64 43.0	-41.7	•31.0	66 24.6	-39.9	•33.4	68 03.2	-37.6	•36.1
55	60 28.5	-45.6	•25.8	62 15.7	-44.3	•27.5	64 01.3	-42.9	•29.4	65 44.7	-41.1	•31.5	67 25.6	-39.0	•34.0
56	59 42.9	-46.3	•24.5	61 31.4	-45.1	•26.1	63 18.4	-43.8	•27.8	65 03.6	-42.3	•29.8	66 46.6	-40.5	•32.1
57	58 56.6	-47.0	•23.3	60 46.3	-46.0	•24.7	62 34.6	-44.8	•26.3	64 21.3	-43.3	•28.1	66 06.1	-41.7	•30.2
58	58 09.6	-47.6	•22.1	60 00.3	-46.7	•23.4	61 49.8	-45.6	•24.9	63 38.0	-44.4	•26.5	65 24.4	-42.8	•28.5
59	57 22.0	-48.2	•21.0	59 13.6	-47.3	•22.2	61 04.2	-46.3	•23.5	62 53.6	-45.2	•25.1	64 41.6	-44.0	•26.8
60	56 33.8	-48.8	•19.9	58 26.3	-48.0	•21.0	60 17.9	-47.2	•22.2	62 08.4	-46.1	•23.6	63 57.6	-44.8	•25.3
61	55 45.0	-49.2	•18.8	57 38.3	-48.6	•19.8	59 30.7	-47.7	•21.0	61 22.3	-46.8	•22.3	63 12.8	-45.8	•23.8
62	54 55.8	-49.8	•17.8	56 49.7	-49.1	•18.7	58 43.0	-48.4	•19.8	60 35.5	-47.6	•21.0	62 27.0	-46.6	•22.3
63	54 06.0	-50.2	•16.9	56 00.6	-49.6	•17.7	57 54.6	-49.0	•18.7	59 47.9	-48.2	•19.8	61 40.4	-47.3	•21.0
64	53 15.8	-50.6	•15.9	55 11.0	-50.1	•16.7	57 05.6	-49.5	•17.6	58 59.7	-48.8	•18.6	60 53.1	-48.1	•19.7
65	52 25.2	-51.0	•15.0	54 20.9	-50.5	•15.8	56 16.1	-49.9	•16.6	58 10.9	-49.4	•17.5	60 05.0	-48.6	•18.5
66	51 34.2	-51.4	•14.2	53 30.4	-51.0	•14.8	55 26.2	-50.5	•15.6	57 21.5	-49.9	•16.4	59 16.4	-49.3	•17.3
67	50 42.8	-51.6	•13.4	52 39.4	-51.2	•14.0	54 35.7	-50.8	•14.6	56 31.6	-50.3	•15.4	58 27.1	-49.8	•16.2
68	49 51.2	-52.1	•12.6	51 48.2	-51.7	•13.1	53 44.9	-51.3	•13.7	55 41.3	-50.8	•14.4	57 37.3	-50.3	•15.2
69	48 59.1	-52.3	•11.8	50 56.5	-52.0	•12.3	52 53.6	-51.6	•12.9	54 50.5	-51.2	•13.5	56 47.0	-50.8	•14.2
70	48 06.8	-52.5	•11.1	50 04.5	-52.3	•11.5	52 02.0	-52.0	•12.0	53 59.3	-51.6	•12.6	55 56.2	-51.2	•13.2
71	47 14.3	-52.9	•10.3	49 12.2	-52.5	•10.8	51 10.0	-52.2	•11.2	53 07.7	-52.0	•11.7	55 05.0	-51.6	•12.3
72	46 21.4	-53.0	•9.7	48 19.7	-52.9	•10.0	50 17.8	-52.6	•10.4	52 15.7	-52.3	•10.9	54 13.4	-51.9	•11.4
73	45 28.4	-53.3	•9.0	47 26.8	-53.1	•9.3	49 25.2	-52.9	•9.7	51 23.4	-52.6	•10.1	53 21.5	-52.4	v10.6
74	44 35.1	-53.6	•8.3	46 33.7	-53.3	•8.6	48 32.3	-53.1	•9.0	50 30.8	-52.9	•9.3	52 29.1	-52.6	•9.8
75	43 41.5	-53.7	•7.7	45 40.4	-53.5	•8.0	47 39.2	-53.3	•8.3	49 37.9	-53.1	•8.6	51 36.5	-52.9	•9.0
76	42 47.8	-53.9	•7.1	44 46.9	-53.8	•7.3	46 45.9	-53.6	•7.6	48 44.8	-53.5	•7.9	50 43.6	-53.2	•8.2
77	41 53.9	-54.1	•6.5	43 53.1	-53.9	•6.7	45 52.3	-53.8	•7.0	47 51.3	-53.6	•7.2	49 50.4	-53.5	•7.5
78	40 59.8	-54.2	•5.9	42 59.2	-54.2	•6.1	44 58.5	-54.1	•6.3	46 57.7	-53.9	•6.6	48 56.9	-53.7	•6.8
79	40 05.6	-54.5	•5.4	42 05.0	-54.3	•5.5	44 04.4	-54.2	•5.7	46 03.8	-54.0	•5.9	48 03.2	-54.0	•6.1
80	39 11.1	-54.5	•4.8	41 10.7	-54.5	•5.0	43 10.2	-54.3	•5.1	45 09.8	-54.3	•5.3	47 09.2	-54.1	•5.5
81	38 16.6	-54.7	•4.3	40 16.2	-54.6	•4.4	42 15.9	-54.6	•4.5	44 15.5	-54.5	•4.7	46 15.1	-54.4	•4.9
82	37 21.9	-54.9	•3.8	39 21.6	-54.8	•3.9	41 21.3	-54.7	•4.0	43 21.0	-54.6	•4.1	45 20.7	-54.5	•4.3
83	36 27.0	-54.9	•3.3	38 26.8	-54.9	•3.3	40 26.6	-54.8	•3.4	42 26.4	-54.8	•3.5	44 26.2	-54.7	•3.7
84	35 32.1	-55.1	•2.8	37 31.9	-55.0	•2.8	39 31.8	-55.0	•2.9	41 31.6	-54.9	•3.0	43 31.5	-54.9	•3.1
85	34 37.0	-55.2	•2.3	36 36.9	-55.2	•2.3	38 36.8	-55.1	•2.4	40 36.7	-55.1	•2.5	42 36.6	-55.1	•2.5
86	33 41.8	-55.3	•1.8	35 41.7	-55.2	•1.8	37 41.7	-55.3	•1.9	39 41.6	-55.2	•1.9	41 41.5	-55.2	•2.0
87	32 46.5	-55.4	•1.3	34 46.5	-55.4	•1.4	36 46.4	-55.3	•1.4	38 46.4	-55.4	•1.4	40 46.3	-55.3	•1.5
88	31 51.1	-55.5	•0.9	33 51.1	-55.5	•0.9	35 51.1	-55.5	•0.9	37 51.0	-55.4	•0.9	39 51.0	-55.4	•1.0
89	30 55.6	-55.6	•0.4	32 55.6	-55.6	•0.4	34 55.6	-55.6	•0.5	36 55.6	-55.6	•0.5	38 55.6	-55.6	•0.5
90	30 00.0	-55.7	•0.0	32 00.0	-55.7	•0.0	34 00.0	-55.7	•0.0	36 00.0	-55.7	•0.0	38 00.0	-55.7	•0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 22°, 338°

30°			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
26	26.9	-56.0	158.8	24	34.9	-56.2	159.1	22	42.7	-56.5	159.4	20	50.3	-56.8	159.7	18	57.6	-57.0	159.9	30
25	30.9	-56.0	159.2	23	38.7	-56.3	159.5	21	46.2	-56.6	159.8	19	53.5	-56.8	160.0	18	00.6	-57.0	160.3	31
24	34.9	-56.1	159.6	22	42.4	-56.4	159.9	20	49.6	-56.6	160.1	18	56.7	-56.9	160.4	17	03.6	-57.1	160.6	32
23	38.8	-56.1	159.9	21	46.0	-56.4	160.2	19	53.0	-56.7	160.5	17	59.8	-56.9	160.7	16	06.5	-57.1	160.9	33
22	42.7	-56.2	160.3	20	49.6	-56.4	160.6	18	56.3	-56.7	160.8	17	02.9	-56.9	161.0	15	09.4	-57.2	161.2	34
21	46.5	-56.2	160.7	19	53.2	-56.5	161.0	17	59.6	-56.7	161.2	16	06.0	-57.0	161.4	14	12.2	-57.1	161.5	35
20	50.3	-56.3	161.1	18	56.7	-56.6	161.3	17	02.9	-56.7	161.5	15	09.0	-56.9	161.7	13	15.1	-57.2	161.9	36
19	54.0	-56.4	161.4	18	00.1	-56.5	161.7	16	06.2	-56.8	161.9	14	12.1	-57.0	162.0	12	17.9	-57.2	162.2	37
18	57.6	-56.4	161.8	17	03.6	-56.7	162.0	15	09.4	-56.9	162.2	13	15.1	-57.1	162.3	11	20.7	-57.3	162.5	38
18	01.2	-56.4	162.2	16	06.9	-56.6	162.4	14	12.5	-56.8	162.5	12	18.0	-57.0	162.7	10	23.4	-57.2	162.8	39
17	04.8	-56.4	162.5	15	10.3	-56.7	162.7	13	15.7	-56.9	162.9	11	21.0	-57.1	163.0	9	26.2	-57.3	163.1	40
16	08.4	-56.5	162.9	14	13.6	-56.7	163.0	12	18.8	-56.9	163.2	10	23.9	-57.1	163.3	8	28.9	-57.2	163.4	41
15	11.9	-56.5	163.2	13	16.9	-56.7	163.4	11	21.9	-56.9	163.5	9	26.8	-57.1	163.6	7	31.7	-57.3	163.7	42
14	15.4	-56.6	163.6	12	20.2	-56.7	163.7	10	25.0	-57.0	163.8	8	29.7	-57.1	163.9	6	34.4	-57.3	164.0	43
13	18.8	-56.6	163.9	11	23.5	-56.8	164.0	9	28.0	-56.9	164.1	7	32.6	-57.1	164.2	5	37.1	-57.3	164.3	44
12	22.2	-56.6	164.3	10	26.7	-56.8	164.4	8	31.1	-57.0	164.5	6	35.2	-57.2	164.5	4	39.8	-57.3	164.6	45
11	25.6	-56.6	164.6	9	29.9	-56.8	164.7	7	34.1	-57.0	164.8	5	38.3	-57.1	164.8	3	42.5	-57.3	164.9	46
10	29.0	-56.7	164.9	8	33.1	-56.9	165.0	6	37.1	-57.0	165.1	4	41.2	-57.1	165.1	2	45.2	-57.3	165.2	47
9	32.3	-56.6	165.3	7	36.2	-56.8	165.4	5	40.1	-57.0	165.4	3	44.0	-57.2	165.5	1	47.8	-57.3	165.5	48
8	35.7	-56.7	165.6	6	39.4	-56.8	165.7	4	43.1	-57.0	165.7	2	46.8	-57.2	165.8	0	50.5	-57.3	165.8	49
7	39.0	-56.7	165.9	5	42.6	-56.9	166.0	3	46.1	-57.0	166.0	1	49.1	-57.1	166.1	0	06.8	+57.3	13.9	50
6	42.3	-56.7	166.3	4	45.7	-56.9	166.3	2	49.1	-57.0	166.3	0	52.5	-57.2	166.4	1	04.1	+57.4	13.6	51
5	45.6	-56.8	166.6	3	48.8	-56.9	166.6	1	52.1	-57.1	166.7	0	04.7	+57.2	13.3	2	01.5	+57.3	13.3	52
4	48.8	-56.7	166.9	2	51.9	-56.9	167.0	0	55.0	-57.0	167.0	1	01.9	+57.2	13.0	2	58.8	+57.3	13.0	53
3	52.1	-56.7	167.3	1	55.0	-56.8	167.3	0	02.0	+57.0	12.7	1	59.1	+57.1	12.7	3	56.1	+57.3	12.8	54
2	55.4	-56.8	167.6	0	58.2	-56.9	167.6	0	59.0	+57.1	12.4	2	56.2	+57.2	12.4	4	53.4	+57.3	12.5	55
1	58.6	-56.7	167.9	0	01.3	-56.9	167.9	1	56.1	+57.0	12.1	3	53.4	+57.2	12.1	5	50.7	+57.3	12.2	56
0	05.1	-56.8	168.6	0	55.6	+56.9	11.8	2	53.1	+57.0	11.8	4	50.6	+57.1	11.8	6	48.0	+57.3	11.9	57
0	51.7	+56.7	11.1	1	52.5	+56.9	11.5	3	50.1	+57.0	11.5	5	47.7	+57.2	11.5	7	45.3	+57.3	11.6	58
1	48.4	+56.8	10.8	2	49.4	+56.9	11.1	4	47.1	+57.0	11.2	6	44.9	+57.1	11.2	8	42.6	+57.2	11.3	59
2	45.2	+56.7	10.5	3	46.3	+56.9	10.8	5	44.1	+57.0	10.9	7	42.0	+57.1	10.9	9	39.8	+57.3	11.0	60
3	41.9	+56.7	10.2	4	43.2	+56.8	10.5	6	41.1	+57.0	10.5	8	39.1	+57.1	10.6	10	37.1	+57.2	10.6	61
4	38.6	+56.8	9.8	5	40.0	+56.9	10.2	7	38.1	+57.0	10.2	9	36.2	+57.1	10.3	11	34.3	+57.2	10.3	62
5	35.4	+56.7	9.5	6	36.9	+56.8	9.9	8	35.1	+57.0	9.9	10	33.3	+57.1	10.0	12	31.5	+57.2	10.0	63
6	32.1	+56.7	9.2	7	33.7	+56.8	9.5	9	32.1	+56.9	9.6	11	30.4	+57.0	9.6	13	28.7	+57.1	9.7	64
7	28.8	+56.7	8.8	8	30.5	+56.9	9.2	10	29.0	+56.9	9.3	12	27.4	+57.0	9.3	14	25.8	+57.1	9.4	65
8	25.5	+56.7	8.5	9	27.4	+56.8	8.9	11	25.9	+56.9	8.9	13	24.4	+57.0	9.0	15	22.9	+57.2	9.1	66
9	22.2	+56.6	8.2	10	24.2	+56.7	8.6	12	22.8	+56.9	8.6	14	21.4	+57.0	8.7	16	20.1	+57.0	8.8	67
10	18.8	+56.6	7.8	11	20.9	+56.8	8.2	13	19.7	+56.8	8.3	15	18.4	+57.0	8.4	17	17.1	+57.1	8.5	68
11	15.4	+56.7	7.5	12	17.7	+56.7	7.9	14	16.5	+56.9	8.0	16	15.4	+56.9	8.0	18	14.2	+57.0	8.1	69
12	12.1	+56.5	7.2	13	14.4	+56.7	7.6	15	13.4	+56.7	7.6	17	12.3	+56.9	7.7	19	11.2	+57.0	7.8	70
13	08.6	+56.6	6.8	14	11.1	+56.7	7.2	16	10.1	+56.8	7.3	18	09.2	+56.8	7.4	20	08.2	+56.9	7.5	71
14	05.2	+56.5	6.5	15	07.8	+56.6	6.9	17	06.9	+56.7	7.0	19	06.0	+56.8	7.0	21	05.1	+56.9	7.1	72
15	01.7	+56.5	6.1	16	04.4	+56.6	6.5	18	03.6	+56.7	6.6	20	02.8	+56.8	6.7	22	02.0	+56.8	6.8	73
15	58.2	+56.5	5.8	17	01.0	+56.6	6.2	19	00.3	+56.7	6.3	20	59.6	+56.7	6.3	22	58.8	+56.9	6.4	74
16	54.7	+56.4	5.4	17	57.6	+56.5	5.8	19	57.0	+56.6	5.9	21	56.3	+56.7	6.0	23	55.7	+56.7	6.1	75
17	51.1	+56.4	5.1	18	54.1	+56.5	5.5	20	53.6	+56.5	5.6	22	53.0	+56.6	5.6	24	52.4	+56.7	5.7	76
18	47.5	+56.3	4.7	19	50.6	+56.5	5.1	21	50.1	+56.6	5.2	23	49.6	+56.6	5.3	25	49.1	+56.7	5.4	77
19	43.8	+56.3	4.4	20	47.1	+56.4	4.8	22	46.7	+56.4	4.8	24	46.2	+56.6	4.9	26	45.8	+56.6	5.0	78
20	40.1	+56.3	4.0	21	43.5	+56.4	4.4	23	43.1	+56.4	4.5	25	42.8	+56.4	4.6	27	42.4	+56.5	4.6	79
21	36.4	+56.2	3.6	22	39.9	+56.3	4.0	24	39.5	+56.4	4.1	26	39.2	+56.5	4.2	28	38.9	+56.5	4.3	80
22	32.6	+56.2	3.2	23	36.2	+56.2	3.7	25	35.9	+56.3	3.7	27	35.7	+56.3	3.8	29	35.4	+56.4	3.9	81
23	28.8	+56.0	2.9	24	32.4	+56.2	3.3	26	32.2	+56.2	3.3	28	32.0	+56.3	3.4	30	31.8	+56.3	3.5	82
24	24.8	+56.1	2.5	25	28.6	+56.1	2.9	27	28.4	+56.2	2.9	29	28.3	+56.2	3.0	31	28.1	+56.3	3.1	83
25	20.9	+55.9	2.1	26	24.7	+56.1	2.5	28	24.6	+56.1	2.6	30	24.5	+56.1	2.6	32	24.4	+56.1	2.7	84
26	16.8	+55.9	1.7	27	20.8	+56.0	2.1	29	20.7	+56.0	2.1	31	20.6	+56.1	2.2	33	20.5	+56.1	2.2	85
27	12.7	+55.9	1.3	28	16.8	+55.9	1.7	30	16.7	+56.0	1.7	32	16.7	+56.0	1.8	34	16.6	+56.0	1.8	86
28	08.6	+55.7	0.8	29	12.7	+55.9	1.3	31	12.7	+55.8	1.3	33	12.7	+55.8	1.3	35	12.6	+55.9	1.4	87
29	04.3	+55.7	0.4	30	08.6	+55.7	0.9	32	08.5	+55.8	0.9	34	08.5	+55.8	0.9	36	08.5	+55.8	0.9	88
30	00.0	+55.6	0.0	31	04.3	+55.7	0.4	33	04.3	+55.7	0.4	35	04.3	+55.7	0.5	37	04.3	+55.7	0.5	89
				32	00.0	+55.6	0.0	34	00.0	+55.6	0.0	36	00.0	+55.6	0.0	38	00.0	+55.6	0.0	90

LATITUDE SAME NAME

L.H.A. 158°, 202°

22°, 338° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 28.3	+ 33.5	112.3	68 38.2	+ 37.8	117.1	67 39.5	+ 41.7	121.4	66 33.4	+ 44.9	125.4	65 20.9	+ 47.5	128.9
31	70 01.8	+ 31.5	•109.9	69 16.0	+ 36.2	114.9	68 21.2	+ 40.2	119.5	67 18.3	+ 43.7	123.7	66 08.4	+ 46.7	127.5
32	70 33.3	+ 29.3	•107.4	69 52.2	+ 34.3	112.6	69 01.4	+ 38.7	117.4	68 02.0	+ 42.4	121.9	66 55.1	+ 45.6	125.9
33	71 02.6	+ 26.9	•104.7	70 26.5	+ 32.3	•110.2	69 40.1	+ 37.0	115.3	68 44.4	+ 41.1	120.0	67 40.7	+ 44.5	124.2
34	71 29.5	+ 24.3	•101.9	70 58.8	+ 30.1	•107.6	70 17.1	+ 35.1	113.0	69 25.5	+ 39.5	117.9	68 25.2	+ 43.2	122.4
35	71 53.8	+ 21.7	•99.0	71 28.9	+ 27.6	•105.0	70 52.2	+ 33.1	•110.5	70 05.0	+ 37.9	115.7	69 08.4	+ 42.0	120.5
36	72 15.5	+ 18.7	•96.0	71 56.5	+ 25.1	•102.1	71 25.3	+ 30.9	•108.0	70 42.9	+ 36.0	•113.4	69 50.4	+ 40.4	118.4
37	72 34.2	+ 15.6	•92.9	72 21.6	+ 22.3	•99.2	71 56.2	+ 28.4	•105.2	71 18.9	+ 33.9	•111.0	70 30.8	+ 38.7	116.3
38	72 49.8	+ 12.5	•89.6	72 43.9	+ 19.3	•96.1	72 24.6	+ 25.8	•102.4	71 52.8	+ 31.7	•108.3	71 09.5	+ 36.9	113.9
39	73 02.3	+ 9.1	•86.3	73 03.2	+ 16.2	•92.8	72 50.4	+ 23.0	•99.3	72 24.5	+ 29.3	•105.6	71 46.4	+ 34.8	•111.4
40	73 11.4	+ 5.7	•82.9	73 19.4	+ 12.9	•89.5	73 13.4	+ 20.0	•96.2	72 53.8	+ 26.6	•102.6	72 21.2	+ 32.6	•108.8
41	73 17.1	+ 2.3	•79.4	73 32.3	+ 9.5	•86.1	73 33.4	+ 16.7	•92.9	73 20.4	+ 23.7	•99.6	72 53.8	+ 30.1	•106.0
42	73 19.4	- 1.3	•75.9	73 41.8	+ 5.9	•82.6	73 50.1	+ 13.4	•89.4	73 44.1	+ 20.6	•96.3	73 23.9	+ 27.4	•103.0
43	73 18.1	- 4.7	•72.5	73 47.7	+ 2.4	•79.0	74 03.5	+ 9.8	•85.9	74 04.7	+ 17.3	•92.9	73 51.3	+ 24.5	•99.9
44	73 13.4	- 8.1	•69.0	73 50.1	- 1.2	•75.4	74 13.3	+ 6.2	•82.3	74 22.0	+ 13.8	•89.4	74 15.8	+ 21.3	•96.5
45	73 05.3	- 11.5	•65.6	73 48.9	- 4.8	•71.9	74 19.5	+ 2.5	•78.6	74 35.8	+ 10.2	•85.8	74 37.1	+ 17.9	•93.0
46	72 53.8	- 14.8	•62.2	73 44.1	- 8.4	•68.3	74 22.0	- 1.3	•74.9	74 46.0	+ 6.4	•82.0	74 55.0	+ 14.2	•89.4
47	72 39.0	- 17.8	•59.0	73 35.7	- 11.8	•64.8	74 20.7	- 4.9	•71.2	74 52.4	+ 2.6	•78.2	75 09.2	+ 10.6	•85.6
48	72 21.2	- 20.8	•55.8	73 23.9	- 15.2	•61.3	74 15.8	- 8.7	•67.5	74 55.0	- 1.4	•74.4	75 19.8	+ 6.6	•81.8
49	72 00.4	- 23.6	•52.7	73 08.7	- 18.3	•58.0	74 07.1	- 12.2	•63.9	74 53.6	- 5.2	•70.6	75 26.4	+ 2.6	•77.8
50	71 36.8	- 26.1	•49.8	72 50.4	- 21.3	•54.7	73 54.9	- 15.6	•60.4	74 48.4	- 8.9	•66.8	75 29.0	- 1.5	•73.9
51	71 10.7	- 28.7	•46.9	72 29.1	- 24.2	•51.6	73 39.3	- 18.9	•56.9	74 39.5	- 12.7	•63.0	75 27.5	- 5.4	•69.9
52	70 42.0	- 30.8	•44.3	72 04.9	- 26.9	•48.6	73 20.4	- 22.0	•53.6	74 26.8	- 16.2	•59.3	75 22.1	- 9.4	•65.9
53	70 11.2	- 33.0	•41.7	71 38.0	- 29.3	•45.7	72 58.4	- 24.9	•50.3	74 10.6	- 19.6	•55.8	75 12.7	- 13.3	•62.0
54	69 38.2	- 34.8	39.3	71 08.7	- 31.6	•42.5	72 33.5	- 27.6	•47.3	73 51.0	- 22.7	•52.3	74 59.4	- 16.9	•58.2
55	69 03.4	- 36.7	36.9	70 37.1	- 33.6	•40.4	72 05.9	- 30.1	•44.3	73 28.3	- 25.7	•49.0	74 42.5	- 20.3	•54.6
56	68 26.7	- 38.2	34.8	70 03.5	- 35.6	37.9	71 35.8	- 32.4	•41.6	73 02.6	- 28.5	•45.9	74 22.2	- 23.6	•51.0
57	67 48.5	- 39.7	32.7	69 27.9	- 37.4	35.6	71 03.4	- 34.5	•38.9	72 34.1	- 30.9	•42.9	73 58.6	- 26.6	•47.7
58	67 08.8	- 41.1	30.7	68 50.5	- 39.0	33.4	70 28.9	- 36.4	36.5	72 03.2	- 33.3	•40.1	73 32.0	- 29.3	•44.5
59	66 27.7	- 42.4	28.9	68 11.5	- 40.4	31.3	69 52.5	- 38.1	34.1	71 29.9	- 35.3	•37.4	73 02.7	- 31.9	•41.4
60	65 45.3	- 43.4	27.1	67 31.1	- 41.8	29.3	69 14.4	- 39.8	31.9	70 54.6	- 37.3	34.9	72 30.8	- 34.2	•38.6
61	65 01.9	- 44.5	25.5	66 49.3	- 43.0	27.5	68 34.6	- 41.2	29.8	70 17.3	- 39.0	32.6	71 56.6	- 36.3	•35.9
62	64 17.4	- 45.5	23.9	66 06.3	- 44.1	25.7	67 53.4	- 42.5	27.9	69 38.3	- 40.6	30.4	71 20.3	- 38.2	33.3
63	63 31.9	- 46.3	22.4	65 22.2	- 45.2	24.1	67 10.9	- 43.7	26.0	68 57.7	- 42.0	28.3	70 42.1	- 40.0	31.0
64	62 45.6	- 47.2	21.0	64 37.0	- 46.1	22.5	66 27.2	- 44.9	24.3	68 15.7	- 43.3	26.3	70 02.1	- 41.5	28.7
65	61 58.4	- 47.8	19.7	63 50.9	- 46.9	21.1	65 42.3	- 45.8	22.6	67 32.4	- 44.5	24.5	69 20.6	- 42.9	26.7
66	61 10.6	- 48.6	18.4	63 04.0	- 47.7	19.7	64 56.5	- 46.7	21.1	66 47.9	- 45.6	22.8	68 37.7	- 44.1	24.7
67	60 22.0	- 49.1	17.2	62 16.3	- 48.4	18.3	64 09.8	- 47.6	19.6	66 02.3	- 46.5	21.1	67 53.6	- 45.3	22.9
68	59 32.9	- 49.8	16.1	61 27.9	- 49.1	17.1	63 22.2	- 48.3	18.2	65 15.8	- 47.5	19.6	67 08.3	- 46.4	21.2
69	58 43.1	- 50.2	15.0	60 38.8	- 49.7	15.9	62 33.9	- 49.0	16.9	64 28.3	- 48.2	18.2	66 21.9	- 47.3	19.6
70	57 52.9	- 50.8	13.9	59 49.1	- 50.2	14.8	61 44.9	- 49.6	15.7	63 40.1	- 48.9	16.8	65 34.6	- 48.1	18.1
71	57 02.1	- 51.2	13.0	58 58.9	- 50.7	13.7	60 55.3	- 50.2	14.5	62 51.2	- 49.6	15.5	64 46.5	- 48.9	16.6
72	56 10.9	- 51.6	12.0	58 08.2	- 51.2	12.7	60 05.1	- 50.8	13.4	62 01.6	- 50.2	14.3	63 57.6	- 49.6	15.3
73	55 19.3	- 52.0	11.1	57 17.0	- 51.7	11.7	59 14.3	- 51.2	12.4	61 11.4	- 50.8	13.1	63 08.0	- 50.2	14.0
74	54 27.3	- 52.3	10.2	56 25.3	- 52.0	10.8	58 23.1	- 51.7	11.4	60 20.6	- 51.3	12.0	62 17.8	- 50.8	12.8
75	53 35.0	- 52.7	9.4	55 33.3	- 52.4	9.9	57 31.4	- 52.1	10.4	59 29.3	- 51.7	11.0	61 27.0	- 51.4	11.7
76	52 42.3	- 53.0	8.6	54 40.9	- 52.8	9.0	56 39.3	- 52.5	9.5	58 37.6	- 52.2	10.0	60 35.6	- 51.8	10.6
77	51 49.3	- 53.3	7.8	53 48.1	- 53.1	8.2	55 46.8	- 52.8	8.6	57 45.4	- 52.6	9.1	59 43.8	- 52.3	9.6
78	50 56.0	- 53.5	7.1	52 55.0	- 53.3	7.4	54 54.0	- 53.2	7.8	56 52.8	- 52.9	8.2	58 51.5	- 52.7	8.7
79	50 02.5	- 53.8	6.4	52 01.7	- 53.7	6.7	54 00.8	- 53.4	7.0	55 59.9	- 53.3	7.3	57 58.8	- 53.0	7.7
80	49 08.7	- 54.1	5.7	51 08.0	- 53.9	6.0	53 07.4	- 53.8	6.2	55 06.6	- 53.6	6.5	57 05.8	- 53.4	6.9
81	48 14.6	- 54.2	5.0	50 14.1	- 54.1	5.3	52 13.6	- 54.0	5.5	54 13.0	- 53.8	5.8	56 12.4	- 53.7	6.0
82	47 20.4	- 54.5	4.4	49 20.0	- 54.4	4.6	51 19.6	- 54.3	4.8	53 19.2	- 54.2	5.0	55 18.7	- 54.0	5.3
83	46 25.9	- 54.6	3.8	48 25.6	- 54.5	3.9	50 25.3	- 54.4	4.1	52 25.0	- 54.4	4.3	54 24.7	- 54.3	4.5
84	45 31.3	- 54.9	3.2	47 31.1	- 54.8	3.3	49 30.9	- 54.7	3.5	51 30.6	- 54.6	3.6	53 30.4	- 54.5	3.8
85	44 36.4	- 54.9	2.6	46 36.3	- 54.9	2.7	48 36.2	- 54.9	2.8	50 36.0	- 54.8	2.9	52 35.9	- 54.8	3.1
86	43 41.5	- 55.2	2.1	45 41.4	- 55.1	2.1	47 41.3	- 55.1	2.2	49 41.2	- 55.0	2.3	51 41.1	- 55.0	2.4
87	42 46.3	- 55.3	1.5	44 46.3	- 55.3	1.6	46 46.2	- 55.2	1.6	48 46.2	- 55.3	1.7	50 46.1	- 55.2	1.8
88	41 51.0	- 55.4	1.0	43 51.0	- 55.4	1.0	45 51.0	- 55.4	1.1	47 50.9	- 55.3	1.1	49 50.9	- 55.4	1.2
89	40 55.6	- 55.6	0.5	42 55.6	- 55.6	0.5	44 55.6	- 55.6	0.5	46 55.6	- 55.6	0.5	48 55.5	- 55.5	0.6
90	40 00.0	- 55.7	0.0	42 00.0	- 55.7	0.0	44 00.0	- 55.7	0.0	46 00.0	- 55.7	0.0	48 00.0	- 55.7	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 22°, 338°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
17	04.8	-57.2	160.2	15	11.9	-57.5	160.4	13	18.8	-57.7	160.5	11	25.6	-57.8	160.7	9	32.3	-58.0	160.8	30
16	07.6	-57.3	160.5	14	14.4	-57.5	160.7	12	21.1	-57.6	160.8	10	27.8	-57.9	160.9	8	34.3	-58.1	161.1	31
15	10.3	-57.3	160.8	13	16.9	-57.5	160.9	11	23.5	-57.7	161.1	9	29.9	-57.9	161.2	7	36.2	-58.0	161.3	32
14	13.0	-57.3	161.1	12	19.4	-57.5	161.2	10	25.8	-57.8	161.4	8	32.0	-57.9	161.5	6	38.2	-58.1	161.6	33
13	15.7	-57.4	161.4	11	21.9	-57.5	161.5	9	28.0	-57.7	161.6	7	34.1	-57.9	161.7	5	40.1	-58.0	161.8	34
12	18.3	-57.3	161.7	10	24.4	-57.6	161.8	8	30.3	-57.7	161.9	6	36.2	-57.9	162.0	4	42.1	-58.1	162.1	35
11	21.0	-57.4	162.0	9	26.8	-57.6	162.1	7	32.6	-57.8	162.2	5	38.3	-57.9	162.3	3	44.0	-58.1	162.3	36
10	23.6	-57.4	162.3	8	29.2	-57.5	162.4	6	34.8	-57.7	162.5	4	40.4	-57.9	162.5	2	45.9	-58.1	162.6	37
9	26.2	-57.4	162.6	7	31.7	-57.6	162.7	5	37.1	-57.8	162.7	3	42.5	-58.0	162.8	1	47.8	-58.1	162.8	38
8	28.8	-57.4	162.9	6	34.1	-57.6	163.0	4	39.3	-57.7	163.0	2	44.5	-57.9	163.1	0	49.7	-58.0	163.1	39
7	31.4	-57.5	163.2	5	36.5	-57.6	163.2	3	41.6	-57.8	163.3	1	46.6	-57.9	163.3	0	08.3	+58.1	16.7	40
6	33.9	-57.4	163.5	4	38.9	-57.6	163.5	2	43.8	-57.8	163.6	0	48.7	-57.9	163.6	1	06.4	+58.1	16.4	41
5	36.5	-57.5	163.8	3	41.3	-57.7	163.8	1	46.0	-57.8	163.8	0	09.2	+58.0	16.2	2	04.5	+58.1	16.2	42
4	39.0	-57.4	164.0	2	43.6	-57.6	164.1	0	48.2	-57.8	164.1	1	07.2	+57.9	15.9	3	02.6	+58.1	15.9	43
3	41.6	-57.5	164.3	1	46.0	-57.6	164.4	0	09.6	+57.7	15.6	2	05.1	+57.9	15.6	4	00.7	+58.0	15.7	44
2	44.1	-57.5	164.6	0	48.4	-57.6	164.6	1	07.3	+57.8	15.4	3	03.0	+58.0	15.4	4	58.7	+58.1	15.4	45
1	46.6	-57.5	164.9	0	09.2	+57.7	15.1	2	05.1	+57.8	15.1	4	01.0	+57.9	15.1	5	56.8	+58.1	15.2	46
0	49.1	-57.4	165.2	1	06.9	+57.6	14.8	3	02.9	+57.8	14.8	4	58.9	+57.9	14.9	6	54.9	+58.0	14.9	47
0	08.3	+57.5	14.5	2	04.5	+57.6	14.5	4	00.7	+57.7	14.6	5	56.8	+57.9	14.6	7	52.9	+58.1	14.7	48
1	05.8	+57.5	14.2	3	02.1	+57.6	14.2	4	58.4	+57.8	14.3	6	54.7	+57.9	14.3	8	51.0	+58.0	14.4	49
2	03.3	+57.5	13.9	3	59.7	+57.7	14.0	5	56.2	+57.7	14.0	7	52.6	+57.9	14.1	9	49.0	+58.0	14.1	50
3	00.8	+57.4	13.7	4	57.4	+57.6	13.7	6	53.9	+57.8	13.7	8	50.5	+57.9	13.8	10	47.0	+58.0	13.9	51
3	58.2	+57.5	13.4	5	55.0	+57.6	13.4	7	51.7	+57.7	13.5	9	48.4	+57.8	13.5	11	45.0	+58.0	13.6	52
4	55.7	+57.4	13.1	6	52.6	+57.6	13.1	8	49.4	+57.7	13.2	10	46.2	+57.9	13.3	12	43.0	+58.0	13.4	53
5	53.1	+57.5	12.8	7	50.2	+57.5	12.8	9	47.1	+57.7	12.9	11	44.1	+57.8	13.0	13	41.0	+57.9	13.1	54
6	50.6	+57.4	12.5	8	47.7	+57.6	12.6	10	44.8	+57.7	12.6	12	41.9	+57.8	12.7	14	38.9	+58.0	12.8	55
7	48.0	+57.4	12.2	9	45.3	+57.5	12.3	11	42.5	+57.7	12.4	13	39.7	+57.8	12.4	15	36.9	+57.9	12.6	56
8	45.4	+57.4	11.9	10	42.8	+57.6	12.0	12	40.2	+57.7	12.1	14	37.5	+57.8	12.2	16	34.8	+57.9	12.3	57
9	42.8	+57.4	11.6	11	40.4	+57.5	11.7	13	37.9	+57.6	11.8	15	35.3	+57.8	11.9	17	32.7	+57.9	12.0	58
10	40.2	+57.4	11.3	12	37.9	+57.5	11.4	14	35.5	+57.6	11.5	16	33.1	+57.7	11.6	18	30.6	+57.8	11.7	59
11	37.6	+57.4	11.0	13	35.4	+57.5	11.1	15	33.1	+57.6	11.2	17	30.8	+57.7	11.3	19	28.4	+57.9	11.5	60
12	35.0	+57.3	10.7	14	32.9	+57.4	10.8	16	30.7	+57.6	10.9	18	28.5	+57.7	11.0	20	26.3	+57.8	11.2	61
13	32.3	+57.3	10.4	15	30.3	+57.4	10.5	17	28.3	+57.5	10.6	19	26.2	+57.7	10.7	21	24.1	+57.7	10.9	62
14	29.6	+57.3	10.1	16	27.7	+57.4	10.2	18	25.8	+57.5	10.3	20	23.9	+57.6	10.5	22	21.8	+57.8	10.6	63
15	26.9	+57.3	9.8	17	25.1	+57.4	9.9	19	23.3	+57.5	10.0	21	21.5	+57.6	10.2	23	19.6	+57.7	10.3	64
16	24.2	+57.2	9.5	18	22.5	+57.4	9.6	20	20.8	+57.5	9.7	22	19.1	+57.5	9.9	24	17.3	+57.6	10.0	65
17	21.4	+57.2	9.2	19	19.9	+57.3	9.3	21	18.3	+57.4	9.4	23	16.6	+57.6	9.5	25	14.9	+57.7	9.7	66
18	18.6	+57.2	8.9	20	17.2	+57.3	9.0	22	15.7	+57.4	9.1	24	14.2	+57.4	9.2	26	12.6	+57.6	9.4	67
19	15.8	+57.2	8.5	21	14.5	+57.2	8.7	23	13.1	+57.3	8.8	25	11.6	+57.5	8.9	27	10.2	+57.5	9.1	68
20	13.0	+57.1	8.2	22	11.7	+57.2	8.3	24	10.4	+57.3	8.5	26	09.1	+57.4	8.6	28	07.7	+57.5	8.8	69
21	10.1	+57.0	7.9	23	08.9	+57.2	8.0	25	07.7	+57.3	8.1	27	06.5	+57.3	8.3	29	05.2	+57.5	8.4	70
22	07.1	+57.1	7.6	24	06.1	+57.1	7.7	26	05.0	+57.2	7.8	28	03.8	+57.4	7.9	30	02.7	+57.4	8.1	71
23	04.2	+56.9	7.2	25	03.2	+57.1	7.3	27	02.2	+57.2	7.5	29	01.2	+57.2	7.6	31	00.1	+57.3	7.8	72
24	01.1	+57.0	6.9	26	00.3	+57.0	7.0	27	59.4	+57.1	7.1	29	58.4	+57.2	7.3	31	57.4	+57.3	7.4	73
24	58.1	+56.9	6.5	26	57.3	+57.0	6.7	28	56.5	+57.0	6.8	30	55.6	+57.2	6.9	32	54.7	+57.2	7.1	74
25	55.0	+56.8	6.2	27	54.3	+56.9	6.3	29	53.5	+57.0	6.4	31	52.8	+57.0	6.6	33	51.9	+57.2	6.7	75
26	51.8	+56.8	5.8	28	51.2	+56.8	5.9	30	50.5	+57.0	6.1	32	49.8	+57.0	6.2	34	49.1	+57.1	6.3	76
27	48.6	+56.7	5.5	29	48.0	+56.8	5.6	31	47.5	+56.8	5.7	33	46.8	+57.0	5.8	35	46.2	+57.0	6.0	77
28	45.3	+56.7	5.1	30	44.8	+56.8	5.2	32	44.3	+56.8	5.3	34	43.8	+56.9	5.4	36	43.2	+57.0	5.6	78
29	42.0	+56.6	4.7	31	41.6	+56.6	4.8	33	41.1	+56.8	4.9	35	40.7	+56.8	5.0	37	40.2	+56.9	5.2	79
30	38.6	+56.5	4.3	32	38.2	+56.6	4.4	34	37.9	+56.6	4.5	36	37.5	+56.7	4.6	38	37.1	+56.8	4.8	80
31	35.1	+56.5	3.9	33	34.8	+56.5	4.0	35	34.5	+56.6	4.1	37	34.2	+56.6	4.2	39	33.9	+56.6	4.4	81
32	31.6	+56.3	3.5	34	31.3	+56.5	3.6	36	31.1	+56.5	3.7	38	30.8	+56.6	3.8	40	30.5	+56.6	3.9	82
33	27.9	+56.3	3.1	35	27.8	+56.3	3.2	37	27.6	+56.4	3.3	39	27.4	+56.4	3.4	41	27.1	+56.5	3.5	83
34	24.2	+56.2	2.7	36	24.1	+56.2	2.8	38	24.0	+56.2	2.9	40	23.8	+56.3	2.9	42	23.6	+56.4	3.0	84
35	20.4	+56.2	2.3	37	20.3	+56.2	2.4	39	20.2	+56.2	2.4	41	20.1	+56.3	2.5	43	20.0	+56.3	2.6	85
36	16.6	+56.0	1.9	38	16.5	+56.0	1.9	40	16.4	+56.1	2.0	42	16.4	+56.1	2.0	44	16.3	+56.1	2.1	86
37	12.6	+55.9	1.4	39	12.5	+56.0	1.4	41	12.5	+56.0	1.5	43	12.5	+55.9	1.5	45	12.4	+56.0	1.6	87
38	08.5	+55.8	1.0	40	08.5	+55.8	1.0	42	08.5	+55.8	1.0	44	08.4	+55.9	1.0	46	08.4	+55.9	1.1	88
39	04.3	+55.7	0.5	41	04.3	+55.7	0.5	43	04.3	+55.7	0.5	45	04.3	+55.7	0.5	47	04.3	+55.7	0.5	89
40	00.0	+55.6	0.0	42	00.0	+55.6	0.0	44	00.0	+55.6	0.0	46	00.0	+55.6	0.0	48	00.0	+55.5	0.0	90

LATITUDE SAME NAME

L.H.A. 158°, 202°

22°, 338° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	64 02.9	+49.7	132.2	62 40.1	+51.6	135.0	61 13.2	+53.2	137.6	59 42.9	+54.4	140.0	58 09.6	+55.5	142.1
31	64 52.6	+49.1	130.9	63 31.7	+51.0	133.9	62 06.4	+52.7	136.7	60 37.3	+54.1	139.1	59 05.1	+55.2	141.3
32	65 41.7	+48.2	129.5	64 22.7	+50.5	132.7	62 59.1	+52.2	135.6	61 31.4	+53.7	138.2	60 00.3	+54.9	140.5
33	66 29.9	+47.4	128.0	65 13.2	+49.7	131.4	63 51.3	+51.7	134.5	62 25.1	+53.3	137.3	60 55.2	+54.6	139.7
34	67 17.3	+46.4	126.5	66 02.9	+49.0	130.1	64 43.0	+51.1	133.4	63 18.4	+52.9	136.3	61 49.8	+54.3	138.9
35	68 03.7	+45.3	124.8	66 51.9	+48.1	128.6	65 34.1	+50.5	132.1	64 11.3	+52.3	135.2	62 44.1	+53.9	137.9
36	68 49.0	+44.1	123.0	67 40.0	+47.2	127.1	66 24.6	+49.7	130.8	65 03.6	+51.8	134.1	63 38.0	+53.4	137.0
37	69 33.1	+42.8	121.1	68 27.2	+46.2	125.4	67 14.3	+48.9	129.4	65 55.4	+51.2	132.8	64 31.4	+53.0	135.9
38	70 15.9	+41.3	119.0	69 13.4	+45.0	123.7	68 03.2	+48.0	127.8	66 46.6	+50.4	131.5	65 24.4	+52.5	134.8
39	70 57.2	+39.6	116.9	69 58.4	+43.6	121.8	68 51.2	+47.0	126.2	67 37.0	+49.7	130.1	66 16.9	+51.9	133.6
40	71 36.8	+37.8	114.5	70 42.0	+42.3	119.7	69 38.2	+45.9	124.4	68 26.7	+48.9	128.6	67 08.8	+51.2	132.4
41	72 14.6	+35.8	112.0	71 24.3	+40.6	117.6	70 24.1	+44.6	122.6	69 15.6	+47.9	127.0	68 00.0	+50.5	131.0
42	72 50.4	+33.5	109.3	72 04.9	+38.7	115.2	71 08.7	+43.2	120.5	70 03.5	+46.7	125.3	68 50.5	+49.7	129.5
43	73 23.9	+31.0	106.5	72 43.6	+36.8	112.7	71 51.9	+41.6	118.3	70 50.2	+45.6	123.4	69 40.2	+48.7	127.9
44	73 54.9	+28.3	103.4	73 20.4	+34.4	110.0	72 33.5	+39.7	116.0	71 35.8	+44.2	121.4	70 28.9	+47.8	126.2
45	74 23.2	+25.2	100.2	73 54.8	+32.0	107.1	73 13.2	+37.8	113.4	72 20.0	+42.6	119.2	71 16.7	+46.5	124.4
46	74 48.4	+22.1	96.8	74 26.8	+29.2	104.0	73 51.0	+35.5	110.7	73 02.6	+40.8	116.8	72 03.2	+45.2	122.4
47	75 10.5	+18.5	93.2	74 56.0	+26.1	100.6	74 26.5	+32.9	107.7	73 43.4	+38.8	114.3	72 48.4	+43.6	120.2
48	75 29.0	+14.7	89.4	75 22.1	+22.7	97.1	74 59.4	+30.2	104.6	74 22.2	+36.6	111.5	73 32.0	+42.0	117.8
49	75 43.7	+10.9	85.5	75 44.8	+19.2	93.4	75 29.6	+27.0	101.2	74 58.8	+34.0	108.5	74 14.0	+39.9	115.3
50	75 54.6	+6.8	81.5	76 04.0	+15.3	89.5	75 56.6	+23.5	97.5	75 32.8	+31.1	105.3	74 53.9	+37.7	112.4
51	76 01.4	+2.6	77.4	76 19.3	+11.1	85.5	76 20.1	+19.8	93.7	76 03.9	+27.9	101.8	75 31.6	+35.1	109.4
52	76 04.0	-1.6	73.3	76 30.4	+7.0	81.3	76 39.9	+15.8	89.7	76 31.8	+24.5	98.0	76 06.7	+32.2	106.1
53	76 02.4	-5.8	69.1	76 37.4	+2.5	77.0	76 55.7	+11.6	85.4	76 56.3	+20.5	94.1	76 38.9	+29.0	102.5
54	75 56.6	-10.0	65.0	76 39.9	-1.8	72.7	77 07.3	+7.0	81.1	77 16.8	+16.3	89.8	77 07.9	+25.3	98.6
55	75 46.6	-13.8	61.0	76 38.1	-6.3	68.4	77 14.3	+2.5	76.6	77 33.1	+11.9	85.4	77 33.2	+21.3	94.5
56	75 32.8	-17.7	57.1	76 31.8	-10.5	64.1	77 16.8	-2.2	72.1	77 45.0	+7.2	80.8	77 54.5	+16.9	90.1
57	75 15.1	-21.2	53.3	76 21.3	-14.6	59.9	77 14.6	-6.7	67.5	77 52.2	+2.3	76.1	78 11.4	+12.2	85.5
58	74 53.9	-24.5	49.6	76 06.7	-18.5	55.8	77 07.9	-11.2	63.0	77 54.5	-2.5	71.4	78 23.6	+7.3	80.6
59	74 29.4	-27.6	46.2	75 48.2	-22.2	51.9	76 56.7	-15.6	58.7	77 52.0	-7.4	66.6	78 30.9	+2.1	75.7
60	74 01.8	-30.4	42.9	75 26.0	-25.6	48.1	76 41.1	-19.5	54.4	77 44.6	-12.1	61.9	78 33.0	-3.0	70.7
61	73 31.4	-32.9	39.8	75 00.4	-28.7	44.6	76 21.6	-23.3	50.4	77 32.5	-16.5	57.3	78 30.0	-8.2	65.6
62	72 58.5	-35.3	36.9	74 31.7	-31.5	41.2	75 58.3	-26.8	46.5	77 16.0	-20.7	52.9	78 21.8	-13.0	60.7
63	72 23.2	-37.3	34.2	74 00.2	-34.1	38.1	75 31.5	-29.9	42.9	76 55.3	-24.6	48.7	78 08.8	-17.7	55.9
64	71 45.9	-39.3	31.7	73 26.1	-36.4	35.2	75 01.6	-32.8	39.5	76 30.7	-28.1	44.8	77 51.1	-22.0	51.3
65	71 06.6	-40.9	29.3	72 49.7	-38.5	32.4	74 28.8	-35.3	36.3	76 02.6	-31.2	41.0	77 29.1	-26.0	46.9
66	70 25.7	-42.4	27.1	72 11.2	-40.3	29.9	73 53.5	-37.6	33.3	75 31.4	-34.2	37.6	77 03.1	-29.5	42.8
67	69 43.3	-43.9	25.0	71 30.9	-41.9	27.5	73 15.9	-39.6	30.6	74 57.2	-36.6	34.3	76 33.6	-32.8	39.0
68	68 59.4	-45.0	23.0	70 49.0	-43.5	25.3	72 36.3	-41.5	28.0	74 20.6	-38.9	31.3	76 00.8	-35.6	35.5
69	68 14.4	-46.2	21.2	70 05.5	-44.8	23.2	71 54.8	-43.1	25.6	73 41.7	-40.9	28.6	75 25.2	-38.1	32.2
70	67 28.2	-47.1	19.5	69 20.7	-45.9	21.3	71 11.7	-44.5	23.4	73 00.8	-42.7	26.0	74 47.1	-40.3	29.2
71	66 41.1	-48.1	17.9	68 34.8	-47.1	19.5	70 27.2	-45.8	21.4	72 18.1	-44.2	23.7	74 06.8	-42.2	26.5
72	65 53.0	-48.8	16.5	67 47.7	-48.0	17.8	69 41.4	-46.9	19.5	71 33.9	-45.7	21.5	73 24.6	-43.9	23.9
73	65 04.2	-49.6	15.1	66 59.7	-48.8	16.3	68 54.5	-48.0	17.7	70 48.2	-46.8	19.5	72 40.7	-45.5	21.6
74	64 14.6	-50.3	13.7	66 10.9	-49.7	14.8	68 06.5	-48.8	16.1	70 01.4	-47.9	17.6	71 55.2	-46.7	19.4
75	63 24.3	-50.9	12.5	65 21.2	-50.3	13.4	67 17.7	-49.7	14.5	69 13.5	-48.9	15.9	71 08.5	-47.9	17.5
76	62 33.4	-51.4	11.3	64 30.9	-50.9	12.2	66 28.0	-50.4	13.1	68 24.6	-49.7	14.3	70 20.6	-49.0	15.6
77	61 42.0	-51.9	10.2	63 40.0	-51.6	11.0	65 37.6	-51.1	11.8	67 34.9	-50.5	12.8	69 31.6	-49.8	13.9
78	60 50.1	-52.4	9.2	62 48.4	-52.0	9.8	64 46.5	-51.6	10.5	66 44.4	-51.2	11.4	68 41.8	-50.6	12.4
79	59 57.7	-52.8	8.2	61 56.4	-52.5	8.7	63 54.9	-52.2	9.4	65 53.2	-51.8	10.1	67 51.2	-51.4	10.9
80	59 04.9	-53.2	7.3	61 03.9	-53.0	7.7	63 02.7	-52.7	8.3	65 01.4	-52.4	8.9	66 59.8	-52.0	9.6
81	58 11.7	-53.6	6.4	60 10.9	-53.3	6.8	62 10.0	-53.1	7.2	64 09.0	-52.9	7.7	66 07.8	-52.5	8.3
82	57 18.1	-53.8	5.5	59 17.6	-53.8	5.9	61 16.9	-53.5	6.2	63 16.1	-53.3	6.7	65 15.3	-53.1	7.2
83	56 24.3	-54.2	4.7	58 23.8	-54.0	5.0	60 23.4	-53.9	5.3	62 22.8	-53.7	5.7	64 22.2	-53.5	6.1
84	55 30.1	-54.4	4.0	57 29.8	-54.3	4.2	59 29.5	-54.3	4.4	61 29.1	-54.1	4.7	63 28.7	-54.0	5.0
85	54 35.7	-54.7	3.2	56 35.5	-54.6	3.4	58 35.2	-54.5	3.6	60 35.0	-54.4	3.8	62 34.7	-54.3	4.1
86	53 41.0	-55.0	2.5	55 40.9	-54.9	2.7	57 40.7	-54.8	2.8	59 40.6	-54.8	3.0	61 40.4	-54.7	3.2
87	52 46.0	-55.1	1.9	54 46.0	-55.1	1.9	56 45.9	-55.1	2.0	58 45.8	-55.0	2.2	60 45.7	-54.9	2.3
88	51 50.9	-55.4	1.2	53 50.9	-55.4	1.3	55 50.8	-55.3	1.3	57 50.8	-55.3	1.4	59 50.8	-55.3	1.5
89	50 55.5	-55.5	0.6	52 55.5	-55.5	0.6	54 55.5	-55.5	0.7	56 55.5	-55.5	0.7	58 55.5	-55.5	0.7
90	50 00.0	-55.7	0.0	52 00.0	-55.7	0.0	54 00.0	-55.7	0.0	56 00.0	-55.7	0.0	58 00.0	-55.7	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 22°, 338°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
7 39.0	-58.2	160.9	5 45.6	-58.4	161.0	3 52.1	-58.5	161.0	1 58.6	-58.7	161.1	0 05.1	-58.8	161.1	30
6 40.8	-58.2	161.1	4 47.2	-58.4	161.2	2 53.6	-58.6	161.2	0 59.9	-58.6	161.3	0 53.7	+58.8	18.7	31
5 42.6	-58.3	161.4	3 48.8	-58.4	161.4	1 55.0	-58.5	161.5	0 01.3	-58.7	161.5	1 52.5	+58.8	18.5	32
4 44.3	-58.2	161.6	2 50.4	-58.3	161.7	0 56.5	-58.5	161.7	0 57.4	+58.7	18.3	2 51.3	+58.8	18.3	33
3 46.1	-58.2	161.9	1 52.1	-58.4	161.9	0 02.0	+58.5	18.1	1 56.1	+58.6	18.1	3 50.1	+58.8	18.1	34
2 47.9	-58.3	162.1	0 53.7	-58.4	162.1	1 00.5	+58.6	17.9	2 54.7	+58.7	17.9	4 48.9	+58.8	17.9	35
1 49.6	-58.2	162.3	0 04.7	+58.4	17.6	1 59.1	+58.5	17.7	3 53.4	+58.7	17.7	5 47.7	+58.8	17.7	36
0 51.4	-58.2	162.6	1 03.1	+58.4	17.4	2 57.6	+58.5	17.4	4 52.1	+58.6	17.5	6 46.5	+58.8	17.5	37
0 06.8	+58.3	17.2	2 01.5	+58.3	17.2	3 56.1	+58.5	17.2	5 50.7	+58.7	17.3	7 45.3	+58.8	17.3	38
1 05.1	+58.2	16.9	2 59.8	+58.4	16.9	4 54.6	+58.5	17.0	6 49.4	+58.6	17.0	8 44.1	+58.7	17.1	39
2 03.3	+58.2	16.7	3 58.2	+58.4	16.7	5 53.1	+58.5	16.8	7 48.0	+58.7	16.8	9 42.8	+58.8	16.9	40
3 01.5	+58.2	16.4	4 56.6	+58.4	16.5	6 51.6	+58.6	16.5	8 46.7	+58.6	16.6	10 41.6	+58.8	16.7	41
3 59.7	+58.3	16.2	5 55.0	+58.3	16.3	7 50.2	+58.4	16.3	9 45.3	+58.6	16.4	11 40.4	+58.7	16.5	42
4 58.0	+58.2	16.0	6 53.3	+58.4	16.0	8 48.6	+58.5	16.1	10 43.9	+58.6	16.2	12 39.1	+58.8	16.3	43
5 56.2	+58.2	15.7	7 51.7	+58.3	15.8	9 47.1	+58.5	15.9	11 42.5	+58.6	16.0	13 37.9	+58.7	16.1	44
6 54.4	+58.2	15.5	8 50.0	+58.4	15.5	10 45.6	+58.5	15.6	12 41.1	+58.6	15.8	14 36.6	+58.7	15.9	45
7 52.6	+58.2	15.2	9 48.4	+58.3	15.3	11 44.1	+58.4	15.4	13 39.7	+58.5	15.5	15 35.3	+58.6	15.7	46
8 50.8	+58.2	15.0	10 46.7	+58.3	15.1	12 42.5	+58.5	15.2	14 38.3	+58.6	15.3	16 34.0	+58.7	15.5	47
9 49.0	+58.2	14.7	11 45.0	+58.3	14.8	13 41.0	+58.4	15.0	15 36.9	+58.5	15.1	17 32.7	+58.6	15.2	48
10 47.2	+58.1	14.5	12 43.3	+58.3	14.6	14 39.4	+58.4	14.7	16 35.4	+58.6	14.9	18 31.4	+58.6	15.0	49
11 45.3	+58.2	14.2	13 41.6	+58.3	14.3	15 37.8	+58.4	14.5	17 34.0	+58.5	14.6	19 30.0	+58.7	14.8	50
12 43.5	+58.1	14.0	14 39.9	+58.2	14.1	16 36.2	+58.4	14.2	18 32.5	+58.5	14.4	20 28.6	+58.6	14.6	51
13 41.6	+58.1	13.7	15 38.1	+58.3	13.9	17 34.6	+58.4	14.0	19 31.0	+58.5	14.2	21 27.3	+58.6	14.3	52
14 39.7	+58.1	13.5	16 36.4	+58.2	13.6	18 33.0	+58.3	13.8	20 29.5	+58.5	13.9	22 25.9	+58.6	14.1	53
15 37.8	+58.1	13.2	17 34.6	+58.2	13.4	19 31.3	+58.4	13.5	21 28.0	+58.4	13.7	23 24.5	+58.6	13.9	54
16 35.9	+58.1	13.0	18 32.8	+58.2	13.1	20 29.7	+58.3	13.3	22 26.4	+58.5	13.4	24 23.1	+58.5	13.6	55
17 34.0	+58.0	12.7	19 31.0	+58.2	12.8	21 28.0	+58.3	13.0	23 24.9	+58.4	13.2	25 21.6	+58.6	13.4	56
18 32.0	+58.0	12.4	20 29.2	+58.1	12.6	22 26.3	+58.2	12.8	24 23.3	+58.3	12.9	26 20.2	+58.5	13.2	57
19 30.0	+58.0	12.2	21 27.3	+58.1	12.3	23 24.5	+58.3	12.5	25 21.6	+58.4	12.7	27 18.7	+58.4	12.9	58
20 28.0	+58.0	11.9	22 25.4	+58.1	12.0	24 22.8	+58.2	12.2	26 20.0	+58.3	12.4	28 17.1	+58.5	12.7	59
21 26.0	+58.0	11.6	23 23.5	+58.1	11.8	25 21.0	+58.1	12.0	27 18.3	+58.3	12.2	29 15.6	+58.4	12.4	60
22 24.0	+57.9	11.3	24 21.6	+58.0	11.5	26 19.1	+58.2	11.7	28 16.6	+58.3	11.9	30 14.0	+58.4	12.1	61
23 21.9	+57.9	11.0	25 19.6	+58.0	11.2	27 17.3	+58.1	11.4	29 14.9	+58.2	11.6	31 12.4	+58.3	11.9	62
24 19.8	+57.8	10.8	26 17.6	+58.0	10.9	28 15.4	+58.1	11.1	30 13.1	+58.2	11.4	32 10.7	+58.3	11.6	63
25 17.6	+57.8	10.5	27 15.6	+57.9	10.6	29 13.5	+58.0	10.8	31 11.3	+58.1	11.1	33 09.0	+58.3	11.3	64
26 15.4	+57.8	10.2	28 13.5	+57.9	10.4	30 11.5	+58.0	10.6	32 09.4	+58.2	10.8	34 07.3	+58.2	11.0	65
27 13.2	+57.7	9.9	29 11.4	+57.8	10.1	31 09.5	+58.0	10.3	33 07.6	+58.0	10.5	35 05.5	+58.2	10.7	66
28 10.9	+57.7	9.6	30 09.2	+57.8	9.7	32 07.5	+57.9	10.0	34 05.6	+58.1	10.2	36 03.7	+58.1	10.4	67
29 08.6	+57.7	9.2	31 07.0	+57.8	9.4	33 05.4	+57.9	9.6	35 03.7	+57.9	9.9	37 01.8	+58.1	10.1	68
30 06.3	+57.6	8.9	32 04.8	+57.7	9.1	34 03.3	+57.8	9.3	36 01.6	+58.0	9.6	37 59.9	+58.1	9.8	69
31 03.9	+57.5	8.6	33 02.5	+57.7	8.8	35 01.1	+57.7	9.0	36 59.6	+57.8	9.2	38 58.0	+57.9	9.5	70
32 01.4	+57.6	8.3	34 00.2	+57.6	8.5	35 58.8	+57.7	8.7	37 57.4	+57.8	8.9	39 55.9	+58.0	9.2	71
32 59.0	+57.4	7.9	34 57.8	+57.5	8.1	36 56.5	+57.7	8.3	38 55.2	+57.8	8.6	40 53.9	+57.8	8.8	72
33 56.4	+57.4	7.6	35 55.3	+57.5	7.8	37 54.2	+57.6	8.0	39 53.0	+57.7	8.2	41 51.7	+57.8	8.5	73
34 53.8	+57.3	7.2	36 52.8	+57.4	7.4	38 51.8	+57.5	7.6	40 50.7	+57.6	7.8	42 49.5	+57.7	8.1	74
35 51.1	+57.3	6.9	37 50.2	+57.4	7.1	39 49.3	+57.4	7.3	41 48.3	+57.5	7.5	43 47.2	+57.7	7.7	75
36 48.4	+57.2	6.5	38 47.6	+57.2	6.7	40 46.7	+57.4	6.9	42 45.8	+57.5	7.1	44 44.9	+57.6	7.3	76
37 45.6	+57.1	6.1	39 44.8	+57.2	6.3	41 44.1	+57.3	6.5	43 43.3	+57.4	6.7	45 42.5	+57.4	6.9	77
38 42.7	+57.0	5.7	40 42.0	+57.2	5.9	42 41.4	+57.2	6.1	44 40.7	+57.3	6.3	46 39.9	+57.4	6.5	78
39 39.7	+56.9	5.3	41 39.2	+57.0	5.5	43 38.6	+57.1	5.7	45 38.0	+57.2	5.9	47 37.3	+57.3	6.1	79
40 36.6	+56.9	4.9	42 36.2	+56.9	5.1	44 35.7	+57.0	5.2	46 35.2	+57.1	5.4	48 34.6	+57.2	5.6	80
41 33.5	+56.8	4.5	43 33.1	+56.8	4.6	45 32.7	+56.9	4.8	47 32.3	+57.0	5.0	49 31.8	+57.1	5.2	81
42 30.3	+56.6	4.1	44 29.9	+56.8	4.2	46 29.6	+56.8	4.3	48 29.3	+56.8	4.5	50 28.9	+56.9	4.7	82
43 26.9	+56.6	3.6	45 26.7	+56.6	3.7	47 26.4	+56.7	3.9	49 26.1	+56.8	4.0	51 25.8	+56.8	4.2	83
44 23.5	+56.4	3.1	46 23.3	+56.5	3.3	48 23.1	+56.5	3.4	50 22.9	+56.6	3.5	52 22.6	+56.7	3.7	84
45 19.9	+56.3	2.7	47 19.8	+56.3	2.8	49 19.6	+56.4	2.9	51 19.5	+56.4	3.0	53 19.3	+56.5	3.1	85
46 16.2	+56.2	2.2	48 16.1	+56.2	2.2	50 16.0	+56.3	2.3	52 15.9	+56.3	2.4	54 15.8	+56.3	2.6	86
47 12.4	+56.0	1.7	49 12.3	+56.1	1.7	51 12.3	+56.1	1.8	53 12.2	+56.1	1.9	55 12.1	+56.2	2.0	87
48 08.4	+55.9	1.1	50 08.4	+55.9	1.2	52 08.4	+55.9	1.2	54 08.3	+56.0	1.3	56 08.3	+56.0	1.3	88
49 04.3	+55.7	0.6	51 04.3	+55.7	0.6	53 04.3	+55.7	0.6	55 04.3	+55.7	0.7	57 04.3	+55.7	0.7	89
50 00.0	+55.5	0.0	52 00.0	+55.5	0.0	54 00.0	+55.5	0.0	56 00.0	+55.5	0.0	58 00.0	+55.5	0.0	90

LATITUDE SAME NAME

L.H.A. 158°, 202°

24°, 336° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	69 15.2	+5.0	•83.9	69 22.4	+10.8	•89.2	69 18.5	+16.6	•94.5	69 03.5	+22.3	•99.7	68 38.0	+27.5	•104.8
31	69 20.2	+2.2	•81.1	69 33.2	+8.1	•86.4	69 35.1	+14.0	•91.8	69 25.8	+19.8	•97.1	69 05.5	+25.2	•102.3
32	69 22.4	-0.6	•78.3	69 41.3	+5.4	•83.6	69 49.1	+11.3	•89.0	69 45.6	+17.2	•94.4	69 30.7	+22.9	•99.8
33	69 21.8	-3.3	•75.4	69 46.7	+2.4	•80.7	70 00.4	+8.5	•86.1	70 02.8	+14.5	•91.6	69 53.6	+20.5	•97.1
34	69 18.5	-6.1	•72.6	69 49.1	-0.3	•77.8	70 08.9	+5.7	•83.2	70 17.3	+11.8	•88.8	70 14.1	+17.8	•94.3
35	69 12.4	-8.9	•69.8	69 48.8	-3.2	•74.9	70 14.6	+2.7	•80.3	70 29.1	+8.9	•85.9	70 31.9	+15.0	•91.5
36	69 03.5	-11.4	•67.0	69 45.6	-6.1	•72.0	70 17.3	-0.1	•77.3	70 38.0	+6.0	•82.9	70 46.9	+12.3	•88.6
37	68 52.1	-14.1	•64.3	69 39.5	-8.8	•69.1	70 17.2	-3.1	•74.4	70 44.0	+2.9	•79.9	70 59.2	+9.2	•85.6
38	68 38.0	-16.6	•61.6	69 30.7	-11.5	•66.3	70 14.1	-6.0	•71.4	70 46.9	0.0	•76.8	71 08.4	+6.3	•82.5
39	68 21.4	-18.9	•59.0	69 19.2	-14.2	•63.5	70 08.1	-8.9	•68.5	70 46.9	-3.0	•73.8	71 14.7	+3.2	•79.5
40	68 02.5	-21.3	•56.4	69 05.0	-16.7	•60.8	69 59.2	-11.6	•65.6	70 43.9	-6.0	•70.8	71 17.9	+0.1	•76.3
41	67 41.2	-23.5	•54.0	68 48.3	-19.2	•58.1	69 47.6	-14.3	•62.7	70 37.9	-8.9	•67.8	71 18.0	-2.9	•73.2
42	67 17.7	-25.5	•51.5	68 29.1	-21.5	•55.5	69 33.3	-17.0	•59.9	70 29.0	-11.8	•64.8	71 15.1	-6.1	•70.1
43	66 52.2	-27.6	•49.2	68 07.6	-23.8	•53.0	69 16.3	-19.5	•57.2	70 17.2	-14.6	•61.9	71 09.0	-9.0	•67.0
44	66 24.6	-29.3	•47.0	67 43.8	-25.9	•50.5	68 56.8	-21.8	•54.5	70 02.6	-17.2	•59.0	71 00.0	-12.0	•64.0
45	65 55.3	-31.2	•44.8	67 17.9	-27.9	•48.2	68 35.0	-24.2	•52.0	69 45.4	-19.8	•56.2	70 48.0	-14.9	•61.0
46	65 24.1	-32.7	•42.7	66 50.0	-29.8	•45.9	68 10.8	-26.3	•49.5	69 25.6	-22.3	•53.5	70 33.1	-17.6	•58.1
47	64 51.4	-34.3	•40.8	66 20.2	-31.5	•43.7	67 44.5	-28.3	•47.1	69 03.3	-24.6	•50.9	70 15.2	-20.2	•55.2
48	64 17.1	-35.8	•38.8	65 48.7	-33.2	•41.6	67 16.2	-30.2	•44.8	68 38.7	-26.7	•48.4	69 55.3	-22.7	•52.4
49	63 41.3	-37.1	•37.0	65 15.5	-34.7	•39.6	66 46.0	-32.0	•42.6	68 12.0	-28.8	•45.9	69 32.6	-25.1	•49.8
50	63 04.2	-38.3	•35.3	64 40.8	-36.2	•37.7	66 14.0	-33.7	•40.4	67 43.2	-30.8	•43.6	69 07.5	-27.3	•47.2
51	62 25.9	-39.5	•33.6	64 04.6	-37.5	•35.8	65 40.3	-35.2	•38.4	67 12.4	-32.5	•41.4	68 40.2	-29.4	•44.7
52	61 46.4	-40.5	•32.0	63 27.1	-38.8	•34.1	65 05.1	-36.7	•36.5	66 39.9	-34.3	•39.2	68 10.8	-31.4	•42.4
53	61 05.9	-41.6	•30.4	62 48.3	-39.9	•32.4	64 28.4	-38.0	•34.6	66 05.6	-35.7	•37.2	67 39.4	-33.1	•40.1
54	60 24.3	-42.5	•29.0	62 08.4	-41.0	•30.8	63 50.4	-39.3	•32.8	65 29.9	-37.3	•35.2	67 06.3	-34.8	•37.9
55	59 41.8	-43.4	•27.5	61 27.4	-42.0	•29.2	63 11.1	-40.4	•31.1	64 52.6	-38.5	•33.3	66 31.5	-36.4	•35.8
56	58 58.4	-44.2	•26.2	60 45.4	-43.0	•27.7	62 30.7	-41.5	•29.5	64 14.1	-39.8	•31.5	65 55.1	-37.9	•33.9
57	58 14.2	-45.0	•24.9	60 02.4	-43.8	•26.3	61 49.2	-42.5	•28.0	63 34.3	-41.0	•29.8	65 17.2	-39.2	•32.0
58	57 29.2	-45.6	•23.6	59 18.6	-44.6	•25.0	61 06.7	-43.4	•26.5	62 53.3	-42.0	•28.2	64 38.0	-40.4	•30.2
59	56 43.6	-46.4	•22.4	58 34.0	-45.4	•23.7	60 23.3	-44.3	•25.1	62 11.3	-43.1	•26.7	63 57.6	-41.5	•28.5
60	55 57.2	-46.9	•21.3	57 48.6	-46.0	•22.4	59 39.0	-45.1	•23.7	61 28.2	-43.9	•25.2	63 16.1	-42.6	•26.9
61	55 10.3	-47.5	•20.2	57 02.6	-46.8	•21.3	58 53.9	-45.8	•22.4	60 44.3	-44.8	•23.8	62 33.5	-43.6	•25.3
62	54 22.8	-48.0	•19.1	56 15.8	-47.3	•20.1	58 08.1	-46.5	•21.2	59 59.5	-45.5	•22.4	61 49.9	-44.5	•23.9
63	53 34.8	-48.6	•18.1	55 28.5	-47.9	•19.0	57 21.6	-47.1	•20.0	59 14.0	-46.3	•21.2	61 05.4	-45.3	•22.5
64	52 46.2	-49.0	•17.1	54 40.6	-48.4	•18.0	56 34.5	-47.7	•18.9	58 27.7	-47.0	•19.9	60 20.1	-46.1	•21.1
65	51 57.2	-49.4	•16.2	53 52.2	-48.9	•17.0	55 46.8	-48.3	•17.8	57 40.7	-47.6	•18.8	59 34.0	-46.8	•19.8
66	51 07.8	-49.9	•15.3	53 03.3	-49.3	•16.0	54 58.5	-48.8	•16.8	56 53.1	-48.2	•17.6	58 47.2	-47.5	•18.6
67	50 17.9	-50.2	•14.4	52 14.0	-49.8	•15.0	54 09.7	-49.3	•15.7	56 04.9	-48.7	•16.5	57 59.7	-48.1	•17.4
68	49 27.7	-50.6	•13.6	51 24.2	-50.2	•14.1	53 20.4	-49.8	•14.8	55 16.2	-49.2	•15.5	57 11.6	-48.6	•16.3
69	48 37.1	-51.0	•12.7	50 34.0	-50.6	•13.3	52 30.6	-50.1	•13.9	54 27.0	-49.7	•14.5	56 23.0	-49.2	•15.3
70	47 46.1	-51.2	•11.9	49 43.4	-50.9	•12.4	51 40.5	-50.6	•13.0	53 37.3	-50.1	•13.6	55 33.8	-49.7	•14.2
71	46 54.9	-51.6	•11.2	48 52.5	-51.3	•11.6	50 49.9	-50.9	•12.1	52 47.2	-50.6	•12.6	54 44.1	-50.1	•13.3
72	46 03.3	-51.8	•10.4	48 01.2	-51.5	•10.8	49 59.0	-51.2	•11.3	51 56.6	-50.9	•11.8	53 54.0	-50.6	•12.3
73	45 11.5	-52.1	•9.7	47 09.7	-51.9	•10.1	49 07.8	-51.6	•10.5	51 05.7	-51.3	•10.9	53 03.4	-50.9	•11.4
74	44 19.4	-52.4	•9.0	46 17.8	-52.1	•9.3	48 16.2	-51.9	•9.7	50 14.4	-51.6	•10.1	52 12.5	-51.4	•10.5
75	43 27.0	-52.5	•8.3	45 25.7	-52.4	•8.6	47 24.3	-52.1	•8.9	49 22.8	-51.9	•9.3	51 21.1	-51.6	•9.7
76	42 34.5	-52.8	•7.7	44 33.3	-52.6	•7.9	46 32.2	-52.5	•8.2	48 30.9	-52.2	•8.5	50 29.5	-52.0	•8.9
77	41 41.7	-53.0	•7.0	43 40.7	-52.8	•7.3	45 39.7	-52.7	•7.5	47 38.7	-52.5	•7.8	49 37.5	-52.3	•8.1
78	40 48.7	-53.3	•6.4	42 47.9	-53.1	•6.6	44 47.0	-52.9	•6.8	46 46.2	-52.8	•7.1	48 45.2	-52.6	•7.4
79	39 55.4	-53.3	•5.8	41 54.8	-53.3	•6.0	43 54.1	-53.1	•6.2	45 53.4	-53.0	•6.4	47 52.6	-52.8	•6.6
80	39 02.1	-53.6	•5.2	41 01.5	-53.4	•5.4	43 01.0	-53.3	•5.5	45 00.4	-53.2	•5.7	46 59.8	-53.1	•5.9
81	38 08.5	-53.7	•4.6	40 08.1	-53.6	•4.8	42 07.7	-53.6	•4.9	44 07.2	-53.4	•5.1	46 06.7	-53.3	•5.3
82	37 14.8	-53.9	•4.1	39 14.5	-53.8	•4.2	41 14.1	-53.7	•4.3	43 13.8	-53.7	•4.5	45 13.4	-53.5	•4.6
83	36 20.9	-54.0	•3.5	38 20.7	-54.0	•3.6	40 20.4	-53.9	•3.7	42 20.1	-53.8	•3.8	44 19.9	-53.8	•4.0
84	35 26.9	-54.2	•3.0	37 26.7	-54.1	•3.1	39 26.5	-54.0	•3.2	41 26.3	-54.0	•3.3	43 26.1	-53.9	•3.4
85	34 32.7	-54.3	•2.5	36 32.6	-54.3	•2.5	38 32.5	-54.3	•2.6	40 32.3	-54.1	•2.7	42 32.2	-54.1	•2.8
86	33 38.4	-54.4	•2.0	35 38.3	-54.4	•2.0	37 38.2	-54.3	•2.1	39 38.2	-54.4	•2.1	41 38.1	-54.3	•2.2
87	32 44.0	-54.6	•1.5	34 43.9	-54.5	•1.5	36 43.9	-54.5	•1.5	38 43.8	-54.4	•1.6	40 43.8	-54.5	•1.6
88	31 49.4	-54.6	•1.0	33 49.4	-54.6	•1.0	35 49.4	-54.6	•1.0	37 49.4	-54.7	•1.0	39 49.3	-54.6	•1.1
89	30 54.8	-54.8	•0.5	32 54.8	-54.8	•0.5	34 54.8	-54.8	•0.5	36 54.7	-54.7	•0.5	38 54.7	-54.7	•0.5
90	30 00.0	-54.9	•0.0	32 00.0	-54.9	•0.0	34 00.0	-54.9	•0.0	36 00.0	-54.9	•0.0	38 00.0	-54.9	•0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 24°, 336°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
25 47.7 -55.2 157.0	23 57.1 -55.6 157.3	22 06.3 -55.9 157.7	20 15.2 -56.2 157.9	18 23.8 -56.4 158.2	30										
24 52.5 -55.4 157.4	23 01.5 -55.6 157.7	21 10.4 -56.0 158.0	19 19.0 -56.3 158.3	17 27.4 -56.6 158.6	31										
23 57.1 -55.4 157.8	22 05.9 -55.7 158.1	20 14.4 -56.0 158.4	18 22.7 -56.3 158.7	16 30.8 -56.5 158.9	32										
23 01.7 -55.4 158.2	21 10.2 -55.8 158.5	19 18.4 -56.1 158.8	17 26.4 -56.3 159.0	15 34.3 -56.6 159.3	33										
22 06.3 -55.5 158.7	20 14.4 -55.8 158.9	18 22.3 -56.1 159.2	16 30.1 -56.4 159.4	14 37.7 -56.7 159.6	34										
21 10.8 -55.6 159.1	19 18.6 -55.9 159.3	17 26.2 -56.1 159.6	15 33.7 -56.4 159.8	13 41.0 -56.6 159.9	35										
20 15.2 -55.7 159.5	18 22.7 -55.9 159.7	16 30.1 -56.2 159.9	14 37.3 -56.5 160.1	12 44.4 -56.7 160.3	36										
19 19.5 -55.7 159.9	17 26.8 -56.0 160.1	15 33.9 -56.2 160.3	13 40.8 -56.4 160.5	11 47.7 -56.7 160.6	37										
18 23.8 -55.7 160.3	16 30.8 -56.0 160.5	14 37.7 -56.3 160.7	12 44.4 -56.5 160.8	10 51.0 -56.7 161.0	38										
17 28.1 -55.8 160.6	15 34.8 -56.0 160.8	13 41.4 -56.3 161.0	11 47.9 -56.5 161.2	9 54.3 -56.8 161.3	39										
16 32.3 -55.8 161.0	14 38.8 -56.1 161.2	12 45.1 -56.3 161.4	10 51.4 -56.6 161.5	8 57.5 -56.8 161.6	40										
15 36.5 -55.9 161.4	13 42.7 -56.1 161.6	11 48.8 -56.3 161.7	9 54.8 -56.5 161.8	8 00.8 -56.8 161.9	41										
14 40.6 -55.9 161.8	12 46.6 -56.1 161.9	10 52.5 -56.4 162.1	8 58.3 -56.6 162.2	7 04.0 -56.8 162.3	42										
13 44.7 -55.9 162.2	11 50.5 -56.2 162.3	9 56.1 -56.4 162.4	8 01.7 -56.6 162.5	6 07.2 -56.8 162.6	43										
12 48.8 -56.0 162.5	10 54.3 -56.2 162.7	8 59.7 -56.4 162.8	7 05.1 -56.6 162.9	5 10.4 -56.8 162.9	44										
11 52.8 -55.9 162.9	9 58.1 -56.2 163.0	8 03.3 -56.4 163.1	6 08.3 -56.7 163.2	4 13.6 -56.8 163.2	45										
10 56.9 -56.1 163.3	9 01.9 -56.2 163.4	7 06.9 -56.4 163.5	5 11.8 -56.6 163.5	3 16.8 -56.9 163.6	46										
10 00.8 -56.0 163.6	8 05.7 -56.3 163.7	6 10.5 -56.5 163.8	4 15.2 -56.5 163.8	2 19.9 -56.9 163.9	47										
9 04.8 -56.1 164.0	7 09.4 -56.2 164.1	5 14.0 -56.5 164.1	3 18.6 -56.7 164.2	1 23.1 -56.8 164.2	48										
8 08.7 -56.0 164.4	6 13.2 -56.3 164.4	4 17.5 -56.4 164.5	2 21.9 -56.6 164.5	0 26.3 -56.9 164.5	49										
7 12.7 -56.1 164.7	5 16.9 -56.3 164.8	3 21.1 -56.5 164.8	1 25.1 -56.6 164.8	0 30.6 -56.8 165.2	50										
6 16.6 -56.2 165.1	4 20.6 -56.3 165.1	2 24.6 -56.5 165.2	0 28.6 -56.7 165.2	1 27.4 -56.8 165.2	51										
5 20.4 -56.1 165.4	3 24.3 -56.3 165.5	1 28.1 -56.5 165.5	0 28.1 -56.6 165.5	2 24.2 -56.9 165.5	52										
4 24.3 -56.1 165.8	2 28.0 -56.3 165.8	0 31.6 -56.5 165.8	1 24.7 -56.7 165.8	3 21.1 -56.8 165.8	53										
3 28.2 -56.2 166.1	1 31.7 -56.3 166.2	0 35.4 -56.4 166.5	2 21.4 -56.6 166.2	4 17.9 -56.8 166.2	54										
2 32.0 -56.1 166.5	0 35.4 -56.4 166.5	0 24.9 -56.4 166.5	1 21.3 -56.5 166.5	5 14.9 -56.8 166.5	55										
1 35.9 -56.2 166.8	0 21.0 -56.3 166.8	2 17.8 -56.5 166.8	4 14.7 -56.6 166.8	6 11.5 -56.8 166.8	56										
0 39.7 -56.1 167.2	1 17.3 -56.3 167.2	3 14.3 -56.5 167.2	5 11.3 -56.6 167.2	7 08.3 -56.8 167.2	57										
0 16.4 +56.2 12.4	2 13.6 +56.3 12.5	4 10.8 +56.4 12.5	6 07.9 +56.6 12.5	8 05.1 +56.7 12.6	58										
1 12.6 +56.1 12.1	3 09.9 +56.3 12.1	5 07.2 +56.5 12.1	7 04.5 +56.6 12.2	9 01.8 +56.8 12.2	59										
2 08.7 +56.2 11.7	4 06.2 +56.3 11.8	6 03.7 +56.4 11.8	8 01.1 +56.6 11.9	9 58.6 +56.8 11.9	60										
3 04.9 +56.1 11.4	5 02.5 +56.3 11.4	7 00.1 +56.4 11.5	8 57.7 +56.6 11.5	10 55.3 +56.7 11.6	61										
4 01.0 +56.1 11.0	5 58.8 +56.3 11.1	7 56.5 +56.5 11.1	9 54.3 +56.5 11.2	11 52.0 +56.7 11.3	62										
4 57.1 +56.2 10.7	6 55.1 +56.2 10.7	8 53.0 +56.3 10.8	10 50.8 +56.5 10.8	12 48.7 +56.6 10.9	63										
5 53.3 +56.1 10.3	7 51.3 +56.2 10.4	9 49.3 +56.4 10.4	11 47.3 +56.5 10.5	13 45.3 +56.6 10.6	64										
6 49.4 +56.1 10.0	8 47.5 +56.3 10.0	10 45.7 +56.3 10.1	12 43.8 +56.5 10.2	14 41.9 +56.6 10.2	65										
7 45.5 +56.0 9.6	9 43.8 +56.2 9.7	11 42.0 +56.4 9.7	13 40.3 +56.4 9.8	15 38.5 +56.6 9.9	66										
8 41.5 +56.1 9.3	10 40.0 +56.1 9.3	12 38.4 +56.3 9.4	14 36.7 +56.5 9.5	16 35.1 +56.5 9.5	67										
9 37.6 +56.0 8.9	11 36.1 +56.2 8.9	13 34.7 +56.2 9.0	15 33.2 +56.3 9.1	17 31.6 +56.5 9.2	68										
10 33.6 +56.0 8.5	12 32.3 +56.1 8.6	14 30.9 +56.2 8.7	16 29.5 +56.4 8.7	18 28.1 +56.5 8.8	69										
11 29.6 +56.0 8.2	13 28.4 +56.1 8.2	15 27.1 +56.2 8.3	17 25.9 +56.3 8.4	19 24.6 +56.4 8.5	70										
12 25.6 +55.9 7.8	14 24.5 +56.0 7.9	16 23.3 +56.2 7.9	18 22.2 +56.2 8.0	20 21.0 +56.3 8.1	71										
13 21.5 +55.9 7.4	15 20.5 +56.0 7.5	17 19.5 +56.1 7.6	19 18.4 +56.2 7.7	21 17.3 +56.4 7.8	72										
14 17.4 +55.9 7.0	16 16.5 +56.0 7.1	18 15.6 +56.1 7.2	20 14.6 +56.2 7.3	22 13.7 +56.2 7.4	73										
15 13.3 +55.9 6.7	17 12.5 +55.9 6.7	19 11.7 +56.0 6.8	21 10.8 +56.1 6.9	23 09.9 +56.2 7.0	74										
16 09.2 +55.8 6.3	18 08.4 +55.9 6.4	20 07.7 +56.0 6.4	22 06.9 +56.1 6.5	24 06.1 +56.2 6.6	75										
17 05.0 +55.7 5.9	19 04.3 +55.8 6.0	21 03.7 +55.9 6.1	23 03.0 +56.0 6.1	25 02.3 +56.1 6.2	76										
18 00.7 +55.7 5.5	20 00.1 +55.8 5.6	21 59.6 +55.8 5.7	23 59.0 +55.9 5.7	25 58.4 +56.0 5.8	77										
18 56.4 +55.7 5.1	20 55.9 +55.8 5.2	22 55.4 +55.8 5.3	24 54.9 +55.9 5.4	26 54.4 +55.9 5.4	78										
19 52.1 +55.6 4.7	21 51.7 +55.6 4.8	23 51.2 +55.8 4.9	25 50.8 +55.8 4.9	27 50.3 +55.9 5.0	79										
20 47.7 +55.5 4.3	22 47.3 +55.6 4.4	24 47.0 +55.7 4.5	26 46.6 +55.7 4.5	28 46.2 +55.8 4.6	80										
21 43.2 +55.5 3.9	23 42.9 +55.6 4.0	25 42.7 +55.6 4.0	27 42.3 +55.7 4.1	29 42.0 +55.8 4.2	81										
22 38.7 +55.4 3.5	24 38.5 +55.5 3.6	26 38.3 +55.5 3.6	28 38.0 +55.6 3.7	30 37.8 +55.6 3.8	82										
23 34.1 +55.4 3.1	25 34.0 +55.4 3.1	27 33.8 +55.4 3.2	29 33.6 +55.5 3.3	31 33.4 +55.5 3.3	83										
24 29.5 +55.3 2.7	26 29.4 +55.3 2.7	28 29.2 +55.4 2.8	30 29.1 +55.4 2.8	32 28.9 +55.5 2.9	84										
25 24.8 +55.2 2.2	27 24.7 +55.2 2.3	29 24.6 +55.3 2.3	31 24.5 +55.3 2.4	33 24.4 +55.3 2.4	85										
26 20.0 +55.1 1.8	28 19.9 +55.2 1.8	30 19.9 +55.2 1.9	32 19.8 +55.2 1.9	34 19.7 +55.3 2.0	86										
27 15.1 +55.1 1.4	29 15.1 +55.1 1.4	31 15.1 +55.0 1.4	33 15.0 +55.1 1.5	35 15.0 +55.1 1.5	87										
28 10.2 +54.9 0.9	30 10.2 +54.9 0.9	32 10.1 +55.0 1.0	34 10.1 +55.0 1.0	36 10.1 +55.0 1.0	88										
29 05.1 +54.9 0.5	31 05.1 +54.9 0.5	33 05.1 +54.9 0.5	35 05.1 +54.9 0.5	37 05.1 +54.9 0.5	89										
30 00.0 +54.8 0.0	32 00.0 +54.8 0.0	34 00.0 +54.8 0.0	36 00.0 +54.7 0.0	38 00.0 +54.7 0.0	90										

LATITUDE SAME NAME

L.H.A. 156°, 204°

24°, 336° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	68 02.5	+32.2	109.6	67 17.7	+36.5	114.1	66 24.6	+40.3	118.3	65 24.1	+43.5	122.2	64 17.1	+46.2	125.7
31	68 34.7	+30.3	107.3	67 54.2	+34.9	112.1	67 04.9	+38.9	116.5	66 07.6	+42.4	120.5	65 03.3	+45.4	124.2
32	69 05.0	+28.2	104.9	68 29.1	+33.1	109.9	67 43.8	+37.3	114.5	66 50.0	+41.1	118.7	65 48.7	+44.3	122.7
33	69 33.2	+26.0	102.4	69 02.2	+31.1	107.6	68 21.1	+35.7	112.4	67 31.1	+39.7	116.9	66 33.0	+43.2	121.0
34	69 59.2	+23.6	99.8	69 33.3	+29.0	105.1	68 56.8	+33.9	110.2	68 10.8	+38.2	114.9	67 16.2	+42.0	119.2
35	70 22.8	+21.1	97.1	70 02.3	+26.7	102.6	69 30.7	+31.9	107.8	68 49.0	+36.6	112.8	67 58.2	+40.5	117.3
36	70 43.9	+18.4	94.3	70 29.0	+24.3	100.0	70 02.6	+29.8	105.4	69 25.6	+34.7	110.5	68 38.7	+39.1	115.4
37	71 02.3	+15.6	91.4	70 53.3	+21.8	97.2	70 32.4	+27.6	102.8	70 00.3	+32.8	108.2	69 17.8	+37.5	113.2
38	71 17.9	+12.7	88.4	71 15.1	+19.0	94.3	71 00.0	+25.0	100.1	70 33.1	+30.7	105.7	69 55.3	+35.6	111.0
39	71 30.6	+9.7	85.3	71 34.1	+16.1	91.3	71 25.0	+22.5	97.3	71 03.8	+28.3	103.1	70 30.9	+33.7	108.6
40	71 40.3	+6.5	82.2	71 50.2	+13.2	88.3	71 47.5	+19.6	94.4	71 32.1	+25.8	100.3	71 04.6	+31.5	106.1
41	71 46.8	+3.4	79.0	72 03.4	+10.0	85.1	72 07.1	+16.7	91.3	71 57.9	+23.2	97.5	71 36.1	+29.2	103.4
42	71 50.2	+0.2	75.9	72 13.4	+6.8	81.9	72 23.8	+13.6	88.2	72 21.1	+20.3	94.5	72 05.3	+26.6	100.6
43	71 50.4	-2.9	72.6	72 20.2	+3.6	78.6	72 37.4	+10.4	84.9	72 41.4	+17.3	91.3	72 31.9	+23.9	97.7
44	71 47.5	-6.2	69.4	72 23.8	+0.3	75.3	72 47.8	+7.1	81.6	72 58.7	+14.0	88.1	72 55.8	+21.0	94.6
45	71 41.3	-9.2	66.3	72 24.1	-3.0	72.0	72 54.9	+3.8	78.2	73 12.7	+10.8	84.7	73 16.8	+17.9	91.4
46	71 32.1	-12.3	63.1	72 21.1	-6.3	68.7	72 58.7	+0.3	74.8	73 23.5	+7.3	81.3	73 34.7	+14.5	88.0
47	71 19.8	-15.2	60.1	72 14.8	-9.5	65.5	72 59.0	-3.2	71.4	73 30.8	+3.9	77.8	73 49.2	+11.2	84.6
48	71 04.6	-18.0	57.1	72 05.3	-12.6	62.2	72 55.8	-6.5	68.0	73 34.7	+0.3	74.3	74 00.4	+7.5	81.0
49	70 46.6	-20.8	54.1	71 52.7	-15.7	59.1	72 49.3	-9.8	64.6	73 35.0	-3.3	70.8	74 07.9	+3.9	77.4
50	70 25.8	-23.2	51.3	71 37.0	-18.5	56.0	72 39.5	-13.0	61.3	73 31.7	-6.8	67.2	74 11.8	+0.3	73.8
51	70 02.6	-25.7	48.6	71 18.5	-21.3	53.0	72 26.5	-16.2	58.0	73 24.9	-10.2	63.7	74 12.1	-3.5	70.1
52	69 36.9	-27.9	46.0	70 57.2	-23.9	50.1	72 10.3	-19.1	54.9	73 14.7	-13.5	60.3	74 08.6	-7.1	66.4
53	69 09.0	-30.1	43.5	70 33.3	-26.3	47.3	71 51.2	-22.0	51.8	73 01.2	-16.8	56.9	74 01.5	-10.7	62.8
54	68 38.9	-32.0	41.0	70 07.0	-28.7	44.7	71 29.2	-24.6	48.8	72 44.4	-19.8	53.7	73 50.8	-14.2	59.2
55	68 06.9	-33.8	38.7	69 38.3	-30.7	42.1	71 04.6	-27.1	46.0	72 24.6	-22.7	50.5	73 36.6	-17.4	55.8
56	67 33.1	-35.5	36.6	69 07.6	-32.7	39.7	70 37.5	-29.4	43.3	72 01.9	-25.4	47.5	73 19.2	-20.7	52.4
57	66 57.6	-37.0	34.5	68 34.9	-34.6	37.3	70 08.1	-31.5	40.7	71 36.5	-28.0	44.6	72 58.5	-23.5	49.2
58	66 20.6	-38.6	32.5	68 00.3	-36.3	35.1	69 36.6	-33.6	38.2	71 08.5	-30.3	41.8	72 35.0	-26.3	46.1
59	65 42.0	-39.8	30.6	67 24.0	-37.8	33.0	69 03.0	-35.4	35.9	70 38.2	-32.4	39.2	72 08.7	-28.9	43.1
60	65 02.2	-41.1	28.8	66 46.2	-39.2	31.0	68 27.6	-37.0	33.6	70 05.8	-34.4	36.7	71 39.8	-31.3	40.3
61	64 21.1	-42.2	27.1	66 07.0	-40.6	29.1	67 50.6	-38.6	31.5	69 31.4	-36.3	34.3	71 08.5	-33.4	37.6
62	63 38.9	-43.2	25.5	65 26.4	-41.7	27.3	67 12.0	-40.1	29.5	68 55.1	-38.0	32.1	70 35.1	-35.4	35.1
63	62 55.7	-44.2	23.9	64 44.7	-42.9	25.6	66 31.9	-41.3	27.6	68 17.1	-39.4	29.9	69 59.7	-37.2	32.7
64	62 11.5	-45.1	22.5	64 01.8	-43.9	24.0	65 50.6	-42.5	25.8	67 37.7	-40.9	27.9	69 22.5	-38.9	30.4
65	61 26.4	-45.9	21.1	63 17.9	-44.9	22.5	65 08.1	-43.7	24.1	66 56.8	-42.2	26.0	68 43.6	-40.4	28.3
66	60 40.5	-46.7	19.7	62 33.0	-45.7	21.0	64 24.4	-44.6	22.5	66 14.6	-43.3	24.2	68 03.2	-41.8	26.3
67	59 53.8	-47.3	18.5	61 47.3	-46.5	19.6	63 39.8	-45.5	21.0	65 31.3	-44.4	22.6	67 21.4	-43.1	24.4
68	59 06.5	-48.0	17.3	61 00.8	-47.3	18.3	62 54.3	-46.4	19.5	64 46.9	-45.4	21.0	66 38.3	-44.2	22.6
69	58 18.5	-48.6	16.1	60 13.5	-47.9	17.1	62 07.9	-47.2	18.2	64 01.5	-46.3	19.4	65 54.1	-45.2	20.9
70	57 29.9	-49.2	15.0	59 25.6	-48.6	15.9	61 20.7	-47.9	16.9	63 15.2	-47.1	18.0	65 08.9	-46.2	19.3
71	56 40.7	-49.6	13.9	58 37.0	-49.1	14.7	60 32.8	-48.5	15.6	62 28.1	-47.9	16.6	64 22.7	-47.0	17.8
72	55 51.1	-50.2	12.9	57 47.9	-49.7	13.6	59 44.3	-49.2	14.4	61 40.2	-48.5	15.4	63 35.7	-47.9	16.4
73	55 00.9	-50.6	12.0	56 58.2	-50.2	12.6	58 55.1	-49.7	13.3	60 51.7	-49.2	14.1	62 47.8	-48.5	15.1
74	54 10.3	-50.9	11.0	56 08.0	-50.6	11.6	58 05.4	-50.2	12.2	60 02.5	-49.7	13.0	61 59.3	-49.2	13.8
75	53 19.4	-51.4	10.2	55 17.4	-51.1	10.7	57 15.2	-50.7	11.2	59 12.8	-50.3	11.9	61 10.1	-49.9	12.6
76	52 28.0	-51.8	9.3	54 26.3	-51.4	9.7	56 24.5	-51.1	10.2	58 22.5	-50.8	10.8	60 20.2	-50.4	11.5
77	51 36.2	-52.0	8.5	53 34.9	-51.8	8.9	55 33.4	-51.6	9.3	57 31.7	-51.2	9.8	59 29.8	-50.8	10.4
78	50 44.2	-52.4	7.7	52 43.1	-52.2	8.0	54 41.8	-51.9	8.4	56 40.5	-51.7	8.9	58 39.0	-51.4	9.4
79	49 51.8	-52.7	6.9	51 50.9	-52.5	7.2	53 49.9	-52.3	7.6	55 48.8	-52.1	7.9	57 47.6	-51.8	8.4
80	48 59.1	-52.9	6.2	50 58.4	-52.8	6.4	52 57.6	-52.6	6.7	54 56.7	-52.4	7.1	56 55.8	-52.2	7.4
81	48 06.2	-53.2	5.5	50 05.6	-53.0	5.7	52 05.0	-52.9	5.9	54 04.3	-52.7	6.2	56 03.6	-52.6	6.5
82	47 13.0	-53.4	4.8	49 12.6	-53.4	5.0	51 12.1	-53.2	5.2	53 11.6	-53.1	5.4	55 11.0	-52.9	5.7
83	46 19.6	-53.7	4.1	48 19.2	-53.5	4.3	50 18.9	-53.5	4.5	52 18.5	-53.3	4.7	54 18.1	-53.2	4.9
84	45 25.9	-53.8	3.5	47 25.7	-53.8	3.6	49 25.4	-53.7	3.7	51 25.2	-53.6	3.9	53 24.9	-53.5	4.1
85	44 32.1	-54.1	2.9	46 31.9	-54.0	3.0	48 31.7	-53.9	3.1	50 31.6	-53.9	3.2	52 31.4	-53.8	3.3
86	43 38.0	-54.3	2.2	45 37.9	-54.2	2.3	47 37.8	-54.2	2.4	49 37.7	-54.1	2.5	51 37.6	-54.1	2.6
87	42 43.7	-54.4	1.7	44 43.7	-54.4	1.7	46 43.6	-54.3	1.8	48 43.6	-54.3	1.8	50 43.5	-54.3	1.9
88	41 49.3	-54.6	1.1	43 49.3	-54.6	1.1	45 49.3	-54.6	1.2	47 49.3	-54.6	1.2	49 49.2	-54.5	1.3
89	40 54.7	-54.7	0.5	42 54.7	-54.7	0.6	44 54.7	-54.7	0.6	46 54.7	-54.7	0.6	48 54.7	-54.7	0.6
90	40 00.0	-54.9	0.0	42 00.0	-54.9	0.0	44 00.0	-54.9	0.0	46 00.0	-54.9	0.0	48 00.0	-54.9	0.0
	40°			42°			44°			46°			48°		

LATITUDE CONTRARY NAME

L.H.A. 24°, 336°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
16	32.3	-56.7	158.4	14	40.6	-57.0	158.6	12	48.8	-57.2	158.8	10	56.9	-57.5	159.0	9	04.8	-57.7	159.1	30
15	35.6	-56.8	158.8	13	43.6	-57.0	159.0	11	51.6	-57.3	159.1	9	59.4	-57.5	159.3	8	07.1	-57.7	159.4	31
14	38.8	-56.8	159.1	12	46.6	-57.1	159.3	10	54.3	-57.3	159.4	9	01.9	-57.5	159.6	7	09.4	-57.7	159.7	32
13	42.0	-56.9	159.4	11	49.5	-57.0	159.6	9	57.0	-57.3	159.7	8	04.4	-57.5	159.8	6	11.7	-57.7	159.9	33
12	45.1	-56.8	159.8	10	52.5	-57.1	159.9	8	59.7	-57.3	160.0	7	06.9	-57.5	160.1	5	14.0	-57.7	160.2	34
11	48.3	-56.9	160.1	9	55.4	-57.1	160.2	8	02.4	-57.3	160.3	6	09.4	-57.6	160.4	4	16.3	-57.7	160.5	35
10	51.4	-56.9	160.4	8	58.3	-57.2	160.5	7	05.1	-57.4	160.6	5	11.8	-57.5	160.7	3	18.6	-57.8	160.8	36
9	54.5	-57.0	160.7	8	01.1	-57.1	160.9	6	07.7	-57.3	160.9	4	14.3	-57.5	161.0	2	20.8	-57.7	161.0	37
8	57.5	-56.9	161.1	7	04.0	-57.2	161.2	5	10.4	-57.4	161.2	3	16.8	-57.6	161.3	1	23.1	-57.7	161.3	38
8	00.6	-57.0	161.4	6	06.8	-57.1	161.5	4	13.0	-57.3	161.5	2	19.2	-57.5	161.6	0	25.4	-57.8	161.6	39
7	03.6	-57.0	161.7	5	09.7	-57.2	161.8	3	15.7	-57.4	161.8	1	21.7	-57.6	161.8	0	32.4	+57.7	18.2	40
6	06.6	-56.9	162.0	4	12.5	-57.2	162.1	2	18.3	-57.4	162.1	0	24.1	-57.6	162.1	1	30.1	+57.7	17.9	41
5	09.7	-57.0	162.3	3	15.3	-57.2	162.4	1	20.9	-57.3	162.4	0	33.5	+57.5	17.6	2	27.8	+57.8	17.6	42
4	12.7	-57.0	162.6	2	18.1	-57.2	162.7	0	23.6	-57.4	162.7	1	31.0	+57.6	17.3	3	25.6	+57.7	17.3	43
3	15.7	-57.0	163.0	1	20.9	-57.2	163.0	0	33.8	+57.4	17.0	2	28.6	+57.5	17.0	4	23.3	+57.7	17.1	44
2	18.7	-57.0	163.3	0	23.7	-57.2	163.3	1	31.2	+57.4	16.7	3	26.1	+57.6	16.7	5	21.0	+57.7	16.8	45
1	21.7	-57.1	163.6	0	33.5	+57.1	16.4	2	28.6	+57.3	16.4	4	23.7	+57.5	16.5	6	18.7	+57.7	16.5	46
0	24.6	-57.0	163.9	1	30.6	+57.2	16.1	3	25.9	+57.4	16.1	5	21.2	+57.5	16.2	7	16.4	+57.6	16.2	47
0	32.4	+57.0	15.8	2	27.8	+57.2	15.8	4	23.3	+57.3	15.8	6	18.7	+57.5	15.9	8	14.1	+57.7	16.0	48
1	29.4	+57.0	15.5	3	25.0	+57.2	15.5	5	20.6	+57.4	15.5	7	16.2	+57.5	15.6	9	11.8	+57.7	15.7	49
2	26.4	+57.0	15.2	4	22.2	+57.2	15.2	6	18.0	+57.3	15.3	8	13.7	+57.5	15.3	10	09.5	+57.6	15.4	50
3	23.4	+57.0	14.9	5	19.4	+57.1	14.9	7	15.3	+57.4	15.0	9	11.2	+57.5	15.0	11	07.1	+57.7	15.1	51
4	20.4	+57.0	14.5	6	16.5	+57.2	14.6	8	12.7	+57.3	14.7	10	08.7	+57.5	14.7	12	04.8	+57.6	14.8	52
5	17.4	+57.0	14.2	7	13.7	+57.1	14.3	9	10.0	+57.3	14.4	11	06.2	+57.4	14.4	13	02.4	+57.6	14.6	53
6	14.4	+56.9	13.9	8	10.8	+57.2	14.0	10	07.3	+57.2	14.1	12	03.6	+57.5	14.2	14	00.0	+57.6	14.3	54
7	11.3	+57.0	13.6	9	08.0	+57.1	13.7	11	04.5	+57.3	13.8	13	01.1	+57.4	13.9	15	57.6	+57.5	14.0	55
8	08.3	+56.9	13.3	10	05.1	+57.1	13.4	12	01.8	+57.2	13.4	13	58.5	+57.4	13.6	15	55.1	+57.5	13.7	56
9	05.2	+57.0	13.0	11	02.2	+57.0	13.0	12	59.0	+57.3	13.1	14	55.9	+57.3	13.3	16	52.6	+57.6	13.4	57
10	02.2	+56.9	12.6	11	59.2	+57.1	12.7	13	56.3	+57.2	12.8	15	53.2	+57.4	12.9	17	50.2	+57.4	13.1	58
10	59.1	+56.9	12.3	12	56.3	+57.0	12.4	14	53.5	+57.1	12.5	16	50.6	+57.3	12.6	18	47.6	+57.5	12.8	59
11	56.0	+56.8	12.0	13	53.3	+57.0	12.1	15	50.6	+57.2	12.2	17	47.9	+57.3	12.3	19	45.1	+57.4	12.5	60
12	52.8	+56.9	11.7	14	50.3	+57.0	11.8	16	47.8	+57.1	11.9	18	45.2	+57.2	12.0	20	42.5	+57.4	12.2	61
13	49.7	+56.8	11.3	15	47.3	+56.9	11.4	17	44.9	+57.1	11.6	19	42.4	+57.2	11.7	21	39.9	+57.4	11.9	62
14	46.5	+56.8	11.0	16	44.2	+57.0	11.1	18	42.0	+57.0	11.2	20	39.6	+57.2	11.4	22	37.3	+57.3	11.5	63
15	43.3	+56.7	10.7	17	41.2	+56.8	10.8	19	39.0	+57.0	10.9	21	36.8	+57.2	11.1	23	34.6	+57.2	11.2	64
16	40.0	+56.7	10.3	18	38.0	+56.9	10.5	20	36.0	+57.0	10.6	22	34.0	+57.1	10.7	24	31.8	+57.3	10.9	65
17	36.7	+56.7	10.0	19	34.9	+56.8	10.1	21	33.0	+56.9	10.2	23	31.1	+57.0	10.4	25	29.1	+57.2	10.6	66
18	33.4	+56.7	9.7	20	31.7	+56.8	9.8	22	29.9	+56.9	9.9	24	28.1	+57.0	10.1	26	26.3	+57.1	10.2	67
19	30.1	+56.6	9.3	21	28.5	+56.7	9.4	23	26.8	+56.9	9.6	25	25.1	+57.0	9.7	27	23.4	+57.1	9.9	68
20	26.7	+56.5	8.9	22	25.2	+56.7	9.1	24	23.7	+56.8	9.2	26	22.1	+56.9	9.4	28	20.5	+57.0	9.5	69
21	23.2	+56.6	8.6	23	21.9	+56.6	8.7	25	20.5	+56.7	8.9	27	19.0	+56.9	9.0	29	17.5	+57.0	9.2	70
22	19.8	+56.4	8.2	24	18.5	+56.6	8.4	26	17.2	+56.7	8.5	28	15.9	+56.8	8.6	30	14.5	+56.9	8.8	71
23	16.2	+56.4	7.9	25	15.1	+56.5	8.0	27	13.9	+56.6	8.1	29	12.7	+56.7	8.3	31	11.4	+56.8	8.4	72
24	12.6	+56.4	7.5	26	11.6	+56.5	7.6	28	10.5	+56.6	7.8	30	09.4	+56.7	7.9	32	08.2	+56.8	8.1	73
25	09.0	+56.3	7.1	27	08.1	+56.4	7.2	29	07.1	+56.5	7.4	31	06.1	+56.6	7.5	33	05.0	+56.7	7.7	74
26	05.3	+56.3	6.7	28	04.5	+56.3	6.9	30	03.6	+56.4	7.0	32	02.7	+56.5	7.1	34	01.7	+56.7	7.3	75
27	01.6	+56.1	6.3	29	00.8	+56.3	6.5	31	00.0	+56.4	6.6	32	59.2	+56.5	6.7	34	58.4	+56.5	6.9	76
27	57.7	+56.1	5.9	29	57.1	+56.2	6.1	31	56.4	+56.3	6.2	33	55.7	+56.3	6.3	35	54.9	+56.5	6.5	77
28	53.8	+56.1	5.5	30	53.3	+56.1	5.7	32	52.7	+56.2	5.8	34	52.0	+56.3	5.9	36	51.4	+56.4	6.1	78
29	49.9	+55.9	5.1	31	49.4	+56.0	5.2	33	48.9	+56.1	5.4	35	48.3	+56.2	5.5	37	47.8	+56.2	5.6	79
30	45.8	+55.9	4.7	32	45.4	+56.0	4.8	34	45.0	+56.0	4.9	36	44.5	+56.1	5.1	38	44.0	+56.2	5.2	80
31	41.7	+55.8	4.3	33	41.4	+55.8	4.4	35	41.0	+55.9	4.5	37	40.6	+56.0	4.6	39	40.2	+56.1	4.7	81
32	37.5	+55.7	3.9	34	37.2	+55.8	3.9	36	36.9	+55.8	4.0	38	36.6	+55.9	4.2	40	36.3	+55.9	4.3	82
33	33.2	+55.6	3.4	35	33.0	+55.6	3.5	37	32.7	+55.8	3.6	39	32.5	+55.8	3.7	41	32.2	+55.9	3.8	83
34	28.8	+55.5	3.0	36	28.6	+55.6	3.0	38	28.5	+55.5	3.1	40	28.3	+55.6	3.2	42	28.1	+55.7	3.3	84
35	24.3	+55.4	2.5	37	24.2	+55.4	2.6	39	24.0	+55.5	2.6	41	23.9	+55.5	2.7	43	23.8	+55.5	2.8	85
36	19.7	+55.2	2.0	38	19.6	+55.3	2.1	40	19.5	+55.4	2.1	42	19.4	+55.4	2.2	44	19.3	+55.5	2.3	86
37	14.9	+55.2	1.5	39	14.9	+55.2	1.6	41	14.9	+55.2	1.6	43	14.8	+55.2	1.7	45	14.8	+55.2	1.7	87
38	10.1	+55.0	1.0	40	10.1	+55.0	1.1	42	10.1	+55.0	1.1	44	10.0	+55.1	1.1	46	10.0	+55.1	1.2	88
39	05.1	+54.9	0.5	41	05.1	+54.9	0.5	43	05.1	+54.9	0.6	45	05.1	+54.9	0.6	47	05.1	+54.9	0.6	89
40	00.0	+54.7	0.0	42	00.0	+54.7	0.0	44	00.0	+54.7	0.0	46	00.0	+54.7	0.0	48	00.0	+54.7	0.0	90

LATITUDE SAME NAME

L.H.A. 156°, 204°

24°, 336° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	63 04.2	+48.7	128.9	61 46.4	+50.7	131.9	60 24.3	+52.3	134.5	58 58.4	+53.7	136.9	57 29.2	+54.9	139.1
31	63 52.9	+47.9	127.6	62 37.1	+50.0	130.7	61 16.6	+51.8	133.5	59 52.1	+53.3	136.0	58 24.1	+54.5	138.3
32	64 40.8	+47.0	126.2	63 27.1	+49.3	129.5	62 08.4	+51.3	132.4	60 45.4	+52.8	135.1	59 18.6	+54.2	137.5
33	65 27.8	+46.2	124.8	64 16.4	+48.7	128.2	62 59.7	+50.7	131.3	61 38.2	+52.5	134.1	60 12.8	+53.9	136.6
34	66 14.0	+45.1	123.2	65 05.1	+47.8	126.8	63 50.4	+50.1	130.1	62 30.7	+52.0	133.1	61 06.7	+53.5	135.7
35	66 59.1	+44.1	121.5	65 52.9	+47.0	125.4	64 40.5	+49.4	128.8	63 22.7	+51.4	132.0	62 00.2	+53.1	134.8
36	67 43.2	+42.8	119.8	66 39.9	+46.0	123.8	65 29.9	+48.6	127.5	64 14.1	+50.8	130.8	62 53.3	+52.6	133.8
37	68 26.0	+41.5	117.9	67 25.9	+44.9	122.2	66 18.5	+47.8	126.1	65 04.9	+50.2	129.6	63 45.9	+52.1	132.7
38	69 07.5	+40.0	115.9	68 10.8	+43.7	120.4	67 06.3	+46.8	124.5	65 55.1	+49.4	128.2	64 38.0	+51.6	131.6
39	69 47.5	+38.3	113.8	68 54.5	+42.4	118.6	67 53.1	+45.8	122.9	66 44.5	+48.6	126.8	65 29.6	+51.0	130.4
40	70 25.8	+36.6	111.5	69 36.9	+41.0	116.6	68 38.9	+44.7	121.2	67 33.1	+47.8	125.3	66 20.6	+50.2	129.1
41	71 02.4	+34.6	109.1	70 17.9	+39.3	114.4	69 23.6	+43.4	119.3	68 20.9	+46.7	123.7	67 10.8	+49.5	127.7
42	71 37.0	+32.5	106.6	70 57.2	+37.5	112.1	70 07.0	+41.9	117.3	69 07.6	+45.6	122.0	68 00.3	+48.6	126.2
43	72 09.5	+30.0	103.9	71 34.7	+35.6	109.7	70 48.9	+40.3	115.1	69 53.2	+44.3	120.1	68 48.9	+47.7	124.6
44	72 39.5	+27.5	101.0	72 10.3	+32.4	107.1	71 29.2	+38.6	112.9	70 37.5	+43.0	118.1	69 36.6	+46.6	122.9
45	73 07.0	+24.7	98.0	72 43.7	+31.0	104.4	72 07.8	+36.6	110.4	71 20.5	+41.4	116.0	70 23.2	+45.3	121.0
46	73 31.7	+21.7	94.8	73 14.7	+28.4	101.4	72 44.4	+34.4	107.8	72 01.9	+39.6	113.7	71 08.5	+44.0	119.1
47	73 53.4	+18.4	91.5	73 43.1	+25.5	98.3	73 18.8	+32.0	105.0	72 41.5	+37.7	111.2	71 52.5	+42.5	116.9
48	74 11.8	+15.1	88.0	74 08.6	+22.4	95.1	73 50.8	+29.3	102.0	73 19.2	+35.4	108.5	72 35.0	+40.7	114.6
49	74 26.9	+11.5	84.4	74 31.0	+19.1	91.6	74 20.1	+26.4	98.8	73 54.6	+33.0	105.7	73 15.7	+38.8	112.1
50	74 38.4	+7.7	80.8	74 50.1	+15.6	88.1	74 46.5	+23.2	95.4	74 27.6	+30.3	102.6	73 54.5	+36.6	109.4
51	74 46.1	+4.0	77.0	75 05.7	+11.8	84.3	75 09.7	+19.7	91.9	74 57.9	+27.3	99.3	74 31.1	+34.1	106.5
52	74 50.1	+0.1	73.2	75 17.5	+7.9	80.5	75 29.4	+16.1	88.1	75 25.2	+24.1	95.8	75 05.2	+31.4	103.3
53	74 50.2	-3.7	69.4	75 25.4	+4.0	76.6	75 45.5	+12.2	84.3	75 49.3	+20.4	92.2	75 36.6	+28.2	100.0
54	74 46.5	-7.6	65.6	75 29.4	-0.1	72.6	75 57.7	+8.1	80.2	76 09.7	+16.6	88.3	76 04.8	+24.9	96.4
55	74 38.9	-11.3	61.8	75 29.3	-4.1	68.6	76 05.8	+3.9	76.1	76 26.3	+12.5	84.2	76 29.7	+21.2	92.5
56	74 27.6	-14.8	58.1	75 25.2	-8.0	64.6	76 09.7	-0.3	72.0	76 38.8	+8.3	80.0	76 50.9	+17.2	88.5
57	74 12.8	-18.3	54.5	75 17.2	-12.0	60.7	76 09.4	-4.6	67.8	76 47.1	+3.8	75.7	77 08.1	+12.8	84.2
58	73 54.5	-21.5	51.0	75 05.2	-15.7	56.9	76 04.8	-8.7	63.6	76 50.9	-0.6	71.3	77 20.9	+8.4	79.8
59	73 33.0	-24.5	47.7	74 49.5	-19.2	53.2	75 56.1	-12.7	59.5	76 50.3	-5.1	66.9	77 29.3	+3.7	75.2
60	73 08.5	-27.4	44.5	74 30.3	-22.5	49.6	75 43.4	-16.7	55.6	76 45.2	-9.5	62.6	77 33.0	-1.1	70.6
61	72 41.1	-29.9	41.5	74 07.8	-25.6	46.1	75 26.7	-20.2	51.7	76 35.7	-13.7	58.3	77 31.9	-5.7	66.0
62	72 11.2	-32.3	38.6	73 42.2	-28.5	42.9	75 06.5	-23.7	48.0	76 22.0	-17.7	54.1	77 26.2	-10.4	61.4
63	71 38.9	-34.5	35.9	73 13.7	-31.1	39.8	74 42.8	-26.8	44.5	76 04.3	-21.5	50.1	77 15.8	-14.8	56.9
64	71 04.4	-36.5	33.3	72 42.6	-33.5	36.9	74 16.0	-29.8	41.1	75 42.8	-24.9	46.3	77 01.0	-18.9	52.5
65	70 27.9	-38.3	30.9	72 09.1	-35.6	34.1	73 46.2	-32.3	38.0	75 17.9	-28.2	42.6	76 42.1	-22.9	48.4
66	69 49.6	-39.9	28.7	71 33.5	-37.6	31.5	73 13.9	-34.7	35.0	74 49.7	-31.1	39.2	76 19.2	-26.4	44.4
67	69 09.7	-41.4	26.5	70 55.9	-39.4	29.1	72 39.2	-36.9	32.2	74 18.6	-33.8	36.0	75 52.8	-29.7	40.7
68	68 28.3	-42.7	24.5	70 16.5	-41.0	26.8	72 02.3	-38.9	29.6	73 44.8	-36.1	33.0	75 23.1	-32.6	37.1
69	67 45.6	-44.0	22.7	69 35.5	-42.5	24.7	71 23.4	-40.6	27.2	73 08.7	-38.2	30.2	74 50.5	-35.2	33.9
70	67 01.6	-45.1	20.9	68 53.0	-43.7	22.7	70 42.8	-42.1	24.9	72 30.5	-40.1	27.6	74 15.3	-37.6	30.8
71	66 16.5	-46.1	19.2	68 09.3	-45.0	20.8	70 00.7	-43.6	22.8	71 50.4	-41.9	25.1	73 37.7	-39.7	28.0
72	65 30.4	-47.0	17.6	67 24.3	-46.0	19.1	69 17.1	-44.8	20.8	71 08.5	-43.3	22.9	72 58.0	-41.5	25.4
73	64 43.4	-47.8	16.2	66 38.3	-47.0	17.5	68 32.3	-46.0	19.0	70 25.2	-44.8	20.8	72 16.5	-43.1	23.0
74	63 55.6	-48.6	14.8	65 51.3	-47.9	15.9	67 46.3	-47.0	17.2	69 40.4	-45.9	18.8	71 33.4	-44.7	20.8
75	63 07.0	-49.3	13.5	65 03.4	-48.6	14.5	66 59.3	-47.9	15.6	68 54.5	-47.0	17.0	70 48.7	-45.9	18.7
76	62 17.7	-49.9	12.2	64 14.8	-49.4	13.1	66 11.4	-48.7	14.1	68 07.5	-48.0	15.3	70 02.8	-47.0	16.8
77	61 27.8	-50.5	11.0	63 25.4	-50.1	11.8	65 22.7	-49.5	12.7	67 19.5	-48.9	13.7	69 15.8	-48.1	15.0
78	60 37.3	-51.1	9.9	62 35.3	-50.6	10.6	64 33.2	-50.2	11.4	66 30.6	-49.6	12.2	68 27.7	-49.1	13.3
79	59 46.2	-51.5	8.9	61 44.7	-51.2	9.4	63 43.0	-50.8	10.1	65 41.0	-50.4	10.9	67 38.6	-49.8	11.8
80	58 54.7	-51.9	7.9	60 53.5	-51.7	8.3	62 52.2	-51.4	8.9	64 50.6	-51.0	9.6	66 48.8	-50.6	10.3
81	58 02.8	-52.4	6.9	60 01.8	-52.1	7.3	62 00.8	-51.9	7.8	63 59.6	-51.6	8.3	65 58.2	-51.2	9.0
82	57 10.4	-52.7	6.0	59 09.7	-52.6	6.3	61 08.9	-52.3	6.7	63 08.0	-52.1	7.2	65 07.0	-51.8	7.7
83	56 17.7	-53.1	5.1	58 17.1	-52.9	5.4	60 16.6	-52.8	5.7	62 15.9	-52.5	6.1	64 15.2	-52.3	6.6
84	55 24.6	-53.5	4.3	57 24.2	-53.3	4.5	59 23.8	-53.2	4.8	61 23.4	-53.0	5.1	63 22.9	-52.9	5.4
85	54 31.1	-53.7	3.5	56 30.9	-53.6	3.7	58 30.6	-53.5	3.9	60 30.4	-53.5	4.1	62 30.0	-53.3	4.4
86	53 37.4	-54.0	2.7	55 37.3	-53.9	2.9	57 37.1	-53.8	3.0	59 36.9	-53.7	3.2	61 36.7	-53.6	3.4
87	52 43.4	-54.2	2.0	54 43.4	-54.2	2.1	56 43.3	-54.2	2.2	58 43.2	-54.1	2.3	60 43.1	-54.1	2.5
88	51 49.2	-54.5	1.3	53 49.2	-54.5	1.4	55 49.1	-54.4	1.4	57 49.1	-54.4	1.5	59 49.0	-54.3	1.6
89	50 54.7	-54.7	0.6	52 54.7	-54.7	0.7	54 54.7	-54.7	0.7	56 54.7	-54.7	0.7	58 54.7	-54.7	0.8
90	50 00.0	-54.9	0.0	52 00.0	-54.9	0.0	54 00.0	-54.9	0.0	56 00.0	-54.9	0.0	58 00.0	-54.9	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 24°, 336°

50°			52°			54°			56°			58°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
7	12.7	-57.9	159.2	5	20.4	-58.0	159.3	3	28.2	-58.3	159.3	1	35.9	-58.4	159.4	0	16.4	+58.6	20.6	30
6	14.8	-57.9	159.5	4	22.4	-58.1	159.5	2	29.9	-58.2	159.6	0	37.5	-58.5	159.6	1	15.0	+58.6	20.4	31
5	16.9	-57.9	159.7	3	24.3	-58.1	159.8	1	31.7	-58.3	159.8	0	21.0	+58.4	20.2	2	13.6	+58.6	20.2	32
4	19.0	-57.9	160.0	2	26.2	-58.1	160.0	0	33.4	-58.3	160.1	1	19.4	+58.4	20.0	3	12.2	+58.6	20.0	33
3	21.1	-57.9	160.3	1	28.1	-58.1	160.3	0	24.9	+58.2	19.7	2	17.8	+58.4	19.7	4	10.8	+58.5	19.8	34
2	23.2	-57.9	160.5	0	30.0	-58.1	160.5	1	23.1	+58.3	19.5	3	16.2	+58.5	19.5	5	09.3	+58.6	19.5	35
1	25.3	-58.0	160.8	0	28.1	+58.0	19.2	2	21.4	+58.2	19.2	4	14.7	+58.4	19.3	6	07.9	+58.6	19.3	36
0	27.3	-57.9	161.0	1	26.1	+58.1	19.0	3	19.6	+58.3	19.0	5	13.1	+58.4	19.0	7	06.5	+58.6	19.1	37
0	30.6	+57.9	18.7	2	24.2	+58.1	18.7	4	17.9	+58.2	18.7	6	11.5	+58.4	18.8	8	05.1	+58.5	18.9	38
1	28.5	+57.9	18.4	3	22.3	+58.1	18.5	5	16.1	+58.3	18.5	7	09.9	+58.4	18.6	9	03.6	+58.6	18.7	39
2	26.4	+57.9	18.2	4	20.4	+58.1	18.2	6	14.4	+58.2	18.3	8	08.3	+58.4	18.3	10	02.2	+58.5	18.4	40
3	24.3	+57.9	17.9	5	18.5	+58.0	18.0	7	12.6	+58.2	18.0	9	06.7	+58.4	18.1	11	00.7	+58.5	18.2	41
4	22.2	+57.9	17.6	6	16.5	+58.1	17.7	8	10.8	+58.3	17.8	10	05.1	+58.3	17.9	11	59.2	+58.6	18.0	42
5	20.1	+57.9	17.4	7	14.6	+58.1	17.4	9	09.1	+58.2	17.5	11	03.4	+58.4	17.6	12	57.8	+58.5	17.8	43
6	18.0	+57.9	17.1	8	12.7	+58.0	17.2	10	07.3	+58.2	17.3	12	01.8	+58.4	17.4	13	56.3	+58.5	17.5	44
7	15.9	+57.8	16.9	9	10.7	+58.0	16.9	11	05.5	+58.1	17.0	13	00.2	+58.3	17.2	14	54.8	+58.4	17.3	45
8	13.7	+57.9	16.6	10	08.7	+58.0	16.7	12	03.6	+58.2	16.8	13	58.5	+58.3	16.9	15	53.2	+58.5	17.1	46
9	11.6	+57.9	16.3	11	06.7	+58.1	16.4	13	01.8	+58.2	16.5	14	56.8	+58.3	16.7	16	51.7	+58.6	16.8	47
10	09.5	+57.8	16.1	12	04.8	+57.9	16.2	14	00.0	+58.1	16.3	15	55.1	+58.3	16.4	17	50.2	+58.4	16.6	48
11	07.3	+57.8	15.8	13	02.7	+58.0	15.9	14	58.1	+58.1	16.0	16	53.4	+58.3	16.2	18	48.6	+58.4	16.4	49
12	05.1	+57.8	15.5	14	00.7	+58.0	15.6	15	56.2	+58.1	15.8	17	51.7	+58.2	15.9	19	47.0	+58.5	16.1	50
13	02.9	+57.8	15.2	14	58.7	+57.9	15.4	16	54.3	+58.1	15.5	18	49.9	+58.3	15.7	20	45.4	+58.4	15.9	51
14	00.7	+57.8	15.0	15	56.6	+57.9	15.1	17	52.4	+58.1	15.3	19	48.2	+58.3	15.4	21	43.8	+58.3	15.6	52
14	58.5	+57.7	14.7	16	54.5	+57.9	14.8	18	50.5	+58.0	15.0	20	46.4	+58.2	15.2	22	42.1	+58.4	15.4	53
15	56.2	+57.8	14.4	17	52.4	+57.9	14.5	19	48.5	+58.1	14.7	21	44.6	+58.1	14.9	23	40.5	+58.3	15.1	54
16	54.0	+57.7	14.1	18	50.3	+57.9	14.3	20	46.6	+58.0	14.4	22	42.7	+58.1	14.6	24	38.8	+58.2	14.9	55
17	51.7	+57.7	13.8	19	48.2	+57.8	14.0	21	44.6	+57.9	14.2	23	40.8	+58.2	14.4	25	37.0	+58.3	14.6	56
18	49.4	+57.6	13.5	20	46.0	+57.8	13.7	22	42.5	+58.0	13.9	24	39.0	+58.0	14.1	26	35.3	+58.2	14.3	57
19	47.0	+57.6	13.2	21	43.8	+57.7	13.4	23	40.5	+57.9	13.6	25	37.0	+58.1	13.8	27	33.5	+58.2	14.1	58
20	44.6	+57.6	12.9	22	41.5	+57.8	13.1	24	38.4	+57.8	13.3	26	35.1	+58.0	13.5	28	31.7	+58.1	13.8	59
21	42.2	+57.6	12.6	23	39.3	+57.7	12.8	25	36.2	+57.9	13.0	27	33.1	+58.0	13.3	29	29.8	+58.1	13.5	60
22	39.8	+57.5	12.3	24	37.0	+57.6	12.5	26	34.1	+57.8	12.7	28	31.1	+57.9	13.0	30	27.9	+58.1	13.2	61
23	37.3	+57.5	12.0	25	34.6	+57.6	12.2	27	31.9	+57.7	12.4	29	29.0	+57.9	12.7	31	26.0	+58.0	12.9	62
24	34.8	+57.4	11.7	26	32.2	+57.6	11.9	28	29.6	+57.7	12.1	30	26.9	+57.8	12.4	32	24.0	+58.0	12.6	63
25	32.2	+57.4	11.4	27	29.8	+57.6	11.6	29	27.3	+57.7	11.8	31	24.7	+57.8	12.1	33	22.0	+58.0	12.3	64
26	29.6	+57.4	11.1	28	27.4	+57.5	11.3	30	25.0	+57.6	11.5	32	22.5	+57.8	11.7	34	20.0	+57.9	12.0	65
27	27.0	+57.3	10.7	29	24.9	+57.4	10.9	31	22.6	+57.6	11.2	33	20.3	+57.7	11.4	35	17.9	+57.8	11.7	66
28	24.3	+57.3	10.4	30	22.3	+57.4	10.6	32	20.2	+57.5	10.8	34	18.0	+57.7	11.1	36	15.7	+57.8	11.4	67
29	21.6	+57.2	10.1	31	19.7	+57.3	10.3	33	17.7	+57.5	10.5	35	15.7	+57.6	10.8	37	13.5	+57.7	11.0	68
30	18.8	+57.1	9.7	32	17.0	+57.3	9.9	34	15.2	+57.4	10.2	36	13.3	+57.5	10.4	38	11.2	+57.7	10.7	69
31	15.9	+57.1	9.4	33	14.3	+57.2	9.6	35	12.6	+57.3	9.8	37	10.8	+57.5	10.1	39	08.9	+57.6	10.3	70
32	13.0	+57.1	9.0	34	11.5	+57.2	9.2	36	09.9	+57.3	9.4	38	08.3	+57.4	9.7	40	06.5	+57.5	10.0	71
33	10.1	+56.9	8.6	35	08.7	+57.1	8.8	37	07.2	+57.2	9.1	39	05.7	+57.3	9.3	41	04.0	+57.5	9.6	72
34	07.0	+56.9	8.3	36	05.8	+57.0	8.5	38	04.4	+57.1	8.7	40	03.0	+57.2	8.9	42	01.5	+57.4	9.2	73
35	03.9	+56.8	7.9	37	02.8	+56.9	8.1	39	01.5	+57.1	8.3	41	00.2	+57.2	8.5	42	58.9	+57.3	8.8	74
36	00.7	+56.8	7.5	37	59.7	+56.8	7.7	39	58.6	+56.9	7.9	41	57.4	+57.1	8.1	43	56.2	+57.2	8.4	75
36	57.5	+56.6	7.1	38	56.5	+56.8	7.3	40	55.5	+56.9	7.5	42	54.5	+57.0	7.7	44	53.4	+57.1	8.0	76
37	54.1	+56.6	6.7	39	53.3	+56.7	6.8	41	52.4	+56.8	7.1	43	51.5	+56.9	7.3	45	50.5	+57.0	7.5	77
38	50.7	+56.5	6.2	40	50.0	+56.5	6.4	42	49.2	+56.7	6.6	44	48.4	+56.7	6.8	46	47.5	+56.9	7.1	78
39	47.2	+56.3	5.8	41	46.5	+56.5	6.0	43	45.9	+56.5	6.2	45	45.1	+56.7	6.4	47	44.4	+56.7	6.6	79
40	43.5	+56.3	5.3	42	43.0	+56.3	5.5	44	42.4	+56.5	5.7	46	41.8	+56.6	5.9	48	41.1	+56.7	6.1	80
41	39.8	+56.1	4.9	43	39.3	+56.3	5.0	45	38.9	+56.3	5.2	47	38.4	+56.4	5.4	49	37.8	+56.5	5.6	81
42	35.9	+56.1	4.4	44	35.6	+56.1	4.6	46	35.2	+56.2	4.7	48	34.8	+56.2	4.9	50	34.3	+56.4	5.1	82
43	32.0	+55.9	3.9	45	31.7	+55.9	4.1	47	31.4	+56.0	4.2	49	31.0	+56.2	4.4	51	30.7	+56.2	4.6	83
44	27.9	+55.7	3.4	46	27.6	+55.9	3.5	48	27.4	+55.9	3.7	50	27.2	+55.9	3.8	52	26.9	+56.0	4.0	84
45	23.6	+55.6	2.9	47	23.5	+55.6	3.0	49	23.3	+55.7	3.1	51	23.1	+55.8	3.3	53	22.9	+55.9	3.4	85
46	19.2	+55.5	2.4	48	19.1	+55.5	2.4	50	19.0	+55.6	2.5	52	18.9	+55.6	2.7	54	18.8	+55.6	2.8	86
47	14.7	+55.3	1.8	49	14.6	+55.4	1.9	51	14.6	+55.3	1.9	53	14.5	+55.4	2.0	55	14.4	+55.5	2.1	87
48	10.0	+55.1	1.2	50	10.0	+55.1	1.3	52	09.9	+55.2	1.3	54	09.9	+55.2	1.4	56	09.9	+55.2	1.5	88
49	05.1	+54.9	0.6	51	05.1	+54.9	0.6	53	05.1	+54.9	0.7	55	05.1	+54.9	0.7	57	05.1	+54.9	0.7	89
50	00.0	+54.7	0.0	52	00.0	+54.7	0.0	54	00.0	+54.7	0.0	56	00.0	+54.7	0.0	58	00.0	+54.7	0.0	90

LATITUDE SAME NAME

L.H.A. 156°, 204°

26°, 334° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	67 31.9	+5.7	83.4	67 40.7	+11.0	88.3	67 39.2	+16.5	93.1	67 27.6	+21.7	97.9	67 06.1	+26.7	102.7
31	67 37.6	+3.1	80.8	67 51.7	+8.6	85.7	67 55.7	+14.0	90.6	67 49.3	+19.4	95.5	67 32.8	+24.5	100.3
32	67 40.7	+0.5	78.2	68 00.3	+6.0	83.0	68 09.7	+11.5	88.0	68 08.7	+17.0	93.0	67 57.3	+22.3	97.9
33	67 41.2	-2.0	75.5	68 06.3	+3.4	80.4	68 21.2	+9.0	85.3	68 25.7	+14.6	90.4	68 19.6	+20.1	95.4
34	67 39.2	-4.5	72.9	68 09.7	+0.8	77.7	68 30.2	+6.4	82.6	68 40.3	+12.0	87.7	68 39.7	+17.6	92.9
35	67 34.7	-7.1	70.3	68 10.5	-1.8	75.0	68 36.6	+3.7	79.9	68 52.3	+9.4	85.0	68 57.3	+15.1	90.2
36	67 27.6	-9.5	67.7	68 08.7	-4.4	72.3	68 40.3	+1.0	77.2	69 01.7	+6.7	82.3	69 12.4	+12.5	87.5
37	67 18.1	-12.0	65.1	68 04.3	-7.0	69.6	68 41.3	-1.6	74.4	69 08.4	+4.0	79.5	69 24.9	+9.8	84.7
38	67 06.1	-14.3	62.6	67 57.3	-9.5	67.0	68 39.7	-4.3	71.7	69 12.4	+1.3	76.7	69 34.7	+7.1	81.9
39	66 51.8	-16.6	60.1	67 47.8	-12.0	64.4	68 35.4	-7.0	68.9	69 13.7	-1.5	73.9	69 41.8	+4.3	79.1
40	66 35.2	-18.8	57.7	67 35.8	-14.5	61.8	68 28.4	-9.6	66.2	69 12.2	-4.3	71.0	69 46.1	+1.4	76.2
41	66 16.4	-20.9	55.3	67 21.3	-16.7	59.2	68 18.8	-12.1	63.6	69 07.9	-7.0	68.2	69 47.5	-1.4	73.3
42	65 55.5	-22.9	53.0	67 04.6	-19.0	56.8	68 06.7	-14.6	60.9	69 00.9	-9.7	65.5	69 46.1	-4.3	70.4
43	65 32.6	-24.9	50.7	66 45.6	-21.2	54.3	67 52.1	-16.9	58.3	68 51.2	-12.2	62.7	69 41.8	-7.1	67.5
44	65 07.7	-26.8	48.6	66 24.4	-23.3	52.0	67 35.2	-19.3	55.8	68 39.0	-14.9	60.0	69 34.7	-9.8	64.7
45	64 40.9	-28.4	46.5	66 01.1	-25.2	49.7	67 15.9	-21.5	53.3	68 24.1	-17.2	57.4	69 24.9	-12.5	61.8
46	64 12.5	-30.2	44.4	65 35.9	-27.1	47.5	66 54.4	-23.6	50.9	68 06.9	-19.7	54.8	69 12.4	-15.1	59.1
47	63 42.3	-31.6	42.4	65 08.8	-28.8	45.3	66 30.8	-25.7	48.6	67 47.2	-21.9	52.3	68 57.3	-17.6	56.4
48	63 10.7	-33.2	40.5	64 40.0	-30.5	43.3	66 05.1	-27.5	46.4	67 25.3	-24.0	49.8	68 39.7	-20.1	53.7
49	62 37.5	-34.5	38.7	64 09.5	-32.1	41.3	65 37.6	-29.3	44.2	67 01.3	-26.1	47.5	68 19.6	-22.3	51.1
50	62 03.0	-35.8	37.0	63 37.4	-33.6	39.4	65 08.3	-31.0	42.1	66 35.2	-28.0	45.2	67 57.3	-24.6	48.7
51	61 27.2	-37.1	35.3	63 03.8	-35.0	37.5	64 37.3	-32.5	40.1	66 07.2	-29.8	43.0	67 32.7	-26.6	46.2
52	60 50.1	-38.2	33.6	62 28.8	-36.2	35.7	64 04.8	-34.1	38.1	65 37.4	-31.5	40.8	67 06.1	-28.6	43.9
53	60 11.9	-39.2	32.1	61 52.6	-37.5	34.0	63 30.7	-35.5	36.3	65 05.9	-33.1	38.8	66 37.5	-30.4	41.7
54	59 32.7	-40.2	30.6	61 15.1	-38.7	32.4	62 55.2	-36.7	34.5	64 32.8	-34.7	36.8	66 07.1	-32.1	39.5
55	58 52.5	-41.2	29.1	60 36.4	-39.7	30.8	62 18.5	-38.0	32.8	63 58.1	-36.0	35.0	65 35.0	-33.8	37.5
56	58 11.3	-42.1	27.7	59 56.7	-40.6	29.3	61 40.5	-39.2	31.1	63 22.1	-37.3	33.2	65 01.2	-35.2	35.5
57	57 29.2	-42.8	26.4	59 16.1	-41.7	27.9	61 01.3	-40.2	29.5	62 44.8	-38.6	31.4	64 26.0	-36.7	33.6
58	56 46.4	-43.7	25.1	58 34.4	-42.5	26.5	60 21.1	-41.2	28.0	62 06.2	-39.7	29.8	63 49.3	-37.9	31.8
59	56 02.7	-44.4	23.8	57 51.9	-43.3	25.1	59 39.9	-42.1	26.6	61 26.5	-40.7	28.2	63 11.4	-39.2	30.0
60	55 18.3	-45.0	22.6	57 08.6	-44.1	23.8	58 57.8	-43.0	25.2	60 45.8	-41.8	26.7	62 32.2	-40.3	28.4
61	54 33.3	-45.6	21.5	56 24.5	-44.7	22.6	58 14.8	-43.7	23.8	60 04.0	-42.6	25.2	61 51.9	-41.3	26.8
62	53 47.7	-46.3	20.4	55 39.8	-45.5	21.4	57 31.1	-44.6	22.5	59 21.4	-43.5	23.8	61 10.6	-42.4	25.3
63	53 01.4	-46.8	19.3	54 54.3	-46.1	20.3	56 46.5	-45.2	21.3	58 37.9	-44.3	22.5	60 28.2	-43.2	23.8
64	52 14.6	-47.3	18.3	54 08.2	-46.6	19.1	56 01.3	-45.9	20.1	57 53.6	-45.1	21.2	59 45.0	-44.1	22.4
65	51 27.3	-47.9	17.3	53 21.6	-47.2	18.1	55 15.4	-46.5	19.0	57 08.5	-45.7	20.0	59 00.9	-44.9	21.1
66	50 39.4	-48.2	16.3	52 34.4	-47.7	17.1	54 28.9	-47.1	17.9	56 22.8	-46.4	18.8	58 16.0	-45.6	19.8
67	49 51.2	-48.7	15.4	51 46.7	-48.2	16.1	53 41.8	-47.7	16.8	55 36.4	-47.0	17.7	57 30.4	-46.3	18.6
68	49 02.5	-49.2	14.5	50 58.5	-48.7	15.1	52 54.1	-48.1	15.8	54 49.4	-47.6	16.6	56 44.1	-46.9	17.4
69	48 13.3	-49.5	13.6	50 09.8	-49.0	14.2	52 06.0	-48.6	14.8	54 01.8	-48.1	15.5	55 57.2	-47.5	16.3
70	47 23.8	-49.8	12.8	49 20.8	-49.5	13.3	51 17.4	-49.1	13.9	53 13.7	-48.5	14.5	55 09.7	-48.0	15.2
71	46 34.0	-50.2	12.0	48 31.3	-49.9	12.4	50 28.3	-49.4	13.0	52 25.2	-49.1	13.5	54 21.7	-48.6	14.2
72	45 43.8	-50.5	11.2	47 41.4	-50.1	11.6	49 38.9	-49.9	12.1	51 36.1	-49.4	12.6	53 33.1	-49.0	13.2
73	44 53.3	-50.8	10.4	46 51.3	-50.6	10.8	48 49.0	-50.2	11.2	50 46.7	-49.9	11.7	52 44.1	-49.5	12.2
74	44 02.5	-51.1	9.7	46 00.7	-50.8	10.0	47 58.8	-50.5	10.4	49 56.8	-50.3	10.8	51 54.6	-50.0	11.3
75	43 11.4	-51.3	9.0	45 09.9	-51.1	9.3	47 08.3	-50.9	9.6	49 06.5	-50.6	10.0	51 04.6	-50.3	10.4
76	42 20.1	-51.7	8.2	44 18.8	-51.4	8.5	46 17.4	-51.2	8.8	48 15.9	-50.9	9.2	50 14.3	-50.6	9.5
77	41 28.4	-51.8	7.6	43 27.4	-51.7	7.8	45 26.2	-51.4	8.1	47 25.0	-51.3	8.4	49 23.7	-51.1	8.7
78	40 36.6	-52.1	6.9	42 35.7	-51.9	7.1	44 34.8	-51.8	7.4	46 33.7	-51.5	7.6	48 32.6	-51.3	7.9
79	39 44.5	-52.2	6.2	41 43.8	-52.1	6.4	43 43.0	-52.0	6.6	45 42.2	-51.8	6.9	47 41.3	-51.7	7.1
80	38 52.3	-52.5	5.6	40 51.7	-52.4	5.8	42 51.0	-52.2	6.0	44 50.4	-52.1	6.2	46 49.6	-51.9	6.4
81	37 59.8	-52.7	5.0	39 59.3	-52.6	5.1	41 58.8	-52.4	5.3	43 58.3	-52.3	5.5	45 57.7	-52.2	5.7
82	37 07.1	-52.9	4.4	39 06.7	-52.7	4.5	41 06.4	-52.7	4.6	43 06.0	-52.6	4.8	45 05.5	-52.4	5.0
83	36 14.2	-53.0	3.8	38 14.0	-53.0	3.9	40 13.7	-52.9	4.0	42 13.4	-52.8	4.1	44 13.1	-52.7	4.3
84	35 21.2	-53.2	3.2	37 21.0	-53.1	3.3	39 20.8	-53.0	3.4	41 20.6	-53.0	3.5	43 20.4	-52.9	3.6
85	34 28.0	-53.3	2.7	36 27.9	-53.3	2.7	38 27.8	-53.3	2.8	40 27.6	-53.2	2.9	42 27.5	-53.1	3.0
86	33 34.7	-53.5	2.1	35 34.6	-53.4	2.2	37 34.5	-53.4	2.2	39 34.4	-53.3	2.3	41 34.4	-53.4	2.3
87	32 41.2	-53.6	1.6	34 41.2	-53.6	1.6	36 41.1	-53.5	1.6	38 41.1	-53.5	1.7	40 41.0	-53.5	1.7
88	31 47.6	-53.7	1.0	33 47.6	-53.7	1.1	35 47.6	-53.7	1.1	37 47.6	-53.7	1.1	39 47.5	-53.7	1.1
89	30 53.9	-53.9	0.5	32 53.9	-53.9	0.5	34 53.9	-53.9	0.5	36 53.9	-53.9	0.5	38 53.8	-53.8	0.6
90	30 00.0	-54.0	0.0	32 00.0	-54.0	0.0	34 00.0	-54.0	0.0	36 00.0	-54.0	0.0	38 00.0	-54.0	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 26°, 334°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
25 05.6	-54.5	155.2	23 16.5	-54.9	155.6	21 27.1	-55.3	155.9	19 37.4	-55.6	156.2	17 47.4	-55.9	156.5	30
24 11.1	-54.6	155.7	22 21.6	-55.0	156.0	20 31.8	-55.3	156.3	18 41.8	-55.7	156.6	16 51.5	-56.0	156.9	31
23 16.5	-54.7	156.1	21 26.6	-55.0	156.5	19 36.5	-55.4	156.8	17 46.1	-55.7	157.0	15 55.5	-56.0	157.3	32
22 21.8	-54.7	156.6	20 31.6	-55.1	156.9	18 41.1	-55.4	157.2	16 50.4	-55.8	157.4	14 59.5	-56.0	157.6	33
21 27.1	-54.8	157.0	19 36.5	-55.2	157.3	17 45.7	-55.5	157.6	15 54.6	-55.7	157.8	14 03.5	-56.1	158.0	34
20 32.3	-54.9	157.5	18 41.3	-55.2	157.7	16 50.2	-55.6	158.0	14 58.9	-55.9	158.2	13 07.4	-56.1	158.4	35
19 37.4	-55.0	157.9	17 46.1	-55.3	158.1	15 54.6	-55.5	158.4	14 03.0	-55.8	158.6	12 11.3	-56.2	158.7	36
18 42.4	-55.0	158.3	16 50.8	-55.3	158.5	14 59.1	-55.6	158.8	13 07.2	-55.9	158.9	11 15.1	-56.1	159.1	37
17 47.4	-55.0	158.7	15 55.5	-55.3	158.9	14 03.5	-55.7	159.1	12 11.3	-56.0	159.3	10 19.0	-56.2	159.4	38
16 52.4	-55.1	159.1	15 00.2	-55.4	159.3	13 07.8	-55.7	159.5	11 15.3	-55.9	159.7	9 22.8	-56.2	159.8	39
15 57.3	-55.2	159.6	14 04.8	-55.5	159.7	12 12.1	-55.7	159.9	10 19.4	-56.0	160.0	8 26.3	-56.3	160.2	40
15 02.1	-55.2	160.0	13 09.3	-55.4	160.1	11 16.4	-55.7	160.3	9 23.4	-56.0	160.4	7 30.3	-56.2	160.5	41
14 06.9	-55.2	160.4	12 13.9	-55.5	160.5	10 20.7	-55.8	160.7	8 27.4	-56.0	160.8	6 34.1	-56.3	160.9	42
13 11.7	-55.3	160.8	11 18.4	-55.6	160.9	9 24.9	-55.8	161.0	7 31.4	-56.0	161.1	5 37.8	-56.3	161.2	43
12 16.4	-55.3	161.2	10 22.8	-55.5	161.3	8 29.1	-55.8	161.4	6 35.4	-56.1	161.5	4 41.5	-56.2	161.6	44
11 21.1	-55.3	161.6	9 27.3	-55.6	161.7	7 33.3	-55.8	161.8	5 39.3	-56.1	161.9	3 45.3	-56.3	161.9	45
10 25.8	-55.4	162.0	8 31.7	-55.6	162.1	6 37.5	-55.9	162.1	4 43.2	-56.0	162.2	2 49.0	-56.3	162.2	46
9 30.4	-55.3	162.4	7 36.1	-55.7	162.4	5 41.6	-55.8	162.5	3 47.2	-56.1	162.6	1 52.7	-56.3	162.6	47
8 35.1	-55.5	162.7	6 40.4	-55.6	162.8	4 45.8	-55.9	162.9	2 51.1	-56.1	162.9	0 56.4	-56.4	162.9	48
7 39.6	-55.4	163.1	5 44.8	-55.7	163.2	3 49.9	-55.9	163.2	1 55.0	-56.1	163.3	0 00.0	-56.3	163.3	49
6 44.2	-55.4	163.5	4 49.1	-55.6	163.6	2 54.0	-55.9	163.6	0 53.3	+56.1	15.7	0 56.3	+56.3	16.4	50
5 48.8	-55.5	163.9	3 53.5	-55.7	163.9	1 58.1	-55.9	164.0	0 02.8	-56.1	164.0	1 52.6	+56.3	16.0	51
4 53.3	-55.5	164.3	2 57.8	-55.7	164.3	1 02.2	-55.9	164.3	0 06.3	-55.9	164.7	1 49.4	+56.3	15.7	52
3 57.8	-55.5	164.7	2 02.1	-55.7	164.7	0 06.3	-55.9	164.7	1 49.4	+56.1	15.3	3 45.2	+56.2	15.3	53
3 02.3	-55.5	165.0	1 06.4	-55.7	165.1	0 49.6	+55.9	14.9	2 45.5	+56.1	14.9	4 41.4	+56.3	15.0	54
2 06.8	-55.5	165.4	0 10.7	-55.7	165.4	1 45.5	+55.9	14.6	3 41.6	+56.1	14.6	5 37.7	+56.3	14.6	55
1 11.3	-55.5	165.8	0 45.0	+55.7	14.2	2 41.4	+55.8	14.2	4 37.7	+56.0	14.2	6 34.0	+56.2	14.3	56
0 15.8	-55.5	166.2	1 40.7	+55.7	13.8	3 37.2	+55.9	13.8	5 33.7	+56.1	13.9	7 30.2	+56.3	13.9	57
0 39.7	+55.5	13.4	2 36.4	+55.7	13.4	4 33.1	+55.9	13.5	6 29.8	+56.0	13.5	8 26.5	+56.2	13.6	58
1 35.2	+55.5	13.1	3 32.1	+55.7	13.1	5 29.0	+55.8	13.1	7 25.8	+56.1	13.2	9 22.7	+56.2	13.2	59
2 30.7	+55.5	12.7	4 27.8	+55.6	12.7	6 24.8	+55.9	12.7	8 21.9	+56.0	12.8	10 18.9	+56.1	12.9	60
3 26.2	+55.5	12.3	5 23.4	+55.7	12.3	7 20.7	+55.8	12.4	9 17.9	+55.9	12.4	11 15.0	+56.2	12.5	61
4 21.7	+55.5	11.9	6 19.1	+55.6	12.0	8 16.5	+55.8	12.0	10 13.8	+56.0	12.1	12 11.2	+56.1	12.2	62
5 17.2	+55.4	11.5	7 14.7	+55.6	11.6	9 12.3	+55.8	11.6	11 09.8	+55.9	11.7	13 07.3	+56.1	11.8	63
6 12.6	+55.5	11.1	8 10.3	+55.6	11.2	10 08.1	+55.7	11.3	12 05.7	+55.9	11.3	14 03.4	+56.0	11.4	64
7 08.1	+55.4	10.8	9 05.9	+55.6	10.8	11 03.8	+55.7	10.9	13 01.6	+55.9	11.0	14 59.4	+56.0	11.1	65
8 03.5	+55.4	10.4	10 01.5	+55.6	10.4	11 59.5	+55.7	10.5	13 57.5	+55.8	10.6	15 55.4	+56.0	10.7	66
8 58.9	+55.4	10.0	10 57.1	+55.5	10.0	12 55.2	+55.7	10.1	14 53.3	+55.8	10.2	16 51.4	+55.9	10.3	67
9 54.3	+55.3	9.6	11 52.6	+55.5	9.7	13 50.9	+55.6	9.7	15 49.1	+55.8	9.8	17 47.3	+55.9	9.9	68
10 49.6	+55.3	9.2	12 48.1	+55.4	9.3	14 46.5	+55.6	9.4	16 44.9	+55.7	9.4	18 43.2	+55.9	9.5	69
11 44.9	+55.3	8.8	13 43.5	+55.4	8.9	15 42.1	+55.5	9.0	17 40.6	+55.7	9.1	19 39.1	+55.8	9.2	70
12 40.2	+55.3	8.4	14 38.9	+55.4	8.5	16 37.6	+55.5	8.6	18 36.3	+55.6	8.7	20 34.9	+55.7	8.8	71
13 35.5	+55.2	8.0	15 34.3	+55.3	8.1	17 33.1	+55.4	8.2	19 31.9	+55.5	8.3	21 30.6	+55.7	8.4	72
14 30.7	+55.2	7.6	16 29.6	+55.3	7.7	18 28.5	+55.4	7.8	20 27.4	+55.5	7.9	22 26.3	+55.6	8.0	73
15 25.9	+55.1	7.2	17 24.9	+55.2	7.3	19 23.9	+55.4	7.4	21 22.9	+55.5	7.5	23 21.9	+55.6	7.6	74
16 21.0	+55.1	6.8	18 20.1	+55.2	6.9	20 19.3	+55.3	6.9	22 18.4	+55.4	7.0	24 17.5	+55.5	7.2	75
17 16.1	+55.0	6.4	19 15.3	+55.2	6.4	21 14.6	+55.2	6.5	23 13.8	+55.3	6.6	25 13.0	+55.4	6.7	76
18 11.1	+55.0	6.0	20 10.5	+55.0	6.0	22 09.8	+55.1	6.1	24 09.1	+55.2	6.2	26 08.4	+55.3	6.3	77
19 06.1	+54.9	5.5	21 05.5	+55.0	5.6	23 04.9	+55.1	5.7	25 04.3	+55.2	5.8	27 03.7	+55.3	5.9	78
20 01.0	+54.8	5.1	22 00.5	+54.9	5.2	24 00.0	+55.0	5.3	25 59.5	+55.1	5.3	27 59.0	+55.1	5.4	79
20 55.8	+54.8	4.7	22 55.4	+54.9	4.7	24 55.0	+55.0	4.8	26 54.6	+55.0	4.9	28 54.1	+55.1	5.0	80
21 50.6	+54.7	4.2	23 50.3	+54.8	4.3	25 50.0	+54.8	4.4	27 49.6	+54.9	4.4	29 49.2	+55.0	4.5	81
22 45.3	+54.7	3.8	24 45.1	+54.7	3.9	26 44.8	+54.8	3.9	28 44.5	+54.8	4.0	30 44.2	+54.9	4.1	82
23 40.0	+54.6	3.3	25 39.8	+54.6	3.4	27 39.6	+54.6	3.5	29 39.3	+54.8	3.5	31 39.1	+54.8	3.6	83
24 34.6	+54.4	2.9	26 34.4	+54.5	2.9	28 34.2	+54.6	3.0	30 34.1	+54.6	3.1	32 33.9	+54.7	3.1	84
25 29.0	+54.4	2.4	27 28.9	+54.5	2.5	29 28.8	+54.5	2.5	31 28.7	+54.5	2.6	33 28.6	+54.5	2.6	85
26 23.4	+54.3	2.0	28 23.4	+54.3	2.0	30 23.3	+54.3	2.0	32 23.2	+54.4	2.1	34 23.1	+54.4	2.1	86
27 17.7	+54.2	1.5	29 17.7	+54.2	1.5	31 17.6	+54.3	1.5	33 17.6	+54.3	1.6	35 17.5	+54.3	1.6	87
28 11.9	+54.1	1.0	30 11.9	+54.1	1.0	32 11.9	+54.1	1.0	34 11.9	+54.1	1.1	36 11.8	+54.2	1.1	88
29 06.0	+54.0	0.5	31 06.0	+54.0	0.5	33 06.0	+54.0	0.5	35 06.0	+54.0	0.5	37 06.0	+54.0	0.5	89
30 00.0	+53.9	0.0	32 00.0	+53.9	0.0	34 00.0	+53.9	0.0	36 00.0	+53.9	0.0	38 00.0	+53.8	0.0	90

LATITUDE SAME NAME

L.H.A. 154°, 206°

26°, 334° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	66 35.2	+31.2	107.2	65 55.5	+35.4	111.5	65 07.7	+39.0	115.5	64 12.5	+42.3	119.2	63 10.7	+45.1	122.7
31	67 06.4	+29.4	105.0	66 30.9	+33.7	109.5	65 46.7	+37.7	113.7	64 54.8	+41.1	117.6	63 55.8	+44.2	121.2
32	67 35.8	+27.3	102.7	67 04.6	+32.0	107.4	66 24.4	+36.2	111.7	65 35.9	+39.9	115.9	64 40.0	+43.1	119.7
33	68 03.1	+25.3	100.4	67 36.6	+30.1	105.2	67 00.6	+34.6	109.7	66 15.8	+38.6	114.0	65 23.1	+42.0	118.0
34	68 28.4	+23.1	97.9	68 06.7	+28.2	102.9	67 35.2	+32.8	107.6	66 54.4	+37.0	112.1	66 05.1	+40.8	116.3
35	68 51.5	+20.7	95.4	68 34.9	+26.0	100.5	68 08.0	+31.0	105.4	67 31.4	+35.5	110.1	66 45.9	+39.4	114.5
36	69 12.2	+18.2	92.8	69 00.9	+23.8	98.0	68 39.0	+28.9	103.1	68 06.9	+33.7	107.9	67 25.3	+38.0	112.5
37	69 30.4	+15.7	90.1	69 24.7	+21.4	95.4	69 07.9	+26.8	100.6	68 40.6	+31.8	105.7	68 03.3	+36.4	110.5
38	69 46.1	+12.9	87.3	69 46.1	+18.8	92.7	69 34.7	+24.5	98.1	69 12.4	+29.8	103.3	68 39.7	+34.6	108.3
39	69 59.0	+10.3	84.4	70 04.9	+16.2	90.0	69 59.2	+22.1	95.5	69 42.2	+27.6	100.8	69 14.3	+32.7	106.0
40	70 09.3	+7.3	81.6	70 21.1	+13.5	87.1	70 21.3	+19.5	92.7	70 09.8	+25.3	98.3	69 47.0	+30.7	103.7
41	70 16.6	+4.5	78.6	70 34.6	+10.6	84.2	70 40.8	+16.8	89.9	70 35.1	+22.8	95.6	70 17.7	+28.4	101.1
42	70 21.1	+1.6	75.7	70 45.2	+7.7	81.2	70 57.6	+13.9	87.0	70 57.9	+20.1	92.8	70 46.1	+26.1	98.5
43	70 22.7	-1.4	72.7	70 52.9	+4.7	78.2	71 11.5	+11.0	84.0	71 18.0	+17.4	89.8	71 12.2	+23.5	95.7
44	70 21.3	-4.3	69.7	70 57.6	+1.7	75.1	71 22.5	+8.0	80.9	71 35.4	+14.4	86.8	71 35.7	+20.8	92.8
45	70 17.0	-7.2	66.8	70 59.3	-1.4	72.1	71 30.5	+4.9	77.8	71 49.8	+11.4	83.7	71 56.5	+18.0	89.8
46	70 09.8	-10.0	63.8	70 57.9	-4.4	69.0	71 35.4	+1.7	74.6	72 01.2	+8.2	80.6	72 14.5	+14.9	86.7
47	69 59.8	-12.8	60.9	70 53.5	-7.4	66.0	71 37.1	-1.4	71.5	72 09.4	+5.1	77.3	72 29.4	+11.7	83.5
48	69 47.0	-15.5	58.1	70 46.1	-10.3	62.9	71 35.7	-4.5	68.3	72 14.5	+1.7	74.1	72 41.1	+8.5	80.3
49	69 31.5	-18.1	55.3	70 35.8	-13.2	60.0	71 31.2	-7.7	65.1	72 16.2	-1.4	70.8	72 49.6	+5.2	76.9
50	69 13.4	-20.5	52.6	70 22.6	-15.9	57.0	71 23.5	-10.6	62.0	72 14.8	-4.8	67.5	72 54.8	+1.8	73.5
51	68 52.9	-22.9	50.0	70 06.7	-18.6	54.2	71 12.9	-13.7	58.9	72 10.0	-8.0	64.3	72 56.6	-1.7	70.1
52	68 30.0	-25.1	47.4	69 48.1	-21.1	51.4	70 59.2	-16.4	55.9	72 02.0	-11.1	61.0	72 54.9	-5.0	66.7
53	68 04.9	-27.3	45.0	69 27.0	-23.5	48.7	70 42.8	-19.2	53.0	71 50.9	-14.2	57.9	72 49.9	-8.4	63.3
54	67 37.6	-29.2	42.6	69 03.5	-25.8	46.1	70 23.6	-21.8	50.2	71 36.7	-17.1	54.8	72 41.5	-11.7	60.0
55	67 08.4	-31.1	40.3	68 37.7	-28.0	43.6	70 01.8	-24.3	47.4	71 19.6	-19.9	51.8	72 29.8	-14.8	56.7
56	66 37.3	-32.8	38.2	68 09.7	-29.9	41.2	69 37.5	-26.5	44.8	70 59.7	-22.5	48.8	72 15.0	-17.8	53.5
57	66 04.5	-34.4	36.1	67 39.8	-31.8	38.9	69 11.0	-28.8	42.2	70 37.2	-25.1	46.0	71 57.2	-20.7	50.4
58	65 30.1	-35.9	34.1	67 08.0	-33.6	36.7	68 42.2	-30.7	39.8	70 12.1	-27.4	43.3	71 36.5	-23.4	47.4
59	64 54.2	-37.4	32.2	66 34.4	-35.2	34.6	68 11.5	-32.7	37.4	69 44.7	-29.6	40.7	71 13.1	-26.0	44.5
60	64 16.8	-38.6	30.3	65 59.2	-36.7	32.6	67 38.8	-34.3	35.2	69 15.1	-31.7	38.2	70 47.1	-28.4	41.8
61	63 38.2	-39.9	28.6	65 22.5	-38.1	30.7	67 04.5	-36.1	33.1	68 43.4	-33.5	35.9	70 18.7	-30.6	39.1
62	62 58.3	-40.9	26.9	64 44.4	-39.4	28.8	66 28.4	-37.5	31.0	68 09.9	-35.3	33.6	69 48.1	-32.6	36.6
63	62 17.4	-42.0	25.3	64 05.0	-40.5	27.1	65 50.9	-38.9	29.1	67 34.6	-37.0	31.4	69 15.5	-34.6	34.2
64	61 35.4	-43.0	23.8	63 24.5	-41.7	25.4	65 12.0	-40.2	27.3	66 57.6	-38.4	29.4	68 40.9	-36.3	31.9
65	60 52.4	-43.9	22.4	62 42.8	-42.7	23.8	64 31.8	-41.3	25.5	66 19.2	-39.8	27.5	68 04.6	-37.9	29.7
66	60 08.5	-44.7	21.0	62 00.1	-43.7	22.3	63 50.5	-42.5	23.9	65 39.4	-41.0	25.6	67 26.7	-39.4	27.7
67	59 23.8	-45.5	19.7	61 16.4	-44.6	20.9	63 08.0	-43.5	22.3	64 58.4	-42.2	23.9	66 47.3	-40.7	25.8
68	58 38.3	-46.1	18.4	60 31.8	-45.3	19.5	62 24.5	-44.4	20.8	64 16.2	-43.3	22.2	66 06.6	-42.0	23.9
69	57 52.2	-46.9	17.2	59 46.5	-46.1	18.2	61 40.1	-45.2	19.3	63 32.9	-44.3	20.7	65 24.6	-43.1	22.2
70	57 05.3	-47.5	16.0	59 00.4	-46.8	16.9	60 54.9	-46.1	18.0	62 48.6	-45.1	19.2	64 41.5	-44.1	20.5
71	56 17.8	-48.0	14.9	58 13.6	-47.5	15.7	60 08.8	-46.8	16.7	62 03.5	-46.1	17.7	63 57.4	-45.1	19.0
72	55 29.8	-48.6	13.8	57 26.1	-48.0	14.6	59 22.0	-47.4	15.4	61 17.4	-46.7	16.4	63 12.3	-46.0	17.5
73	54 41.2	-49.1	12.8	56 38.1	-48.7	13.5	58 34.6	-48.1	14.2	60 30.7	-47.5	15.1	62 26.3	-46.8	16.1
74	53 52.1	-49.5	11.8	55 49.4	-49.1	12.4	57 46.5	-48.7	13.1	59 43.2	-48.2	13.9	61 39.5	-47.6	14.7
75	53 02.6	-50.0	10.9	55 00.3	-49.6	11.4	56 57.8	-49.2	12.0	58 55.0	-48.7	12.7	60 51.9	-48.2	13.5
76	52 12.6	-50.4	10.0	54 10.7	-50.1	10.4	56 08.6	-49.7	11.0	58 06.3	-49.3	11.6	60 03.7	-48.8	12.3
77	51 22.2	-50.8	9.1	53 20.6	-50.5	9.5	55 18.9	-50.2	10.0	57 17.0	-49.8	10.5	59 14.9	-49.5	11.1
78	50 31.4	-51.1	8.2	52 30.1	-50.8	8.6	54 28.7	-50.6	9.0	56 27.2	-50.3	9.5	58 25.4	-49.9	10.0
79	49 40.3	-51.4	7.4	51 39.3	-51.3	7.7	53 38.1	-51.0	8.1	55 36.9	-50.8	8.5	57 35.5	-50.5	9.0
80	48 48.9	-51.8	6.6	50 48.0	-51.5	6.9	52 47.1	-51.4	7.2	54 46.1	-51.1	7.6	56 45.0	-50.9	8.0
81	47 57.1	-52.0	5.9	49 56.5	-52.0	6.1	51 55.7	-51.7	6.4	53 55.0	-51.6	6.7	55 54.1	-51.3	7.0
82	47 05.1	-52.4	5.1	49 04.5	-52.2	5.3	51 04.0	-52.1	5.6	53 03.4	-51.9	5.8	55 02.8	-51.8	6.1
83	46 12.7	-52.6	4.4	48 12.3	-52.4	4.6	50 11.9	-52.3	4.8	52 11.5	-52.2	5.0	54 11.0	-52.1	5.2
84	45 20.1	-52.8	3.7	47 19.9	-52.8	3.9	49 19.6	-52.7	4.0	51 19.3	-52.6	4.2	53 18.9	-52.4	4.4
85	44 27.3	-53.1	3.1	46 27.1	-53.0	3.2	48 26.9	-52.9	3.3	50 26.7	-52.8	3.4	52 26.5	-52.7	3.6
86	43 34.2	-53.2	2.4	45 34.1	-53.2	2.5	47 34.0	-53.1	2.6	49 33.9	-53.1	2.7	51 33.8	-53.1	2.8
87	42 41.0	-53.5	1.8	44 40.9	-53.4	1.8	46 40.9	-53.4	1.9	48 40.8	-53.4	2.0	50 40.7	-53.3	2.1
88	41 47.5	-53.7	1.2	43 47.5	-53.7	1.2	45 47.5	-53.7	1.3	47 47.4	-53.6	1.3	49 47.4	-53.6	1.4
89	40 53.8	-53.8	0.6	42 53.8	-53.8	0.6	44 53.8	-53.8	0.6	46 53.8	-53.8	0.6	48 53.8	-53.8	0.7
90	40 00.0	-54.0	0.0	42 00.0	-54.0	0.0	44 00.0	-54.0	0.0	46 00.0	-54.0	0.0	48 00.0	-54.0	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 26°, 334°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
15	57.3	-56.3	156.7	14	06.9	-56.5	157.0	12	16.4	-56.8	157.1	10	25.8	-57.0	157.3	8	35.1	-57.3	157.4	30
15	01.0	-56.2	157.1	13	10.4	-56.5	157.3	11	19.6	-56.8	157.5	9	28.8	-57.1	157.6	7	37.8	-57.4	157.7	31
14	04.8	-56.3	157.5	12	13.9	-56.6	157.6	10	22.8	-56.8	157.8	8	31.7	-57.1	157.9	6	40.4	-57.3	158.0	32
13	08.5	-56.4	157.8	11	17.3	-56.6	158.0	9	26.0	-56.9	158.1	7	34.6	-57.1	158.2	5	43.1	-57.3	158.3	33
12	12.1	-56.3	158.2	10	20.7	-56.6	158.3	8	29.1	-56.9	158.4	6	37.5	-57.1	158.5	4	45.8	-57.4	158.6	34
11	15.8	-56.4	158.5	9	24.1	-56.7	158.7	7	32.2	-56.8	158.8	5	40.4	-57.2	158.8	3	48.4	-57.3	158.9	35
10	19.4	-56.4	158.9	8	27.4	-56.6	159.0	6	35.4	-56.9	159.1	4	43.2	-57.1	159.2	2	51.1	-57.4	159.2	36
9	23.0	-56.4	159.2	7	30.8	-56.7	159.3	5	38.5	-57.0	159.4	3	46.1	-57.1	159.5	1	53.7	-57.3	159.5	37
8	26.6	-56.5	159.6	6	34.1	-56.7	159.7	4	41.5	-56.9	159.7	2	49.0	-57.2	159.8	0	56.4	-57.4	159.8	38
7	30.1	-56.4	159.9	5	37.4	-56.7	160.0	3	44.6	-56.9	160.0	1	51.8	-57.1	160.1	0	01.0	+57.4	19.9	39
6	33.7	-56.5	160.2	4	40.7	-56.7	160.3	2	47.7	-56.9	160.4	0	54.7	-57.2	160.4	0	58.4	+57.3	19.6	40
5	37.2	-56.5	160.6	3	44.0	-56.7	160.6	1	50.8	-57.0	160.7	0	02.5	+57.1	19.3	1	55.7	+57.4	19.3	41
4	40.7	-56.5	160.9	2	47.3	-56.8	161.0	0	53.8	-56.9	161.0	0	59.6	+57.2	19.0	2	53.1	+57.3	19.0	42
3	44.2	-56.5	161.3	1	50.5	-56.7	161.3	0	03.1	+57.0	18.7	1	56.8	+57.1	18.7	3	50.4	+57.4	18.7	43
2	47.7	-56.5	161.6	0	53.8	-56.7	161.6	1	00.1	+56.9	18.4	2	53.9	+57.2	18.4	4	47.8	+57.3	18.4	44
1	51.2	-56.5	161.9	0	02.9	+56.7	18.1	1	57.0	+56.9	18.1	3	51.1	+57.1	18.1	5	45.1	+57.3	18.2	45
0	54.7	-56.6	162.3	0	59.6	+56.8	17.7	2	53.9	+57.0	17.8	4	48.2	+57.1	17.8	6	42.4	+57.4	17.9	46
0	01.9	+56.5	17.4	1	56.4	+56.7	17.4	3	50.9	+56.9	17.4	5	45.3	+57.1	17.5	7	39.8	+57.3	17.6	47
0	58.4	+56.5	17.1	2	53.1	+56.7	17.1	4	47.8	+56.9	17.1	6	42.4	+57.1	17.2	8	37.1	+57.3	17.3	48
1	54.9	+56.5	16.7	3	49.8	+56.7	16.8	5	44.7	+56.9	16.8	7	39.5	+57.1	16.9	9	34.4	+57.2	17.0	49
2	51.4	+56.5	16.4	4	46.5	+56.7	16.4	6	41.6	+56.9	16.5	8	36.6	+57.1	16.6	10	31.6	+57.3	16.7	50
3	47.9	+56.5	16.1	5	43.2	+56.7	16.1	7	38.5	+56.9	16.2	9	33.7	+57.1	16.2	11	28.9	+57.2	16.4	51
4	44.4	+56.5	15.7	6	39.9	+56.7	15.8	8	35.4	+56.8	15.8	10	30.8	+57.0	15.9	12	26.1	+57.2	16.0	52
5	40.9	+56.4	15.4	7	36.6	+56.6	15.4	9	32.2	+56.9	15.5	11	27.8	+57.0	15.6	13	23.3	+57.2	15.7	53
6	37.3	+56.5	15.0	8	33.2	+56.7	15.1	10	29.1	+56.8	15.2	12	24.8	+57.0	15.3	14	20.5	+57.2	15.4	54
7	33.8	+56.5	14.7	9	29.9	+56.6	14.8	11	25.9	+56.8	14.9	13	21.8	+57.0	15.0	15	17.7	+57.2	15.1	55
8	30.3	+56.4	14.4	10	26.5	+56.6	14.4	12	22.7	+56.7	14.5	14	18.8	+56.9	14.7	16	14.9	+57.1	14.8	56
9	26.7	+56.4	14.0	11	23.1	+56.6	14.1	13	19.4	+56.8	14.2	15	15.7	+57.0	14.3	17	12.0	+57.1	14.5	57
10	23.1	+56.4	13.7	12	19.7	+56.5	13.8	14	16.2	+56.7	13.9	16	12.7	+56.9	14.0	18	09.1	+57.0	14.2	58
11	19.5	+56.3	13.3	13	16.2	+56.5	13.4	15	12.9	+56.7	13.5	17	09.6	+56.8	13.7	19	06.1	+57.0	13.8	59
12	15.8	+56.4	13.0	14	12.7	+56.5	13.1	16	09.6	+56.7	13.2	18	06.4	+56.8	13.3	20	03.1	+57.0	13.5	60
13	12.2	+56.3	12.6	15	09.2	+56.5	12.7	17	06.3	+56.6	12.8	19	03.2	+56.8	13.0	21	00.1	+57.0	13.2	61
14	08.5	+56.2	12.3	16	05.7	+56.4	12.4	18	02.9	+56.6	12.5	20	00.0	+56.8	12.7	21	57.1	+56.9	12.8	62
15	04.7	+56.3	11.9	17	02.1	+56.4	12.0	18	59.5	+56.5	12.2	20	56.8	+56.6	12.3	22	54.0	+56.8	12.5	63
16	01.0	+56.2	11.5	17	58.5	+56.4	11.7	19	56.0	+56.5	11.8	21	53.4	+56.7	12.0	23	50.8	+56.8	12.1	64
16	57.2	+56.1	11.2	18	54.9	+56.3	11.3	20	52.5	+56.5	11.4	22	50.1	+56.6	11.6	24	47.6	+56.8	11.8	65
17	53.3	+56.1	10.8	19	51.2	+56.2	10.9	21	49.0	+56.4	11.1	23	46.7	+56.6	11.2	25	44.4	+56.7	11.4	66
18	49.4	+56.1	10.4	20	47.4	+56.3	10.6	22	45.4	+56.3	10.7	24	43.3	+56.5	10.9	26	41.1	+56.6	11.1	67
19	45.5	+56.0	10.0	21	43.7	+56.1	10.2	23	41.7	+56.3	10.3	25	39.8	+56.4	10.5	27	37.7	+56.6	10.7	68
20	41.5	+56.0	9.7	22	39.8	+56.1	9.8	24	38.0	+56.3	10.0	26	36.2	+56.4	10.1	28	34.3	+56.5	10.3	69
21	37.5	+55.9	9.3	23	35.9	+56.1	9.4	25	34.3	+56.2	9.6	27	32.6	+56.3	9.7	29	30.8	+56.5	9.9	70
22	33.4	+55.9	8.9	24	32.0	+56.0	9.0	26	30.5	+56.1	9.2	28	28.9	+56.3	9.3	30	27.3	+56.4	9.5	71
23	29.3	+55.8	8.5	25	28.0	+55.9	8.6	27	26.6	+56.0	8.8	29	25.2	+56.1	8.9	31	23.7	+56.3	9.1	72
24	25.1	+55.7	8.1	26	23.9	+55.9	8.2	28	22.6	+56.0	8.4	30	21.3	+56.1	8.5	32	20.0	+56.2	8.7	73
25	20.8	+55.7	7.7	27	19.8	+55.7	7.8	29	18.6	+55.9	8.0	31	17.4	+56.1	8.1	33	16.2	+56.1	8.3	74
26	16.5	+55.6	7.3	28	15.5	+55.7	7.4	30	14.5	+55.8	7.5	32	13.5	+55.9	7.7	34	12.3	+56.1	7.9	75
27	12.1	+55.5	6.8	29	11.2	+55.7	7.0	31	10.3	+55.8	7.1	33	09.4	+55.8	7.3	35	08.4	+56.0	7.5	76
28	07.6	+55.5	6.4	30	06.9	+55.5	6.5	32	06.1	+55.6	6.7	34	05.2	+55.8	6.8	36	04.4	+55.8	7.0	77
29	03.1	+55.3	6.0	31	02.4	+55.5	6.1	33	01.7	+55.6	6.2	35	01.0	+55.6	6.4	37	00.2	+55.8	6.6	78
29	58.4	+55.3	5.5	31	57.9	+55.3	5.7	33	57.3	+55.4	5.8	35	56.6	+55.6	5.9	37	56.0	+55.6	6.1	79
30	53.7	+55.2	5.1	32	53.2	+55.3	5.2	34	52.7	+55.3	5.3	36	52.2	+55.4	5.5	38	51.6	+55.5	5.6	80
31	48.9	+55.0	4.6	33	48.5	+55.1	4.7	35	48.0	+55.3	4.9	37	47.6	+55.3	5.0	39	47.1	+55.4	5.1	81
32	43.9	+55.0	4.2	34	43.6	+55.0	4.3	36	43.3	+55.1	4.4	38	42.9	+55.2	4.5	40	42.5	+55.3	4.6	82
33	38.9	+54.8	3.7	35	38.6	+54.9	3.8	37	38.4	+54.9	3.9	39	38.1	+55.0	4.0	41	37.8	+55.1	4.1	83
34	33.7	+54.7	3.2	36	33.5	+54.8	3.3	38	33.3	+54.9	3.4	40	33.1	+54.9	3.5	42	32.9	+54.9	3.6	84
35	28.4	+54.6	2.7	37	28.3	+54.6	2.8	39	28.2	+54.7	2.8	41	28.0	+54.8	2.9	43	27.8	+54.8	3.0	85
36	23.0	+54.5	2.2	38	22.9	+54.5	2.2	40	22.9	+54.5	2.3	42	22.8	+54.5	2.4	44	22.6	+54.7	2.5	86
37	17.5	+54.3	1.7	39	17.4	+54.4	1.7	41	17.4	+54.4	1.7	43	17.3	+54.4	1.8	45	17.3	+54.4	1.9	87
38	11.8	+54.2	1.1	40	11.8	+54.2	1.1	42	11.8	+54.2	1.2	44	11.7	+54.3	1.2	46	11.7	+54.3	1.3	88
39	06.0	+54.0	0.6	41	06.0	+54.0	0.6	43	06.0	+54.0	0.6	45	06.0	+54.0	0.6	47	06.0	+54.0	0.6	89
40	00.0	+53.8	0.0	42	00.0	+53.8	0.0	44	00.0	+53.8	0.0	46	00.0	+53.8	0.0	48	00.0	+53.8	0.0	90

LATITUDE SAME NAME

L.H.A. 154°, 206°

26°, 334° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	62 03.0	+47.6	125.9	60 50.1	+49.7	128.8	59 32.7	+51.4	131.5	58 11.3	+52.9	133.9	56 46.4	+54.1	136.1
31	62 50.6	+46.8	124.6	61 39.8	+49.0	127.7	60 24.1	+51.0	130.5	59 04.2	+52.5	133.0	57 40.5	+53.9	135.4
32	63 37.4	+45.9	123.2	62 28.8	+48.4	126.4	61 15.1	+50.3	129.4	59 56.7	+52.1	132.1	58 34.4	+53.6	134.5
33	64 23.3	+45.0	121.7	63 17.2	+47.6	125.1	62 05.4	+49.8	128.2	60 48.8	+51.7	131.1	59 28.0	+53.1	133.6
34	65 08.3	+44.0	120.2	64 04.8	+46.7	123.8	62 55.2	+49.2	127.0	61 40.5	+51.1	130.0	60 21.1	+52.8	132.7
35	65 52.3	+42.9	118.5	64 51.5	+45.9	122.3	63 44.4	+48.4	125.7	62 31.6	+50.5	128.9	61 13.9	+52.3	131.7
36	66 35.2	+41.7	116.8	65 37.4	+44.9	120.8	64 32.8	+47.6	124.4	63 22.1	+49.9	127.7	62 06.2	+51.8	130.7
37	67 16.9	+40.4	115.0	66 22.3	+43.8	119.1	65 20.4	+46.7	123.0	64 12.0	+49.2	126.4	62 58.0	+51.3	129.6
38	67 57.3	+38.8	113.0	67 06.1	+42.6	117.4	66 07.1	+45.8	121.4	65 01.2	+48.5	125.1	63 49.3	+50.7	128.5
39	68 36.1	+37.3	111.0	67 48.7	+41.3	115.6	66 52.9	+44.7	119.8	65 49.7	+47.6	123.7	64 40.0	+50.1	127.2
40	69 13.4	+35.6	108.8	68 30.0	+39.8	113.6	67 37.6	+43.6	118.1	66 37.3	+46.7	122.2	65 30.1	+49.3	125.9
41	69 49.0	+33.6	106.5	69 09.8	+38.3	111.5	68 21.2	+42.3	116.3	67 24.0	+45.7	120.6	66 19.4	+48.6	124.5
42	70 22.6	+31.6	104.1	69 48.1	+36.5	109.3	69 03.5	+40.8	114.3	68 09.7	+44.6	118.9	67 08.0	+47.6	123.0
43	70 54.2	+29.3	101.5	70 24.6	+34.6	107.0	69 44.3	+39.3	112.2	68 54.3	+43.2	117.0	67 55.6	+46.6	121.4
44	71 23.5	+27.0	98.8	70 59.2	+32.6	104.5	70 23.6	+37.5	110.0	69 37.5	+41.9	115.1	68 42.2	+45.6	119.7
45	71 50.5	+24.3	96.0	71 31.8	+30.2	101.9	71 01.1	+35.6	107.6	70 19.4	+40.3	113.0	69 27.8	+44.3	117.9
46	72 14.8	+21.5	93.0	72 02.0	+27.8	99.2	71 36.7	+33.6	105.1	70 59.7	+38.7	110.7	70 12.1	+43.0	116.0
47	72 36.3	+18.5	89.9	72 29.8	+25.1	96.3	72 10.3	+31.2	102.5	71 38.4	+36.6	108.4	70 55.1	+41.4	113.9
48	72 54.8	+15.4	86.7	72 54.9	+22.2	93.2	72 41.5	+28.7	99.6	72 15.0	+34.6	105.8	71 36.5	+39.7	111.6
49	73 10.2	+12.1	83.4	73 17.1	+19.2	90.0	73 10.2	+26.0	96.6	72 49.6	+32.3	103.1	72 16.2	+37.8	109.2
50	73 22.3	+8.8	80.0	73 36.3	+15.9	86.7	73 36.2	+22.9	93.5	73 21.9	+29.6	100.2	72 54.0	+35.7	106.6
51	73 31.1	+5.2	76.5	73 52.2	+12.5	83.2	73 59.1	+19.9	90.2	73 51.5	+26.9	97.1	73 29.7	+33.3	103.8
52	73 36.3	+1.7	73.0	74 04.7	+9.0	79.7	74 19.0	+16.4	86.7	74 18.4	+23.8	93.8	74 03.0	+30.7	100.8
53	73 38.0	-1.8	69.4	74 13.7	+5.3	76.1	74 35.4	+12.8	83.1	74 42.2	+20.5	90.4	74 33.7	+27.8	97.7
54	73 36.2	-5.5	65.9	74 19.0	+1.5	72.4	74 48.2	+9.2	79.4	75 02.7	+16.9	86.8	75 01.5	+24.7	94.3
55	73 30.7	-8.8	62.4	74 20.5	-2.1	68.7	74 57.4	+5.3	75.6	75 19.6	+13.2	83.0	75 26.2	+21.2	90.7
56	73 21.9	-12.3	58.9	74 18.4	-5.9	65.0	75 02.7	+1.4	71.8	75 32.8	+9.3	79.2	75 47.4	+17.5	86.9
57	73 09.6	-15.6	55.5	74 12.5	-9.5	61.3	75 04.1	-2.6	67.9	75 42.1	+5.3	75.2	76 04.0	+13.5	83.0
58	72 54.0	-18.7	52.2	74 03.0	-13.0	57.7	75 01.5	-6.4	64.0	75 47.4	+1.1	71.1	76 18.4	+9.5	78.9
59	72 35.3	-21.6	49.0	73 50.0	-16.4	54.2	74 55.1	-10.2	60.2	75 48.5	-3.0	67.1	76 27.9	+5.1	74.7
60	72 13.7	-24.4	45.9	73 33.6	-19.7	50.8	74 44.9	-13.9	56.4	75 45.5	-7.1	63.0	76 33.0	+0.8	70.5
61	71 49.3	-27.0	42.9	73 13.9	-22.7	47.4	74 31.0	-17.5	52.8	75 38.4	-11.1	59.0	76 33.8	-3.6	66.2
62	71 22.3	-29.5	40.1	72 51.2	-25.5	44.3	74 13.5	-20.7	49.2	75 27.3	-14.9	55.0	76 30.2	-7.9	61.9
63	70 52.8	-31.7	37.4	72 25.7	-28.2	41.2	73 52.8	-23.9	45.8	75 12.4	-18.6	51.2	76 22.3	-12.1	57.6
64	70 21.1	-33.7	34.9	71 57.5	-30.6	38.4	73 28.9	-26.8	42.5	74 53.8	-22.0	47.5	76 10.2	-16.1	53.5
65	69 47.4	-35.6	32.4	71 26.9	-32.9	35.6	73 02.1	-29.4	39.4	74 31.8	-25.2	44.0	75 54.1	-19.9	49.5
66	69 11.8	-37.4	30.1	70 54.0	-34.9	33.0	72 32.7	-31.9	36.5	74 06.6	-28.2	40.6	75 34.2	-23.4	45.7
67	68 34.4	-39.0	28.0	70 19.1	-36.8	30.6	72 00.8	-34.2	33.7	73 38.4	-30.8	37.5	75 10.8	-26.7	42.0
68	67 55.4	-40.4	25.9	69 42.3	-38.5	28.3	71 26.6	-36.2	31.1	73 07.6	-33.3	34.5	74 44.1	-29.7	38.6
69	67 15.0	-41.7	24.0	69 03.8	-40.1	26.1	70 50.4	-38.0	28.6	72 34.3	-35.6	31.6	74 14.4	-32.4	35.3
70	66 33.3	-42.9	22.1	68 23.7	-41.5	24.0	70 12.4	-39.8	26.3	71 58.7	-37.6	29.0	73 42.0	-34.9	32.3
71	65 50.4	-44.1	20.4	67 42.2	-42.8	22.1	69 32.6	-41.3	24.1	71 21.1	-39.4	26.5	73 07.1	-37.0	29.4
72	65 06.3	-45.1	18.8	66 59.4	-44.0	20.3	68 51.3	-42.6	22.1	70 41.7	-41.0	24.2	72 30.1	-39.1	26.8
73	64 21.2	-46.0	17.2	66 15.4	-45.0	18.6	68 08.7	-43.9	20.1	70 00.7	-42.6	22.0	71 51.0	-40.8	24.3
74	63 35.2	-46.8	15.8	65 30.4	-46.0	16.9	67 24.8	-45.1	18.3	69 18.1	-43.8	20.0	71 10.2	-42.4	22.0
75	62 48.4	-47.6	14.4	64 44.4	-46.9	15.4	66 39.7	-46.1	16.6	68 34.3	-45.1	18.1	70 27.8	-43.9	19.8
76	62 00.8	-48.3	13.1	63 57.5	-47.7	14.0	65 53.6	-47.0	15.0	67 49.2	-46.2	16.3	69 43.9	-45.1	17.8
77	61 12.5	-49.0	11.8	63 09.8	-48.5	12.6	65 06.6	-47.8	13.6	67 03.0	-47.1	14.6	68 58.8	-46.3	16.0
78	60 23.5	-49.6	10.6	62 21.3	-49.1	11.3	64 18.8	-48.6	12.1	66 15.9	-48.0	13.1	68 12.5	-47.3	14.2
79	59 33.9	-50.1	9.5	61 32.2	-49.8	10.1	63 30.2	-49.3	10.8	65 27.9	-48.8	11.6	67 25.2	-48.2	12.6
80	58 43.8	-50.6	8.4	60 42.4	-50.3	9.0	62 40.9	-50.0	9.5	64 39.1	-49.6	10.2	66 37.0	-49.0	11.1
81	57 53.2	-51.2	7.4	59 52.1	-50.9	7.9	61 50.9	-50.6	8.4	63 49.5	-50.2	8.9	65 48.0	-49.8	9.6
82	57 02.0	-51.5	6.4	59 01.2	-51.3	6.8	61 00.3	-51.0	7.2	62 59.3	-50.8	7.7	64 58.2	-50.5	8.3
83	56 10.5	-51.9	5.5	58 09.9	-51.7	5.8	60 09.3	-51.6	6.2	62 08.5	-51.3	6.6	64 07.7	-51.1	7.0
84	55 18.6	-52.3	4.6	57 18.2	-52.2	4.9	59 17.7	-52.0	5.1	61 17.2	-51.9	5.5	63 16.6	-51.6	5.8
85	54 26.3	-52.7	3.8	56 26.0	-52.6	4.0	58 25.7	-52.5	4.2	60 25.3	-52.3	4.4	62 25.0	-52.2	4.7
86	53 33.6	-53.0	3.0	55 33.4	-52.9	3.1	57 33.2	-52.8	3.3	59 33.0	-52.7	3.5	61 32.8	-52.6	3.7
87	52 40.6	-53.2	2.2	54 40.5	-53.2	2.3	56 40.4	-53.1	2.4	58 40.3	-53.1	2.5	60 40.2	-53.0	2.7
88	51 47.4	-53.6	1.4	53 47.3	-53.5	1.5	55 47.3	-53.5	1.6	57 47.2	-53.4	1.6	59 47.2	-53.4	1.7
89	50 53.8	-53.8	0.7	52 53.8	-53.8	0.7	54 53.8	-53.8	0.8	56 53.8	-53.8	0.8	58 53.8	-53.8	0.8
90	50 00.0	-54.0	0.0	52 00.0	-54.1	0.0	54 00.0	-54.1	0.0	56 00.0	-54.1	0.0	58 00.0	-54.1	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 26°, 334°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
6	44.2	-57.5 157.5	4	53.3	-57.8 157.6	3	02.3	-57.9 157.7	1	11.3	-58.1 157.7	0	39.7	+58.4 22.3	30
5	46.7	-57.6 157.8	3	55.5	-57.7 157.9	2	04.4	-58.0 157.9	0	13.2	-58.2 157.9	1	38.1	+58.3 22.1	31
4	49.1	-57.5 158.1	2	57.8	-57.8 158.1	1	06.4	-58.0 158.2	0	45.0	+58.2 21.8	2	36.4	+58.4 21.8	32
3	51.6	-57.6 158.4	2	00.0	-57.8 158.4	0	08.4	-58.0 158.4	1	43.2	+58.2 21.6	3	34.8	+58.3 21.6	33
2	54.0	-57.6 158.7	1	02.2	-57.7 158.7	0	49.6	+57.9 21.3	2	41.4	+58.1 21.3	4	33.1	+58.4 21.4	34
1	56.4	-57.5 158.9	0	04.5	-57.8 159.0	1	47.5	+58.0 21.1	3	39.5	+58.2 21.1	5	31.5	+58.3 21.1	35
0	58.9	-57.6 159.2	0	53.3	+57.8 20.8	2	45.5	+58.0 20.8	4	37.7	+58.1 20.8	6	29.8	+58.3 20.9	36
0	01.3	-57.6 159.5	1	51.1	+57.8 20.5	3	43.5	+57.9 20.5	5	35.8	+58.2 20.6	7	28.1	+58.4 20.7	37
0	56.3	+57.5 20.2	2	48.9	+57.7 20.2	4	41.4	+58.0 20.3	6	34.0	+58.1 20.3	8	26.5	+58.3 20.4	38
1	53.8	+57.6 19.9	3	46.6	+57.8 20.0	5	39.4	+57.9 20.0	7	32.1	+58.2 20.1	9	24.8	+58.3 20.2	39
2	51.4	+57.5 19.6	4	44.4	+57.7 19.7	6	37.3	+58.0 19.8	8	30.3	+58.1 19.8	10	23.1	+58.3 20.0	40
3	48.9	+57.6 19.4	5	42.1	+57.8 19.4	7	35.3	+57.9 19.5	9	28.4	+58.1 19.6	11	21.4	+58.3 19.7	41
4	46.5	+57.6 19.1	6	39.9	+57.7 19.1	8	33.2	+57.9 19.2	10	26.5	+58.1 19.3	12	19.7	+58.2 19.5	42
5	44.1	+57.5 18.8	7	37.6	+57.8 18.9	9	31.1	+58.0 19.0	11	24.6	+58.1 19.1	13	17.9	+58.3 19.2	43
6	41.6	+57.5 18.5	8	35.4	+57.7 18.6	10	29.1	+57.8 18.7	12	22.7	+58.0 18.8	14	16.2	+58.2 19.0	44
7	39.1	+57.5 18.2	9	33.1	+57.7 18.3	11	26.9	+57.9 18.4	13	20.7	+58.1 18.6	15	14.4	+58.3 18.7	45
8	36.6	+57.5 17.9	10	30.8	+57.8 18.0	12	24.8	+57.9 18.2	14	18.8	+58.0 18.3	16	12.7	+58.2 18.5	46
9	34.1	+57.5 17.6	11	28.5	+57.6 17.8	13	22.7	+57.8 17.9	15	16.8	+58.1 18.1	17	10.9	+58.2 18.2	47
10	31.6	+57.5 17.4	12	26.1	+57.7 17.5	14	20.5	+57.9 17.6	16	14.9	+58.0 17.8	18	09.1	+58.1 18.0	48
11	29.1	+57.5 17.1	13	23.8	+57.6 17.2	15	18.4	+57.8 17.3	17	12.9	+57.9 17.5	19	07.2	+58.2 17.7	49
12	26.6	+57.4 16.8	14	21.4	+57.6 16.9	16	16.2	+57.8 17.1	18	10.8	+58.0 17.3	20	05.4	+58.1 17.5	50
13	24.0	+57.4 16.5	15	19.0	+57.6 16.6	17	14.0	+57.7 16.8	19	08.8	+57.9 17.0	21	03.5	+58.1 17.2	51
14	21.4	+57.4 16.2	16	16.6	+57.6 16.3	18	11.7	+57.8 16.5	20	06.7	+57.9 16.7	22	01.6	+58.1 16.9	52
15	18.8	+57.4 15.9	17	14.2	+57.5 16.0	19	09.5	+57.7 16.2	21	04.6	+57.9 16.4	22	59.7	+58.0 16.7	53
16	16.2	+57.3 15.6	18	11.7	+57.5 15.7	20	07.2	+57.7 15.9	22	02.5	+57.9 16.1	23	57.7	+58.0 16.4	54
17	13.5	+57.3 15.3	19	09.2	+57.5 15.4	21	04.9	+57.6 15.6	23	00.4	+57.8 15.9	24	55.7	+58.0 16.1	55
18	10.8	+57.3 15.0	20	06.7	+57.5 15.1	22	02.5	+57.6 15.3	23	58.2	+57.8 15.6	25	53.7	+58.0 15.8	56
19	08.1	+57.3 14.6	21	04.2	+57.4 14.8	23	00.1	+57.6 15.0	24	56.0	+57.5 15.3	26	51.7	+57.9 15.5	57
20	05.4	+57.2 14.3	22	01.6	+57.4 14.5	23	57.7	+57.6 14.7	25	53.7	+57.7 15.0	27	49.6	+57.8 15.2	58
21	02.6	+57.2 14.0	22	59.0	+57.3 14.2	24	55.3	+57.5 14.4	26	51.4	+57.7 14.7	28	47.4	+57.9 14.9	59
21	59.8	+57.1 13.7	23	56.3	+57.3 13.9	25	52.8	+57.4 14.1	27	49.1	+57.6 14.3	29	45.3	+57.8 14.6	60
22	56.9	+57.1 13.3	24	53.6	+57.3 13.6	26	50.2	+57.5 13.8	28	46.7	+57.6 14.0	30	43.1	+57.7 14.3	61
23	54.0	+57.1 13.0	25	50.9	+57.2 13.2	27	47.7	+57.3 13.5	29	44.3	+57.5 13.7	31	40.8	+57.7 14.0	62
24	51.1	+57.0 12.7	26	48.1	+57.2 12.9	28	45.0	+57.4 13.1	30	41.8	+57.5 13.4	32	38.5	+57.7 13.7	63
25	48.1	+56.9 12.3	27	45.3	+57.1 12.5	29	42.4	+57.2 12.8	31	39.3	+57.5 13.0	33	36.2	+57.5 13.3	64
26	45.0	+57.0 12.0	28	42.4	+57.1 12.2	30	39.6	+57.2 12.4	32	36.8	+57.3 12.7	34	33.7	+57.6 13.0	65
27	42.0	+56.8 11.6	29	39.5	+57.0 11.8	31	36.8	+57.2 12.1	33	34.1	+57.3 12.4	35	31.3	+57.5 12.7	66
28	38.8	+56.8 11.3	30	36.5	+56.9 11.5	32	34.0	+57.1 11.7	34	31.4	+57.3 12.0	36	28.8	+57.4 12.3	67
29	35.6	+56.7 10.9	31	33.4	+56.9 11.1	33	31.1	+57.0 11.4	35	28.7	+57.2 11.6	37	26.2	+57.3 11.9	68
30	32.3	+56.7 10.5	32	30.3	+56.8 10.7	34	28.1	+57.0 11.0	36	25.9	+57.1 11.3	38	23.5	+57.3 11.6	69
31	29.0	+56.6 10.1	33	27.1	+56.7 10.4	35	25.1	+56.9 10.6	37	23.0	+57.0 10.9	39	20.8	+57.2 11.2	70
32	25.6	+56.5 9.7	34	23.8	+56.7 10.0	36	22.0	+56.8 10.2	38	20.0	+57.0 10.5	40	18.0	+57.1 10.8	71
33	22.1	+56.5 9.3	35	20.5	+56.6 9.6	37	18.8	+56.7 9.8	39	17.0	+56.8 10.1	41	15.1	+57.0 10.4	72
34	18.6	+56.3 8.9	36	17.1	+56.5 9.1	38	15.5	+56.6 9.4	40	13.8	+56.8 9.7	42	12.1	+56.9 10.0	73
35	14.9	+56.3 8.5	37	13.6	+56.4 8.7	39	12.1	+56.6 9.0	41	10.6	+56.7 9.2	43	09.0	+56.8 9.5	74
36	11.2	+56.2 8.1	38	10.0	+56.3 8.3	40	08.7	+56.4 8.5	42	07.3	+56.6 8.8	44	05.8	+56.8 9.1	75
37	07.4	+56.0 7.6	39	06.3	+56.2 7.9	41	05.1	+56.3 8.1	43	03.9	+56.4 8.3	45	02.6	+56.6 8.6	76
38	03.4	+56.0 7.2	40	02.5	+56.1 7.4	42	01.4	+56.3 7.6	44	00.3	+56.4 7.9	45	59.2	+56.5 8.2	77
38	59.4	+55.9 6.7	40	58.6	+55.9 6.9	42	57.7	+56.0 7.2	44	56.7	+56.2 7.4	46	55.7	+56.3 7.7	78
39	55.3	+55.7 6.3	41	54.5	+55.9 6.5	43	53.7	+56.0 6.7	45	52.9	+56.1 6.9	47	52.0	+56.2 7.2	79
40	51.0	+55.6 5.8	42	50.4	+55.7 6.0	44	49.7	+55.8 6.2	46	49.0	+55.9 6.4	48	48.2	+56.1 6.6	80
41	46.6	+55.5 5.3	43	46.1	+55.6 5.4	45	45.5	+55.7 5.6	47	44.9	+55.8 5.9	49	44.3	+55.9 6.1	81
42	42.1	+55.4 4.8	44	41.7	+55.4 4.9	46	41.2	+55.6 5.1	48	40.7	+55.7 5.3	50	40.2	+55.7 5.5	82
43	37.5	+55.1 4.2	45	37.1	+55.3 4.4	47	36.8	+55.3 4.5	49	36.4	+55.4 4.5	51	35.9	+55.6 4.9	83
44	32.6	+55.1 3.7	46	32.4	+55.1 3.8	48	32.1	+55.2 4.0	50	31.8	+55.3 4.1	52	31.5	+55.3 4.3	84
45	27.7	+54.8 3.1	47	27.5	+54.9 3.2	49	27.3	+55.0 3.4	51	27.1	+55.0 3.5	53	26.8	+55.2 3.7	85
46	22.5	+54.7 2.5	48	22.4	+54.7 2.6	50	22.3	+54.8 2.7	52	22.1	+54.9 2.9	54	22.0	+54.9 3.0	86
47	17.2	+54.5 1.9	49	17.1	+54.6 2.0	51	17.1	+54.5 2.1	53	17.0	+54.6 2.2	55	16.9	+54.6 2.3	87
48	11.7	+54.3 1.3	50	11.7	+54.2 1.4	52	11.6	+54.3 1.4	54	11.6	+54.3 1.5	56	11.5	+54.4 1.6	88
49	06.0	+54.0 0.7	51	05.9	+54.1 0.7	53	05.9	+54.1 0.7	55	05.9	+54.1 0.8	57	05.9	+54.1 0.8	89
50	00.0	+53.8 0.0	52	00.0	+53.8 0.0	54	00.0	+53.8 0.0	56	00.0	+53.8 0.0	58	00.0	+53.8 0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 154°, 206°

28°, 332° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	65 48.8	+ 6.2	• 82.9	65 59.0	+ 11.3	• 87.3	65 59.8	+ 16.4	• 91.8	65 51.3	+ 21.2	• 96.3	65 33.5	+ 26.0	100.7
31	65 55.0	+ 4.0	• 80.5	66 10.3	+ 9.0	• 84.9	66 16.2	+ 14.1	• 89.5	66 12.5	+ 19.2	• 94.0	65 59.5	+ 24.0	• 98.5
32	65 59.0	+ 1.6	• 78.0	66 19.3	+ 6.7	• 82.5	66 30.3	+ 11.8	• 87.0	66 31.7	+ 16.9	• 91.6	66 23.5	+ 21.9	• 96.2
33	66 00.6	- 0.8	• 75.6	66 26.0	+ 4.3	• 80.0	66 42.1	+ 9.5	• 84.6	66 48.6	+ 14.7	• 89.2	66 45.4	+ 19.8	• 93.9
34	65 59.8	- 3.1	• 73.1	66 30.3	+ 1.9	• 77.5	66 51.6	+ 7.1	• 82.1	67 03.3	+ 12.4	• 86.7	67 05.2	+ 17.6	• 91.5
35	65 56.7	- 5.4	• 70.6	66 32.2	- 0.5	• 75.0	66 58.7	+ 4.6	• 79.5	67 15.7	+ 9.9	• 84.2	67 22.8	+ 15.2	• 89.0
36	65 51.3	- 7.8	• 68.2	66 31.7	- 2.9	• 72.5	67 03.3	+ 2.2	• 77.0	67 25.6	+ 7.5	• 81.7	67 38.0	+ 12.8	• 86.5
37	65 43.5	- 10.0	• 65.8	66 28.8	- 5.3	• 70.0	67 05.5	- 0.3	• 74.4	67 33.1	+ 4.9	• 79.1	67 50.8	+ 10.4	• 83.9
38	65 33.5	- 12.2	• 63.4	66 23.5	- 7.7	• 67.5	67 05.2	- 2.8	• 71.8	67 38.0	+ 2.4	• 76.5	68 01.2	+ 7.8	• 81.3
39	65 21.3	- 14.4	• 61.0	66 15.8	- 10.0	• 65.0	67 02.4	- 5.2	• 69.3	67 40.4	- 0.1	• 73.8	68 09.0	+ 5.3	• 78.6
40	65 06.9	- 16.5	• 58.7	66 05.8	- 12.3	• 62.6	66 57.2	- 7.7	• 66.7	67 40.3	- 2.7	• 71.2	68 14.3	+ 2.6	• 75.9
41	64 50.4	- 18.6	• 56.4	65 53.5	- 14.5	• 60.2	66 49.5	- 10.1	• 64.2	67 37.6	- 5.2	• 68.6	68 16.9	0.0	• 73.2
42	64 31.8	- 20.5	• 54.2	65 39.0	- 16.7	• 57.8	66 39.4	- 12.4	• 61.7	67 32.4	- 7.7	• 66.0	68 16.9	- 2.6	• 70.5
43	64 11.3	- 22.4	• 52.1	65 22.3	- 18.8	• 55.5	66 27.0	- 14.6	• 59.2	67 24.7	- 10.2	• 63.4	68 14.3	- 5.2	• 67.8
44	63 48.9	- 24.2	• 49.9	65 03.5	- 20.7	• 53.2	66 12.4	- 16.9	• 56.8	67 14.5	- 12.5	• 60.8	68 09.1	- 7.8	• 65.2
45	63 24.7	- 25.9	• 47.9	64 42.8	- 22.7	• 51.0	65 55.5	- 19.1	• 54.5	67 02.0	- 15.0	• 58.3	68 01.3	- 10.4	• 62.5
46	62 58.8	- 27.6	• 45.9	64 20.1	- 24.5	• 48.8	65 36.4	- 21.0	• 52.2	66 47.0	- 17.1	• 55.8	67 50.9	- 12.8	• 59.9
47	62 31.2	- 29.2	• 43.9	63 55.6	- 26.3	• 46.8	65 15.4	- 23.1	• 49.9	66 29.9	- 19.4	• 53.4	67 38.1	- 15.2	• 57.3
48	62 02.0	- 30.6	• 42.1	63 29.3	- 28.0	• 44.7	64 52.3	- 24.9	• 47.7	66 10.5	- 21.5	• 51.0	67 22.9	- 17.5	• 54.8
49	61 31.4	- 32.0	• 40.2	63 01.3	- 29.5	• 42.8	64 27.4	- 26.7	• 45.6	65 49.0	- 23.4	• 48.8	67 05.4	- 19.8	• 52.3
50	60 59.4	- 33.4	• 38.5	62 31.8	- 31.1	• 40.9	64 00.7	- 28.4	• 43.5	65 25.6	- 25.4	• 46.5	66 45.6	- 21.9	• 49.9
51	60 26.0	- 34.6	• 36.8	62 00.7	- 32.4	• 39.0	63 32.3	- 30.0	• 41.5	65 00.2	- 27.2	• 44.4	66 23.7	- 24.0	• 47.5
52	59 51.4	- 35.8	• 35.1	61 28.3	- 33.8	• 37.2	63 02.3	- 31.5	• 39.6	64 33.0	- 28.9	• 42.3	65 59.7	- 25.9	• 45.3
53	59 15.6	- 36.9	• 33.6	60 54.5	- 35.1	• 35.5	62 30.8	- 33.0	• 37.7	64 04.1	- 30.5	• 40.2	65 33.8	- 27.8	• 43.1
54	58 38.7	- 37.9	• 32.0	60 19.4	- 36.2	• 33.9	61 57.8	- 34.3	• 36.0	63 33.6	- 32.1	• 38.3	65 06.0	- 29.5	• 41.0
55	58 00.8	- 39.0	• 30.6	59 43.2	- 37.4	• 32.3	61 23.5	- 35.5	• 34.2	63 01.5	- 33.5	• 36.4	64 36.5	- 31.1	• 38.9
56	57 21.8	- 39.9	• 29.1	59 05.8	- 38.4	• 30.7	60 48.0	- 36.8	• 32.6	62 28.0	- 34.9	• 34.6	64 05.4	- 32.7	• 36.9
57	56 41.9	- 40.7	• 27.8	58 27.4	- 39.4	• 29.3	60 11.2	- 37.9	• 31.0	61 53.1	- 36.1	• 32.9	63 32.7	- 34.2	• 35.0
58	56 01.2	- 41.6	• 26.4	57 48.0	- 40.3	• 27.8	59 33.3	- 38.9	• 29.4	61 17.0	- 37.4	• 31.2	62 58.5	- 35.5	• 33.2
59	55 19.6	- 42.3	• 25.2	57 07.7	- 41.3	• 26.5	58 54.4	- 39.9	• 27.9	60 39.6	- 38.4	• 29.6	62 23.0	- 36.7	• 31.4
60	54 37.3	- 43.1	• 23.9	56 26.4	- 42.0	• 25.1	58 14.5	- 40.9	• 26.5	60 01.2	- 39.5	• 28.0	61 46.3	- 38.0	• 29.8
61	53 54.2	- 43.8	• 22.7	55 44.4	- 42.8	• 23.8	57 33.6	- 41.7	• 25.1	59 21.7	- 40.5	• 26.5	61 08.3	- 39.1	• 28.1
62	53 10.4	- 44.4	• 21.6	55 01.6	- 43.5	• 22.6	56 51.9	- 42.5	• 23.8	58 41.2	- 41.4	• 25.1	60 29.2	- 40.1	• 26.6
63	52 26.0	- 45.0	• 20.5	54 18.1	- 44.2	• 21.4	56 09.4	- 43.3	• 22.5	57 59.8	- 42.3	• 23.7	59 49.1	- 41.1	• 25.1
64	51 41.0	- 45.6	• 19.4	53 33.9	- 44.8	• 20.3	55 26.1	- 44.0	• 21.3	57 17.5	- 43.1	• 22.4	59 08.0	- 42.0	• 23.6
65	50 55.4	- 46.1	• 18.3	52 49.1	- 45.5	• 19.2	54 42.1	- 44.7	• 20.1	56 34.4	- 43.8	• 21.1	58 26.0	- 42.9	• 22.3
66	50 09.3	- 46.6	• 17.3	52 03.6	- 46.0	• 18.1	53 57.4	- 45.3	• 18.9	55 50.6	- 44.5	• 19.9	57 43.1	- 43.7	• 20.9
67	49 22.7	- 47.1	• 16.4	51 17.6	- 46.5	• 17.1	53 12.1	- 45.9	• 17.8	55 06.1	- 45.2	• 18.7	56 59.4	- 44.4	• 19.7
68	48 35.6	- 47.5	• 15.4	50 31.1	- 47.0	• 16.1	52 26.2	- 46.4	• 16.8	54 20.9	- 45.8	• 17.6	56 15.0	- 45.1	• 18.5
69	47 48.1	- 48.0	• 14.5	49 44.1	- 47.5	• 15.1	51 39.8	- 47.0	• 15.7	53 35.1	- 46.4	• 16.5	55 29.9	- 45.7	• 17.3
70	47 00.1	- 48.4	• 13.6	48 56.6	- 47.9	• 14.2	50 52.8	- 47.5	• 14.7	52 48.7	- 47.0	• 15.4	54 44.2	- 46.4	• 16.1
71	46 11.7	- 48.7	• 12.8	48 08.7	- 48.4	• 13.2	50 05.3	- 47.9	• 13.8	52 01.7	- 47.4	• 14.4	53 57.8	- 46.9	• 15.1
72	45 23.0	- 49.1	• 11.9	47 20.3	- 48.7	• 12.4	49 17.4	- 48.3	• 12.9	51 14.3	- 48.0	• 13.4	53 10.9	- 47.5	• 14.0
73	44 33.9	- 49.4	• 11.1	46 31.6	- 49.2	• 11.5	48 29.1	- 48.8	• 12.0	50 26.3	- 48.3	• 12.4	52 23.4	- 48.0	• 13.0
74	43 44.5	- 49.8	• 10.3	45 42.4	- 49.4	• 10.7	47 40.3	- 49.2	• 11.1	49 38.0	- 48.8	• 11.5	51 35.4	- 48.4	• 12.0
75	42 54.7	- 50.1	• 9.5	44 53.0	- 49.8	• 9.9	46 51.1	- 49.5	• 10.2	48 49.2	- 49.3	• 10.6	50 47.0	- 48.9	• 11.1
76	42 04.6	- 50.3	• 8.8	44 03.2	- 50.1	• 9.1	46 01.6	- 49.8	• 9.4	47 59.9	- 49.5	• 9.8	49 58.1	- 49.2	• 10.2
77	41 14.3	- 50.6	• 8.1	43 13.1	- 50.4	• 8.3	45 11.8	- 50.2	• 8.6	47 10.4	- 50.0	• 8.9	49 08.9	- 49.7	• 9.3
78	40 23.7	- 50.9	• 7.4	42 22.7	- 50.7	• 7.6	44 21.6	- 50.5	• 7.8	46 20.4	- 50.2	• 8.1	48 19.2	- 50.1	• 8.4
79	39 32.8	- 51.1	• 6.7	41 32.0	- 50.9	• 6.9	43 31.1	- 50.7	• 7.1	45 30.2	- 50.6	• 7.3	47 29.1	- 50.3	• 7.6
80	38 41.7	- 51.3	• 6.0	40 41.1	- 51.2	• 6.2	42 40.4	- 51.1	• 6.4	44 39.6	- 50.9	• 6.6	46 38.8	- 50.7	• 6.8
81	37 50.4	- 51.5	• 5.3	39 49.9	- 51.4	• 5.5	41 49.3	- 51.3	• 5.7	43 48.7	- 51.1	• 5.8	45 48.1	- 51.0	• 6.0
82	36 58.9	- 51.8	• 4.7	38 58.5	- 51.7	• 4.8	40 58.0	- 51.5	• 5.0	42 57.6	- 51.5	• 5.1	44 57.1	- 51.3	• 5.3
83	36 07.1	- 51.9	• 4.1	38 06.8	- 51.8	• 4.2	40 06.5	- 51.8	• 4.3	42 06.1	- 51.6	• 4.4	44 05.8	- 51.6	• 4.6
84	35 15.2	- 52.1	• 3.4	37 15.0	- 52.1	• 3.5	39 14.7	- 52.0	• 3.6	41 14.5	- 51.9	• 3.7	43 14.2	- 51.8	• 3.9
85	34 23.1	- 52.3	• 2.8	36 22.9	- 52.2	• 2.9	38 22.7	- 52.1	• 3.0	40 22.6	- 52.1	• 3.1	42 22.4	- 52.0	• 3.2
86	33 30.8	- 52.5	• 2.3	35 30.7	- 52.5	• 2.3	37 30.6	- 52.4	• 2.4	39 30.5	- 52.4	• 2.4	41 30.4	- 52.3	• 2.5
87	32 38.3	- 52.6	• 1.7	34 38.2	- 52.5	• 1.7	36 38.2	- 52.6	• 1.8	38 38.1	- 52.5	• 1.8	40 38.1	- 52.5	• 1.9
88	31 45.7	- 52.8	• 1.1	33 45.7	- 52.8	• 1.1	35 45.6	- 52.7	• 1.2	37 45.6	- 52.7	• 1.2	39 45.6	- 52.7	• 1.2
89	30 52.9	- 52.9	• 0.5	32 52.9	- 52.9	• 0.6	34 52.9	- 52.9	• 0.6	36 52.9	- 52.9	• 0.6	38 52.9	- 52.9	• 0.6
90	30 00.0	- 53.0	• 0.0	32 00.0	- 53.0	• 0.0	34 00.0	- 53.1	• 0.0	36 00.0	- 53.1	• 0.0	38 00.0	- 53.1	• 0.0

LATITUDE CONTRARY NAME

L.H.A. 28°, 332°

30°			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
24	20.6	-53.7	153.5	22	33.1	-54.2	153.9	20	45.1	-54.5	154.2	18	56.9	-54.9	154.5	17	08.5	-55.4	154.8	30
23	26.9	-53.8	154.0	21	38.9	-54.3	154.3	19	50.6	-54.7	154.7	18	02.0	-55.1	155.0	16	13.1	-55.4	155.2	31
22	33.1	-54.0	154.5	20	44.6	-54.3	154.8	18	55.9	-54.7	155.1	17	06.9	-55.1	155.4	15	17.7	-55.4	155.6	32
21	39.1	-54.0	154.9	19	50.3	-54.4	155.3	18	01.2	-54.8	155.5	16	11.8	-55.1	155.8	14	22.3	-55.5	156.0	33
20	45.1	-54.0	155.4	18	55.9	-54.5	155.7	17	06.4	-54.8	156.0	15	16.7	-55.2	156.2	13	26.8	-55.5	156.4	34
19	51.1	-54.2	155.9	18	01.4	-54.5	156.1	16	11.6	-54.9	156.4	14	21.5	-55.2	156.6	12	31.3	-55.5	156.8	35
18	56.9	-54.2	156.3	17	06.9	-54.5	156.6	15	16.7	-54.9	156.8	13	26.3	-55.2	157.0	11	35.8	-55.6	157.2	36
18	02.7	-54.2	156.8	16	12.4	-54.7	157.0	14	21.8	-55.0	157.2	12	31.1	-55.3	157.4	10	40.2	-55.6	157.6	37
17	08.5	-54.4	157.2	15	17.7	-54.6	157.4	13	26.8	-55.0	157.6	11	35.8	-55.3	157.8	9	44.6	-55.6	158.0	38
16	14.1	-54.3	157.7	14	23.1	-54.8	157.9	12	31.8	-55.0	158.1	10	40.5	-55.4	158.2	8	49.0	-55.7	158.3	39
15	19.8	-54.5	158.1	13	28.3	-54.7	158.3	11	36.8	-55.1	158.5	9	45.1	-55.5	158.6	7	53.9	-55.6	158.7	40
14	25.3	-54.5	158.5	12	33.6	-54.8	158.7	10	41.7	-55.1	158.9	8	49.7	-55.4	159.0	6	57.7	-55.7	159.1	41
13	30.8	-54.5	159.0	11	38.8	-54.9	159.1	9	46.6	-55.1	159.3	7	54.3	-55.4	159.4	6	02.0	-55.7	159.5	42
12	36.3	-54.5	159.4	10	43.9	-54.8	159.5	8	51.5	-55.2	159.7	6	58.9	-55.4	159.8	5	06.3	-55.7	159.8	43
11	41.8	-54.6	159.8	9	49.1	-54.9	160.0	7	56.3	-55.2	160.1	6	03.5	-55.5	160.1	4	10.6	-55.8	160.2	44
10	47.2	-54.7	160.2	8	54.2	-55.0	160.4	7	01.1	-55.2	160.5	5	08.0	-55.5	160.5	3	14.8	-55.7	160.6	45
9	52.5	-54.7	160.7	7	59.2	-54.9	160.8	6	05.9	-55.2	160.9	4	12.5	-55.5	160.9	2	19.1	-55.7	161.0	46
8	57.8	-54.6	161.1	7	04.3	-55.0	161.2	5	10.7	-55.2	161.2	3	17.0	-55.2	161.3	1	23.4	-55.6	161.3	47
8	03.2	-54.8	161.5	6	09.3	-55.0	161.6	4	15.5	-55.3	161.6	2	21.5	-55.4	161.7	0	27.6	-55.7	161.7	48
7	08.4	-54.7	161.9	5	14.3	-55.0	162.0	3	20.2	-55.2	162.0	1	26.1	-55.6	162.1	0	28.1	+55.8	17.9	49
6	13.7	-54.8	162.3	4	19.3	-55.0	162.4	2	25.0	-55.3	162.4	0	30.5	-55.5	162.4	0	23.9	+55.7	17.6	50
5	18.9	-54.7	162.7	3	24.3	-55.0	162.8	1	29.7	-55.3	162.8	0	25.0	+55.5	17.2	2	19.6	+55.7	17.2	51
4	24.2	-54.8	163.1	2	29.3	-55.0	163.2	0	34.4	-55.2	163.2	1	20.5	+55.5	16.8	3	15.3	+55.8	16.8	52
3	29.4	-54.8	163.6	1	34.3	-55.1	163.6	0	20.8	+55.3	16.4	2	16.0	+55.5	16.4	4	11.1	+55.7	16.5	53
2	34.6	-54.8	164.0	0	39.2	-55.0	164.0	1	16.1	+55.3	16.0	3	11.5	+55.4	16.0	5	06.8	+55.7	16.1	54
1	39.8	-54.9	164.4	0	15.8	+55.1	15.6	2	11.4	+55.2	15.6	4	06.9	+55.5	15.7	6	02.5	+55.7	15.7	55
0	44.9	-54.8	164.8	1	10.9	+55.0	15.2	3	06.6	+55.3	15.2	5	02.4	+55.5	15.3	6	58.2	+55.6	15.3	56
0	09.9	+54.8	14.8	2	05.9	+55.0	14.8	4	01.9	+55.2	14.9	5	57.9	+55.4	14.9	7	53.8	+55.7	15.0	57
1	04.7	+54.8	14.4	3	00.9	+55.0	14.4	4	57.1	+55.3	14.5	6	53.3	+55.4	14.5	8	49.5	+55.6	14.6	58
1	59.5	+54.8	14.0	3	55.9	+55.0	14.0	5	52.4	+55.2	14.1	7	48.7	+55.4	14.1	9	45.1	+55.6	14.2	59
2	54.3	+54.8	13.6	4	50.9	+55.0	13.6	6	47.6	+55.1	13.7	8	44.1	+55.4	13.7	10	40.7	+55.6	13.8	60
3	49.1	+54.8	13.2	5	45.9	+55.0	13.2	7	42.7	+55.2	13.3	9	39.5	+55.4	13.3	11	36.3	+55.5	13.4	61
4	43.9	+54.8	12.8	6	40.9	+55.0	12.8	8	37.9	+55.2	12.9	10	34.9	+55.3	13.0	12	31.8	+55.5	13.0	62
5	38.7	+54.7	12.4	7	35.9	+54.9	12.4	9	33.1	+55.1	12.5	11	30.2	+55.3	12.6	13	27.3	+55.5	12.7	63
6	33.4	+54.8	12.0	8	30.8	+54.9	12.0	10	28.2	+55.1	12.1	12	25.5	+55.3	12.2	14	22.8	+55.4	12.3	64
7	28.2	+54.7	11.5	9	25.7	+54.9	11.6	11	23.3	+55.0	11.7	13	20.8	+55.2	11.8	15	18.2	+55.4	11.9	65
8	22.9	+54.7	11.1	10	20.6	+54.9	11.2	12	18.3	+55.0	11.3	14	16.0	+55.2	11.4	16	13.6	+55.3	11.5	66
9	17.6	+54.6	10.7	11	15.5	+54.8	10.8	13	13.3	+55.0	10.9	15	11.2	+55.1	11.0	17	08.9	+55.3	11.1	67
10	12.2	+54.6	10.3	12	10.3	+54.8	10.4	14	08.3	+54.9	10.4	16	06.3	+55.1	10.5	18	04.2	+55.3	10.7	68
11	06.8	+54.6	9.9	13	05.1	+54.7	9.9	15	03.2	+54.9	10.0	17	01.4	+55.0	10.1	18	59.5	+55.2	10.2	69
12	01.4	+54.6	9.4	13	59.8	+54.7	9.5	15	58.1	+54.9	9.6	17	56.4	+55.0	9.7	19	54.7	+55.1	9.8	70
12	56.0	+54.5	9.0	14	54.5	+54.6	9.1	16	53.0	+54.7	9.2	18	51.4	+54.9	9.3	20	49.8	+55.1	9.4	71
13	50.5	+54.5	8.6	15	49.1	+54.6	8.7	17	47.7	+54.8	8.8	19	46.3	+54.9	8.9	21	44.9	+55.0	9.0	72
14	45.0	+54.4	8.2	16	43.7	+54.6	8.2	18	42.5	+54.6	8.3	20	41.2	+54.8	8.4	22	39.9	+54.9	8.6	73
15	39.4	+54.3	7.7	17	38.3	+54.5	7.8	19	37.1	+54.6	7.9	21	36.0	+54.7	8.0	23	34.8	+54.9	8.1	74
16	33.7	+54.3	7.3	18	32.8	+54.4	7.4	20	31.7	+54.6	7.5	22	30.7	+54.7	7.6	24	29.7	+54.7	7.7	75
17	28.0	+54.3	6.8	19	27.2	+54.3	6.9	21	26.3	+54.5	7.0	23	25.4	+54.6	7.1	25	24.4	+54.7	7.2	76
18	22.3	+54.2	6.4	20	21.5	+54.3	6.5	22	20.8	+54.3	6.6	24	20.0	+54.5	6.7	26	19.1	+54.6	6.8	77
19	16.5	+54.1	5.9	21	15.8	+54.2	6.0	23	15.1	+54.4	6.1	25	14.5	+54.4	6.2	27	13.7	+54.6	6.3	78
20	10.6	+54.0	5.5	22	10.0	+54.2	5.6	24	09.5	+54.2	5.6	26	08.9	+54.3	5.7	28	08.3	+54.4	5.8	79
21	04.6	+54.0	5.0	23	04.2	+54.0	5.1	25	03.7	+54.1	5.2	27	03.2	+54.2	5.3	29	02.7	+54.3	5.4	80
21	58.6	+53.9	4.5	23	58.2	+54.0	4.6	25	57.8	+54.0	4.7	27	57.4	+54.1	4.8	29	57.0	+54.2	4.9	81
22	52.5	+53.8	4.1	24	52.2	+53.8	4.1	26	51.8	+54.0	4.2	28	51.5	+54.0	4.3	30	51.2	+54.1	4.4	82
23	46.3	+53.7	3.6	25	46.0	+53.8	3.6	27	45.8	+53.8	3.7	29	45.5	+53.9	3.8	31	45.3	+53.9	3.9	83
24	40.0	+53.6	3.1	26	39.8	+53.7	3.1	28	39.6	+53.7	3.2	30	39.4	+53.8	3.3	32	39.2	+53.9	3.3	84
25	33.6	+53.5	2.6	27	33.5	+53.5	2.6	29	33.3	+53.6	2.7	31	33.2	+53.6	2.8	33	33.1	+53.7	2.8	85
26	27.1	+53.4	2.1	28	27.0	+53.5	2.1	30	26.9	+53.5	2.2	32	26.8	+53.6	2.2	34	26.8	+53.5	2.3	86
27	20.5	+53.3	1.6	29	20.5	+53.3	1.6	31	20.4	+53.3	1.6	33	20.4	+53.3	1.7	35	20.3	+53.4	1.7	87
28	13.8	+53.2	1.1	30	13.8	+53.2	1.1	32	13.7	+53.2	1.1	34	13.7	+53.2	1.1	36	13.7	+53.2	1.2	88
29	07.0	+53.0	0.5	31	07.0	+53.0	0.5	33	06.9	+53.1	0.6	35	06.9	+53.1	0.6	37	06.9	+53.1	0.6	89
30	00.0	+52.9	0.0	32	00.0	+52.9	0.0	34	00.0	+52.9	0.0	36	00.0	+52.9	0.0	38	00.0	+52.9	0.0	90

LATITUDE SAME NAME

L.H.A. 152°, 208°

28°, 332° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	65 06.9	+30.3	104.9	64 31.8	+34.4	109.0	63 48.9	+38.0	112.9	62 58.8	+41.2	116.5	62 02.0	+44.1	119.9
31	65 37.2	+28.6	102.9	65 06.2	+32.8	107.1	64 26.9	+36.6	111.1	63 40.0	+40.1	114.9	62 46.1	+43.2	118.4
32	66 05.8	+26.7	100.7	65 39.0	+31.1	105.1	65 03.5	+35.2	109.2	64 20.1	+38.8	113.2	63 29.3	+42.1	116.9
33	66 32.5	+24.7	98.5	66 10.1	+29.3	103.0	65 38.7	+33.7	107.3	64 58.9	+37.5	111.4	64 11.4	+40.9	115.3
34	66 57.2	+22.6	96.2	66 39.4	+27.5	100.8	66 12.4	+31.9	105.3	65 36.4	+36.1	109.5	64 52.3	+39.8	113.6
35	67 19.8	+20.5	93.8	67 06.9	+25.5	98.5	66 44.3	+30.2	103.1	66 12.5	+34.5	107.6	65 32.1	+38.4	111.8
36	67 40.3	+18.2	91.3	67 32.4	+23.4	96.2	67 14.5	+28.3	100.9	66 47.0	+32.9	105.5	66 10.5	+37.0	109.9
37	67 58.5	+15.8	88.8	67 55.8	+21.1	93.8	67 42.8	+26.3	98.6	67 19.9	+31.0	103.4	66 47.5	+35.4	107.9
38	68 14.3	+13.3	86.2	68 16.9	+18.8	91.2	68 09.1	+24.1	96.2	67 50.9	+29.2	101.1	67 22.9	+33.8	105.9
39	68 27.6	+10.8	83.6	68 35.7	+16.4	88.7	68 33.2	+21.8	93.8	68 20.1	+27.0	98.8	67 56.7	+31.9	103.7
40	68 38.4	+8.2	80.9	68 52.1	+13.8	86.0	68 55.0	+19.5	91.2	68 47.1	+24.9	96.4	68 28.6	+30.0	101.4
41	68 46.6	+5.5	78.2	69 05.9	+11.2	83.3	69 14.5	+16.9	88.5	69 12.0	+22.6	93.8	68 58.6	+27.9	99.0
42	68 52.1	+2.8	75.4	69 17.1	+8.6	80.5	69 31.4	+14.4	85.8	69 34.6	+20.1	91.2	69 26.5	+25.7	96.5
43	68 54.9	+0.1	72.6	69 25.7	+5.7	77.7	69 45.8	+11.6	83.0	69 54.7	+17.5	88.5	69 52.2	+23.3	93.9
44	68 55.0	-2.6	69.9	69 31.4	+3.0	74.9	69 57.4	+8.8	80.2	70 12.2	+14.8	85.7	70 15.5	+20.7	91.2
45	68 52.4	-5.3	67.1	69 34.4	+0.2	72.0	70 06.2	+6.0	77.3	70 27.0	+12.0	82.8	70 36.2	+18.2	88.4
46	68 47.1	-7.9	64.3	69 34.6	-2.7	69.2	70 12.2	+3.1	74.3	70 39.0	+9.2	79.8	70 54.4	+15.3	85.5
47	68 39.2	-10.6	61.6	69 31.9	-5.4	66.3	70 15.3	+0.2	71.4	70 48.2	+6.2	76.8	71 09.7	+12.4	82.5
48	68 28.6	-13.1	58.9	69 26.5	-8.2	63.5	70 15.5	-2.8	68.4	70 54.4	+3.1	73.8	71 22.1	+9.4	79.5
49	68 15.5	-15.6	56.3	69 18.3	-10.9	60.6	70 12.7	-5.6	65.5	70 57.5	+0.2	70.7	71 31.5	+6.3	76.4
50	67 59.9	-18.0	53.7	69 07.4	-13.5	57.9	70 07.1	-8.5	62.5	70 57.7	-2.9	67.7	71 37.8	+3.3	73.3
51	67 41.9	-20.3	51.1	68 53.9	-16.0	55.1	69 58.6	-11.2	59.6	70 54.8	-5.9	64.6	71 41.1	0.0	70.1
52	67 21.6	-22.5	48.7	68 37.9	-18.6	52.5	69 47.4	-14.0	56.8	70 48.9	-8.9	61.6	71 41.1	-3.1	66.9
53	66 59.1	-24.5	46.3	68 19.3	-20.8	49.9	69 33.4	-16.6	54.0	70 40.0	-11.7	58.6	71 38.0	-6.3	63.7
54	66 34.6	-26.6	44.0	67 58.5	-23.1	47.4	69 16.8	-19.2	51.3	70 28.3	-14.6	55.6	71 31.7	-9.3	60.6
55	66 08.0	-28.4	41.7	67 35.4	-25.3	44.9	68 57.6	-21.5	48.6	70 13.7	-17.2	52.8	71 22.4	-12.3	57.5
56	65 39.6	-30.1	39.6	67 10.1	-27.2	42.6	68 36.1	-23.9	46.0	69 56.5	-19.9	49.9	71 10.1	-15.2	54.4
57	65 09.5	-31.9	37.5	66 42.9	-29.1	40.3	68 12.2	-26.0	43.5	69 36.6	-22.3	47.2	70 54.9	-18.1	51.4
58	64 37.6	-33.3	35.6	66 13.8	-31.0	38.1	67 46.2	-28.0	41.1	69 14.3	-24.7	44.6	70 36.8	-20.7	48.5
59	64 04.3	-34.9	33.6	65 42.8	-32.6	36.0	67 18.2	-30.0	38.8	68 49.6	-26.9	42.0	70 16.1	-23.2	45.7
60	63 29.4	-36.2	31.7	65 10.2	-34.1	34.0	66 48.2	-31.7	36.6	68 22.7	-28.9	39.6	69 52.9	-25.6	43.0
61	62 53.2	-37.5	30.0	64 36.1	-35.6	32.0	66 16.5	-33.5	34.4	67 53.8	-30.9	37.2	69 27.3	-27.8	40.4
62	62 15.7	-38.6	28.3	64 00.5	-37.0	30.2	65 43.0	-35.0	32.4	67 22.9	-32.7	35.0	68 59.5	-30.0	37.9
63	61 37.1	-39.8	26.6	63 23.5	-38.2	28.4	65 08.0	-36.4	30.5	66 50.2	-34.3	32.8	68 29.5	-31.9	35.5
64	60 57.3	-40.8	25.1	62 45.3	-39.5	26.7	64 31.6	-37.8	28.6	66 15.9	-36.0	30.7	67 57.6	-33.7	33.3
65	60 16.5	-41.8	23.6	62 05.8	-40.5	25.1	63 53.8	-39.1	26.8	65 39.9	-37.4	28.8	67 23.9	-35.3	31.1
66	59 34.7	-42.7	22.2	61 25.3	-41.5	23.5	63 14.7	-40.3	25.1	65 02.5	-38.7	26.9	66 48.6	-37.0	29.0
67	58 52.0	-43.5	20.8	60 43.8	-42.5	22.0	62 34.4	-41.3	23.5	64 23.8	-40.0	25.1	66 11.6	-38.4	27.0
68	58 08.5	-44.3	19.5	60 01.3	-43.4	20.6	61 53.1	-42.3	21.9	63 43.8	-41.1	23.4	65 33.2	-39.7	25.1
69	57 24.2	-45.0	18.2	59 17.9	-44.2	19.2	61 10.8	-43.3	20.4	63 02.7	-42.2	21.8	64 53.5	-40.9	23.4
70	56 39.2	-45.7	17.0	58 33.7	-45.0	17.9	60 27.5	-44.2	19.0	62 20.5	-43.1	20.2	64 12.6	-42.1	21.7
71	55 53.5	-46.4	15.8	57 48.7	-45.7	16.7	59 43.3	-44.9	17.6	61 37.4	-44.1	18.8	63 30.5	-43.1	20.0
72	55 07.1	-46.9	14.7	57 03.0	-46.4	15.5	58 58.4	-45.7	16.3	60 53.3	-45.0	17.3	62 47.4	-44.0	18.5
73	54 20.2	-47.5	13.6	56 16.6	-46.9	14.3	58 12.7	-46.4	15.1	60 08.3	-45.7	16.0	62 03.4	-45.0	17.0
74	53 32.7	-48.0	12.6	55 29.7	-47.6	13.2	57 26.3	-47.0	13.9	59 22.6	-46.4	14.7	61 18.4	-45.8	15.6
75	52 44.7	-48.5	11.6	54 42.1	-48.1	12.1	56 39.3	-47.6	12.8	58 36.2	-47.2	13.5	60 32.6	-46.5	14.3
76	51 56.2	-49.0	10.6	53 54.0	-48.6	11.1	55 51.7	-48.2	11.7	57 49.0	-47.7	12.3	59 46.1	-47.2	13.0
77	51 07.2	-49.4	9.7	53 05.4	-49.0	10.1	55 03.5	-48.8	10.6	57 01.3	-48.3	11.2	58 58.9	-47.9	11.8
78	50 17.8	-49.8	8.8	52 16.4	-49.5	9.2	54 14.7	-49.2	9.6	56 13.0	-48.9	10.1	58 11.0	-48.5	10.7
79	49 28.0	-50.1	7.9	51 26.9	-50.0	8.3	53 25.5	-49.6	8.6	55 24.1	-49.3	9.1	57 22.5	-49.0	9.6
80	48 37.9	-50.5	7.1	50 36.9	-50.3	7.4	52 35.9	-50.1	7.7	54 34.8	-49.9	8.1	56 33.5	-49.5	8.5
81	47 47.4	-50.9	6.3	49 46.6	-50.6	6.5	51 45.8	-50.5	6.8	53 44.9	-50.2	7.1	55 44.0	-50.1	7.5
82	46 56.5	-51.1	5.5	48 56.0	-51.0	5.7	50 55.3	-50.8	5.9	52 54.7	-50.7	6.2	54 53.9	-50.4	6.5
83	46 05.4	-51.5	4.7	48 05.0	-51.4	4.9	50 04.5	-51.2	5.1	52 04.0	-51.0	5.3	54 03.5	-50.9	5.6
84	45 13.9	-51.7	4.0	47 13.6	-51.6	4.1	49 13.3	-51.5	4.3	51 13.0	-51.4	4.5	53 12.6	-51.3	4.7
85	44 22.2	-52.0	3.3	46 22.0	-51.9	3.4	48 21.8	-51.8	3.5	50 21.6	-51.8	3.7	52 21.3	-51.6	3.8
86	43 30.2	-52.2	2.6	45 30.1	-52.2	2.7	47 30.0	-52.1	2.8	49 29.8	-52.0	2.9	51 29.7	-52.0	3.0
87	42 38.0	-52.4	1.9	44 37.9	-52.4	2.0	46 37.9	-52.4	2.1	48 37.8	-52.3	2.1	50 37.7	-52.3	2.2
88	41 45.6	-52.7	1.3	43 45.5	-52.6	1.3	45 45.5	-52.6	1.3	47 45.5	-52.6	1.4	49 45.4	-52.6	1.5
89	40 52.9	-52.9	0.6	42 52.9	-52.9	0.6	44 52.9	-52.9	0.7	46 52.9	-52.9	0.7	48 52.8	-52.8	0.7
90	40 00.0	-53.1	0.0	42 00.0	-53.1	0.0	44 00.0	-53.1	0.0	46 00.0	-53.1	0.0	48 00.0	-53.1	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 28°, 332°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
15	19.8	-55.7 155.1	13	30.8	-56.0 155.3	11	41.8	-56.4 155.5	9	52.5	-56.6 155.6	8	03.2	-57.0 155.8	30
14	24.1	-55.8 155.5	12	34.8	-56.0 155.6	10	45.4	-56.3 155.8	8	55.9	-56.7 156.0	7	06.2	-56.9 156.1	31
13	28.3	-55.7 155.8	11	38.8	-56.1 156.0	9	49.1	-56.4 156.2	7	59.2	-56.6 156.3	6	09.3	-56.9 156.4	32
12	32.6	-55.8 156.2	10	42.7	-56.1 156.4	8	52.7	-56.4 156.5	7	02.6	-56.7 156.6	5	12.4	-56.9 156.7	33
11	36.8	-55.8 156.6	9	46.6	-56.1 156.7	7	56.3	-56.4 156.9	6	05.9	-56.7 157.0	4	15.5	-57.0 157.0	34
10	41.0	-55.9 157.0	8	50.5	-56.2 157.1	6	59.9	-56.4 157.2	5	09.2	-56.7 157.3	3	18.5	-57.0 157.3	35
9	45.1	-55.9 157.3	7	54.3	-56.1 157.5	6	03.5	-56.5 157.5	4	12.5	-56.7 157.6	2	21.5	-56.9 157.7	36
8	49.2	-55.9 157.7	6	58.2	-56.2 157.8	5	07.0	-56.4 157.9	3	15.8	-56.7 157.9	1	24.6	-57.0 158.0	37
7	53.3	-55.9 158.1	6	02.0	-56.2 158.2	4	10.6	-56.5 158.2	2	19.1	-56.7 158.3	0	27.6	-56.9 158.3	38
6	57.4	-55.9 158.4	5	05.8	-56.2 158.5	3	14.1	-56.5 158.6	1	22.4	-56.7 158.6	0	29.3	+57.0 21.4	39
6	01.5	-56.0 158.8	4	09.6	-56.2 158.9	2	17.6	-56.4 158.9	0	25.7	-56.7 158.9	1	26.3	+57.0 21.1	40
5	05.5	-55.9 159.2	3	13.4	-56.3 159.2	1	21.2	-56.5 159.2	0	31.0	+56.8 20.8	2	23.3	+56.9 20.8	41
4	09.6	-56.0 159.5	2	17.1	-56.2 159.6	0	24.7	-56.5 159.6	1	27.8	+56.7 20.4	3	20.2	+57.0 20.5	42
3	13.6	-56.0 159.9	1	20.9	-56.2 159.9	0	31.8	+56.5 20.1	2	24.5	+56.7 20.1	4	17.2	+56.9 20.1	43
2	17.6	-55.9 160.2	0	24.7	-56.2 160.3	1	28.3	+56.4 19.7	3	21.2	+56.7 19.8	5	14.1	+56.9 19.8	44
1	21.7	-56.0 160.6	0	31.5	+56.3 19.4	2	24.7	+56.5 19.4	4	17.9	+56.7 19.4	6	11.0	+57.0 19.5	45
0	25.7	-56.0 161.0	1	27.8	+56.2 19.0	3	21.2	+56.4 19.1	5	14.6	+56.7 19.1	7	08.0	+56.9 19.2	46
0	30.3	+56.0 18.7	2	24.0	+56.2 18.7	4	17.6	+56.5 18.7	6	11.3	+56.7 18.8	8	04.9	+56.8 18.9	47
1	26.3	+56.0 18.3	3	20.2	+56.2 18.3	5	14.1	+56.4 18.4	7	08.0	+56.6 18.5	9	01.7	+56.9 18.5	48
2	22.3	+56.0 18.0	4	16.4	+56.2 18.0	6	10.5	+56.5 18.0	8	04.6	+56.7 18.1	9	58.6	+56.9 18.2	49
3	18.3	+55.9 17.6	5	12.6	+56.2 17.6	7	07.0	+56.4 17.7	9	01.3	+56.6 17.8	10	55.5	+56.8 17.9	50
4	14.2	+56.0 17.2	6	08.8	+56.2 17.3	8	03.4	+56.4 17.4	9	57.9	+56.6 17.5	11	52.3	+56.8 17.6	51
5	10.2	+55.9 16.9	7	05.0	+56.2 16.9	8	59.8	+56.3 17.0	10	54.5	+56.6 17.1	12	49.1	+56.8 17.2	52
6	06.1	+56.0 16.5	8	01.2	+56.1 16.6	9	56.1	+56.4 16.7	11	51.1	+56.5 16.8	13	45.9	+56.8 16.9	53
7	02.1	+55.9 16.1	8	57.3	+56.1 16.2	10	52.5	+56.3 16.3	12	47.6	+56.6 16.4	14	42.7	+56.7 16.6	54
7	58.0	+55.9 15.8	9	53.4	+56.1 15.9	11	48.8	+56.3 16.0	13	44.2	+56.5 16.1	15	39.4	+56.7 16.2	55
8	53.9	+55.8 15.4	10	49.5	+56.1 15.5	12	45.1	+56.3 15.6	14	40.7	+56.4 15.7	16	36.1	+56.7 15.9	56
9	49.7	+55.9 15.0	11	45.6	+56.0 15.1	13	41.4	+56.2 15.3	15	37.1	+56.5 15.4	17	32.8	+56.6 15.6	57
10	45.6	+55.8 14.7	12	41.6	+56.1 14.8	14	37.6	+56.3 14.9	16	33.6	+56.4 15.0	18	29.4	+56.6 15.2	58
11	41.4	+55.8 14.3	13	37.7	+55.9 14.4	15	33.9	+56.1 14.5	17	30.0	+56.3 14.7	19	26.0	+56.6 14.9	59
12	37.2	+55.8 13.9	14	33.6	+56.0 14.0	16	30.0	+56.2 14.2	18	26.3	+56.4 14.3	20	22.6	+56.5 14.5	60
13	33.0	+55.7 13.5	15	29.6	+55.9 13.7	17	26.2	+56.1 13.8	19	22.7	+56.2 14.0	21	19.1	+56.4 14.1	61
14	28.7	+55.7 13.2	16	25.5	+55.9 13.3	18	22.3	+56.0 13.4	20	18.9	+56.3 13.6	22	15.5	+56.4 13.8	62
15	24.4	+55.6 12.8	17	21.4	+55.8 12.9	19	18.3	+56.0 13.1	21	15.2	+56.1 13.2	23	11.9	+56.4 13.4	63
16	20.0	+55.6 12.4	18	17.2	+55.8 12.5	20	14.3	+56.0 12.7	22	11.3	+56.2 12.8	24	08.3	+56.3 13.0	64
17	15.6	+55.6 12.0	19	13.0	+55.7 12.1	21	10.3	+55.9 12.3	23	07.5	+56.0 12.5	25	04.6	+56.3 12.7	65
18	11.2	+55.5 11.6	20	08.7	+55.7 11.7	22	06.2	+55.8 11.9	24	03.5	+56.1 12.1	26	00.9	+56.1 12.3	66
19	06.7	+55.4 11.2	21	04.4	+55.6 11.3	23	02.0	+55.8 11.5	24	59.6	+55.9 11.7	27	57.0	+56.2 11.9	67
20	02.1	+55.4 10.8	22	00.0	+55.6 10.9	23	57.8	+55.7 11.1	25	55.5	+55.9 11.3	27	53.2	+56.0 11.5	68
20	57.5	+55.4 10.4	22	55.6	+55.5 10.5	24	53.5	+55.7 10.7	26	51.4	+55.8 10.9	28	49.2	+56.0 11.1	69
21	52.9	+55.3 10.0	23	51.1	+55.4 10.1	25	49.2	+55.5 10.3	27	47.2	+55.7 10.5	29	45.2	+55.9 10.7	70
22	48.2	+55.2 9.5	24	46.5	+55.3 9.7	26	44.7	+55.5 9.9	28	42.9	+55.7 10.0	30	41.1	+55.8 10.2	71
23	43.4	+55.1 9.1	25	41.8	+55.3 9.3	27	40.2	+55.5 9.4	29	38.6	+55.6 9.6	31	36.9	+55.7 9.8	72
24	38.5	+55.1 8.7	26	37.1	+55.2 8.8	28	35.7	+55.3 9.0	30	34.2	+55.5 9.2	32	32.6	+55.6 9.4	73
25	33.6	+55.0 8.2	27	32.3	+55.1 8.4	29	31.0	+55.3 8.6	31	29.7	+55.3 8.7	33	28.2	+55.6 8.9	74
26	28.6	+54.9 7.8	28	27.4	+55.1 7.9	30	26.3	+55.1 8.1	32	25.0	+55.3 8.3	34	23.8	+55.4 8.5	75
27	23.5	+54.8 7.3	29	22.5	+54.9 7.5	31	21.4	+55.1 7.6	33	20.3	+55.2 7.8	35	19.2	+55.3 8.0	76
28	18.3	+54.7 6.9	30	17.4	+54.8 7.0	32	16.5	+54.9 7.2	34	15.5	+55.1 7.3	36	14.5	+55.2 7.5	77
29	13.0	+54.6 6.4	31	12.2	+54.8 6.6	33	11.4	+54.9 6.7	35	10.6	+55.0 6.9	37	09.7	+55.1 7.0	78
30	07.6	+54.5 5.9	32	07.0	+54.6 6.1	34	06.3	+54.7 6.2	36	05.6	+54.8 6.4	38	04.8	+54.9 6.5	79
31	02.1	+54.4 5.5	33	01.6	+54.5 5.6	35	01.0	+54.6 5.7	37	00.4	+54.7 5.9	38	59.7	+54.9 6.0	80
31	56.5	+54.3 5.0	33	56.1	+54.4 5.1	35	55.6	+54.5 5.2	37	55.1	+54.6 5.3	39	54.6	+54.6 5.5	81
32	50.8	+54.2 4.5	34	50.5	+54.2 4.6	36	50.1	+54.3 4.7	38	49.7	+54.4 4.8	40	49.2	+54.5 5.0	82
33	45.0	+54.0 3.9	35	44.7	+54.1 4.0	37	44.4	+54.2 4.1	39	44.1	+54.2 4.3	41	43.7	+54.4 4.4	83
34	39.0	+53.9 3.4	36	38.8	+54.0 3.5	38	38.6	+54.0 3.6	40	38.3	+54.1 3.7	42	38.1	+54.1 3.8	84
35	32.9	+53.8 2.9	37	32.8	+53.8 3.0	39	32.6	+53.8 3.0	41	32.4	+53.9 3.1	43	32.2	+54.0 3.2	85
36	26.7	+53.5 2.3	38	26.6	+53.6 2.4	40	26.4	+53.7 2.5	42	26.3	+53.8 2.5	44	26.2	+53.8 2.6	86
37	20.2	+53.5 1.8	39	20.2	+53.4 1.8	41	20.1	+53.5 1.9	43	20.1	+53.5 1.9	45	20.0	+53.6 2.0	87
38	13.7	+53.2 1.2	40	13.6	+53.3 1.2	42	13.6	+53.3 1.3	44	13.6	+53.3 1.3	46	13.6	+53.3 1.4	88
39	06.9	+53.1 0.6	41	06.9	+53.1 0.6	43	06.9	+53.1 0.6	45	06.9	+53.1 0.7	47	06.9	+53.1 0.7	89
40	00.0	+52.9 0.0	42	00.0	+52.9 0.0	44	00.0	+52.9 0.0	46	00.0	+52.9 0.0	48	00.0	+52.8 0.0	90

LATITUDE SAME NAME

L.H.A. 152°, 208°

28°, 332° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	60 59.4	+46.6	123.0	59 51.4	+48.8	125.9	58 38.7	+50.6	128.6	57 21.8	+52.2	131.1	56 01.2	+53.6	133.3
31	61 46.0	+45.8	121.7	60 40.2	+48.1	124.8	59 29.3	+50.1	127.6	58 14.0	+51.8	130.1	56 54.8	+53.2	132.5
32	62 31.8	+44.9	120.3	61 28.3	+47.4	123.5	60 19.4	+49.5	126.5	59 05.8	+51.3	129.2	57 48.0	+52.9	131.7
33	63 16.7	+44.0	118.9	62 15.7	+46.6	122.2	61 08.9	+48.9	125.3	59 57.1	+50.9	128.2	58 40.9	+52.4	130.8
34	64 00.7	+43.0	117.3	63 02.3	+45.8	120.9	61 57.8	+48.3	124.1	60 48.0	+50.3	127.1	59 33.3	+52.1	129.8
35	64 43.7	+41.9	115.7	63 48.1	+44.9	119.4	62 46.1	+47.5	122.8	61 38.3	+49.7	125.9	60 25.4	+51.6	128.8
36	65 25.6	+40.6	114.0	64 33.0	+43.9	117.9	63 33.6	+46.6	121.5	62 28.0	+49.0	124.8	61 17.0	+51.0	127.8
37	66 06.2	+39.4	112.2	65 16.9	+42.8	116.3	64 20.2	+45.8	120.0	63 17.0	+48.4	123.5	62 08.0	+50.5	126.7
38	66 45.6	+37.9	110.4	65 59.7	+41.6	114.6	65 06.0	+44.8	118.5	64 05.4	+47.5	122.2	62 58.5	+49.9	125.5
39	67 23.5	+36.4	108.4	66 41.3	+40.3	112.8	65 50.8	+43.8	116.9	64 52.9	+46.7	120.7	63 48.4	+49.2	124.3
40	67 59.9	+34.7	106.3	67 21.6	+38.9	110.9	66 34.6	+42.6	115.2	65 39.6	+45.8	119.2	64 37.6	+48.5	122.9
41	68 34.6	+32.8	104.1	68 00.5	+37.4	108.9	67 17.2	+41.3	113.4	66 25.4	+44.7	117.6	65 26.1	+47.7	121.5
42	69 07.4	+30.9	101.7	68 37.9	+35.6	106.8	67 58.5	+39.9	111.5	67 10.1	+43.6	116.0	66 13.8	+46.7	120.1
43	69 38.3	+28.8	99.3	69 13.5	+33.9	104.5	68 38.4	+38.4	109.5	67 53.7	+42.4	114.2	67 00.5	+45.7	118.5
44	70 07.1	+26.5	96.8	69 47.4	+31.8	102.2	69 16.8	+36.6	107.4	68 36.1	+40.9	112.2	67 46.2	+44.7	116.8
45	70 33.6	+24.1	94.1	70 19.2	+29.7	99.7	69 53.4	+34.9	105.1	69 17.0	+39.5	110.2	68 30.9	+43.4	115.0
46	70 57.7	+21.4	91.3	70 48.9	+27.3	97.1	70 28.3	+32.8	102.7	69 56.5	+37.7	108.0	69 14.3	+42.0	113.1
47	71 19.1	+18.7	88.4	71 16.2	+24.9	94.3	71 01.1	+30.6	100.1	70 34.2	+35.9	105.7	69 56.3	+40.5	111.0
48	71 37.8	+15.9	85.4	71 41.1	+22.2	91.5	71 31.7	+28.3	97.5	71 10.1	+33.9	103.3	70 36.8	+38.9	108.8
49	71 53.7	+12.8	82.3	72 03.3	+19.3	88.5	72 00.0	+25.7	94.6	71 44.0	+31.6	100.7	71 15.7	+37.0	106.5
50	72 06.5	+9.6	79.2	72 22.6	+16.3	85.4	72 25.7	+22.9	91.7	72 15.6	+29.2	98.0	71 52.7	+34.9	104.0
51	72 16.1	+6.5	76.0	72 38.9	+13.2	82.2	72 48.6	+20.0	88.6	72 44.8	+26.6	95.0	72 27.6	+32.7	101.4
52	72 22.6	+3.2	72.7	72 52.1	+9.9	78.9	73 08.6	+16.8	85.4	73 11.4	+23.7	92.0	73 00.3	+30.2	98.5
53	72 25.8	-0.1	69.4	73 02.0	+6.6	75.5	73 25.4	+13.6	82.0	73 35.1	+20.6	88.8	73 30.5	+27.5	95.5
54	72 25.7	-3.4	66.1	73 08.6	+3.1	72.1	73 39.0	+10.1	78.6	73 55.7	+17.4	85.4	73 58.0	+24.6	92.4
55	72 22.3	-6.7	62.8	73 11.7	-0.3	68.7	73 49.1	+6.6	75.1	74 13.1	+13.9	81.9	74 22.6	+21.3	89.0
56	72 15.6	-9.9	59.5	73 11.4	-3.8	65.2	73 55.7	+3.0	71.5	74 27.0	+10.3	78.3	74 43.9	+17.9	85.5
57	72 05.7	-13.0	56.3	73 07.6	-7.3	61.7	73 58.7	-0.7	67.9	74 37.3	+6.6	74.6	75 01.8	+14.3	81.9
58	71 52.7	-16.0	53.0	73 00.3	-10.5	58.3	73 58.0	-4.2	64.3	74 43.9	+2.8	70.9	75 16.1	+10.5	78.1
59	71 36.7	-18.9	50.0	72 49.8	-13.9	55.0	73 53.8	-7.9	60.7	74 46.7	-1.1	67.1	75 26.6	+6.5	74.2
60	71 17.8	-21.7	47.1	72 35.9	-16.9	51.7	73 45.9	-11.4	57.1	74 45.6	-4.8	63.3	75 33.1	+2.5	70.2
61	70 56.1	-24.2	44.2	72 19.0	-19.9	48.5	73 34.5	-14.8	53.6	74 40.8	-8.7	59.5	75 35.6	-1.5	66.2
62	70 31.9	-26.7	41.4	71 59.1	-22.7	45.5	73 19.7	-18.0	50.2	74 32.1	-12.3	55.7	75 34.1	-5.7	62.2
63	70 05.2	-28.9	38.7	71 36.4	-25.4	42.5	73 01.7	-21.0	46.9	74 19.8	-15.9	52.1	75 28.4	-9.5	58.2
64	69 36.3	-31.0	36.2	71 11.0	-27.8	39.6	72 40.7	-24.0	43.7	74 03.9	-19.2	48.6	75 18.9	-13.5	54.3
65	69 05.3	-33.0	33.8	70 43.2	-30.1	36.9	72 16.7	-26.6	40.7	73 44.7	-22.4	45.1	75 05.4	-17.1	50.5
66	68 32.3	-34.8	31.5	70 13.1	-32.3	34.3	71 50.1	-29.1	37.8	73 22.3	-25.3	41.9	74 48.3	-20.6	46.8
67	67 57.5	-36.5	29.3	69 40.8	-34.2	31.9	71 21.0	-31.5	35.0	72 57.0	-28.0	38.7	74 27.7	-23.8	43.2
68	67 21.0	-38.1	27.2	69 06.6	-36.0	29.6	70 49.5	-33.5	32.4	72 29.0	-30.6	35.8	74 03.9	-26.9	39.8
69	66 42.9	-39.4	25.2	68 30.6	-37.7	27.3	70 16.0	-35.6	29.9	71 58.4	-32.9	32.9	73 37.0	-29.6	36.6
70	66 03.5	-40.7	23.3	67 52.9	-39.2	25.2	69 40.4	-37.3	27.5	71 25.5	-35.0	30.3	73 07.4	-32.1	33.6
71	65 22.8	-42.0	21.5	67 13.7	-40.6	23.3	69 03.1	-38.9	25.3	70 50.5	-36.9	27.8	72 35.3	-34.5	30.7
72	64 40.8	-43.1	19.8	66 33.1	-41.8	21.4	68 24.2	-40.4	23.2	70 13.6	-38.7	25.4	72 00.8	-36.6	28.0
73	63 57.7	-44.0	18.2	65 51.3	-43.0	19.6	67 43.8	-41.8	21.2	69 34.9	-40.3	23.2	71 24.2	-38.4	25.5
74	63 13.7	-45.0	16.7	65 08.3	-44.1	17.9	67 02.0	-43.1	19.4	68 54.6	-41.8	21.1	70 45.8	-40.2	23.1
75	62 28.7	-45.9	15.2	64 24.2	-45.1	16.3	66 18.9	-44.1	17.6	68 12.8	-43.0	19.1	70 05.6	-41.7	20.9
76	61 42.8	-46.6	13.9	63 39.1	-46.0	14.8	65 34.8	-45.2	15.9	67 29.8	-44.2	17.3	69 23.9	-43.1	18.8
77	60 56.2	-47.4	12.6	62 53.1	-46.8	13.4	64 49.6	-46.1	14.4	66 45.6	-45.4	15.5	68 40.8	-44.4	16.9
78	60 08.8	-48.0	11.3	62 06.3	-47.5	12.0	64 03.5	-47.0	12.9	66 00.2	-46.2	13.9	67 56.4	-45.4	15.1
79	59 20.8	-48.7	10.1	61 18.8	-48.3	10.8	63 16.5	-47.7	11.5	65 14.0	-47.2	12.3	67 11.0	-46.6	13.4
80	58 32.1	-49.2	9.0	60 30.5	-48.8	9.5	62 28.8	-48.5	10.2	64 26.8	-48.0	10.9	66 24.4	-47.4	11.8
81	57 42.9	-49.8	7.9	59 41.7	-49.5	8.4	61 40.3	-49.1	8.9	63 38.8	-48.8	9.5	65 37.0	-48.3	10.2
82	56 53.1	-50.2	6.9	58 52.2	-50.0	7.3	60 51.2	-49.8	7.7	62 50.0	-49.4	8.2	64 48.7	-49.1	8.8
83	56 02.9	-50.8	5.9	58 02.2	-50.5	6.2	60 01.4	-50.2	6.6	62 00.6	-50.0	7.0	63 59.6	-49.7	7.5
84	55 12.1	-51.1	4.9	57 11.7	-51.0	5.2	59 11.2	-50.8	5.5	61 10.6	-50.6	5.8	63 09.9	-50.4	6.2
85	54 21.0	-51.5	4.0	56 20.7	-51.4	4.2	58 20.4	-51.3	4.5	60 20.0	-51.1	4.7	62 19.5	-50.9	5.1
86	53 29.5	-51.9	3.2	55 29.3	-51.8	3.3	57 29.1	-51.7	3.5	59 28.9	-51.6	3.7	61 28.6	-51.5	3.9
87	52 37.6	-52.2	2.3	54 37.5	-52.2	2.4	56 37.4	-52.1	2.6	58 37.3	-52.1	2.7	60 37.1	-51.9	2.9
88	51 45.4	-52.6	1.5	53 45.3	-52.5	1.6	55 45.3	-52.5	1.7	57 45.2	-52.4	1.8	59 45.2	-52.4	1.9
89	50 52.8	-52.8	0.7	52 52.8	-52.8	0.8	54 52.8	-52.8	0.8	56 52.8	-52.8	0.9	58 52.8	-52.8	0.9
90	50 00.0	-53.1	0.0	52 00.0	-53.1	0.0	54 00.0	-53.1	0.0	56 00.0	-53.1	0.0	58 00.0	-53.2	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 28°, 332°

50°			52°			54°			56°			Dec.			
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z
6	13.7	-57.2 155.9	4	24.2	-57.5 155.9	2	34.6	-57.7 156.0	0	44.9	-57.9 156.0	1	04.7	+58.1 24.0	30
5	16.5	-57.2 156.2	3	26.7	-57.4 156.2	1	36.9	-57.7 156.3	0	13.0	+57.9 23.7	2	02.8	+58.1 23.7	31
4	19.3	-57.2 156.5	2	29.3	-57.4 156.5	0	39.2	-57.6 156.5	1	10.9	+57.8 23.5	3	00.9	+58.1 23.5	32
3	22.1	-57.1 156.8	1	31.9	-57.5 156.8	0	18.4	+57.7 23.2	2	08.7	+57.9 23.2	3	59.0	+58.1 23.2	33
2	25.0	-57.2 157.1	0	34.4	-57.4 157.1	1	16.1	+57.7 22.9	3	06.6	+57.9 22.9	4	57.1	+58.1 23.0	34
1	27.8	-57.3 157.4	0	23.0	+57.5 22.6	2	13.8	+57.6 22.6	4	04.5	+57.9 22.7	5	55.2	+58.1 22.7	35
0	30.5	-57.2 157.7	1	20.5	+57.4 22.3	3	11.4	+57.7 22.4	5	02.4	+57.9 22.4	6	53.3	+58.1 22.5	36
0	26.7	+57.2 22.0	2	17.9	+57.4 22.0	4	09.1	+57.7 22.1	6	00.3	+57.9 22.1	7	51.4	+58.1 22.2	37
1	23.9	+57.2 21.7	3	15.3	+57.5 21.7	5	06.8	+57.6 21.8	6	58.2	+57.8 21.9	8	49.5	+58.0 22.0	38
2	21.1	+57.2 21.4	4	12.8	+57.4 21.5	6	04.4	+57.7 21.5	7	56.0	+57.9 21.6	9	47.5	+58.1 21.7	39
3	18.3	+57.1 21.1	5	10.2	+57.4 21.2	7	02.1	+57.6 21.2	8	53.9	+57.8 21.3	10	45.6	+58.0 21.5	40
4	15.4	+57.2 20.8	6	07.6	+57.4 20.9	7	59.7	+57.6 21.0	9	51.7	+57.8 21.1	11	43.6	+58.0 21.2	41
5	12.6	+57.2 20.5	7	05.0	+57.4 20.6	8	57.3	+57.6 20.7	10	49.5	+57.8 20.8	12	41.6	+58.0 21.0	42
6	09.8	+57.2 20.2	8	02.4	+57.4 20.3	9	54.9	+57.6 20.4	11	47.3	+57.8 20.5	13	39.6	+58.0 20.7	43
7	07.0	+57.1 19.9	8	59.8	+57.3 20.0	10	52.5	+57.6 20.1	12	45.1	+57.8 20.3	14	37.6	+58.0 20.4	44
8	04.1	+57.2 19.6	9	57.1	+57.4 19.7	11	50.1	+57.5 19.8	13	42.9	+57.8 20.0	15	35.6	+58.0 20.2	45
9	01.3	+57.1 19.3	10	54.5	+57.3 19.4	12	47.6	+57.6 19.5	14	40.7	+57.7 19.7	16	33.6	+57.9 19.9	46
9	58.4	+57.1 19.0	11	51.8	+57.3 19.1	13	45.2	+57.5 19.2	15	38.4	+57.6 19.4	17	31.5	+57.9 19.6	47
10	55.5	+57.1 18.7	12	49.1	+57.3 18.8	14	42.7	+57.5 19.0	16	36.1	+57.7 19.1	18	29.4	+57.9 19.3	48
11	52.6	+57.0 18.3	13	46.4	+57.3 18.5	15	40.2	+57.4 18.7	17	33.8	+57.7 18.8	19	27.3	+57.9 19.1	49
12	49.6	+57.1 18.0	14	43.7	+57.2 18.2	16	37.6	+57.5 18.4	18	31.5	+57.6 18.6	20	25.2	+57.8 18.8	50
13	46.7	+57.0 17.7	15	40.9	+57.3 17.9	17	35.1	+57.4 18.1	19	29.1	+57.6 18.3	21	23.0	+57.8 18.5	51
14	43.7	+57.0 17.4	16	38.2	+57.1 17.6	18	32.5	+57.4 17.7	20	26.7	+57.6 18.0	22	20.8	+57.8 18.2	52
15	40.7	+56.9 17.1	17	35.3	+57.2 17.2	19	29.9	+57.3 17.4	21	24.3	+57.6 17.7	23	18.6	+57.7 17.9	53
16	37.6	+57.0 16.7	18	32.5	+57.1 16.9	20	27.2	+57.4 17.1	22	21.9	+57.5 17.4	24	16.3	+57.7 17.6	54
17	34.6	+56.9 16.4	19	29.6	+57.1 16.6	21	24.6	+57.3 16.8	23	19.4	+57.4 17.1	25	14.0	+57.7 17.3	55
18	31.5	+56.8 16.1	20	26.7	+57.1 16.3	22	21.9	+57.2 16.5	24	16.8	+57.5 16.7	26	11.7	+57.6 17.0	56
19	28.3	+56.9 15.7	21	23.8	+57.0 15.9	23	19.1	+57.2 16.2	25	14.3	+57.4 16.4	27	09.3	+57.6 16.7	57
20	25.2	+56.7 15.4	22	20.8	+57.0 15.6	24	16.3	+57.2 15.8	26	11.7	+57.3 16.1	28	06.9	+57.5 16.4	58
21	21.9	+56.8 15.0	23	17.8	+56.9 15.3	25	13.5	+57.1 15.5	27	09.0	+57.3 15.8	29	04.4	+57.5 16.1	59
22	18.7	+56.7 14.7	24	14.7	+56.9 14.9	26	10.6	+57.1 15.2	28	06.3	+57.3 15.4	30	01.9	+57.5 15.7	60
23	15.4	+56.6 14.3	25	11.6	+56.8 14.6	27	07.7	+57.0 14.8	29	03.6	+57.2 15.1	30	59.4	+57.4 15.4	61
24	12.0	+56.6 14.0	26	08.4	+56.8 14.2	28	04.7	+56.9 14.5	30	00.8	+57.1 14.7	31	56.8	+57.3 15.1	62
25	08.6	+56.6 13.6	27	05.2	+56.7 13.9	29	01.6	+56.9 14.1	30	57.9	+57.1 14.4	32	54.1	+57.3 14.7	63
26	05.2	+56.4 13.2	28	01.9	+56.7 13.5	29	58.5	+56.9 13.7	31	55.0	+57.1 14.0	33	51.4	+57.2 14.3	64
27	01.6	+56.5 12.9	28	58.6	+56.6 13.1	30	55.4	+56.8 13.4	32	52.1	+56.9 13.7	34	48.6	+57.1 14.0	65
27	58.1	+56.3 12.5	29	55.2	+56.5 12.7	31	52.2	+56.7 13.0	33	49.0	+56.9 13.3	35	45.7	+57.1 13.6	66
28	54.4	+56.3 12.1	30	51.7	+56.5 12.3	32	48.9	+56.6 12.6	34	45.9	+56.8 12.9	36	42.8	+57.0 13.2	67
29	50.7	+56.2 11.7	31	48.2	+56.3 11.9	33	45.5	+56.6 12.2	35	42.7	+56.8 12.5	37	39.8	+56.9 12.8	68
30	46.9	+56.2 11.3	32	44.5	+56.4 11.5	34	42.1	+56.4 11.8	36	39.5	+56.6 12.1	38	36.7	+56.9 12.4	69
31	43.1	+56.0 10.9	33	40.9	+56.2 11.1	35	38.5	+56.4 11.4	37	36.1	+56.6 11.7	39	33.6	+56.7 12.0	70
32	39.1	+56.0 10.5	34	37.1	+56.1 10.7	36	34.9	+56.3 11.0	38	32.7	+56.5 11.3	40	30.3	+56.7 11.6	71
33	35.1	+55.9 10.0	35	33.2	+56.0 10.3	37	31.2	+56.2 10.5	39	29.2	+56.3 10.8	41	27.0	+56.5 11.2	72
34	31.0	+55.7 9.6	36	29.2	+56.0 9.8	38	27.4	+56.1 10.1	40	25.5	+56.3 10.4	42	23.5	+56.4 10.7	73
35	26.7	+55.7 9.1	37	25.2	+55.8 9.4	39	23.5	+56.0 9.6	41	21.8	+56.1 9.9	43	19.9	+56.4 10.2	74
36	22.4	+55.6 8.7	38	21.0	+55.7 8.9	40	19.5	+55.9 9.2	42	17.9	+56.1 9.5	44	16.3	+56.2 9.8	75
37	18.0	+55.5 8.2	39	16.7	+55.6 8.4	41	15.4	+55.7 8.7	43	14.0	+55.9 9.0	45	12.5	+56.0 9.3	76
38	13.5	+55.3 7.7	40	12.3	+55.5 7.9	42	11.1	+55.7 8.2	44	09.9	+55.7 8.5	46	08.5	+56.0 8.8	77
39	08.8	+55.2 7.2	41	07.8	+55.3 7.4	43	06.8	+55.4 7.7	45	05.6	+55.7 7.9	47	04.5	+55.7 8.2	78
40	04.0	+55.1 6.7	42	03.1	+55.2 6.9	44	02.2	+55.4 7.2	46	01.3	+55.4 7.4	48	00.2	+55.6 7.7	79
40	59.1	+54.9 6.2	42	58.3	+55.1 6.4	44	57.6	+55.1 6.6	46	56.7	+55.3 6.9	48	55.8	+55.5 7.1	80
41	54.0	+54.8 5.7	43	53.4	+54.9 5.8	45	52.7	+55.0 6.1	47	52.0	+55.2 6.3	49	51.3	+55.2 6.5	81
42	48.8	+54.6 5.1	44	48.3	+54.7 5.3	46	47.7	+54.8 5.5	48	47.2	+54.9 5.7	50	46.5	+55.1 5.9	82
43	43.4	+54.4 4.5	45	43.0	+54.5 4.7	47	42.5	+54.7 4.9	49	42.1	+54.7 5.1	51	41.6	+54.9 5.3	83
44	37.8	+54.2 4.0	46	37.5	+54.3 4.1	48	37.2	+54.4 4.3	50	36.8	+54.5 4.4	52	36.5	+54.6 4.6	84
45	32.0	+54.1 3.3	47	31.8	+54.1 3.5	49	31.6	+54.2 3.6	51	31.3	+54.3 3.8	53	31.1	+54.3 3.9	85
46	26.1	+53.8 2.7	48	25.9	+53.9 2.8	50	25.8	+53.9 2.9	52	25.6	+54.0 3.1	54	25.4	+54.1 3.2	86
47	19.9	+53.6 2.1	49	19.8	+53.7 2.2	51	19.7	+53.7 2.3	53	19.6	+53.8 2.4	55	19.5	+53.8 2.5	87
48	13.5	+53.4 1.4	50	13.5	+53.4 1.5	52	13.4	+53.5 1.5	54	13.4	+53.5 1.6	56	13.3	+53.5 1.7	88
49	06.9	+53.1 0.7	51	06.9	+53.1 0.7	53	06.9	+53.1 0.8	55	06.9	+53.1 0.8	57	06.8	+53.2 0.9	89
50	00.0	+52.8 0.0	52	00.0	+52.8 0.0	54	00.0	+52.8 0.0	56	00.0	+52.8 0.0	58	00.0	+52.8 0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 152°, 208°

30°, 330° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	64 05.7	+6.9	•82.4	64 17.4	+11.6	•86.5	64 20.4	+16.3	•90.6	64 14.7	+20.9	94.8	64 00.4	+25.3	98.9
31	64 12.6	+4.8	•80.1	64 29.0	+9.5	•84.2	64 36.7	+14.3	•88.4	64 35.6	+19.0	92.6	64 25.7	+23.6	96.8
32	64 17.4	+2.5	•77.8	64 38.5	+7.3	•81.9	64 51.0	+12.2	•86.1	64 54.6	+17.0	•90.4	64 49.3	+21.7	94.7
33	64 19.9	+0.5	•75.5	64 45.8	+5.2	•79.6	65 03.2	+10.0	•83.8	65 11.6	+14.9	•88.1	65 11.0	+19.7	•92.5
34	64 20.4	-1.8	•73.2	64 51.0	+2.9	•77.3	65 13.2	+7.7	•81.5	65 26.5	+12.6	•85.8	65 30.7	+17.5	•90.2
35	64 18.6	-3.9	•70.9	64 53.9	+0.7	•74.9	65 20.9	+5.6	•79.1	65 39.1	+10.5	•83.4	65 48.2	+15.5	•87.9
36	64 14.7	-6.1	•68.6	64 54.6	-1.5	•72.5	65 26.5	+3.2	•76.7	65 49.6	+8.2	•81.0	66 03.7	+13.2	•85.5
37	64 08.6	-8.2	•66.3	64 53.1	-3.8	•70.2	65 29.7	+1.0	•74.3	65 57.8	+5.9	•78.6	66 16.9	+10.9	•83.1
38	64 00.4	-10.4	•64.0	64 49.3	-6.0	•67.8	65 30.7	-1.4	•71.9	66 03.7	+3.5	•76.2	66 27.8	+8.6	•80.6
39	63 50.0	-12.3	•61.8	64 43.3	-8.1	•65.5	65 29.3	-3.6	•69.5	66 07.2	+1.2	•73.7	66 36.4	+6.2	•78.1
40	63 37.7	-14.4	•59.6	64 35.2	-10.3	•63.2	65 25.7	-6.0	•67.1	66 08.4	-1.2	•71.2	66 42.6	+3.8	•75.6
41	63 23.3	-16.3	57.4	64 24.9	-12.5	•60.9	65 19.7	-8.1	•64.7	66 07.2	-3.6	•68.8	66 46.4	+1.4	•73.1
42	63 07.0	-18.3	55.3	64 12.4	-14.4	•58.6	65 11.6	-10.4	•62.3	66 03.6	-5.9	•66.3	66 47.8	-1.1	•70.6
43	62 48.7	-20.0	53.2	63 58.0	-16.5	•56.4	65 01.2	-12.5	•60.0	65 57.7	-8.2	•63.9	66 46.7	-3.5	•68.0
44	62 28.7	-21.8	51.1	63 41.5	-18.4	54.2	64 48.7	-14.7	•57.7	65 49.5	-10.5	•61.4	66 43.2	-6.0	•65.5
45	62 06.9	-23.5	49.1	63 23.1	-20.3	52.1	64 34.0	-16.7	•55.4	65 39.0	-12.7	•59.0	66 37.2	-8.3	•63.0
46	61 43.4	-25.2	47.2	63 02.8	-22.1	50.0	64 17.3	-18.7	53.2	65 26.3	-14.9	•56.7	66 28.9	-10.7	•60.5
47	61 18.2	-26.7	45.2	62 40.7	-23.9	48.0	63 58.6	-20.6	51.0	65 11.4	-17.0	•54.4	66 18.2	-13.0	•58.0
48	60 51.5	-28.2	43.4	62 16.8	-25.4	46.0	63 38.0	-22.4	48.9	64 54.4	-19.0	•52.1	66 05.2	-15.1	•55.6
49	60 23.3	-29.6	41.6	61 51.4	-27.1	44.1	63 15.6	-24.2	46.8	64 35.4	-21.0	49.9	65 50.1	-17.4	•53.3
50	59 53.7	-30.9	39.8	61 24.3	-28.6	42.2	62 51.4	-25.9	44.8	64 14.4	-22.8	47.7	65 32.7	-19.4	•50.9
51	59 22.8	-32.2	38.2	60 55.7	-30.0	40.4	62 25.5	-27.5	42.8	63 51.6	-24.7	45.6	65 13.3	-21.5	•48.7
52	58 50.6	-33.5	36.5	60 25.0	-31.3	38.6	61 58.0	-29.0	40.9	63 26.9	-26.4	43.5	64 51.8	-23.4	46.4
53	58 17.1	-34.5	34.9	59 54.4	-32.7	36.9	61 29.0	-30.5	39.1	63 00.5	-28.0	41.5	64 28.4	-25.2	44.3
54	57 42.6	-35.7	33.4	59 21.7	-33.9	35.2	60 58.5	-31.9	37.3	62 32.5	-29.6	39.6	64 03.2	-26.9	42.2
55	57 06.9	-36.7	31.9	58 47.8	-35.0	33.6	60 26.6	-33.1	35.5	62 02.9	-31.0	37.7	63 36.3	-28.6	40.2
56	56 30.2	-37.7	30.4	58 12.8	-36.2	32.1	59 53.5	-34.4	33.9	61 31.9	-32.4	35.9	63 07.7	-30.2	38.2
57	55 52.5	-38.6	29.0	57 36.6	-37.1	30.6	59 19.1	-35.6	32.3	60 59.5	-33.7	34.2	62 37.5	-31.6	36.3
58	55 13.9	-39.5	27.7	56 59.5	-38.2	29.1	58 43.5	-36.6	30.7	60 25.8	-35.0	32.5	62 05.9	-33.1	34.5
59	54 34.4	-40.3	26.4	56 21.3	-39.1	27.7	58 06.9	-37.7	29.2	59 50.8	-36.2	30.8	61 32.8	-34.4	32.7
60	53 54.1	-41.0	25.1	55 42.2	-39.9	26.3	57 29.2	-38.7	27.7	59 14.6	-37.2	29.3	60 58.4	-35.6	31.0
61	53 13.1	-41.8	23.9	55 02.3	-40.8	25.0	56 50.5	-39.6	26.3	58 37.4	-38.3	27.7	60 22.8	-36.8	29.4
62	52 31.3	-42.5	22.7	54 21.5	-41.5	23.8	56 10.9	-40.5	24.9	57 59.1	-39.3	26.3	59 46.0	-37.9	27.8
63	51 48.8	-43.2	21.5	53 40.0	-42.2	22.5	55 30.4	-41.3	23.6	57 19.8	-40.1	24.9	59 08.1	-38.9	26.3
64	51 05.6	-43.7	20.4	52 57.8	-43.0	21.3	54 49.1	-42.0	22.4	56 39.7	-41.1	23.5	58 29.2	-39.9	24.8
65	50 21.9	-44.4	19.3	52 14.8	-43.6	20.2	54 07.1	-42.8	21.1	55 58.6	-41.8	22.2	57 49.3	-40.8	23.4
66	49 37.5	-44.9	18.3	51 31.2	-44.2	19.1	53 24.3	-43.4	19.9	55 16.8	-42.6	20.9	57 08.5	-41.7	22.0
67	48 52.6	-45.4	17.3	50 47.0	-44.8	18.0	52 40.9	-44.1	18.8	54 34.2	-43.4	19.7	56 26.8	-42.5	20.7
68	48 07.2	-45.9	16.3	50 02.2	-45.3	17.0	51 56.8	-44.7	17.7	53 50.8	-44.0	18.5	55 44.3	-43.2	19.4
69	47 21.3	-46.4	15.3	49 16.9	-45.9	15.9	51 12.1	-45.3	16.6	53 06.8	-44.6	17.4	55 01.1	-43.9	18.2
70	46 34.9	-46.8	14.4	48 31.0	-46.3	15.0	50 26.8	-45.8	15.6	52 22.2	-45.3	16.3	54 17.2	-44.6	17.0
71	45 48.1	-47.2	13.5	47 44.7	-46.8	14.0	49 41.0	-46.3	14.6	51 36.9	-45.7	15.2	53 32.6	-45.3	15.9
72	45 00.9	-47.6	12.6	46 57.9	-47.2	13.1	48 54.7	-46.8	13.6	50 51.2	-46.4	14.2	52 47.3	-45.8	14.8
73	44 13.3	-48.0	11.8	46 10.7	-47.7	12.2	48 07.9	-47.3	12.7	50 04.8	-46.8	13.2	52 01.5	-46.3	13.7
74	43 25.3	-48.4	10.9	45 23.0	-48.0	11.3	47 20.6	-47.7	11.7	49 18.0	-47.3	12.2	51 15.2	-46.9	12.7
75	42 36.9	-48.6	10.1	44 35.0	-48.4	10.5	46 32.9	-48.0	10.8	48 30.7	-47.7	11.3	50 28.3	-47.4	11.7
76	41 48.3	-49.0	9.3	43 46.6	-48.7	9.6	45 44.9	-48.5	10.0	47 43.0	-48.2	10.4	49 40.9	-47.8	10.8
77	40 59.3	-49.3	8.6	42 57.9	-49.1	8.8	44 56.4	-48.8	9.1	46 54.8	-48.5	9.5	48 53.1	-48.2	9.8
78	40 10.0	-49.6	7.8	42 08.8	-49.3	8.1	44 07.6	-49.2	8.3	46 06.3	-48.9	8.6	48 04.9	-48.7	9.0
79	39 20.4	-49.8	7.1	41 19.5	-49.7	7.3	43 18.4	-49.4	7.5	45 17.4	-49.3	7.8	47 16.2	-49.0	8.1
80	38 30.6	-50.2	6.4	40 29.8	-50.0	6.6	42 29.0	-49.8	6.8	44 28.1	-49.6	7.0	46 27.2	-49.4	7.2
81	37 40.4	-50.3	5.7	39 39.8	-50.2	5.8	41 39.2	-50.1	6.0	43 38.5	-49.9	6.2	45 37.8	-49.7	6.4
82	36 50.1	-50.6	5.0	38 49.6	-50.4	5.1	40 49.1	-50.3	5.3	42 48.6	-50.2	5.4	44 48.1	-50.1	5.6
83	35 59.5	-50.8	4.3	37 59.2	-50.7	4.4	39 58.8	-50.6	4.6	41 58.4	-50.5	4.7	43 58.0	-50.4	4.9
84	35 08.7	-51.0	3.7	37 08.5	-50.9	3.8	39 08.2	-50.8	3.9	41 07.9	-50.7	4.0	43 07.6	-50.6	4.1
85	34 17.7	-51.2	3.0	36 17.6	-51.2	3.1	38 17.4	-51.1	3.2	40 17.2	-51.0	3.3	42 17.0	-50.9	3.4
86	33 26.5	-51.3	2.4	35 26.4	-51.3	2.5	37 26.3	-51.3	2.5	39 26.2	-51.2	2.6	41 26.1	-51.2	2.7
87	32 35.2	-51.6	1.8	34 35.1	-51.5	1.8	36 35.0	-51.4	1.9	38 35.0	-51.5	1.9	40 34.9	-51.4	2.0
88	31 43.6	-51.7	1.2	33 43.6	-51.7	1.2	35 43.6	-51.7	1.2	37 43.5	-51.6	1.3	39 43.5	-51.6	1.3
89	30 51.9	-51.9	0.6	32 51.9	-51.9	0.6	34 51.9	-51.9	0.6	36 51.9	-51.9	0.6	38 51.9	-51.9	0.6
90	30 00.0	-52.0	0.0	32 00.0	-52.0	0.0	34 00.0	-52.0	0.0	36 00.0	-52.1	0.0	38 00.0	-52.1	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 30°, 330°

30°			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
23	32.9	-52.9	151.8	21	46.9	-53.4	152.2	20	00.6	-53.9	152.6	18	13.9	-54.3	152.9	16	27.0	-54.7	153.2	30
22	40.0	-53.1	152.3	20	53.5	-53.5	152.7	19	06.7	-53.9	153.0	17	19.6	-54.4	153.3	15	32.3	-54.8	153.6	31
21	46.9	-53.1	152.8	20	00.0	-53.6	153.2	18	12.8	-54.1	153.5	16	25.2	-54.4	153.8	14	37.5	-54.8	154.0	32
20	53.8	-53.2	153.3	19	06.4	-53.6	153.7	17	18.7	-54.0	153.9	15	30.8	-54.5	154.2	13	42.7	-54.9	154.4	33
20	00.6	-53.3	153.8	18	12.8	-53.8	154.1	16	24.7	-54.2	154.4	14	36.3	-54.5	154.6	12	47.8	-54.9	154.8	34
19	07.3	-53.4	154.3	17	19.0	-53.8	154.6	15	30.5	-54.2	154.8	13	41.8	-54.6	155.1	11	52.9	-54.9	155.3	35
18	13.9	-53.4	154.8	16	25.2	-53.8	155.1	14	36.3	-54.2	155.3	12	47.2	-54.6	155.5	10	58.0	-55.0	155.7	36
17	20.5	-53.5	155.3	15	31.4	-53.9	155.5	13	42.1	-54.3	155.7	11	52.6	-54.6	155.9	10	03.0	-55.0	156.1	37
16	27.0	-53.6	155.7	14	37.5	-54.0	156.0	12	47.8	-54.3	156.2	10	58.0	-54.7	156.3	9	08.0	-55.0	156.5	38
15	33.4	-53.6	156.2	13	43.5	-54.0	156.4	11	53.5	-54.4	156.6	10	03.3	-54.7	156.8	8	13.0	-55.1	156.9	39
14	39.8	-53.7	156.7	12	49.5	-54.0	156.9	10	59.1	-54.4	157.0	9	08.6	-54.8	157.2	7	17.9	-55.1	157.3	40
13	46.1	-53.7	157.1	11	55.5	-54.1	157.3	10	04.7	-54.4	157.5	8	13.8	-54.8	157.6	6	22.8	-55.1	157.7	41
12	52.4	-53.8	157.6	11	01.4	-54.1	157.8	9	10.3	-54.5	157.9	7	19.0	-54.8	158.0	5	27.7	-55.1	158.1	42
11	58.6	-53.8	158.0	10	07.3	-54.2	158.2	8	15.8	-54.5	158.3	6	24.2	-54.8	158.4	4	32.6	-55.1	158.5	43
11	04.8	-53.9	158.5	9	13.1	-54.2	158.6	7	21.3	-54.5	158.7	5	29.4	-54.8	158.8	3	37.5	-55.1	158.9	44
10	10.9	-53.9	158.9	8	18.9	-54.2	159.1	6	26.8	-54.6	159.2	4	34.6	-54.8	159.3	2	42.4	-55.2	159.3	45
9	17.0	-53.9	159.4	7	24.7	-54.3	159.5	5	32.2	-54.5	159.6	3	39.8	-54.9	159.6	1	47.2	-55.1	159.7	46
8	23.1	-54.0	159.8	6	30.4	-54.3	159.9	4	37.7	-54.6	160.0	2	44.9	-54.9	160.0	0	52.1	-55.1	160.1	47
7	29.1	-54.0	160.3	5	36.1	-54.2	160.4	3	43.1	-54.6	160.4	1	50.0	-54.8	160.4	0	03.0	+55.2	19.5	48
6	35.1	-54.0	160.7	4	41.9	-54.4	160.8	2	48.5	-54.6	160.8	0	55.2	-54.9	160.8	0	58.2	+55.1	19.2	49
5	41.1	-54.0	161.2	3	47.5	-54.3	161.2	1	53.9	-54.6	161.2	0	00.3	-54.9	161.3	0	53.3	+55.2	18.8	50
4	47.1	-54.0	161.6	2	53.2	-54.3	161.6	0	59.3	-54.6	161.7	0	54.6	+54.8	18.3	2	48.5	+55.1	18.4	51
3	53.1	-54.1	162.0	1	58.9	-54.3	162.1	0	04.7	-54.6	162.1	0	49.4	+54.9	17.9	3	43.6	+55.1	18.0	52
2	59.0	-54.1	162.5	1	04.6	-54.4	162.5	0	49.9	+54.6	17.5	2	44.3	+54.9	17.5	4	38.7	+55.1	17.6	53
2	04.9	-54.1	162.9	0	10.2	-54.3	162.9	1	44.5	+54.6	17.1	3	39.2	+54.8	17.1	5	33.8	+55.1	17.2	54
1	10.8	-54.0	163.3	0	44.1	+54.4	16.7	2	39.1	+54.6	16.7	4	34.0	+54.8	16.7	6	28.9	+55.0	16.8	55
0	16.8	-54.1	163.8	1	38.5	+54.3	16.2	3	33.7	+54.5	16.3	5	28.8	+54.9	16.3	7	24.0	+55.0	16.4	56
0	37.3	+54.1	15.8	2	32.8	+54.3	15.8	4	28.2	+54.6	15.9	6	23.7	+54.7	15.9	8	19.0	+55.1	16.0	57
1	31.4	+54.1	15.4	3	27.1	+54.3	15.4	5	22.8	+54.5	15.4	7	18.4	+54.8	15.5	9	14.1	+55.0	15.6	58
2	25.5	+54.0	14.9	4	21.4	+54.3	15.0	6	17.3	+54.6	15.0	8	13.2	+54.8	15.1	10	09.1	+54.9	15.2	59
3	19.5	+54.1	14.5	5	15.7	+54.3	14.5	7	11.9	+54.5	14.6	9	08.0	+54.7	14.7	11	04.0	+55.0	14.8	60
4	13.6	+54.0	14.1	6	10.0	+54.3	14.1	8	06.4	+54.4	14.2	10	02.7	+54.7	14.3	11	59.0	+54.9	14.3	61
5	07.6	+54.1	13.6	7	04.3	+54.2	13.7	9	00.8	+54.5	13.7	10	57.4	+54.6	13.8	12	53.9	+54.8	13.9	62
6	01.7	+54.0	13.2	7	58.5	+54.2	13.3	9	55.3	+54.4	13.3	11	52.0	+54.6	13.4	13	48.7	+54.8	13.5	63
6	55.7	+53.9	12.8	8	52.7	+54.2	12.8	10	49.7	+54.4	12.9	12	46.6	+54.6	13.0	14	43.5	+54.8	13.1	64
7	49.6	+54.0	12.3	9	46.9	+54.1	12.4	11	44.1	+54.3	12.5	13	41.2	+54.5	12.5	15	38.3	+54.7	12.7	65
8	43.6	+53.9	11.9	10	41.0	+54.1	11.9	12	38.4	+54.3	12.0	14	35.7	+54.5	12.1	16	33.0	+54.7	12.2	66
9	37.5	+53.9	11.4	11	35.1	+54.1	11.5	13	32.7	+54.2	11.6	15	30.2	+54.5	11.7	17	27.7	+54.6	11.8	67
10	31.4	+53.9	11.0	12	29.2	+54.0	11.1	14	26.9	+54.2	11.2	16	24.7	+54.3	11.3	18	22.3	+54.6	11.4	68
11	25.3	+53.8	10.5	13	23.2	+54.0	10.6	15	21.1	+54.2	10.7	17	19.0	+54.4	10.8	19	16.9	+54.5	10.9	69
12	19.1	+53.7	10.1	14	17.2	+53.9	10.2	16	15.3	+54.1	10.3	18	13.4	+54.2	10.4	20	11.4	+54.4	10.5	70
13	12.8	+53.7	9.6	15	11.1	+53.9	9.7	17	09.4	+54.0	9.8	19	07.6	+54.2	9.9	21	05.8	+54.3	10.0	71
14	06.5	+53.7	9.2	16	05.0	+53.8	9.3	18	03.4	+54.0	9.4	20	01.8	+54.1	9.5	22	00.1	+54.3	9.6	72
15	00.2	+53.6	8.7	16	58.8	+53.7	8.8	18	57.4	+53.9	8.9	20	55.9	+54.1	9.0	22	54.4	+54.2	9.1	73
15	53.8	+53.5	8.2	17	52.5	+53.7	8.3	19	51.3	+53.8	8.4	21	50.0	+53.9	8.5	23	48.6	+54.1	8.7	74
16	47.3	+53.5	7.8	18	46.2	+53.6	7.9	20	45.1	+53.7	8.0	22	43.9	+53.9	8.1	24	42.7	+54.0	8.2	75
17	40.8	+53.4	7.3	19	39.8	+53.6	7.4	21	38.8	+53.7	7.5	23	37.8	+53.8	7.6	25	36.7	+54.0	7.7	76
18	34.2	+53.4	6.8	20	33.4	+53.4	6.9	22	32.5	+53.6	7.0	24	31.6	+53.7	7.1	26	30.7	+53.8	7.2	77
19	27.6	+53.2	6.3	21	26.8	+53.4	6.4	23	26.1	+53.4	6.5	25	25.3	+53.6	6.6	27	24.5	+53.7	6.7	78
20	20.8	+53.2	5.8	22	20.2	+53.3	5.9	24	19.5	+53.4	6.0	26	18.9	+53.5	6.1	28	18.2	+53.6	6.2	79
21	14.0	+53.1	5.3	23	13.5	+53.2	5.4	25	12.9	+53.3	5.5	27	12.4	+53.3	5.6	29	11.8	+53.5	5.7	80
22	07.1	+53.0	4.8	24	06.7	+53.0	4.9	26	06.2	+53.2	5.0	28	05.7	+53.3	5.1	30	05.3	+53.3	5.2	81
23	00.1	+52.9	4.3	24	59.7	+53.0	4.4	26	59.4	+53.0	4.5	28	59.0	+53.1	4.6	30	58.6	+53.2	4.7	82
23	53.0	+52.8	3.8	25	52.7	+52.9	3.9	27	52.4	+53.0	4.0	29	52.1	+53.0	4.0	31	51.8	+53.1	4.1	83
24	45.8	+52.7	3.3	26	45.6	+52.7	3.4	28	45.4	+52.8	3.4	30	45.1	+52.9	3.5	32	44.9	+53.0	3.6	84
25	38.5	+52.5	2.8	27	38.3	+52.6	2.8	29	38.2	+52.6	2.9	31	38.0	+52.7	2.9	33	37.9	+52.7	3.0	85
26	31.0	+52.5	2.2	28	30.9	+52.5	2.3	30	30.8	+52.6	2.3	32	30.7	+52.6	2.4	34	30.6	+52.6	2.4	86
27	23.5	+52.3	1.7	29	23.4	+52.4	1.7	31	23.4	+52.3	1.8	33	23.3	+52.4	1.8	35	23.2	+52.5	1.8	87
28	15.8	+52.2	1.1	30	15.8	+52.2	1.2	32	15.7	+52.3	1.2	34	15.7	+52.2	1.2	36	15.7	+52.2	1.2	88
29	08.0	+52.0	0.6	31	08.0	+52.0	0.6	33	08.0	+52.0	0.6	35	07.9	+52.1	0.6	37	07.9	+52.1	0.6	89
30	00.0	+51.9	0.0	32	00.0	+51.9	0.0	34	00.0	+51.9	0.0	36	00.0	+51.9	0.0	38	00.0	+51.9	0.0	90

LATITUDE SAME NAME

L.H.A. 150°, 210°

30°, 330° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	63 37.7	+29.6	102.9	63 07.0	+33.4	106.7	62 28.7	+37.0	110.4	61 43.4	+40.2	113.9	60 51.5	+43.2	117.2
31	64 07.3	+27.9	100.9	63 40.4	+32.0	104.9	63 05.7	+35.8	108.7	62 23.6	+39.2	112.3	61 34.7	+42.1	115.8
32	64 35.2	+26.1	98.9	64 12.4	+30.4	103.0	63 41.5	+34.3	106.9	63 02.8	+37.9	110.7	62 16.8	+41.2	114.3
33	65 01.3	+24.4	96.8	64 42.8	+28.8	101.0	64 15.8	+32.9	105.1	63 40.7	+36.6	109.0	62 58.0	+40.0	112.7
34	65 25.7	+22.3	94.6	65 11.6	+26.9	98.9	64 48.7	+31.2	103.1	64 17.3	+35.3	107.2	63 38.0	+38.9	111.0
35	65 48.0	+20.4	92.3	65 38.5	+25.1	96.7	65 19.9	+29.6	101.1	64 52.6	+33.7	105.3	64 16.9	+37.5	109.3
36	66 08.4	+18.2	90.0	66 03.6	+23.1	94.5	65 49.5	+27.8	99.0	65 26.3	+32.2	103.3	64 54.4	+36.2	107.5
37	66 26.6	+16.0	87.6	66 26.7	+21.1	92.2	66 17.3	+25.9	96.8	65 58.5	+30.4	101.3	65 30.6	+34.6	105.6
38	66 42.6	+13.7	85.2	66 47.8	+18.8	89.9	66 43.2	+23.8	94.5	66 28.9	+28.6	99.1	66 05.2	+33.1	103.6
39	66 56.3	+11.4	82.7	67 06.6	+16.6	87.4	67 07.0	+21.7	92.2	66 57.5	+26.7	96.9	66 38.3	+31.3	101.5
40	67 07.7	+9.0	80.2	67 23.2	+14.3	85.0	67 28.7	+19.5	89.8	67 24.2	+24.6	94.6	67 09.6	+29.5	99.3
41	67 16.7	+6.5	77.7	67 37.5	+11.8	82.4	67 48.2	+17.2	87.3	67 48.8	+22.4	92.2	67 39.1	+27.5	97.1
42	67 23.2	+4.0	75.1	67 49.3	+9.3	79.8	68 05.4	+14.8	84.7	68 11.2	+20.2	89.7	68 06.6	+25.4	94.7
43	67 27.2	+1.5	72.5	67 58.6	+6.8	77.2	68 20.2	+12.2	82.1	68 31.4	+17.7	87.2	68 32.0	+23.2	92.2
44	67 28.7	-1.0	69.9	68 05.4	+4.2	74.6	68 32.4	+9.7	79.5	68 49.1	+15.3	84.5	68 55.2	+20.8	89.7
45	67 27.7	-3.5	67.3	68 09.6	+1.6	71.9	68 42.1	+7.0	76.7	69 04.4	+12.7	81.8	69 16.0	+18.4	87.1
46	67 24.2	-6.1	64.7	68 11.2	-1.0	69.2	68 49.1	+4.4	74.0	69 17.1	+10.0	79.1	69 34.4	+15.8	84.4
47	67 18.1	-8.5	62.1	68 10.2	-3.6	66.5	68 53.5	+1.7	71.2	69 27.1	+7.3	76.3	69 50.2	+13.0	81.6
48	67 09.6	-10.9	59.5	68 06.6	-6.2	63.8	68 55.2	-1.1	68.5	69 34.4	+4.5	73.5	70 03.2	+10.4	78.7
49	66 58.7	-13.3	57.0	68 00.4	-8.8	61.2	68 54.1	-3.7	65.7	69 38.9	+1.6	70.6	70 13.6	+7.4	75.8
50	66 45.4	-15.6	54.5	67 51.6	-11.2	58.5	68 50.4	-6.5	62.9	69 40.5	-1.1	67.7	70 21.0	+4.6	72.9
51	66 29.8	-17.8	52.1	67 40.4	-13.7	55.9	68 43.9	-9.0	60.2	69 39.4	-4.0	64.8	70 25.6	+1.6	69.9
52	66 12.0	-19.9	49.7	67 26.7	-16.1	53.4	68 34.9	-11.7	57.5	69 35.4	-6.7	62.0	70 27.2	-1.3	66.9
53	65 52.1	-22.0	47.4	67 10.6	-18.3	50.9	68 23.2	-14.2	54.8	69 28.7	-9.5	59.1	70 25.9	-4.2	64.0
54	65 30.1	-24.0	45.1	66 52.3	-20.5	48.4	68 09.0	-16.6	52.2	69 19.2	-12.2	56.3	70 21.7	-7.2	61.0
55	65 06.1	-25.8	42.9	66 31.8	-22.7	46.1	67 52.4	-19.0	49.6	69 07.0	-14.8	53.6	70 14.5	-10.0	58.0
56	64 40.3	-27.6	40.8	66 09.1	-24.6	43.8	67 33.4	-21.2	47.1	68 52.2	-17.3	50.9	70 04.5	-12.8	55.1
57	64 12.7	-29.3	38.8	65 44.5	-26.6	41.5	67 12.2	-23.4	44.7	68 34.9	-19.7	48.2	69 51.7	-15.5	52.3
58	63 43.4	-30.8	36.8	65 17.9	-28.3	39.3	66 48.8	-25.4	42.3	68 15.2	-22.0	45.7	69 36.2	-18.1	49.5
59	63 12.6	-32.4	34.8	64 49.6	-30.0	37.3	66 23.4	-27.4	40.0	67 53.2	-24.3	43.2	69 18.1	-20.6	46.8
60	62 40.2	-33.8	33.0	64 19.6	-31.7	35.2	65 56.0	-29.1	37.8	67 28.9	-26.2	40.8	68 57.5	-22.9	44.1
61	62 06.4	-35.1	31.2	63 47.9	-33.1	33.3	65 26.9	-30.9	35.7	67 02.7	-28.3	38.4	68 34.6	-25.2	41.6
62	61 31.3	-36.3	29.5	63 14.8	-34.6	31.4	64 56.0	-32.5	33.6	66 34.4	-30.1	36.2	68 09.4	-27.2	39.1
63	60 55.0	-37.5	27.8	62 40.2	-35.9	29.6	64 23.5	-34.0	31.7	66 04.3	-31.8	34.0	67 42.2	-29.3	36.7
64	60 17.5	-38.6	26.2	62 04.3	-37.1	27.9	63 49.5	-35.5	29.8	65 32.5	-33.5	32.0	67 12.9	-31.1	34.5
65	59 38.9	-39.7	24.7	61 27.2	-38.3	26.2	63 14.0	-36.7	28.0	64 59.0	-34.9	30.0	66 41.8	-32.9	32.3
66	58 59.2	-40.6	23.2	60 48.9	-39.4	24.6	62 37.3	-38.0	26.2	64 24.1	-36.4	28.1	66 08.9	-34.5	30.2
67	58 18.6	-41.5	21.8	60 09.5	-40.4	23.1	61 59.3	-39.2	24.6	63 47.7	-37.7	26.3	65 34.4	-36.0	28.2
68	57 37.1	-42.3	20.5	59 29.1	-41.4	21.6	61 20.1	-40.2	23.0	63 10.0	-38.9	24.5	64 58.4	-37.4	26.3
69	56 54.8	-43.2	19.2	58 47.7	-42.2	20.2	60 39.9	-41.2	21.5	62 31.1	-40.1	22.8	64 21.0	-38.7	24.5
70	56 11.6	-43.9	17.9	58 05.5	-43.1	18.9	59 58.7	-42.2	20.0	61 51.0	-41.1	21.3	63 42.3	-39.9	22.7
71	55 27.7	-44.5	16.7	57 22.4	-43.8	17.6	59 16.5	-43.0	18.6	61 09.9	-42.1	19.7	63 02.4	-41.1	21.0
72	54 43.2	-45.3	15.5	56 38.6	-44.6	16.3	58 33.5	-43.9	17.2	60 27.8	-43.1	18.3	62 21.3	-42.1	19.5
73	53 57.9	-45.8	14.4	55 54.0	-45.3	15.1	57 49.6	-44.6	15.9	59 44.7	-43.8	16.9	61 39.2	-43.0	17.9
74	53 12.1	-46.4	13.3	55 08.7	-45.9	14.0	57 05.0	-45.3	14.7	59 00.9	-44.7	15.5	60 56.2	-43.9	16.5
75	52 25.7	-47.0	12.3	54 22.8	-46.5	12.8	56 19.7	-46.0	13.5	58 16.2	-45.4	14.2	60 12.3	-44.8	15.1
76	51 38.7	-47.4	11.2	53 36.3	-47.0	11.8	55 33.7	-46.6	12.4	57 30.8	-46.1	13.0	59 27.5	-45.5	13.8
77	50 51.3	-47.9	10.3	52 49.3	-47.6	10.7	54 47.1	-47.2	11.2	56 44.7	-46.8	11.8	58 42.0	-46.3	12.5
78	50 03.4	-48.4	9.3	52 01.7	-48.1	9.7	53 59.9	-47.7	10.2	55 57.9	-47.3	10.7	57 55.7	-46.9	11.3
79	49 15.0	-48.8	8.4	51 13.6	-48.5	8.8	53 12.2	-48.2	9.2	55 10.6	-47.9	9.6	57 08.8	-47.5	10.1
80	48 26.2	-49.2	7.5	50 25.1	-48.9	7.8	52 24.0	-48.7	8.2	54 22.7	-48.4	8.6	56 21.3	-48.1	9.0
81	47 37.0	-49.5	6.7	49 36.2	-49.4	6.9	51 35.3	-49.2	7.2	53 34.3	-48.9	7.6	55 33.2	-48.7	7.9
82	46 47.5	-49.9	5.8	48 46.8	-49.7	6.1	50 46.1	-49.5	6.3	52 45.4	-49.4	6.6	54 44.5	-49.1	6.9
83	45 57.6	-50.3	5.0	47 57.1	-50.1	5.2	49 56.6	-50.0	5.4	51 56.0	-49.8	5.7	53 55.4	-49.6	5.9
84	45 07.3	-50.5	4.2	47 07.0	-50.4	4.4	49 06.6	-50.3	4.6	51 06.2	-50.2	4.8	53 05.8	-50.1	5.0
85	44 16.8	-50.9	3.5	46 16.6	-50.8	3.6	48 16.3	-50.6	3.8	50 16.0	-50.5	3.9	52 15.7	-50.4	4.1
86	43 25.9	-51.1	2.8	45 25.8	-51.0	2.8	47 25.7	-51.0	3.0	49 25.5	-50.9	3.1	51 25.3	-50.8	3.2
87	42 34.8	-51.3	2.0	44 34.8	-51.4	2.1	46 34.7	-51.3	2.2	48 34.6	-51.2	2.3	50 34.5	-51.2	2.4
88	41 43.5	-51.7	1.3	43 43.4	-51.6	1.4	45 43.4	-51.6	1.4	47 43.4	-51.6	1.5	49 43.3	-51.5	1.5
89	40 51.8	-51.8	0.7	42 51.8	-51.8	0.7	44 51.8	-51.8	0.7	46 51.8	-51.8	0.7	48 51.8	-51.8	0.8
90	40 00.0	-52.1	0.0	42 00.0	-52.1	0.0	44 00.0	-52.1	0.0	46 00.0	-52.1	0.0	48 00.0	-52.1	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 30°, 330°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
14	39.8	-55.1	153.4	12	52.4	-55.5	153.6	11	04.8	-55.9	153.8	9	17.0	-56.1	154.0	7	29.1	-56.5	154.1	30
13	44.7	-55.2	153.8	11	56.9	-55.5	154.0	10	08.9	-55.8	154.2	8	20.9	-56.2	154.3	6	32.6	-56.5	154.4	31
12	49.5	-55.2	154.2	11	01.4	-55.6	154.4	9	13.1	-55.9	154.6	7	24.7	-56.2	154.7	5	36.1	-56.5	154.8	32
11	54.3	-55.2	154.6	10	05.8	-55.5	154.8	8	17.2	-55.9	154.9	6	28.5	-56.3	155.0	4	39.6	-56.5	155.1	33
10	59.1	-55.3	155.0	9	10.3	-55.6	155.2	7	21.3	-55.9	155.3	5	32.2	-56.2	155.4	3	43.1	-56.5	155.5	34
10	03.8	-55.2	155.4	8	14.7	-55.7	155.6	6	25.4	-56.0	155.7	4	36.0	-56.2	155.7	2	46.6	-56.6	155.8	35
9	08.6	-55.4	155.8	7	19.0	-55.6	155.9	5	29.4	-55.9	156.0	3	39.8	-56.3	156.1	1	50.0	-56.5	156.1	36
8	13.2	-55.3	156.2	6	23.4	-55.7	156.3	4	33.5	-56.0	156.4	2	43.5	-56.3	156.4	0	53.5	-56.5	156.5	37
7	17.9	-55.3	156.6	5	27.7	-55.6	156.7	3	37.5	-56.0	156.7	1	47.2	-56.2	156.8	0	03.0	+56.6	23.2	38
6	22.6	-55.4	157.0	4	32.1	-55.7	157.1	2	41.5	-55.9	157.1	0	51.0	-56.3	157.1	0	59.6	+56.5	22.9	39
5	27.2	-55.4	157.4	3	36.4	-55.7	157.4	1	45.6	-56.0	157.5	0	05.3	+56.2	22.5	1	56.1	+56.6	22.5	40
4	31.8	-55.4	157.8	2	40.7	-55.7	157.8	0	49.6	-56.0	157.8	1	01.5	+56.3	22.2	2	52.7	+56.5	22.2	41
3	36.4	-55.4	158.1	1	45.0	-55.7	158.2	0	06.4	+56.0	21.8	1	57.8	+56.3	21.8	3	49.2	+56.5	21.9	42
2	41.0	-55.4	158.5	0	49.3	-55.7	158.5	1	02.4	+56.0	21.5	2	54.1	+56.2	21.5	4	45.7	+56.5	21.5	43
1	45.6	-55.5	158.9	0	06.4	+55.7	21.1	1	58.4	+55.9	21.1	3	50.3	+56.3	21.1	5	42.2	+56.5	21.2	44
0	50.1	-55.4	159.3	1	02.1	+55.7	20.7	2	54.3	+56.0	20.7	4	46.6	+56.2	20.8	6	38.7	+56.5	20.9	45
0	05.3	+55.4	20.3	1	57.8	+55.7	20.3	3	50.3	+56.0	20.4	5	42.8	+56.2	20.4	7	35.2	+56.5	20.5	46
1	00.7	+55.4	19.9	2	53.5	+55.7	20.0	4	46.3	+55.9	20.0	6	39.0	+56.2	20.1	8	31.7	+56.4	20.2	47
1	56.1	+55.4	19.6	3	49.2	+55.7	19.6	5	42.2	+56.0	19.6	7	35.2	+56.2	19.7	9	28.1	+56.5	19.8	48
2	51.5	+55.5	19.2	4	44.9	+55.6	19.2	6	38.2	+55.9	19.3	8	31.4	+56.2	19.4	10	24.6	+56.4	19.5	49
3	47.0	+55.3	18.8	5	40.5	+55.7	18.8	7	34.1	+55.9	18.9	9	27.6	+56.1	19.0	11	21.0	+56.4	19.1	50
4	42.3	+55.4	18.4	6	36.2	+55.6	18.5	8	30.0	+55.9	18.6	10	23.7	+56.1	18.7	12	17.4	+56.3	18.8	51
5	37.7	+55.4	18.0	7	31.8	+55.6	18.1	9	25.9	+55.8	18.2	11	19.8	+56.1	18.3	13	13.7	+56.4	18.4	52
6	33.1	+55.4	17.6	8	27.4	+55.6	17.7	10	21.7	+55.9	17.8	12	15.9	+56.1	17.9	14	10.1	+56.3	18.1	53
7	28.5	+55.3	17.2	9	23.0	+55.6	17.3	11	17.6	+55.8	17.4	13	12.0	+56.0	17.6	15	06.4	+56.2	17.7	54
8	23.8	+55.3	16.9	10	18.6	+55.5	16.9	12	13.4	+55.7	17.1	14	08.0	+56.0	17.2	16	02.6	+56.2	17.4	55
9	19.1	+55.3	16.5	11	14.1	+55.6	16.6	13	09.1	+55.8	16.7	15	04.0	+56.0	16.8	16	58.8	+56.2	17.0	56
10	14.4	+55.2	16.1	12	09.7	+55.4	16.2	14	04.9	+55.7	16.3	16	00.0	+55.9	16.5	17	55.0	+56.2	16.6	57
11	09.6	+55.3	15.7	13	05.1	+55.5	15.8	15	00.6	+55.6	15.9	16	55.9	+55.9	16.1	18	51.2	+56.1	16.3	58
12	04.9	+55.1	15.3	14	00.6	+55.4	15.4	15	56.2	+55.7	15.5	17	51.8	+55.9	15.7	19	47.3	+56.0	15.9	59
13	00.0	+55.2	14.9	14	56.0	+55.4	15.0	16	51.9	+55.5	15.1	18	47.7	+55.7	15.3	20	43.3	+56.0	15.5	60
13	55.2	+55.1	14.5	15	51.4	+55.3	14.6	17	47.4	+55.6	14.7	19	43.4	+55.8	14.9	21	39.3	+56.0	15.1	61
14	50.3	+55.1	14.1	16	46.7	+55.3	14.2	18	43.0	+55.5	14.3	20	39.2	+55.7	14.5	22	35.3	+55.9	14.7	62
15	45.4	+55.0	13.6	17	42.0	+55.2	13.8	19	38.5	+55.4	13.9	21	34.9	+55.6	14.1	23	31.2	+55.8	14.3	63
16	40.4	+55.0	13.2	18	37.2	+55.1	13.4	20	33.9	+55.3	13.5	22	30.5	+55.6	13.7	24	27.0	+55.8	13.9	64
17	35.4	+54.9	12.8	19	32.3	+55.2	13.0	21	29.2	+55.4	13.1	23	26.1	+55.5	13.3	25	22.8	+55.7	13.5	65
18	30.3	+54.8	12.4	20	27.5	+55.0	12.5	22	24.6	+55.2	12.7	24	21.6	+55.4	12.9	26	18.5	+55.6	13.1	66
19	25.1	+54.8	12.0	21	22.5	+55.0	12.1	23	19.8	+55.2	12.3	25	17.0	+55.4	12.5	27	14.1	+55.6	12.7	67
20	19.9	+54.8	11.5	22	17.5	+54.9	11.7	24	15.0	+55.1	11.9	26	12.4	+55.2	12.0	28	09.7	+55.4	12.3	68
21	14.7	+54.6	11.1	23	12.4	+54.8	11.2	25	10.1	+55.0	11.4	27	07.6	+55.2	11.6	29	05.1	+55.4	11.8	69
22	09.3	+54.6	10.6	24	07.2	+54.8	10.8	26	05.1	+54.9	11.0	28	02.8	+55.2	11.2	30	00.5	+55.3	11.4	70
23	03.9	+54.5	10.2	25	02.0	+54.7	10.4	27	00.0	+54.9	10.5	28	58.0	+55.0	10.7	30	55.8	+55.2	10.9	71
23	58.4	+54.5	9.7	25	56.7	+54.6	9.9	27	54.9	+54.7	10.1	29	53.0	+54.9	10.3	31	51.0	+55.1	10.5	72
24	52.9	+54.3	9.3	26	51.3	+54.5	9.4	28	49.6	+54.7	9.6	30	47.9	+54.8	9.8	32	46.1	+55.0	10.0	73
25	47.2	+54.3	8.8	27	45.8	+54.4	9.0	29	44.3	+54.5	9.1	31	42.7	+54.7	9.3	33	41.1	+54.9	9.5	74
26	41.5	+54.1	8.3	28	40.2	+54.3	8.5	30	38.8	+54.5	8.7	32	37.4	+54.6	8.8	34	36.0	+54.7	9.0	75
27	35.6	+54.1	7.8	29	34.5	+54.2	8.0	31	33.3	+54.3	8.2	33	32.0	+54.5	8.3	35	30.7	+54.7	8.5	76
28	29.7	+53.9	7.4	30	28.7	+54.1	7.5	32	27.6	+54.2	7.7	34	26.5	+54.4	7.8	36	25.4	+54.5	8.0	77
29	23.6	+53.9	6.9	31	22.8	+53.9	7.0	33	21.8	+54.1	7.2	35	20.9	+54.2	7.3	37	19.9	+54.3	7.5	78
30	17.5	+53.7	6.3	32	16.7	+53.8	6.5	34	15.9	+54.0	6.6	36	15.1	+54.1	6.8	38	14.2	+54.2	7.0	79
31	11.2	+53.6	5.8	33	10.5	+53.7	6.0	35	09.9	+53.8	6.1	37	09.2	+53.9	6.3	39	08.4	+54.1	6.4	80
32	04.8	+53.4	5.3	34	04.2	+53.6	5.4	36	03.7	+53.6	5.6	38	03.1	+53.8	5.7	40	02.5	+53.9	5.9	81
32	58.2	+53.3	4.8	34	57.8	+53.4	4.9	36	57.3	+53.5	5.0	38	56.9	+53.6	5.1	40	56.4	+53.7	5.3	82
33	51.5	+53.2	4.2	35	51.2	+53.2	4.3	37	50.8	+53.4	4.4	39	50.5	+53.4	4.6	41	50.1	+53.5	4.7	83
34	44.7	+53.0	3.6	36	44.4	+53.1	3.7	38	44.2	+53.1	3.8	40	43.9	+53.2	4.0	42	43.6	+53.3	4.1	84
35	37.7	+52.8	3.1	37	37.5	+52.9	3.2	39	37.3	+53.0	3.2	41	37.1	+53.1	3.3	43	36.9	+53.1	3.5	85
36	30.5	+52.7	2.5	38	30.4	+52.7	2.6	40	30.3	+52.7	2.6	42	30.2	+52.8	2.7	44	30.0	+52.9	2.8	86
37	23.2	+52.5	1.9	39	23.1	+52.5	1.9	41	23.0	+52.6	2.0	43	23.0	+52.6	2.1	45	22.9	+52.6	2.1	87
38	15.7	+52.2	1.3	40	15.6	+52.3	1.3	42	15.6	+52.3	1.4	44	15.6	+52.3	1.4	46	15.5	+52.4	1.4	88
39	07.9	+52.1	0.6	41	07.9	+52.1	0.7	43	07.9	+52.1	0.7	45	07.9	+52.1	0.7	47	07.9	+52.1	0.7	89
40	00.0	+51.8	0.0	42	00.0	+51.8	0.0	44	00.0	+51.8	0.0	46	00.0	+51.8	0.0	48	00.0	+51.8	0.0	90
40°			42°			44°			46°			48°								

LATITUDE SAME NAME

L.H.A. 150°, 210°

30°, 330° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	59 53.7	+45.7	120.3	58 50.6	+47.9	123.2	57 42.6	+49.8	125.8	56 30.2	+51.5	128.3	55 13.9	+53.0	130.6
31	60 39.4	+44.9	119.0	59 38.5	+47.2	122.0	58 32.4	+49.3	124.8	57 21.7	+51.1	127.4	56 06.9	+52.6	129.8
32	61 24.3	+44.0	117.6	60 25.7	+46.6	120.8	59 21.7	+48.7	123.7	58 12.8	+50.6	126.4	56 59.5	+52.2	128.9
33	62 08.3	+43.1	116.2	61 12.3	+45.7	119.5	60 10.4	+48.1	122.5	59 03.4	+50.1	125.4	57 51.7	+51.8	128.0
34	62 51.4	+42.1	114.7	61 58.0	+44.9	118.1	60 58.5	+47.4	121.3	59 53.5	+49.5	124.3	58 43.5	+51.4	127.0
35	63 33.5	+40.9	113.1	62 42.9	+44.0	116.7	61 45.9	+46.6	120.0	60 43.0	+48.9	123.1	59 34.9	+50.9	126.0
36	64 14.4	+39.8	111.4	63 26.9	+43.0	115.2	62 32.5	+45.8	118.7	61 31.9	+48.3	121.9	60 25.8	+50.3	124.9
37	64 54.2	+38.5	109.7	64 09.9	+41.9	113.6	63 18.3	+44.9	117.3	62 20.2	+47.5	120.7	61 16.1	+49.8	123.8
38	65 32.7	+37.1	107.9	64 51.8	+40.8	111.9	64 03.2	+44.0	115.8	63 07.7	+46.7	119.3	62 05.9	+49.1	122.7
39	66 09.8	+35.6	105.9	65 32.6	+39.4	110.2	64 47.2	+42.9	114.2	63 54.4	+45.9	117.9	62 55.0	+48.4	121.4
40	66 45.4	+34.0	103.9	66 12.0	+38.1	108.3	65 30.1	+41.7	112.5	64 40.3	+44.9	116.5	63 43.4	+47.7	120.1
41	67 19.4	+32.2	101.8	66 50.1	+36.6	106.4	66 11.8	+40.5	110.8	65 25.2	+43.9	114.9	64 31.1	+46.8	118.7
42	67 51.6	+30.4	99.6	67 26.7	+35.0	104.4	66 52.3	+39.1	108.9	66 09.1	+42.8	113.2	65 17.9	+46.0	117.2
43	68 22.0	+28.4	97.3	68 01.7	+33.2	102.2	67 31.4	+37.6	107.0	66 51.9	+41.5	111.5	66 03.9	+44.9	115.7
44	68 50.4	+26.2	94.9	68 34.9	+31.3	100.0	68 09.0	+36.0	104.9	67 33.4	+40.1	109.6	66 48.8	+43.8	114.0
45	69 16.6	+23.9	92.4	69 06.2	+29.2	97.6	68 45.0	+34.2	102.7	68 13.5	+38.7	107.6	67 32.6	+42.6	112.2
46	69 40.5	+21.6	89.7	69 35.4	+27.1	95.1	69 19.2	+32.3	100.4	68 52.2	+37.0	105.5	68 15.2	+41.2	110.4
47	70 02.1	+18.9	87.0	70 02.5	+24.7	92.5	69 51.5	+30.2	98.0	69 29.2	+35.3	103.3	68 56.4	+39.8	108.4
48	70 21.0	+16.3	84.2	70 27.2	+22.3	89.8	70 21.7	+27.9	95.5	70 04.5	+33.3	101.0	69 36.2	+38.1	106.3
49	70 37.3	+13.5	81.4	70 49.5	+19.5	87.0	70 49.6	+25.6	92.8	70 37.8	+31.2	98.5	70 14.3	+36.4	104.0
50	70 50.8	+10.6	78.4	71 09.0	+16.8	84.1	71 15.2	+22.9	90.0	71 09.0	+28.9	95.9	70 50.7	+34.4	101.6
51	71 01.4	+7.6	75.4	71 25.8	+13.9	81.2	71 38.1	+20.3	87.1	71 37.9	+26.4	93.1	71 25.1	+32.2	99.1
52	71 09.0	+4.6	72.3	71 39.7	+10.9	78.1	71 58.4	+17.3	84.1	72 04.3	+23.7	90.3	71 57.3	+29.9	96.4
53	71 13.6	+1.6	69.2	71 50.6	+7.8	74.9	72 15.7	+14.3	81.0	72 28.0	+20.9	87.2	72 27.2	+27.3	93.6
54	71 15.2	-1.6	66.1	71 58.4	+4.5	71.7	72 30.0	+11.1	77.8	72 48.9	+17.8	84.1	72 54.5	+24.5	90.6
55	71 13.6	-4.6	63.0	72 02.9	+1.4	68.5	72 41.1	+7.8	74.5	73 06.7	+14.7	80.8	73 19.0	+21.6	87.4
56	71 09.0	-7.7	59.9	72 04.3	-1.9	65.3	72 48.9	+4.5	71.1	73 21.4	+11.3	77.5	73 40.6	+18.4	84.2
57	71 01.3	-10.6	56.9	72 02.4	-5.1	62.0	72 53.4	+1.1	67.8	73 32.7	+7.9	74.0	73 59.0	+15.0	80.7
58	70 50.7	-13.5	53.9	71 57.3	-8.3	58.8	72 54.5	-2.3	64.4	73 40.6	+4.3	70.5	74 14.0	+11.5	77.2
59	70 37.2	-16.4	50.9	71 49.0	-11.4	55.6	72 52.2	-5.7	61.0	73 44.9	+0.8	67.0	74 25.5	+7.9	73.6
60	70 20.8	-18.9	48.0	71 37.6	-14.3	52.5	72 46.5	-9.0	57.6	73 45.7	-2.9	63.4	74 33.4	+4.1	69.9
61	70 01.9	-21.6	45.2	71 23.3	-17.3	49.4	72 37.5	-12.3	54.3	73 42.8	-6.4	59.8	74 37.5	+0.3	66.1
62	69 40.3	-24.0	42.5	71 06.0	-20.0	46.4	72 25.2	-15.4	51.0	73 36.4	-9.8	56.3	74 37.8	-3.5	62.3
63	69 16.3	-26.2	39.9	70 46.0	-22.7	43.6	72 09.8	-18.3	47.8	73 26.6	-13.3	52.8	74 34.3	-7.3	58.6
64	68 50.1	-28.4	37.4	70 23.3	-25.1	40.8	71 51.5	-21.3	44.7	73 13.3	-16.6	49.4	74 27.0	-10.9	54.8
65	68 21.7	-30.4	35.0	69 58.2	-27.5	38.1	71 30.2	-23.9	41.8	72 56.7	-19.6	46.1	74 16.1	-14.5	51.2
66	67 51.3	-32.2	32.7	69 30.7	-29.6	35.5	71 06.3	-26.4	38.9	72 37.1	-22.6	42.9	74 01.6	-17.8	47.6
67	67 19.1	-34.1	30.4	69 01.1	-31.6	33.1	70 39.9	-28.8	36.2	72 14.5	-25.3	39.8	73 43.8	-21.1	44.2
68	66 45.0	-35.6	28.3	68 29.5	-33.5	30.7	70 11.1	-30.9	33.5	71 49.2	-27.9	36.9	73 22.7	-24.1	40.9
69	66 09.4	-37.1	26.3	67 56.0	-35.3	28.5	69 40.2	-33.0	31.0	71 21.3	-30.2	34.1	72 58.6	-26.9	37.7
70	65 32.3	-38.5	24.4	67 20.7	-36.8	26.4	69 07.2	-34.9	28.7	70 51.1	-32.4	31.4	72 31.7	-29.5	34.7
71	64 53.8	-39.8	22.6	66 43.9	-38.3	24.3	68 32.3	-36.5	26.4	70 18.7	-34.5	28.9	72 02.2	-31.8	31.9
72	64 14.0	-41.0	20.8	66 05.6	-39.7	22.4	67 55.8	-38.2	24.3	69 44.2	-36.3	26.5	71 30.4	-34.1	29.1
73	63 33.0	-42.0	19.2	65 25.9	-41.0	20.6	67 17.6	-39.6	22.3	69 07.9	-38.0	24.2	70 56.3	-36.0	26.6
74	62 51.0	-43.1	17.6	64 44.9	-42.1	18.8	66 38.0	-40.9	20.3	68 29.9	-39.6	22.1	70 20.3	-37.9	24.2
75	62 07.9	-44.1	16.1	64 02.8	-43.1	17.2	65 57.1	-42.2	18.5	67 50.3	-40.9	20.1	69 42.4	-39.5	21.9
76	61 23.8	-44.9	14.6	63 19.7	-44.2	15.6	65 14.9	-43.3	16.8	67 09.4	-42.3	18.2	69 02.9	-41.0	19.8
77	60 38.9	-45.6	13.3	62 35.5	-45.0	14.1	64 31.6	-44.3	15.2	66 27.1	-43.4	16.4	68 21.9	-42.4	17.8
78	59 53.3	-46.5	12.0	61 50.5	-45.9	12.7	63 47.3	-45.2	13.6	65 43.7	-44.5	14.6	67 39.5	-43.6	15.9
79	59 06.8	-47.1	10.7	61 04.6	-46.6	11.4	63 02.1	-46.1	12.1	64 59.2	-45.5	13.0	66 55.9	-44.8	14.1
80	58 19.7	-47.8	9.5	60 18.0	-47.4	10.1	62 16.0	-46.9	10.8	64 13.7	-46.4	11.5	66 11.1	-45.8	12.4
81	57 31.9	-48.3	8.4	59 30.6	-48.0	8.9	61 29.1	-47.7	9.4	63 27.3	-47.2	10.1	65 25.3	-46.7	10.8
82	56 43.6	-48.9	7.3	58 42.6	-48.6	7.7	60 41.4	-48.3	8.2	62 40.1	-47.9	8.7	64 38.6	-47.5	9.4
83	55 54.7	-49.4	6.2	57 54.0	-49.2	6.6	59 53.1	-48.9	7.0	61 52.2	-48.7	7.4	63 51.1	-48.3	7.9
84	55 05.3	-49.9	5.2	57 04.8	-49.7	5.5	59 04.2	-49.5	5.8	61 03.5	-49.3	6.2	63 02.8	-49.0	6.6
85	54 15.4	-50.3	4.3	56 15.1	-50.2	4.5	58 14.7	-50.0	4.7	60 14.2	-49.8	5.0	62 13.8	-49.7	5.4
86	53 25.1	-50.7	3.4	55 24.9	-50.6	3.5	57 24.7	-50.6	3.7	59 24.4	-50.4	3.9	61 24.1	-50.3	4.2
87	52 34.4	-51.1	2.5	54 34.3	-51.1	2.6	56 34.1	-50.9	2.7	58 34.0	-50.9	2.9	60 33.8	-50.8	3.1
88	51 43.3	-51.5	1.6	53 43.2	-51.4	1.7	55 43.2	-51.4	1.8	57 43.1	-51.3	1.9	59 43.0	-51.3	2.0
89	50 51.8	-51.8	0.8	52 51.8	-51.8	0.8	54 51.8	-51.8	0.9	56 51.8	-51.8	0.9	58 51.7	-51.7	1.0
90	50 00.0	-52.1	0.0	52 00.0	-52.1	0.0	54 00.0	-52.1	0.0	56 00.0	-52.2	0.0	58 00.0	-52.2	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 30°, 330°

50°			52°			54°			56°			Dec.			
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z				
5 41.1	-56.8	154.2	3 53.1	-57.1	154.3	2 04.9	-57.3	154.3	0 16.8	-57.6	154.3	1 31.4	+57.9	25.7	30
4 44.3	-56.8	154.5	2 56.0	-57.1	154.6	1 07.6	-57.4	154.6	0 40.8	+57.7	25.4	2 29.3	+57.8	25.4	31
3 47.5	-56.8	154.9	1 58.9	-57.1	154.9	0 10.2	-57.3	154.9	1 38.5	+57.6	25.1	3 27.1	+57.8	25.1	32
2 50.7	-56.8	155.2	1 01.8	-57.1	155.2	0 47.1	+57.4	24.8	2 36.1	+57.6	24.8	4 24.9	+57.9	24.9	33
1 53.9	-56.8	155.5	0 04.7	-57.1	155.5	1 44.5	+57.3	24.5	3 33.7	+57.5	24.5	5 22.8	+57.8	24.6	34
0 57.1	-56.8	155.8	0 52.4	+57.0	24.2	2 41.8	+57.4	24.2	4 31.2	+57.6	24.3	6 20.6	+57.8	24.3	35
0 00.3	-56.8	156.1	1 49.4	+57.1	23.9	3 39.2	+57.3	23.9	5 28.8	+57.6	24.0	7 18.4	+57.9	24.1	36
0 56.5	+56.8	23.5	2 46.5	+57.1	23.6	4 36.5	+57.3	23.6	6 26.4	+57.6	23.7	8 16.3	+57.8	23.8	37
1 53.3	+56.8	23.2	3 43.6	+57.1	23.3	5 33.8	+57.3	23.3	7 24.0	+57.5	23.4	9 14.1	+57.8	23.5	38
2 50.1	+56.9	22.9	4 40.7	+57.0	22.9	6 31.1	+57.4	23.0	8 21.5	+57.6	23.1	10 11.9	+57.7	23.3	39
3 47.0	+56.8	22.6	5 37.7	+57.1	22.6	7 28.5	+57.3	22.7	9 19.1	+57.5	22.8	11 09.6	+57.8	23.0	40
4 43.8	+56.7	22.2	6 34.8	+57.0	22.3	8 25.8	+57.2	22.4	10 16.6	+57.5	22.6	12 07.4	+57.7	22.7	41
5 40.5	+56.8	21.9	7 31.8	+57.1	22.0	9 23.0	+57.3	22.1	11 14.1	+57.6	22.3	13 05.1	+57.8	22.4	42
6 37.3	+56.8	21.6	8 28.9	+57.0	21.7	10 20.3	+57.3	21.8	12 11.7	+57.4	22.0	14 02.9	+57.7	22.1	43
7 34.1	+56.7	21.3	9 25.9	+57.0	21.4	11 17.6	+57.2	21.5	13 09.1	+57.5	21.7	15 00.6	+57.7	21.9	44
8 30.8	+56.8	20.9	10 22.9	+56.9	21.1	12 14.8	+57.2	21.2	14 06.6	+57.4	21.4	15 58.3	+57.6	21.6	45
9 27.6	+56.7	20.6	11 19.8	+57.0	20.7	13 12.0	+57.2	20.9	15 04.0	+57.5	21.1	16 55.9	+57.7	21.3	46
10 24.3	+56.7	20.3	12 16.8	+56.9	20.4	14 09.2	+57.2	20.6	16 01.5	+57.3	20.8	17 53.6	+57.6	21.0	47
11 21.0	+56.7	20.0	13 13.7	+56.9	20.1	15 06.4	+57.1	20.3	16 58.8	+57.4	20.5	18 51.2	+57.6	20.7	48
12 17.7	+56.6	19.6	14 10.6	+56.9	19.8	16 03.5	+57.1	20.0	17 56.2	+57.3	20.2	19 48.8	+57.5	20.4	49
13 14.3	+56.6	19.3	15 07.5	+56.9	19.4	17 00.6	+57.1	19.6	18 53.5	+57.5	19.9	20 46.3	+57.6	20.1	50
14 10.9	+56.6	18.9	16 04.4	+56.8	19.1	17 57.7	+57.0	19.3	19 50.9	+57.2	19.5	21 43.9	+57.4	19.8	51
15 07.5	+56.6	18.6	17 01.2	+56.8	18.8	18 54.7	+57.0	19.0	20 48.1	+57.3	19.2	22 41.3	+57.5	19.5	52
16 04.1	+56.5	18.2	17 58.0	+56.7	18.4	19 51.7	+57.0	18.7	21 45.4	+57.2	18.9	23 38.8	+57.4	19.2	53
17 00.6	+56.5	17.9	18 54.7	+56.8	18.1	20 48.7	+57.0	18.3	22 42.6	+57.1	18.6	24 36.2	+57.4	18.9	54
17 57.1	+56.4	17.5	19 51.5	+56.6	17.8	21 45.7	+56.9	18.0	23 39.7	+57.1	18.2	25 33.6	+57.3	18.5	55
18 53.5	+56.5	17.2	20 48.1	+56.7	17.4	22 42.6	+56.8	17.6	24 36.8	+57.1	17.9	26 30.9	+57.3	18.2	56
19 50.0	+56.3	16.8	21 44.8	+56.5	17.0	23 39.4	+56.8	17.3	25 33.9	+57.0	17.6	27 28.2	+57.2	17.9	57
20 46.3	+56.3	16.5	22 41.3	+56.6	16.7	24 36.2	+56.8	16.9	26 30.9	+57.0	17.2	28 25.4	+57.2	17.5	58
21 42.6	+56.3	16.1	23 37.9	+56.5	16.3	25 33.0	+56.7	16.6	27 27.9	+56.9	16.9	29 22.6	+57.2	17.2	59
22 38.9	+56.2	15.7	24 34.4	+56.4	16.0	26 29.7	+56.6	16.2	28 24.8	+56.9	16.5	30 19.8	+57.0	16.8	60
23 35.1	+56.2	15.3	25 30.8	+56.4	15.6	27 26.3	+56.6	15.9	29 21.7	+56.8	16.1	31 16.8	+57.0	16.5	61
24 31.3	+56.1	15.0	26 27.2	+56.3	15.2	28 22.9	+56.5	15.5	30 18.5	+56.7	15.8	32 13.8	+57.0	16.1	62
25 27.4	+56.0	14.6	27 23.5	+56.2	14.8	29 19.4	+56.5	15.1	31 15.2	+56.7	15.4	33 10.8	+56.9	15.7	63
26 23.4	+56.0	14.2	28 19.7	+56.2	14.4	30 15.9	+56.4	14.7	32 11.9	+56.6	15.0	34 07.7	+56.8	15.4	64
27 19.4	+55.9	13.8	29 15.9	+56.1	14.0	31 12.3	+56.3	14.3	33 08.5	+56.5	14.6	35 04.5	+56.7	15.0	65
28 15.3	+55.8	13.3	30 12.0	+56.0	13.6	32 08.6	+56.2	13.9	34 05.0	+56.4	14.2	36 01.2	+56.7	14.6	66
29 11.1	+55.8	12.9	31 08.0	+56.0	13.2	33 04.8	+56.1	13.5	35 01.4	+56.4	13.8	36 57.9	+56.5	14.2	67
30 06.9	+55.6	12.5	32 04.0	+55.8	12.8	34 00.9	+56.1	13.1	35 57.8	+56.2	13.4	37 54.4	+56.5	13.7	68
31 02.5	+55.6	12.1	32 59.8	+55.8	12.3	34 57.0	+56.0	12.6	36 54.0	+56.2	12.9	38 50.9	+56.4	13.3	69
31 58.1	+55.5	11.6	33 55.6	+55.7	11.9	35 53.0	+55.8	12.2	37 50.2	+56.0	12.5	39 47.3	+56.2	12.9	70
32 53.6	+55.4	11.2	34 51.3	+55.5	11.4	36 48.8	+55.8	11.7	38 46.2	+56.0	12.1	40 43.5	+56.2	12.4	71
33 49.0	+55.2	10.7	35 46.8	+55.5	11.0	37 44.6	+55.6	11.3	39 42.2	+55.8	11.6	41 39.7	+56.0	11.9	72
34 44.2	+55.2	10.2	36 42.3	+55.3	10.5	38 40.2	+55.5	10.8	40 38.0	+55.8	11.1	42 35.7	+55.9	11.5	73
35 39.4	+55.1	9.8	37 37.6	+55.2	10.0	39 35.7	+55.4	10.3	41 33.8	+55.5	10.6	43 31.6	+55.8	11.0	74
36 34.5	+54.9	9.3	38 32.8	+55.1	9.5	40 31.1	+55.3	9.8	42 29.3	+55.5	10.1	44 27.4	+55.7	10.4	75
37 29.4	+54.8	8.8	39 27.9	+55.0	9.0	41 26.4	+55.1	9.3	43 24.8	+55.3	9.6	45 23.1	+55.4	9.9	76
38 24.2	+54.6	8.3	40 22.9	+54.8	8.5	42 21.5	+55.0	8.8	44 20.1	+55.1	9.0	46 18.5	+55.4	9.4	77
39 18.8	+54.5	7.7	41 17.7	+54.7	8.0	43 16.5	+54.8	8.2	45 15.2	+55.0	8.5	47 13.9	+55.1	8.8	78
40 13.3	+54.4	7.2	42 12.4	+54.4	7.4	44 11.3	+54.7	7.6	46 10.2	+54.8	7.9	48 09.0	+55.0	8.2	79
41 07.7	+54.2	6.6	43 06.8	+54.4	6.8	45 06.0	+54.4	7.1	47 05.0	+54.6	7.3	49 04.0	+54.8	7.6	80
42 01.9	+54.0	6.0	44 01.2	+54.1	6.2	46 00.4	+54.3	6.5	47 59.6	+54.4	6.7	49 58.8	+54.5	7.0	81
42 55.9	+53.8	5.5	44 55.3	+53.9	5.6	46 54.7	+54.0	5.8	48 54.0	+54.2	6.1	50 53.3	+54.4	6.3	82
43 49.7	+53.6	4.8	45 49.2	+53.7	5.0	47 48.7	+53.9	5.2	49 48.2	+54.0	5.4	51 47.7	+54.1	5.7	83
44 43.3	+53.4	4.2	46 42.9	+53.5	4.4	48 42.6	+53.6	4.5	50 42.2	+53.7	4.7	52 41.8	+53.8	4.9	84
45 36.7	+53.2	3.6	47 36.4	+53.3	3.7	49 36.2	+53.3	3.9	51 35.9	+53.4	4.0	53 35.6	+53.5	4.2	85
46 29.9	+52.9	2.9	48 29.7	+53.0	3.0	50 29.5	+53.1	3.1	52 29.3	+53.2	3.3	54 29.1	+53.3	3.4	86
47 22.8	+52.7	2.2	49 22.7	+52.7	2.3	51 22.6	+52.8	2.4	53 22.5	+52.8	2.5	55 22.4	+52.9	2.6	87
48 15.5	+52.4	1.5	50 15.4	+52.5	1.6	52 15.4	+52.5	1.6	54 15.3	+52.5	1.7	56 15.3	+52.5	1.8	88
49 07.9	+52.1	0.8	51 07.9	+52.1	0.8	53 07.9	+52.1	0.8	55 07.8	+52.2	0.9	57 07.8	+52.2	0.9	89
50 00.0	+51.8	0.0	52 00.0	+51.8	0.0	54 00.0	+51.8	0.0	56 00.0	+51.8	0.0	58 00.0	+51.7	0.0	90

LATITUDE SAME NAME

L.H.A. 150°, 210°

32°, 328° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	62 22.8	+7.5	81.8	62 35.8	+12.0	85.7	62 40.9	+16.4	89.5	62 37.8	+20.8	93.4	62 26.7	+25.0	97.2
31	62 30.3	+5.5	79.7	62 47.8	+10.0	83.5	62 57.3	+14.5	87.4	62 58.6	+18.9	91.3	62 51.7	+23.3	95.2
32	62 35.8	+3.6	77.5	62 57.8	+8.0	81.4	63 11.8	+12.5	85.3	63 17.5	+17.1	89.2	63 15.0	+21.5	93.2
33	62 39.4	+1.5	75.4	63 05.8	+6.0	79.2	63 24.3	+10.5	83.1	63 34.6	+15.1	87.1	63 36.5	+19.6	91.1
34	62 40.9	-0.5	73.2	63 11.8	+3.9	77.0	63 34.8	+8.5	80.9	63 49.7	+13.1	84.9	63 56.1	+17.7	89.0
35	62 40.4	-2.6	71.0	63 15.7	+1.8	74.8	63 43.3	+6.4	78.7	64 02.8	+11.0	82.7	64 13.8	+15.7	86.8
36	62 37.8	-4.5	68.8	63 17.5	-0.2	72.5	63 49.7	+4.3	76.4	64 13.8	+8.9	80.4	64 29.5	+13.6	84.6
37	62 33.3	-6.6	66.7	63 17.3	-2.3	70.3	63 54.0	+2.1	74.1	64 22.7	+6.8	78.2	64 43.1	+11.5	82.3
38	62 26.7	-8.5	64.5	63 15.0	-4.4	68.1	63 56.1	0.0	71.9	64 29.5	+4.6	75.8	64 54.6	+9.3	80.0
39	62 18.2	-10.5	62.4	63 10.6	-6.5	65.9	63 56.1	-2.2	69.6	64 34.1	+2.4	73.5	65 03.9	+7.2	77.7
40	62 07.7	-12.3	60.3	63 04.1	-8.4	63.7	63 53.9	-4.2	67.3	64 36.5	+0.2	71.2	65 11.1	+4.9	75.3
41	61 55.4	-14.3	58.2	62 55.7	-10.5	61.5	63 49.7	-6.4	65.1	64 36.7	-2.1	68.9	65 16.0	+2.6	72.9
42	61 41.1	-16.1	56.1	62 45.2	-12.4	59.3	63 43.3	-8.5	62.8	64 34.6	-4.2	66.5	65 18.6	+0.3	70.5
43	61 25.0	-17.8	54.1	62 32.8	-14.4	57.2	63 34.8	-10.5	60.6	64 30.4	-6.4	64.2	65 18.9	-1.9	68.1
44	61 07.2	-19.5	52.1	62 18.4	-16.2	55.1	63 24.3	-12.6	58.4	64 24.0	-8.5	61.9	65 17.0	-4.2	65.7
45	60 47.7	-21.2	50.2	62 02.2	-18.0	53.0	63 11.7	-14.5	56.2	64 15.5	-10.6	59.6	65 12.8	-6.4	63.4
46	60 26.5	-22.8	48.3	61 44.2	-19.8	51.0	62 57.2	-16.4	54.1	64 04.9	-12.8	57.4	65 06.4	-8.7	61.0
47	60 03.7	-24.4	46.4	61 24.4	-21.4	49.0	62 40.8	-18.3	51.9	63 52.1	-14.7	55.1	64 57.7	-10.8	58.6
48	59 39.3	-25.8	44.6	61 03.0	-23.1	47.1	62 22.5	-20.1	49.9	63 37.4	-16.7	53.0	64 46.9	-13.0	56.3
49	59 13.5	-27.2	42.8	60 39.9	-24.7	45.2	62 02.4	-21.8	47.9	63 20.7	-18.7	50.8	64 33.9	-15.1	54.0
50	58 46.3	-28.6	41.1	60 15.2	-26.2	43.4	61 40.6	-23.5	45.9	63 02.0	-20.4	48.7	64 18.8	-17.1	51.8
51	58 17.7	-29.9	39.4	59 49.0	-27.6	41.6	61 17.1	-25.0	44.0	62 41.6	-22.2	46.6	64 01.7	-19.0	49.6
52	57 47.8	-31.1	37.7	59 21.4	-29.0	39.8	60 52.1	-26.6	42.1	62 19.4	-24.0	44.6	63 42.7	-20.9	47.4
53	57 16.7	-32.3	36.2	58 52.4	-30.3	38.1	60 25.5	-28.1	40.3	61 55.4	-25.5	42.7	63 21.8	-22.8	45.3
54	56 44.4	-33.4	34.6	58 22.1	-31.5	36.4	59 57.4	-29.5	38.5	61 29.9	-27.1	40.7	62 59.0	-24.4	43.3
55	56 11.0	-34.4	33.1	57 50.6	-32.8	34.8	59 27.9	-30.7	36.7	61 02.8	-28.6	38.9	62 34.6	-26.1	41.3
56	55 36.6	-35.5	31.6	57 17.8	-33.8	33.3	58 57.2	-32.1	35.1	60 34.2	-30.1	37.1	62 08.5	-27.8	39.4
57	55 01.1	-36.4	30.2	56 44.0	-34.9	31.7	58 25.1	-33.2	33.4	60 04.1	-31.3	35.3	61 40.7	-29.2	37.5
58	54 24.7	-37.4	28.9	56 09.1	-36.0	30.3	57 51.9	-34.4	31.9	59 32.8	-32.6	33.6	61 11.5	-30.6	35.6
59	53 47.3	-38.2	27.5	55 33.1	-36.9	28.8	57 17.5	-35.5	30.3	59 00.2	-33.9	32.0	60 40.9	-32.0	33.9
60	53 09.1	-39.0	26.2	54 56.2	-37.8	27.5	56 42.0	-36.5	28.9	58 26.3	-35.0	30.4	60 08.9	-33.3	32.2
61	52 30.1	-39.8	25.0	54 18.4	-38.7	26.1	56 05.5	-37.4	27.4	57 51.3	-36.0	28.9	59 35.6	-34.5	30.5
62	51 50.3	-40.5	23.7	53 39.7	-39.5	24.8	55 28.1	-38.4	26.0	57 15.3	-37.1	27.4	59 01.1	-35.7	28.9
63	51 09.8	-41.3	22.6	53 00.2	-40.3	23.6	54 49.7	-39.2	24.7	56 38.2	-38.1	25.9	58 25.4	-36.7	27.4
64	50 28.5	-41.9	21.4	52 19.9	-41.0	22.3	54 10.5	-40.1	23.4	56 00.1	-38.9	24.5	57 48.7	-37.7	25.9
65	49 46.6	-42.5	20.3	51 38.9	-41.7	21.2	53 30.4	-40.8	22.1	55 21.2	-39.9	23.2	57 11.0	-38.8	24.4
66	49 04.1	-43.1	19.2	50 57.2	-42.4	20.0	52 49.6	-41.6	20.9	54 41.3	-40.6	21.9	56 32.2	-39.6	23.0
67	48 21.0	-43.7	18.2	50 14.8	-43.0	18.9	52 08.0	-42.2	19.7	54 00.7	-41.4	20.6	55 52.6	-40.5	21.7
68	47 37.3	-44.2	17.1	49 31.8	-43.6	17.8	51 25.8	-42.9	18.6	53 19.3	-42.2	19.4	55 12.1	-41.3	20.4
69	46 53.1	-44.7	16.1	48 48.2	-44.1	16.8	50 42.9	-43.5	17.5	52 37.1	-42.8	18.2	54 30.8	-42.0	19.1
70	46 08.4	-45.2	15.2	48 04.1	-44.7	15.7	49 59.4	-44.1	16.4	51 54.3	-43.4	17.1	53 48.8	-42.8	17.9
71	45 23.2	-45.6	14.2	47 19.4	-45.2	14.7	49 15.3	-44.6	15.3	51 10.9	-44.1	16.0	53 06.0	-43.4	16.7
72	44 37.6	-46.1	13.3	46 34.2	-45.6	13.8	48 30.7	-45.2	14.3	50 26.8	-44.7	14.9	52 22.6	-44.1	15.6
73	43 51.5	-46.5	12.4	45 48.6	-46.1	12.8	47 45.5	-45.7	13.3	49 42.1	-45.2	13.9	51 38.5	-44.7	14.5
74	43 05.0	-46.8	11.5	45 02.5	-46.5	11.9	46 59.8	-46.1	12.4	48 56.9	-45.7	12.9	50 53.8	-45.2	13.4
75	42 18.2	-47.3	10.7	44 16.0	-46.9	11.0	46 13.7	-46.6	11.4	48 11.2	-46.1	11.9	50 08.6	-45.8	12.4
76	41 30.9	-47.5	9.9	43 29.1	-47.3	10.2	45 27.1	-46.9	10.5	47 25.1	-46.7	10.9	49 22.8	-46.3	11.4
77	40 43.4	-48.0	9.0	42 41.8	-47.6	9.3	44 40.2	-47.4	9.6	46 38.4	-47.1	10.0	48 36.5	-46.7	10.4
78	39 55.4	-48.2	8.3	41 54.2	-48.0	8.5	43 52.8	-47.8	8.8	45 51.3	-47.5	9.1	47 49.8	-47.2	9.4
79	39 07.2	-48.5	7.5	41 06.2	-48.4	7.7	43 05.0	-48.1	8.0	45 03.8	-47.8	8.2	47 02.6	-47.7	8.5
80	38 18.7	-48.8	6.7	40 17.8	-48.6	6.9	42 16.9	-48.4	7.1	44 16.0	-48.3	7.4	46 14.9	-48.0	7.6
81	37 29.9	-49.1	6.0	39 29.2	-48.9	6.2	41 28.5	-48.8	6.4	43 27.7	-48.6	6.6	45 26.9	-48.4	6.8
82	36 40.8	-49.3	5.3	38 40.3	-49.2	5.4	40 39.7	-49.0	5.6	42 39.1	-48.9	5.8	44 38.5	-48.7	5.9
83	35 51.5	-49.6	4.6	37 51.1	-49.5	4.7	39 50.7	-49.4	4.8	41 50.2	-49.2	5.0	43 49.8	-49.1	5.1
84	35 01.9	-49.8	3.9	37 01.6	-49.7	4.0	39 01.3	-49.6	4.1	41 01.0	-49.5	4.2	43 00.7	-49.4	4.3
85	34 12.1	-50.0	3.2	36 11.9	-49.9	3.3	38 11.7	-49.9	3.4	40 11.5	-49.8	3.5	42 11.3	-49.7	3.6
86	33 22.1	-50.3	2.5	35 22.0	-50.2	2.6	37 21.8	-50.1	2.7	39 21.7	-50.1	2.7	41 21.6	-50.0	2.8
87	32 31.8	-50.4	1.9	34 31.8	-50.4	1.9	36 31.7	-50.3	2.0	38 31.6	-50.3	2.0	40 31.6	-50.3	2.1
88	31 41.4	-50.6	1.2	33 41.4	-50.6	1.3	35 41.4	-50.6	1.3	37 41.3	-50.5	1.3	39 41.3	-50.5	1.4
89	30 50.8	-50.8	0.6	32 50.8	-50.8	0.6	34 50.8	-50.8	0.6	36 50.8	-50.8	0.7	38 50.8	-50.8	0.7
90	30 00.0	-51.0	0.0	32 00.0	-51.0	0.0	34 00.0	-51.0	0.0	36 00.0	-51.0	0.0	38 00.0	-51.0	0.0

LATITUDE CONTRARY NAME

L.H.A. 32°, 328°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
22 42.5	-52.1	150.2	20 58.2	-52.7	150.6	19 13.5	-53.2	150.9	17 28.4	-53.6	151.2	15 43.1	-54.1	151.5	30
21 50.4	-52.2	150.7	20 05.5	-52.7	151.1	18 20.3	-53.2	151.4	16 34.8	-53.7	151.7	14 49.0	-54.1	152.0	31
20 58.2	-52.3	151.2	19 12.8	-52.8	151.6	17 27.1	-53.3	151.9	15 41.1	-53.7	152.2	13 54.9	-54.2	152.4	32
20 05.9	-52.4	151.8	18 20.0	-52.9	152.1	16 33.8	-53.3	152.4	14 47.4	-53.8	152.6	13 00.7	-54.2	152.9	33
19 13.5	-52.5	152.3	17 27.1	-52.9	152.6	15 40.5	-53.5	152.9	13 53.6	-53.9	153.1	12 06.5	-54.3	153.3	34
18 21.0	-52.6	152.8	16 34.2	-53.1	153.1	14 47.0	-53.4	153.3	12 59.7	-53.9	153.5	11 12.2	-54.3	153.7	35
17 28.4	-52.6	153.3	15 41.1	-53.1	153.6	13 53.6	-53.6	153.8	12 05.8	-53.9	154.0	10 17.9	-54.4	154.2	36
16 35.8	-52.7	153.8	14 48.0	-53.1	154.0	13 00.0	-53.5	154.3	11 11.9	-54.0	154.4	9 23.5	-54.3	154.6	37
15 43.1	-52.8	154.3	13 54.9	-53.2	154.5	12 06.5	-53.7	154.7	10 17.9	-54.0	154.9	8 29.2	-54.5	155.0	38
14 50.3	-52.8	154.8	13 01.7	-53.3	155.0	11 12.8	-53.6	155.2	9 23.9	-54.1	155.3	7 34.7	-54.4	155.5	39
13 57.5	-52.9	155.3	12 08.4	-53.3	155.5	10 19.2	-53.7	155.6	8 29.8	-54.1	155.8	6 40.3	-54.4	155.9	40
13 04.6	-53.0	155.8	11 15.1	-53.4	155.9	9 25.5	-53.8	156.1	7 35.7	-54.1	156.2	5 45.9	-54.5	156.3	41
12 11.6	-53.0	156.2	10 21.7	-53.3	156.4	8 31.7	-53.7	156.5	6 41.6	-54.1	156.6	4 51.4	-54.5	156.7	42
11 18.6	-53.0	156.7	9 28.4	-53.5	156.9	7 38.0	-53.8	157.0	5 47.5	-54.2	157.1	3 56.9	-54.5	157.1	43
10 25.6	-53.1	157.2	8 34.9	-53.4	157.3	6 44.2	-53.9	157.4	4 53.3	-54.2	157.5	3 02.4	-54.5	157.6	44
9 32.5	-53.1	157.7	7 41.5	-53.5	157.8	5 50.3	-53.8	157.9	3 59.3	-54.2	157.9	2 07.9	-54.5	158.0	45
8 39.4	-53.2	158.1	6 48.0	-53.5	158.2	4 56.5	-53.9	158.3	3 05.0	-54.2	158.4	1 13.4	-54.5	158.4	46
7 46.2	-53.2	158.6	5 54.5	-53.6	158.7	4 02.6	-53.8	158.8	2 10.8	-54.2	158.8	0 18.9	-54.5	158.8	47
6 53.0	-53.2	159.1	5 00.9	-53.5	159.1	3 08.8	-53.9	159.2	1 16.6	-54.2	159.2	0 35.6	+54.5	20.8	48
5 59.8	-53.2	159.5	4 07.4	-53.6	159.6	2 14.9	-53.9	159.6	0 22.4	-54.2	159.7	1 30.1	+54.6	20.4	49
5 06.6	-53.3	160.0	3 13.8	-53.6	160.1	1 21.0	-53.9	160.1	0 31.8	+54.2	19.9	2 24.7	+54.5	19.9	50
4 13.3	-53.3	160.5	2 20.2	-53.6	160.5	0 27.1	-53.9	160.5	1 26.0	+54.2	19.5	3 19.2	+54.5	19.5	51
3 20.0	-53.3	160.9	1 26.6	-53.6	161.0	0 26.8	+53.9	19.0	2 20.2	+54.2	19.1	4 13.7	+54.4	19.1	52
2 26.7	-53.3	161.4	0 33.0	-53.6	161.4	1 20.7	+53.9	18.6	3 14.4	+54.2	18.6	5 08.1	+54.5	18.7	53
1 33.4	-53.3	161.8	0 20.6	+53.6	18.1	2 14.6	+53.9	18.2	4 08.6	+54.2	18.2	6 02.6	+54.4	18.3	54
0 40.1	-53.3	162.3	1 14.2	+53.6	17.7	3 08.5	+53.9	17.7	5 02.8	+54.1	17.8	7 57.0	+54.5	17.8	55
0 13.2	+53.3	17.2	2 07.8	+53.6	17.2	4 02.4	+53.8	17.3	5 56.9	+54.2	17.3	9 51.5	+54.4	17.4	56
1 06.5	+53.3	16.8	3 01.4	+53.5	16.8	4 56.2	+53.9	16.8	6 51.1	+54.1	16.9	13 45.9	+54.3	17.0	57
1 59.8	+53.3	16.3	3 54.9	+53.6	16.3	5 50.1	+53.8	16.4	7 45.2	+54.1	16.5	18 40.2	+54.4	16.6	58
2 53.1	+53.3	15.9	4 48.5	+53.5	15.9	6 43.9	+53.8	16.0	9 39.3	+54.0	16.0	23 34.6	+54.3	16.1	59
3 46.4	+53.2	15.4	5 42.0	+53.6	15.4	7 37.7	+53.8	15.5	11 33.3	+54.0	15.6	27 28.9	+54.2	15.7	60
4 39.6	+53.3	14.9	6 35.6	+53.5	15.0	8 31.5	+53.7	15.1	13 27.3	+54.0	15.1	31 23.1	+54.2	15.3	61
5 32.9	+53.2	14.5	7 29.1	+53.4	14.5	9 25.2	+53.7	14.6	15 21.3	+53.9	14.7	34 17.3	+54.2	14.8	62
6 26.1	+53.2	14.0	8 22.5	+53.5	14.1	10 18.9	+53.7	14.2	17 15.2	+53.9	14.3	36 11.5	+54.1	14.4	63
7 19.3	+53.2	13.5	9 16.0	+53.4	13.6	11 12.6	+53.6	13.7	19 09.1	+53.9	13.8	37 05.6	+54.1	13.9	64
8 12.5	+53.1	13.1	10 09.4	+53.3	13.2	12 06.2	+53.6	13.2	21 03.0	+53.8	13.3	37 59.7	+54.0	13.5	65
9 05.6	+53.1	12.6	11 02.7	+53.3	12.7	12 59.8	+53.5	12.8	23 56.8	+53.7	12.9	38 53.7	+54.0	13.0	66
9 58.7	+53.1	12.1	11 56.0	+53.3	12.2	13 53.3	+53.5	12.3	26 50.5	+53.7	12.4	39 47.7	+53.9	12.6	67
10 51.8	+53.0	11.7	12 49.3	+53.2	11.7	14 46.8	+53.4	11.8	29 44.2	+53.6	12.0	40 41.6	+53.8	12.1	68
11 44.8	+53.0	11.2	13 42.5	+53.2	11.3	15 40.2	+53.4	11.4	32 37.8	+53.6	11.5	41 35.4	+53.7	11.6	69
12 37.8	+52.9	10.7	14 35.7	+53.1	10.8	16 33.6	+53.3	10.9	35 31.4	+53.5	11.0	42 29.1	+53.7	11.2	70
13 30.7	+52.9	10.2	15 28.8	+53.1	10.3	17 26.9	+53.2	10.4	38 24.9	+53.4	10.5	43 22.8	+53.6	10.7	71
14 23.6	+52.8	9.7	16 21.9	+52.9	9.8	18 20.1	+53.1	9.9	41 18.3	+53.3	10.1	44 16.4	+53.5	10.2	72
15 16.4	+52.7	9.2	17 14.8	+52.9	9.3	19 13.2	+53.1	9.4	44 11.6	+53.2	9.6	45 09.9	+53.4	9.7	73
16 09.1	+52.7	8.7	18 07.7	+52.9	8.8	20 06.3	+53.0	8.9	47 04.8	+53.2	9.1	46 03.3	+53.3	9.2	74
17 01.8	+52.6	8.2	19 00.6	+52.7	8.3	20 59.3	+52.9	8.4	50 58.0	+53.0	8.6	47 56.6	+53.2	8.7	75
17 54.4	+52.5	7.7	19 53.3	+52.7	7.8	21 52.2	+52.8	7.9	54 51.0	+53.0	8.1	48 49.8	+53.1	8.2	76
18 46.9	+52.5	7.2	20 46.0	+52.5	7.3	22 45.0	+52.7	7.4	58 44.0	+52.8	7.5	49 42.9	+53.0	7.7	77
19 39.4	+52.3	6.7	21 38.5	+52.5	6.8	23 37.7	+52.6	6.9	62 36.8	+52.7	7.0	50 35.9	+52.8	7.1	78
20 31.7	+52.3	6.2	22 31.0	+52.4	6.3	24 30.3	+52.5	6.4	66 29.5	+52.6	6.5	51 28.7	+52.8	6.6	79
21 24.0	+52.1	5.7	23 23.4	+52.2	5.8	25 22.8	+52.3	5.8	70 22.1	+52.5	5.9	52 21.5	+52.6	6.1	80
22 16.1	+52.1	5.1	24 15.6	+52.2	5.2	26 15.1	+52.3	5.3	74 14.6	+52.4	5.4	53 14.1	+52.4	5.5	81
23 08.2	+51.9	4.6	25 07.8	+52.0	4.7	27 07.4	+52.1	4.8	78 07.0	+52.2	4.8	54 06.5	+52.3	4.9	82
24 00.1	+51.8	4.1	25 59.8	+51.9	4.1	27 59.5	+52.0	4.2	82 59.2	+52.0	4.3	55 58.8	+52.2	4.4	83
24 51.9	+51.7	3.5	26 51.7	+51.8	3.6	28 51.5	+51.8	3.6	87 51.2	+51.9	3.7	56 51.0	+52.0	3.8	84
25 43.6	+51.6	2.9	27 43.5	+51.6	3.0	29 43.3	+51.7	3.0	91 43.1	+51.8	3.1	57 43.0	+51.8	3.2	85
26 35.2	+51.4	2.4	28 35.1	+51.5	2.4	30 35.0	+51.5	2.5	95 34.9	+51.5	2.5	58 34.8	+51.6	2.6	86
27 26.6	+51.3	1.8	29 26.6	+51.3	1.8	31 26.5	+51.4	1.9	99 26.4	+51.4	1.9	59 26.4	+51.4	2.0	87
28 17.9	+51.1	1.2	30 17.9	+51.1	1.2	32 17.9	+51.1	1.3	103 17.8	+51.2	1.3	60 17.8	+51.2	1.3	88
29 09.0	+51.0	0.6	31 09.0	+51.0	0.6	33 09.0	+51.0	0.6	107 09.0	+51.0	0.6	61 09.0	+51.0	0.7	89
30 00.0	+50.8	0.0	32 00.0	+50.8	0.0	34 00.0	+50.8	0.0	111 00.0	+50.8	0.0	62 00.0	+50.8	0.0	90

LATITUDE SAME NAME

L.H.A. 148°, 212°

32°, 328° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	62 07.7	+29.0	101.0	61 41.1	+32.8	104.6	61 07.2	+36.3	108.2	60 26.5	+39.4	111.5	59 39.3	+42.3	114.7
31	62 36.7	+27.4	99.1	62 13.9	+31.3	102.9	61 43.5	+34.9	106.5	61 05.9	+38.3	110.0	60 21.6	+41.4	113.3
32	63 04.1	+25.8	97.1	62 45.2	+29.8	101.0	62 18.4	+33.7	104.8	61 44.2	+37.1	108.4	61 03.0	+40.3	111.8
33	63 29.9	+24.0	95.1	63 15.0	+28.3	99.1	62 52.1	+32.2	103.0	62 21.3	+35.9	106.7	61 43.3	+39.2	110.3
34	63 53.9	+22.3	93.1	63 43.3	+26.5	97.1	63 24.3	+30.7	101.1	62 57.2	+34.6	104.9	62 22.5	+38.1	108.7
35	64 16.2	+20.3	90.9	64 09.8	+24.8	95.1	63 55.0	+29.0	99.2	63 31.8	+33.1	103.1	63 00.6	+36.8	107.0
36	64 36.5	+18.3	88.8	64 34.6	+23.0	93.0	64 24.0	+27.4	97.1	64 04.9	+31.5	101.2	63 37.4	+35.4	105.2
37	64 54.8	+16.3	86.5	64 57.6	+21.0	90.8	64 51.4	+25.6	95.1	64 36.4	+30.0	99.3	64 12.8	+34.1	103.4
38	65 11.1	+14.1	84.2	65 18.6	+19.0	88.6	65 17.0	+23.7	92.9	65 06.4	+28.2	97.2	64 46.9	+32.4	101.5
39	65 25.2	+12.0	81.9	65 37.6	+16.8	86.3	65 40.7	+21.7	90.7	65 34.6	+26.4	95.1	65 19.3	+30.9	99.5
40	65 37.2	+9.8	79.6	65 54.4	+14.7	84.0	66 02.4	+19.7	88.4	66 01.0	+24.5	92.9	65 50.2	+29.1	97.4
41	65 47.0	+7.4	77.2	66 09.1	+12.5	81.6	66 22.1	+17.4	86.1	66 25.5	+22.4	90.7	66 19.3	+27.2	95.2
42	65 54.4	+5.2	74.7	66 21.6	+10.1	79.1	66 39.5	+15.2	83.7	66 47.9	+20.3	88.3	66 46.5	+25.2	93.0
43	65 59.6	+2.8	72.3	66 31.7	+7.8	76.7	66 54.7	+13.0	81.2	67 08.2	+18.0	85.9	67 11.7	+23.2	90.7
44	66 02.4	+0.5	69.8	66 39.5	+5.4	74.2	67 07.7	+10.5	78.7	67 26.2	+15.8	83.5	67 34.9	+21.0	88.3
45	66 02.9	-1.9	67.4	66 44.9	+3.0	71.7	67 18.2	+8.0	76.2	67 42.0	+13.3	80.9	67 55.9	+18.6	85.8
46	66 01.0	-4.3	64.9	66 47.9	+0.5	69.1	67 26.2	+5.6	73.6	67 55.3	+10.9	78.3	68 14.5	+16.3	83.3
47	65 56.7	-6.5	62.5	66 48.4	-1.9	66.6	67 31.8	+3.1	71.0	68 06.2	+8.3	75.7	68 30.8	+13.8	80.6
48	65 50.2	-8.9	60.0	66 46.5	-4.4	64.0	67 34.9	+0.5	68.4	68 14.5	+5.8	73.1	68 44.6	+11.2	78.0
49	65 41.3	-11.1	57.6	66 42.1	-6.7	61.5	67 35.4	-2.0	65.8	68 20.3	+3.1	70.4	68 55.8	+8.6	75.2
50	65 30.2	-13.3	55.2	66 35.4	-9.2	59.0	67 33.4	-4.5	63.2	68 23.4	+0.5	67.7	69 04.4	+5.8	72.5
51	65 16.9	-15.5	52.9	66 26.2	-11.4	56.5	67 28.9	-7.0	60.5	68 23.9	-2.1	64.9	69 10.2	+3.2	69.7
52	65 01.4	-17.5	50.6	66 14.8	-13.8	54.1	67 21.9	-9.5	58.0	68 21.8	-4.8	62.2	69 13.4	+0.3	66.9
53	64 43.9	-19.6	48.3	66 01.0	-15.9	51.7	67 12.4	-11.9	55.4	68 17.0	-7.4	59.5	69 13.7	-2.4	64.1
54	64 24.3	-21.4	46.1	65 45.1	-18.1	49.3	67 00.5	-14.3	52.9	68 09.6	-10.0	56.9	69 11.3	-5.1	61.2
55	64 02.9	-23.3	44.0	65 27.0	-20.1	47.0	66 46.2	-16.5	50.4	67 59.6	-12.4	54.2	69 06.2	-7.8	58.4
56	63 39.6	-25.1	41.9	65 06.9	-22.2	44.8	66 29.7	-18.7	48.0	67 47.2	-14.9	51.6	68 58.4	-10.5	55.7
57	63 14.5	-26.8	39.9	64 44.7	-24.0	42.6	66 11.0	-20.9	45.6	67 32.3	-17.2	49.1	68 47.9	-13.1	52.9
58	62 47.7	-28.4	37.9	64 20.7	-25.8	40.4	65 50.1	-22.8	43.3	67 15.1	-19.5	46.6	68 34.8	-15.6	50.3
59	62 19.3	-29.9	36.0	63 54.9	-27.5	38.4	65 27.3	-24.8	41.1	66 55.6	-21.6	44.1	68 19.2	-18.0	47.6
60	61 49.4	-31.4	34.1	63 27.4	-29.2	36.4	65 02.5	-26.7	38.9	66 34.0	-23.8	41.8	68 01.2	-20.4	45.1
61	61 18.0	-32.7	32.3	62 58.2	-30.7	34.4	64 35.8	-28.4	36.8	66 10.2	-25.7	39.5	67 40.8	-22.6	42.6
62	60 45.3	-34.0	30.6	62 27.5	-32.1	32.6	64 07.4	-30.0	34.8	65 44.5	-27.5	37.3	67 18.2	-24.7	40.1
63	60 11.3	-35.3	28.9	61 55.4	-33.6	30.7	63 37.4	-31.6	32.8	65 17.0	-29.3	35.1	66 53.5	-26.7	37.8
64	59 36.0	-36.4	27.3	61 21.8	-34.8	29.0	63 05.8	-33.0	30.9	64 47.7	-31.0	33.1	66 26.8	-28.6	35.5
65	58 59.6	-37.4	25.8	60 47.0	-36.0	27.3	62 32.8	-34.4	29.1	64 16.7	-32.6	31.1	65 58.2	-30.4	33.4
66	58 22.2	-38.5	24.3	60 11.0	-37.2	25.7	61 58.4	-35.7	27.3	63 44.1	-34.0	29.1	65 27.8	-32.0	31.3
67	57 43.7	-39.5	22.8	59 33.8	-38.3	24.1	61 22.7	-37.0	25.6	63 10.1	-35.4	27.3	64 55.8	-33.6	29.3
68	57 04.2	-40.3	21.4	58 55.5	-39.3	22.6	60 45.7	-38.0	24.0	62 34.7	-36.7	25.5	64 22.2	-35.1	27.3
69	56 23.9	-41.2	20.1	58 16.2	-40.2	21.2	60 07.7	-39.2	22.4	61 58.0	-37.9	23.8	63 47.1	-36.4	25.5
70	55 42.7	-42.0	18.8	57 36.0	-41.1	19.8	59 28.5	-40.1	20.9	61 20.1	-39.0	22.2	63 10.7	-37.8	23.7
71	55 00.7	-42.7	17.5	56 54.9	-42.0	18.4	58 48.4	-41.1	19.5	60 41.1	-40.1	20.6	62 32.9	-38.9	22.0
72	54 18.0	-43.5	16.3	56 12.9	-42.7	17.1	58 07.3	-42.0	18.1	60 01.0	-41.0	19.1	61 54.0	-40.0	20.3
73	53 34.5	-44.1	15.1	55 30.2	-43.5	15.9	57 25.3	-42.7	16.7	59 20.0	-42.0	17.7	61 14.0	-41.1	18.8
74	52 50.4	-44.7	14.0	54 46.7	-44.2	14.7	56 42.6	-43.6	15.4	58 38.0	-42.8	16.3	60 32.9	-42.1	17.3
75	52 05.7	-45.4	12.9	54 02.5	-44.8	13.5	55 59.0	-44.3	14.2	57 55.2	-43.7	15.0	59 50.8	-42.9	15.8
76	51 20.3	-45.8	11.8	53 17.7	-45.5	12.4	55 14.7	-44.9	13.0	57 11.5	-44.4	13.7	59 07.9	-43.8	14.5
77	50 34.5	-46.4	10.8	52 32.2	-46.0	11.3	54 29.8	-45.6	11.8	56 27.1	-45.1	12.5	58 24.1	-44.5	13.2
78	49 48.1	-46.9	9.8	51 46.2	-46.5	10.3	53 44.2	-46.1	10.7	55 42.0	-45.7	11.3	57 39.6	-45.3	11.9
79	49 01.2	-47.4	8.9	50 59.7	-47.1	9.2	52 58.1	-46.8	9.7	54 56.3	-46.4	10.1	56 54.3	-46.0	10.7
80	48 13.8	-47.8	7.9	50 12.6	-47.5	8.3	52 11.3	-47.2	8.6	54 09.9	-46.9	9.0	56 08.3	-46.5	9.5
81	47 26.0	-48.1	7.0	49 25.1	-48.0	7.3	51 24.1	-47.7	7.6	53 23.0	-47.5	8.0	55 21.8	-47.2	8.4
82	46 37.9	-48.6	6.2	48 37.1	-48.4	6.4	50 36.4	-48.2	6.7	52 35.5	-48.0	7.0	54 34.6	-47.8	7.3
83	45 49.3	-49.0	5.3	47 48.7	-48.8	5.5	49 48.2	-48.7	5.7	51 47.5	-48.4	6.0	53 46.8	-48.2	6.3
84	45 00.3	-49.3	4.5	46 59.9	-49.1	4.7	48 59.5	-49.0	4.8	50 59.1	-48.9	5.0	52 58.6	-48.7	5.3
85	44 11.0	-49.6	3.7	46 10.8	-49.6	3.8	48 10.5	-49.4	4.0	50 10.2	-49.3	4.1	52 09.9	-49.2	4.3
86	43 21.4	-49.9	2.9	45 21.2	-49.8	3.0	47 21.1	-49.8	3.1	49 20.9	-49.7	3.3	51 20.7	-49.6	3.4
87	42 31.5	-50.2	2.2	44 31.4	-50.2	2.2	46 31.3	-50.1	2.3	48 31.2	-50.1	2.4	50 31.1	-50.0	2.5
88	41 41.3	-50.5	1.4	43 41.2	-50.5	1.5	45 41.2	-50.5	1.5	47 41.1	-50.4	1.6	49 41.1	-50.4	1.6
89	40 50.8	-50.8	0.7	42 50.7	-50.7	0.7	44 50.7	-50.7	0.7	46 50.7	-50.7	0.8	48 50.7	-50.7	0.8
90	40 00.0	-51.0	0.0	42 00.0	-51.0	0.0	44 00.0	-51.0	0.0	46 00.0	-51.0	0.0	48 00.0	-51.0	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 32°, 328°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
13	57.5	-54.5	151.8	12	11.6	-54.9	152.0	10	25.6	-55.3	152.2	8	39.4	-55.7	152.3	6	53.0	-56.0	152.5	30
13	03.0	-54.6	152.2	11	16.7	-55.0	152.4	9	30.3	-55.4	152.6	7	43.7	-55.7	152.7	5	57.0	-56.1	152.8	31
12	08.4	-54.6	152.6	10	21.7	-55.0	152.8	8	34.9	-55.3	153.0	6	48.0	-55.8	153.1	5	00.9	-56.1	153.2	32
11	13.8	-54.6	153.1	9	26.7	-55.0	153.2	7	39.6	-55.4	153.4	5	52.2	-55.7	153.5	4	04.8	-56.0	153.5	33
10	19.2	-54.7	153.5	8	31.7	-55.0	153.6	6	44.2	-55.5	153.7	4	56.5	-55.8	153.8	3	08.8	-56.1	153.9	34
9	24.5	-54.7	153.9	7	36.7	-55.1	154.0	5	48.7	-55.4	154.1	4	00.7	-55.7	154.2	2	12.7	-56.1	154.3	35
8	29.8	-54.7	154.3	6	41.6	-55.1	154.4	4	53.3	-55.4	154.5	3	05.0	-55.8	154.6	1	16.6	-56.1	154.6	36
7	35.1	-54.8	154.7	5	46.5	-55.1	154.8	3	57.9	-55.5	154.9	2	09.2	-55.8	154.9	0	20.5	-56.1	155.0	37
6	40.3	-54.7	155.1	4	51.4	-55.1	155.2	3	02.4	-55.4	155.3	1	13.4	-55.8	155.3	0	35.6	+56.1	24.7	38
5	45.6	-54.8	155.5	3	56.3	-55.2	155.6	2	07.0	-55.5	155.7	0	17.6	-55.8	155.7	1	31.7	+56.1	24.3	39
4	50.8	-54.8	156.0	3	01.1	-55.1	156.0	1	11.5	-55.5	156.0	0	38.2	+55.8	24.0	2	27.8	+56.1	24.0	40
3	56.0	-54.9	156.4	2	06.0	-55.1	156.4	0	16.0	-55.4	156.4	1	34.0	+55.7	23.6	3	23.9	+56.1	23.6	41
3	01.1	-54.8	156.8	1	10.9	-55.2	156.8	0	39.4	+55.5	23.2	2	29.7	+55.8	23.2	4	20.0	+56.1	23.3	42
2	06.3	-54.8	157.2	0	15.7	-55.1	157.2	1	34.9	+55.5	22.8	3	25.5	+55.8	22.8	5	16.1	+56.0	22.9	43
1	11.5	-54.8	157.6	0	39.4	+55.2	22.4	2	30.4	+55.4	22.4	4	21.3	+55.7	22.5	6	12.1	+56.1	22.5	44
0	16.7	-54.9	158.0	1	34.6	+55.1	22.0	3	25.8	+55.5	22.0	5	17.0	+55.8	22.1	7	08.2	+56.0	22.2	45
0	38.2	+54.8	21.6	2	29.7	+55.2	21.6	4	21.3	+55.4	21.7	6	12.8	+55.7	21.7	8	04.2	+56.0	21.8	46
1	33.0	+54.8	21.2	3	24.9	+55.1	21.2	5	16.7	+55.4	21.3	7	08.8	+55.6	21.4	9	00.2	+56.0	21.5	47
2	27.8	+54.8	20.8	4	20.0	+55.1	20.8	6	12.1	+55.4	20.9	8	04.2	+55.7	21.0	9	56.2	+56.0	21.1	48
3	22.6	+54.9	20.4	5	15.1	+55.1	20.4	7	07.5	+55.4	20.5	8	59.9	+55.7	20.6	10	52.2	+55.9	20.7	49
4	17.5	+54.8	20.0	6	10.2	+55.1	20.0	8	02.9	+55.4	20.1	9	55.6	+55.6	20.2	11	48.1	+55.9	20.4	50
5	12.3	+54.7	19.6	7	05.3	+55.1	19.6	8	58.3	+55.3	19.7	10	51.2	+55.6	19.9	12	44.0	+55.9	20.0	51
6	07.0	+54.8	19.2	8	00.4	+55.0	19.2	9	53.6	+55.3	19.3	11	46.8	+55.6	19.5	13	39.9	+55.8	19.6	52
7	01.8	+54.7	18.7	8	55.4	+55.0	18.8	10	48.9	+55.3	18.9	12	42.4	+55.5	19.1	14	35.7	+55.9	19.2	53
7	56.5	+54.8	18.3	9	50.4	+55.0	18.4	11	44.2	+55.3	18.5	13	37.9	+55.6	18.7	15	31.6	+55.7	18.9	54
8	51.3	+54.6	17.9	10	45.4	+55.0	18.0	12	39.5	+55.2	18.2	14	33.5	+55.4	18.3	16	27.3	+55.8	18.5	55
9	45.9	+54.7	17.5	11	40.4	+54.9	17.6	13	34.7	+55.2	17.7	15	28.9	+55.5	17.9	17	23.1	+55.6	18.1	56
10	40.6	+54.6	17.1	12	35.3	+54.9	17.2	14	29.9	+55.1	17.3	16	24.4	+55.3	17.5	18	18.7	+55.7	17.7	57
11	35.2	+54.6	16.7	13	30.2	+54.8	16.8	15	25.0	+55.1	16.9	17	19.7	+55.4	17.1	19	14.4	+55.6	17.3	58
12	29.8	+54.6	16.2	14	25.0	+54.8	16.4	16	20.1	+55.0	16.5	18	15.1	+55.3	16.7	20	10.0	+55.5	16.9	59
13	24.4	+54.5	15.8	15	19.8	+54.7	15.9	17	15.1	+55.0	16.1	19	10.4	+55.2	16.3	21	05.5	+55.4	16.5	60
14	18.9	+54.4	15.4	16	14.5	+54.7	15.5	18	10.1	+54.9	15.7	20	05.6	+55.2	15.9	22	00.9	+55.5	16.1	61
15	13.3	+54.4	14.9	17	09.2	+54.7	15.1	19	05.0	+54.9	15.3	21	00.8	+55.1	15.5	22	56.4	+55.3	15.7	62
16	07.7	+54.4	14.5	18	03.9	+54.5	14.7	19	59.9	+54.8	14.8	21	55.9	+55.0	15.0	23	51.7	+55.3	15.3	63
17	02.1	+54.3	14.1	18	58.4	+54.6	14.2	20	54.7	+54.8	14.4	22	50.9	+55.0	14.6	24	47.0	+55.2	14.8	64
17	56.4	+54.2	13.6	19	53.0	+54.4	13.8	21	49.5	+54.6	14.0	23	45.9	+54.8	14.2	25	42.2	+55.1	14.4	65
18	50.6	+54.2	13.2	20	47.4	+54.4	13.3	22	44.1	+54.6	13.5	24	40.8	+54.8	13.7	26	37.3	+55.0	14.0	66
19	44.8	+54.1	12.7	21	41.8	+54.3	12.9	23	38.7	+54.5	13.1	25	35.6	+54.7	13.3	27	32.3	+55.0	13.5	67
20	38.9	+54.0	12.2	22	36.1	+54.2	12.4	24	33.2	+54.5	12.6	26	30.3	+54.7	12.8	28	27.3	+54.8	13.0	68
21	32.9	+53.9	11.8	23	30.3	+54.2	12.0	25	27.7	+54.3	12.1	27	25.0	+54.5	12.4	29	22.1	+54.8	12.6	69
22	26.8	+53.9	11.3	24	24.5	+54.0	11.5	26	22.0	+54.3	11.7	28	19.5	+54.5	11.9	30	16.9	+54.6	12.1	70
23	20.7	+53.8	10.8	25	18.5	+54.0	11.0	27	16.3	+54.1	11.2	29	14.0	+54.3	11.4	31	11.5	+54.6	11.6	71
24	14.5	+53.6	10.3	26	12.5	+53.8	10.5	28	10.4	+54.1	10.7	30	08.3	+54.2	10.9	32	06.1	+54.4	11.1	72
25	08.1	+53.6	9.9	27	06.3	+53.8	10.0	29	04.5	+53.9	10.2	31	02.5	+54.2	10.4	33	00.5	+54.3	10.6	73
26	01.7	+53.5	9.4	28	00.1	+53.6	9.5	29	58.4	+53.8	9.7	31	56.7	+54.0	9.9	33	54.8	+54.2	10.1	74
26	55.2	+53.4	8.8	28	53.7	+53.6	9.0	30	52.2	+53.7	9.2	32	50.7	+53.8	9.4	34	49.0	+54.1	9.6	75
27	48.6	+53.2	8.3	29	47.3	+53.4	8.5	31	45.9	+53.6	8.7	33	44.5	+53.8	8.9	35	43.1	+53.9	9.1	76
28	41.8	+53.1	7.8	30	40.7	+53.2	8.0	32	39.5	+53.4	8.1	34	38.3	+53.5	8.3	36	37.0	+53.7	8.5	77
29	34.9	+53.0	7.3	31	33.9	+53.2	7.4	33	32.9	+53.3	7.6	35	31.8	+53.5	7.8	37	30.7	+53.6	8.0	78
30	27.9	+52.9	6.7	32	27.1	+53.0	6.9	34	26.2	+53.1	7.0	36	25.3	+53.2	7.2	38	24.3	+53.4	7.4	79
31	20.8	+52.7	6.2	33	20.1	+52.8	6.3	35	19.3	+53.0	6.5	37	18.5	+53.1	6.6	39	17.7	+53.3	6.8	80
32	13.5	+52.6	5.6	34	12.9	+52.7	5.8	36	12.3	+52.8	5.9	38	11.6	+53.0	6.1	40	11.0	+53.0	6.2	81
33	06.1	+52.4	5.1	35	05.6	+52.5	5.2	37	05.1	+52.6	5.3	39	04.6	+52.7	5.5	41	04.0	+52.9	5.6	82
33	58.5	+52.2	4.5	35	58.1	+52.3	4.6	37	57.7	+52.4	4.7	39	57.3	+52.5	4.8	41	56.9	+52.6	5.0	83
34	50.7	+52.1	3.9	36	50.4	+52.2	4.0	38	50.1	+52.3	4.1	40	49.8	+52.3	4.2	42	49.5	+52.4	4.3	84
35	42.8	+51.8	3.3	37	42.6	+51.9	3.3	39	42.4	+52.0	3.4	41	42.1	+52.1	3.5	43	41.9	+52.2	3.7	85
36	34.6	+51.7	2.6	38	34.5	+51.7	2.7	40	34.4	+51.7	2.8	42	34.2	+51.9	2.9	44	34.1	+51.9	3.0	86
37	26.3	+51.5	2.0	39	26.2	+51.5	2.1	41	26.1	+51.6	2.1	43	26.1	+51.5	2.2	45	26.0	+51.6	2.3	87
38	17.8	+51.2	1.4	40	17.7	+51.3	1.4	42	17.7	+51.3	1.4	44	17.6	+51.4	1.5	46	17.6	+51.4	1.5	88
39	09.0	+51.0	0.7	41	09.0	+51.0	0.7	43	09.0	+51.0	0.7	45	09.0	+51.0	0.8	47	09.0	+51.0	0.8	89
40	00.0	+50.8	0.0	42	00.0	+50.7	0.0	44	00.0	+50.7	0.0	46	00.0	+50.7	0.0	48	00.0	+50.7	0.0	90
40°			42°			44°			46°			48°								

LATITUDE SAME NAME

L.H.A. 148°, 212°

32°, 328° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	58 46.3	+44.8	117.7	57 47.8	+47.1	120.6	56 44.4	+49.2	123.2	55 36.6	+50.8	125.7	54 24.7	+52.3	127.9
31	59 31.1	+44.1	116.4	58 34.9	+46.5	119.4	57 33.6	+48.5	122.1	56 27.4	+50.4	124.7	55 17.0	+52.1	127.1
32	60 15.2	+43.2	115.1	59 21.4	+45.7	118.2	58 22.1	+48.0	121.0	57 17.8	+50.0	123.7	56 09.1	+51.6	126.2
33	60 58.4	+42.2	113.7	60 07.1	+45.0	116.9	59 10.1	+47.3	119.9	58 07.8	+49.4	122.7	57 00.7	+51.2	125.3
34	61 40.6	+41.3	112.2	60 52.1	+44.1	115.5	59 57.4	+46.6	118.7	58 57.2	+48.8	121.6	57 51.9	+50.7	124.3
35	62 21.9	+40.1	110.6	61 36.2	+43.2	114.1	60 44.0	+45.9	117.4	59 46.0	+48.2	120.4	58 42.6	+50.2	123.3
36	63 02.0	+39.1	109.0	62 19.4	+42.2	112.6	61 29.9	+45.0	116.1	60 34.2	+47.5	119.3	59 32.8	+49.7	122.2
37	63 41.1	+37.7	107.3	63 01.6	+41.1	111.1	62 14.9	+44.1	114.6	61 21.7	+46.8	118.0	60 22.5	+49.0	121.1
38	64 18.8	+36.4	105.5	63 42.7	+40.0	109.5	62 59.0	+43.2	113.2	62 08.5	+45.9	116.7	61 11.5	+48.5	119.9
39	64 55.2	+35.0	103.7	64 22.7	+38.7	107.8	63 42.2	+42.1	111.6	62 54.4	+45.2	115.3	62 00.0	+47.7	118.7
40	65 30.2	+33.4	101.8	65 01.4	+37.4	106.0	64 24.3	+41.0	110.0	63 39.6	+44.1	113.8	62 47.7	+46.9	117.4
41	66 03.6	+31.8	99.7	65 38.8	+36.0	104.1	65 05.3	+39.8	108.3	64 23.7	+43.2	112.3	63 34.6	+46.1	116.0
42	66 35.4	+30.0	97.6	66 14.8	+34.4	102.1	65 45.1	+38.4	106.5	65 06.9	+42.0	110.6	64 20.7	+45.2	114.5
43	67 05.4	+28.0	95.4	66 49.2	+32.7	100.1	66 23.5	+37.0	104.6	65 48.9	+40.8	108.9	65 05.9	+44.2	113.0
44	67 33.4	+26.1	93.1	67 21.9	+30.9	97.9	67 00.5	+35.4	102.6	66 29.7	+39.5	107.1	65 50.1	+43.1	111.4
45	67 59.5	+23.9	90.7	67 52.8	+29.0	95.7	67 35.9	+33.7	100.5	67 09.2	+38.0	105.2	66 33.2	+41.9	109.7
46	68 23.4	+21.7	88.3	68 21.8	+26.9	93.3	68 09.6	+31.9	98.3	67 47.2	+36.4	103.2	67 15.1	+40.6	107.8
47	68 45.1	+19.3	85.7	68 48.7	+24.7	90.9	68 41.5	+29.8	96.0	68 23.6	+34.8	101.0	67 55.7	+39.1	105.9
48	69 04.4	+16.8	83.1	69 13.4	+22.3	88.3	69 11.3	+27.8	93.6	68 58.4	+32.9	98.8	68 34.8	+37.5	103.8
49	69 21.2	+14.2	80.4	69 35.7	+19.9	85.7	69 39.1	+25.5	91.1	69 31.3	+30.8	96.4	69 12.3	+35.9	101.7
50	69 35.4	+11.5	77.6	69 55.6	+17.3	83.0	70 04.6	+23.1	88.4	70 02.1	+28.7	94.0	69 48.2	+33.9	99.4
51	69 46.9	+8.7	74.8	70 12.9	+14.7	80.2	70 27.7	+20.6	85.7	70 30.8	+26.4	91.4	70 22.1	+31.9	97.0
52	69 55.6	+6.0	71.9	70 27.6	+11.8	77.3	70 48.3	+17.8	82.9	70 57.2	+23.8	88.6	70 54.0	+29.6	94.4
53	70 01.6	+3.0	69.0	70 39.4	+8.9	74.3	71 06.1	+15.0	79.9	71 21.0	+21.2	85.8	71 23.6	+27.3	91.7
54	70 04.6	+0.2	66.1	70 48.3	+5.9	71.3	71 21.1	+12.1	76.9	71 42.2	+18.4	82.8	71 50.9	+24.6	88.9
55	70 04.8	-2.7	63.1	70 54.2	+3.0	68.3	71 33.2	+9.0	73.9	72 00.6	+15.4	79.8	72 15.5	+21.9	85.9
56	70 02.1	-5.5	60.2	70 57.2	-0.1	65.2	71 42.2	+5.9	70.7	72 16.0	+12.3	76.6	72 37.4	+18.9	82.9
57	69 56.6	-8.4	57.3	70 57.1	-3.1	62.2	71 48.1	+2.8	67.5	72 28.3	+9.1	73.4	72 56.3	+15.8	79.6
58	69 48.2	-11.2	54.4	70 54.0	-6.1	59.1	71 50.9	-0.5	64.3	72 37.4	+5.8	70.1	73 12.1	+12.5	76.3
59	69 37.0	-13.9	51.6	70 47.9	-9.1	56.1	71 50.4	-3.6	61.1	72 43.2	+2.5	66.8	73 24.6	+9.2	72.9
60	69 23.1	-16.4	48.8	70 38.8	-12.0	53.1	71 46.8	-6.8	57.9	72 45.7	-0.9	63.4	73 33.8	+5.6	69.4
61	69 06.7	-19.0	46.1	70 26.8	-14.7	50.1	71 40.0	-9.9	54.8	72 44.8	-4.3	60.0	73 39.4	+2.1	65.9
62	68 47.7	-21.4	43.5	70 12.1	-17.5	47.3	71 30.1	-12.9	51.6	72 40.5	-7.6	56.7	73 41.5	-1.5	62.4
63	68 26.3	-23.6	40.9	69 54.6	-20.0	44.5	71 17.2	-15.8	48.6	72 32.9	-10.8	53.3	73 40.0	-5.1	58.8
64	68 02.7	-25.8	38.4	69 34.6	-22.5	41.7	71 01.4	-18.6	45.6	72 22.1	-14.0	50.1	73 34.9	-8.6	55.3
65	67 36.9	-27.8	36.0	69 12.1	-24.8	39.1	70 42.8	-21.2	42.7	72 08.1	-17.1	46.9	73 26.3	-12.0	51.8
66	67 09.1	-29.8	33.7	68 47.3	-27.1	36.6	70 21.6	-23.8	39.9	71 51.0	-19.9	43.8	73 14.3	-15.2	48.4
67	66 39.3	-31.5	31.5	68 20.2	-29.0	34.1	69 57.8	-26.2	37.2	71 31.1	-22.6	40.8	72 59.1	-18.5	45.0
68	66 07.8	-33.2	29.4	67 51.2	-31.1	31.8	69 31.6	-28.4	34.6	71 08.5	-25.3	37.9	72 40.6	-21.4	41.8
69	65 34.6	-34.8	27.3	67 20.1	-32.8	29.5	69 03.2	-30.4	32.1	70 43.2	-27.6	35.1	72 19.2	-24.2	38.7
70	64 59.8	-36.2	25.4	66 47.3	-34.4	27.4	68 32.8	-32.4	29.7	70 15.6	-29.9	32.5	71 55.0	-26.8	35.7
71	64 23.6	-37.6	23.5	66 12.9	-36.1	25.3	68 00.4	-34.2	27.4	69 45.7	-32.0	29.9	71 28.2	-29.3	32.9
72	63 46.0	-38.9	21.7	65 36.8	-37.4	23.4	67 26.2	-35.8	25.3	69 13.7	-33.9	27.5	70 58.9	-31.6	30.2
73	63 07.1	-40.0	20.0	64 59.4	-38.9	21.5	66 50.4	-37.4	23.2	68 39.8	-35.6	25.2	70 27.3	-33.6	27.6
74	62 27.1	-41.1	18.4	64 20.5	-40.0	19.7	66 13.0	-38.8	21.2	68 04.2	-37.4	23.0	69 53.7	-35.5	25.1
75	61 46.0	-42.1	16.9	63 40.5	-41.2	18.0	65 34.2	-40.1	19.4	67 26.8	-38.8	21.0	69 18.2	-37.3	22.8
76	61 03.9	-43.1	15.4	62 59.3	-42.3	16.4	64 54.1	-41.4	17.6	66 48.0	-40.2	19.0	68 40.9	-38.9	20.6
77	60 20.8	-43.9	13.9	62 17.0	-43.2	14.9	64 12.7	-42.4	15.9	66 07.8	-41.5	17.1	68 02.0	-40.3	18.6
78	59 36.9	-44.8	12.6	61 33.8	-44.1	13.4	63 30.3	-43.4	14.3	65 26.3	-42.6	15.4	67 21.7	-41.7	16.6
79	58 52.1	-45.5	11.3	60 49.7	-45.0	12.0	62 46.9	-44.4	12.8	64 43.7	-43.7	13.7	66 40.0	-42.9	14.8
80	58 06.6	-46.2	10.0	60 04.7	-45.8	10.6	62 02.5	-45.3	11.3	64 00.0	-44.7	12.1	65 57.1	-44.0	13.1
81	57 20.4	-46.9	8.8	59 18.9	-46.5	9.3	61 17.2	-46.1	9.9	63 15.3	-45.6	10.6	65 13.1	-45.1	11.4
82	56 33.5	-47.4	7.7	58 32.4	-47.2	8.1	60 31.1	-46.8	8.6	62 29.7	-46.4	9.2	64 28.0	-45.9	9.9
83	55 46.1	-48.0	6.6	57 45.2	-47.7	7.0	59 44.3	-47.5	7.4	61 43.3	-47.2	7.8	63 42.1	-46.9	8.4
84	54 58.1	-48.6	5.5	56 57.5	-48.4	5.8	58 56.8	-48.1	6.2	60 56.1	-47.9	6.5	62 55.2	-47.6	7.0
85	54 09.5	-49.0	4.5	56 09.1	-48.9	4.8	58 08.7	-48.7	5.0	60 08.2	-48.5	5.3	62 07.6	-48.3	5.7
86	53 20.5	-49.5	3.5	55 20.2	-49.4	3.7	57 20.0	-49.3	3.9	59 19.7	-49.2	4.2	61 19.3	-49.0	4.4
87	52 31.0	-50.0	2.6	54 30.8	-49.8	2.7	56 30.7	-49.8	2.9	58 30.5	-49.7	3.0	60 30.3	-49.5	3.2
88	51 41.0	-50.3	1.7	53 41.0	-50.3	1.8	55 40.9	-50.2	1.9	57 40.8	-50.1	2.0	59 40.8	-50.2	2.1
89	50 50.7	-50.7	0.8	52 50.7	-50.7	0.9	54 50.7	-50.7	0.9	56 50.7	-50.7	1.0	58 50.6	-50.6	1.0
90	50 00.0	-51.1	0.0	52 00.0	-51.1	0.0	54 00.0	-51.1	0.0	56 00.0	-51.1	0.0	58 00.0	-51.1	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 32°, 328°

50°			52°			54°									Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
5 06.6	-56.4	152.6	3 20.0	-56.7	152.6	1 33.4	-57.0	152.7	0 13.2	+57.3	27.3	1 59.8	+57.6	27.3	30
4 10.2	-56.4	152.9	2 23.3	-56.7	153.0	0 36.4	-57.0	153.0	1 10.5	+57.3	27.0	2 57.4	+57.5	27.1	31
3 13.8	-56.4	153.2	1 26.6	-56.7	153.3	0 20.6	+57.0	26.7	2 07.8	+57.3	26.7	3 54.9	+57.6	26.8	32
2 17.4	-56.4	153.6	0 29.9	-56.7	153.6	1 17.6	+57.0	26.4	3 05.1	+57.3	26.4	4 52.5	+57.6	26.5	33
1 21.0	-56.4	153.9	0 26.8	+56.7	26.1	2 14.6	+57.0	26.1	4 02.4	+57.3	26.1	5 50.1	+57.5	26.2	34
0 24.6	-56.4	154.3	1 23.5	+56.7	25.7	3 11.6	+57.0	25.8	4 59.7	+57.2	25.8	6 47.6	+57.6	25.9	35
0 31.8	+56.5	25.4	2 20.2	+56.8	25.4	4 08.6	+57.0	25.5	5 56.9	+57.3	25.5	7 45.2	+57.5	25.6	36
1 28.3	+56.4	25.0	3 17.0	+56.7	25.1	5 05.6	+57.0	25.1	6 54.2	+57.3	25.2	8 42.7	+57.5	25.4	37
2 24.7	+56.4	24.7	4 13.7	+56.7	24.8	6 02.6	+57.0	24.8	7 51.5	+57.2	24.9	9 40.2	+57.5	25.1	38
3 21.1	+56.4	24.4	5 10.4	+56.6	24.4	6 59.6	+56.9	24.5	8 48.7	+57.2	24.6	10 37.7	+57.5	24.8	39
4 17.5	+56.3	24.0	6 07.0	+56.7	24.1	7 56.5	+57.0	24.2	9 45.9	+57.3	24.3	11 35.2	+57.5	24.5	40
5 13.8	+56.4	23.7	7 03.7	+56.7	23.8	8 53.5	+56.9	23.9	10 43.2	+57.2	24.0	12 32.7	+57.5	24.2	41
6 10.2	+56.4	23.3	8 00.4	+56.6	23.4	9 50.4	+56.9	23.6	11 40.4	+57.1	23.7	13 30.2	+57.4	23.9	42
7 06.6	+56.3	23.0	8 57.0	+56.6	23.1	10 47.3	+56.9	23.2	12 37.5	+57.2	23.4	14 27.6	+57.4	23.6	43
8 02.9	+56.4	22.6	9 53.8	+56.6	22.8	11 44.2	+56.9	22.9	13 34.7	+57.1	23.1	15 25.0	+57.4	23.3	44
8 59.3	+56.3	22.3	10 50.2	+56.6	22.4	12 41.1	+56.8	22.6	14 31.8	+57.1	22.8	16 22.4	+57.3	23.0	45
9 55.6	+56.3	21.9	11 46.8	+56.6	22.1	13 37.9	+56.9	22.3	15 28.9	+57.1	22.5	17 19.7	+57.4	22.7	46
10 51.9	+56.2	21.6	12 43.4	+56.5	21.7	14 34.8	+56.8	21.9	16 26.0	+57.0	22.2	18 17.1	+57.3	22.4	47
11 48.1	+56.3	21.2	13 39.9	+56.5	21.4	15 31.6	+56.7	21.6	17 23.1	+57.0	21.8	19 14.4	+57.2	22.1	48
12 44.4	+56.2	20.9	14 36.4	+56.5	21.1	16 28.3	+56.8	21.3	18 20.1	+57.0	21.5	20 11.6	+57.3	21.7	49
13 40.6	+56.1	20.5	15 32.9	+56.4	20.7	17 25.1	+56.6	20.9	19 17.1	+56.9	21.2	21 08.9	+57.2	21.4	50
14 36.7	+56.2	20.2	16 29.3	+56.4	20.4	18 21.7	+56.7	20.6	20 14.0	+56.9	20.8	22 06.1	+57.1	21.1	51
15 32.9	+56.1	19.8	17 25.7	+56.4	20.0	19 18.4	+56.6	20.2	21 10.9	+56.9	20.5	23 03.2	+57.1	20.8	52
16 29.0	+56.1	19.4	18 22.1	+56.3	19.6	20 15.0	+56.6	19.9	22 07.8	+56.8	20.1	24 00.3	+57.1	20.4	53
17 25.1	+56.0	19.1	19 18.4	+56.3	19.3	21 11.6	+56.5	19.5	23 04.6	+56.8	19.8	25 57.4	+57.0	20.1	54
18 21.1	+56.0	18.7	20 14.7	+56.2	18.9	22 08.1	+56.5	19.2	24 01.4	+56.7	19.4	26 54.4	+57.0	19.7	55
19 17.1	+55.9	18.3	21 10.9	+56.2	18.5	23 04.6	+56.4	18.8	24 58.1	+56.7	19.1	27 51.4	+56.9	19.4	56
20 13.0	+55.9	17.9	22 07.1	+56.1	18.2	24 01.0	+56.4	18.4	25 54.8	+56.6	18.7	28 48.3	+56.9	19.0	57
21 08.9	+55.8	17.5	23 03.2	+56.1	17.8	24 57.4	+56.3	18.0	26 51.4	+56.6	18.3	29 45.2	+56.8	18.7	58
22 04.7	+55.8	17.1	23 59.3	+56.0	17.4	25 53.7	+56.3	17.7	27 48.0	+56.5	18.0	30 42.0	+56.8	18.3	59
23 00.5	+55.7	16.7	24 55.3	+56.0	17.0	26 50.0	+56.2	17.3	28 44.5	+56.4	17.6	31 38.8	+56.6	17.9	60
23 56.2	+55.6	16.3	25 51.3	+55.8	16.6	27 46.2	+56.1	16.9	29 40.9	+56.4	17.2	32 35.4	+56.7	17.6	61
24 51.8	+55.6	15.9	26 47.1	+55.9	16.2	28 42.3	+56.1	16.5	30 37.3	+56.3	16.8	33 32.1	+56.5	17.2	62
25 47.4	+55.5	15.5	27 43.0	+55.7	15.8	29 38.4	+55.9	16.1	31 33.6	+56.2	16.4	33 28.6	+56.4	16.8	63
26 42.9	+55.4	15.1	28 38.7	+55.7	15.3	30 34.3	+55.9	15.7	32 29.8	+56.1	16.0	34 25.0	+56.4	16.4	64
27 38.3	+55.4	14.6	29 34.4	+55.5	14.9	31 30.2	+55.8	15.2	33 25.9	+56.1	15.6	35 21.4	+56.3	15.9	65
28 33.7	+55.2	14.2	30 29.9	+55.5	14.5	32 26.0	+55.8	14.8	34 22.0	+55.9	15.1	36 17.7	+56.2	15.5	66
29 28.9	+55.2	13.8	31 25.4	+55.4	14.0	33 21.8	+55.6	14.4	35 17.9	+55.9	14.7	37 13.9	+56.1	15.1	67
30 24.1	+55.1	13.3	32 20.8	+55.3	13.6	34 17.4	+55.5	13.9	36 13.8	+55.7	14.2	38 10.0	+56.0	14.6	68
31 19.2	+55.0	12.8	33 16.1	+55.2	13.1	35 12.9	+55.4	13.4	37 09.5	+55.7	13.8	39 06.0	+55.9	14.2	69
32 14.2	+54.8	12.4	34 11.3	+55.1	12.7	36 08.3	+55.3	13.0	38 05.2	+55.5	13.3	40 01.9	+55.7	13.7	70
33 09.0	+54.8	11.9	35 06.4	+54.9	12.2	37 03.6	+55.2	12.5	39 00.7	+55.4	12.8	40 57.6	+55.7	13.2	71
34 03.8	+54.6	11.4	36 01.3	+54.9	11.7	37 58.8	+55.0	12.0	39 56.1	+55.3	12.3	41 53.3	+55.5	12.7	72
34 58.4	+54.5	10.9	36 56.2	+54.7	11.2	38 53.8	+55.0	11.5	40 51.4	+55.1	11.8	42 48.8	+55.3	12.2	73
35 52.9	+54.4	10.4	37 50.9	+54.6	10.7	39 48.8	+54.7	11.0	41 46.5	+55.0	11.3	43 44.1	+55.2	11.7	74
36 47.3	+54.2	9.9	38 45.5	+54.4	10.1	40 43.5	+54.7	10.4	42 41.5	+54.8	10.8	44 39.3	+55.1	11.1	75
37 41.5	+54.1	9.3	39 39.9	+54.2	9.6	41 38.2	+54.4	9.9	43 36.3	+54.7	10.2	45 34.4	+54.8	10.6	76
38 35.6	+53.9	8.8	40 34.1	+54.1	9.0	42 32.6	+54.3	9.3	44 31.0	+54.5	9.6	46 29.2	+54.7	10.0	77
39 29.5	+53.8	8.2	41 28.2	+54.0	8.5	43 26.9	+54.1	8.7	45 25.5	+54.3	9.0	47 23.9	+54.5	9.4	78
40 23.3	+53.5	7.6	42 22.2	+53.7	7.9	44 21.0	+53.9	8.1	46 19.8	+54.0	8.4	48 18.4	+54.3	8.7	79
41 16.8	+53.4	7.0	43 15.9	+53.5	7.3	45 14.9	+53.7	7.5	47 13.8	+53.9	7.8	49 12.7	+54.1	8.1	80
42 10.2	+53.2	6.4	44 09.4	+53.4	6.6	46 08.6	+53.5	6.9	48 07.7	+53.7	7.1	50 06.8	+53.8	7.4	81
43 03.4	+53.0	5.8	45 02.8	+53.1	6.0	47 02.1	+53.2	6.2	49 01.4	+53.4	6.5	51 00.6	+53.5	6.7	82
43 56.4	+52.7	5.1	45 55.9	+52.9	5.3	47 55.3	+53.0	5.5	49 54.8	+53.1	5.8	51 54.1	+53.3	6.0	83
44 49.1	+52.5	4.5	46 48.8	+52.6	4.6	48 48.3	+52.8	4.8	50 47.9	+52.9	5.0	52 47.4	+53.0	5.3	84
45 41.6	+52.3	3.8	47 41.4	+52.3	3.9	49 41.1	+52.4	4.1	51 40.8	+52.5	4.3	53 40.4	+52.7	4.5	85
46 33.9	+52.0	3.1	48 33.7	+52.1	3.2	50 33.5	+52.2	3.3	52 33.3	+52.2	3.5	54 33.1	+52.3	3.7	86
47 25.9	+51.7	2.3	49 25.8	+51.7	2.4	51 25.7	+51.8	2.5	53 25.5	+51.9	2.7	55 25.4	+51.9	2.8	87
48 17.6	+51.3	1.6	50 17.5	+51.4	1.7	52 17.5	+51.4	1.7	54 17.4	+51.5	1.8	56 17.3	+51.6	1.9	88
49 08.9	+51.1	0.8	51 08.9	+51.1	0.8	53 08.9	+51.1	0.9	55 08.9	+51.1	0.9	57 08.9	+51.1	1.0	89
50 00.0	+50.7	0.0	52 00.0	+50.7	0.0	54 00.0	+50.7	0.0	56 00.0	+50.7	0.0	58 00.0	+50.6	0.0	90

LATITUDE SAME NAME

L.H.A. 148°, 212°

34°, 326° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	60 40.0	+8.1	81.3	60 54.4	+12.4	84.9	61 01.4	+16.6	88.5	61 00.9	+20.6	92.1	60 52.8	+24.6	95.7
31	60 48.1	+6.3	79.3	61 06.8	+10.5	82.8	61 18.0	+14.7	86.5	61 21.5	+19.0	90.1	61 17.4	+23.1	93.8
32	60 54.4	+4.5	77.2	61 17.3	+8.6	80.8	61 32.7	+12.9	84.4	61 40.5	+17.2	88.1	61 40.5	+21.4	91.8
33	60 58.9	+2.5	75.2	61 25.9	+6.8	78.7	61 45.6	+11.1	82.4	61 57.7	+15.4	86.1	62 01.9	+19.7	89.9
34	61 01.4	+0.7	73.1	61 32.7	+4.9	76.7	61 56.7	+9.2	80.3	62 13.1	+13.5	84.0	62 21.6	+17.8	87.8
35	61 02.1	-1.2	71.1	61 37.6	+2.9	74.6	62 05.9	+7.2	78.2	62 26.6	+11.6	81.9	62 39.4	+16.0	85.8
36	61 00.9	-3.2	69.0	61 40.5	+1.0	72.5	62 13.1	+5.2	76.1	62 38.2	+9.6	79.8	62 55.4	+14.1	83.7
37	60 57.7	-4.9	66.9	61 41.5	-1.0	70.3	62 18.3	+3.3	73.9	62 47.8	+7.6	77.7	63 09.5	+12.1	81.5
38	60 52.8	-6.9	64.9	61 40.5	-2.9	68.2	62 21.6	+1.2	71.8	62 55.4	+5.6	75.5	63 21.6	+10.1	79.3
39	60 45.9	-8.7	62.8	61 37.6	-4.8	66.1	62 22.8	-0.7	69.6	63 01.0	+3.6	73.3	63 31.7	+8.0	77.1
40	60 37.2	-10.5	60.8	61 32.8	-6.8	64.0	62 22.1	-2.7	67.5	63 04.6	+1.5	71.1	63 39.7	+5.9	74.9
41	60 26.7	-12.3	58.8	61 26.0	-8.6	62.0	62 19.4	-4.8	65.3	63 06.1	-0.6	68.9	63 45.6	+3.9	72.7
42	60 14.4	-14.0	56.8	61 17.4	-10.5	59.9	62 14.6	-6.7	63.2	63 05.5	-2.6	66.7	63 49.5	+1.7	70.4
43	60 00.4	-15.7	54.9	61 06.9	-12.3	57.8	62 07.9	-8.6	61.0	63 02.9	-4.7	64.5	63 51.2	-0.4	68.1
44	59 44.7	-17.4	53.0	60 54.6	-14.1	55.8	61 59.3	-10.6	58.9	62 58.2	-6.7	62.3	63 50.8	-2.6	65.9
45	59 27.3	-19.0	51.1	60 40.5	-15.9	53.8	61 48.7	-12.4	56.8	62 51.5	-8.7	60.1	63 48.2	-4.7	63.6
46	59 08.3	-20.5	49.2	60 24.6	-17.6	51.9	61 36.3	-14.3	54.8	62 42.8	-10.7	57.9	63 43.5	-6.7	61.3
47	58 47.8	-22.1	47.4	60 07.0	-19.2	49.9	61 22.0	-16.1	52.7	62 32.1	-12.6	55.8	63 36.8	-8.9	59.1
48	58 25.7	-23.5	45.6	59 47.8	-20.8	48.1	61 05.9	-17.8	50.7	62 19.5	-14.5	53.7	63 27.9	-10.9	56.9
49	58 02.2	-24.9	43.9	59 27.0	-22.4	46.2	60 48.1	-19.5	48.8	62 05.0	-16.4	51.6	63 17.0	-12.9	54.7
50	57 37.3	-26.3	42.2	59 04.6	-23.8	44.4	60 28.6	-21.1	46.8	61 48.6	-18.1	49.5	63 04.1	-14.8	52.5
51	57 11.0	-27.6	40.5	58 40.8	-25.3	42.6	60 07.5	-22.8	44.9	61 30.5	-19.9	47.5	62 49.3	-16.7	50.4
52	56 43.4	-28.8	38.9	58 15.5	-26.6	40.9	59 44.7	-24.2	43.1	61 10.6	-21.6	45.6	62 32.6	-18.6	48.3
53	56 14.6	-30.0	37.3	57 48.9	-28.0	39.2	59 20.5	-25.7	41.3	60 49.0	-23.2	43.6	62 14.0	-20.4	46.2
54	55 44.6	-31.2	35.7	57 20.9	-29.2	37.5	58 54.8	-27.1	39.5	60 25.8	-24.7	41.8	61 53.6	-22.0	44.2
55	55 13.4	-32.2	34.2	56 51.7	-30.5	35.9	58 27.7	-28.5	37.8	60 01.1	-26.2	39.9	61 31.6	-23.8	42.3
56	54 41.2	-33.3	32.7	56 21.2	-31.6	34.4	57 59.2	-29.7	36.1	59 34.9	-27.7	38.1	61 07.8	-25.3	40.4
57	54 07.9	-34.2	31.3	55 49.6	-32.7	32.8	57 29.5	-31.0	34.5	59 07.2	-29.0	36.4	60 42.5	-26.8	38.5
58	53 33.7	-35.2	29.9	55 16.9	-33.7	31.4	56 58.5	-32.1	32.9	58 38.2	-30.3	34.7	60 15.7	-28.2	36.7
59	52 58.5	-36.2	28.6	54 43.2	-34.8	29.9	56 26.4	-33.2	31.4	58 07.9	-31.5	33.1	59 47.5	-29.7	34.9
60	52 22.3	-36.9	27.3	54 08.4	-35.7	28.5	55 53.2	-34.3	29.9	57 36.4	-32.7	31.5	59 17.8	-30.9	33.2
61	51 45.4	-37.8	26.0	53 32.7	-36.6	27.1	55 18.9	-35.3	28.5	57 03.7	-33.9	29.9	58 46.9	-32.3	31.5
62	51 07.6	-38.5	24.7	52 56.1	-37.4	25.8	54 43.6	-36.2	27.0	56 29.8	-34.9	28.4	58 14.6	-33.3	29.9
63	50 29.1	-39.3	23.5	52 18.7	-38.3	24.5	54 07.4	-37.2	25.7	55 54.9	-35.9	26.9	57 41.3	-34.6	28.4
64	49 49.8	-40.0	22.3	51 40.4	-39.0	23.3	53 30.2	-38.0	24.3	55 19.0	-36.8	25.5	57 06.7	-35.5	26.8
65	49 09.8	-40.6	21.2	51 01.4	-39.8	22.1	52 52.2	-38.8	23.0	54 42.2	-37.8	24.1	56 31.2	-36.6	25.4
66	48 29.2	-41.3	20.1	50 21.6	-40.5	20.9	52 13.4	-39.6	21.8	54 04.4	-38.6	22.8	55 54.6	-37.6	23.9
67	47 47.9	-41.9	19.0	49 41.1	-41.1	19.7	51 33.8	-40.4	20.6	53 25.8	-39.5	21.5	55 17.0	-38.4	22.6
68	47 06.0	-42.4	17.9	49 00.0	-41.8	18.6	50 53.4	-41.0	19.4	52 46.3	-40.2	20.3	54 38.6	-39.4	21.2
69	46 23.6	-43.0	16.9	48 18.2	-42.4	17.5	50 12.4	-41.7	18.2	52 06.1	-40.9	19.0	53 59.2	-40.1	19.9
70	45 40.6	-43.5	15.9	47 35.8	-42.9	16.5	49 30.7	-42.3	17.1	51 25.2	-41.7	17.9	53 19.1	-40.9	18.7
71	44 57.1	-44.0	14.9	46 52.9	-43.5	15.4	48 48.4	-42.9	16.0	50 43.5	-42.3	16.7	52 38.2	-41.6	17.5
72	44 13.1	-44.5	14.0	46 09.4	-44.0	14.4	48 05.5	-43.5	15.0	50 01.2	-42.9	15.6	51 56.6	-42.3	16.3
73	43 28.6	-44.9	13.0	45 25.4	-44.4	13.5	47 22.0	-44.0	14.0	49 18.3	-43.5	14.5	51 14.3	-42.9	15.1
74	42 43.7	-45.3	12.1	44 41.0	-45.0	12.5	46 38.0	-44.5	13.0	48 34.8	-44.0	13.5	50 31.4	-43.6	14.0
75	41 58.4	-45.7	11.2	43 56.0	-45.3	11.6	45 53.5	-45.0	12.0	47 50.8	-44.6	12.5	49 47.8	-44.1	13.0
76	41 12.7	-46.1	10.4	43 10.7	-45.8	10.7	45 08.5	-45.4	11.1	47 06.2	-45.1	11.5	49 03.7	-44.7	11.9
77	40 26.6	-46.5	9.5	42 24.9	-46.2	9.8	44 23.1	-45.9	10.1	46 21.1	-45.5	10.5	48 19.0	-45.1	10.9
78	39 40.1	-46.8	8.7	41 38.7	-46.5	9.0	43 37.2	-46.3	9.2	45 35.6	-46.0	9.6	47 33.9	-45.7	9.9
79	38 53.3	-47.1	7.9	40 52.2	-47.0	8.1	42 50.9	-46.7	8.4	44 49.6	-46.4	8.7	46 48.2	-46.2	9.0
80	38 06.2	-47.5	7.1	40 05.2	-47.2	7.3	42 04.2	-47.0	7.5	44 03.2	-46.8	7.8	46 02.0	-46.5	8.0
81	37 18.7	-47.7	6.3	39 18.0	-47.6	6.5	41 17.2	-47.4	6.7	43 16.4	-47.2	6.9	45 15.5	-47.0	7.1
82	36 31.0	-48.0	5.6	38 30.4	-47.9	5.7	40 29.8	-47.7	5.9	42 29.2	-47.6	6.1	44 28.5	-47.4	6.3
83	35 43.0	-48.3	4.8	37 42.5	-48.1	4.9	39 42.1	-48.1	5.1	41 41.6	-47.9	5.2	43 41.1	-47.8	5.4
84	34 54.7	-48.6	4.1	36 54.4	-48.5	4.2	38 54.0	-48.3	4.3	40 53.7	-48.2	4.4	42 53.3	-48.1	4.6
85	34 06.1	-48.7	3.4	36 05.9	-48.7	3.5	38 05.7	-48.6	3.6	40 05.5	-48.6	3.7	42 05.2	-48.4	3.8
86	33 17.4	-49.1	2.7	35 17.2	-48.9	2.7	37 17.1	-48.9	2.8	39 16.9	-48.8	2.9	41 16.8	-48.8	3.0
87	32 28.3	-49.2	2.0	34 28.3	-49.2	2.0	36 28.2	-49.2	2.1	38 28.1	-49.1	2.1	40 28.0	-49.0	2.2
88	31 39.1	-49.5	1.3	33 39.1	-49.5	1.3	35 39.0	-49.4	1.4	37 39.0	-49.4	1.4	39 39.0	-49.4	1.5
89	30 49.6	-49.6	0.7	32 49.6	-49.6	0.7	34 49.6	-49.6	0.7	36 49.6	-49.6	0.7	38 49.6	-49.6	0.7
90	30 00.0	-49.8	0.0	32 00.0	-49.8	0.0	34 00.0	-49.9	0.0	36 00.0	-49.9	0.0	38 00.0	-49.9	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 34°, 326°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
21 49.5	-51.2	148.6	20 06.9	-51.8	149.0	18 23.9	-52.4	149.3	16 40.5	-52.9	149.6	14 56.9	-53.5	149.9	30
20 58.3	-51.4	149.1	19 15.1	-51.9	149.5	17 31.5	-52.4	149.8	15 47.6	-53.0	150.1	14 03.4	-53.4	150.4	31
20 06.9	-51.4	149.7	18 23.2	-52.1	150.0	16 39.1	-52.6	150.3	14 54.6	-53.0	150.6	13 10.0	-53.6	150.9	32
19 15.5	-51.6	150.2	17 31.1	-52.0	150.5	15 46.5	-52.6	150.8	14 01.6	-53.1	151.1	12 16.4	-53.6	151.3	33
18 23.9	-51.6	150.8	16 39.1	-52.2	151.1	14 53.9	-52.7	151.3	13 08.5	-53.2	151.6	11 22.8	-53.6	151.8	34
17 32.3	-51.8	151.3	15 46.9	-52.3	151.6	14 01.2	-52.7	151.8	12 15.3	-53.2	152.0	10 29.2	-53.6	152.2	35
16 40.5	-51.8	151.8	14 54.6	-52.3	152.1	13 08.5	-52.8	152.3	11 22.1	-53.2	152.5	9 35.6	-53.7	152.7	36
15 48.7	-51.8	152.3	14 02.3	-52.3	152.6	12 15.7	-52.9	152.8	10 28.9	-53.3	153.0	8 41.9	-53.7	153.1	37
14 56.9	-52.0	152.9	13 10.0	-52.5	153.1	11 22.8	-52.8	153.3	9 35.6	-53.4	153.5	7 48.2	-53.8	153.6	38
14 04.9	-52.0	153.4	12 17.5	-52.5	153.6	10 30.0	-53.0	153.8	8 42.2	-53.3	153.9	6 54.4	-53.8	154.0	39
13 12.9	-52.1	153.9	11 25.0	-52.5	154.1	9 37.0	-52.9	154.2	7 48.2	-53.3	154.4	6 00.6	-53.8	154.5	40
12 20.8	-52.1	154.4	10 32.5	-52.6	154.6	8 44.1	-53.1	154.7	6 55.5	-53.4	154.8	5 06.8	-53.8	154.9	41
11 28.7	-52.2	154.9	9 39.9	-52.6	155.1	7 51.0	-53.0	155.2	6 02.1	-53.5	155.3	4 13.0	-53.8	155.4	42
10 36.5	-52.3	155.4	8 47.3	-52.7	155.6	6 58.0	-53.1	155.7	5 08.6	-53.4	155.8	3 19.2	-53.9	155.8	43
9 44.2	-52.2	155.9	7 54.6	-52.7	156.0	6 04.9	-53.1	156.1	4 15.2	-53.5	156.2	2 25.3	-53.8	156.3	44
8 52.0	-52.3	156.4	7 01.9	-52.7	156.5	5 11.8	-53.1	156.6	3 21.7	-53.5	156.7	1 31.5	-53.8	156.7	45
7 59.7	-52.4	156.9	6 09.2	-52.7	157.0	4 18.7	-53.1	157.1	2 28.2	-53.5	157.1	0 37.6	-53.8	157.1	46
7 07.3	-52.4	157.4	5 16.5	-52.8	157.5	3 25.6	-53.1	157.5	1 34.7	-53.5	157.6	0 16.2	+53.9	22.4	47
6 14.9	-52.4	157.9	4 23.7	-52.8	158.0	2 32.5	-53.2	158.0	0 41.2	-53.5	158.0	1 10.1	+53.9	22.0	48
5 22.5	-52.4	158.4	3 30.9	-52.8	158.4	1 39.3	-53.2	158.5	0 12.3	+53.5	21.5	2 04.0	+53.8	21.5	49
4 30.1	-52.5	158.9	2 38.1	-52.8	158.9	0 46.1	-53.1	158.9	1 05.8	+53.5	21.1	2 57.8	+53.8	21.1	50
3 37.6	-52.5	159.4	1 45.3	-52.8	159.4	0 07.0	+53.2	20.6	1 59.3	+53.5	20.6	3 51.6	+53.9	20.7	51
2 45.1	-52.4	159.8	0 52.5	-52.8	159.9	1 00.2	+53.1	20.1	2 52.8	+53.5	20.2	4 45.5	+53.8	20.2	52
1 52.7	-52.5	160.3	0 00.3	+52.9	19.7	1 53.3	+53.2	19.7	3 46.3	+53.5	19.7	5 39.3	+53.8	19.8	53
1 00.2	-52.5	160.8	0 53.2	+52.8	19.2	2 46.5	+53.1	19.2	4 39.8	+53.4	19.3	6 33.1	+53.7	19.3	54
0 07.7	-52.5	161.3	1 46.0	+52.8	18.7	3 39.6	+53.2	18.7	5 33.2	+53.5	18.8	7 26.8	+53.8	18.9	55
0 44.8	+52.5	18.2	2 38.8	+52.8	18.2	4 32.8	+53.1	18.3	6 26.7	+53.4	18.3	8 20.6	+53.7	18.4	56
1 37.3	+52.5	17.7	3 31.6	+52.8	17.8	5 25.9	+53.0	17.8	7 20.1	+53.4	17.9	9 14.3	+53.6	18.0	57
2 29.8	+52.5	17.3	4 24.4	+52.8	17.3	6 18.9	+53.1	17.3	8 13.5	+53.3	17.4	10 07.9	+53.7	17.5	58
3 22.3	+52.4	16.8	5 17.2	+52.7	16.8	7 12.0	+53.0	16.9	9 06.8	+53.3	17.0	11 01.6	+53.6	17.1	59
4 14.7	+52.5	16.3	6 09.9	+52.7	16.3	8 05.0	+53.0	16.4	10 00.1	+53.3	16.5	11 55.2	+53.5	16.6	60
5 07.2	+52.4	15.8	7 02.6	+52.7	15.9	8 58.0	+53.0	15.9	10 53.4	+53.2	16.0	12 48.7	+53.5	16.1	61
5 59.6	+52.4	15.3	7 55.3	+52.7	15.4	9 51.0	+52.9	15.5	11 46.6	+53.2	15.6	13 42.2	+53.4	15.7	62
6 52.0	+52.3	14.8	8 48.0	+52.6	14.9	10 43.9	+52.9	15.0	12 39.8	+53.2	15.1	14 35.6	+53.4	15.2	63
7 44.3	+52.4	14.3	9 40.6	+52.6	14.4	11 36.8	+52.8	14.5	13 33.0	+53.0	14.6	15 29.0	+53.4	14.7	64
8 36.7	+52.3	13.8	10 33.2	+52.5	13.9	12 29.6	+52.8	14.0	14 26.0	+53.1	14.1	16 22.4	+53.2	14.3	65
9 29.0	+52.2	13.3	11 25.7	+52.5	13.4	13 22.4	+52.7	13.5	15 19.1	+52.9	13.6	17 15.6	+53.2	13.8	66
10 21.2	+52.2	12.8	12 18.2	+52.4	12.9	14 15.1	+52.7	13.0	16 12.0	+52.9	13.2	18 08.8	+53.1	13.3	67
11 13.4	+52.2	12.3	13 10.6	+52.4	12.4	15 07.8	+52.6	12.5	17 04.9	+52.8	12.7	19 01.9	+53.1	12.8	68
12 05.6	+52.1	11.8	14 03.0	+52.3	11.9	16 00.4	+52.5	12.0	17 57.7	+52.8	12.2	19 55.0	+53.0	12.3	69
12 57.7	+52.0	11.3	14 55.3	+52.2	11.4	16 52.9	+52.5	11.5	18 50.5	+52.6	11.7	20 48.0	+52.8	11.8	70
13 49.7	+52.0	10.8	15 47.5	+52.2	10.9	17 45.4	+52.3	11.0	19 43.1	+52.6	11.2	21 40.8	+52.8	11.3	71
14 41.7	+51.9	10.3	16 39.7	+52.1	10.4	18 37.7	+52.3	10.5	20 35.7	+52.5	10.6	22 33.6	+52.7	10.8	72
15 33.6	+51.8	9.8	17 31.8	+52.0	9.9	19 30.0	+52.2	10.0	21 28.2	+52.4	10.1	23 26.3	+52.6	10.3	73
16 25.4	+51.8	9.2	18 23.8	+51.9	9.3	20 22.2	+52.1	9.5	22 20.6	+52.2	9.6	24 18.9	+52.4	9.7	74
17 17.2	+51.6	8.7	19 15.7	+51.9	8.8	21 14.3	+52.0	8.9	23 12.8	+52.2	9.1	25 11.3	+52.4	9.2	75
18 08.8	+51.6	8.2	20 07.6	+51.7	8.3	22 06.3	+51.9	8.4	24 05.0	+52.1	8.5	26 03.7	+52.2	8.7	76
19 00.4	+51.5	7.6	20 59.3	+51.6	7.7	22 58.2	+51.8	7.9	24 57.1	+51.9	8.0	26 55.9	+52.1	8.1	77
19 51.9	+51.4	7.1	21 50.9	+51.6	7.2	23 50.0	+51.7	7.3	25 49.0	+51.8	7.4	27 48.0	+51.9	7.6	78
20 43.3	+51.2	6.6	22 42.5	+51.4	6.6	24 41.7	+51.5	6.7	26 40.8	+51.7	6.9	28 39.9	+51.8	7.0	79
21 34.5	+51.2	6.0	23 33.9	+51.3	6.1	25 33.2	+51.4	6.2	27 32.5	+51.5	6.3	29 31.7	+51.7	6.4	80
22 25.7	+51.1	5.4	24 25.2	+51.1	5.5	26 24.6	+51.3	5.6	28 24.0	+51.4	5.7	30 23.4	+51.5	5.8	81
23 16.8	+50.9	4.9	25 16.3	+51.0	4.9	27 15.9	+51.1	5.0	29 15.4	+51.2	5.1	31 14.9	+51.3	5.2	82
24 07.7	+50.8	4.3	26 07.3	+50.9	4.4	28 07.0	+50.9	4.4	30 06.6	+51.1	4.5	32 06.2	+51.2	4.6	83
24 58.5	+50.6	3.7	26 58.2	+50.7	3.8	28 57.9	+50.8	3.8	30 57.7	+50.9	3.9	32 57.4	+51.0	4.0	84
25 49.1	+50.5	3.1	27 48.9	+50.6	3.2	29 48.7	+50.7	3.2	31 48.6	+50.7	3.3	33 48.4	+50.7	3.4	85
26 39.6	+50.4	2.5	28 39.5	+50.4	2.5	30 39.4	+50.4	2.6	32 39.3	+50.5	2.7	34 39.1	+50.6	2.7	86
27 30.0	+50.1	1.9	29 29.9	+50.2	1.9	31 29.8	+50.3	2.0	33 29.8	+50.3	2.0	35 29.7	+50.3	2.1	87
28 20.1	+50.1	1.3	30 20.1	+50.1	1.3	32 20.1	+50.0	1.3	34 20.1	+50.0	1.4	36 20.0	+50.1	1.4	88
29 10.2	+49.8	0.6	31 10.2	+49.8	0.7	33 10.1	+49.9	0.7	35 10.1	+49.9	0.7	37 10.1	+49.9	0.7	89
30 00.0	+49.6	0.0	32 00.0	+49.6	0.0	34 00.0	+49.6	0.0	36 00.0	+49.6	0.0	38 00.0	+49.6	0.0	90

LATITUDE SAME NAME

L.H.A. 146°, 214°

34°, 326° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	60 37.2	+28.6	99.2	60 14.4	+32.2	102.7	59 44.7	+35.5	106.0	59 08.3	+38.7	109.3	58 25.7	+41.5	112.3
31	61 05.8	+27.0	97.4	60 46.6	+30.8	101.0	60 20.2	+34.4	104.4	59 47.0	+37.6	107.7	59 07.2	+40.6	110.9
32	61 32.8	+25.5	95.5	61 17.4	+29.4	99.2	60 54.6	+33.0	102.7	60 24.6	+36.5	106.2	59 47.8	+39.6	109.5
33	61 58.3	+23.8	93.6	61 46.8	+27.8	97.4	61 27.6	+31.7	101.0	61 01.1	+35.2	104.6	60 27.4	+38.5	108.0
34	62 22.1	+22.1	91.7	62 14.6	+26.3	95.5	61 59.3	+30.2	99.2	61 36.3	+34.0	102.9	61 05.9	+37.4	106.4
35	62 44.2	+20.4	89.6	62 40.9	+24.6	93.5	62 29.5	+28.7	97.4	62 10.3	+32.5	101.1	61 43.3	+36.2	104.8
36	63 04.6	+18.5	87.6	63 05.5	+22.9	91.5	62 58.2	+27.1	95.4	62 42.8	+31.2	99.3	62 19.5	+34.9	103.1
37	63 23.1	+16.6	85.5	63 28.4	+21.1	89.5	63 25.3	+25.5	93.5	63 14.0	+29.5	97.4	62 54.4	+33.5	101.3
38	63 39.7	+14.6	83.3	63 49.5	+19.1	87.4	63 50.8	+23.6	91.4	63 43.5	+28.0	95.5	63 27.9	+32.0	99.5
39	63 54.3	+12.6	81.1	64 08.6	+17.3	85.2	64 14.4	+21.8	89.3	64 11.5	+26.2	93.5	63 59.9	+30.5	97.6
40	64 06.9	+10.5	78.9	64 25.9	+15.1	83.0	64 36.2	+19.8	87.2	64 37.7	+24.4	91.4	64 30.4	+28.8	95.6
41	64 17.4	+8.5	76.6	64 41.0	+13.1	80.7	64 56.0	+17.8	85.0	65 02.1	+22.5	89.2	64 59.2	+27.1	93.5
42	64 25.9	+6.2	74.3	64 54.1	+11.0	78.4	65 13.8	+15.7	82.7	65 24.6	+20.5	87.0	65 26.3	+25.1	91.4
43	64 32.1	+4.1	72.0	65 05.1	+8.7	76.1	65 29.5	+13.6	80.4	65 45.1	+18.4	84.7	65 51.4	+23.3	89.2
44	64 36.2	+1.8	69.7	65 13.8	+6.5	73.8	65 43.1	+11.4	78.0	66 03.5	+16.3	82.4	66 14.7	+21.2	86.9
45	64 38.0	-0.3	67.4	65 20.3	+4.3	71.4	65 54.5	+9.0	75.6	66 19.8	+14.0	80.0	66 35.9	+19.0	84.6
46	64 37.7	-2.6	65.0	65 24.6	+2.0	69.0	66 03.5	+6.8	73.2	66 33.8	+11.7	77.6	66 54.9	+16.8	82.2
47	64 35.1	-4.7	62.7	65 26.6	-0.3	66.6	66 10.3	+4.4	70.7	66 45.5	+9.4	75.1	67 11.7	+14.5	79.7
48	64 30.4	-6.9	60.4	65 26.3	-2.6	64.2	66 14.7	+2.0	68.3	66 54.9	+7.0	72.6	67 26.2	+12.1	77.2
49	64 23.5	-9.1	58.1	64 23.7	-4.9	61.8	66 16.7	-0.3	65.8	67 01.9	+4.5	70.1	67 38.3	+9.6	74.6
50	64 14.4	-11.1	55.8	65 18.8	-7.2	59.4	66 16.4	-2.8	63.3	67 06.4	+2.0	67.5	67 47.9	+7.1	72.0
51	64 03.3	-13.3	53.5	65 11.6	-9.3	57.0	66 13.6	-5.1	60.8	67 08.4	-0.5	64.9	67 55.0	+4.5	69.4
52	63 50.0	-15.2	51.3	65 02.3	-11.6	54.7	66 08.5	-7.4	58.3	67 07.9	-2.9	62.4	67 59.5	+2.0	66.7
53	63 34.8	-17.2	49.1	64 50.7	-13.6	52.3	66 01.1	-9.7	55.9	67 05.0	-5.4	59.8	68 01.5	-0.6	64.1
54	63 17.6	-19.1	47.0	64 37.1	-15.8	50.1	65 51.4	-12.0	53.5	66 59.6	-7.8	57.2	68 00.9	-3.2	61.4
55	62 58.5	-20.9	44.9	64 21.3	-17.7	47.8	65 39.4	-14.2	51.1	66 51.8	-10.2	54.7	67 57.7	-5.8	58.7
56	62 37.6	-22.7	42.9	64 03.6	-19.7	45.6	65 25.2	-16.4	48.7	66 41.6	-12.6	52.2	67 51.9	-8.3	56.1
57	62 14.9	-24.3	40.8	63 43.9	-21.6	43.5	65 08.8	-18.4	46.4	66 29.0	-14.8	49.8	67 43.6	-10.8	53.5
58	61 50.6	-26.0	38.9	63 22.3	-23.3	41.4	64 50.4	-20.4	44.2	66 14.2	-17.1	47.3	67 32.8	-13.3	50.9
59	61 24.6	-27.5	37.0	62 59.0	-25.1	39.3	64 30.0	-22.3	42.0	65 57.1	-19.2	45.0	67 19.5	-15.6	48.3
60	60 57.1	-29.0	35.2	62 33.9	-26.7	37.4	64 07.7	-24.2	39.8	65 37.9	-21.2	42.7	67 03.9	-17.9	45.8
61	60 28.1	-30.3	33.4	62 07.2	-28.3	35.4	63 43.5	-25.9	37.8	65 16.7	-23.2	40.4	66 46.0	-20.0	43.4
62	59 57.8	-31.7	31.6	61 38.9	-29.8	33.6	63 17.6	-27.6	35.7	64 53.5	-25.1	38.2	66 26.0	-22.2	41.0
63	59 26.1	-33.0	29.9	61 09.1	-31.2	31.7	62 50.0	-29.1	33.8	64 28.4	-26.8	36.1	66 03.8	-24.2	38.7
64	58 53.1	-34.1	28.3	60 37.9	-32.5	30.0	62 20.9	-30.7	31.9	64 01.6	-28.6	34.0	65 39.6	-26.1	36.5
65	58 19.0	-35.3	26.7	60 05.4	-33.8	28.3	61 50.2	-32.1	30.0	63 33.0	-30.1	32.0	65 13.5	-27.9	34.3
66	57 43.7	-36.3	25.2	59 31.6	-34.9	26.6	61 18.1	-33.4	28.3	63 02.9	-31.7	30.1	64 45.6	-29.6	32.2
67	57 07.4	-37.4	23.7	58 56.7	-36.2	25.1	60 44.7	-34.7	26.6	62 31.2	-33.0	28.3	64 16.0	-31.3	30.2
68	56 30.0	-38.3	22.3	58 20.5	-37.1	23.5	60 10.0	-35.9	24.9	61 58.2	-34.5	26.5	63 44.7	-32.7	28.3
69	55 51.7	-39.2	20.9	57 43.4	-38.2	22.0	59 34.1	-37.0	23.3	61 23.7	-35.7	24.7	63 12.0	-34.2	26.4
70	55 12.5	-40.0	19.6	57 05.2	-39.1	20.6	58 57.1	-38.1	21.8	60 48.0	-36.8	23.1	62 37.8	-35.5	24.6
71	54 32.5	-40.9	18.3	56 26.1	-40.0	19.2	58 19.0	-39.0	20.3	60 11.2	-38.0	21.5	62 02.3	-36.8	22.8
72	53 51.6	-41.6	17.0	55 46.1	-40.9	17.9	57 40.0	-40.0	18.8	59 33.2	-39.1	19.9	61 25.5	-37.9	21.2
73	53 10.0	-42.3	15.8	55 05.2	-41.6	16.6	57 00.0	-40.9	17.5	58 54.1	-40.0	18.5	60 47.6	-39.1	19.6
74	52 27.7	-43.0	14.7	54 23.6	-42.4	15.4	56 19.1	-41.7	16.1	58 14.1	-41.0	17.0	60 08.5	-40.1	18.0
75	51 44.7	-43.7	13.5	53 41.2	-43.1	14.1	55 37.4	-42.5	14.9	57 33.1	-41.8	15.6	59 28.4	-41.0	16.6
76	51 01.0	-44.2	12.4	52 58.1	-43.8	13.0	54 54.9	-43.2	13.6	56 51.3	-42.6	14.3	58 47.4	-42.0	15.1
77	50 16.8	-44.8	11.4	52 14.3	-44.3	11.9	54 11.7	-43.9	12.4	56 08.7	-43.4	13.0	58 05.4	-42.7	13.8
78	49 32.0	-45.3	10.3	51 30.0	-45.0	10.8	53 27.8	-44.6	11.3	55 25.3	-44.1	11.8	57 22.7	-43.6	12.5
79	48 46.7	-45.9	9.3	50 45.0	-45.5	9.7	52 43.2	-45.1	10.1	54 41.2	-44.7	10.6	56 39.1	-44.3	11.2
80	48 00.8	-46.3	8.3	49 59.5	-46.0	8.7	51 58.1	-45.8	9.1	53 56.5	-45.4	9.5	55 54.8	-45.1	10.0
81	47 14.5	-46.8	7.4	49 13.5	-46.6	7.7	51 12.3	-46.2	8.0	53 11.1	-46.0	8.4	55 09.7	-45.6	8.8
82	46 27.7	-47.2	6.5	48 26.9	-47.0	6.7	50 26.1	-46.8	7.0	52 25.1	-46.5	7.3	54 24.1	-46.3	7.7
83	45 40.5	-47.6	5.6	47 39.9	-47.4	5.8	49 39.3	-47.3	6.0	51 38.6	-47.0	6.3	53 37.8	-46.8	6.6
84	44 52.9	-48.0	4.7	46 52.5	-47.8	4.9	48 52.0	-47.6	5.1	50 51.6	-47.6	5.3	52 51.0	-47.3	5.6
85	44 04.9	-48.3	3.9	46 04.7	-48.3	4.0	48 04.4	-48.2	4.2	50 04.0	-48.0	4.4	52 03.7	-47.9	4.5
86	43 16.6	-48.7	3.1	45 16.4	-48.6	3.2	47 16.2	-48.5	3.3	49 16.0	-48.4	3.4	51 15.8	-48.3	3.6
87	42 27.9	-49.0	2.3	44 27.8	-48.9	2.4	46 27.7	-48.9	2.4	48 27.6	-48.8	2.5	50 27.5	-48.8	2.6
88	41 38.9	-49.3	1.5	43 38.9	-49.3	1.5	45 38.8	-49.2	1.6	47 38.8	-49.2	1.7	49 38.7	-49.1	1.7
89	40 49.6	-49.6	0.7	42 49.6	-49.6	0.8	44 49.6	-49.6	0.8	46 49.6	-49.6	0.8	48 49.6	-49.6	0.8
90	40 00.0	-49.9	0.0	42 00.0	-49.9	0.0	44 00.0	-49.9	0.0	46 00.0	-49.9	0.0	48 00.0	-49.9	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 34°, 326°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
13	12.9	-53.9	150.2	11	28.7	-54.4	150.4	9	44.2	-54.7	150.6	7	59.7	-55.3	150.7	6	14.9	-55.6	150.8	30
12	19.0	-54.0	150.6	10	34.3	-54.4	150.8	8	49.5	-54.9	151.0	7	04.4	-55.2	151.1	5	19.3	-55.6	151.2	31
11	25.0	-54.0	151.1	9	39.9	-54.4	151.2	7	54.6	-54.8	151.4	6	09.2	-55.2	151.5	4	23.7	-55.6	151.6	32
10	31.0	-54.0	151.5	8	45.5	-54.5	151.7	6	59.8	-54.9	151.8	5	14.0	-55.3	151.9	3	28.1	-55.6	152.0	33
9	37.0	-54.0	152.0	7	51.0	-54.4	152.1	6	04.9	-54.8	152.2	4	18.7	-55.2	152.3	2	32.5	-55.7	152.4	34
8	43.0	-54.1	152.4	6	56.6	-54.5	152.5	5	10.1	-54.9	152.6	3	23.5	-55.3	152.7	1	36.8	-55.6	152.7	35
7	48.9	-54.1	152.8	6	02.1	-54.6	152.9	4	15.2	-54.9	153.0	2	28.2	-55.3	153.1	0	41.2	-55.7	153.1	36
6	54.8	-54.2	153.3	5	07.5	-54.5	153.4	3	20.3	-55.0	153.4	1	32.9	-55.3	153.5	0	14.5	+55.6	26.5	37
6	00.6	-54.1	153.7	4	13.0	-54.5	153.8	2	25.3	-54.9	153.8	0	37.6	-55.3	153.9	1	10.1	+55.6	26.2	38
5	06.5	-54.2	154.1	3	18.5	-54.6	154.2	1	30.4	-54.9	154.2	0	17.7	+55.3	25.8	2	05.7	+55.7	25.8	39
4	12.3	-54.2	154.6	2	23.9	-54.6	154.6	0	35.5	-55.0	154.6	1	13.0	+55.2	25.4	3	01.4	+55.6	25.4	40
3	18.1	-54.2	155.0	1	29.3	-54.5	155.0	0	19.5	+54.9	25.0	2	08.2	+55.3	25.0	3	57.0	+55.6	25.0	41
2	23.9	-54.2	155.4	0	34.8	-54.6	155.4	1	14.4	+54.9	24.6	3	03.5	+55.3	24.6	4	52.6	+55.6	24.6	42
1	29.7	-54.2	155.9	0	19.8	+54.6	24.1	2	09.3	+54.9	24.2	3	58.8	+55.2	24.2	5	48.2	+55.6	24.3	43
0	35.5	-54.2	156.3	1	14.4	+54.6	23.7	3	04.2	+54.9	23.8	4	54.0	+55.3	23.8	6	43.8	+55.6	23.9	44
0	18.7	+54.3	23.3	2	09.0	+54.5	23.3	3	59.1	+54.9	23.4	5	49.3	+55.2	23.4	7	39.4	+55.5	23.5	45
1	13.0	+54.2	22.9	3	03.5	+54.6	22.9	4	54.0	+54.9	22.9	6	44.5	+55.2	23.0	8	34.9	+55.5	23.1	46
2	07.2	+54.2	22.4	3	58.1	+54.5	22.5	5	48.9	+54.9	22.5	7	39.7	+55.2	22.6	9	30.4	+55.5	22.7	47
3	01.4	+54.2	22.0	4	52.6	+54.5	22.1	6	43.8	+54.8	22.1	8	34.9	+55.2	22.2	10	25.9	+55.5	22.4	48
3	55.6	+54.1	21.6	5	47.1	+54.5	21.6	7	38.6	+54.9	21.7	9	30.1	+55.1	21.8	11	21.4	+55.5	22.0	49
4	49.7	+54.2	21.1	6	41.6	+54.5	21.2	8	33.5	+54.8	21.3	10	25.2	+55.1	21.4	12	16.9	+55.6	21.6	50
5	43.9	+54.1	20.7	7	36.1	+54.5	20.8	9	28.3	+54.7	20.9	11	20.3	+55.1	21.0	13	12.3	+55.3	21.2	51
6	38.0	+54.2	20.3	8	30.6	+54.4	20.4	10	23.0	+54.8	20.5	12	15.0	+55.0	20.6	14	07.6	+55.4	20.8	52
7	32.2	+54.1	19.8	9	25.0	+54.4	19.9	11	17.8	+54.7	20.1	13	10.4	+55.0	20.2	15	03.0	+55.3	20.4	53
8	26.3	+54.0	19.4	10	19.4	+54.4	19.5	12	12.5	+54.6	19.7	14	05.4	+55.0	19.8	15	58.3	+55.2	20.0	54
9	20.3	+54.1	19.0	11	13.8	+54.3	19.1	13	07.1	+54.7	19.2	15	00.4	+54.9	19.4	16	53.5	+55.2	19.6	55
10	14.4	+54.0	18.5	12	08.1	+54.3	18.7	14	01.8	+54.5	18.8	15	55.3	+54.9	19.0	17	48.7	+55.2	19.2	56
11	08.4	+53.9	18.1	13	02.4	+54.2	18.2	14	56.3	+54.6	18.4	16	50.2	+54.8	18.6	18	43.9	+55.0	18.8	57
12	02.3	+53.9	17.6	13	56.6	+54.2	17.8	15	50.9	+54.4	17.9	17	45.0	+54.7	18.1	19	38.9	+55.1	18.3	58
12	56.2	+53.9	17.2	14	50.8	+54.2	17.3	16	45.3	+54.5	17.5	18	39.7	+54.7	17.7	20	34.0	+54.9	17.9	59
13	50.1	+53.8	16.7	15	45.0	+54.1	16.9	17	39.8	+54.3	17.1	19	34.4	+54.6	17.3	21	28.9	+54.9	17.5	60
14	43.9	+53.8	16.3	16	39.1	+54.0	16.4	18	34.1	+54.3	16.6	20	29.0	+54.6	16.8	22	23.8	+54.9	17.1	61
15	37.7	+53.7	15.8	17	33.1	+54.0	16.0	19	28.4	+54.2	16.2	21	23.6	+54.5	16.4	23	18.7	+54.7	16.6	62
16	31.4	+53.7	15.4	18	27.1	+53.9	15.5	20	22.6	+54.2	15.7	22	18.1	+54.4	15.9	24	13.4	+54.7	16.2	63
17	25.1	+53.5	14.9	19	21.0	+53.8	15.1	21	16.8	+54.1	15.3	23	12.5	+54.4	15.5	25	08.1	+54.6	15.7	64
18	18.6	+53.5	14.4	20	14.8	+53.8	14.6	22	10.9	+54.0	14.8	24	06.9	+54.2	15.0	26	02.7	+54.5	15.3	65
19	12.1	+53.5	13.9	21	08.6	+53.6	14.1	23	04.9	+53.9	14.3	25	01.1	+54.2	14.5	26	57.2	+54.4	14.8	66
20	05.6	+53.3	13.5	22	02.2	+53.6	13.6	23	58.8	+53.8	13.8	25	55.3	+54.0	14.1	27	51.6	+54.3	14.3	67
20	58.9	+53.3	13.0	22	55.8	+53.5	13.1	24	52.6	+53.8	13.4	26	49.3	+54.0	13.6	28	45.9	+54.2	13.8	68
21	52.2	+53.2	12.5	23	49.3	+53.4	12.7	25	46.4	+53.6	12.9	27	43.3	+53.9	13.1	29	40.1	+54.1	13.3	69
22	45.4	+53.1	12.0	24	42.7	+53.3	12.2	26	40.0	+53.5	12.4	28	37.2	+53.7	12.6	30	34.2	+54.0	12.8	70
23	38.5	+52.9	11.5	25	36.0	+53.2	11.6	27	33.5	+53.4	11.9	29	30.9	+53.6	12.1	31	28.2	+53.9	12.3	71
24	31.4	+52.9	10.9	26	29.2	+53.1	11.1	28	26.9	+53.3	11.3	30	24.5	+53.6	11.6	32	22.1	+53.7	11.8	72
25	24.3	+52.8	10.4	27	22.3	+53.0	10.6	29	20.2	+53.2	10.8	31	18.1	+53.3	11.0	33	15.8	+53.6	11.3	73
26	17.1	+52.6	9.9	28	15.3	+52.8	10.1	30	13.4	+53.0	10.3	32	11.4	+53.3	10.5	34	09.4	+53.4	10.7	74
27	09.7	+52.6	9.4	29	08.1	+52.7	9.5	31	06.4	+52.9	9.7	33	04.7	+53.0	9.9	35	02.8	+53.3	10.2	75
28	02.3	+52.4	8.8	30	00.8	+52.6	9.0	31	59.3	+52.8	9.2	33	57.7	+53.0	9.4	35	56.1	+53.1	9.6	76
28	54.7	+52.2	8.3	30	53.4	+52.4	8.4	32	52.1	+52.6	8.6	34	50.7	+52.8	8.8	36	49.2	+53.0	9.0	77
29	46.9	+52.1	7.7	31	45.8	+52.3	7.9	33	44.7	+52.4	8.0	35	43.5	+52.6	8.2	37	42.2	+52.8	8.5	78
30	39.0	+52.0	7.1	32	38.1	+52.1	7.3	34	37.1	+52.2	7.4	36	36.1	+52.4	7.6	38	35.0	+52.5	7.8	79
31	31.0	+51.8	6.5	33	30.2	+51.9	6.7	35	29.3	+52.1	6.8	37	28.5	+52.2	7.0	39	27.5	+52.4	7.2	80
32	22.8	+51.6	5.9	34	22.1	+51.8	6.1	36	21.4	+51.9	6.2	38	20.7	+52.0	6.4	40	19.9	+52.2	6.6	81
33	14.4	+51.4	5.3	35	13.9	+51.5	5.5	37	13.3	+51.7	5.6	39	12.7	+51.8	5.8	41	12.1	+51.9	5.9	82
34	05.8	+51.3	4.7	36	05.4	+51.4	4.8	38	05.0	+51.4	5.0	40	04.5	+51.6	5.1	42	04.0	+51.7	5.3	83
34	57.1	+51.0	4.1	36	56.8	+51.1	4.2	38	56.4	+51.3	4.3	40	56.1	+51.3	4.4	42	55.7	+51.5	4.6	84
35	48.1	+50.9	3.4	37	47.9	+50.9	3.5	39	47.7	+51.0	3.6	41	47.4	+51.1	3.7	43	47.2	+51.1	3.9	85
36	39.0	+50.6	2.8	38	38.8	+50.7	2.9	40	38.7	+50.7	2.9	42	38.5	+50.8	3.0	44	38.3	+50.9	3.1	86
37	29.6	+50.4	2.1	39	29.5	+50.4	2.2	41	29.4	+50.5	2.2	43	29.3	+50.6	2.3	45	29.2	+50.6	2.4	87
38	20.0	+50.1	1.4	40	19.9	+50.2	1.5	42	19.9	+50.2	1.5	44	19.9	+50.2	1.6	46	19.8	+50.3	1.6	88
39	10.1	+49.9	0.7	41	10.1	+49.9	0.7	43	10.1	+49.9	0.8	45	10.1	+49.9	0.8	47	10.1	+49.9	0.8	89
40	00.0	+49.6	0.0	42	00.0	+49.6	0.0	44	00.0	+49.6	0.0	46	00.0	+49.6	0.0	48	00.0	+49.6	0.0	90

LATITUDE SAME NAME

L.H.A. 146°, 214°

34°, 326° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	57 37.3	+44.0	115.3	56 43.4	+46.4	118.0	55 44.6	+48.4	120.6	54 41.2	+50.2	123.1	53 33.7	+51.8	125.4
31	58 21.3	+43.3	114.0	57 29.8	+45.7	116.9	56 33.0	+47.9	119.6	55 31.4	+49.8	122.1	54 25.5	+51.4	124.5
32	59 04.6	+42.5	112.7	58 15.5	+45.0	115.7	57 20.9	+47.3	118.5	56 21.2	+49.3	121.1	55 16.9	+51.0	123.6
33	59 47.1	+41.5	111.3	59 00.5	+44.2	114.4	58 08.2	+46.6	117.3	57 10.5	+48.7	120.1	56 07.9	+50.6	122.7
34	60 28.6	+40.6	109.8	59 44.7	+43.4	113.1	58 54.8	+45.9	116.1	57 59.2	+48.2	119.0	56 58.5	+50.1	121.7
35	61 09.2	+39.4	108.3	60 28.1	+42.5	111.7	59 40.7	+45.1	114.9	58 47.4	+47.5	117.9	57 48.6	+49.6	120.7
36	61 48.6	+38.4	106.7	61 10.6	+41.5	110.2	60 25.8	+44.4	113.5	59 34.9	+46.8	116.7	58 38.2	+49.1	119.6
37	62 27.0	+37.1	105.1	61 52.1	+40.5	108.7	61 10.2	+43.4	112.2	60 21.7	+46.1	115.4	59 27.3	+48.4	118.5
38	63 04.1	+35.9	103.4	62 32.6	+39.3	107.1	61 53.6	+42.5	110.7	61 07.8	+45.3	114.1	60 15.7	+47.8	117.3
39	63 40.0	+34.4	101.6	63 11.9	+38.1	105.5	62 36.1	+41.5	109.2	61 53.1	+44.5	112.7	61 03.5	+47.1	116.1
40	64 14.4	+33.0	99.7	63 50.0	+36.8	103.7	63 17.6	+40.3	107.6	62 37.6	+43.5	111.3	61 50.6	+46.3	114.8
41	64 47.4	+31.4	97.8	64 26.8	+35.5	101.9	63 57.9	+39.2	105.9	63 21.1	+42.5	109.8	62 36.9	+45.4	113.4
42	65 18.8	+29.7	95.8	65 02.3	+33.9	100.0	64 37.1	+37.8	104.2	64 03.6	+41.4	108.2	63 22.3	+44.6	112.0
43	65 48.5	+27.9	93.6	65 36.2	+32.3	98.1	65 14.9	+36.5	102.4	64 45.0	+40.2	106.5	64 06.9	+43.5	110.5
44	66 16.4	+26.0	91.5	66 08.5	+30.7	96.0	66 08.5	+34.9	100.4	65 25.2	+38.9	104.8	64 50.4	+42.5	108.9
45	66 42.4	+24.0	89.2	66 39.2	+28.7	93.8	66 26.3	+33.3	98.4	66 04.1	+37.5	102.9	65 32.9	+41.3	107.2
46	67 06.4	+21.8	86.9	67 07.9	+26.9	91.6	66 59.6	+31.6	96.3	66 41.6	+36.0	101.0	66 14.2	+40.0	105.4
47	67 28.2	+19.7	84.5	67 34.8	+24.7	89.3	67 31.2	+29.7	94.1	67 17.6	+34.3	98.9	66 54.2	+38.6	103.6
48	67 47.9	+17.3	82.0	67 59.5	+22.6	86.9	68 00.9	+27.7	91.8	67 51.9	+32.6	96.8	67 32.8	+37.0	101.6
49	68 05.2	+14.9	79.4	68 22.1	+20.3	84.4	68 28.6	+25.6	89.4	68 24.5	+30.6	94.5	68 09.8	+35.4	99.5
50	68 20.1	+12.5	76.8	68 42.4	+17.9	81.8	68 54.2	+23.3	87.0	68 55.1	+28.6	92.1	68 45.2	+33.7	97.3
51	68 32.6	+9.8	74.2	69 00.3	+15.3	79.2	69 17.5	+20.9	84.4	69 23.7	+26.4	89.7	69 18.9	+31.6	95.0
52	68 42.4	+7.2	71.4	69 15.6	+12.7	76.5	69 38.4	+18.4	81.7	69 50.1	+24.1	87.1	69 50.5	+29.6	92.5
53	68 49.6	+4.6	68.7	69 28.3	+10.1	73.7	69 56.8	+15.7	78.9	70 14.2	+21.5	84.4	70 20.1	+27.2	90.0
54	68 54.2	+1.8	65.9	69 38.4	+7.3	70.9	70 12.5	+13.1	76.1	70 35.7	+19.0	81.6	70 47.3	+24.9	87.3
55	68 56.0	-0.9	63.2	69 45.7	+4.4	68.0	70 25.6	+10.1	73.2	70 54.7	+16.1	78.7	71 12.2	+22.2	84.5
56	68 55.1	-3.6	60.4	69 50.1	+1.6	65.1	70 35.7	+7.3	70.3	71 10.8	+13.3	75.8	71 34.4	+19.5	81.6
57	68 51.5	-6.3	57.6	69 51.7	-1.2	62.2	70 43.0	+4.3	67.3	71 24.1	+10.3	72.7	71 53.9	+16.5	78.6
58	68 45.2	-8.9	54.9	69 50.5	-4.1	59.3	70 47.3	+1.4	64.2	71 34.4	+7.2	69.6	72 10.4	+13.6	75.5
59	68 36.3	-11.5	52.1	69 46.4	-6.9	56.4	70 48.7	-1.7	61.2	71 41.6	+4.1	66.5	72 24.0	+10.3	72.3
60	68 24.8	-14.1	49.5	69 39.5	-9.6	53.5	70 47.0	-4.7	58.2	71 45.7	+0.9	63.3	72 34.3	+7.1	69.0
61	68 10.7	-16.4	46.8	69 29.9	-12.4	50.7	70 42.3	-7.7	55.1	71 46.6	-2.2	60.1	72 41.4	+3.7	65.7
62	67 54.3	-18.9	44.3	69 17.5	-15.0	47.9	70 34.6	-10.5	52.1	71 44.4	-5.5	56.9	72 45.1	+0.4	62.3
63	67 35.4	-21.1	41.8	69 02.5	-17.5	45.2	70 24.1	-13.4	49.2	71 38.9	-8.5	53.7	72 45.5	-3.0	58.9
64	67 14.3	-23.3	39.3	68 45.0	-20.0	42.6	70 10.7	-16.1	46.3	71 30.4	-11.6	50.6	72 42.5	-6.3	55.6
65	66 51.0	-25.3	37.0	68 25.0	-22.2	40.0	69 54.6	-18.7	43.5	71 18.8	-14.5	47.5	72 36.2	-9.6	52.2
66	66 25.7	-27.2	34.7	68 02.8	-24.5	37.5	69 35.9	-21.2	40.7	71 04.3	-17.4	44.5	72 26.6	-12.8	48.9
67	65 58.5	-29.1	32.5	67 38.3	-26.6	35.1	69 14.7	-23.6	38.1	70 46.9	-20.1	41.6	72 13.8	-15.9	45.7
68	65 29.4	-30.8	30.3	67 11.7	-28.5	32.7	68 51.1	-25.8	35.5	70 26.8	-22.6	38.7	71 57.9	-18.8	42.6
69	64 58.6	-32.4	28.3	66 43.2	-30.4	30.5	68 25.3	-28.0	33.0	70 04.2	-25.1	36.0	71 39.1	-21.6	39.5
70	64 26.2	-34.0	26.3	66 12.8	-32.1	28.3	67 57.3	-29.9	30.6	69 39.1	-27.3	33.4	71 17.5	-24.3	36.6
71	63 52.2	-35.3	24.4	65 40.7	-33.7	26.2	67 27.4	-31.8	28.4	69 11.8	-29.5	30.8	70 53.2	-26.7	33.8
72	63 16.9	-36.7	22.6	65 07.0	-35.2	24.2	66 55.6	-33.5	26.2	68 42.3	-31.5	28.4	70 26.5	-29.1	31.1
73	62 40.2	-37.9	20.9	64 31.8	-36.7	22.3	66 22.1	-35.2	24.1	68 10.8	-33.4	26.1	69 57.4	-31.1	28.5
74	62 02.3	-39.1	19.2	63 55.1	-37.9	20.5	65 46.9	-36.6	22.1	67 37.4	-35.0	23.9	69 26.3	-33.2	26.0
75	61 23.2	-40.2	17.6	63 17.2	-39.2	18.8	65 10.3	-38.0	20.2	67 02.4	-36.7	21.8	68 53.1	-35.0	23.7
76	60 43.0	-41.2	16.1	62 38.0	-40.3	17.1	64 32.3	-39.3	18.3	66 25.7	-38.1	19.8	68 18.1	-36.7	21.5
77	60 01.8	-42.1	14.6	61 57.7	-41.4	15.5	63 53.0	-40.5	16.6	65 47.6	-39.4	17.9	67 41.4	-38.3	19.4
78	59 19.7	-43.0	13.2	61 16.3	-42.3	14.0	63 12.5	-41.6	14.9	65 08.2	-40.8	16.1	67 03.1	-39.7	17.3
79	58 36.7	-43.9	11.8	60 34.0	-43.3	12.5	62 30.9	-42.6	13.4	64 27.4	-41.8	14.3	66 23.4	-41.0	15.5
80	57 52.8	-44.5	10.5	59 50.7	-44.1	11.1	61 48.3	-43.6	11.9	63 45.6	-43.0	12.7	65 42.4	-42.2	13.7
81	57 08.3	-45.3	9.3	59 06.6	-44.9	9.8	61 04.7	-44.4	10.4	63 02.6	-43.9	11.1	65 00.2	-43.3	11.9
82	56 23.0	-46.0	8.1	58 21.7	-45.6	8.5	60 20.3	-45.3	9.0	62 18.7	-44.8	9.6	64 16.9	-44.3	10.3
83	55 37.0	-46.6	6.9	57 36.1	-46.3	7.3	59 35.0	-46.0	7.7	61 33.9	-45.7	8.2	63 32.6	-45.3	8.8
84	54 50.4	-47.1	5.8	56 49.8	-47.0	6.1	58 49.0	-46.7	6.5	60 48.2	-46.4	6.9	62 47.3	-46.1	7.3
85	54 03.3	-47.7	4.8	56 02.8	-47.5	5.0	58 02.3	-47.3	5.3	60 01.8	-47.1	5.6	62 01.2	-46.9	6.0
86	53 15.6	-48.2	3.7	55 15.3	-48.1	3.9	57 15.0	-48.0	4.1	59 14.7	-47.8	4.4	61 14.3	-47.6	4.6
87	52 27.4	-48.7	2.8	54 27.2	-48.6	2.9	56 27.0	-48.5	3.0	58 26.9	-48.4	3.2	60 26.7	-48.3	3.4
88	51 38.7	-49.2	1.8	53 38.6	-49.1	1.9	55 38.5	-49.0	2.0	57 38.5	-49.0	2.1	59 38.4	-48.9	2.2
89	50 49.5	-49.5	0.9	52 49.5	-49.5	0.9	54 49.5	-49.5	1.0	56 49.5	-49.5	1.0	58 49.5	-49.5	1.1
90	50 00.0	-49.9	0.0	52 00.0	-49.9	0.0	54 00.0	-49.9	0.0	56 00.0	-49.9	0.0	58 00.0	-49.9	0.0

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58°

LATITUDE CONTRARY NAME

L.H.A. 34°, 326°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
4 30.1	-56.0	150.9	2 45.1	-56.3	151.0	1 00.2	-56.7	151.0	0 44.8	+57.0	29.0	2 29.8	+57.3	29.0	30
3 34.1	-56.0	151.3	1 48.8	-56.3	151.3	0 03.5	-56.7	151.4	1 41.8	+57.0	28.7	3 27.1	+57.3	28.7	31
2 38.1	-56.0	151.7	0 52.5	-56.3	151.7	0 53.2	+56.6	28.3	2 38.8	+57.0	28.3	4 24.4	+57.3	28.4	32
1 42.1	-56.0	152.0	0 03.8	+56.4	28.0	1 49.8	+56.7	28.0	3 35.8	+57.0	28.0	5 21.7	+57.2	28.1	33
0 46.1	-55.9	152.4	1 00.2	+56.3	27.6	2 46.5	+56.6	27.7	4 32.8	+56.9	27.7	6 18.9	+57.3	27.8	34
0 09.8	+56.0	27.3	1 56.5	+56.3	27.3	3 43.1	+56.7	27.3	5 29.7	+57.0	27.4	7 16.2	+57.3	27.5	35
1 05.8	+56.0	26.9	2 52.8	+56.4	26.9	4 39.8	+56.6	27.0	6 26.7	+56.9	27.1	8 13.5	+57.2	27.2	36
2 01.8	+56.0	26.5	3 49.2	+56.3	26.6	5 36.4	+56.7	26.7	7 23.6	+57.0	26.8	9 10.7	+57.2	26.9	37
2 57.8	+56.0	26.2	4 45.5	+56.3	26.2	6 33.1	+56.6	26.3	8 20.6	+56.9	26.4	10 07.9	+57.2	26.6	38
3 53.8	+55.9	25.8	5 41.8	+56.2	25.9	7 29.7	+56.6	26.0	9 17.5	+56.9	26.1	11 05.1	+57.2	26.3	39
4 49.7	+56.0	25.5	6 38.0	+56.3	25.5	8 26.3	+56.5	25.7	10 14.4	+56.8	25.8	12 02.3	+57.2	26.0	40
5 45.7	+55.9	25.1	7 34.3	+56.3	25.2	9 22.8	+56.6	25.3	11 11.2	+56.9	25.5	12 59.5	+57.1	25.7	41
6 41.6	+56.0	24.7	8 30.6	+56.2	24.8	10 19.4	+56.6	25.0	12 08.1	+56.8	25.2	13 56.6	+57.2	25.4	42
7 37.6	+55.9	24.4	9 26.8	+56.2	24.5	11 16.0	+56.5	24.6	13 04.9	+56.9	24.8	14 53.8	+57.1	25.0	43
8 33.5	+55.9	24.0	10 23.0	+56.2	24.1	12 12.5	+56.5	24.3	14 01.8	+56.7	24.5	15 50.9	+57.0	24.7	44
9 29.4	+55.8	23.6	11 19.2	+56.2	23.8	13 09.0	+56.4	24.0	15 58.5	+56.8	24.2	16 47.9	+57.1	24.4	45
10 25.2	+55.8	23.3	12 15.4	+56.1	23.4	14 05.4	+56.5	23.6	16 55.3	+56.7	23.8	17 45.0	+57.0	24.1	46
11 21.0	+55.9	22.9	13 11.5	+56.1	23.1	15 01.9	+56.4	23.3	18 02.0	+56.7	23.5	18 42.0	+56.9	23.7	47
12 16.9	+55.7	22.5	14 07.6	+56.1	22.7	15 58.3	+56.3	22.9	19 08.1	+56.6	23.1	19 38.9	+57.0	23.4	48
13 12.6	+55.8	22.1	15 03.7	+56.1	22.3	16 54.6	+56.4	22.5	20 14.2	+56.5	22.8	20 35.9	+56.9	23.1	49
14 08.4	+55.7	21.8	15 59.8	+56.0	22.0	17 51.0	+56.2	22.2	21 20.3	+56.4	22.2	21 52.6	+56.8	22.7	50
15 04.1	+55.7	21.4	16 55.8	+55.9	21.6	18 47.2	+56.3	21.8	22 26.4	+56.3	21.8	22 59.6	+56.8	22.4	51
15 59.8	+55.6	21.0	17 51.7	+55.9	21.2	19 43.5	+56.2	21.5	23 32.5	+56.2	21.5	23 52.6	+56.8	22.0	52
16 55.4	+55.6	20.6	18 47.6	+55.9	20.8	20 39.7	+56.1	21.1	24 38.6	+56.1	21.1	24 38.6	+56.8	21.7	53
17 51.0	+55.5	20.2	19 43.5	+55.8	20.4	21 35.8	+56.1	20.7	25 44.7	+56.0	20.7	25 19.9	+56.7	21.3	54
18 46.5	+55.5	19.8	20 39.3	+55.8	20.0	22 31.9	+56.1	20.3	26 50.8	+55.9	20.3	26 16.6	+56.6	21.0	55
19 42.0	+55.4	19.4	21 35.1	+55.7	19.7	23 28.0	+56.0	19.9	27 56.9	+55.8	19.9	27 13.2	+56.5	20.6	56
20 37.4	+55.4	19.0	22 30.8	+55.6	19.2	24 24.0	+55.9	19.5	28 63.0	+55.7	19.5	28 09.7	+56.5	20.2	57
21 32.8	+55.3	18.6	23 26.4	+55.6	18.8	25 19.9	+55.9	19.1	29 69.1	+55.6	19.1	29 06.2	+56.4	19.8	58
22 28.1	+55.2	18.2	24 22.0	+55.5	18.4	26 15.8	+55.7	18.7	30 75.2	+55.5	18.7	30 02.6	+56.3	19.4	59
23 23.3	+55.2	17.7	25 17.5	+55.5	18.0	27 11.5	+55.8	18.3	31 81.3	+55.4	18.3	31 58.9	+56.3	19.0	60
24 18.5	+55.1	17.3	26 13.0	+55.3	17.6	28 07.3	+55.6	17.9	32 87.4	+55.3	18.2	32 51.4	+56.1	18.2	61
25 13.6	+55.0	16.9	27 08.3	+55.3	17.2	29 02.9	+55.6	17.5	33 93.5	+55.2	17.5	33 44.9	+56.0	17.8	62
26 08.6	+55.0	16.4	28 03.6	+55.2	16.7	29 58.5	+55.4	17.0	34 00.0	+55.1	17.0	34 38.5	+55.9	17.4	63
27 03.6	+54.8	16.0	28 58.8	+55.1	16.3	30 53.9	+55.4	16.6	35 06.1	+55.0	16.6	35 32.6	+55.8	17.0	64
27 58.4	+54.8	15.5	29 53.9	+55.1	15.8	31 49.3	+55.3	16.1	36 02.2	+54.9	16.1	36 28.7	+55.7	16.6	65
28 53.2	+54.6	15.1	30 49.0	+54.9	15.4	32 44.6	+55.2	15.7	37 08.3	+54.8	15.7	37 24.8	+55.6	16.2	66
29 47.8	+54.6	14.6	31 43.9	+54.8	14.9	33 39.8	+55.0	15.2	38 04.4	+54.7	15.2	38 10.9	+55.5	15.8	67
30 42.4	+54.4	14.1	32 38.7	+54.7	14.4	34 34.8	+55.0	14.7	39 00.0	+54.6	14.7	39 07.4	+55.4	15.4	68
31 36.8	+54.4	13.6	33 33.4	+54.6	13.9	35 29.8	+54.8	14.2	40 02.6	+54.5	14.2	40 04.9	+55.3	15.0	69
32 31.2	+54.2	13.1	34 28.0	+54.4	13.4	36 24.6	+54.7	13.7	41 00.0	+54.4	13.7	41 02.2	+55.2	14.6	70
33 25.4	+54.1	12.6	35 22.4	+54.3	12.9	37 19.3	+54.6	13.2	42 00.0	+54.3	13.2	42 00.0	+55.1	14.2	71
34 19.5	+53.9	12.1	36 16.7	+54.2	12.4	38 13.9	+54.4	12.7	43 00.0	+54.2	12.7	43 00.0	+55.0	13.8	72
35 13.4	+53.8	11.5	37 10.9	+54.1	11.8	39 08.3	+54.3	12.2	44 00.0	+54.1	12.2	44 00.0	+54.9	13.4	73
36 07.2	+53.7	11.0	38 05.0	+53.8	11.3	40 02.6	+54.1	11.6	45 00.0	+54.0	11.6	45 00.0	+54.8	13.0	74
37 00.9	+53.5	10.4	38 58.8	+53.7	10.7	40 56.7	+53.9	11.0	46 00.0	+53.9	11.0	46 00.0	+54.7	12.6	75
37 54.4	+53.3	9.9	39 52.5	+53.6	10.2	41 50.6	+53.8	10.5	47 00.0	+53.8	10.5	47 00.0	+54.6	12.2	76
38 47.7	+53.1	9.3	40 46.1	+53.3	9.6	42 44.4	+53.5	9.9	48 00.0	+53.7	9.9	48 00.0	+54.5	11.8	77
39 40.8	+53.0	8.7	41 39.4	+53.2	9.0	43 37.9	+53.4	9.2	49 00.0	+53.6	9.2	49 00.0	+54.4	11.4	78
40 33.8	+52.8	8.1	42 32.6	+52.9	8.3	44 31.3	+53.1	8.6	50 00.0	+53.5	8.6	50 00.0	+54.3	11.0	79
41 26.6	+52.5	7.4	43 25.5	+52.7	7.7	45 24.4	+52.9	8.0	51 00.0	+53.4	8.0	51 00.0	+54.2	10.6	80
42 19.1	+52.3	6.8	44 18.2	+52.5	7.0	46 17.3	+52.7	7.3	52 00.0	+53.3	7.3	52 00.0	+54.1	10.2	81
43 11.4	+52.1	6.1	45 10.7	+52.2	6.3	47 10.0	+52.3	6.6	53 00.0	+53.2	6.6	53 00.0	+54.0	9.8	82
44 03.5	+51.8	5.4	46 02.9	+52.0	5.6	48 02.3	+52.1	5.8	54 00.0	+53.1	5.8	54 00.0	+53.9	9.4	83
44 55.3	+51.6	4.7	46 54.9	+51.7	4.9	48 54.4	+51.9	5.1	55 00.0	+53.0	5.1	55 00.0	+53.8	9.0	84
45 46.9	+51.3	4.0	47 46.6	+51.4	4.2	49 46.3	+51.4	4.3	56 00.0	+52.9	4.3	56 00.0	+53.7	8.6	85
46 38.2	+50.9	3.3	48 38.0	+51.0	3.4	50 37.7	+51.2	3.5	57 00.0	+52.8	3.5	57 00.0	+53.6	8.2	86
47 29.1	+50.7	2.5	49 29.0	+50.7	2.6	51 28.9	+50.8	2.7	58 00.0	+52.7	2.7	58 00.0	+53.5	7.8	87
48 19.8	+50.3	1.7	50 19.7	+50.4	1.8	52 19.7	+50.3	1.8	59 00.0	+52.6	1.8	59 00.0	+53.4	7.4	88
49 10.1	+49.9	0.9	51 10.1	+49.9	0.9	53 10.0	+50.0	0.9	60 00.0	+52.5	0.9	60 00.0	+53.3	7.0	89
50 00.0	+49.5	0.0	52 00.0	+49.5	0.0	54 00.0	+49.5	0.0	61 00.0	+52.4	0.0	61 00.0	+53.2	6.6	90

LATITUDE SAME NAME

L.H.A. 146°, 214°

36°, 324° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	58 57.3	+8.8	80.8	59 13.1	+12.8	84.1	59 22.0	+16.7	87.4	59 23.8	+20.7	90.8	59 18.6	+24.4	94.2
31	59 06.1	+7.0	78.8	59 25.9	+11.0	82.2	59 38.7	+15.1	85.6	59 44.5	+19.0	89.0	59 43.0	+23.0	92.4
32	59 13.1	+5.3	76.9	59 36.9	+9.3	80.2	59 53.8	+13.3	83.6	60 03.5	+17.4	87.1	60 06.0	+21.4	90.6
33	59 18.4	+3.6	75.0	59 46.2	+7.6	78.3	60 07.1	+11.6	81.7	60 20.9	+15.7	85.2	60 27.4	+19.7	88.7
34	59 22.0	+1.8	73.0	59 53.8	+5.7	76.3	60 18.7	+9.9	79.7	60 36.6	+13.9	83.2	60 47.1	+18.1	86.7
35	59 23.8	0.0	71.0	59 59.5	+4.0	74.3	60 28.6	+8.0	77.7	60 50.5	+12.2	81.2	61 05.2	+16.3	84.8
36	59 23.8	-1.7	69.1	60 03.5	+2.1	72.3	60 36.6	+6.2	75.7	61 02.7	+10.3	79.2	61 21.5	+14.6	82.8
37	59 22.1	-3.5	67.1	60 05.6	+0.4	70.3	60 42.8	+4.3	73.7	61 13.0	+8.5	77.1	61 36.1	+12.7	80.7
38	59 18.6	-5.3	65.2	60 06.0	-1.5	68.3	60 47.1	+2.5	71.6	61 21.5	+6.6	75.1	61 48.8	+10.8	78.7
39	59 13.3	-7.0	63.2	60 04.5	-3.3	66.3	60 49.6	+0.6	69.6	61 28.1	+4.7	73.0	61 59.6	+8.9	76.6
40	59 06.3	-8.7	61.3	60 01.2	-5.1	64.3	60 50.2	-1.3	67.5	61 32.8	+2.7	70.9	62 08.5	+6.9	74.5
41	58 57.6	-10.5	59.3	59 56.1	-6.9	62.3	60 48.9	-3.1	65.5	61 35.5	+0.9	68.8	62 15.4	+5.0	72.4
42	58 47.1	-12.0	57.4	59 49.2	-8.7	60.3	60 45.8	-5.0	63.4	61 36.4	-1.1	66.7	62 20.4	+3.0	70.2
43	58 35.1	-13.8	55.6	59 40.5	-10.4	58.4	60 40.8	-6.9	61.4	61 35.3	-3.1	64.6	62 23.4	+1.0	68.1
44	58 21.3	-15.3	53.7	59 30.1	-12.1	56.4	60 33.9	-8.7	59.4	61 32.2	-5.0	62.5	62 24.4	-1.0	65.9
45	58 06.0	-16.9	51.9	59 18.0	-13.9	54.5	60 25.2	-10.5	57.3	61 27.2	-6.8	60.4	62 23.4	-3.0	63.7
46	57 49.1	-18.4	50.1	59 04.1	-15.4	52.6	60 14.7	-12.2	55.4	61 20.4	-8.8	58.4	62 20.4	-4.9	61.6
47	57 30.7	-19.9	48.3	58 48.7	-17.1	50.7	60 02.5	-14.0	53.4	61 11.6	-10.6	56.3	62 15.5	-7.0	59.4
48	57 10.8	-21.3	46.5	58 31.6	-18.6	48.9	59 48.5	-15.6	51.5	61 01.0	-12.4	54.3	62 08.5	-8.9	57.3
49	56 49.5	-22.7	44.8	58 13.0	-20.1	47.1	59 32.9	-17.4	49.5	60 48.6	-14.2	52.2	61 59.6	-10.8	55.2
50	56 26.8	-24.0	43.1	57 52.9	-21.6	45.3	59 15.5	-18.9	47.7	60 34.4	-16.0	50.3	61 48.8	-12.7	53.1
51	56 02.8	-25.3	41.5	57 31.3	-23.0	43.5	58 56.6	-20.4	45.8	60 18.4	-17.6	48.3	61 36.1	-14.6	51.1
52	55 37.5	-26.6	39.9	57 08.3	-24.4	41.8	58 36.2	-22.0	44.0	60 00.8	-19.3	46.4	61 21.5	-16.3	49.0
53	55 10.9	-27.8	38.3	56 43.9	-25.7	40.2	58 14.2	-23.4	42.2	59 41.5	-20.9	44.5	61 05.2	-18.0	47.0
54	54 43.1	-28.9	36.7	56 18.2	-27.0	38.5	57 50.8	-24.8	40.5	59 20.6	-22.4	42.7	60 47.2	-19.8	45.1
55	54 14.2	-30.0	35.2	55 51.2	-28.2	36.9	57 26.0	-26.2	38.8	58 58.2	-23.9	40.8	60 27.4	-21.4	43.1
56	53 44.2	-31.1	33.8	55 23.0	-29.3	35.4	56 59.8	-27.4	37.1	58 34.3	-25.3	39.1	60 06.0	-22.9	41.3
57	53 13.1	-32.1	32.3	54 53.7	-30.5	33.8	56 32.4	-28.7	35.5	58 09.0	-26.7	37.3	59 43.1	-24.5	39.4
58	52 41.0	-33.0	30.9	54 23.2	-31.5	32.3	56 03.7	-29.8	33.9	57 42.3	-28.0	35.7	59 18.6	-25.9	37.6
59	52 08.0	-34.0	29.5	53 51.7	-32.6	30.9	55 33.9	-31.0	32.4	57 14.3	-29.3	34.0	58 52.7	-27.3	35.9
60	51 34.0	-34.9	28.2	53 19.1	-33.6	29.5	55 02.9	-32.1	30.9	56 45.0	-30.4	32.4	58 25.4	-28.7	34.1
61	50 59.1	-35.7	26.9	52 45.5	-34.4	28.1	54 30.8	-33.1	29.4	56 14.6	-31.6	30.9	57 56.7	-29.9	32.5
62	50 23.4	-36.5	25.6	52 11.1	-35.4	26.7	53 57.7	-34.2	28.0	55 43.0	-32.7	29.3	57 26.8	-31.1	30.9
63	49 46.9	-37.3	24.4	51 35.7	-36.2	25.4	53 23.5	-35.0	26.6	55 10.3	-33.8	27.9	56 55.7	-32.3	29.3
64	49 09.6	-38.1	23.2	50 59.5	-37.1	24.2	52 48.5	-35.9	25.2	54 36.5	-34.7	26.4	56 23.4	-33.4	27.7
65	48 31.5	-38.7	22.0	50 22.4	-37.8	22.9	52 12.6	-36.8	23.9	54 01.8	-35.7	25.0	55 50.0	-34.5	26.3
66	47 52.8	-39.4	20.9	49 44.6	-38.5	21.7	51 35.8	-37.7	22.6	53 26.1	-36.6	23.7	55 15.5	-35.4	24.8
67	47 13.4	-40.0	19.8	49 06.1	-39.3	20.5	50 58.1	-38.3	21.4	52 49.5	-37.4	22.3	54 40.1	-36.4	23.4
68	46 33.4	-40.6	18.7	48 26.8	-39.9	19.4	50 19.8	-39.2	20.2	52 12.1	-38.3	21.1	54 03.7	-37.3	22.0
69	45 52.8	-41.3	17.6	47 46.9	-40.5	18.3	49 40.6	-39.8	19.0	51 33.8	-39.0	19.8	53 26.4	-38.1	20.7
70	45 11.5	-41.7	16.6	47 06.4	-41.2	17.2	49 00.8	-40.5	17.8	50 54.8	-39.8	18.6	52 48.3	-39.0	19.4
71	44 29.8	-42.3	15.6	46 25.2	-41.7	16.1	48 20.3	-41.1	16.7	50 15.0	-40.4	17.4	52 09.3	-39.7	18.2
72	43 47.5	-42.8	14.6	45 43.5	-42.3	15.1	47 39.2	-41.7	15.6	49 34.6	-41.1	16.3	51 29.6	-40.5	17.0
73	43 04.7	-43.3	13.6	45 01.2	-42.8	14.1	46 57.5	-42.3	14.6	48 53.5	-41.8	15.2	50 49.1	-41.1	15.8
74	42 21.4	-43.7	12.7	44 18.4	-43.3	13.1	46 15.2	-42.8	13.6	48 11.7	-42.3	14.1	50 08.0	-41.8	14.6
75	41 37.7	-44.1	11.7	43 35.1	-43.7	12.1	45 32.4	-43.4	12.5	47 29.4	-42.9	13.0	49 26.2	-42.4	13.5
76	40 53.6	-44.6	10.8	42 51.4	-44.3	11.2	44 49.0	-43.8	11.6	46 46.5	-43.5	12.0	48 43.8	-43.0	12.4
77	40 09.0	-44.9	10.0	42 07.1	-44.6	10.3	44 05.2	-44.4	10.6	46 03.0	-43.9	11.0	48 00.8	-43.6	11.4
78	39 24.1	-45.4	9.1	41 22.5	-45.1	9.4	43 20.8	-44.7	9.7	45 19.1	-44.5	10.0	47 17.2	-44.1	10.4
79	38 38.7	-45.7	8.3	40 37.4	-45.4	8.5	42 36.1	-45.2	8.8	44 34.6	-44.9	9.1	46 33.1	-44.6	9.4
80	37 53.0	-46.0	7.4	39 52.0	-45.8	7.6	41 50.9	-45.6	7.9	43 49.7	-45.3	8.1	45 48.5	-45.1	8.4
81	37 07.0	-46.3	6.6	39 06.2	-46.2	6.8	41 05.3	-45.9	7.0	43 04.4	-45.7	7.2	45 03.4	-45.5	7.5
82	36 20.7	-46.7	5.8	38 20.0	-46.4	6.0	40 19.4	-46.3	6.2	42 18.7	-46.2	6.4	44 17.9	-46.0	6.6
83	35 34.0	-46.9	5.1	37 33.6	-46.9	5.2	39 33.1	-46.7	5.3	41 32.5	-46.5	5.5	43 31.9	-46.3	5.7
84	34 47.1	-47.2	4.3	36 46.7	-47.1	4.4	38 46.4	-47.0	4.5	40 46.0	-46.9	4.7	42 45.6	-46.8	4.8
85	33 59.9	-47.5	3.5	35 59.6	-47.4	3.6	37 59.4	-47.3	3.7	39 59.1	-47.2	3.8	41 58.8	-47.1	4.0
86	33 12.4	-47.8	2.8	35 12.2	-47.6	2.9	37 12.1	-47.6	3.0	39 11.9	-47.5	3.0	41 11.7	-47.4	3.1
87	32 24.6	-47.9	2.1	34 24.6	-48.0	2.1	36 24.5	-47.9	2.2	38 24.4	-47.9	2.2	40 24.3	-47.8	2.3
88	31 36.7	-48.3	1.4	33 36.6	-48.2	1.4	35 36.6	-48.2	1.4	37 36.5	-48.1	1.5	39 36.5	-48.1	1.5
89	30 48.4	-48.4	0.7	32 48.4	-48.4	0.7	34 48.4	-48.4	0.7	36 48.4	-48.4	0.7	38 48.4	-48.4	0.8
90	30 00.0	-48.6	0.0	32 00.0	-48.7	0.0	34 00.0	-48.7	0.0	36 00.0	-48.7	0.0	38 00.0	-48.7	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 36°, 324°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
			19 13.2 -51.0 147.4			17 32.0 -51.6 147.7			15 50.3 -52.2 148.1			14 08.3 -52.7 148.3			30
20 54.1 -50.4 147.0			18 22.2 -51.1 147.9			16 40.4 -51.7 148.3			14 58.1 -52.2 148.6			13 15.6 -52.8 148.8			31
20 03.7 -50.5 147.6			17 31.1 -51.2 148.5			15 48.7 -51.8 148.8			14 05.9 -52.4 149.1			12 22.8 -52.9 149.3			32
19 13.2 -50.5 148.1			16 39.9 -51.2 149.0			14 56.9 -51.9 149.3			13 13.5 -52.3 149.6			11 29.9 -52.9 149.8			33
18 22.7 -50.7 148.7			15 48.7 -51.4 149.6			14 05.0 -51.9 149.8			12 21.2 -52.5 150.1			10 37.0 -52.9 150.3			34
17 32.0 -50.8 149.3			14 57.3 -51.4 150.1			13 13.1 -51.9 150.4			11 28.7 -52.5 150.6			9 44.1 -53.0 150.8			35
16 41.2 -50.9 149.8			14 05.9 -51.5 150.6			12 21.2 -52.1 150.9			10 36.2 -52.5 151.1			8 51.1 -53.0 151.2			36
15 50.3 -50.9 150.4			13 14.4 -51.6 151.2			11 29.1 -52.1 151.4			9 43.7 -52.6 151.6			7 58.1 -53.0 151.7			37
14 59.4 -51.1 150.9			12 22.8 -51.6 151.7			10 37.0 -52.1 151.9			8 51.1 -52.6 152.0			7 05.1 -53.1 152.2			38
14 08.3 -51.1 151.5			11 31.2 -51.7 152.2			9 44.9 -52.2 152.4			7 58.5 -52.6 152.5			6 12.0 -53.1 152.6			39
13 17.2 -51.1 152.0			10 39.5 -51.8 152.7			8 52.7 -52.2 152.9			7 05.9 -52.7 153.0			5 18.9 -53.1 153.1			40
12 26.1 -51.3 152.5			9 47.7 -51.7 153.2			8 00.5 -52.2 153.4			6 13.2 -52.7 153.5			4 25.8 -53.2 153.6			41
11 34.8 -51.3 153.1			8 56.0 -51.9 153.8			7 08.3 -52.3 153.9			5 20.5 -52.7 154.0			3 32.6 -53.1 154.0			42
10 43.5 -51.3 153.6			8 04.1 -51.8 154.3			6 16.0 -52.3 154.4			4 27.8 -52.8 154.5			2 39.5 -53.2 154.5			43
9 52.2 -51.4 154.1			7 12.3 -51.9 154.8			5 23.7 -52.3 154.9			3 35.0 -52.7 154.9			1 46.3 -53.2 155.0			44
9 00.8 -51.4 154.7			6 20.4 -51.9 155.3			4 31.4 -52.4 155.4			2 42.3 -52.8 155.4			0 53.1 -53.2 155.4			45
8 09.4 -51.5 155.2			5 28.5 -52.0 155.8			3 39.0 -52.4 155.8			1 49.5 -52.8 155.9			0 00.1 +53.1 24.1			46
7 17.9 -51.5 155.7			4 36.5 -51.9 156.3			2 46.6 -52.3 156.3			0 56.7 -52.8 156.4			0 53.2 +53.2 23.6			47
6 26.4 -51.6 156.2			3 44.6 -52.0 156.8			1 54.3 -52.4 156.8			0 03.9 -52.8 156.8			1 46.4 +53.2 23.2			48
5 34.8 -51.6 156.7			2 52.6 -52.0 157.3			1 01.9 -52.4 157.3			0 48.9 +52.7 22.7			2 39.6 +53.1 22.7			49
4 43.2 -51.5 157.2			2 00.6 -52.0 157.8			0 09.5 -52.4 157.8			1 41.6 +52.8 22.2			3 32.7 +53.2 22.2			50
3 51.7 -51.7 157.7			1 08.6 -52.0 158.3			0 42.9 +52.4 21.7			2 34.4 +52.8 21.7			4 25.9 +53.1 21.8			51
3 00.0 -51.6 158.3			0 16.6 -52.1 158.8			1 35.3 +52.4 21.2			3 27.2 +52.7 21.3			5 19.0 +53.1 21.3			52
2 08.4 -51.6 158.8			0 35.5 +52.0 20.7			2 27.7 +52.4 20.7			4 19.9 +52.7 20.8			6 12.1 +53.1 20.8			53
1 16.8 -51.7 159.3			1 27.5 +52.0 20.2			3 20.1 +52.3 20.2			5 12.6 +52.7 20.3			7 05.2 +53.0 20.4			54
0 25.1 -51.6 159.8			2 19.5 +52.0 19.7			4 12.4 +52.4 19.8			6 05.3 +52.8 19.8			7 58.2 +53.0 19.9			55
0 26.5 +51.7 19.7			3 11.5 +52.0 19.2			5 04.8 +52.3 19.3			6 58.0 +52.7 19.3			8 51.2 +53.0 19.4			56
1 18.2 +51.6 19.2			4 03.5 +51.9 18.7			5 57.1 +52.3 18.8			7 50.7 +52.6 18.9			9 44.2 +52.9 19.0			57
2 09.8 +51.6 18.7			4 55.4 +52.0 18.2			6 49.4 +52.2 18.3			8 43.3 +52.6 18.4			10 37.1 +52.9 18.5			58
3 01.4 +51.6 18.2			5 47.4 +51.9 17.7			7 41.6 +52.3 17.8			9 35.9 +52.5 17.9			11 30.0 +52.9 18.0			59
3 53.0 +51.6 17.7			6 39.3 +51.8 17.2			8 33.9 +52.2 17.3			10 28.4 +52.5 17.4			12 22.9 +52.8 17.5			60
4 44.6 +51.6 17.2			7 31.1 +51.9 16.7			9 26.1 +52.1 16.8			11 20.9 +52.5 16.9			13 15.7 +52.7 17.0			61
5 36.2 +51.5 16.6			8 23.0 +51.8 16.2			10 18.2 +52.1 16.3			12 13.4 +52.3 16.4			14 08.4 +52.7 16.5			62
6 27.7 +51.5 16.1			9 14.8 +51.8 15.7			11 10.3 +52.1 15.8			13 05.7 +52.4 15.9			15 01.1 +52.6 16.0			63
7 19.2 +51.5 15.6			10 06.6 +51.7 15.2			12 02.4 +51.9 15.3			13 58.1 +52.3 15.4			15 53.7 +52.6 15.5			64
8 10.7 +51.5 15.1			10 58.3 +51.6 14.7			12 54.3 +52.0 14.8			14 50.4 +52.2 14.9			16 46.3 +52.5 15.0			65
9 02.2 +51.4 14.6			11 49.9 +51.6 14.1			13 46.3 +51.8 14.2			15 42.6 +52.1 14.4			17 38.8 +52.4 14.5			66
9 53.6 +51.3 14.0			12 41.5 +51.6 13.6			14 38.1 +51.8 13.7			16 34.7 +52.0 13.9			18 31.2 +52.3 14.0			67
10 44.9 +51.3 13.5			13 33.1 +51.5 13.1			15 29.9 +51.8 13.2			17 26.7 +52.0 13.3			19 23.5 +52.2 13.5			68
11 36.2 +51.2 13.0			14 24.6 +51.4 12.6			16 21.7 +51.6 12.7			18 18.7 +51.9 12.8			20 15.7 +52.1 13.0			69
12 27.4 +51.2 12.5			15 16.0 +51.3 12.0			17 13.3 +51.6 12.1			19 10.6 +51.8 12.3			21 07.8 +52.0 12.4			70
13 18.6 +51.1 11.9			16 07.3 +51.3 11.5			18 04.9 +51.5 11.6			20 02.4 +51.7 11.8			21 59.8 +52.0 11.9			71
14 09.7 +51.0 11.4			16 58.6 +51.1 10.9			18 56.4 +51.3 11.1			20 54.1 +51.6 11.2			22 51.8 +51.8 11.4			72
15 00.7 +51.0 10.8			17 49.7 +51.1 10.4			19 47.7 +51.3 10.5			21 45.7 +51.5 10.7			23 43.6 +51.7 10.8			73
15 51.7 +50.8 10.3			18 40.8 +51.0 9.8			20 39.0 +51.2 10.0			22 37.2 +51.3 10.1			24 35.3 +51.5 10.3			74
16 42.5 +50.8 9.7			19 31.8 +50.8 9.3			21 30.2 +51.0 9.4			23 28.5 +51.3 9.5			25 26.8 +51.5 9.7			75
17 33.3 +50.7 9.2			20 22.6 +50.8 8.7			22 21.2 +51.0 8.8			24 19.8 +51.1 9.0			26 18.3 +51.3 9.1			76
18 24.0 +50.6 8.6			21 13.4 +50.6 8.2			23 12.2 +50.8 8.3			25 10.9 +51.0 8.4			27 09.6 +51.1 8.5			77
19 14.6 +50.5 8.1			22 04.0 +50.6 7.6			24 03.0 +50.6 7.7			26 01.9 +50.8 7.8			28 00.7 +51.0 8.0			78
20 05.1 +50.3 7.5			22 54.6 +50.3 7.0			24 53.6 +50.6 7.1			26 52.7 +50.7 7.2			28 51.7 +50.9 7.4			79
20 55.4 +50.3 6.9			23 44.9 +50.3 6.4			25 44.2 +50.4 6.5			27 43.4 +50.5 6.6			29 42.6 +50.6 6.7			80
21 45.7 +50.1 6.3			24 35.2 +50.1 5.8			26 34.6 +50.2 5.9			28 33.9 +50.4 6.0			30 33.2 +50.5 6.1			81
22 35.8 +50.0 5.7			25 25.3 +50.0 5.2			27 24.8 +50.1 5.3			29 24.3 +50.2 5.4			31 23.7 +50.3 5.5			82
23 25.8 +49.8 5.1			26 15.3 +49.8 4.6			28 14.9 +49.9 4.7			30 14.5 +50.0 4.8			32 14.0 +50.1 4.9			83
24 15.6 +49.7 4.5			27 05.1 +49.6 4.0			29 04.8 +49.7 4.0			31 04.5 +49.8 4.1			33 04.1 +49.9 4.2			84
25 05.3 +49.6 3.9			27 54.7 +49.4 3.3			29 54.5 +49.5 3.4			31 54.3 +49.6 3.5			33 54.0 +49.7 3.5			85
25 54.9 +49.4 3.3			28 44.1 +49.3 2.7			30 44.0 +49.3 2.7			32 43.9 +49.4 2.8			34 43.7 +49.5 2.9			86
26 44.3 +49.2 2.6			29 33.4 +49.1 2.0			31 33.3 +49.1 2.1			33 33.3 +49.1 2.1			35 33.2 +49.2 2.2			87
27 33.5 +49.0 2.0			30 22.5 +48.8 1.4			32 22.4 +48.9 1.4			34 22.4 +48.9 1.4			36 22.4 +48.9 1.5			88
28 22.5 +48.9 1.3			31 11.3 +48.7 0.7			33 11.3 +48.7 0.7			35 11.3 +48.7 0.7			37 11.3 +48.7 0.7			89
29 11.4 +48.6 0.7			32 00.0 +48.4 0.0			34 00.0 +48.4 0.0			36 00.0 +48.4 0.0			38 00.0 +48.4 0.0			90
30 00.0 +48.4 0.0															
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 144°, 216°

36°, 324° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	59 06.3	+28.1	97.5	58 47.1	+31.7	100.8	58 21.3	+35.0	104.0	57 49.1	+38.1	107.1	57 10.8	+40.9	110.1
31	59 34.4	+26.8	95.8	59 18.8	+30.4	99.2	58 56.3	+33.8	102.4	58 27.2	+36.9	105.6	57 51.7	+39.9	108.7
32	60 01.2	+25.3	94.0	59 49.2	+29.0	97.5	59 30.1	+32.5	100.8	59 04.1	+35.9	104.1	58 31.6	+39.0	107.3
33	60 26.5	+23.7	92.2	60 18.2	+27.6	95.7	60 02.6	+31.3	99.2	59 40.0	+34.7	102.5	59 10.6	+37.9	105.8
34	60 50.2	+22.1	90.3	60 45.8	+26.0	93.9	60 33.9	+29.9	97.4	60 14.7	+33.5	100.9	59 48.5	+36.8	104.3
35	61 12.3	+20.5	88.4	61 11.8	+24.6	92.0	61 03.8	+28.4	95.7	60 48.2	+32.2	99.2	60 25.3	+35.7	102.7
36	61 32.8	+18.7	86.4	61 36.4	+22.9	90.1	61 32.2	+26.9	93.8	61 20.4	+30.7	97.5	61 01.0	+34.4	101.1
37	61 51.5	+17.0	84.4	61 59.3	+21.1	88.2	61 59.1	+25.3	91.9	61 51.1	+29.3	95.7	61 35.4	+33.1	99.4
38	62 08.5	+15.1	82.4	62 20.4	+19.5	86.2	62 24.4	+23.7	90.0	62 20.4	+27.8	93.8	62 08.5	+31.7	97.6
39	62 23.6	+13.2	80.3	62 39.9	+17.5	84.1	62 48.1	+21.9	88.0	62 48.2	+26.1	91.9	62 40.2	+30.2	95.8
40	62 36.8	+11.3	78.2	62 57.4	+15.7	82.0	63 10.0	+20.1	86.0	63 14.3	+24.5	89.9	63 10.4	+28.6	93.9
41	62 48.1	+9.3	76.1	63 13.1	+13.8	79.9	63 30.1	+18.2	83.9	63 38.8	+22.6	87.9	63 39.0	+27.0	91.9
42	62 57.4	+7.3	73.9	63 26.9	+11.7	77.7	63 48.3	+16.2	81.7	64 01.4	+20.8	85.8	64 06.0	+25.2	89.9
43	63 04.7	+5.3	71.7	63 38.6	+9.7	75.5	64 04.5	+14.3	79.5	64 22.2	+18.8	83.6	64 31.2	+23.4	87.8
44	63 10.0	+3.2	69.5	63 48.3	+7.6	73.3	64 18.8	+12.1	77.3	64 41.0	+16.8	81.4	64 54.6	+21.4	85.6
45	63 13.2	+1.1	67.3	63 55.9	+5.5	71.1	64 30.9	+10.1	75.0	64 57.8	+14.7	79.1	65 16.0	+19.5	83.4
46	63 14.3	-0.9	65.1	64 01.4	+3.4	68.8	64 41.0	+7.9	72.7	65 12.5	+12.6	76.8	65 35.5	+17.3	81.1
47	63 13.4	-3.0	62.8	64 04.8	+1.2	66.5	64 48.9	+5.7	70.4	65 25.1	+10.4	74.5	65 52.8	+15.2	78.8
48	63 10.4	-5.1	60.6	64 06.0	-1.0	64.2	64 54.6	+3.4	68.0	65 35.5	+8.1	72.1	66 08.0	+13.0	76.4
49	63 05.3	-7.1	58.4	64 05.0	-3.1	61.9	64 58.0	+1.2	65.7	65 43.6	+5.8	69.7	66 21.0	+10.6	74.0
50	62 58.2	-9.1	56.2	64 01.9	-5.2	59.6	64 59.2	-1.0	63.3	65 49.4	+3.5	67.3	66 31.6	+8.3	71.5
51	62 49.1	-11.2	54.1	63 56.7	-7.4	57.4	64 58.2	-3.2	61.0	65 52.9	+1.2	64.9	66 39.9	+5.9	69.0
52	62 37.9	-13.0	51.9	63 49.3	-9.4	55.1	64 55.0	-5.5	58.6	65 54.1	-1.2	62.4	66 45.8	+3.5	66.5
53	62 24.9	-15.0	49.8	63 39.9	-11.5	52.9	64 49.5	-7.7	56.3	65 52.9	-3.5	60.0	66 49.3	+1.1	64.0
54	62 09.9	-16.7	47.7	63 28.4	-13.5	50.7	64 41.8	-9.9	53.9	65 49.4	-5.8	57.5	66 50.4	-1.4	61.5
55	61 53.2	-18.6	45.7	63 14.9	-15.5	48.5	64 31.9	-11.9	51.6	65 43.6	-8.1	55.1	66 49.0	-3.9	58.9
56	61 34.6	-20.3	43.7	62 59.4	-17.3	46.4	64 20.0	-14.1	49.4	65 35.5	-10.4	52.7	66 45.1	-6.2	56.4
57	61 14.3	-22.0	41.7	62 42.1	-19.2	44.3	64 05.9	-16.1	47.1	65 25.1	-12.6	50.3	66 38.9	-8.7	53.9
58	60 52.3	-23.6	39.8	62 22.9	-21.0	42.2	63 49.8	-18.0	44.9	65 12.5	-14.7	48.0	66 30.2	-10.9	51.4
59	60 28.7	-25.1	37.9	62 01.9	-22.7	40.2	63 31.8	-19.9	42.8	64 57.8	-16.8	45.7	66 19.3	-13.3	48.9
60	60 03.6	-26.7	36.1	61 39.2	-24.3	38.2	63 11.9	-21.8	40.7	64 41.0	-18.8	43.4	66 06.0	-15.5	46.5
61	59 36.9	-28.0	34.3	61 14.9	-25.9	36.3	62 50.1	-23.5	38.6	64 22.2	-20.8	41.2	65 50.5	-17.7	44.1
62	59 08.9	-29.4	32.6	60 49.0	-27.4	34.5	62 26.6	-25.1	36.6	64 01.4	-22.6	39.1	65 32.8	-19.7	41.8
63	58 39.5	-30.6	30.9	60 21.6	-28.9	32.7	62 01.5	-26.8	34.7	63 38.8	-24.4	37.0	65 13.1	-21.8	39.5
64	58 08.9	-31.9	29.2	59 52.7	-30.2	30.9	61 34.7	-28.3	32.8	63 14.4	-26.1	34.9	64 51.3	-23.6	37.3
65	57 37.0	-33.1	27.6	59 22.5	-31.5	29.2	61 06.4	-29.8	30.9	62 48.3	-27.8	32.9	64 27.7	-25.5	35.2
66	57 03.9	-34.2	26.1	58 51.0	-32.7	27.5	60 36.6	-31.1	29.2	62 20.5	-29.3	31.0	64 02.2	-27.2	33.1
67	56 29.7	-35.2	24.6	58 18.3	-34.0	25.9	60 05.5	-32.4	27.4	61 51.2	-30.8	29.1	63 35.0	-28.8	31.1
68	55 54.5	-36.2	23.1	57 44.3	-35.0	24.4	59 33.1	-33.7	25.8	61 20.4	-32.1	27.3	63 06.2	-30.4	29.1
69	55 18.3	-37.2	21.7	57 09.3	-36.1	22.9	58 59.4	-34.9	24.1	60 48.3	-33.5	25.6	62 35.8	-31.9	27.2
70	54 41.1	-38.1	20.4	56 33.2	-37.0	21.4	58 24.5	-35.9	22.6	60 14.8	-34.7	23.9	62 03.9	-33.3	25.4
71	54 03.0	-38.9	19.0	55 56.2	-38.1	20.0	57 48.6	-37.1	21.1	59 40.1	-35.9	22.3	61 30.6	-34.6	23.7
72	53 24.1	-39.7	17.7	55 18.1	-38.9	18.6	57 11.5	-38.0	19.6	59 04.2	-37.0	20.7	60 56.0	-35.8	22.0
73	52 44.4	-40.5	16.5	54 39.2	-39.7	17.3	56 33.5	-38.9	18.2	58 27.2	-38.0	19.2	60 20.2	-37.0	20.3
74	52 03.9	-41.2	15.3	53 59.5	-40.6	16.0	55 54.6	-39.8	16.8	57 49.2	-39.0	17.7	59 43.2	-38.1	18.7
75	51 22.7	-41.9	14.1	53 18.9	-41.3	14.8	55 14.8	-40.7	15.5	57 10.2	-39.9	16.3	59 05.1	-39.1	17.2
76	50 40.8	-42.5	13.0	52 37.6	-42.0	13.5	54 34.1	-41.4	14.2	56 30.3	-40.8	14.9	58 26.0	-40.1	15.8
77	49 58.3	-43.2	11.9	51 55.6	-42.7	12.4	53 52.7	-42.2	13.0	55 49.5	-41.6	13.6	57 45.9	-40.9	14.4
78	49 15.1	-43.7	10.8	51 12.9	-43.3	11.3	53 10.5	-42.8	11.8	55 07.9	-42.4	12.3	57 05.0	-41.9	13.0
79	48 31.4	-44.2	9.7	50 29.6	-43.9	10.2	52 27.7	-43.6	10.6	54 25.5	-43.1	11.1	56 23.1	-42.6	11.7
80	47 47.2	-44.8	8.7	49 45.7	-44.5	9.1	51 44.1	-44.1	9.5	53 42.4	-43.8	9.9	55 40.5	-43.3	10.4
81	47 02.4	-45.3	7.8	49 01.2	-45.0	8.1	51 00.0	-44.7	8.4	52 58.6	-44.4	8.8	54 57.2	-44.1	9.2
82	46 17.1	-45.8	6.8	48 16.2	-45.5	7.1	50 15.3	-45.3	7.4	52 14.2	-45.0	7.7	54 13.1	-44.7	8.0
83	45 31.3	-46.1	5.9	47 30.7	-46.0	6.1	49 30.0	-45.8	6.3	51 29.2	-45.6	6.6	53 28.4	-45.3	6.9
84	44 45.2	-46.6	5.0	46 44.7	-46.5	5.1	48 44.2	-46.3	5.3	50 43.6	-46.1	5.6	52 43.1	-46.0	5.8
85	43 58.6	-47.0	4.1	45 58.2	-46.8	4.2	47 57.9	-46.8	4.4	49 57.5	-46.6	4.6	51 57.1	-46.4	4.8
86	43 11.6	-47.4	3.2	45 11.4	-47.3	3.3	47 11.1	-47.1	3.5	49 10.9	-47.1	3.6	51 10.7	-47.0	3.8
87	42 24.2	-47.7	2.4	44 24.1	-47.7	2.5	46 24.0	-47.6	2.6	48 23.8	-47.5	2.7	50 23.7	-47.5	2.8
88	41 36.5	-48.1	1.6	43 36.4	-48.0	1.6	45 36.4	-48.0	1.7	47 36.3	-47.9	1.7	49 36.2	-47.9	1.8
89	40 48.4	-48.4	0.8	42 48.4	-48.4	0.8	44 48.4	-48.4	0.8	46 48.4	-48.4	0.9	48 48.3	-48.3	0.9
90	40 00.0	-48.7	0.0	42 00.0	-48.7	0.0	44 00.0	-48.7	0.0	46 00.0	-48.7	0.0	48 00.0	-48.7	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 36°, 324°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
12	26.1	-53.3	148.6	10	43.5	-53.7	148.8	9	00.8	-54.2	149.0	7	17.9	-54.7	149.1	5	34.8	-55.1	149.2	30
11	32.8	-53.3	149.1	9	49.8	-53.8	149.2	8	06.6	-54.3	149.4	6	23.2	-54.7	149.5	4	39.7	-55.1	149.6	31
10	39.5	-53.4	149.5	8	56.0	-53.9	149.7	7	12.3	-54.3	149.8	5	28.5	-54.8	150.0	3	44.6	-55.2	150.0	32
9	46.1	-53.4	150.0	8	02.1	-53.8	150.1	6	18.0	-54.3	150.3	4	33.7	-54.7	150.4	2	49.4	-55.1	150.4	33
8	52.7	-53.4	150.4	7	08.3	-53.9	150.6	5	23.7	-54.3	150.7	3	39.0	-54.8	150.8	1	54.3	-55.2	150.8	34
7	59.3	-53.4	150.9	6	14.4	-53.9	151.0	4	29.4	-54.4	151.1	2	44.2	-54.7	151.2	0	59.1	-55.2	151.2	35
7	05.9	-53.5	151.4	5	20.5	-53.9	151.5	3	35.0	-54.3	151.5	1	49.5	-54.8	151.6	0	03.9	-55.1	151.6	36
6	12.4	-53.5	151.8	4	26.6	-54.0	151.9	2	40.7	-54.4	152.0	0	54.7	-54.8	152.0	0	51.2	+55.2	28.0	37
5	18.9	-53.5	152.3	3	32.6	-53.9	152.4	1	46.3	-54.4	152.4	0	00.1	+54.7	27.6	1	46.4	+55.2	27.6	38
4	25.4	-53.6	152.7	2	38.7	-54.0	152.8	0	51.9	-54.3	152.8	0	54.8	+54.8	27.2	2	41.6	+55.1	27.2	39
3	31.8	-53.6	153.2	1	44.7	-54.0	153.2	0	02.4	+54.4	26.8	1	49.6	+54.8	26.8	3	36.7	+55.1	26.8	40
2	38.3	-53.6	153.6	0	50.7	-53.9	153.7	0	56.8	+54.4	26.3	2	44.4	+54.7	26.4	4	31.8	+55.2	26.4	41
1	44.7	-53.6	154.1	0	03.2	+54.0	25.9	1	51.2	+54.4	25.9	3	39.1	+54.7	26.0	5	27.0	+55.1	26.0	42
0	51.1	-53.5	154.5	0	57.2	+54.0	25.5	2	45.6	+54.3	25.5	4	33.8	+54.8	25.5	6	22.1	+55.1	25.6	43
0	02.4	+53.6	25.0	1	51.2	+54.0	25.0	3	39.9	+54.3	25.1	5	28.6	+54.7	25.1	7	17.2	+55.0	25.2	44
0	56.0	+53.6	24.6	2	45.2	+53.9	24.6	4	34.2	+54.4	24.6	6	23.3	+54.7	24.7	8	12.2	+55.1	24.8	45
1	49.6	+53.6	24.1	3	39.1	+53.9	24.2	5	28.6	+54.3	24.2	7	18.0	+54.6	24.3	9	07.3	+55.0	24.4	46
2	43.2	+53.5	23.7	4	33.0	+54.0	23.7	6	22.9	+54.3	23.8	8	12.6	+54.7	23.9	10	02.3	+55.0	24.0	47
3	36.7	+53.5	23.2	5	27.0	+53.9	23.3	7	17.2	+54.2	23.4	9	07.3	+54.6	23.5	10	57.3	+55.0	23.6	48
4	30.2	+53.6	22.8	6	20.9	+53.9	22.8	8	11.4	+54.3	22.9	10	01.9	+54.6	23.1	11	52.3	+54.9	23.2	49
5	23.8	+53.5	22.3	7	14.8	+53.8	22.4	9	05.7	+54.2	22.5	15	56.5	+54.5	22.6	12	47.2	+54.9	22.8	50
6	17.3	+53.4	21.8	8	08.6	+53.8	21.9	9	59.9	+54.1	22.1	11	51.0	+54.5	22.2	13	42.1	+54.8	22.4	51
7	10.7	+53.5	21.4	9	02.4	+53.8	21.5	10	54.0	+54.2	21.6	12	45.5	+54.5	21.8	14	36.9	+54.8	22.0	52
8	04.2	+53.4	20.9	9	56.2	+53.8	21.0	11	48.2	+54.1	21.2	13	40.0	+54.4	21.3	15	31.7	+54.8	21.5	53
8	57.6	+53.4	20.5	10	50.0	+53.7	20.6	12	42.3	+54.0	20.7	14	34.4	+54.4	20.9	16	26.5	+54.7	21.1	54
9	51.0	+53.4	20.0	11	43.7	+53.7	20.1	13	36.3	+54.0	20.3	15	29.0	+54.3	20.5	17	21.2	+54.6	20.7	55
10	44.4	+53.3	19.5	12	37.4	+53.6	19.7	14	30.3	+54.0	19.8	16	23.1	+54.3	20.0	18	15.8	+54.6	20.3	56
11	37.7	+53.2	19.1	13	31.0	+53.6	19.2	15	24.3	+53.9	19.4	17	17.4	+54.2	19.6	19	10.4	+54.5	19.8	57
12	30.9	+53.2	18.6	14	24.6	+53.5	18.8	16	18.2	+53.8	18.9	18	11.6	+54.1	19.1	20	04.9	+54.4	19.4	58
13	24.1	+53.2	18.1	15	18.1	+53.5	18.3	17	12.0	+53.8	18.5	19	05.7	+54.1	18.7	20	59.3	+54.4	18.9	59
14	17.3	+53.1	17.7	16	11.6	+53.4	17.8	18	05.8	+53.7	18.0	19	59.8	+54.0	18.2	21	53.7	+54.3	18.5	60
15	10.4	+53.0	17.2	17	05.0	+53.3	17.3	18	59.5	+53.6	17.5	20	53.8	+54.0	17.8	22	48.0	+54.3	18.0	61
16	03.4	+53.0	16.7	17	58.3	+53.3	16.9	19	53.1	+53.6	17.1	21	47.8	+53.8	17.3	23	42.3	+54.1	17.5	62
16	56.4	+52.9	16.2	18	51.6	+53.2	16.4	20	46.7	+53.4	16.6	22	41.6	+53.8	16.8	24	36.4	+54.0	17.1	63
17	49.3	+52.8	15.7	19	44.8	+53.1	15.9	21	40.1	+53.4	16.1	23	35.4	+53.6	16.3	25	30.4	+54.0	16.6	64
18	42.1	+52.8	15.2	20	37.9	+53.0	15.4	22	33.5	+53.3	15.6	24	29.0	+53.6	15.8	26	24.4	+53.9	16.1	65
19	34.9	+52.6	14.7	21	30.9	+52.9	14.9	23	26.8	+53.2	15.1	25	22.6	+53.5	15.3	27	18.3	+53.7	15.6	66
20	27.5	+52.6	14.2	22	23.8	+52.9	14.4	24	20.0	+53.1	14.6	26	16.1	+53.3	14.8	28	12.0	+53.6	15.1	67
21	20.1	+52.5	13.7	23	16.7	+52.7	13.9	25	13.1	+53.0	14.1	27	09.4	+53.3	14.3	29	05.6	+53.6	14.6	68
22	12.6	+52.4	13.2	24	09.4	+52.6	13.3	26	06.1	+52.9	13.6	28	02.7	+53.1	13.8	29	59.2	+53.3	14.1	69
23	05.0	+52.2	12.6	25	02.0	+52.5	12.8	26	59.0	+52.7	13.0	28	55.8	+53.0	13.3	30	52.5	+53.3	13.5	70
23	57.2	+52.2	12.1	25	54.5	+52.4	12.3	27	51.7	+52.7	12.5	29	48.8	+52.9	12.7	31	45.8	+53.1	13.0	71
24	49.4	+52.0	11.5	26	46.9	+52.3	11.7	28	44.4	+52.5	12.0	30	41.7	+52.7	12.2	32	38.9	+53.0	12.5	72
25	41.4	+51.9	11.0	27	39.2	+52.1	11.2	29	36.9	+52.3	11.4	31	34.4	+52.6	11.6	33	31.9	+52.8	11.9	73
26	33.3	+51.8	10.4	28	31.3	+52.0	10.6	30	29.2	+52.2	10.8	32	27.0	+52.4	11.1	34	24.7	+52.7	11.3	74
27	25.1	+51.6	9.9	29	23.3	+51.8	10.1	31	21.4	+52.1	10.3	33	19.4	+52.3	10.5	35	17.4	+52.5	10.7	75
28	16.7	+51.5	9.3	30	15.1	+51.7	9.5	32	13.5	+51.8	9.7	34	11.7	+52.1	9.9	36	09.9	+52.3	10.1	76
29	08.2	+51.4	8.7	31	06.8	+51.5	8.9	33	05.3	+51.8	9.1	35	03.8	+51.9	9.3	37	02.2	+52.1	9.5	77
29	59.6	+51.1	8.1	31	58.3	+51.4	8.3	33	57.1	+51.5	8.5	35	55.7	+51.7	8.7	37	54.3	+51.9	8.9	78
30	50.7	+51.0	7.5	32	49.7	+51.1	7.7	34	48.6	+51.3	7.9	36	47.4	+51.5	8.1	38	46.2	+51.7	8.3	79
31	41.7	+50.8	6.9	33	40.8	+51.0	7.0	35	39.9	+51.1	7.2	37	38.9	+51.3	7.4	39	37.9	+51.5	7.6	80
32	32.5	+50.7	6.3	34	31.8	+50.8	6.4	36	31.0	+51.0	6.6	38	30.2	+51.1	6.7	40	29.4	+51.2	6.9	81
33	23.2	+50.4	5.6	35	22.6	+50.5	5.8	37	22.0	+50.7	5.9	39	21.3	+50.8	6.1	41	20.6	+51.0	6.3	82
34	13.6	+50.2	5.0	36	13.1	+50.4	5.1	38	12.7	+50.4	5.2	40	12.1	+50.6	5.4	42	11.6	+50.7	5.5	83
35	03.8	+50.0	4.3	37	03.5	+50.1	4.4	39	03.1	+50.2	4.5	41	02.7	+50.3	4.7	43	02.3	+50.4	4.8	84
35	53.8	+49.8	3.6	37	53.6	+49.8	3.7	39	53.3	+49.9	3.8	41	53.0	+50.1	3.9	43	52.7	+50.2	4.1	85
36	43.6	+49.5	2.9	38	43.4	+49.6	3.0	40	43.2	+49.7	3.1	42	43.1	+49.7	3.2	44	42.9	+49.8	3.3	86
37	33.1	+49.2	2.2	39	33.0	+49.3	2.3	41	32.9	+49.3	2.4	43	32.8	+49.4	2.4	45	32.7	+49.4	2.5	87
38	22.3	+49.0	1.5	40	22.3	+49.0	1.5	42	22.2	+49.1	1.6	44	22.2	+49.1	1.6	46	22.1	+49.2	1.7	88
39	11.3	+48.7	0.8	41	11.3	+48.7	0.8	43	11.3	+48.7	0.8	45	11.3	+48.7	0.8	47	11.3	+48.7	0.9	89
40	00.0	+48.4	0.0	42	00.0	+48.4	0.0	44	00.0	+48.4	0.0	46	00.0	+48.4	0.0	48	00.0	+48.3	0.0	90

LATITUDE SAME NAME

L.H.A. 144°, 216°

36°, 324° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	56 26.8	+43.5	112.9	55 37.5	+45.7	115.6	54 43.1	+47.8	118.2	53 44.2	+49.7	120.6	52 41.0	+51.3	122.9
31	57 10.3	+42.6	111.7	56 23.2	+45.1	114.5	55 30.9	+47.3	117.1	54 33.9	+49.1	119.7	53 32.3	+50.9	122.0
32	57 52.9	+41.8	110.4	57 08.3	+44.3	113.3	56 18.2	+46.6	116.0	55 23.0	+48.7	118.7	54 23.2	+50.5	121.1
33	58 34.7	+40.8	109.0	57 52.6	+43.6	112.0	57 04.8	+46.0	114.9	56 11.7	+48.1	117.6	55 13.7	+50.0	120.2
34	59 15.5	+40.0	107.6	58 36.2	+42.7	110.7	57 50.8	+45.3	113.7	56 59.8	+47.6	116.5	56 03.7	+49.6	119.2
35	59 55.5	+38.9	106.1	59 18.9	+41.9	109.4	58 36.1	+44.5	112.5	57 47.4	+46.9	115.4	56 53.3	+49.0	118.2
36	60 34.4	+37.8	104.6	60 00.8	+40.9	107.9	59 20.6	+43.7	111.2	58 34.3	+46.2	114.2	57 42.3	+48.4	117.1
37	61 12.2	+36.6	103.0	60 41.7	+39.8	106.5	60 04.3	+42.9	109.8	59 20.5	+45.5	113.0	58 30.7	+47.9	116.0
38	61 48.8	+35.3	101.3	61 21.5	+38.8	104.9	60 47.2	+41.9	108.4	60 06.0	+44.7	111.7	59 18.6	+47.2	114.8
39	62 24.1	+34.1	99.6	62 00.3	+37.6	103.3	61 29.1	+40.8	106.9	60 50.7	+43.9	110.3	60 05.8	+46.5	113.6
40	62 58.2	+32.6	97.8	62 37.9	+36.4	101.6	62 09.9	+39.8	105.3	61 34.6	+42.9	108.9	60 52.3	+45.7	112.3
41	63 30.8	+31.1	95.9	63 14.3	+35.0	99.9	62 49.7	+38.7	103.7	62 17.5	+41.9	107.4	61 38.0	+44.9	111.0
42	64 01.9	+29.5	94.0	63 49.3	+33.6	98.1	63 28.4	+37.4	102.0	62 59.4	+40.9	105.9	62 22.9	+43.9	109.6
43	64 31.4	+27.8	92.0	64 22.9	+32.1	96.2	64 05.8	+36.0	100.3	63 40.3	+39.7	104.2	63 06.8	+43.0	108.1
44	64 59.2	+26.1	89.9	64 55.0	+30.4	94.2	64 41.8	+34.6	98.4	64 20.0	+38.4	102.5	63 49.8	+42.0	106.5
45	65 25.3	+24.1	87.8	65 25.4	+28.7	92.1	65 16.4	+33.0	96.5	64 58.4	+37.1	100.7	64 31.8	+40.7	104.9
46	65 49.4	+22.1	85.5	65 54.1	+26.8	90.0	65 49.4	+31.4	94.5	65 35.5	+35.6	98.9	65 12.5	+39.6	103.2
47	66 11.5	+20.1	83.3	66 20.9	+24.9	87.8	66 20.8	+29.6	92.4	66 11.1	+34.0	96.9	65 52.1	+38.5	101.3
48	66 31.6	+17.9	80.9	66 45.8	+22.9	85.5	66 50.4	+27.7	90.2	66 45.1	+32.4	94.8	66 30.2	+36.7	99.4
49	66 49.5	+15.7	78.5	67 08.7	+20.7	83.1	67 18.1	+25.7	87.9	67 17.5	+30.5	92.7	67 06.9	+35.1	97.4
50	67 05.2	+13.3	76.0	67 29.4	+18.4	80.7	67 43.8	+23.6	85.5	67 48.0	+28.6	90.4	67 42.0	+33.4	95.3
51	67 18.5	+10.9	73.5	67 47.8	+16.1	78.2	68 07.4	+21.3	83.1	68 16.6	+26.6	88.1	68 15.4	+31.6	93.1
52	67 29.4	+8.4	70.9	68 03.9	+13.7	75.6	68 28.7	+19.0	80.6	68 43.2	+24.3	85.6	68 47.0	+29.5	90.8
53	67 37.8	+6.0	68.4	68 17.6	+11.1	73.0	68 47.7	+16.5	77.9	69 07.5	+22.0	83.1	69 16.5	+27.4	88.3
54	67 43.8	+3.4	65.7	68 28.7	+8.5	70.4	69 04.2	+14.0	75.3	69 29.5	+19.5	80.4	69 43.9	+25.1	85.8
55	67 47.2	+0.8	63.1	68 37.2	+6.0	67.6	69 18.2	+11.3	72.5	69 49.0	+16.9	77.7	70 09.0	+22.6	83.1
56	67 48.0	-1.7	60.5	68 43.2	+3.2	64.9	69 29.5	+8.6	69.7	70 05.9	+14.3	74.9	70 31.6	+20.1	80.4
57	67 46.3	-4.3	57.8	68 46.4	+0.6	62.2	69 38.1	+5.8	66.9	70 20.2	+11.4	72.1	70 51.7	+17.3	77.5
58	67 42.0	-6.8	55.2	68 47.0	-2.2	59.4	69 43.9	+3.0	64.0	70 31.6	+8.6	69.1	71 09.0	+14.5	74.6
59	67 35.2	-9.3	52.6	68 44.8	-4.8	56.6	69 46.9	+0.1	61.2	70 40.2	+5.6	66.1	71 23.5	+11.5	71.6
60	67 25.9	-11.7	50.0	68 40.0	-7.5	53.9	69 47.0	-2.7	58.3	70 45.8	+2.6	63.1	71 35.0	+8.5	68.5
61	67 14.2	-14.1	47.4	68 32.5	-10.1	51.2	69 44.3	-5.5	55.4	70 48.4	-0.3	60.1	71 43.5	+5.4	65.3
62	67 00.1	-16.4	44.9	68 22.4	-12.6	48.5	69 38.8	-8.3	52.5	70 48.1	-3.4	57.0	71 48.9	+2.1	62.2
63	66 43.7	-18.7	42.5	68 09.8	-15.1	45.8	69 30.5	-11.0	49.7	70 44.7	-6.3	54.0	71 51.0	-1.0	58.9
64	66 25.0	-20.8	40.1	67 54.7	-17.5	43.3	69 19.5	-13.7	46.9	70 38.4	-9.3	51.0	71 50.0	-4.2	55.7
65	66 04.2	-22.8	37.8	67 37.2	-19.8	40.7	69 05.8	-16.2	44.1	70 29.1	-12.1	48.0	71 45.8	-7.3	52.5
66	65 41.4	-24.8	35.5	67 17.4	-22.0	38.3	68 49.6	-18.8	41.4	70 17.0	-14.9	45.1	71 38.5	-10.4	49.4
67	65 16.6	-26.6	33.3	66 55.4	-24.1	35.9	68 30.8	-21.0	38.8	70 02.1	-17.6	42.3	71 28.1	-13.5	46.3
68	64 50.0	-28.4	31.2	66 31.3	-26.0	33.6	68 09.8	-23.4	36.3	69 44.5	-20.1	39.5	71 14.6	-16.3	43.2
69	64 21.6	-30.1	29.1	66 05.3	-28.0	31.3	67 46.4	-25.5	33.8	69 24.4	-22.6	36.8	70 58.3	-19.1	40.2
70	63 51.5	-31.6	27.1	65 37.3	-29.7	29.1	67 20.9	-27.5	31.5	69 01.8	-24.9	34.2	70 39.2	-21.7	37.4
71	63 19.9	-33.2	25.2	65 07.6	-31.4	27.1	66 53.4	-29.4	29.2	68 36.9	-27.0	31.7	70 17.5	-24.2	34.6
72	62 46.7	-34.5	23.4	64 36.2	-33.0	25.1	66 24.0	-31.1	27.0	68 09.9	-29.1	29.2	69 53.3	-26.6	31.9
73	62 12.2	-35.8	21.6	64 03.2	-34.4	23.1	65 52.9	-32.9	24.9	67 40.8	-31.0	26.9	69 26.7	-28.8	29.3
74	61 36.4	-37.0	19.9	63 28.8	-35.9	21.3	65 20.0	-34.4	22.8	67 09.8	-32.7	24.7	68 57.9	-30.8	26.8
75	60 59.4	-38.2	18.3	62 52.9	-37.1	19.5	64 45.6	-35.9	20.9	66 37.1	-34.5	22.5	68 27.1	-32.7	24.5
76	60 21.2	-39.2	16.7	62 15.8	-38.3	17.8	64 09.7	-37.2	19.0	66 02.6	-36.0	20.5	67 54.4	-34.5	22.2
77	59 42.0	-40.3	15.2	61 37.5	-39.4	16.2	63 32.5	-38.6	17.3	65 26.6	-37.4	18.6	67 19.9	-36.1	20.1
78	59 01.7	-41.2	13.7	60 58.1	-40.5	14.6	62 53.9	-39.6	15.6	64 49.2	-38.7	16.7	66 43.8	-37.7	18.0
79	58 20.5	-42.1	12.3	60 17.6	-41.5	13.1	62 14.3	-40.8	13.9	64 10.5	-40.0	14.9	66 06.1	-39.0	16.1
80	57 38.4	-42.9	11.0	59 36.1	-42.4	11.6	61 33.5	-41.8	12.4	63 30.5	-41.1	13.2	65 27.1	-40.3	14.2
81	56 55.5	-43.6	9.7	58 53.7	-43.2	10.3	60 51.7	-42.7	10.9	62 49.4	-42.2	11.6	64 46.8	-41.6	12.5
82	56 11.9	-44.4	8.5	58 10.5	-44.0	8.9	60 09.0	-43.7	9.5	62 07.2	-43.1	10.1	64 05.2	-42.6	10.8
83	55 27.5	-45.1	7.3	57 26.5	-44.8	7.6	59 25.3	-44.4	8.1	61 24.1	-44.1	8.6	63 22.6	-43.6	9.2
84	54 42.4	-45.7	6.1	56 41.7	-45.5	6.4	58 40.9	-45.2	6.8	60 40.0	-44.9	7.2	62 39.0	-44.6	7.7
85	53 56.7	-46.3	5.0	55 56.2	-46.1	5.2	57 55.7	-45.9	5.5	59 55.1	-45.7	5.9	61 54.4	-45.4	6.2
86	53 10.4	-46.8	3.9	55 10.1	-46.7	4.1	57 09.8	-46.6	4.3	59 09.4	-46.4	4.6	61 09.0	-46.2	4.9
87	52 23.6	-47.4	2.9	54 23.4	-47.3	3.0	56 23.2	-47.2	3.2	58 23.0	-47.0	3.4	60 22.8	-46.9	3.6
88	51 36.2	-47.9	1.9	53 36.1	-47.8	2.0	55 36.0	-47.7	2.1	57 36.0	-47.7	2.2	59 35.9	-47.7	2.3
89	50 48.3	-48.3	0.9	52 48.3	-48.3	1.0	54 48.3	-48.3	1.0	56 48.3	-48.3	1.1	58 48.2	-48.2	1.1
90	50 00.0	-48.8	0.0	52 00.0	-48.8	0.0	54 00.0	-48.8	0.0	56 00.0	-48.8	0.0	58 00.0	-48.8	0.0

LATITUDE CONTRARY NAME

L.H.A. 36°, 324°

50°			52°			54°			56°			58°			Dec.																																																																																																																																																																																																																																																																																																																																																														
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z																																																																																																																																																																																																																																																																																																																																																															
3 51.7 -55.6 149.3	2 08.4 -55.9 149.4	0 25.1 -56.3 149.4	1 18.2 +56.6 30.6	3 01.4 +57.0 30.6	30	2 56.1 -55.5 149.7	1 12.5 -55.9 149.7	0 31.2 +56.3 30.3	2 14.8 +56.7 30.3	3 58.4 +57.0 30.3	31	2 00.6 -55.6 150.1	0 16.6 -56.0 150.1	1 27.5 +56.3 29.9	3 11.5 +56.6 30.0	4 55.4 +57.0 30.0	32	1 05.0 -55.5 150.5	0 39.4 +55.9 29.5	2 23.8 +56.3 29.6	4 08.1 +56.7 29.6	5 52.4 +57.0 29.7	33	0 09.5 -55.6 150.8	1 35.3 +55.9 29.2	3 20.1 +56.3 29.2	5 04.8 +56.6 29.3	6 49.4 +56.9 29.4	34	0 46.1 +55.5 28.8	2 31.2 +56.0 28.8	4 16.4 +56.2 28.9	6 01.4 +56.6 29.0	7 46.3 +57.0 29.1	35	1 41.6 +55.6 28.4	3 27.2 +55.9 28.5	5 12.6 +56.3 28.5	6 58.0 +56.6 28.6	8 43.3 +56.9 28.8	36	2 37.2 +55.5 28.0	4 23.1 +55.9 28.1	6 08.9 +56.3 28.2	7 54.6 +56.6 28.3	9 40.2 +56.9 28.4	37	3 32.7 +55.5 27.6	5 19.0 +55.9 27.7	7 05.2 +56.2 27.8	8 51.2 +56.6 28.0	10 37.1 +56.9 28.1	38	4 28.2 +55.6 27.3	6 14.9 +55.8 27.4	8 01.4 +56.2 27.5	9 47.8 +56.6 27.6	11 34.0 +56.9 27.8	39	5 23.8 +55.5 26.9	7 10.7 +55.9 27.0	8 57.6 +56.2 27.1	10 44.4 +56.5 27.3	12 30.9 +56.9 27.5	40	6 19.3 +55.5 26.5	8 06.6 +55.8 26.6	9 53.8 +56.2 26.8	11 40.9 +56.5 26.9	13 27.8 +56.8 27.1	41	7 14.8 +55.4 26.1	9 02.4 +55.9 26.3	10 50.0 +56.1 26.4	12 37.4 +56.5 26.6	14 24.6 +56.8 26.8	42	8 10.2 +55.5 25.7	9 58.3 +55.7 25.9	11 46.1 +56.2 26.0	13 33.9 +56.4 26.2	15 21.4 +56.8 26.5	43	9 05.7 +55.4 25.4	10 54.0 +55.8 25.5	12 42.3 +56.1 25.7	14 30.3 +56.4 25.9	16 18.2 +56.7 26.1	44	10 01.1 +55.4 25.0	11 49.8 +55.7 25.1	13 38.4 +56.0 25.3	15 26.7 +56.4 25.3	17 14.9 +56.9 25.8	45	10 56.5 +55.4 24.6	12 45.5 +55.7 24.7	14 34.4 +56.1 25.0	16 23.1 +56.4 25.2	18 11.6 +56.7 25.5	46	11 51.9 +55.3 24.2	13 41.2 +55.7 24.4	15 30.5 +56.0 24.6	17 19.5 +56.3 24.8	19 08.3 +56.5 25.1	47	12 47.2 +55.3 23.8	14 36.9 +55.6 24.0	16 26.5 +55.9 24.2	18 15.8 +56.3 24.5	20 04.9 +56.6 24.8	48	13 42.5 +55.2 23.4	15 32.5 +55.6 23.6	17 22.4 +55.9 23.8	19 12.1 +56.2 24.1	21 01.5 +56.5 24.4	49	14 37.7 +55.3 23.0	16 28.1 +55.6 23.2	18 18.3 +55.9 23.5	20 08.3 +56.2 23.7	22 58.0 +56.9 24.0	50	15 33.0 +55.1 22.6	17 23.7 +55.5 22.8	19 14.2 +55.8 23.1	21 04.5 +56.1 23.4	23 54.5 +56.4 23.7	51	16 28.1 +55.1 22.2	18 19.2 +55.4 22.4	20 10.0 +55.8 22.7	22 00.6 +56.1 23.0	24 50.9 +56.4 23.3	52	17 23.2 +55.1 21.8	19 14.6 +55.4 22.0	21 05.8 +55.7 22.3	22 56.7 +56.0 22.6	25 47.3 +56.4 22.9	53	18 18.3 +55.0 21.3	20 10.0 +55.3 21.6	22 01.5 +55.6 21.9	23 52.7 +56.0 22.2	26 43.7 +56.2 22.6	54	19 13.3 +55.0 20.9	21 05.3 +55.3 21.2	22 57.1 +55.6 21.5	24 48.7 +56.4 21.8	27 39.9 +56.2 22.2	55	20 08.3 +54.9 20.5	22 00.6 +55.2 20.8	23 52.7 +55.5 21.1	25 44.5 +55.9 21.4	28 36.1 +56.2 21.8	56	21 03.2 +54.8 20.1	22 55.8 +55.1 20.3	24 48.2 +55.5 20.7	26 40.4 +55.7 21.0	29 32.3 +56.0 21.4	57	21 58.0 +54.8 19.6	23 50.9 +55.1 19.9	25 43.7 +55.3 20.2	27 36.1 +55.7 20.6	29 28.3 +56.0 21.0	58	22 52.8 +54.7 19.2	24 46.0 +55.0 19.5	26 39.0 +55.3 19.8	28 31.8 +55.6 20.2	30 24.3 +55.9 20.5	59	23 47.5 +54.6 18.7	25 41.0 +54.9 19.0	27 34.3 +55.2 19.4	29 27.4 +55.5 19.7	31 20.2 +55.9 20.1	60	24 42.1 +54.5 18.3	26 35.9 +54.8 18.6	28 29.5 +55.2 18.9	30 22.9 +55.5 19.3	32 16.1 +55.7 19.7	61	25 36.6 +54.4 17.8	27 30.7 +54.8 18.1	29 24.7 +55.0 18.5	31 18.4 +55.3 18.8	33 11.8 +55.6 19.3	62	26 31.0 +54.4 17.4	28 25.5 +54.6 17.7	30 19.7 +54.9 18.0	32 13.7 +55.2 18.4	34 07.4 +55.6 18.8	63	27 25.4 +54.2 16.9	29 20.1 +54.5 17.2	31 14.6 +54.9 17.5	33 08.9 +55.2 17.9	35 03.0 +55.4 18.3	64	28 19.6 +54.1 16.4	30 14.6 +54.5 16.7	32 09.5 +54.7 17.1	34 04.1 +55.0 17.5	35 58.4 +55.3 17.9	65	29 13.7 +54.1 15.9	31 09.1 +54.3 16.2	33 04.2 +54.6 16.6	34 59.1 +54.9 17.0	36 53.7 +55.2 17.4	66	30 07.8 +53.9 15.4	32 03.4 +54.2 15.7	33 58.8 +54.5 16.1	35 54.0 +54.8 16.5	37 48.9 +55.1 16.9	67	31 01.7 +53.8 14.9	32 57.6 +54.0 15.2	34 53.3 +54.3 15.6	36 48.8 +54.6 16.0	38 44.0 +54.9 16.4	68	31 55.5 +53.6 14.4	33 51.6 +54.0 14.7	35 47.6 +54.2 15.1	37 43.4 +54.5 15.4	39 38.9 +54.8 15.9	69	32 49.1 +53.6 13.8	34 45.6 +53.8 14.2	36 41.8 +54.1 14.5	38 37.9 +54.4 14.9	40 33.7 +54.7 15.3	70	33 42.7 +53.3 13.3	35 39.4 +53.6 13.6	37 35.9 +53.9 14.0	39 32.3 +54.2 14.4	41 28.4 +54.5 14.8	71	34 36.0 +53.3 12.7	36 33.0 +53.5 13.1	38 29.8 +53.8 13.4	40 26.5 +54.0 13.8	42 22.9 +54.3 14.2	72	35 29.3 +53.0 12.2	37 26.5 +53.3 12.5	39 23.6 +53.6 12.8	41 20.5 +53.8 13.2	43 17.2 +54.1 13.7	73	36 22.3 +52.9 11.6	38 19.8 +53.2 11.9	40 17.2 +53.4 12.3	42 14.3 +53.7 12.6	44 11.3 +54.0 13.1	74	37 15.2 +52.8 11.0	39 13.0 +52.9 11.3	41 10.6 +53.2 11.7	43 08.0 +53.5 12.0	45 05.3 +53.7 12.4	75	38 08.0 +52.5 10.4	40 05.9 +52.8 10.7	42 03.8 +53.0 11.0	44 01.5 +53.2 11.4	45 59.0 +53.5 11.8	76	39 00.5 +52.3 9.8	40 58.7 +52.5 10.1	42 56.8 +52.8 10.4	44 54.7 +53.1 10.8	46 52.5 +53.3 11.2	77	39 52.8 +52.1 9.2	41 51.2 +52.4 9.4	43 49.6 +52.5 9.8	45 47.8 +52.8 10.1	47 45.8 +53.1 10.5	78	40 44.9 +51.9 8.5	42 43.6 +52.1 8.8	44 42.1 +52.3 9.1	46 40.6 +52.5 9.4	48 38.9 +52.8 9.8	79	41 36.8 +51.7 7.8	43 35.7 +51.8 8.1	45 34.4 +52.1 8.4	47 33.1 +52.3 8.7	49 31.7 +52.5 9.0	80	42 28.5 +51.4 7.2	44 27.5 +51.6 7.4	46 26.5 +51.7 7.7	48 25.4 +51.9 8.0	50 24.2 +52.1 8.3	81	43 19.9 +51.1 6.5	45 19.1 +51.3 6.7	47 18.2 +51.5 6.9	49 17.3 +51.7 7.2	51 16.3 +51.9 7.5	82	44 11.0 +50.9 5.7	46 10.4 +51.0 5.9	48 09.7 +51.2 6.2	50 09.0 +51.3 6.4	52 08.2 +51.5 6.7	83	45 01.9 +50.5 5.0	47 01.4 +50.7 5.2	49 00.9 +50.8 5.4	51 00.3 +51.0 5.6	52 59.7 +51.2 5.9	84	45 52.4 +50.3 4.2	47 52.1 +50.3 4.4	49 51.7 +50.5 4.6	51 51.3 +50.6 4.8	53 50.9 +50.7 5.0	85	46 42.7 +49.9 3.4	48 42.4 +50.0 3.6	50 42.2 +50.1 3.7	52 41.9 +50.2 3.9	54 41.6 +50.4 4.1	86	47 32.6 +49.5 2.6	49 32.4 +49.6 2.7	51 32.3 +49.7 2.8	53 32.1 +49.8 3.0	55 32.0 +49.8 3.1	87	48 22.1 +49.1 1.8	50 22.0 +49.2 1.8	52 22.0 +49.2 1.9	54 21.9 +49.3 2.0	56 21.8 +49.4 2.1	88	49 11.2 +48.8 0.9	51 11.2 +48.8 0.9	53 11.2 +48.8 1.0	55 11.2 +48.8 1.0	57 11.2 +48.8 1.1	89	50 00.0 +48.3 0.0	52 00.0 +48.3 0.0	54 00.0 +48.3 0.0	56 00.0 +48.3 0.0	58 00.0 +48.2 0.0	90

LATITUDE SAME NAME

L.H.A. 144°, 216°

38°, 322° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	57 14.8	+9.4	80.2	57 32.0	+13.1	83.3	57 42.6	+17.0	86.5	57 46.7	+20.7	89.6	57 44.2	+24.3	92.8
31	57 24.2	+7.8	78.4	57 45.1	+11.6	81.5	57 59.6	+15.4	84.7	58 07.4	+19.2	87.9	58 08.5	+22.9	91.1
32	57 32.0	+6.1	76.6	57 56.7	+10.0	79.7	58 15.0	+13.8	82.8	58 26.6	+17.6	86.1	58 31.4	+21.5	89.3
33	57 38.1	+4.5	74.7	58 06.7	+8.3	77.8	58 28.8	+12.1	81.0	58 44.2	+16.1	84.2	58 52.9	+19.9	87.5
34	57 42.6	+2.9	72.8	58 15.0	+6.6	75.9	58 40.9	+10.6	79.1	59 00.3	+14.4	82.4	59 12.8	+18.3	85.7
35	57 45.5	+1.2	71.0	58 21.6	+5.0	74.0	58 51.5	+8.8	77.2	59 14.7	+12.7	80.5	59 31.1	+16.7	83.8
36	57 46.7	-0.4	69.1	58 26.6	+3.3	72.1	59 00.3	+7.1	75.3	59 27.4	+11.1	78.6	59 47.8	+15.0	81.9
37	57 46.3	-2.1	67.2	58 29.9	+1.5	70.2	59 07.4	+5.4	73.4	59 38.5	+9.3	76.6	60 02.8	+13.3	80.0
38	57 44.2	-3.8	65.3	58 31.4	-0.1	68.3	59 12.8	+3.6	71.4	59 47.8	+7.5	74.7	60 16.1	+11.6	78.0
39	57 40.4	-5.4	63.5	58 31.3	-1.9	66.4	59 16.4	+1.9	69.5	59 55.3	+5.8	72.7	60 27.7	+9.8	76.0
40	57 35.0	-7.0	61.6	58 29.4	-3.5	64.5	59 18.3	+0.1	67.5	60 01.1	+4.0	70.7	60 37.5	+7.9	74.0
41	57 28.0	-8.7	59.8	58 25.9	-5.3	62.6	59 18.4	-1.7	65.5	60 05.1	+2.1	68.7	60 45.4	+6.1	72.0
42	57 19.3	-10.2	57.9	58 20.6	-6.9	60.7	59 16.7	-3.4	63.6	60 07.2	+0.3	66.7	60 51.5	+4.3	70.0
43	57 09.1	-11.9	56.1	58 13.7	-8.6	58.8	59 13.3	-5.2	61.6	60 07.5	-1.5	64.7	60 55.8	+2.3	67.9
44	56 57.2	-13.3	54.3	58 05.1	-10.3	56.9	59 08.1	-6.8	59.7	60 06.0	-3.3	62.7	60 58.1	+0.5	65.9
45	56 43.9	-14.9	52.5	57 54.8	-11.8	55.0	59 01.3	-8.7	57.8	60 02.7	-5.1	60.7	60 58.6	-1.4	63.8
46	56 29.0	-16.3	50.8	57 43.0	-13.5	53.2	58 52.6	-10.3	55.8	59 57.6	-6.9	58.7	60 57.2	-3.3	61.7
47	56 12.7	-17.8	49.0	57 29.5	-15.0	51.4	58 42.3	-11.9	53.9	59 50.7	-8.7	56.7	60 53.9	-5.1	59.7
48	55 54.9	-19.1	47.3	57 14.5	-16.5	49.6	58 30.4	-13.6	52.1	59 42.0	-10.5	54.7	60 48.8	-7.1	57.6
49	55 35.8	-20.6	45.6	56 58.0	-17.9	47.8	58 16.8	-15.2	50.2	59 31.5	-12.1	52.8	60 41.7	-8.8	55.6
50	55 15.2	-21.8	44.0	56 40.1	-19.5	46.1	58 01.6	-16.8	48.4	59 19.4	-13.9	50.9	60 32.9	-10.7	53.6
51	54 53.4	-23.2	42.3	56 20.6	-20.8	44.4	57 44.8	-18.2	46.6	59 05.5	-15.4	49.0	60 22.2	-12.4	51.6
52	54 30.2	-24.3	40.8	55 59.8	-22.1	42.7	57 26.6	-19.8	44.8	58 50.1	-17.1	47.1	60 09.8	-14.1	49.6
53	54 05.9	-25.6	39.2	55 37.7	-23.5	41.0	57 06.8	-21.1	43.0	58 33.0	-18.7	45.2	59 55.7	-15.9	47.7
54	53 40.3	-26.7	37.7	55 14.2	-24.7	39.4	56 45.7	-22.6	41.3	58 14.3	-20.1	43.4	59 39.8	-17.5	45.8
55	53 13.6	-27.9	36.1	54 49.5	-26.0	37.8	56 23.1	-23.9	39.6	57 54.2	-21.7	41.7	59 22.3	-19.1	43.9
56	52 45.7	-28.9	34.7	54 23.5	-27.1	36.2	55 59.2	-25.2	38.0	57 32.5	-23.0	39.9	59 03.2	-20.7	42.0
57	52 16.8	-29.9	33.2	53 56.4	-28.3	34.7	55 34.0	-26.4	36.4	57 09.5	-24.4	38.2	58 42.5	-22.2	40.2
58	51 46.9	-30.9	31.8	53 28.1	-29.4	33.2	55 07.6	-27.7	34.8	56 45.1	-25.7	36.5	58 20.3	-23.6	38.4
59	51 16.0	-31.9	30.4	52 58.7	-30.4	31.8	54 39.9	-28.7	33.2	56 19.4	-27.0	34.9	57 56.7	-25.0	36.7
60	50 44.1	-32.8	29.1	52 28.3	-31.4	30.4	54 11.2	-29.9	31.7	55 52.4	-28.2	33.3	57 31.7	-26.3	35.0
61	50 11.3	-33.6	27.8	51 56.9	-32.3	29.0	53 41.3	-31.0	30.3	55 24.2	-29.4	31.7	57 05.4	-27.7	33.3
62	49 37.7	-34.5	26.5	51 24.6	-33.3	27.6	53 10.3	-31.9	28.8	54 54.8	-30.5	30.2	56 37.7	-28.9	31.7
63	49 03.2	-35.3	25.2	50 51.3	-34.2	26.3	52 38.4	-33.0	27.4	54 24.3	-31.6	28.7	56 08.8	-30.1	30.1
64	48 27.9	-36.0	24.0	50 17.1	-35.0	25.0	52 05.4	-33.8	26.1	53 52.7	-32.6	27.2	55 38.7	-31.2	28.6
65	47 51.9	-36.8	22.8	49 42.1	-35.8	23.7	51 31.6	-34.8	24.7	53 20.1	-33.6	25.8	55 07.5	-32.2	27.1
66	47 15.1	-37.5	21.6	49 06.3	-36.6	22.5	50 56.8	-35.6	23.4	52 46.5	-34.5	24.5	54 35.3	-33.4	25.6
67	46 37.6	-38.1	20.5	48 29.7	-37.3	21.3	50 21.2	-36.4	22.1	52 12.0	-35.4	23.1	54 01.9	-34.3	24.2
68	45 59.5	-38.8	19.4	47 52.4	-38.0	20.1	49 44.8	-37.1	20.9	51 36.6	-36.3	21.8	53 27.6	-35.2	22.8
69	45 20.7	-39.4	18.3	47 14.4	-38.7	19.0	49 07.7	-37.9	19.7	51 00.3	-37.0	20.5	52 52.4	-36.1	21.4
70	44 41.3	-40.0	17.2	46 35.7	-39.3	17.8	48 29.8	-38.7	18.5	50 23.3	-37.9	19.3	52 16.3	-37.0	20.1
71	44 01.3	-40.5	16.2	45 56.4	-39.9	16.8	47 51.1	-39.2	17.4	49 45.4	-38.5	18.1	51 39.3	-37.8	18.8
72	43 20.8	-41.1	15.2	45 16.5	-40.5	15.7	47 11.9	-40.0	16.3	49 06.9	-39.3	16.9	51 01.5	-38.6	17.6
73	42 39.7	-41.5	14.2	44 36.0	-41.1	14.6	46 31.9	-40.5	15.2	48 27.6	-39.9	15.7	50 22.9	-39.3	16.4
74	41 58.2	-42.1	13.2	43 54.9	-41.6	13.6	45 51.4	-41.1	14.1	47 47.7	-40.6	14.6	49 43.6	-40.0	15.2
75	41 16.1	-42.5	12.2	43 13.3	-42.1	12.6	45 10.3	-41.7	13.1	47 07.1	-41.2	13.5	49 03.6	-40.6	14.1
76	40 33.6	-43.0	11.3	42 31.2	-42.6	11.7	44 28.6	-42.1	12.0	46 25.9	-41.7	12.5	48 23.0	-41.3	13.0
77	39 50.6	-43.3	10.4	41 48.6	-43.0	10.7	43 46.5	-42.7	11.1	45 44.2	-42.3	11.4	47 41.7	-41.9	11.9
78	39 07.3	-43.8	9.5	41 05.6	-43.5	9.8	43 03.8	-43.2	10.1	45 01.9	-42.9	10.4	46 59.8	-42.5	10.8
79	38 23.5	-44.2	8.6	40 22.1	-43.9	8.9	42 20.6	-43.6	9.1	44 19.0	-43.3	9.5	46 17.3	-42.9	9.8
80	37 39.3	-44.5	7.8	39 38.2	-44.3	8.0	41 37.0	-44.1	8.2	43 35.7	-43.8	8.5	45 34.4	-43.6	8.8
81	36 54.8	-44.9	6.9	38 53.9	-44.7	7.1	40 52.9	-44.4	7.3	42 51.9	-44.2	7.6	44 50.8	-43.9	7.8
82	36 09.9	-45.2	6.1	38 09.2	-45.0	6.3	40 08.5	-44.9	6.4	42 07.7	-44.7	6.6	44 06.9	-44.5	6.9
83	35 24.7	-45.6	5.3	37 24.2	-45.4	5.4	39 23.6	-45.2	5.6	41 23.0	-45.1	5.7	43 22.4	-44.9	5.9
84	34 39.1	-45.8	4.5	36 38.8	-45.8	4.6	38 38.4	-45.6	4.7	40 37.9	-45.4	4.9	42 37.5	-45.3	5.0
85	33 53.3	-46.1	3.7	35 53.0	-46.0	3.8	37 52.8	-46.0	3.9	39 52.5	-45.8	4.0	41 52.2	-45.7	4.1
86	33 07.2	-46.4	2.9	35 07.0	-46.3	3.0	37 06.8	-46.2	3.1	39 06.7	-46.2	3.2	41 06.5	-46.1	3.3
87	32 20.8	-46.7	2.2	34 20.7	-46.7	2.2	36 20.6	-46.6	2.3	38 20.5	-46.5	2.4	40 20.4	-46.5	2.4
88	31 34.1	-46.9	1.4	33 34.0	-46.8	1.5	35 34.0	-46.9	1.5	37 34.0	-46.9	1.6	39 33.9	-46.8	1.6
89	30 47.2	-47.2	0.7	32 47.2	-47.2	0.7	34 47.1	-47.1	0.7	36 47.1	-47.1	0.8	38 47.1	-47.1	0.8
90	30 00.0	-47.4	0.0	32 00.0	-47.4	0.0	34 00.0	-47.4	0.0	36 00.0	-47.4	0.0	38 00.0	-47.4	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 38°, 322°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
19 56.3	-49.5	145.4	18 17.2	-50.1	145.8	16 37.7	-50.8	146.2	14 57.8	-51.4	146.5	13 17.6	-52.0	146.8	30
19 06.8	-49.6	146.0	17 27.1	-50.3	146.4	15 46.9	-50.9	146.7	14 06.4	-51.5	147.0	12 25.6	-52.1	147.3	31
18 17.2	-49.7	146.6	16 36.8	-50.4	147.0	14 56.0	-51.0	147.3	13 14.9	-51.6	147.6	11 33.5	-52.2	147.8	32
17 27.5	-49.8	147.2	15 46.4	-50.4	147.6	14 05.0	-51.0	147.8	12 23.3	-51.7	148.1	10 41.3	-52.2	148.3	33
16 37.7	-49.9	147.8	14 56.0	-50.5	148.1	13 14.0	-51.2	148.4	11 31.6	-51.6	148.6	9 49.1	-52.2	148.8	34
15 47.8	-50.0	148.4	14 05.5	-50.6	148.7	12 22.8	-51.2	148.9	10 40.0	-51.8	149.1	8 56.9	-52.3	149.3	35
14 57.8	-50.0	149.0	13 14.9	-50.7	149.2	11 31.6	-51.2	149.4	9 48.2	-51.8	149.6	8 04.6	-52.3	149.8	36
14 07.8	-50.2	149.5	12 24.2	-50.7	149.8	10 40.4	-51.3	150.0	8 56.4	-51.8	150.1	7 12.3	-52.4	150.3	37
13 17.6	-50.2	150.1	11 33.5	-50.8	150.3	9 49.1	-51.3	150.5	8 04.6	-51.9	150.7	6 19.9	-52.4	150.8	38
12 27.4	-50.3	150.7	10 42.7	-50.9	150.9	8 57.8	-51.4	151.0	7 12.7	-51.9	151.2	5 27.5	-52.4	151.3	39
11 37.1	-50.4	151.2	9 51.8	-50.9	151.4	8 06.4	-51.5	151.6	6 20.9	-51.9	151.7	4 35.1	-52.4	151.8	40
10 46.7	-50.4	151.8	9 00.9	-51.0	151.9	7 14.9	-51.4	152.1	5 28.9	-52.0	152.2	3 42.7	-52.4	152.2	41
9 56.3	-50.5	152.3	8 09.9	-51.0	152.5	6 23.5	-51.5	152.6	4 36.9	-52.0	152.7	2 54.2	-52.5	152.7	42
9 05.8	-50.5	152.9	7 18.9	-51.0	153.0	5 32.0	-51.5	153.1	3 44.9	-52.0	153.2	1 57.8	-52.5	153.2	43
8 15.3	-50.6	153.4	6 27.9	-51.0	153.5	4 40.5	-51.6	153.6	2 52.9	-52.0	153.7	1 05.3	-52.4	153.7	44
7 24.7	-50.6	154.0	5 36.9	-51.1	154.1	3 48.9	-51.6	154.1	2 00.9	-52.0	154.2	0 12.9	-52.5	154.2	45
6 34.1	-50.6	154.5	4 45.8	-51.2	154.6	2 57.3	-51.5	154.6	1 08.9	-52.0	154.7	0 39.6	+52.4	25.3	46
5 43.5	-50.7	155.0	3 54.6	-51.1	155.1	2 05.8	-51.6	155.2	0 16.9	-52.1	155.2	1 32.0	+52.5	24.8	47
4 52.8	-50.7	155.6	3 03.5	-51.1	155.6	1 14.2	-51.6	155.7	0 35.2	+52.0	24.3	2 24.5	+52.4	24.4	48
4 02.1	-50.7	156.1	2 12.4	-51.2	156.2	0 22.6	-51.6	156.2	1 27.2	+52.0	23.8	3 16.9	+52.5	23.9	49
3 11.4	-50.8	156.6	1 21.2	-51.2	156.7	0 29.0	+51.6	23.3	2 19.2	+52.0	23.3	4 09.4	+52.4	23.4	50
2 20.6	-50.7	157.2	0 30.0	-51.2	157.2	1 20.6	+51.6	22.8	3 11.2	+52.0	22.8	5 01.8	+52.4	22.9	51
1 29.9	-50.8	157.7	0 21.2	+51.1	22.3	2 12.2	+51.6	22.3	4 03.2	+52.0	22.3	5 54.2	+52.4	22.4	52
0 39.1	-50.7	158.3	1 12.3	+51.2	21.8	3 03.8	+51.5	21.8	4 55.2	+51.9	21.8	6 46.6	+52.3	21.9	53
0 11.6	+50.8	21.2	2 03.5	+51.1	21.2	3 55.3	+51.6	21.3	5 47.1	+52.0	21.3	7 38.9	+52.3	21.4	54
1 02.4	+50.7	20.7	2 54.6	+51.2	20.7	4 46.9	+51.5	20.8	6 39.1	+51.9	20.8	8 31.2	+52.3	20.9	55
1 53.1	+50.8	20.1	3 45.8	+51.1	20.2	5 38.4	+51.5	20.2	7 31.0	+51.8	20.3	9 23.5	+52.2	20.4	56
2 43.9	+50.7	19.6	4 36.9	+51.1	19.7	6 29.9	+51.5	19.7	8 22.9	+51.8	19.8	10 15.7	+52.2	19.9	57
3 34.6	+50.7	19.1	5 28.0	+51.1	19.1	7 21.4	+51.4	19.2	9 14.6	+51.8	19.3	11 07.9	+52.1	19.4	58
4 25.3	+50.7	18.5	6 19.1	+51.0	18.6	8 12.8	+51.4	18.7	10 06.4	+51.7	18.8	12 00.0	+52.1	18.9	59
5 16.0	+50.7	18.0	7 10.1	+51.0	18.1	9 04.2	+51.3	18.2	10 58.1	+51.7	18.3	12 52.1	+52.0	18.4	60
6 06.7	+50.6	17.5	8 01.1	+51.0	17.5	9 55.5	+51.3	17.6	11 49.8	+51.6	17.8	13 44.1	+51.9	17.9	61
6 57.3	+50.6	16.9	8 52.1	+50.9	17.0	10 46.8	+51.2	17.1	12 41.4	+51.6	17.2	14 36.0	+51.9	17.4	62
7 47.9	+50.5	16.4	9 43.0	+50.9	16.5	11 38.0	+51.2	16.6	13 33.0	+51.5	16.7	15 27.9	+51.8	16.9	63
8 38.4	+50.5	15.8	10 33.9	+50.8	15.9	12 29.2	+51.1	16.0	14 24.5	+51.4	16.2	16 19.7	+51.7	16.3	64
9 28.9	+50.5	15.3	11 24.7	+50.7	15.4	13 20.3	+51.1	15.5	15 15.9	+51.4	15.6	17 11.4	+51.7	15.8	65
10 19.4	+50.4	14.7	12 15.4	+50.7	14.8	14 11.4	+50.9	15.0	16 07.3	+51.2	15.1	18 03.1	+51.5	15.3	66
11 09.8	+50.3	14.2	13 06.1	+50.6	14.3	15 02.3	+50.9	14.4	16 58.5	+51.2	14.6	18 54.6	+51.5	14.7	67
12 00.1	+50.3	13.6	13 56.7	+50.6	13.7	15 53.2	+50.9	13.9	17 49.7	+51.1	14.0	19 46.1	+51.4	14.2	68
12 50.4	+50.2	13.1	14 47.3	+50.4	13.2	16 44.1	+50.7	13.3	18 40.8	+51.0	13.5	20 37.5	+51.2	13.6	69
13 40.6	+50.1	12.5	15 37.7	+50.4	12.6	17 34.8	+50.6	12.8	19 31.8	+50.9	12.9	21 28.7	+51.2	13.1	70
14 30.7	+50.0	11.9	16 28.1	+50.3	12.1	18 25.4	+50.5	12.2	20 22.7	+50.7	12.3	22 19.9	+51.0	12.5	71
15 20.7	+50.0	11.4	17 18.4	+50.1	11.5	19 15.9	+50.4	11.6	21 13.4	+50.7	11.8	23 10.9	+50.9	11.9	72
16 10.7	+49.9	10.8	18 08.5	+50.1	10.9	20 06.3	+50.4	11.1	22 04.1	+50.5	11.2	24 01.8	+50.7	11.4	73
17 00.6	+49.7	10.2	18 58.6	+50.0	10.3	20 56.7	+50.1	10.5	22 54.6	+50.4	10.6	24 52.5	+50.7	10.8	74
17 50.3	+49.7	9.6	19 48.6	+49.9	9.8	21 46.8	+50.1	9.9	23 45.0	+50.3	10.0	25 43.2	+50.5	10.2	75
18 40.0	+49.5	9.0	20 38.5	+49.7	9.2	22 36.9	+49.9	9.3	24 35.3	+50.1	9.4	26 33.7	+50.3	9.6	76
19 29.5	+49.4	8.4	21 28.2	+49.6	8.6	23 26.8	+49.8	8.7	25 25.4	+50.0	8.8	27 24.0	+50.2	9.0	77
20 18.9	+49.3	7.8	22 17.8	+49.4	8.0	24 16.6	+49.6	8.1	26 15.4	+49.8	8.2	28 14.2	+50.0	8.4	78
21 08.2	+49.2	7.2	23 07.2	+49.4	7.3	25 06.2	+49.5	7.5	27 05.2	+49.7	7.6	29 04.2	+49.8	7.7	79
21 57.4	+49.0	6.6	23 56.6	+49.1	6.7	25 55.7	+49.3	6.8	27 54.9	+49.4	6.9	29 54.0	+49.6	7.1	80
22 46.4	+48.9	6.0	24 45.7	+49.0	6.1	26 45.0	+49.2	6.2	28 44.3	+49.3	6.3	30 43.6	+49.4	6.4	81
23 35.3	+48.7	5.4	25 34.7	+48.9	5.5	27 34.2	+49.0	5.5	29 33.6	+49.1	5.7	31 33.0	+49.2	5.8	82
24 24.0	+48.6	4.7	26 23.6	+48.7	4.8	28 23.2	+48.7	4.9	30 22.2	+48.9	5.0	32 22.2	+49.1	5.1	83
25 12.6	+48.3	4.1	27 12.3	+48.4	4.1	29 11.9	+48.6	4.2	31 11.6	+48.7	4.3	33 11.3	+48.7	4.4	84
26 00.9	+48.3	3.4	28 00.7	+48.3	3.5	30 00.5	+48.4	3.6	32 00.3	+48.4	3.6	34 00.0	+48.6	3.7	85
26 49.2	+48.0	2.8	28 49.0	+48.1	2.8	30 48.9	+48.1	2.9	32 48.7	+48.2	2.9	34 48.6	+48.2	3.0	86
27 37.2	+47.8	2.1	29 37.1	+47.9	2.1	31 37.0	+47.9	2.2	33 36.9	+48.0	2.2	35 36.8	+48.0	2.3	87
28 25.0	+47.6	1.4	30 25.0	+47.6	1.4	32 24.9	+47.7	1.5	34 24.9	+47.7	1.5	36 24.8	+47.8	1.5	88
29 12.6	+47.4	0.7	31 12.6	+47.4	0.7	33 12.6	+47.4	0.7	35 12.6	+47.4	0.8	37 12.6	+47.4	0.8	89
30 00.0	+47.2	0.0	32 00.0	+47.2	0.0	34 00.0	+47.1	0.0	36 00.0	+47.1	0.0	38 00.0	+47.1	0.0	90

LATITUDE SAME NAME

L.H.A. 142°, 218°

38°, 322° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	57 35.0	+27.9	96.0	57 19.3	+31.3	99.1	56 57.2	+34.5	102.1	56 29.0	+37.5	105.1	55 54.9	+40.3	107.9
31	58 02.9	+26.5	94.3	57 50.6	+30.0	97.5	57 31.7	+33.4	100.6	57 06.5	+36.5	103.6	56 35.2	+39.3	106.6
32	58 29.4	+25.2	92.6	58 20.6	+28.7	95.8	58 05.1	+32.1	99.0	57 43.0	+35.4	102.2	57 14.5	+38.5	105.2
33	58 54.6	+23.7	90.8	58 49.3	+27.4	94.2	58 37.2	+30.9	97.4	58 18.4	+34.2	100.6	57 53.0	+37.4	103.8
34	59 18.3	+22.2	89.1	59 16.7	+26.0	92.4	59 08.1	+29.7	95.8	58 52.6	+33.1	99.1	58 30.4	+36.3	102.3
35	59 40.5	+20.6	87.2	59 42.7	+24.5	90.6	59 37.8	+28.2	94.1	59 25.7	+31.9	97.4	59 06.7	+35.3	100.8
36	60 01.1	+19.0	85.4	60 07.2	+23.0	88.8	60 06.0	+26.8	92.3	59 57.6	+30.5	95.8	59 42.0	+34.0	99.2
37	60 20.1	+17.4	83.4	60 30.2	+21.3	87.0	60 32.8	+25.3	90.5	60 28.1	+29.1	94.0	60 16.0	+32.8	97.5
38	60 37.5	+15.6	81.5	60 51.5	+19.7	85.0	60 58.1	+23.8	88.6	60 57.2	+27.7	92.2	60 48.8	+31.4	95.8
39	60 53.1	+13.9	79.5	61 11.2	+18.0	83.1	61 21.9	+22.1	86.7	61 24.9	+26.1	90.4	61 20.2	+30.0	94.1
40	61 07.0	+12.0	77.5	61 29.2	+16.2	81.1	61 44.0	+20.4	84.8	61 51.0	+24.5	88.5	61 50.2	+28.5	92.2
41	61 19.0	+10.2	75.5	61 45.4	+14.4	79.1	62 04.4	+18.6	82.8	62 15.5	+22.8	86.6	62 18.7	+27.0	90.4
42	61 29.2	+8.3	73.4	61 59.8	+12.6	77.0	62 23.0	+16.8	80.7	62 38.3	+21.1	84.6	62 45.7	+25.3	88.4
43	61 37.5	+6.5	71.3	62 12.4	+10.6	74.9	62 39.8	+14.9	78.7	62 59.4	+19.3	82.5	63 11.0	+23.6	86.4
44	61 44.0	+4.5	69.3	62 23.0	+8.7	72.8	62 54.7	+13.0	76.5	63 18.7	+17.4	80.4	63 34.6	+21.7	84.4
45	61 48.5	+2.5	67.1	62 31.7	+6.6	70.7	63 07.7	+11.0	74.4	63 36.1	+15.4	78.3	63 56.3	+19.9	82.3
46	61 51.0	+0.6	65.0	62 38.3	+4.7	68.5	63 18.7	+9.0	72.2	63 51.5	+13.4	76.1	64 16.2	+18.0	80.1
47	61 51.6	-1.4	62.9	62 43.0	+2.7	66.3	63 27.7	+6.9	70.0	64 04.9	+11.3	73.9	64 34.2	+15.9	77.9
48	61 50.2	-3.3	60.8	62 45.7	+0.6	64.2	63 34.6	+4.8	67.8	64 16.2	+9.3	71.6	64 50.1	+13.8	75.6
49	61 46.9	-5.3	58.7	62 46.3	-1.4	62.0	63 39.4	+2.7	65.5	64 25.5	+7.1	69.3	65 03.9	+11.7	73.3
50	61 41.6	-7.2	56.6	62 44.9	-3.4	59.8	63 42.1	+0.6	63.3	64 32.6	+4.9	67.0	65 15.6	+9.4	71.0
51	61 34.4	-9.1	54.5	62 41.5	-5.5	57.6	63 42.7	-1.5	61.0	64 37.5	+2.7	64.7	65 25.0	+7.3	68.6
52	61 25.3	-10.9	52.4	62 36.0	-7.4	55.5	63 41.2	-3.6	58.8	64 40.2	+0.5	62.4	65 32.3	+4.9	66.3
53	61 14.4	-12.8	50.4	62 28.6	-9.5	53.3	63 37.6	-5.7	56.5	64 40.7	-1.7	60.0	65 37.2	+2.6	63.8
54	61 01.6	-14.6	48.3	62 19.1	-11.3	51.2	63 31.9	-7.8	54.3	64 39.0	-3.9	57.7	65 39.8	+0.4	61.4
55	60 47.0	-16.3	46.3	62 07.8	-13.3	49.1	63 24.1	-9.9	52.1	64 35.1	-6.1	55.4	65 40.2	-2.0	59.0
56	60 30.7	-18.1	44.4	61 54.5	-15.1	47.0	63 14.2	-11.8	49.9	64 29.0	-8.3	53.1	65 38.2	-4.3	56.6
57	60 12.6	-19.6	42.4	61 39.4	-16.9	44.9	63 02.4	-13.9	47.7	64 20.7	-10.3	50.8	65 33.9	-6.6	54.2
58	59 53.0	-21.3	40.6	61 22.5	-18.6	42.9	62 48.5	-15.7	45.6	64 10.4	-12.5	48.5	65 27.3	-8.8	51.8
59	59 31.7	-22.8	38.7	61 03.9	-20.4	40.9	62 32.8	-17.6	43.5	63 57.9	-14.5	46.3	65 18.5	-11.0	49.4
60	59 08.9	-24.3	36.9	60 43.5	-22.0	39.0	62 15.2	-19.4	41.4	63 43.4	-16.5	44.1	65 07.5	-13.2	47.0
61	58 44.6	-25.7	35.1	60 21.5	-23.5	37.1	61 55.8	-21.1	39.4	63 26.9	-18.4	41.9	64 54.3	-15.4	44.7
62	58 18.9	-27.1	33.4	59 58.0	-25.1	35.3	61 34.7	-22.8	37.4	63 08.5	-20.2	39.8	64 38.9	-17.3	42.5
63	57 51.8	-28.4	31.7	59 32.9	-26.5	33.5	61 11.9	-24.4	35.5	62 48.3	-22.1	37.7	64 21.6	-19.4	40.2
64	57 23.4	-29.7	30.1	59 06.4	-27.9	31.7	60 47.5	-26.0	33.6	62 26.2	-23.7	35.7	64 02.2	-21.2	38.1
65	56 53.7	-30.8	28.5	58 38.5	-29.3	30.0	60 21.5	-27.4	31.7	62 02.5	-25.4	33.7	63 41.0	-23.1	35.9
66	56 22.9	-32.0	26.9	58 09.2	-30.5	28.3	59 54.1	-28.9	30.0	61 37.1	-27.0	31.8	63 17.9	-24.8	33.9
67	55 50.9	-33.1	25.4	57 38.7	-31.7	26.7	59 25.2	-30.2	28.2	61 10.1	-28.5	29.9	62 53.1	-26.5	31.9
68	55 17.8	-34.1	23.9	57 07.0	-32.9	25.1	58 55.0	-31.4	26.5	60 41.6	-29.8	28.1	62 26.6	-28.1	29.9
69	54 43.7	-35.1	22.5	56 34.1	-33.9	23.6	58 23.6	-32.7	24.9	60 11.8	-31.3	26.4	61 58.5	-29.6	28.0
70	54 08.6	-36.1	21.1	56 00.2	-35.0	22.1	57 50.9	-33.9	23.3	59 40.5	-32.5	24.6	61 28.9	-31.0	26.2
71	53 32.5	-36.9	19.7	55 25.2	-36.0	20.7	57 17.0	-34.9	21.8	59 08.0	-33.7	23.0	60 57.9	-32.4	24.4
72	52 55.6	-37.8	18.4	54 49.2	-36.9	19.3	56 42.1	-36.0	20.3	58 34.3	-34.9	21.4	60 25.5	-33.7	22.7
73	52 17.8	-38.6	17.1	54 12.3	-37.9	17.9	56 06.1	-36.9	18.8	57 59.4	-36.0	19.9	59 51.8	-34.9	21.0
74	51 39.2	-39.3	15.9	53 34.4	-38.6	16.6	55 29.2	-37.9	17.4	57 23.4	-37.0	18.4	59 16.9	-36.0	19.4
75	50 59.9	-40.1	14.7	52 55.8	-39.5	15.3	54 51.3	-38.8	16.1	56 46.4	-38.0	16.9	58 40.9	-37.1	17.9
76	50 19.8	-40.8	13.5	52 16.3	-40.2	14.1	54 12.5	-39.5	14.8	56 08.4	-38.9	15.5	58 03.8	-38.2	16.4
77	49 39.0	-41.4	12.4	51 36.1	-40.9	12.9	53 33.0	-40.4	13.5	55 29.5	-39.8	14.1	57 25.6	-39.0	14.9
78	48 57.6	-42.1	11.2	50 55.2	-41.6	11.7	52 52.6	-41.2	12.2	54 49.7	-40.6	12.8	56 46.6	-40.1	13.5
79	48 15.5	-42.6	10.2	50 13.6	-42.3	10.6	52 11.4	-41.8	11.0	54 09.1	-41.4	11.6	56 06.5	-40.8	12.2
80	47 32.9	-43.2	9.1	49 31.3	-42.8	9.5	51 29.6	-42.5	9.9	53 27.7	-42.1	10.3	55 25.7	-41.7	10.9
81	46 49.7	-43.7	8.1	48 48.5	-43.5	8.4	50 47.1	-43.1	8.8	52 45.6	-42.7	9.2	54 44.0	-42.4	9.6
82	46 06.0	-44.3	7.1	48 05.0	-44.0	7.4	50 04.0	-43.7	7.7	52 02.9	-43.5	8.0	54 01.6	-43.1	8.4
83	45 21.7	-44.7	6.1	47 21.0	-44.5	6.4	49 20.3	-44.3	6.6	51 19.4	-44.0	6.9	53 18.5	-43.8	7.2
84	44 37.0	-45.1	5.2	46 36.5	-45.0	5.4	48 36.0	-44.9	5.6	50 35.4	-44.7	5.8	52 34.7	-44.4	6.1
85	43 51.9	-45.6	4.3	45 51.5	-45.4	4.4	47 51.1	-45.3	4.6	49 50.7	-45.1	4.8	51 50.3	-45.0	5.0
86	43 06.3	-46.0	3.4	45 06.1	-46.0	3.5	47 05.8	-45.8	3.6	49 05.6	-45.7	3.8	51 05.3	-45.6	3.9
87	42 20.3	-46.4	2.5	44 20.1	-46.3	2.6	46 20.0	-46.2	2.7	48 19.9	-46.2	2.8	50 19.7	-46.1	2.9
88	41 33.9	-46.8	1.6	43 33.8	-46.7	1.7	45 33.8	-46.7	1.8	47 33.7	-46.6	1.8	49 33.6	-46.5	1.9
89	40 47.1	-47.1	0.8	42 47.1	-47.1	0.8	44 47.1	-47.1	0.9	46 47.1	-47.1	0.9	48 47.1	-47.1	0.9
90	40 00.0	-47.4	0.0	42 00.0	-47.5	0.0	44 00.0	-47.5	0.0	46 00.0	-47.5	0.0	48 00.0	-47.5	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 38°, 322°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
11	37.1	-52.6 147.0	9	56.3	-53.2 147.2	8	15.3	-53.7 147.4	6	34.1	-54.2 147.5	4	52.8	-54.6 147.6	30
10	44.5	-52.7 147.5	9	03.1	-53.2 147.7	7	21.6	-53.7 147.9	5	39.9	-54.1 148.0	3	58.2	-54.7 148.1	31
9	51.8	-52.7 148.0	8	09.9	-53.2 148.2	6	27.9	-53.7 148.3	4	45.8	-54.2 148.4	3	03.5	-54.7 148.5	32
8	59.1	-52.7 148.5	7	16.7	-53.2 148.6	5	34.2	-53.7 148.7	3	51.6	-54.3 148.8	2	08.8	-54.6 148.9	33
8	06.4	-52.8 149.0	6	23.5	-53.3 149.1	4	40.5	-53.8 149.2	2	57.3	-54.2 149.3	1	14.2	-54.7 149.3	34
7	13.6	-52.8 149.4	5	30.2	-53.3 149.6	3	46.7	-53.8 149.6	2	03.1	-54.2 149.7	0	19.5	-54.7 149.7	35
6	20.8	-52.8 149.9	4	36.9	-53.3 150.0	2	52.9	-53.8 150.1	1	08.9	-54.2 150.1	0	35.2	+54.6 29.9	36
5	28.0	-52.9 150.4	3	43.6	-53.3 150.5	1	59.1	-53.8 150.5	0	14.7	-54.3 150.5	1	29.8	+54.7 29.5	37
4	35.1	-52.8 150.9	2	50.3	-53.4 150.9	1	05.3	-53.7 151.0	0	39.6	+54.2 29.0	2	24.5	+54.7 29.1	38
3	42.3	-52.9 151.3	1	56.9	-53.3 151.4	0	11.6	-53.8 151.4	1	33.8	+54.2 28.6	3	19.2	+54.6 28.6	39
2	49.4	-52.9 151.8	1	03.6	-53.4 151.9	0	42.2	+53.8 28.1	2	28.0	+54.3 28.2	4	13.8	+54.6 28.2	40
1	56.5	-52.9 152.3	0	10.2	-53.3 152.3	1	36.0	+53.8 27.7	3	22.3	+54.2 27.7	5	08.4	+54.7 27.8	41
1	03.6	-52.9 152.8	0	43.1	+53.4 27.2	2	29.8	+53.8 27.3	4	16.5	+54.2 27.3	6	03.1	+54.6 27.4	42
0	10.7	-52.9 153.2	1	36.5	+53.3 26.8	3	23.6	+53.8 26.8	5	10.7	+54.1 26.9	6	57.7	+54.5 27.0	43
0	42.2	+52.9 26.3	2	29.8	+53.4 26.3	4	17.4	+53.7 26.4	6	04.8	+54.2 26.4	7	52.2	+54.6 26.6	44
1	35.1	+52.9 25.8	3	23.2	+53.3 25.9	5	11.1	+53.7 25.9	6	59.0	+54.1 26.0	8	46.8	+54.5 26.1	45
2	28.0	+52.9 25.3	4	16.5	+53.3 25.4	6	04.8	+53.8 25.5	7	53.1	+54.1 25.6	9	41.3	+54.5 25.7	46
3	20.9	+52.9 24.9	5	09.8	+53.3 24.9	6	58.6	+53.6 25.0	8	47.2	+54.1 25.1	10	35.8	+54.5 25.3	47
4	13.8	+52.9 24.4	6	03.1	+53.2 24.5	7	52.2	+53.7 24.6	9	41.3	+54.1 24.7	11	30.3	+54.4 24.9	48
5	06.7	+52.8 23.9	6	56.3	+53.3 24.0	8	45.9	+53.6 24.1	10	35.4	+54.0 24.3	12	24.7	+54.4 24.4	49
5	59.5	+52.8 23.4	7	49.6	+53.2 23.5	9	39.5	+53.6 23.7	11	29.4	+53.9 23.8	13	19.1	+54.3 24.0	50
6	52.3	+52.8 23.0	8	42.8	+53.1 23.1	10	33.1	+53.5 23.2	12	23.3	+53.9 23.4	14	13.4	+54.3 23.6	51
7	45.1	+52.7 22.5	9	35.9	+53.2 22.6	11	26.6	+53.6 22.8	13	17.2	+53.9 22.9	15	07.7	+54.2 23.1	52
8	37.8	+52.8 22.0	10	29.1	+53.0 22.1	12	20.2	+53.4 22.3	14	11.1	+53.8 22.5	16	01.9	+54.2 22.7	53
9	30.6	+52.6 21.5	11	22.1	+53.1 21.7	13	13.6	+53.4 21.8	15	04.9	+53.8 22.0	16	56.1	+54.1 22.2	54
10	23.2	+52.7 21.0	12	15.2	+53.0 21.2	14	07.0	+53.4 21.4	15	58.7	+53.7 21.6	17	50.2	+54.1 21.8	55
11	15.9	+52.5 20.6	13	08.2	+52.9 20.7	15	00.4	+53.3 20.9	16	52.4	+53.6 21.1	18	44.3	+54.0 21.3	56
12	08.4	+52.6 20.1	14	01.1	+52.9 20.2	15	53.7	+53.2 20.4	17	46.0	+53.6 20.6	19	38.3	+53.9 20.9	57
13	01.0	+52.5 19.6	14	54.0	+52.8 19.7	16	46.9	+53.1 19.9	18	39.6	+53.5 20.1	20	32.2	+53.8 20.4	58
13	53.5	+52.4 19.1	15	46.8	+52.8 19.2	17	40.0	+53.1 19.4	19	33.1	+53.5 19.7	21	26.0	+53.8 19.9	59
14	45.9	+52.3 18.6	16	39.6	+52.6 18.7	18	33.1	+53.0 18.9	20	26.6	+53.3 19.2	22	19.8	+53.7 19.4	60
15	38.2	+52.3 18.1	17	32.2	+52.6 18.2	19	26.1	+53.0 18.5	21	19.9	+53.3 18.7	23	13.5	+53.6 19.0	61
16	30.5	+52.2 17.5	18	24.8	+52.6 17.7	20	19.1	+52.8 18.0	22	13.2	+53.1 18.2	24	07.1	+53.5 18.5	62
17	22.7	+52.1 17.0	19	17.4	+52.4 17.2	21	11.9	+52.8 17.4	23	06.3	+53.1 17.7	25	00.6	+53.4 18.0	63
18	14.8	+52.0 16.5	20	09.8	+52.3 16.7	22	04.7	+52.6 16.9	23	59.4	+53.0 17.2	25	54.0	+53.2 17.5	64
19	06.8	+52.0 16.0	21	02.1	+52.3 16.2	22	57.3	+52.6 16.4	24	52.4	+52.8 16.7	26	47.2	+53.2 16.9	65
19	58.8	+51.8 15.5	21	54.4	+52.1 15.7	23	49.9	+52.4 15.9	25	45.2	+52.8 16.1	27	40.4	+53.1 16.4	66
20	50.6	+51.8 14.9	22	46.5	+52.1 15.1	24	42.3	+52.3 15.4	26	38.0	+52.6 15.6	28	33.5	+52.9 15.9	67
21	42.4	+51.6 14.4	23	38.6	+51.9 14.6	25	34.6	+52.3 14.8	27	30.6	+52.5 15.1	29	26.4	+52.8 15.4	68
22	34.0	+51.6 13.8	24	30.5	+51.8 14.0	26	26.9	+52.0 14.3	28	23.1	+52.4 14.5	30	19.2	+52.6 14.8	69
23	25.6	+51.4 13.3	25	22.3	+51.7 13.5	27	18.9	+52.0 13.7	29	15.5	+52.0 14.0	31	11.8	+52.5 14.3	70
24	17.0	+51.2 12.7	26	14.0	+51.5 12.9	28	10.9	+51.8 13.1	30	07.7	+52.1 13.4	32	04.3	+52.4 13.7	71
25	08.2	+51.2 12.1	27	05.5	+51.4 12.3	29	02.7	+51.6 12.6	30	59.8	+51.9 12.8	32	56.7	+52.2 13.1	72
25	59.4	+51.0 11.6	27	56.9	+51.3 11.8	29	54.3	+51.5 12.0	31	51.7	+51.7 12.2	33	48.9	+52.0 12.5	73
26	50.4	+50.8 11.0	28	48.2	+51.1 11.2	30	45.8	+51.4 11.4	32	43.4	+51.6 11.6	34	40.9	+51.8 11.9	74
27	41.2	+50.8 10.4	29	39.3	+50.9 10.6	31	37.2	+51.1 10.8	33	35.0	+51.4 11.0	35	32.7	+51.7 11.3	75
28	32.0	+50.5 9.8	30	30.2	+50.7 10.0	32	28.3	+51.0 10.2	34	26.4	+51.2 10.4	36	24.4	+51.4 10.7	76
29	22.5	+50.4 9.1	31	20.9	+50.6 9.3	33	19.3	+50.8 9.5	35	17.6	+51.0 9.8	37	15.8	+51.3 10.0	77
30	12.9	+50.1 8.5	32	11.5	+50.4 8.7	34	10.1	+50.6 8.9	36	08.6	+50.8 9.1	38	07.1	+51.0 9.4	78
31	03.0	+50.0 7.9	33	01.9	+50.2 8.1	35	00.7	+50.3 8.2	36	59.4	+50.6 8.5	38	58.1	+50.7 8.7	79
31	53.0	+49.8 7.2	33	52.1	+49.9 7.4	35	51.0	+50.2 7.6	37	50.0	+50.3 7.8	39	48.8	+50.5 8.0	80
32	42.8	+49.6 6.6	34	42.0	+49.8 6.7	36	41.2	+49.9 6.9	38	40.3	+50.0 7.1	40	39.3	+50.3 7.3	81
33	32.4	+49.4 5.9	35	31.8	+49.5 6.0	37	31.1	+49.6 6.2	39	30.3	+49.9 6.4	41	29.6	+50.0 6.6	82
34	21.8	+49.1 5.2	36	21.3	+49.2 5.3	38	20.7	+49.4 5.5	40	20.2	+49.5 5.6	42	19.6	+49.6 5.8	83
35	10.9	+48.9 4.5	37	10.5	+49.0 4.6	39	10.1	+49.1 4.8	41	09.7	+49.2 4.9	43	09.2	+49.4 5.1	84
35	59.8	+48.6 3.8	37	59.5	+48.7 3.9	39	59.2	+48.8 4.0	41	58.9	+48.9 4.1	43	58.6	+49.0 4.3	85
36	48.4	+48.3 3.1	38	48.2	+48.4 3.2	40	48.0	+48.5 3.3	42	47.8	+48.6 3.4	44	47.6	+48.7 3.5	86
37	36.7	+48.1 2.3	39	36.6	+48.1 2.4	41	36.5	+48.2 2.5	43	36.4	+48.2 2.6	45	36.3	+48.3 2.6	87
38	24.8	+47.8 1.6	40	24.7	+47.8 1.6	42	24.7	+47.8 1.7	44	24.6	+47.9 1.7	46	24.6	+47.9 1.8	88
39	12.6	+47.4 0.8	41	12.5	+47.5 0.8	43	12.5	+47.5 0.8	45	12.5	+47.5 0.9	47	12.5	+47.5 0.9	89
40	00.0	+47.1 0.0	42	00.0	+47.1 0.0	44	00.0	+47.1 0.0	46	00.0	+47.1 0.0	48	00.0	+47.1 0.0	90

LATITUDE SAME NAME

L.H.A. 142°, 218°

38°, 322° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	55 15.2	+42.8	110.7	54 30.2	+45.2	113.3	53 40.3	+47.2	115.8	52 45.7	+49.2	118.2	51 46.9	+50.8	120.5
31	55 58.0	+42.1	109.5	55 15.4	+44.4	112.2	54 27.5	+46.7	114.8	53 34.9	+48.6	117.3	52 37.7	+50.4	119.6
32	56 40.1	+41.2	108.2	55 59.8	+43.8	111.0	55 14.2	+46.1	113.7	54 23.5	+48.1	116.3	53 28.1	+50.0	118.7
33	57 21.3	+40.3	106.8	56 43.6	+43.0	109.8	56 00.3	+45.4	112.6	55 11.6	+47.6	115.2	54 18.1	+49.5	117.8
34	58 01.6	+39.4	105.4	57 26.6	+42.2	108.5	56 45.7	+44.7	111.4	55 59.2	+47.0	114.2	55 07.6	+49.0	116.8
35	58 41.0	+38.4	104.0	58 08.8	+41.3	107.1	57 30.4	+43.9	110.2	56 46.2	+46.3	113.0	55 56.6	+48.5	115.8
36	59 19.4	+37.3	102.5	58 50.1	+40.3	105.8	58 14.3	+43.2	108.9	57 32.5	+45.7	111.9	56 45.1	+47.9	114.7
37	59 56.7	+36.2	101.0	59 30.4	+39.4	104.3	58 57.5	+42.3	107.5	58 18.2	+45.0	110.6	57 33.0	+47.3	113.6
38	60 32.9	+35.0	99.4	60 09.8	+38.3	102.8	59 39.8	+41.4	106.2	59 03.2	+44.1	109.4	58 20.3	+46.7	112.4
39	61 07.9	+33.7	97.7	60 48.1	+37.2	101.2	60 21.2	+40.4	104.7	59 47.3	+43.4	108.0	59 07.0	+46.0	111.2
40	61 41.6	+32.4	96.0	61 25.3	+36.0	99.6	61 01.6	+39.3	103.2	60 30.7	+42.4	106.6	59 53.0	+45.2	110.0
41	62 14.0	+30.9	94.2	62 01.3	+34.7	97.9	61 40.9	+38.2	101.6	61 13.1	+41.4	105.2	60 38.2	+44.3	108.6
42	62 44.9	+29.4	92.3	62 36.0	+33.3	96.2	62 19.1	+37.0	100.0	61 54.5	+40.4	103.7	61 22.5	+43.5	107.2
43	63 14.3	+27.8	90.4	63 09.3	+31.9	94.4	62 56.1	+35.8	98.3	62 34.9	+39.3	102.1	62 06.0	+42.5	105.8
44	63 42.1	+26.1	88.4	63 41.2	+30.3	92.5	63 31.9	+34.3	96.5	63 14.2	+38.1	100.4	62 48.5	+41.5	104.3
45	64 08.2	+24.4	86.4	64 11.5	+28.7	90.5	64 06.2	+32.8	94.6	63 52.3	+36.7	98.7	63 30.0	+40.4	102.7
46	64 32.6	+22.4	84.3	64 40.2	+26.9	88.5	64 39.0	+31.3	92.7	64 29.0	+35.4	96.9	64 10.4	+39.1	101.0
47	64 55.0	+20.6	82.1	65 07.1	+25.2	86.4	65 10.3	+29.5	90.7	65 04.4	+33.8	95.0	64 49.5	+37.8	99.2
48	65 15.6	+18.5	79.8	65 32.3	+23.1	84.2	65 39.8	+27.8	88.6	65 38.2	+32.2	93.0	65 27.3	+36.4	97.4
49	65 34.1	+16.3	77.6	65 55.4	+21.2	81.9	66 07.6	+25.9	86.4	66 10.4	+30.5	90.9	66 03.7	+34.9	95.4
50	65 50.4	+14.2	75.2	66 16.6	+19.0	79.6	66 33.5	+23.9	84.2	66 40.9	+28.7	88.8	66 38.6	+33.3	93.4
51	66 04.6	+12.0	72.8	66 35.6	+16.9	77.2	66 57.4	+21.8	81.8	67 09.6	+26.7	86.5	67 11.9	+31.5	91.3
52	66 16.6	+9.6	70.4	66 52.5	+14.5	74.8	67 19.2	+19.6	79.4	67 36.3	+24.7	84.2	67 43.4	+29.6	89.1
53	66 26.2	+7.3	68.0	67 07.0	+12.2	72.3	67 38.8	+17.3	77.0	68 01.0	+22.4	81.8	68 13.0	+27.5	86.8
54	66 33.5	+4.9	65.5	67 19.2	+9.8	69.8	67 56.1	+14.9	74.4	68 23.4	+20.1	79.3	68 40.5	+25.4	84.3
55	66 38.4	+2.5	63.0	67 29.0	+7.3	67.2	68 11.0	+12.4	71.8	68 43.5	+17.8	76.7	69 05.9	+23.1	81.8
56	66 40.9	+0.1	60.4	67 36.3	+4.8	64.6	68 23.4	+9.9	69.2	69 01.3	+15.2	74.1	69 29.0	+20.7	79.2
57	66 41.0	-2.4	57.9	67 41.1	+2.3	62.0	68 33.3	+7.2	66.5	69 16.5	+12.5	71.4	69 49.7	+18.1	76.5
58	66 38.6	-4.7	55.4	67 43.4	-0.3	59.4	68 40.5	+4.6	63.8	69 29.0	+9.9	68.6	70 07.8	+15.5	73.7
59	66 33.9	-7.2	52.9	67 43.1	-2.9	56.7	68 45.1	+1.9	61.0	69 38.9	+7.1	65.7	70 23.3	+12.7	70.9
60	66 26.7	-9.5	50.4	67 40.2	-5.4	54.1	68 47.0	-0.8	58.3	69 46.0	+4.3	62.9	70 36.0	+9.8	67.9
61	66 17.2	-11.9	47.9	67 34.8	-7.9	51.5	68 46.2	-3.5	55.5	69 50.3	+1.5	60.0	70 45.8	+6.9	65.0
62	66 05.3	-14.0	45.5	67 26.9	-10.3	48.9	68 42.7	-6.1	52.8	69 51.8	-1.5	57.1	70 52.7	+3.9	61.9
63	65 51.3	-16.3	43.1	67 16.6	-12.8	46.3	68 36.6	-8.8	50.0	69 50.3	-4.2	54.2	70 56.6	+0.8	58.9
64	65 35.0	-18.4	40.8	67 03.8	-15.1	43.8	68 27.8	-11.3	47.3	69 46.1	-7.1	51.3	70 57.4	-2.1	55.8
65	65 16.6	-20.4	38.5	66 48.7	-17.4	41.4	68 16.5	-13.9	44.7	69 39.0	-9.8	48.4	70 55.3	-5.2	52.8
66	64 56.2	-22.4	36.2	66 31.3	-19.6	38.9	68 02.6	-16.3	42.0	69 29.2	-12.5	45.6	70 50.1	-8.2	49.7
67	64 33.8	-24.2	34.1	66 11.7	-21.6	36.6	67 46.3	-18.6	39.5	69 16.7	-15.2	42.8	70 41.9	-11.0	46.7
68	64 09.6	-26.1	31.9	65 50.1	-23.6	34.3	67 27.7	-20.9	37.0	69 01.5	-17.6	40.1	70 30.9	-13.9	43.7
69	63 43.5	-27.7	29.9	65 26.5	-25.6	32.1	67 06.8	-23.1	34.6	68 43.9	-20.1	37.5	70 17.0	-16.7	40.8
70	63 15.8	-29.3	27.9	65 00.9	-27.4	29.9	66 43.7	-25.1	32.2	68 23.8	-22.4	34.9	70 00.3	-19.2	38.0
71	62 46.5	-30.8	26.0	64 33.5	-29.0	27.8	66 18.6	-27.0	29.9	68 01.4	-24.6	32.4	69 41.1	-21.8	35.3
72	62 15.7	-32.3	24.1	64 04.5	-30.7	25.8	65 51.6	-28.8	27.7	67 36.8	-26.7	30.0	69 19.3	-24.1	32.6
73	61 43.4	-33.7	22.3	63 33.8	-32.3	23.8	65 22.8	-30.6	25.6	67 10.1	-28.7	27.6	68 55.2	-26.3	30.0
74	61 09.7	-34.9	20.6	63 01.5	-33.6	22.0	64 52.2	-32.2	23.6	66 41.4	-30.4	25.4	68 28.9	-28.5	27.6
75	60 34.8	-36.2	18.9	62 27.9	-35.0	20.2	64 20.0	-33.7	21.6	66 11.0	-32.2	23.2	68 00.4	-30.4	25.2
76	59 58.6	-37.2	17.3	61 52.9	-36.3	18.4	63 46.3	-35.1	19.7	65 38.8	-33.9	21.2	67 30.0	-32.3	22.9
77	59 21.4	-38.4	15.8	61 16.6	-37.5	16.7	63 11.2	-36.5	17.9	65 04.9	-35.3	19.2	66 57.7	-33.9	20.7
78	58 43.0	-39.3	14.3	60 39.1	-38.6	15.1	62 34.7	-37.7	16.1	64 29.6	-36.7	17.3	66 23.8	-35.6	18.6
79	58 03.7	-40.3	12.8	60 00.5	-39.6	13.6	61 57.0	-38.9	14.5	63 52.9	-38.0	15.5	65 48.2	-37.0	16.7
80	57 23.4	-41.1	11.4	59 20.9	-40.6	12.1	61 18.1	-40.0	12.9	63 14.9	-39.3	13.7	65 11.2	-38.4	14.8
81	56 42.3	-42.0	10.1	58 40.3	-41.5	10.7	60 38.1	-41.0	11.3	62 35.6	-40.4	12.1	64 32.8	-39.7	12.9
82	56 00.3	-42.8	8.8	57 58.8	-42.4	9.3	59 57.1	-41.9	9.9	61 55.2	-41.4	10.5	63 53.1	-40.9	11.2
83	55 17.5	-43.5	7.6	57 16.4	-43.2	8.0	59 15.2	-42.8	8.4	61 13.8	-42.4	9.0	63 12.2	-41.9	9.6
84	54 34.0	-44.2	6.4	56 33.2	-43.9	6.7	58 32.4	-43.7	7.1	60 31.4	-43.3	7.5	62 30.3	-42.9	8.0
85	53 49.8	-44.8	5.2	55 49.3	-44.6	5.5	57 48.7	-44.4	5.8	59 48.1	-44.2	6.1	61 47.4	-43.9	6.5
86	53 05.0	-45.4	4.1	55 04.7	-45.3	4.3	57 04.3	-45.1	4.5	59 03.9	-44.9	4.8	61 03.5	-44.7	5.1
87	52 19.6	-46.0	3.0	54 19.4	-45.9	3.2	56 19.2	-45.8	3.3	58 19.0	-45.7	3.5	60 18.8	-45.6	3.7
88	51 33.6	-46.6	2.0	53 33.5	-46.5	2.1	55 33.4	-46.4	2.2	57 33.3	-46.3	2.3	59 33.2	-46.2	2.4
89	50 47.0	-47.0	1.0	52 47.0	-47.0	1.0	54 47.0	-47.0	1.1	56 47.0	-47.0	1.1	58 47.0	-47.0	1.2
90	50 00.0	-47.5	0.0	52 00.0	-47.5	0.0	54 00.0	-47.5	0.0	56 00.0	-47.6	0.0	58 00.0	-47.6	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 38°, 322°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
3	11.4	-55.1 147.7	1	29.9	-55.5 147.8	0	11.6	+56.0 32.2	1	53.1	+56.4 32.2	3	34.6	+56.7 32.3	30
2	16.3	-55.1 148.1	0	34.4	-55.6 148.1	1	07.6	+55.9 31.9	2	49.5	+56.3 31.9	4	31.3	+56.7 32.0	31
1	21.2	-55.1 148.5	0	21.2	+55.5 31.5	2	03.5	+55.9 31.5	3	45.8	+56.3 31.5	5	28.0	+56.7 31.6	32
0	26.1	-55.1 148.9	1	16.7	+55.5 31.1	2	59.4	+55.9 31.1	4	42.1	+56.3 31.2	6	24.7	+56.7 31.3	33
0	29.0	+55.1 30.7	2	12.2	+55.5 30.7	3	55.3	+55.9 30.8	5	38.4	+56.3 30.9	7	21.4	+56.6 31.0	34
1	24.1	+55.1 30.3	3	07.7	+55.5 30.3	4	51.2	+55.9 30.4	6	34.7	+56.3 30.5	8	18.0	+56.6 30.6	35
2	19.2	+55.1 29.9	4	03.2	+55.5 30.0	5	47.1	+55.9 30.0	7	31.0	+56.2 30.2	9	14.6	+56.7 30.3	36
3	14.3	+55.1 29.5	4	58.7	+55.5 29.6	6	43.0	+55.9 29.7	8	27.2	+56.3 29.8	10	11.3	+56.6 30.0	37
4	09.4	+55.0 29.1	5	54.2	+55.4 29.2	7	38.9	+55.8 29.3	9	23.5	+56.2 29.5	11	07.9	+56.5 29.6	38
5	04.4	+55.1 28.7	6	49.6	+55.5 28.8	8	34.7	+55.9 28.9	10	19.7	+56.2 29.1	12	04.4	+56.6 29.3	39
5	59.5	+55.0 28.3	7	45.1	+55.4 28.4	9	30.6	+55.8 28.6	11	15.9	+56.1 28.7	13	01.0	+56.5 29.0	40
6	54.5	+55.1 27.9	8	40.5	+55.4 28.0	10	26.4	+55.7 28.2	12	12.0	+56.2 28.4	13	57.5	+56.5 28.6	41
7	49.6	+54.9 27.5	9	35.9	+55.4 27.6	11	22.1	+55.8 27.8	13	08.2	+56.1 28.0	14	54.0	+56.5 28.3	42
8	44.5	+55.0 27.1	10	31.3	+55.3 27.3	12	17.9	+55.7 27.4	14	04.3	+56.1 27.7	15	50.5	+56.4 27.9	43
9	39.5	+55.0 26.7	11	26.6	+55.4 26.9	13	13.6	+55.7 27.1	15	00.4	+56.0 27.3	16	46.9	+56.4 27.6	44
10	34.5	+54.9 26.3	12	22.0	+55.2 26.5	14	09.3	+55.6 26.7	15	56.4	+56.0 26.9	17	43.3	+56.3 27.2	45
11	29.4	+54.8 25.9	13	17.2	+55.3 26.1	15	04.9	+55.6 26.3	16	52.4	+56.0 26.5	18	39.6	+56.3 26.8	46
12	24.2	+54.9 25.5	14	12.5	+55.2 25.7	16	00.5	+55.6 25.9	17	48.4	+55.9 26.2	19	35.9	+56.3 26.5	47
13	19.1	+54.8 25.0	15	07.7	+55.1 25.3	16	56.1	+55.5 25.5	18	44.3	+55.9 25.8	20	32.2	+56.2 26.1	48
14	13.9	+54.7 24.6	16	02.8	+55.2 24.9	17	51.6	+55.5 25.1	19	40.2	+55.8 25.4	21	28.4	+56.2 25.7	49
15	08.6	+54.7 24.2	16	58.0	+55.0 24.4	18	47.1	+55.4 24.7	20	36.0	+55.7 25.0	22	24.6	+56.1 25.3	50
16	03.3	+54.7 23.8	17	53.0	+55.0 24.0	19	42.5	+55.4 24.3	21	31.7	+55.8 24.6	23	20.7	+56.0 25.0	51
16	58.0	+54.6 23.3	18	48.0	+55.0 23.6	20	37.9	+55.3 23.9	22	27.5	+55.6 24.2	24	16.7	+56.0 24.6	52
17	52.6	+54.5 22.9	19	43.0	+54.9 23.2	21	33.2	+55.2 23.5	23	23.1	+55.6 23.8	25	12.7	+56.0 24.2	53
18	47.1	+54.5 22.5	20	37.9	+54.8 22.7	22	28.4	+55.2 23.1	24	18.7	+55.5 23.4	26	08.7	+55.8 23.8	54
19	41.6	+54.4 22.0	21	32.7	+54.8 22.3	23	23.6	+55.1 22.6	25	14.2	+55.5 23.0	27	04.3	+55.8 23.4	55
20	36.0	+54.3 21.6	22	27.5	+54.6 21.9	24	18.7	+55.0 22.2	26	09.7	+55.3 22.6	28	00.3	+55.7 23.0	56
21	30.3	+54.3 21.1	23	22.1	+54.6 21.4	25	13.7	+55.0 21.8	27	05.0	+55.3 22.1	28	56.0	+55.7 22.5	57
22	24.6	+54.2 20.7	24	16.7	+54.6 21.0	26	08.7	+54.8 21.3	28	00.3	+55.2 21.7	29	51.7	+55.5 22.1	58
23	18.8	+54.1 20.2	25	11.3	+54.4 20.5	27	03.5	+54.8 20.9	28	55.5	+55.1 21.2	30	47.2	+55.5 21.7	59
24	12.9	+54.0 19.7	26	05.7	+54.4 20.0	27	58.3	+54.7 20.4	29	50.6	+55.1 20.8	31	42.7	+55.3 21.2	60
25	06.9	+53.9 19.2	27	00.1	+54.2 19.6	28	53.0	+54.6 19.9	30	45.7	+54.9 20.3	32	38.0	+55.3 20.8	61
26	00.8	+53.8 18.8	27	54.3	+54.2 19.1	29	47.6	+54.5 19.5	31	40.6	+54.8 19.9	33	33.3	+55.2 20.3	62
26	54.6	+53.7 18.3	28	48.5	+54.0 18.6	30	42.1	+54.3 19.0	32	35.4	+54.7 19.4	34	28.5	+55.0 19.8	63
27	48.3	+53.6 17.8	29	42.5	+53.9 18.1	31	36.4	+54.3 18.5	33	30.1	+54.6 18.9	35	23.5	+54.9 19.3	64
28	41.9	+53.5 17.3	30	36.4	+53.8 17.6	32	30.7	+54.1 18.0	34	24.7	+54.5 18.4	36	18.4	+54.8 18.8	65
29	35.4	+53.4 16.7	31	30.2	+53.7 17.1	33	24.8	+54.0 17.5	35	19.2	+54.3 17.9	37	13.2	+54.7 18.3	66
30	28.8	+53.2 16.2	32	23.9	+53.6 16.6	34	18.8	+53.9 16.9	36	13.5	+54.2 17.3	38	07.9	+54.5 17.8	67
31	22.0	+53.1 15.7	33	17.5	+53.4 16.0	35	12.7	+53.7 16.4	37	07.7	+54.0 16.8	39	02.4	+54.4 17.3	68
32	15.1	+53.0 15.1	34	10.9	+53.2 15.5	36	06.4	+53.6 15.8	38	01.7	+53.9 16.3	39	56.8	+54.2 16.7	69
33	08.1	+52.8 14.6	35	04.1	+53.1 14.9	37	00.0	+53.4 15.3	38	55.6	+53.7 15.7	40	51.0	+54.1 16.2	70
34	00.9	+52.6 14.0	35	57.2	+52.9 14.3	37	53.4	+53.2 14.7	39	49.3	+53.6 15.1	41	45.1	+53.8 15.6	71
34	53.5	+52.5 13.4	36	50.1	+52.8 13.8	38	46.6	+53.1 14.1	40	42.9	+53.3 14.5	42	38.9	+53.7 15.0	72
35	46.0	+52.3 12.8	37	42.9	+52.6 13.2	39	39.7	+52.8 13.5	41	36.2	+53.2 13.9	43	32.6	+53.5 14.4	73
36	38.3	+52.1 12.2	38	35.5	+52.3 12.5	40	32.5	+52.7 12.9	42	29.4	+53.0 13.3	44	26.1	+53.2 13.7	74
37	30.4	+51.9 11.6	39	27.8	+52.2 11.9	41	25.2	+52.4 12.3	43	22.4	+52.7 12.7	45	19.3	+53.1 13.1	75
38	22.3	+51.6 11.0	40	20.0	+52.0 11.3	42	17.6	+52.2 11.6	44	15.1	+52.5 12.0	46	12.4	+52.8 12.4	76
39	13.9	+51.5 10.3	41	12.0	+51.7 10.6	43	09.8	+52.0 10.9	45	07.6	+52.2 11.3	47	05.2	+52.5 11.7	77
40	05.4	+51.2 9.6	42	03.7	+51.4 9.9	44	01.8	+51.7 10.3	45	59.8	+52.0 10.6	47	57.7	+52.3 11.0	78
40	56.6	+51.0 8.9	42	55.1	+51.2 9.2	44	53.5	+51.5 9.5	46	51.8	+51.7 9.9	48	50.0	+51.9 10.3	79
41	47.6	+50.7 8.2	43	46.3	+51.0 8.5	45	45.0	+51.1 8.8	47	43.5	+51.4 9.1	49	41.9	+51.7 9.5	80
42	38.3	+50.5 7.5	44	37.3	+50.6 7.8	46	36.1	+50.9 8.1	48	34.9	+51.1 8.4	50	33.6	+51.3 8.7	81
43	28.8	+50.1 6.8	45	27.9	+50.3 7.0	47	27.0	+50.5 7.3	49	26.0	+50.7 7.6	51	24.9	+50.9 7.9	82
44	18.9	+49.8 6.0	46	18.2	+50.0 6.2	48	17.5	+50.2 6.5	50	16.7	+50.4 6.7	52	15.8	+50.6 7.0	83
45	08.7	+49.5 5.2	47	08.2	+49.7 5.4	49	07.7	+49.8 5.6	51	07.1	+49.9 5.9	53	06.4	+50.1 6.2	84
45	58.2	+49.2 4.4	47	57.9	+49.2 4.6	49	57.5	+49.4 4.8	51	57.0	+49.6 5.0	53	56.5	+49.8 5.2	85
46	47.4	+48.8 3.6	48	47.1	+48.9 3.7	50	46.9	+49.0 3.9	52	46.6	+49.1 4.1	54	46.3	+49.2 4.3	86
47	36.2	+48.3 2.7	49	36.0	+48.5 2.8	51	35.9	+48.5 3.0	53	35.7	+48.6 3.1	55	35.5	+48.7 3.3	87
48	24.5	+48.0 1.9	50	24.5	+48.0 1.9	52	24.4	+48.1 2.0	54	24.3	+48.1 2.1	56	24.2	+48.2 2.2	88
49	12.5	+47.5 0.9	51	12.5	+47.5 1.0	53	12.5	+47.5 1.0	55	12.4	+47.6 1.1	57	12.4	+47.6 1.1	89
50	00.0	+47.0 0.0	52	00.0	+47.0 0.0	54	00.0	+47.0 0.0	56	00.0	+47.0 0.0	58	00.0	+47.0 0.0	90

LATITUDE SAME NAME

L.H.A. 142°, 218°

40°, 320° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	55 32.5	+10.0	79.7	55 51.0	+13.6	82.6	56 03.4	+17.2	85.5	56 09.7	+20.7	88.5	56 09.7	+24.2	91.5
31	55 42.5	+8.5	77.9	56 04.6	+12.1	80.8	56 20.6	+15.8	83.8	56 30.4	+19.4	86.8	56 33.9	+23.0	89.8
32	55 51.0	+7.0	76.2	56 16.7	+10.6	79.1	56 36.4	+14.2	82.1	56 49.8	+17.9	85.1	56 56.9	+21.5	88.1
33	55 58.0	+5.4	74.4	56 27.3	+9.1	77.3	56 50.6	+12.8	80.3	57 07.7	+16.4	83.3	57 18.4	+20.1	86.4
34	56 03.4	+3.9	72.6	56 36.4	+7.5	75.5	57 03.4	+11.1	78.5	57 24.1	+15.0	81.6	57 38.5	+18.7	84.7
35	56 07.3	+2.4	70.8	56 43.9	+5.9	73.7	57 14.5	+9.6	76.7	57 39.1	+13.3	79.8	57 57.2	+17.1	82.9
36	56 09.7	+0.7	69.0	56 49.8	+4.3	71.9	57 24.1	+8.1	74.9	57 52.4	+11.7	77.9	58 14.3	+15.5	81.1
37	56 10.4	-0.7	67.2	56 54.1	+2.8	70.1	57 32.2	+6.3	73.0	58 04.1	+10.2	76.1	58 29.8	+13.9	79.2
38	56 09.7	-2.4	65.5	56 56.9	+1.1	68.2	57 38.5	+4.8	71.2	58 14.3	+8.4	74.2	58 43.7	+12.3	77.4
39	56 07.3	-3.8	63.7	56 58.0	-0.5	66.4	57 43.3	+3.1	69.3	58 22.7	+6.8	72.3	58 56.0	+10.7	75.5
40	56 03.5	-5.5	61.9	56 57.5	-2.0	64.6	57 46.4	+1.4	67.4	58 29.5	+5.2	70.4	59 06.7	+8.9	73.6
41	55 58.0	-7.0	60.1	56 55.5	-3.7	62.7	57 47.8	-0.2	65.5	58 34.7	+3.4	68.5	59 15.6	+7.2	71.6
42	55 51.0	-8.4	58.3	56 51.8	-5.3	60.9	57 47.6	-1.9	63.7	58 38.1	+1.7	66.6	59 22.8	+5.4	69.7
43	55 42.6	-10.0	56.6	56 46.5	-6.9	59.1	57 45.7	-3.5	61.8	58 39.8	-0.1	64.7	59 28.2	+3.7	67.7
44	55 32.6	-11.5	54.8	56 39.6	-8.4	57.3	57 42.2	-5.2	59.9	58 39.7	-1.7	62.8	59 31.9	+1.9	65.8
45	55 21.1	-12.9	53.1	56 31.2	-10.0	55.5	57 37.0	-6.9	58.1	58 38.0	-3.5	60.8	59 33.8	+0.1	63.8
46	55 08.2	-14.4	51.4	56 21.2	-11.5	53.7	57 30.1	-8.4	56.2	58 34.5	-5.1	58.9	59 33.9	-1.7	61.8
47	54 53.8	-15.7	49.7	56 09.7	-13.0	51.9	57 21.7	-10.0	54.4	58 29.4	-6.9	57.0	59 32.2	-3.4	59.8
48	54 38.1	-17.1	48.0	55 56.7	-14.5	50.2	57 11.7	-11.7	52.5	58 22.5	-8.5	55.1	59 28.8	-5.2	57.9
49	54 21.0	-18.4	46.3	55 42.2	-15.9	48.5	57 00.0	-13.1	50.7	58 14.0	-10.2	53.2	59 23.6	-7.0	55.9
50	54 02.6	-19.8	44.7	55 26.3	-17.3	46.7	56 46.9	-14.7	49.0	58 03.8	-11.8	51.4	59 16.6	-8.7	54.0
51	53 42.8	-21.0	43.1	55 09.0	-18.6	45.1	56 32.2	-16.1	47.2	57 52.0	-13.4	49.5	59 07.9	-10.4	52.0
52	53 21.8	-22.2	41.5	54 50.4	-20.0	43.4	56 16.1	-17.6	45.5	57 38.6	-15.0	47.7	58 57.5	-12.1	50.1
53	52 59.6	-23.4	40.0	54 30.4	-21.3	41.8	55 58.5	-19.0	43.7	57 23.6	-16.4	45.9	58 45.4	-13.7	48.2
54	52 36.2	-24.5	38.5	54 09.1	-22.6	40.2	55 39.5	-20.4	42.0	57 07.2	-18.0	44.1	58 31.7	-15.3	46.4
55	52 11.7	-25.7	37.0	53 46.5	-23.8	38.6	55 19.1	-21.7	40.4	56 49.2	-19.4	42.4	58 16.4	-16.9	44.5
56	51 46.0	-26.8	35.5	53 22.7	-24.9	37.1	54 57.4	-22.9	38.8	56 29.8	-20.8	40.6	57 59.5	-18.5	42.7
57	51 19.2	-27.7	34.1	52 57.8	-26.1	35.5	54 34.5	-24.3	37.2	56 09.0	-22.2	38.9	57 41.0	-19.9	40.9
58	50 51.5	-28.8	32.7	52 31.7	-27.2	34.0	54 10.2	-25.4	35.6	55 46.8	-23.5	37.3	57 21.1	-21.4	39.2
59	50 22.7	-29.8	31.3	52 04.5	-28.2	32.6	53 44.8	-26.6	34.0	55 23.3	-24.8	35.7	56 59.7	-22.7	37.4
60	49 52.9	-30.7	29.9	51 36.3	-29.3	31.2	53 18.2	-27.7	32.5	54 58.5	-26.0	34.1	56 37.0	-24.1	35.7
61	49 22.2	-31.5	28.6	51 07.0	-30.2	29.8	52 50.5	-28.8	31.1	54 32.5	-27.1	32.5	56 12.9	-25.4	34.1
62	48 50.7	-32.4	27.3	50 36.8	-31.2	28.4	52 21.7	-29.8	29.6	54 05.4	-28.3	31.0	55 47.5	-26.7	32.5
63	48 18.3	-33.3	26.0	50 05.6	-32.1	27.1	51 51.9	-30.8	28.2	53 37.1	-29.4	29.5	55 20.8	-27.8	30.9
64	47 45.0	-34.0	24.8	49 33.5	-32.9	25.7	51 21.1	-31.7	26.8	53 07.7	-30.5	28.0	54 53.0	-29.0	29.3
65	47 11.0	-34.8	23.6	49 00.6	-33.8	24.5	50 49.4	-32.7	25.5	52 37.2	-31.4	26.6	54 24.0	-30.2	27.8
66	46 36.2	-35.6	22.4	48 26.8	-34.6	23.2	50 16.7	-33.5	24.1	52 05.8	-32.5	25.2	53 53.8	-31.1	26.3
67	46 00.6	-36.2	21.2	47 52.2	-35.3	22.0	49 43.2	-34.4	22.9	51 33.3	-33.3	23.8	53 22.7	-32.2	24.9
68	45 24.4	-36.9	20.1	47 16.9	-36.1	20.8	49 08.8	-35.2	21.6	51 00.0	-34.2	22.5	52 50.5	-33.2	23.5
69	44 47.5	-37.5	18.9	46 40.8	-36.8	19.6	48 33.6	-36.0	20.4	50 25.8	-35.1	21.2	52 17.3	-34.1	22.1
70	44 10.0	-38.1	17.8	46 04.0	-37.4	18.5	47 57.6	-36.7	19.2	49 50.7	-35.9	19.9	51 43.2	-35.0	20.8
71	43 31.9	-38.8	16.8	45 26.6	-38.1	17.4	47 20.9	-37.4	18.0	49 14.8	-36.6	18.7	51 08.2	-35.8	19.5
72	42 53.1	-39.3	15.7	44 48.5	-38.7	16.3	46 43.5	-38.1	16.8	48 38.2	-37.4	17.5	50 32.4	-36.6	18.2
73	42 13.8	-39.8	14.7	44 09.8	-39.3	15.2	46 05.4	-38.7	15.7	48 00.8	-38.1	16.3	49 55.8	-37.5	17.0
74	41 34.0	-40.3	13.7	43 30.5	-39.9	14.1	45 26.7	-39.3	14.6	47 22.7	-38.8	15.2	49 18.3	-38.1	15.8
75	40 53.7	-40.9	12.7	42 50.6	-40.4	13.1	44 47.4	-39.9	13.6	46 43.9	-39.4	14.0	48 40.2	-38.8	14.6
76	40 12.8	-41.3	11.7	42 10.2	-40.9	12.1	44 07.5	-40.5	12.5	46 04.5	-40.0	13.0	48 01.4	-39.5	13.4
77	39 31.5	-41.7	10.8	41 29.3	-41.4	11.1	43 27.0	-41.0	11.5	45 24.5	-40.6	11.9	47 21.9	-40.2	12.3
78	38 49.8	-42.2	9.9	40 47.9	-41.8	10.2	42 46.0	-41.5	10.5	44 43.9	-41.1	10.8	46 41.7	-40.7	11.2
79	38 07.6	-42.6	9.0	40 06.1	-42.3	9.2	42 04.5	-42.0	9.5	44 02.8	-41.7	9.8	46 01.0	-41.4	10.2
80	37 25.0	-43.0	8.1	39 23.8	-42.8	8.3	41 22.5	-42.5	8.6	43 21.1	-42.2	8.8	45 19.6	-41.9	9.1
81	36 42.0	-43.4	7.2	38 41.0	-43.1	7.4	40 40.0	-42.9	7.6	42 38.9	-42.7	7.9	44 37.7	-42.4	8.1
82	35 58.6	-43.7	6.3	37 57.9	-43.6	6.5	39 57.1	-43.4	6.7	41 56.2	-43.1	6.9	43 55.3	-42.9	7.1
83	35 14.9	-44.1	5.5	37 14.3	-43.9	5.6	39 13.7	-43.7	5.8	41 13.1	-43.6	6.0	43 12.4	-43.3	6.2
84	34 30.8	-44.4	4.7	36 30.4	-44.2	4.8	38 30.0	-44.1	4.9	40 29.5	-43.9	5.1	42 29.1	-43.9	5.2
85	33 46.4	-44.7	3.9	35 46.2	-44.7	4.0	37 45.9	-44.5	4.1	39 45.6	-44.4	4.2	41 45.2	-44.2	4.3
86	33 01.7	-45.0	3.1	35 01.5	-44.9	3.1	37 01.4	-44.9	3.2	39 01.2	-44.8	3.3	41 01.0	-44.7	3.4
87	32 16.7	-45.3	2.3	34 16.6	-45.2	2.3	36 16.5	-45.2	2.4	38 16.4	-45.1	2.5	40 16.3	-45.1	2.5
88	31 31.4	-45.6	1.5	33 31.4	-45.6	1.5	35 31.3	-45.5	1.6	37 31.3	-45.5	1.6	39 31.2	-45.4	1.7
89	30 45.8	-45.8	0.7	32 45.8	-45.8	0.8	34 45.8	-45.8	0.8	36 45.8	-45.8	0.8	38 45.8	-45.8	0.8
90	30 00.0	-46.1	0.0	32 00.0	-46.1	0.0	34 00.0	-46.1	0.0	36 00.0	-46.1	0.0	38 00.0	-46.1	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 40°, 320°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
18 56.2	-48.5	143.9	17 19.0	-49.3	144.3	15 41.3	-50.0	144.7	14 03.2	-50.7	145.0	12 24.7	-51.3	145.3	30
18 07.7	-48.7	144.6	16 29.7	-49.4	144.9	14 51.3	-50.1	145.2	13 12.5	-50.8	145.5	11 33.4	-51.4	145.8	31
17 19.0	-48.8	145.2	15 40.3	-49.5	145.5	14 01.2	-50.2	145.8	12 21.7	-50.8	146.1	10 42.0	-51.4	146.3	32
16 30.2	-48.9	145.8	14 50.8	-49.6	146.1	13 11.0	-50.3	146.4	11 30.9	-50.9	146.6	9 50.6	-51.5	146.8	33
15 41.3	-49.0	146.4	14 01.2	-49.7	146.7	12 20.7	-50.3	146.9	10 40.0	-50.9	147.2	8 59.1	-51.5	147.3	34
14 52.3	-49.1	147.0	13 11.5	-49.8	147.3	11 30.4	-50.4	147.5	9 49.1	-51.1	147.7	8 07.6	-51.6	147.9	35
14 03.2	-49.2	147.6	12 21.7	-49.8	147.8	10 40.0	-50.4	148.1	8 58.1	-51.0	148.2	7 16.0	-51.6	148.4	36
13 14.0	-49.3	148.2	11 31.9	-49.9	148.4	9 49.6	-50.5	148.6	8 07.1	-51.1	148.8	6 24.4	-51.6	148.9	37
12 24.7	-49.3	148.8	10 42.0	-49.9	149.0	8 59.1	-50.5	149.1	7 16.0	-51.1	149.3	5 32.8	-51.7	149.4	38
11 35.4	-49.4	149.3	9 52.1	-50.0	149.5	8 08.6	-50.6	149.7	6 24.9	-51.2	149.8	4 41.1	-51.7	149.9	39
10 46.0	-49.5	149.9	9 02.1	-50.1	150.1	7 18.0	-50.7	150.2	5 33.3	-51.2	150.3	3 59.4	-51.7	150.4	40
9 56.5	-49.5	150.5	8 12.0	-50.1	150.7	6 27.3	-50.6	150.8	4 42.6	-51.2	150.9	2 57.7	-51.7	150.9	41
9 07.0	-49.6	151.1	7 21.9	-50.1	151.2	5 36.7	-50.7	151.3	3 51.4	-51.2	151.4	2 06.0	-51.7	151.4	42
8 17.4	-49.6	151.6	6 31.8	-50.2	151.8	4 46.0	-50.7	151.9	3 00.2	-51.3	151.9	1 14.3	-51.8	152.0	43
7 27.8	-49.7	152.2	5 41.6	-50.2	152.3	3 55.3	-50.7	152.4	2 08.9	-51.2	152.4	0 22.5	-51.7	152.5	44
6 38.1	-49.7	152.8	4 51.4	-50.3	152.9	3 04.6	-50.8	152.9	1 17.7	-51.0	153.0	0 29.2	+51.7	27.0	45
5 48.4	-49.7	153.3	4 01.1	-50.2	153.4	2 13.8	-50.8	153.5	0 26.4	-51.2	153.5	1 20.9	+51.8	26.5	46
4 58.7	-49.8	153.9	3 10.9	-50.3	154.0	1 23.0	-50.7	154.0	0 24.8	+51.3	26.0	2 12.7	+51.7	26.0	47
4 08.9	-49.8	154.5	2 20.6	-50.3	154.5	0 32.3	-50.8	154.5	1 16.1	+51.2	25.5	3 04.4	+51.7	25.5	48
3 19.1	-49.8	155.0	1 30.3	-50.3	155.0	0 40.0	-50.3	155.6	2 07.3	+51.2	25.0	3 56.1	+51.6	25.0	49
2 29.3	-49.8	155.6	0 40.0	-50.3	155.6	1 09.3	+50.7	24.4	2 58.5	+51.2	24.4	4 47.7	+51.7	24.5	50
1 39.5	-49.9	156.1	0 10.3	+50.3	23.9	2 00.0	+50.8	23.9	3 49.7	+51.2	23.9	5 39.4	+51.6	24.0	51
0 49.6	-49.8	156.7	1 00.6	+50.3	23.3	2 50.8	+50.7	23.3	4 40.9	+51.2	23.4	6 31.0	+51.6	23.5	52
0 00.2	+49.9	22.8	1 50.9	+50.3	22.8	3 41.5	+50.7	22.8	5 32.1	+51.2	22.9	7 22.6	+51.6	23.0	53
0 50.1	+49.8	22.2	2 41.2	+50.2	22.2	4 32.2	+50.7	22.3	6 23.3	+51.1	22.3	8 14.2	+51.5	22.4	54
1 39.9	+49.8	21.6	3 31.4	+50.3	21.7	5 22.9	+50.7	21.7	7 14.4	+51.0	21.8	9 05.7	+51.5	21.9	55
2 29.7	+49.9	21.1	4 21.7	+50.2	21.1	6 13.6	+50.6	21.2	8 05.4	+51.1	21.3	9 57.2	+51.4	21.4	56
3 19.6	+49.7	20.5	5 11.9	+50.2	20.6	7 04.2	+50.6	20.7	8 56.5	+51.0	20.8	10 48.6	+51.4	20.9	57
4 09.3	+49.8	20.0	6 02.1	+50.2	20.0	7 54.8	+50.6	20.1	9 47.5	+50.9	20.2	11 40.0	+51.3	20.4	58
4 59.1	+49.8	19.4	6 52.3	+50.1	19.5	8 45.4	+50.5	19.6	10 38.4	+50.9	19.7	12 31.3	+51.3	19.8	59
5 48.9	+49.7	18.8	7 42.4	+50.1	18.9	9 35.9	+50.4	19.0	11 29.3	+50.8	19.1	13 22.6	+51.2	19.3	60
6 38.6	+49.6	18.3	8 32.5	+50.0	18.4	10 26.3	+50.4	18.5	12 20.1	+50.8	18.6	14 13.8	+51.1	18.8	61
7 28.2	+49.7	17.7	9 22.5	+50.0	17.8	11 16.7	+50.4	17.9	13 10.9	+50.7	18.1	15 04.9	+51.1	18.2	62
8 17.9	+49.6	17.2	10 12.5	+49.9	17.2	12 07.1	+50.2	17.4	14 01.6	+50.6	17.5	15 56.0	+50.9	17.7	63
9 07.5	+49.5	16.6	11 02.4	+49.9	16.7	12 57.3	+50.2	16.8	14 52.2	+50.5	17.0	16 46.9	+50.9	17.1	64
9 57.0	+49.4	16.0	11 52.3	+49.8	16.1	13 47.5	+50.2	16.2	15 42.7	+50.5	16.4	17 37.8	+50.8	16.6	65
10 46.4	+49.5	15.4	12 42.1	+49.7	15.5	14 37.7	+50.0	15.7	16 33.2	+50.3	15.8	18 28.6	+50.6	16.0	66
11 35.9	+49.3	14.9	13 31.8	+49.7	15.0	15 27.7	+50.0	15.1	17 23.5	+50.3	15.3	19 19.2	+50.6	15.4	67
12 25.2	+49.2	14.3	14 21.5	+49.5	14.4	16 17.7	+49.8	14.5	18 13.8	+50.1	14.7	20 09.8	+50.5	14.9	68
13 14.4	+49.2	13.7	15 11.0	+49.5	13.8	17 07.5	+49.8	13.9	19 03.9	+50.1	14.1	21 00.3	+50.3	14.3	69
14 03.6	+49.1	13.1	16 00.5	+49.3	13.2	17 57.3	+49.6	13.4	19 54.0	+49.9	13.5	21 50.6	+50.2	13.7	70
14 52.7	+49.0	12.5	16 49.8	+49.3	12.6	18 46.9	+49.5	12.8	20 43.9	+49.8	12.9	22 40.8	+50.1	13.1	71
15 41.7	+48.9	11.9	17 39.1	+49.2	12.0	19 36.4	+49.5	12.2	21 33.7	+49.7	12.3	23 30.9	+49.9	12.5	72
16 30.6	+48.8	11.3	18 28.3	+49.0	11.4	20 25.9	+49.3	11.6	22 23.4	+49.5	11.7	24 20.8	+49.8	11.9	73
17 19.4	+48.7	10.7	19 17.3	+48.9	10.8	21 15.2	+49.1	11.0	23 12.9	+49.4	11.1	25 10.6	+49.7	11.3	74
18 08.1	+48.6	10.1	20 06.2	+48.8	10.2	22 04.3	+49.0	10.3	24 02.3	+49.3	10.5	26 00.3	+49.5	10.7	75
18 56.7	+48.4	9.5	20 55.0	+48.7	9.6	22 53.3	+48.9	9.7	24 51.6	+49.1	9.9	26 49.8	+49.3	10.0	76
19 45.1	+48.3	8.8	21 43.7	+48.5	9.0	23 42.2	+48.7	9.1	25 40.7	+48.9	9.2	27 39.1	+49.1	9.4	77
20 33.4	+48.2	8.2	22 32.2	+48.3	8.3	24 30.9	+48.6	8.4	26 29.6	+48.7	8.6	28 28.2	+49.0	8.7	78
21 21.6	+48.0	7.6	23 20.5	+48.2	7.7	25 19.5	+48.3	7.8	27 18.3	+48.6	7.9	29 17.2	+48.7	8.1	79
22 09.6	+47.9	6.9	24 08.7	+48.1	7.0	26 07.8	+48.2	7.1	28 06.9	+48.3	7.3	30 05.9	+48.5	7.4	80
22 57.5	+47.7	6.3	24 56.8	+47.8	6.4	26 56.0	+48.0	6.5	28 55.2	+48.2	6.6	30 54.4	+48.4	6.7	81
23 45.2	+47.6	5.6	25 44.6	+47.7	5.7	27 44.0	+47.8	5.8	29 43.4	+47.9	5.9	31 42.8	+48.0	6.0	82
24 32.8	+47.3	4.9	26 32.3	+47.5	5.0	28 31.8	+47.6	5.1	30 31.3	+47.8	5.2	32 30.8	+47.9	5.3	83
25 20.1	+47.2	4.3	27 19.8	+47.3	4.3	29 19.4	+47.4	4.4	31 19.1	+47.5	4.5	33 18.7	+47.6	4.6	84
26 07.3	+47.0	3.6	28 07.1	+47.0	3.6	30 06.8	+47.2	3.7	32 06.6	+47.2	3.8	34 06.3	+47.3	3.9	85
26 54.3	+46.7	2.9	28 54.1	+46.8	2.9	30 54.0	+46.9	3.0	32 53.8	+47.0	3.1	34 53.6	+47.1	3.1	86
27 41.0	+46.6	2.2	29 40.9	+46.7	2.2	31 40.9	+46.6	2.3	33 40.8	+46.7	2.3	35 40.7	+46.7	2.4	87
28 27.6	+46.3	1.5	30 27.6	+46.3	1.5	32 27.5	+46.4	1.5	34 27.5	+46.4	1.6	36 27.4	+46.5	1.6	88
29 13.9	+46.1	0.7	31 13.9	+46.1	0.8	33 13.9	+46.1	0.8	35 13.9	+46.1	0.8	37 13.9	+46.1	0.8	89
30 00.0	+45.8	0.0	32 00.0	+45.8	0.0	34 00.0	+45.8	0.0	36 00.0	+45.8	0.0	38 00.0	+45.8	0.0	90

LATITUDE SAME NAME

L.H.A. 140°, 220°

40°, 320° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	56 03.5	+27.6	94.5	55 51.0	+31.0	97.4	55 32.6	+34.0	100.3	55 08.2	+37.0	103.1	54 38.1	+39.7	105.9
31	56 31.1	+26.4	92.9	56 22.0	+29.8	95.9	56 06.6	+33.0	98.8	55 45.2	+36.0	101.7	55 17.8	+38.9	104.6
32	56 57.5	+25.1	91.2	56 51.8	+28.5	94.3	56 39.6	+31.9	97.3	56 21.2	+35.0	100.3	55 56.7	+38.0	103.2
33	57 22.6	+23.8	89.5	57 20.3	+27.3	92.7	57 11.5	+30.7	95.8	56 56.2	+33.9	98.8	56 34.7	+37.0	101.8
34	57 46.4	+22.3	87.8	57 47.6	+25.9	91.0	57 42.2	+29.4	94.2	57 30.1	+32.8	97.3	57 11.7	+35.9	100.4
35	58 08.7	+20.8	86.1	58 13.5	+24.6	89.3	58 11.6	+28.1	92.5	58 02.9	+31.6	95.7	57 47.6	+34.9	98.9
36	58 29.5	+19.4	84.3	58 38.1	+23.1	87.6	58 39.7	+26.8	90.8	58 34.5	+30.4	94.1	58 22.5	+33.7	97.4
37	58 48.9	+17.8	82.5	59 01.2	+21.6	85.8	59 06.5	+25.4	89.1	59 04.9	+29.0	92.5	58 56.2	+32.6	95.8
38	59 06.7	+16.1	80.6	59 22.8	+20.0	84.0	59 31.9	+23.8	87.3	59 33.9	+27.6	90.7	59 28.8	+31.2	94.1
39	59 22.8	+14.5	78.7	59 42.8	+18.4	82.1	59 55.7	+22.4	85.5	60 01.5	+26.2	89.0	60 00.0	+29.9	92.4
40	59 37.3	+12.8	76.8	60 01.2	+16.8	80.2	60 18.1	+20.7	83.7	60 27.7	+24.7	87.2	60 29.9	+28.5	90.7
41	59 50.1	+11.1	74.9	60 18.0	+15.1	78.3	60 38.8	+19.1	81.8	60 52.4	+23.0	85.3	60 58.4	+27.1	88.9
42	60 01.2	+9.4	72.9	60 33.1	+13.3	76.3	60 57.9	+17.4	79.8	61 15.4	+21.5	83.4	61 25.5	+25.4	87.0
43	60 10.6	+7.5	71.0	60 46.4	+11.5	74.3	61 15.3	+15.6	77.8	61 36.9	+19.7	81.4	61 50.9	+23.8	85.1
44	60 18.1	+5.7	69.0	60 57.9	+9.7	72.3	61 30.9	+13.8	75.8	61 56.6	+18.0	79.4	62 14.7	+22.2	83.2
45	60 23.8	+3.9	66.9	61 07.6	+7.8	70.3	61 44.7	+11.9	73.8	62 14.6	+16.1	77.4	62 36.9	+20.4	81.2
46	60 27.7	+2.0	64.9	61 15.4	+6.0	68.2	61 56.6	+10.0	71.7	62 30.7	+14.2	75.3	62 57.3	+18.5	79.1
47	60 29.7	+0.2	62.9	61 21.4	+4.1	66.1	62 06.6	+8.1	69.6	62 44.9	+12.4	73.2	63 15.8	+16.6	77.0
48	60 29.9	-1.6	60.9	61 25.5	+2.1	64.1	62 14.7	+6.2	67.5	62 57.3	+10.3	71.1	63 32.4	+14.7	74.9
49	60 28.3	-3.5	58.8	61 27.6	+0.2	62.0	62 20.9	+4.1	65.3	63 07.6	+8.3	68.9	63 47.1	+12.7	72.7
50	60 24.8	-5.4	56.8	61 27.8	-1.7	59.9	62 25.0	+2.2	63.2	63 15.9	+6.3	66.7	63 59.8	+10.6	70.5
51	60 19.4	-7.1	54.8	61 26.1	-3.6	57.8	62 27.2	+0.2	61.0	63 22.2	+4.2	64.5	64 10.4	+8.5	68.2
52	60 12.3	-8.9	52.8	61 22.5	-5.6	55.7	62 27.4	-1.9	58.8	63 26.4	+2.1	62.3	64 18.9	+6.3	65.9
53	60 03.4	-10.8	50.8	61 16.9	-7.4	53.6	62 25.5	-3.8	56.7	63 28.5	0.0	60.0	64 25.2	+4.2	63.6
54	59 52.6	-12.4	48.8	61 09.5	-9.3	51.6	62 21.7	-5.9	54.5	63 28.5	-2.1	57.8	64 29.4	+2.0	61.3
55	59 40.2	-14.2	46.9	61 00.2	-11.1	49.5	62 15.8	-7.8	52.4	63 26.4	-4.1	55.5	64 31.4	-0.3	59.0
56	59 26.0	-15.8	45.0	60 49.1	-13.0	47.5	62 08.0	-9.7	50.3	63 22.3	-6.3	53.3	64 31.1	-2.4	56.7
57	59 10.2	-17.4	43.1	60 36.1	-14.6	45.5	61 58.3	-11.7	48.2	63 16.0	-8.3	51.1	64 28.7	-4.6	54.3
58	58 52.8	-19.0	41.2	60 21.5	-16.5	43.5	61 46.6	-13.5	46.1	63 07.7	-10.3	48.9	64 24.1	-6.7	52.0
59	58 33.8	-20.6	39.4	60 05.0	-18.0	41.6	61 33.1	-15.3	44.0	62 57.4	-12.3	46.7	64 17.4	-8.9	49.7
60	58 13.2	-22.0	37.6	59 47.0	-19.7	39.7	61 17.8	-17.1	42.0	62 45.1	-14.2	44.6	64 08.5	-11.0	47.5
61	57 51.2	-23.4	35.9	59 27.3	-21.3	37.8	61 00.7	-18.9	40.0	62 30.9	-16.1	42.5	63 57.5	-13.1	45.2
62	57 27.8	-24.8	34.1	59 06.0	-22.7	36.0	60 41.8	-20.4	38.1	62 14.8	-17.9	40.4	63 44.4	-15.0	43.0
63	57 03.0	-26.2	32.4	58 43.3	-24.3	34.2	60 21.4	-22.1	36.2	61 56.9	-19.7	38.4	63 29.4	-17.0	40.8
64	56 36.8	-27.4	30.8	58 19.0	-25.6	32.4	59 59.3	-23.7	34.3	61 37.2	-21.4	36.4	63 12.4	-18.9	38.7
65	56 09.4	-28.6	29.2	57 53.4	-27.0	30.7	59 35.6	-25.1	32.5	61 15.8	-23.1	34.4	62 53.5	-20.7	36.6
66	55 40.8	-29.8	27.6	57 26.4	-28.3	29.1	59 10.5	-26.6	30.7	60 52.7	-24.6	32.5	62 32.8	-22.5	34.5
67	55 11.0	-30.9	26.1	56 58.1	-29.5	27.4	58 43.9	-27.9	28.9	60 28.1	-26.2	30.6	62 10.3	-24.1	32.5
68	54 40.1	-32.0	24.6	56 28.6	-30.7	25.8	58 16.0	-29.3	27.2	60 01.9	-27.6	28.8	61 46.2	-25.8	30.6
69	54 08.1	-33.1	23.2	55 57.9	-31.8	24.3	57 46.7	-30.5	25.6	59 34.3	-29.0	27.1	61 20.4	-27.3	28.7
70	53 35.0	-34.0	21.7	55 26.1	-32.9	22.8	57 16.2	-31.6	24.0	59 05.3	-30.3	25.3	60 53.1	-28.8	26.9
71	53 01.0	-34.9	20.4	54 53.2	-33.9	21.3	56 44.6	-32.9	22.4	58 35.0	-31.6	23.7	60 24.3	-30.2	25.1
72	52 26.1	-35.8	19.0	54 19.3	-34.9	19.9	56 11.7	-33.9	20.9	58 03.4	-32.8	22.1	59 54.1	-31.5	23.3
73	51 50.3	-36.7	17.7	53 44.4	-35.9	18.5	55 37.8	-34.9	19.4	57 30.6	-33.9	20.5	59 22.6	-32.7	21.7
74	51 13.6	-37.4	16.4	53 08.5	-36.7	17.2	55 02.9	-35.9	18.0	56 56.7	-35.0	19.0	58 49.9	-34.0	20.0
75	50 36.2	-38.3	15.2	52 31.8	-37.6	15.9	54 27.0	-36.8	16.6	56 21.7	-36.0	17.5	58 15.9	-35.1	18.4
76	49 57.9	-38.9	14.0	51 54.2	-38.3	14.6	53 50.2	-37.7	15.3	55 45.7	-37.0	16.0	57 40.8	-36.2	16.9
77	49 19.0	-39.7	12.8	51 15.9	-39.2	13.4	53 12.5	-38.6	14.0	55 08.7	-37.9	14.7	57 04.6	-37.1	15.4
78	48 39.3	-40.3	11.7	50 36.7	-39.8	12.2	52 33.9	-39.3	12.7	54 30.8	-38.7	13.3	56 27.5	-38.2	14.0
79	47 59.0	-41.0	10.6	49 56.9	-40.6	11.0	51 54.6	-40.1	11.5	53 52.1	-39.6	12.0	55 49.3	-39.0	12.6
80	47 18.0	-41.5	9.5	49 16.3	-41.1	9.9	51 14.5	-40.8	10.3	53 12.5	-40.4	10.7	55 10.3	-39.9	11.3
81	46 36.5	-42.1	8.4	48 35.2	-41.9	8.7	50 33.7	-41.5	9.1	52 32.1	-41.1	9.5	54 30.4	-40.7	10.0
82	45 54.4	-42.7	7.4	47 53.3	-42.4	7.7	49 52.2	-42.1	8.0	51 51.0	-41.8	8.3	53 49.7	-41.5	8.7
83	45 11.7	-43.2	6.4	47 10.9	-42.9	6.6	49 10.1	-42.7	6.9	51 09.2	-42.5	7.2	53 08.2	-42.1	7.5
84	44 28.5	-43.6	5.4	46 28.0	-43.5	5.6	48 27.4	-43.3	5.8	50 26.7	-43.0	6.1	52 26.1	-42.9	6.3
85	43 44.9	-44.2	4.4	45 44.5	-44.0	4.6	47 44.1	-43.8	4.8	49 43.7	-43.7	5.0	51 43.2	-43.5	5.2
86	43 00.7	-44.5	3.5	45 00.5	-44.5	3.6	47 00.3	-44.4	3.8	49 00.0	-44.2	3.9	50 59.7	-44.1	4.1
87	42 16.2	-45.0	2.6	44 16.0	-44.9	2.7	46 15.9	-44.8	2.8	48 15.8	-44.8	2.9	50 15.6	-44.7	3.0
88	41 31.2	-45.4	1.7	43 31.1	-45.3	1.8	45 31.1	-45.4	1.8	47 31.0	-45.3	1.9	49 30.9	-45.2	2.0
89	40 45.8	-45.8	0.8	42 45.8	-45.8	0.9	44 45.7	-45.7	0.9	46 45.7	-45.7	0.9	48 45.7	-45.7	1.0
90	40 00.0	-46.1	0.0	42 00.0	-46.2	0.0	44 00.0	-46.2	0.0	46 00.0	-46.2	0.0	48 00.0	-46.2	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 40°, 320°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
10	46.0	-51.9	145.5	9	07.0	-52.5	145.7	7	27.8	-53.1	145.8	5	48.4	-53.6	146.0	4	08.9	-54.1	146.1	30
9	54.1	-52.0	146.0	8	14.5	-52.6	146.2	6	34.7	-53.1	146.3	4	54.8	-53.7	146.4	3	14.8	-54.2	146.5	31
9	02.1	-52.1	146.5	7	21.9	-52.6	146.7	5	41.6	-53.2	146.8	4	01.1	-53.6	146.9	2	20.6	-54.2	146.9	32
8	10.0	-52.0	147.0	6	29.3	-52.6	147.1	4	48.4	-53.1	147.2	3	07.5	-53.7	147.3	1	26.4	-54.1	147.4	33
7	18.0	-52.1	147.5	5	36.7	-52.7	147.6	3	55.3	-53.2	147.7	2	13.8	-53.7	147.8	0	32.3	-54.2	147.8	34
6	25.9	-52.2	148.0	4	44.0	-52.6	148.1	3	02.1	-53.2	148.2	1	20.1	-53.7	148.2	0	21.9	+54.2	31.8	35
5	33.7	-52.1	148.5	3	51.4	-52.7	148.6	2	08.9	-53.2	148.6	0	26.4	-53.6	148.7	1	16.1	+54.1	31.3	36
4	41.6	-52.2	149.0	2	58.7	-52.7	149.1	1	15.7	-53.2	149.1	0	27.2	+53.7	30.9	2	10.2	+54.2	30.9	37
3	49.4	-52.2	149.5	2	06.0	-52.7	149.5	0	22.5	-53.2	149.6	1	20.9	+53.7	30.4	3	04.4	+54.1	30.5	38
2	57.2	-52.2	150.0	1	13.3	-52.7	150.0	0	30.7	+53.2	30.0	2	14.6	+53.7	30.0	3	58.5	+54.1	30.0	39
2	05.0	-52.2	150.5	0	20.6	-52.7	150.5	1	23.9	+53.2	29.5	3	08.3	+53.6	29.5	4	52.6	+54.2	29.6	40
1	12.8	-52.2	151.0	0	32.1	+52.7	29.0	2	17.1	+53.1	29.0	4	01.9	+53.7	29.1	5	46.8	+54.0	29.2	41
0	20.6	-52.2	151.5	1	24.8	+52.7	28.5	3	10.2	+53.2	28.6	4	55.6	+53.6	28.6	6	40.8	+54.1	28.7	42
0	31.6	+52.3	28.0	2	17.5	+52.7	28.1	4	03.4	+53.2	28.1	5	49.2	+53.6	28.2	7	34.9	+54.1	28.3	43
1	23.9	+52.2	27.5	3	10.2	+52.7	27.6	4	56.6	+53.1	27.7	6	42.8	+53.6	27.7	8	29.0	+54.0	27.9	44
2	16.1	+52.2	27.1	4	02.9	+52.7	27.1	5	49.7	+53.1	27.2	7	36.4	+53.5	27.3	9	23.0	+54.0	27.4	45
3	08.3	+52.2	26.6	4	55.6	+52.6	26.6	6	42.8	+53.1	26.7	8	29.9	+53.6	26.8	10	17.0	+53.9	27.0	46
4	00.5	+52.1	26.1	5	48.2	+52.6	26.1	7	35.9	+53.1	26.2	9	23.5	+53.5	26.4	11	10.9	+53.9	26.5	47
4	52.6	+52.2	25.6	6	40.8	+52.6	25.7	8	29.0	+53.0	25.8	10	17.0	+53.4	25.9	12	04.8	+53.9	26.1	48
5	44.8	+52.1	25.1	7	33.4	+52.6	25.2	9	22.0	+53.0	25.3	11	10.4	+53.4	25.5	12	58.7	+53.8	25.6	49
6	36.9	+52.1	24.6	8	26.0	+52.5	24.7	10	15.0	+52.9	24.8	12	03.8	+53.4	25.0	13	52.5	+53.7	25.2	50
7	29.0	+52.1	24.1	9	18.5	+52.5	24.2	11	07.9	+52.9	24.3	12	57.2	+53.3	24.5	14	46.2	+53.8	24.7	51
8	21.1	+52.0	23.6	10	11.0	+52.4	23.7	12	00.8	+52.9	23.9	13	50.5	+53.2	24.1	15	40.0	+53.6	24.3	52
9	13.1	+52.0	23.1	11	03.4	+52.4	23.2	12	53.7	+52.7	23.4	14	43.7	+53.2	23.6	16	33.6	+53.6	23.8	53
10	05.1	+51.9	22.6	11	55.8	+52.4	22.7	13	46.4	+52.8	22.9	15	36.9	+53.1	23.1	17	27.2	+53.5	23.3	54
10	57.0	+51.9	22.1	12	48.2	+52.2	22.2	14	39.2	+52.6	22.4	16	30.0	+53.1	22.6	18	20.7	+53.5	22.9	55
11	48.9	+51.8	21.5	13	40.4	+52.3	21.7	15	31.8	+52.7	21.9	17	23.1	+53.0	22.1	19	14.2	+53.3	22.4	56
12	40.7	+51.8	21.0	14	32.7	+52.1	21.2	16	24.5	+52.5	21.4	18	16.1	+52.9	21.6	20	07.5	+53.3	21.9	57
13	32.5	+51.7	20.5	15	24.8	+52.1	20.7	17	17.0	+52.4	20.9	19	09.0	+52.8	21.1	21	00.8	+53.2	21.4	58
14	24.2	+51.6	20.0	16	16.9	+52.0	20.2	18	09.4	+52.4	20.4	20	01.8	+52.8	20.6	21	54.0	+53.2	20.9	59
15	15.8	+51.6	19.5	17	08.9	+51.9	19.7	19	01.8	+52.3	19.9	20	54.6	+52.6	20.1	22	47.2	+53.0	20.4	60
16	07.4	+51.4	18.9	18	00.8	+51.8	19.1	19	54.1	+52.2	19.4	21	47.2	+52.6	19.6	23	40.2	+52.9	19.9	61
16	58.8	+51.4	18.4	18	52.6	+51.8	18.6	20	46.3	+52.1	18.8	22	39.8	+52.5	19.1	24	33.1	+52.8	19.4	62
17	50.2	+51.3	17.9	19	44.4	+51.6	18.1	21	38.4	+52.0	18.3	23	32.3	+52.3	18.6	25	25.9	+52.7	18.9	63
18	41.5	+51.3	17.3	20	36.0	+51.6	17.5	22	30.4	+51.9	17.8	24	24.6	+52.2	18.0	26	18.6	+52.6	18.3	64
19	32.8	+51.1	16.8	21	27.6	+51.4	17.0	23	22.3	+51.8	17.2	25	16.8	+52.1	17.5	27	11.2	+52.5	17.8	65
20	23.9	+51.0	16.2	22	19.0	+51.4	16.4	24	14.1	+51.6	16.7	26	08.9	+52.0	16.9	28	03.7	+52.3	17.2	66
21	14.9	+50.8	15.6	23	10.4	+51.2	15.9	25	05.7	+51.5	16.1	27	00.9	+51.9	16.4	28	56.0	+52.2	16.7	67
22	05.7	+50.8	15.1	24	01.6	+51.0	15.3	25	57.2	+51.4	15.5	27	52.8	+51.7	15.8	29	48.2	+52.0	16.1	68
22	56.5	+50.6	14.5	24	52.6	+51.0	14.7	26	48.6	+51.3	15.0	28	44.5	+51.6	15.2	30	40.2	+51.9	15.5	69
23	47.1	+50.5	13.9	25	43.6	+50.8	14.1	27	39.9	+51.1	14.4	29	36.1	+51.4	14.6	31	32.1	+51.7	14.9	70
24	37.6	+50.4	13.3	26	34.4	+50.6	13.5	28	31.0	+50.9	13.8	30	27.5	+51.2	14.1	32	23.8	+51.5	14.4	71
25	28.0	+50.2	12.7	27	25.0	+50.5	12.9	29	21.9	+50.8	13.2	31	18.7	+51.1	13.4	33	15.3	+51.4	13.7	72
26	18.2	+50.1	12.1	28	15.5	+50.3	12.3	30	12.7	+50.6	12.6	32	09.8	+50.8	12.8	34	06.7	+51.2	13.1	73
27	08.3	+49.9	11.5	29	05.8	+50.2	11.7	31	03.3	+50.4	11.9	33	00.6	+50.7	12.2	34	57.9	+50.9	12.5	74
27	58.2	+49.7	10.9	29	56.0	+50.0	11.1	31	53.7	+50.2	11.3	33	51.3	+50.5	11.6	35	48.8	+50.8	11.8	75
28	47.9	+49.5	10.2	30	46.0	+49.7	10.4	32	43.9	+50.1	10.7	34	41.8	+50.3	10.9	36	39.6	+50.5	11.2	76
29	37.4	+49.4	9.6	31	35.7	+49.6	9.8	33	34.0	+49.8	10.0	35	32.1	+50.0	10.2	37	30.1	+50.3	10.5	77
30	26.8	+49.1	8.9	32	25.3	+49.4	9.1	34	23.8	+49.5	9.3	36	22.1	+49.8	9.6	38	20.4	+50.1	9.8	78
31	15.9	+49.0	8.2	33	14.7	+49.1	8.4	35	13.3	+49.4	8.6	37	11.9	+49.6	8.9	39	10.5	+49.8	9.1	79
32	04.9	+48.7	7.6	34	03.8	+48.9	7.7	36	02.7	+49.1	7.9	38	01.5	+49.3	8.1	40	00.3	+49.5	8.4	80
32	53.6	+48.5	6.9	34	52.7	+48.7	7.0	36	51.8	+48.8	7.2	38	50.8	+49.0	7.4	40	49.8	+49.2	7.6	81
33	42.1	+48.2	6.2	35	41.4	+48.4	6.3	37	40.6	+48.6	6.5	39	39.8	+48.7	6.7	41	39.0	+48.9	6.9	82
34	30.3	+48.0	5.5	36	29.8	+48.1	5.6	38	29.2	+48.2	5.7	40	28.5	+48.5	5.9	42	27.9	+48.6	6.1	83
35	18.3	+47.7	4.7	37	17.9	+47.8	4.8	39	17.4	+48.0	5.0	41	17.0	+48.1	5.1	43	16.5	+48.2	5.3	84
36	06.0	+47.4	4.0	38	05.7	+47.5	4.1	40	05.4	+47.6	4.2	42	05.1	+47.7	4.3	44	04.7	+47.9	4.5	85
36	53.4	+47.2	3.2	38	53.2	+47.2	3.3	40	53.0	+47.3	3.4	42	52.8	+47.4	3.5	44	52.6	+47.5	3.6	86
37	40.6	+46.8	2.4	39	40.4	+46.9	2.5	41	40.3	+47.0	2.6	43	40.2	+47.0	2.7	45	40.1	+47.0	2.8	87
38	27.4	+46.5	1.6	40	27.3	+46.5	1.7	42	27.3	+46.5	1.7	44	27.2	+46.6	1.8	46	27.1	+46.7	1.9	88
39	13.9	+46.1	0.8	41	13.8	+46.2	0.9	43	13.8	+46.2	0.9	45	13.8	+46.2	0.9	47	13.8	+46.2	0.9	89
40	00.0	+45.8	0.0	42	00.0	+45.8	0.0	44	00.0	+45.7	0.0	46	00.0	+45.7	0.0	48	00.0	+45.7	0.0	90
40°			42°			44°			46°			48°								

LATITUDE SAME NAME

L.H.A. 140°, 220°

40°, 320° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	54 02.6	+42.2	108.6	53 21.8	+44.6	111.1	52 36.2	+46.7	113.6	51 46.0	+48.6	115.9	50 51.5	+50.3	118.1
31	54 44.8	+41.5	107.3	54 06.4	+44.0	110.0	53 22.9	+46.2	112.5	52 34.6	+48.1	115.0	51 41.8	+49.9	117.3
32	55 26.3	+40.7	106.1	54 50.4	+43.2	108.8	54 09.1	+45.5	111.4	53 22.7	+47.7	114.0	52 31.7	+49.5	116.4
33	56 07.0	+39.9	104.8	55 33.6	+42.5	107.6	54 54.6	+44.9	110.3	54 10.4	+47.0	112.9	53 21.2	+49.0	115.4
34	56 46.9	+38.9	103.4	56 16.1	+41.7	106.3	55 39.5	+44.2	109.2	54 57.4	+46.5	111.9	54 10.2	+48.6	114.4
35	57 25.8	+38.0	102.0	56 57.8	+40.8	105.0	56 23.7	+43.5	107.9	55 43.9	+45.9	110.7	54 58.8	+48.0	113.4
36	58 03.8	+36.9	100.6	57 38.6	+39.9	103.7	57 07.2	+42.7	106.7	56 29.8	+45.2	109.6	55 46.8	+47.5	112.4
37	58 40.7	+35.9	99.1	58 18.5	+39.0	102.3	57 49.9	+41.8	105.4	57 15.0	+44.5	108.4	56 34.3	+46.8	111.3
38	59 16.6	+34.7	97.5	58 57.5	+37.9	100.8	58 31.7	+40.9	104.0	57 59.5	+43.7	107.1	57 21.1	+46.2	110.1
39	59 51.3	+33.5	95.9	59 35.4	+36.9	99.3	59 12.6	+40.0	102.6	58 43.2	+42.8	105.8	58 07.3	+45.5	108.9
40	60 24.8	+32.2	94.2	60 12.3	+35.7	97.7	59 52.6	+39.0	101.1	59 26.0	+42.0	104.5	58 52.8	+44.7	107.7
41	60 57.0	+30.8	92.5	60 48.0	+34.5	96.1	60 31.6	+37.9	99.6	60 08.0	+41.1	103.0	59 37.5	+44.0	106.4
42	61 27.8	+29.4	90.7	61 22.5	+33.1	94.4	61 09.5	+36.7	98.0	60 49.1	+40.0	101.6	60 21.5	+43.0	105.0
43	61 57.2	+27.8	88.9	61 55.6	+31.8	92.6	61 46.2	+35.5	96.4	61 29.1	+38.9	100.0	61 04.5	+42.1	103.6
44	62 25.0	+26.3	87.0	62 27.4	+30.3	90.8	62 21.7	+34.1	94.6	62 08.0	+37.8	98.4	61 46.6	+41.1	102.1
45	62 51.3	+24.6	85.0	62 57.7	+28.7	88.9	62 55.8	+32.7	92.8	62 45.8	+36.5	96.7	62 27.7	+40.0	100.6
46	63 15.9	+22.9	83.0	63 26.4	+27.1	87.0	63 28.5	+31.2	91.0	63 22.3	+35.1	95.0	63 07.7	+38.9	98.9
47	63 38.8	+21.0	80.9	63 53.5	+25.4	85.0	63 59.7	+29.7	89.1	63 57.4	+33.7	93.2	63 46.6	+37.5	97.2
48	63 59.8	+19.1	78.8	64 18.9	+23.5	82.9	64 29.4	+27.9	87.1	64 31.1	+32.2	91.3	64 24.1	+36.3	95.4
49	64 18.9	+17.1	76.6	64 42.4	+21.7	80.8	64 57.3	+26.2	85.0	65 03.3	+30.6	89.3	65 00.4	+34.7	93.6
50	64 36.0	+15.1	74.4	65 04.1	+19.6	78.6	65 23.5	+24.2	82.8	65 33.9	+28.8	87.2	65 35.1	+33.2	91.6
51	64 51.1	+13.0	72.2	65 23.7	+17.6	76.3	65 47.7	+22.3	80.6	66 02.7	+26.9	85.1	66 08.3	+31.5	89.6
52	65 04.1	+10.8	69.8	65 41.3	+15.5	74.0	66 10.0	+20.2	78.3	66 29.6	+25.1	82.8	66 39.8	+29.7	87.5
53	65 14.9	+8.6	67.5	65 56.8	+13.2	71.6	66 30.2	+18.1	76.0	66 54.7	+22.9	80.5	67 09.5	+27.8	85.2
54	65 23.5	+6.3	65.1	66 10.0	+11.0	69.2	66 48.3	+15.8	73.6	67 17.6	+20.8	78.2	67 37.3	+25.8	82.9
55	65 29.8	+4.1	62.7	66 21.0	+8.6	66.8	67 04.1	+13.5	71.1	67 38.4	+18.5	75.7	68 03.1	+23.6	80.5
56	65 33.9	+1.7	60.3	66 29.6	+6.3	64.3	67 17.6	+11.1	68.6	67 56.9	+16.1	73.2	68 26.7	+21.3	78.1
57	65 35.6	-0.5	57.9	66 35.9	+3.9	61.8	67 28.7	+8.6	66.1	68 13.0	+13.7	70.6	68 48.0	+18.9	75.5
58	65 35.1	-2.8	55.5	66 39.8	+1.5	59.3	67 37.3	+6.1	63.5	68 26.7	+11.1	68.0	69 06.9	+16.5	72.8
59	65 32.3	-5.2	53.1	66 41.3	-1.0	56.8	67 43.4	+3.6	60.9	68 37.8	+8.6	65.3	69 23.4	+13.8	70.1
60	65 27.1	-7.4	50.7	66 40.3	-3.4	54.3	67 47.0	+1.1	58.2	68 46.4	+5.8	62.6	69 37.2	+11.1	67.4
61	65 19.7	-9.6	48.3	66 36.9	-5.8	51.7	67 48.1	-1.6	55.6	68 52.2	+3.2	59.8	69 48.3	+8.4	64.5
62	65 10.1	-11.8	45.9	66 31.1	-8.2	49.2	67 46.5	-4.1	52.9	68 55.4	+0.5	57.1	69 56.7	+5.5	61.6
63	64 58.3	-14.0	43.6	66 22.9	-10.5	46.8	67 42.4	-6.6	50.3	68 55.9	-2.2	54.3	70 02.2	+2.6	58.7
64	64 44.3	-16.0	41.3	66 12.4	-12.8	44.3	67 35.8	-9.1	47.7	68 53.7	-5.0	51.5	70 04.8	-0.2	55.8
65	64 28.3	-18.1	39.1	65 59.6	-15.0	41.9	67 26.7	-11.6	45.1	68 48.7	-7.6	48.7	70 04.6	-3.1	52.9
66	64 10.2	-20.0	36.9	65 44.6	-17.2	39.5	67 15.1	-13.9	42.5	68 41.1	-10.2	46.0	70 01.5	-6.0	49.9
67	63 50.2	-21.8	34.7	65 27.4	-19.3	37.2	67 01.2	-16.3	40.0	68 30.9	-12.8	43.3	69 55.5	-8.8	47.0
68	63 28.4	-23.7	32.6	65 08.1	-21.2	34.9	66 44.9	-18.5	37.6	68 18.1	-15.3	40.6	69 46.7	-11.5	44.2
69	63 04.7	-25.4	30.6	64 46.9	-23.2	32.7	66 26.4	-20.6	35.2	68 02.8	-17.7	38.0	69 35.2	-14.3	41.3
70	62 39.3	-27.0	28.6	64 23.7	-25.0	30.6	66 05.8	-22.7	32.9	67 45.1	-20.0	35.5	69 20.9	-16.8	38.6
71	62 12.3	-28.6	26.7	63 58.7	-26.8	28.5	65 43.1	-24.7	30.6	67 25.1	-22.2	33.0	69 04.1	-19.3	35.9
72	61 43.7	-30.1	24.8	63 31.9	-28.4	26.5	65 18.4	-26.5	28.4	67 02.9	-24.3	30.6	68 44.8	-21.7	33.2
73	61 13.6	-31.4	23.0	63 03.5	-30.0	24.5	64 51.9	-28.3	26.3	66 38.6	-26.3	28.3	68 23.1	-24.0	30.7
74	60 42.2	-32.8	21.2	62 33.5	-31.5	22.6	64 23.6	-29.9	24.2	66 12.3	-28.2	26.0	67 59.1	-26.1	28.2
75	60 09.4	-34.1	19.5	62 02.0	-32.8	20.8	63 53.7	-31.5	22.2	65 44.1	-29.9	23.9	67 33.0	-28.1	25.8
76	59 35.3	-35.2	17.9	61 29.2	-34.3	19.0	63 22.2	-33.0	20.3	65 14.2	-31.7	21.8	67 04.9	-30.0	23.5
77	59 00.1	-36.4	16.3	60 54.9	-35.4	17.3	62 49.2	-34.4	18.5	64 42.5	-33.1	19.8	66 34.9	-31.8	21.3
78	58 23.7	-37.4	14.8	60 19.5	-36.6	15.7	62 14.8	-35.8	16.7	64 09.4	-34.7	17.9	66 03.1	-33.4	19.2
79	57 46.3	-38.5	13.3	59 42.9	-37.8	14.1	61 39.0	-36.9	15.0	63 34.7	-36.1	16.0	65 29.7	-35.0	17.2
80	57 07.8	-39.3	11.9	59 05.1	-38.7	12.5	61 02.1	-38.1	13.3	62 58.6	-37.3	14.2	64 54.7	-36.4	15.3
81	56 28.5	-40.3	10.5	58 26.4	-39.8	11.1	60 24.0	-39.2	11.7	62 21.3	-38.5	12.5	64 18.3	-37.8	13.4
82	55 48.2	-41.0	9.2	57 46.6	-40.6	9.7	59 44.8	-40.2	10.2	61 42.8	-39.7	10.9	63 40.5	-39.0	11.6
83	55 07.2	-41.9	7.9	57 06.0	-41.6	8.3	59 04.6	-41.1	8.8	61 03.1	-40.6	9.3	63 01.5	-40.2	9.9
84	54 25.3	-42.6	6.6	56 24.4	-42.3	7.0	58 23.5	-42.0	7.4	60 22.5	-41.7	7.8	62 21.3	-41.3	8.3
85	53 42.7	-43.3	5.4	55 42.1	-43.1	5.7	57 41.5	-42.9	6.0	59 40.8	-42.6	6.4	61 40.0	-42.3	6.8
86	52 59.4	-44.0	4.3	54 59.0	-43.8	4.5	56 58.6	-43.6	4.7	58 58.2	-43.4	5.0	60 57.7	-43.2	5.3
87	52 15.4	-44.5	3.2	54 15.2	-44.4	3.3	56 15.0	-44.3	3.5	58 14.8	-44.2	3.7	60 14.5	-44.0	3.9
88	51 30.9	-45.2	2.1	53 30.8	-45.1	2.2	55 30.7	-45.0	2.3	57 30.6	-45.0	2.4	59 30.5	-44.9	2.5
89	50 45.7	-45.7	1.0	52 45.7	-45.7	1.1	54 45.7	-45.7	1.1	56 45.6	-45.6	1.2	58 45.6	-45.6	1.2
90	50 00.0	-46.2	0.0	52 00.0	-46.2	0.0	54 00.0	-46.3	0.0	56 00.0	-46.3	0.0	58 00.0	-46.3	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 40°, 320°

50°			52°			54°			56°			58°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
2 29.3 -54.6 146.1	0 49.6 -55.1 146.2	0 50.1 +55.5 33.8	2 29.7 +56.0 33.9	4 09.3 +56.4 33.9	30										
1 34.7 -54.7 146.6	0 05.5 +55.1 33.4	1 45.6 +55.6 33.5	3 25.7 +56.0 33.5	5 05.7 +56.4 33.6	31										
0 40.0 -54.6 147.0	1 00.6 +55.1 33.0	2 41.2 +55.5 33.1	4 21.7 +55.9 33.1	6 02.1 +56.4 33.2	32										
0 14.6 +54.7 32.6	1 55.7 +55.1 32.6	3 36.7 +55.5 32.7	5 17.6 +56.0 32.8	6 58.5 +56.3 32.9	33										
1 09.3 +54.6 32.2	2 50.8 +55.1 32.2	4 32.2 +55.5 32.3	6 13.6 +55.9 32.4	7 54.8 +56.4 32.5	34										
2 03.9 +54.6 31.8	3 45.9 +55.0 31.8	5 27.7 +55.6 31.9	7 09.5 +55.9 32.1	8 51.2 +56.3 32.2	35										
2 58.5 +54.6 31.4	4 40.9 +55.1 31.5	6 23.3 +55.4 31.6	8 05.4 +55.9 31.7	9 47.5 +56.3 31.9	36										
3 53.1 +54.6 31.0	5 36.0 +55.0 31.1	7 18.7 +55.5 31.2	9 01.3 +55.9 31.3	10 43.8 +56.2 31.5	37										
4 47.7 +54.6 30.6	6 31.0 +55.1 30.7	8 14.2 +55.4 30.8	9 57.2 +55.9 30.9	11 40.0 +56.3 31.1	38										
5 42.3 +54.6 30.1	7 26.1 +55.0 30.3	9 09.6 +55.5 30.4	10 53.1 +55.8 30.6	12 36.3 +56.2 30.8	39										
6 36.9 +54.6 29.7	8 21.1 +54.9 29.8	10 05.1 +55.4 30.0	11 48.9 +55.8 30.2	13 32.5 +56.2 30.4	40										
7 31.5 +54.5 29.3	9 16.0 +55.0 29.4	11 00.5 +55.3 29.6	12 44.7 +55.7 29.8	14 28.7 +56.1 30.1	41										
8 26.0 +54.5 28.9	10 11.0 +54.9 29.0	11 55.8 +55.3 29.2	13 40.4 +55.8 29.4	15 24.8 +56.1 29.7	42										
9 20.5 +54.5 28.5	11 05.9 +54.9 28.6	12 51.1 +55.3 28.8	14 36.2 +55.6 29.1	16 20.9 +56.1 29.3	43										
10 15.0 +54.4 28.0	12 00.8 +54.9 28.2	13 46.4 +55.3 28.4	15 31.8 +55.7 28.7	17 17.0 +56.0 29.0	44										
11 09.4 +54.4 27.6	12 55.7 +54.8 27.8	14 41.7 +55.2 28.0	16 27.5 +55.6 28.3	18 13.0 +56.0 28.6	45										
12 03.8 +54.4 27.2	13 50.5 +54.7 27.4	15 36.9 +55.2 27.6	17 23.1 +55.6 27.9	19 09.0 +55.9 28.2	46										
12 58.2 +54.3 26.7	14 45.2 +54.8 27.0	16 32.1 +55.1 27.2	18 18.7 +55.5 27.5	20 04.9 +55.9 27.8	47										
13 52.5 +54.3 26.3	15 40.0 +54.6 26.5	17 27.2 +55.1 26.8	19 14.2 +55.4 27.1	21 00.8 +55.9 27.4	48										
14 46.8 +54.2 25.9	16 34.6 +54.6 26.1	18 22.3 +55.0 26.4	20 09.6 +55.4 26.7	21 56.7 +55.7 27.0	49										
15 41.0 +54.1 25.4	17 29.2 +54.6 25.7	19 17.3 +54.9 26.0	21 05.0 +55.4 26.3	22 52.4 +55.8 26.6	50										
16 35.1 +54.1 25.0	18 23.8 +54.5 25.2	20 12.2 +54.9 25.5	22 00.4 +55.2 25.9	23 48.2 +55.6 26.2	51										
17 29.2 +54.1 24.5	19 18.3 +54.5 24.8	21 07.1 +54.8 25.1	22 55.6 +55.2 25.4	24 43.8 +55.6 25.8	52										
18 23.3 +54.0 24.1	20 12.8 +54.3 24.3	22 01.9 +54.8 24.7	23 50.8 +55.2 25.0	25 39.4 +55.5 25.4	53										
19 17.3 +53.9 23.6	21 07.1 +54.3 23.9	22 56.7 +54.7 24.2	24 46.0 +55.0 24.6	26 34.9 +55.5 25.0	54										
20 11.2 +53.8 23.1	22 01.4 +54.2 23.4	23 51.4 +54.6 23.8	25 41.0 +55.0 24.1	27 30.5 +55.3 24.6	55										
21 05.0 +53.8 22.7	22 55.6 +54.2 23.0	24 46.0 +54.5 23.3	26 36.0 +54.9 23.7	28 25.7 +55.3 24.1	56										
21 58.8 +53.6 22.2	23 49.8 +54.0 22.5	25 40.5 +54.4 22.9	27 30.9 +54.8 23.2	29 21.0 +55.2 23.7	57										
22 52.4 +53.6 21.7	24 43.8 +54.0 22.0	26 34.9 +54.4 22.4	28 25.7 +54.7 22.8	30 16.2 +55.1 23.2	58										
23 46.0 +53.5 21.2	25 37.8 +53.8 21.5	27 29.3 +54.2 21.9	29 20.4 +54.6 22.3	31 11.3 +55.0 22.8	59										
24 39.5 +53.4 20.7	26 31.6 +53.8 21.1	28 23.5 +54.1 21.4	30 15.0 +54.5 21.8	32 06.3 +54.8 22.3	60										
25 32.9 +53.3 20.2	27 25.4 +53.7 20.6	29 17.6 +54.0 20.9	31 09.5 +54.4 21.4	33 01.1 +54.8 21.8	61										
26 26.2 +53.2 19.7	28 19.1 +53.5 20.0	30 11.6 +54.0 20.4	32 03.9 +54.3 20.9	33 55.9 +54.7 21.3	62										
27 19.4 +53.0 19.2	29 12.6 +53.4 19.5	31 05.6 +53.7 19.9	32 58.2 +54.2 20.4	34 50.6 +54.5 20.8	63										
28 12.4 +53.0 18.6	30 06.0 +53.3 19.0	31 59.3 +53.7 19.4	33 52.4 +54.0 19.8	35 45.1 +54.4 20.3	64										
29 05.4 +52.8 18.1	30 59.3 +53.2 18.5	32 53.0 +53.5 18.9	34 46.4 +53.9 19.3	36 39.5 +54.2 19.8	65										
29 58.2 +52.6 17.6	31 52.5 +53.0 17.9	33 46.5 +53.4 18.3	35 40.3 +53.7 18.8	37 33.7 +54.1 19.3	66										
30 50.8 +52.6 17.0	32 45.5 +52.8 17.4	34 39.9 +53.2 17.8	36 34.0 +53.6 18.2	38 27.8 +54.0 18.7	67										
31 43.4 +52.3 16.4	33 38.3 +52.7 16.8	35 33.1 +53.0 17.2	37 27.6 +53.4 17.7	39 21.8 +53.7 18.1	68										
32 35.7 +52.2 15.9	34 31.0 +52.6 16.2	36 26.1 +52.9 16.6	38 21.0 +53.2 17.1	40 15.5 +53.6 17.6	69										
33 27.9 +52.1 15.3	35 23.6 +52.4 15.6	37 19.0 +52.7 16.0	39 14.2 +53.1 16.5	41 09.1 +53.5 17.0	70										
34 20.0 +51.8 14.7	36 16.0 +52.1 15.0	38 11.7 +52.5 15.4	40 07.3 +52.8 15.9	42 02.6 +53.2 16.4	71										
35 11.8 +51.7 14.1	37 08.1 +52.0 14.4	39 04.2 +52.4 14.8	41 00.1 +52.7 15.3	42 55.8 +53.0 15.7	72										
36 03.5 +51.5 13.4	38 00.1 +51.8 13.8	39 56.6 +52.1 14.2	41 52.8 +52.4 14.6	43 48.8 +52.8 15.1	73										
36 55.0 +51.2 12.8	38 51.9 +51.6 13.2	40 48.7 +51.8 13.5	42 45.2 +52.2 14.0	44 41.6 +52.5 14.4	74										
37 46.2 +51.1 12.1	39 43.5 +51.3 12.5	41 40.5 +51.7 12.9	43 37.4 +52.0 13.3	45 34.1 +52.3 13.7	75										
38 37.3 +50.8 11.5	40 34.8 +51.1 11.8	42 32.2 +51.4 12.2	44 29.4 +51.7 12.6	46 26.4 +52.0 13.0	76										
39 28.1 +50.5 10.8	41 25.9 +50.8 11.1	43 23.6 +51.1 11.5	45 21.1 +51.4 11.9	47 18.4 +51.7 12.3	77										
40 18.6 +50.3 10.1	42 16.7 +50.6 10.4	44 14.7 +50.8 10.8	46 12.5 +51.1 11.1	48 10.1 +51.5 11.6	78										
41 08.9 +50.0 9.4	43 07.3 +50.2 9.7	45 05.5 +50.5 10.0	47 03.6 +50.8 10.4	49 01.6 +51.1 10.8	79										
41 58.9 +49.8 8.6	43 57.5 +50.0 8.9	45 56.0 +50.2 9.2	47 54.4 +50.5 9.6	49 52.7 +50.7 10.0	80										
42 48.7 +49.4 7.9	44 47.5 +49.6 8.1	46 46.2 +49.9 8.4	48 44.9 +50.1 8.8	50 43.4 +50.4 9.1	81										
43 38.1 +49.1 7.1	45 37.1 +49.3 7.3	47 36.1 +49.5 7.6	49 35.0 +49.8 7.9	51 33.8 +50.0 8.3	82										
44 27.2 +48.7 6.3	46 26.4 +49.0 6.5	48 25.6 +49.2 6.8	50 24.8 +49.3 7.1	52 23.8 +49.6 7.4	83										
45 15.9 +48.4 5.5	47 15.4 +48.5 5.7	49 14.8 +48.7 5.9	51 14.1 +48.9 6.2	53 13.4 +49.1 6.4	84										
46 04.3 +48.0 4.6	48 03.9 +48.2 4.8	50 03.5 +48.3 5.0	52 03.0 +48.5 5.2	54 02.5 +48.6 5.5	85										
46 52.3 +47.6 3.8	48 52.1 +47.7 3.9	50 51.8 +47.8 4.1	52 51.5 +47.9 4.3	54 51.1 +48.1 4.5	86										
47 39.9 +47.2 2.9	49 39.8 +47.2 3.0	51 39.6 +47.3 3.1	53 39.4 +47.4 3.3	55 39.2 +47.6 3.4	87										
48 27.1 +46.7 1.9	50 27.0 +46.8 2.0	52 26.9 +46.8 2.1	54 26.8 +46.9 2.2	56 26.8 +46.9 2.3	88										
49 13.8 +46.2 1.0	51 13.8 +46.2 1.0	53 13.7 +46.3 1.1	55 13.7 +46.3 1.1	57 13.7 +46.3 1.2	89										
50 00.0 +45.7 0.0	52 00.0 +45.7 0.0	54 00.0 +45.7 0.0	56 00.0 +45.6 0.0	58 00.0 +45.6 0.0	90										

LATITUDE SAME NAME

L.H.A. 140°, 220°

42°, 318° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	H	c	d
30	53 50.3	+10.6	79.1	54 10.1	+14.1	81.9	54 24.3	+17.5	84.6	54 32.6	+21.0	87.4	54 35.1	+24.3	90.2
31	54 00.9	+9.2	77.5	54 24.2	+12.7	80.2	54 41.8	+16.1	83.0	54 53.6	+19.5	85.8	54 59.4	+23.0	88.6
32	54 10.1	+7.8	75.8	54 36.9	+11.2	78.5	54 57.9	+14.8	81.3	55 13.1	+18.3	84.1	55 22.4	+21.7	87.0
33	54 17.9	+6.4	74.1	54 48.1	+9.8	76.8	55 12.7	+13.3	79.6	55 31.4	+16.8	82.5	55 44.1	+20.4	85.4
34	54 24.3	+4.9	72.4	54 57.9	+8.4	75.1	55 26.0	+11.8	77.9	55 48.2	+15.4	80.8	56 04.5	+18.9	83.7
35	54 29.2	+3.4	70.7	55 06.3	+6.8	73.4	55 37.8	+10.4	76.2	56 03.6	+14.0	79.0	56 23.4	+17.6	82.0
36	54 32.6	+2.0	68.9	55 13.1	+5.4	71.6	55 48.2	+8.9	74.4	56 17.6	+12.4	77.3	56 41.0	+16.0	80.2
37	54 34.6	+0.5	67.2	55 18.5	+3.9	69.9	55 57.1	+7.4	72.6	56 30.0	+11.0	75.5	56 57.0	+14.6	78.5
38	54 35.1	-0.9	65.5	55 22.4	+2.4	68.1	56 04.5	+5.8	70.9	56 41.0	+9.4	73.7	57 11.6	+13.0	76.7
39	54 34.2	-2.5	63.8	55 24.8	+0.8	66.4	56 10.3	+4.3	69.1	56 50.4	+7.8	71.9	57 24.6	+11.5	74.9
40	54 31.7	-3.9	62.0	55 25.6	-0.6	64.6	56 14.6	+2.7	67.3	56 58.2	+6.2	70.1	57 36.1	+9.8	73.1
41	54 27.8	-5.3	60.3	55 25.0	-2.2	62.8	56 17.3	+1.1	65.5	57 04.4	+4.6	68.3	57 45.9	+8.3	71.2
42	54 22.5	-6.8	58.6	55 22.8	-3.7	61.1	56 18.4	-0.4	63.7	57 09.0	+3.0	66.5	57 54.2	+6.6	69.4
43	54 15.7	-8.3	56.9	55 19.1	-5.2	59.3	56 18.0	-2.0	61.9	57 12.0	+1.4	64.6	58 00.8	+4.9	67.5
44	54 07.4	-9.6	55.2	55 13.9	-6.7	57.6	56 16.0	-3.6	60.1	57 13.4	-0.2	62.8	58 05.7	+3.2	65.6
45	53 57.8	-11.1	53.5	55 07.2	-8.2	55.8	56 12.4	-5.1	58.3	57 13.2	-1.9	60.9	58 08.9	+1.6	63.7
46	53 46.7	-12.4	51.9	54 59.0	-9.7	54.1	56 07.3	-6.6	56.5	57 11.3	-3.5	59.1	58 10.5	-0.1	61.8
47	53 34.3	-13.8	50.2	54 49.3	-11.0	52.4	56 00.7	-8.2	54.7	57 07.8	-5.1	57.2	58 10.4	-1.8	59.9
48	53 20.5	-15.1	48.6	54 38.3	-12.5	50.7	55 52.5	-9.7	52.9	57 02.7	-6.7	55.4	58 08.6	-3.5	58.0
49	53 05.4	-16.4	47.0	54 25.8	-13.9	49.0	55 42.8	-11.2	51.2	56 56.0	-8.3	53.6	58 05.1	-5.1	56.1
50	52 49.0	-17.6	45.4	54 11.9	-15.3	47.3	55 31.6	-12.7	49.5	56 47.7	-9.8	51.8	58 00.0	-6.8	54.3
51	52 31.4	-19.0	43.8	53 56.6	-16.6	45.7	55 18.9	-14.1	47.7	56 37.9	-11.4	50.0	57 53.2	-8.5	52.4
52	52 12.4	-20.1	42.2	53 40.0	-17.9	44.1	55 04.8	-15.5	46.0	56 26.5	-12.9	48.2	57 44.7	-10.1	50.5
53	51 52.3	-21.3	40.7	53 22.1	-19.2	42.4	54 49.3	-16.9	44.3	56 13.6	-14.4	46.4	57 34.6	-11.6	48.7
54	51 31.0	-22.4	39.2	53 02.9	-20.4	40.9	54 32.4	-18.2	42.7	55 59.2	-15.8	44.7	57 23.0	-13.3	46.9
55	51 08.6	-23.5	37.7	52 42.5	-21.6	39.3	54 14.2	-19.5	41.0	55 43.4	-17.2	43.0	57 09.7	-14.7	45.1
56	50 45.1	-24.6	36.3	52 20.9	-22.8	37.8	53 54.7	-20.8	39.4	55 26.2	-18.7	41.3	56 55.0	-16.3	43.3
57	50 20.5	-25.7	34.8	51 58.1	-23.9	36.3	53 33.9	-22.1	37.9	55 07.5	-20.0	39.6	56 38.7	-17.7	41.5
58	49 54.8	-26.7	33.4	51 34.2	-25.1	34.8	53 11.8	-23.2	36.3	54 47.5	-21.3	38.0	56 21.0	-19.2	39.8
59	49 28.1	-27.6	32.0	51 09.1	-26.0	33.3	52 48.6	-24.4	34.8	54 26.2	-22.5	36.3	56 01.8	-20.5	38.1
60	49 00.5	-28.6	30.7	50 43.1	-27.2	31.9	52 24.2	-25.5	33.3	54 03.7	-23.8	34.8	55 41.3	-21.9	36.4
61	48 31.9	-29.5	29.3	50 15.9	-28.1	30.5	51 58.7	-26.7	31.8	53 39.9	-25.0	33.2	55 19.4	-23.2	34.8
62	48 02.4	-30.3	28.0	49 47.8	-29.0	29.1	51 32.0	-27.6	30.3	53 14.9	-26.1	31.7	54 56.2	-24.4	33.1
63	47 32.1	-31.2	26.7	49 18.8	-30.0	27.8	51 04.4	-28.7	28.9	52 48.8	-27.3	30.2	54 31.8	-25.7	31.6
64	47 00.9	-32.1	25.5	48 48.8	-30.9	26.5	50 35.7	-29.7	27.5	52 21.5	-28.3	28.7	54 06.1	-26.8	30.0
65	46 28.8	-32.7	24.2	48 17.9	-31.8	25.2	50 06.0	-30.5	26.2	51 53.2	-29.3	27.3	53 39.3	-27.9	28.5
66	45 56.1	-33.6	23.0	47 46.1	-32.5	23.9	49 35.5	-31.5	24.8	51 23.9	-30.3	25.9	53 11.4	-29.1	27.0
67	45 22.5	-34.3	21.9	47 13.6	-33.4	22.6	49 04.0	-32.4	23.5	50 53.6	-31.3	24.5	52 42.3	-30.0	25.6
68	44 48.2	-34.9	20.7	46 40.2	-34.1	21.4	48 31.6	-33.2	22.2	50 22.3	-32.1	23.1	52 12.3	-31.1	24.1
69	44 13.3	-35.7	19.5	46 06.1	-34.8	20.2	47 58.4	-33.9	21.0	49 50.2	-33.1	21.8	51 41.2	-32.0	22.8
70	43 37.6	-36.2	18.4	45 31.3	-35.6	19.1	47 24.5	-34.8	19.8	49 17.1	-33.9	20.5	51 09.2	-33.0	21.4
71	43 01.4	-36.9	17.3	44 55.7	-36.2	17.9	46 49.7	-35.5	18.6	48 43.2	-34.7	19.3	50 36.2	-33.8	20.1
72	42 24.5	-37.5	16.3	44 19.5	-36.8	16.8	46 14.2	-36.2	17.4	48 08.5	-35.4	18.1	50 02.4	-34.7	18.8
73	41 47.0	-38.0	15.2	43 42.7	-37.5	15.7	45 38.0	-36.8	16.2	47 33.1	-36.2	16.8	49 27.7	-35.5	17.5
74	41 09.0	-38.6	14.2	43 05.2	-38.1	14.6	45 01.2	-37.5	15.1	46 56.9	-36.9	15.7	48 52.2	-36.2	16.3
75	40 30.4	-39.1	13.2	42 27.1	-38.6	13.6	44 23.7	-38.1	14.0	46 20.0	-37.6	14.5	48 16.0	-37.0	15.1
76	39 51.3	-39.6	12.2	41 48.5	-39.2	12.5	43 45.6	-38.8	13.0	45 42.4	-38.2	13.4	47 39.0	-37.7	13.9
77	39 11.7	-40.1	11.2	41 09.3	-39.7	11.5	43 06.8	-39.2	11.9	45 04.2	-38.9	12.3	47 01.3	-38.3	12.8
78	38 31.6	-40.5	10.2	40 29.6	-40.1	10.5	42 27.6	-39.9	10.9	44 25.3	-39.4	11.2	46 23.0	-39.0	11.6
79	37 51.1	-41.0	9.3	39 49.5	-40.7	9.6	41 47.7	-40.3	9.9	43 45.9	-40.0	10.2	45 44.0	-39.7	10.5
80	37 10.1	-41.4	8.4	39 08.8	-41.1	8.6	41 07.4	-40.8	8.9	43 05.9	-40.5	9.2	45 04.3	-40.2	9.5
81	36 28.7	-41.8	7.5	38 27.7	-41.6	7.7	40 26.6	-41.4	7.9	42 25.4	-41.1	8.2	44 24.1	-40.7	8.4
82	35 46.9	-42.2	6.6	37 46.1	-42.0	6.8	39 45.2	-41.7	7.0	41 44.3	-41.5	7.2	43 43.4	-41.3	7.4
83	35 04.7	-42.5	5.7	37 04.1	-42.3	5.9	39 03.5	-42.2	6.0	41 02.8	-42.0	6.2	43 02.1	-41.8	6.4
84	34 22.2	-42.9	4.9	36 21.8	-42.8	5.0	38 21.3	-42.6	5.1	40 20.8	-42.5	5.3	42 20.3	-42.3	5.4
85	33 39.3	-43.2	4.0	35 39.0	-43.1	4.1	37 38.7	-43.0	4.2	39 38.3	-42.8	4.3	41 38.0	-42.8	4.5
86	32 56.1	-43.6	3.2	34 55.9	-43.5	3.3	36 55.7	-43.4	3.3	38 55.5	-43.3	3.4	40 55.2	-43.2	3.5
87	32 12.5	-43.9	2.4	34 12.4	-43.8	2.4	36 12.3	-43.8	2.5	38 12.2	-43.7	2.6	40 12.0	-43.6	2.6
88	31 28.6	-44.1	1.6	33 28.6	-44.2	1.6	35 28.5	-44.1	1.6	37 28.5	-44.1	1.7	39 28.4	-44.0	1.7
89	30 44.5	-44.5	0.8	32 44.4	-44.4	0.8	34 44.4	-44.4	0.8	36 44.4	-44.4	0.8	38 44.4	-44.4	0.9
90	30 00.0	-44.7	0.0	32 00.0	-44.7	0.0	34 00.0	-44.7	0.0	36 00.0	-44.8	0.0	38 00.0	-44.8	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 42°, 318°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
17 54.0	-47.6	142.5	16 18.6	-48.5	142.9	14 42.7	-49.2	143.2	13 06.4	-49.9	143.5	11 29.8	-50.6	143.7	30
17 06.4	-47.8	143.1	15 30.1	-48.5	143.5	13 53.5	-49.3	143.8	12 16.5	-50.0	144.1	10 39.2	-50.6	144.3	31
16 18.6	-47.9	143.8	14 41.6	-48.6	144.1	13 04.2	-49.3	144.4	11 26.5	-50.0	144.6	9 48.6	-50.7	144.8	32
15 30.7	-48.0	144.4	13 53.0	-48.8	144.7	12 14.9	-49.5	145.0	10 36.5	-50.1	145.2	8 57.9	-50.8	145.4	33
14 42.7	-48.1	145.0	13 04.2	-48.8	145.3	11 25.4	-49.5	145.5	9 46.4	-50.2	145.7	8 07.1	-50.8	145.9	34
13 54.6	-48.2	145.6	12 15.4	-48.9	145.9	10 35.9	-49.5	146.1	8 56.2	-50.2	146.3	7 16.3	-50.8	146.5	35
13 06.4	-48.2	146.2	11 26.5	-48.9	146.5	9 46.4	-49.6	146.7	8 06.0	-50.3	146.9	6 25.5	-50.9	147.0	36
12 18.2	-48.4	146.8	10 37.6	-49.0	147.1	8 56.8	-49.7	147.3	7 15.7	-50.2	147.4	5 34.6	-50.9	147.5	37
11 29.8	-48.4	147.4	9 48.6	-49.1	147.6	8 07.1	-49.7	147.8	6 25.5	-50.4	148.0	4 43.7	-50.9	148.1	38
10 41.4	-48.5	148.0	8 59.5	-49.2	148.2	7 17.4	-49.8	148.4	5 35.1	-50.3	148.5	3 52.8	-51.0	148.6	39
9 52.9	-48.5	148.6	8 10.3	-49.1	148.8	6 27.6	-49.8	148.9	4 44.8	-50.4	149.0	3 01.8	-50.9	149.1	40
9 04.4	-48.6	149.2	7 21.2	-49.3	149.4	5 37.8	-49.8	149.5	3 54.4	-50.4	149.6	2 10.8	-50.9	149.6	41
8 15.8	-48.7	149.8	6 31.9	-49.2	150.0	4 48.0	-49.9	150.1	3 04.0	-50.5	150.1	1 19.9	-51.0	150.2	42
7 27.1	-48.7	150.4	5 42.7	-49.3	150.5	3 58.1	-49.8	150.6	2 13.5	-50.4	150.7	0 28.9	-51.0	150.7	43
6 38.4	-48.8	151.0	4 53.4	-49.4	151.1	3 08.3	-49.9	151.2	1 23.1	-50.4	151.2	0 22.1	+51.0	28.8	44
5 49.6	-48.8	151.6	4 04.0	-49.3	151.7	2 18.4	-50.0	151.7	0 32.7	-50.5	151.8	0 13.1	+50.9	28.2	45
5 00.8	-48.8	152.2	3 14.7	-49.4	152.3	1 28.4	-49.9	152.3	0 17.8	+50.4	27.7	2 04.0	+51.0	27.7	46
4 12.0	-48.8	152.8	2 25.3	-49.4	152.8	0 38.5	-49.9	152.8	1 08.2	+50.5	27.2	2 55.0	+50.9	27.2	47
3 23.2	-48.9	153.4	1 35.9	-49.4	153.4	0 11.4	+49.9	26.6	1 58.7	+50.4	26.6	3 45.9	+51.0	26.7	48
2 34.3	-48.9	153.9	0 46.5	-49.4	154.0	1 01.3	+49.9	26.0	2 49.1	+50.4	26.1	4 36.9	+50.9	26.1	49
1 45.4	-48.9	154.5	0 02.9	+49.4	25.5	1 51.2	+49.9	25.5	3 39.5	+50.4	25.5	5 27.8	+50.9	25.6	50
0 56.5	-48.9	155.1	0 52.3	+49.4	24.9	2 41.1	+49.9	24.9	4 29.9	+50.4	25.0	6 18.7	+50.8	25.1	51
0 07.6	-48.9	155.7	1 41.7	+49.4	24.3	3 31.0	+49.9	24.4	5 20.3	+50.3	24.4	7 09.5	+50.8	24.5	52
0 13.3	+48.8	23.7	2 31.1	+49.4	23.8	4 20.9	+49.8	23.8	6 10.6	+50.3	23.9	8 00.3	+50.8	24.0	53
1 30.1	+48.9	23.2	3 20.5	+49.3	23.2	5 10.7	+49.8	23.3	7 00.9	+50.3	23.3	8 51.1	+50.7	23.5	54
2 19.0	+48.9	22.6	4 09.8	+49.3	22.6	6 00.5	+49.8	22.7	8 00.5	+49.8	22.8	9 41.8	+50.9	22.9	55
3 07.9	+48.9	22.0	4 59.1	+49.3	22.1	6 50.3	+49.8	22.1	9 41.4	+50.2	22.2	10 32.5	+50.6	22.4	56
3 56.8	+48.8	21.4	5 48.4	+49.3	21.5	7 40.1	+49.7	21.6	10 31.6	+50.1	21.7	11 23.1	+50.5	21.8	57
4 45.6	+48.8	20.8	6 37.7	+49.2	20.9	8 29.8	+49.6	21.0	11 21.7	+50.1	21.1	12 13.6	+50.5	21.3	58
5 34.4	+48.7	20.3	7 26.9	+49.2	20.3	9 19.4	+49.6	20.4	12 11.8	+50.0	20.6	13 04.1	+50.4	20.7	59
6 23.1	+48.8	19.7	8 16.1	+49.1	19.8	10 09.0	+49.5	19.9	13 01.8	+50.0	20.0	13 54.5	+50.4	20.2	60
7 11.9	+48.6	19.1	9 05.2	+49.1	19.2	10 58.5	+49.5	19.3	12 51.8	+49.8	19.4	14 44.9	+50.2	19.6	61
8 00.5	+48.7	18.5	9 54.3	+49.0	18.6	11 48.0	+49.4	18.7	13 41.6	+49.8	18.9	15 35.1	+50.2	19.0	62
8 49.2	+48.5	17.9	10 43.3	+49.0	18.0	12 37.4	+49.3	18.1	14 31.4	+49.7	18.3	16 25.3	+50.1	18.5	63
9 37.7	+48.6	17.3	11 32.3	+48.9	17.4	13 26.7	+49.3	17.6	15 21.1	+49.6	17.7	17 15.4	+49.9	17.9	64
10 26.3	+48.4	16.7	12 21.2	+48.8	16.8	14 16.0	+49.1	17.0	16 10.7	+49.5	17.1	18 05.3	+49.9	17.3	65
11 14.7	+48.4	16.1	13 10.0	+48.7	16.2	15 05.1	+49.1	16.4	17 00.2	+49.4	16.5	18 55.2	+49.8	16.7	66
12 03.1	+48.3	15.5	13 58.7	+48.6	15.6	15 54.2	+49.0	15.8	17 49.6	+49.3	15.9	19 45.0	+49.6	16.1	67
12 51.4	+48.2	14.9	14 47.3	+48.5	15.0	16 43.2	+48.8	15.2	18 38.9	+49.2	15.3	20 34.6	+49.5	15.5	68
13 39.6	+48.1	14.3	15 35.8	+48.5	14.4	17 32.0	+48.8	14.6	19 28.1	+49.1	14.7	21 24.1	+49.4	14.9	69
14 27.7	+48.0	13.7	16 24.3	+48.3	13.8	18 20.8	+48.6	14.0	20 17.2	+48.9	14.1	22 13.5	+49.2	14.3	70
15 15.7	+47.9	13.1	17 12.6	+48.2	13.2	19 09.4	+48.5	13.3	21 06.1	+48.8	13.5	23 02.7	+49.1	13.7	71
16 03.6	+47.8	12.4	18 00.8	+48.1	12.6	19 57.9	+48.3	12.7	21 54.9	+48.7	12.9	23 51.8	+49.0	13.1	72
16 51.4	+47.7	11.8	18 48.9	+47.9	11.9	20 46.2	+48.3	12.1	22 43.6	+48.5	12.2	24 40.8	+48.8	12.4	73
17 39.1	+47.6	11.2	19 36.8	+47.8	11.3	21 34.5	+48.1	11.4	23 32.1	+48.3	11.6	25 29.6	+48.6	11.8	74
18 26.7	+47.4	10.5	20 24.6	+47.7	10.6	22 22.6	+47.9	10.8	24 20.4	+48.2	11.0	26 18.2	+48.4	11.1	75
19 14.1	+47.3	9.9	21 12.3	+47.6	10.0	23 10.5	+47.7	10.1	25 08.6	+48.0	10.3	27 06.6	+48.3	10.5	76
20 01.4	+47.2	9.2	21 59.9	+47.3	9.3	23 58.2	+47.6	9.5	25 56.6	+47.8	9.6	27 54.9	+48.0	9.8	77
20 48.6	+47.0	8.6	22 47.2	+47.2	8.7	24 45.8	+47.4	8.8	26 44.4	+47.6	9.0	28 42.9	+47.8	9.1	78
21 35.6	+46.8	7.9	23 34.4	+47.1	8.0	25 33.2	+47.3	8.1	27 32.0	+47.4	8.3	29 30.7	+47.7	8.4	79
22 22.4	+46.7	7.2	24 21.5	+46.8	7.3	26 20.5	+47.0	7.4	28 19.4	+47.2	7.6	30 18.4	+47.4	7.7	80
23 09.1	+46.5	6.5	25 08.3	+46.7	6.6	27 07.5	+46.8	6.8	29 06.6	+47.0	6.9	31 05.8	+47.1	7.0	81
23 55.6	+46.3	5.8	25 55.0	+46.4	5.9	27 54.3	+46.6	6.0	29 53.6	+46.8	6.2	31 52.9	+46.9	6.3	82
24 41.9	+46.1	5.1	26 41.4	+46.2	5.2	28 40.9	+46.4	5.3	30 40.4	+46.5	5.4	32 39.8	+46.7	5.6	83
25 28.0	+45.9	4.4	27 27.6	+46.1	4.5	29 27.3	+46.1	4.6	31 26.9	+46.2	4.7	33 26.5	+46.3	4.8	84
26 13.9	+45.7	3.7	28 13.7	+45.7	3.8	30 13.4	+45.9	3.9	32 13.1	+46.0	4.0	34 12.8	+46.1	4.0	85
26 59.6	+45.5	3.0	28 59.4	+45.6	3.1	30 59.3	+45.6	3.1	32 59.1	+45.7	3.2	34 58.9	+45.8	3.3	86
27 45.1	+45.2	2.3	29 45.0	+45.3	2.3	31 44.9	+45.3	2.4	33 44.8	+45.4	2.4	35 44.7	+45.4	2.5	87
28 30.3	+45.0	1.5	30 30.3	+45.0	1.6	32 30.2	+45.1	1.6	34 30.2	+45.0	1.6	36 30.1	+45.1	1.7	88
29 15.3	+44.7	0.8	31 15.3	+44.7	0.8	33 15.3	+44.7	0.8	35 15.2	+44.8	0.8	37 15.2	+44.8	0.8	89
30 00.0	+44.5	0.0	32 00.0	+44.4	0.0	34 00.0	+44.4	0.0	36 00.0	+44.4	0.0	38 00.0	+44.4	0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 138°, 222°

42°, 318° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	54 31.7	+27.6	93.0	54 22.5	+30.7	95.8	54 07.4	+33.7	98.6	53 46.7	+36.6	101.3	53 20.5	+39.3	103.9
31	54 59.3	+26.3	91.5	54 53.2	+29.6	94.3	54 41.1	+32.8	97.2	54 23.3	+35.7	99.9	53 59.8	+38.5	102.7
32	55 25.6	+25.1	89.9	55 22.8	+28.4	92.8	55 13.9	+31.6	95.7	54 59.0	+34.7	98.5	54 38.3	+37.5	101.3
33	55 50.7	+23.9	88.3	55 51.2	+27.2	91.3	55 45.5	+30.5	94.2	55 33.7	+33.6	97.1	55 15.8	+36.7	100.0
34	56 14.6	+22.5	86.7	56 18.4	+26.0	89.7	56 16.0	+29.3	92.7	56 07.3	+32.6	95.6	55 52.5	+35.6	98.6
35	56 37.1	+21.1	85.0	56 44.4	+24.6	88.0	56 45.3	+28.1	91.1	56 39.9	+31.4	94.1	56 28.1	+34.6	97.1
36	56 58.2	+19.7	83.3	57 09.0	+23.3	86.4	57 13.4	+26.8	89.5	57 11.3	+30.2	92.6	57 02.7	+33.5	95.6
37	57 17.9	+18.2	81.5	57 32.3	+21.9	84.6	57 40.2	+25.5	87.8	57 41.5	+29.0	91.0	57 36.2	+32.4	94.1
38	57 36.1	+16.7	79.8	57 54.2	+20.4	82.9	58 05.7	+24.1	86.1	58 10.5	+27.7	89.3	58 08.6	+31.2	92.5
39	57 52.8	+15.1	78.0	58 14.6	+18.9	81.1	58 29.8	+22.6	84.3	58 38.2	+26.3	87.6	58 39.8	+29.8	90.9
40	58 07.9	+13.6	76.1	58 33.5	+17.3	79.3	58 52.4	+21.1	82.6	59 04.5	+24.9	85.9	59 09.6	+28.6	89.2
41	58 21.5	+12.0	74.3	58 50.8	+15.8	77.5	59 13.5	+19.6	80.7	59 29.4	+23.3	84.1	59 38.2	+27.1	87.5
42	58 33.5	+10.3	72.4	59 06.6	+14.1	75.6	59 33.1	+17.9	78.9	59 52.7	+21.9	82.3	60 05.3	+25.7	85.7
43	58 43.8	+8.6	70.5	59 20.7	+12.4	73.7	59 51.0	+16.3	77.0	60 14.6	+20.2	80.4	60 31.0	+24.1	83.9
44	58 52.4	+6.9	68.6	59 33.1	+10.7	71.8	60 07.3	+14.6	75.1	60 34.8	+18.6	78.5	60 55.1	+22.6	82.0
45	58 59.3	+5.2	66.7	59 43.8	+8.9	69.8	60 21.9	+12.9	73.1	60 53.4	+16.8	76.5	61 17.7	+20.8	80.1
46	59 04.5	+3.4	64.8	59 52.7	+7.2	67.9	60 34.8	+11.1	71.1	61 10.2	+15.1	74.6	61 38.5	+19.2	78.1
47	59 07.9	+1.7	62.8	59 59.9	+5.4	65.9	60 45.9	+9.2	69.1	61 25.3	+13.2	72.5	61 57.7	+17.4	76.1
48	59 09.6	0.0	60.9	60 05.3	+3.6	63.9	60 55.1	+7.4	67.1	61 38.5	+11.4	70.5	62 15.1	+15.5	74.1
49	59 09.6	-1.8	58.9	60 08.9	+1.8	61.9	61 02.5	+5.6	65.1	61 49.9	+9.6	68.4	62 30.6	+13.6	72.0
50	59 07.8	-3.6	57.0	60 10.7	-0.1	59.9	61 08.1	+3.6	63.0	61 59.5	+7.5	66.3	62 44.2	+11.7	69.9
51	59 04.2	-5.3	55.0	60 10.6	-1.9	57.9	61 11.7	+1.8	60.9	62 07.0	+5.7	64.2	62 55.9	+9.7	67.7
52	58 58.9	-7.0	53.1	60 08.7	-3.7	55.8	61 13.5	-0.2	58.8	62 12.7	+3.6	62.1	63 05.6	+7.7	65.6
53	58 51.9	-8.7	51.2	60 05.0	-5.5	53.8	61 13.3	-2.0	56.8	62 16.3	+1.7	59.9	63 13.3	+5.7	63.4
54	58 43.2	-10.4	49.2	59 59.5	-7.3	51.9	61 11.3	-4.0	54.7	62 18.0	-0.3	57.8	63 19.0	+3.6	61.1
55	58 32.8	-12.0	47.4	59 52.2	-9.1	49.9	61 07.3	-5.8	52.6	62 17.7	-2.4	55.6	63 22.6	+1.4	58.9
56	58 20.8	-13.7	45.5	59 43.1	-10.8	47.9	61 01.5	-7.7	50.6	62 15.3	-4.3	53.5	63 24.0	-0.6	56.7
57	58 07.1	-15.3	43.6	59 32.3	-12.6	46.0	60 53.8	-9.6	48.5	62 11.0	-6.2	51.4	63 23.4	-2.6	54.5
58	57 51.8	-16.8	41.8	59 19.7	-14.2	44.0	60 44.2	-11.3	46.5	62 04.8	-8.3	49.2	63 20.8	-4.8	52.2
59	57 35.0	-18.3	40.0	59 05.5	-15.8	42.1	60 32.9	-13.2	44.5	61 56.5	-10.1	47.1	63 16.0	-6.8	50.0
60	57 16.7	-19.7	38.2	58 49.7	-17.5	40.3	60 19.7	-14.9	42.5	61 46.4	-12.0	45.0	63 09.2	-8.9	47.8
61	56 57.0	-21.2	36.5	58 32.2	-19.0	38.4	60 04.8	-16.5	40.6	61 34.4	-13.9	43.0	63 00.3	-10.9	45.6
62	56 35.8	-22.6	34.8	58 13.2	-20.5	36.6	59 48.3	-18.3	38.7	61 20.5	-15.7	40.9	62 49.4	-12.8	43.5
63	56 13.2	-23.9	33.1	57 52.7	-22.0	34.8	59 30.0	-19.8	36.8	61 04.8	-17.4	38.9	62 36.6	-14.7	41.3
64	55 49.3	-25.2	31.5	57 30.7	-23.3	33.1	59 10.2	-21.3	34.9	60 47.4	-19.1	36.9	62 21.9	-16.6	39.2
65	55 24.1	-26.4	29.9	57 07.4	-24.8	31.4	58 48.9	-22.9	33.1	60 28.3	-20.8	35.0	62 05.3	-18.4	37.2
66	54 57.7	-27.6	28.3	56 42.6	-26.0	29.7	58 26.0	-24.3	31.3	60 07.5	-22.3	33.1	61 46.9	-20.2	35.1
67	54 30.1	-28.8	26.8	56 16.6	-27.3	28.1	58 01.7	-25.7	29.6	59 45.2	-23.9	31.3	61 26.7	-21.8	33.2
68	54 01.3	-29.9	25.3	55 49.3	-28.5	26.5	57 36.0	-27.0	27.9	59 21.3	-25.3	29.5	61 04.9	-23.5	31.2
69	53 31.4	-30.9	23.8	55 20.8	-29.7	24.9	57 09.0	-28.3	26.2	58 56.0	-26.8	27.7	60 41.4	-25.0	29.3
70	53 00.5	-31.9	22.4	54 51.1	-30.8	23.4	56 40.7	-29.5	24.6	58 29.2	-28.1	26.0	60 16.4	-26.5	27.5
71	52 28.6	-32.9	21.0	54 20.3	-31.8	21.9	56 11.2	-30.7	23.0	58 01.1	-29.4	24.3	59 49.9	-28.0	25.7
72	51 55.7	-33.8	19.6	53 48.5	-32.9	20.5	55 40.5	-31.8	21.5	57 31.7	-30.6	22.7	59 21.9	-29.3	23.9
73	51 21.9	-34.7	18.3	53 15.6	-33.8	19.1	55 08.7	-32.9	20.0	57 01.1	-31.8	21.1	58 52.6	-30.6	22.2
74	50 47.2	-35.5	17.0	52 41.8	-34.8	17.7	54 35.8	-33.9	18.6	56 29.3	-33.0	19.5	58 22.0	-31.9	20.6
75	50 11.7	-36.3	15.7	52 07.0	-35.6	16.4	54 01.9	-34.8	17.1	55 56.3	-34.0	18.0	57 50.1	-33.0	19.0
76	49 35.4	-37.2	14.5	51 31.4	-36.5	15.1	53 27.1	-35.8	15.8	55 22.3	-35.0	16.6	57 17.1	-34.2	17.4
77	48 58.2	-37.8	13.3	50 54.9	-37.3	13.8	52 51.3	-36.7	14.4	54 47.3	-36.0	15.1	56 42.9	-35.2	15.9
78	48 20.4	-38.5	12.1	50 17.6	-38.0	12.6	52 14.6	-37.5	13.1	54 11.3	-36.9	13.8	56 07.7	-36.2	14.5
79	47 41.9	-39.3	10.9	49 39.6	-38.8	11.4	51 37.1	-38.3	11.9	53 34.4	-37.7	12.4	55 31.5	-37.2	13.0
80	47 02.6	-39.8	9.8	49 00.8	-39.5	10.2	50 58.8	-39.0	10.6	52 56.7	-38.6	11.1	54 54.3	-38.1	11.7
81	46 22.8	-40.5	8.7	48 21.3	-40.1	9.1	50 19.8	-39.8	9.4	52 18.1	-39.4	9.9	54 16.2	-38.9	10.3
82	45 42.3	-41.0	7.7	47 41.2	-40.7	8.0	49 40.0	-40.4	8.3	51 38.7	-40.1	8.6	53 37.3	-39.8	9.0
83	45 01.3	-41.6	6.6	47 00.5	-41.4	6.9	48 59.6	-41.1	7.1	50 58.6	-40.8	7.4	52 57.5	-40.5	7.8
84	44 19.7	-42.1	5.6	46 19.1	-41.9	5.8	48 18.5	-41.7	6.0	50 17.8	-41.5	6.3	52 17.0	-41.2	6.6
85	43 37.6	-42.6	4.6	45 37.2	-42.5	4.8	47 36.8	-42.3	5.0	49 36.3	-42.1	5.2	51 35.8	-41.9	5.4
86	42 55.0	-43.1	3.7	44 54.7	-42.9	3.8	46 54.5	-42.9	3.9	48 54.2	-42.7	4.1	50 53.9	-42.6	4.2
87	42 11.9	-43.5	2.7	44 11.8	-43.5	2.8	46 11.6	-43.4	2.9	48 11.5	-43.3	3.0	50 11.3	-43.2	3.1
88	41 28.4	-44.0	1.8	43 28.3	-43.9	1.8	45 28.2	-43.8	1.9	47 28.2	-43.9	2.0	49 28.1	-43.8	2.1
89	40 44.4	-44.4	0.9	42 44.4	-44.4	0.9	44 44.4	-44.4	0.9	46 44.3	-44.3	1.0	48 44.3	-44.3	1.0
90	40 00.0	-44.8	0.0	42 00.0	-44.8	0.0	44 00.0	-44.8	0.0	46 00.0	-44.8	0.0	48 00.0	-44.8	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 42°, 318°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
9	52.9	-51.2	144.0	8	15.8	-51.9	144.2	6	38.4	-52.5	144.3	5	00.8	-53.0	144.4	3	23.2	-53.7	144.5	30
9	01.7	-51.4	144.5	7	23.9	-52.0	144.7	5	45.9	-52.5	144.8	4	07.8	-53.1	144.9	2	29.5	-53.6	145.0	31
8	10.3	-51.3	145.0	6	31.9	-51.9	145.2	4	53.4	-52.6	145.3	3	14.7	-53.1	145.4	1	35.9	-53.6	145.4	32
7	19.0	-51.4	145.5	5	40.0	-52.0	145.7	4	00.8	-52.5	145.8	2	21.6	-53.2	145.8	0	42.3	-53.7	145.9	33
6	27.6	-51.4	146.1	4	48.0	-52.0	146.2	3	08.3	-52.6	146.3	1	28.4	-53.1	146.3	0	11.4	+53.6	33.7	34
5	36.2	-51.4	146.6	3	56.0	-52.0	146.7	2	15.7	-52.6	146.7	0	35.3	-53.1	146.8	1	05.0	+53.7	33.2	35
4	44.8	-51.5	147.1	3	04.0	-52.1	147.2	1	23.1	-52.6	147.2	0	17.8	+53.1	32.8	1	58.7	+53.6	32.8	36
3	53.3	-51.5	147.6	2	11.9	-52.0	147.7	0	30.5	-52.6	147.7	1	10.9	+53.1	32.3	2	52.3	+53.6	32.3	37
3	01.8	-51.5	148.1	1	19.9	-52.1	148.2	0	22.1	+52.6	31.8	2	04.0	+53.1	31.8	3	45.9	+53.7	31.9	38
2	10.3	-51.5	148.6	0	27.8	-52.0	148.7	1	14.7	+52.6	31.3	2	57.1	+53.1	31.4	4	39.6	+53.6	31.4	39
1	18.8	-51.5	149.2	0	24.2	+52.1	30.8	2	07.3	+52.5	30.9	3	50.2	+53.1	30.9	5	33.2	+53.5	31.0	40
0	27.3	-51.5	149.7	1	16.3	+52.0	30.3	2	59.8	+52.6	30.4	4	43.3	+53.1	30.4	6	26.7	+53.6	30.5	41
0	24.2	+51.6	29.8	2	08.3	+52.1	29.8	3	52.4	+52.5	29.9	5	36.4	+53.0	30.0	7	20.3	+53.5	30.1	42
1	15.8	+51.5	29.3	3	00.4	+52.0	29.3	4	44.9	+52.6	29.4	6	29.4	+53.1	29.5	8	13.8	+53.5	29.6	43
2	07.3	+51.5	28.8	3	52.4	+52.0	28.8	5	37.5	+52.5	28.9	7	22.5	+52.9	29.0	9	07.3	+53.5	29.2	44
2	58.8	+51.4	28.3	4	44.4	+52.0	28.3	6	30.0	+52.5	28.4	8	15.4	+53.0	28.6	10	00.8	+53.4	28.7	45
3	50.2	+51.5	27.8	5	36.4	+52.0	27.8	7	22.5	+52.4	27.9	9	08.4	+52.9	28.1	10	54.2	+53.4	28.3	46
4	41.7	+51.5	27.3	6	28.4	+51.9	27.3	8	14.9	+52.4	27.5	10	01.3	+52.9	27.6	11	47.6	+53.0	27.8	47
5	33.2	+51.4	26.7	7	20.3	+51.9	26.8	9	07.3	+52.4	27.0	10	54.2	+52.8	27.1	12	40.9	+53.3	27.3	48
6	24.6	+51.4	26.2	8	12.2	+51.8	26.3	9	59.7	+52.3	26.5	11	47.0	+52.8	26.6	13	34.2	+53.2	26.8	49
7	16.0	+51.3	25.7	9	04.0	+51.9	25.8	10	52.0	+52.3	26.0	12	39.8	+52.7	26.2	14	27.4	+53.2	26.4	50
8	07.3	+51.3	25.2	9	55.9	+51.7	25.3	11	44.3	+52.2	25.5	13	32.5	+52.7	25.7	15	20.6	+53.1	25.9	51
8	58.6	+51.3	24.6	10	47.6	+51.7	24.8	12	36.5	+52.2	25.0	14	25.2	+52.6	25.2	16	13.7	+53.0	25.4	52
9	49.9	+51.2	24.1	11	39.3	+51.7	24.3	13	28.7	+52.1	24.5	15	17.8	+52.5	24.7	17	06.7	+53.0	24.9	53
10	41.1	+51.2	23.6	12	31.0	+51.6	23.8	14	20.8	+52.0	24.0	16	10.3	+52.5	24.2	17	59.7	+52.9	24.4	54
11	32.3	+51.1	23.1	13	22.6	+51.5	23.2	15	12.8	+52.0	23.4	17	02.8	+52.4	23.7	18	52.6	+52.8	23.9	55
12	23.4	+51.0	22.5	14	14.1	+51.5	22.7	16	04.8	+51.9	22.9	17	55.2	+52.3	23.2	19	45.4	+52.7	23.4	56
13	14.4	+51.0	22.0	15	05.6	+51.4	22.2	16	56.7	+51.8	22.4	18	47.5	+52.2	22.6	20	38.1	+52.7	22.9	57
14	05.4	+50.9	21.4	15	57.0	+51.3	21.6	17	48.5	+51.7	21.9	19	39.7	+52.2	22.1	21	30.8	+52.5	22.4	58
14	56.3	+50.8	20.9	16	48.3	+51.2	21.1	18	40.2	+51.6	21.3	20	31.9	+52.0	21.6	22	23.3	+52.5	21.9	59
15	47.1	+50.7	20.3	17	39.5	+51.2	20.6	19	31.8	+51.6	20.8	21	23.9	+51.9	21.1	23	15.8	+52.3	21.4	60
16	37.8	+50.7	19.8	18	30.7	+51.0	20.0	20	23.4	+51.4	20.2	22	15.8	+51.9	20.5	24	08.1	+52.2	20.8	61
17	28.5	+50.5	19.2	19	21.7	+51.0	19.4	21	14.8	+51.3	19.7	23	07.7	+51.7	20.0	25	00.3	+52.1	20.3	62
18	19.0	+50.5	18.7	20	12.7	+50.8	18.9	22	06.1	+51.2	19.1	23	59.4	+51.6	19.4	25	52.4	+52.0	19.7	63
19	09.5	+50.3	18.1	21	03.5	+50.7	18.3	22	57.3	+51.1	18.6	24	51.0	+51.4	18.9	26	44.4	+51.9	19.2	64
19	59.8	+50.3	17.5	21	54.2	+50.6	17.7	23	48.4	+51.0	18.0	25	42.4	+51.4	18.3	27	36.3	+51.7	18.6	65
20	50.1	+50.1	16.9	22	44.8	+50.5	17.2	24	39.4	+50.8	17.4	26	33.8	+51.2	17.7	28	28.0	+51.5	18.0	66
21	40.2	+50.0	16.3	23	35.3	+50.3	16.6	25	30.2	+50.7	16.8	27	25.0	+51.0	17.1	29	19.5	+51.4	17.5	67
22	30.2	+49.8	15.7	24	25.6	+50.2	16.0	26	20.9	+50.5	16.2	28	16.0	+50.9	16.5	30	10.9	+51.3	16.9	68
23	20.0	+49.7	15.1	25	15.8	+50.0	15.4	27	11.4	+50.4	15.6	29	06.9	+50.7	15.9	31	02.2	+51.1	16.3	69
24	09.7	+49.6	14.5	26	05.8	+49.9	14.8	28	01.8	+50.2	15.0	29	57.6	+50.6	15.3	31	53.3	+50.8	15.6	70
24	59.3	+49.4	13.9	26	55.7	+49.7	14.1	28	52.0	+50.0	14.4	30	48.2	+50.3	14.7	32	44.1	+50.7	15.0	71
25	48.7	+49.2	13.3	27	45.4	+49.6	13.5	29	42.0	+49.9	13.8	31	38.5	+50.2	14.1	33	34.8	+50.5	14.4	72
26	37.9	+49.1	12.6	28	35.0	+49.3	12.9	30	31.9	+49.6	13.1	32	28.7	+50.0	13.4	34	25.3	+50.3	13.7	73
27	27.0	+48.9	12.0	29	24.3	+49.2	12.2	31	21.5	+49.5	12.5	33	18.7	+49.7	12.7	35	15.6	+50.1	13.1	74
28	15.9	+48.7	11.3	30	13.5	+49.0	11.6	32	11.0	+49.2	11.8	34	08.4	+49.5	12.1	36	05.7	+49.8	12.4	75
29	04.6	+48.5	10.7	31	02.5	+48.7	10.9	33	00.2	+49.1	11.1	34	57.9	+49.3	11.4	36	55.5	+49.6	11.7	76
29	53.1	+48.3	10.0	31	51.2	+48.5	10.2	33	49.3	+48.7	10.4	35	47.2	+49.1	10.7	37	45.1	+49.3	11.0	77
30	41.4	+48.0	9.3	32	39.7	+48.3	9.5	34	38.0	+48.6	9.7	36	36.3	+48.8	10.0	38	34.4	+49.1	10.3	78
31	29.4	+47.8	8.6	33	28.0	+48.1	8.8	35	26.6	+48.3	9.0	37	25.1	+48.5	9.3	39	23.5	+48.7	9.5	79
32	17.2	+47.6	7.9	34	16.1	+47.8	8.1	36	14.9	+48.0	8.3	38	13.6	+48.2	8.5	40	12.2	+48.5	8.8	80
33	04.8	+47.4	7.2	35	03.9	+47.5	7.3	37	02.9	+47.7	7.5	39	01.8	+47.9	7.7	41	00.7	+48.1	8.0	81
33	52.2	+47.0	6.4	35	51.4	+47.2	6.6	37	50.6	+47.4	6.8	39	49.7	+47.6	7.0	41	48.8	+47.8	7.2	82
34	39.2	+46.8	5.7	36	38.6	+47.0	5.8	38	38.0	+47.1	6.0	40	37.3	+47.3	6.2	42	36.6	+47.4	6.4	83
35	26.0	+46.5	4.9	37	25.6	+46.6	5.1	39	25.1	+46.7	5.2	41	24.6	+46.9	5.4	43	24.0	+47.1	5.5	84
36	12.5	+46.2	4.1	38	12.2	+46.3	4.3	40	11.8	+46.5	4.4	42	11.5	+46.5	4.5	44	11.1	+46.7	4.7	85
36	58.7	+45.8	3.3	38	58.5	+45.9	3.4	40	58.3	+46.0	3.5	42	58.0	+46.2	3.7	44	57.8	+46.2	3.8	86
37	44.5	+45.6	2.5	39	44.4	+45.6	2.6	41	44.3	+45.6	2.7	43	44.2	+45.7	2.8	45	44.0	+45.8	2.9	87
38	30.1	+45.1	1.7	40	30.0	+45.2	1.8	42	29.9	+45.3	1.8	44	29.9	+45.3	1.9	46	29.8	+45.4	1.9	88
39	15.2	+44.8	0.9	41	15.2	+44.8	0.9	43	15.2	+44.8	0.9	45	15.2	+44.8	1.0	47	15.2	+44.8	1.0	89
40	00.0	+44.4	0.0	42	00.0	+44.4	0.0	44	00.0	+44.4	0.0	46	00.0	+44.3	0.0	48	00.0	+44.3	0.0	90

LATITUDE SAME NAME

L.H.A. 138°, 222°

42°, 318° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	52 49.0	+41.8	106.5	52 12.4	+44.2	109.0	51 31.0	+46.3	111.4	50 45.1	+48.1	113.7	49 54.8	+49.9	115.9
31	53 30.8	+41.1	105.3	52 56.6	+43.4	107.9	52 17.3	+45.6	110.3	51 33.2	+47.7	112.7	50 44.7	+49.5	115.0
32	54 11.9	+40.2	104.1	53 40.0	+42.8	106.7	53 02.9	+45.1	109.3	52 20.9	+47.2	111.7	51 34.2	+49.0	114.1
33	54 52.1	+39.5	102.8	54 22.8	+42.0	105.5	53 48.0	+44.4	108.2	53 08.1	+46.6	110.7	52 23.2	+48.6	113.1
34	55 31.6	+38.5	101.5	55 04.8	+41.3	104.3	54 32.4	+43.8	107.0	53 54.7	+46.0	109.6	53 11.8	+48.1	112.2
35	56 10.1	+37.6	100.1	55 46.1	+40.4	103.0	55 16.2	+43.0	105.8	54 40.7	+45.5	108.6	53 59.9	+47.6	111.2
36	56 47.7	+36.7	98.7	56 26.5	+39.6	101.7	55 59.2	+42.3	104.6	55 26.2	+44.7	107.4	54 47.5	+47.1	110.1
37	57 24.4	+35.6	97.2	57 06.1	+38.6	100.3	56 41.5	+41.5	103.3	56 10.9	+44.1	106.2	55 34.6	+46.4	109.0
38	58 00.0	+34.5	95.7	57 44.7	+37.7	98.9	57 23.0	+40.6	102.0	56 55.0	+43.3	105.0	56 21.0	+45.8	107.9
39	58 34.5	+33.3	94.2	58 22.4	+36.5	97.4	58 03.6	+39.6	100.6	57 38.3	+42.5	103.7	57 06.8	+45.0	106.7
40	59 07.8	+32.1	92.6	58 58.9	+35.5	95.9	58 43.2	+38.7	99.2	58 20.8	+41.6	102.4	57 51.8	+44.4	105.5
41	59 39.9	+30.8	90.9	59 34.4	+34.3	94.3	59 21.9	+37.6	97.7	59 02.4	+40.7	101.0	58 36.2	+43.5	104.2
42	60 10.7	+29.4	89.2	60 08.7	+33.1	92.7	59 59.5	+36.5	96.1	59 43.1	+39.7	99.6	59 19.7	+42.7	102.9
43	60 40.1	+28.0	87.4	60 41.8	+31.7	91.0	60 36.0	+35.3	94.5	60 22.8	+38.7	98.1	60 02.4	+41.8	101.5
44	61 08.1	+26.5	85.6	61 13.5	+30.3	89.2	61 11.3	+34.0	92.9	61 01.5	+37.5	96.5	60 44.2	+40.8	100.0
45	61 34.6	+24.9	83.7	61 43.8	+28.9	87.4	61 45.3	+32.7	91.1	61 39.0	+36.3	94.9	61 25.0	+39.8	98.5
46	61 59.5	+23.2	81.8	62 12.7	+27.3	85.6	62 18.0	+31.2	89.4	62 15.3	+35.1	93.2	62 04.8	+38.6	96.9
47	62 22.7	+21.5	79.8	62 40.0	+25.6	83.6	62 49.2	+29.8	87.5	62 50.4	+33.6	91.4	62 43.4	+37.4	95.3
48	62 44.2	+19.8	77.8	63 05.6	+24.0	81.7	63 19.0	+28.1	85.6	63 24.0	+32.3	89.6	63 20.8	+36.0	93.6
49	63 04.0	+17.8	75.7	63 29.6	+22.2	79.6	63 47.1	+26.5	83.6	63 56.3	+30.6	87.7	63 56.8	+34.7	91.8
50	63 21.8	+16.0	73.6	63 51.8	+20.3	77.5	64 13.6	+24.7	81.6	64 26.9	+29.0	85.7	64 31.5	+33.2	89.9
51	63 37.8	+14.0	71.5	64 12.1	+18.4	75.4	64 38.3	+22.8	79.4	64 55.9	+27.3	83.7	65 04.7	+31.6	87.9
52	63 51.8	+11.9	69.3	64 30.5	+16.3	73.2	65 01.1	+20.9	77.3	65 23.2	+25.4	81.5	65 36.3	+29.9	85.9
53	64 03.7	+9.9	67.0	64 46.8	+14.3	70.9	65 22.0	+18.8	75.0	65 48.6	+23.5	79.3	66 06.2	+28.1	83.8
54	64 13.6	+7.7	64.8	65 01.1	+12.1	68.6	65 40.8	+16.7	72.7	66 12.1	+21.4	77.1	66 34.3	+26.2	81.6
55	64 21.3	+5.6	62.5	65 13.2	+10.0	66.3	65 57.5	+14.6	70.4	66 33.5	+19.3	74.7	67 00.5	+24.1	79.3
56	64 26.9	+3.4	60.2	65 23.2	+7.7	63.9	66 12.1	+12.2	68.0	66 52.8	+17.0	72.3	67 24.6	+22.0	76.9
57	64 30.3	+1.2	57.9	65 30.9	+5.4	61.6	66 24.3	+10.0	65.6	67 09.8	+14.8	69.9	67 46.6	+19.7	74.5
58	64 31.5	-1.0	55.5	65 36.3	+3.2	59.2	66 34.3	+7.6	63.1	67 24.6	+12.4	67.4	68 06.3	+17.4	72.0
59	64 30.5	-3.1	53.2	65 39.5	+0.8	56.7	66 41.9	+5.2	60.6	67 37.0	+9.9	64.8	68 23.7	+14.9	69.4
60	64 27.4	-5.4	50.9	65 40.3	-1.5	54.3	66 47.1	+2.8	58.1	67 46.9	+7.4	62.2	68 38.6	+12.4	66.7
61	64 22.0	-7.5	48.6	65 38.8	-3.8	51.9	66 49.9	+0.3	55.5	67 54.3	+4.8	59.6	68 51.0	+9.8	64.0
62	64 14.5	-9.6	46.3	65 35.0	-6.0	49.5	66 50.2	-2.1	53.0	67 59.1	+2.3	56.9	69 00.8	+7.1	61.3
63	64 04.9	-11.7	44.0	65 29.0	-8.4	47.1	66 48.1	-4.6	50.5	68 01.4	-0.3	54.3	69 07.9	+4.4	58.5
64	63 53.2	-13.8	41.8	65 20.6	-10.6	44.7	66 43.5	-6.9	47.9	68 01.1	-2.9	51.6	69 12.3	+1.6	55.7
65	63 39.4	-15.8	39.6	65 10.0	-12.7	42.3	66 36.6	-9.4	45.4	67 58.2	-5.5	48.9	69 13.9	-1.1	52.9
66	63 23.6	-17.6	37.4	64 57.3	-14.9	40.0	66 27.2	-11.6	42.9	67 52.7	-8.0	46.3	69 12.8	-3.9	50.1
67	63 06.0	-19.6	35.3	64 42.4	-16.9	37.7	66 15.6	-14.0	40.5	67 44.7	-10.5	43.7	69 08.9	-6.6	47.3
68	62 46.4	-21.3	33.2	64 25.5	-18.9	35.5	66 01.6	-16.1	38.1	67 34.2	-13.0	41.1	69 02.3	-9.3	44.5
69	62 25.1	-23.1	31.2	64 06.6	-20.8	33.3	65 45.5	-18.3	35.7	67 21.2	-15.3	38.5	68 53.0	-11.9	41.7
70	62 02.0	-24.7	29.2	63 45.8	-22.7	31.2	65 27.2	-20.3	33.4	67 05.9	-17.7	36.0	68 41.1	-14.5	39.0
71	61 37.3	-26.3	27.3	63 23.1	-24.5	29.1	65 06.9	-22.3	31.2	66 48.2	-19.8	33.6	68 26.6	-16.9	36.4
72	61 11.0	-27.8	25.4	62 58.6	-26.1	27.1	64 44.6	-24.2	29.0	66 28.4	-21.9	31.2	68 09.7	-19.3	33.8
73	60 43.2	-29.3	23.6	62 32.5	-27.7	25.1	64 20.4	-26.0	26.9	66 06.5	-24.0	28.9	67 50.4	-21.6	31.2
74	60 13.9	-30.7	21.8	62 04.8	-29.3	23.2	63 54.4	-27.7	24.8	65 42.5	-25.9	26.6	67 28.8	-23.8	28.8
75	59 43.2	-31.9	20.1	61 35.5	-30.7	21.3	63 26.7	-29.3	22.8	65 16.6	-27.6	24.5	67 05.0	-25.8	26.4
76	59 11.3	-33.2	18.4	61 04.8	-32.2	19.6	62 57.4	-30.9	20.9	64 49.0	-29.5	22.4	66 39.2	-27.7	24.1
77	58 38.1	-34.4	16.8	60 32.6	-33.4	17.8	62 26.5	-32.3	19.0	64 19.5	-31.0	20.3	66 11.5	-29.6	21.9
78	58 03.7	-35.5	15.2	59 59.2	-34.6	16.1	61 54.2	-33.7	17.2	63 48.5	-32.6	18.4	65 41.9	-31.3	19.8
79	57 28.2	-36.5	13.7	59 24.6	-35.8	14.5	61 20.5	-34.9	15.4	63 15.9	-34.0	16.5	65 10.6	-32.9	17.7
80	56 51.7	-37.5	12.3	58 48.8	-36.9	13.0	60 45.6	-36.2	13.8	62 41.9	-35.4	14.7	64 37.7	-34.4	15.7
81	56 14.2	-38.5	10.9	58 11.9	-37.9	11.5	60 09.4	-37.3	12.1	62 06.5	-36.6	12.9	64 03.3	-35.9	13.8
82	55 35.7	-39.3	9.5	57 34.0	-38.9	10.0	59 32.1	-38.4	10.6	61 29.9	-37.8	11.3	63 27.4	-37.1	12.0
83	54 56.4	-40.2	8.2	56 55.1	-39.8	8.6	58 53.7	-39.4	9.1	60 52.1	-38.9	9.6	62 50.3	-38.4	10.3
84	54 16.2	-41.0	6.9	56 15.3	-40.7	7.2	58 14.3	-40.3	7.6	60 13.2	-40.0	8.1	62 11.9	-39.5	8.6
85	53 35.2	-41.7	5.6	55 34.6	-41.5	5.9	57 34.0	-41.3	6.2	59 33.2	-40.9	6.6	61 32.4	-40.7	7.0
86	52 53.5	-42.4	4.4	54 53.1	-42.2	4.7	56 52.7	-42.0	4.9	58 52.3	-41.9	5.2	60 51.7	-41.6	5.5
87	52 11.1	-43.1	3.3	54 10.9	-43.0	3.4	56 10.7	-42.9	3.6	58 10.4	-42.7	3.8	60 10.1	-42.5	4.0
88	51 28.0	-43.7	2.1	53 27.9	-43.6	2.2	55 27.8	-43.5	2.4	57 27.7	-43.5	2.5	59 27.6	-43.4	2.6
89	50 44.3	-44.3	1.1	52 44.3	-44.3	1.1	54 44.3	-44.3	1.2	56 44.2	-44.2	1.2	58 44.2	-44.2	1.3
90	50 00.0	-44.9	0.0	52 00.0	-44.9	0.0	54 00.0	-44.9	0.0	56 00.0	-44.9	0.0	58 00.0	-45.0	0.0

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LATITUDE CONTRARY NAME

L.H.A. 42°, 318°

50°			52°			54°			56°			58°			Dec.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
1 45.4 -54.1 144.6	0 51.3 -54.2 145.0	0 07.6 -54.6 144.6	0 47.0 +54.7 35.0	1 41.7 +54.7 34.6	1 30.1 +55.2 35.4	2 25.3 +55.2 35.0	3 20.5 +55.1 34.6	4 15.6 +55.1 34.2	5 10.7 +55.1 33.8	6 05.8 +55.1 33.5	7 00.9 +55.1 33.1	8 41.4 +55.6 34.7	5 54.7 +55.6 34.3	6 50.3 +55.6 34.0	7 45.9 +55.5 33.6	8 40.5 +55.6 35.1	9 37.0 +55.5 32.8	10 32.5 +55.4 32.4	11 27.9 +55.5 32.0	12 23.4 +55.4 31.7	13 18.8 +55.3 31.3	14 14.1 +55.4 30.9	15 09.5 +55.3 30.5	16 04.8 +55.2 30.1	17 00.0 +55.2 29.7	18 55.2 +55.1 29.2	19 50.5 +55.1 28.8	20 45.8 +55.0 28.4	21 41.1 +55.0 28.0	22 36.5 +54.9 27.6	23 31.8 +54.8 27.2	24 27.1 +54.7 26.8	25 22.4 +54.6 26.3	26 17.7 +54.5 25.9	27 13.0 +54.4 25.5	28 08.3 +54.3 25.1	29 03.6 +54.2 24.7	30 58.8 +54.1 24.3	31 54.1 +54.0 23.9	32 49.4 +53.9 23.5	33 44.7 +53.8 23.1	34 40.0 +53.7 22.7	35 35.3 +53.6 22.3	36 30.6 +53.5 21.9	37 25.9 +53.4 21.5	38 21.2 +53.3 21.1	39 16.5 +53.2 20.7	40 11.8 +53.1 20.3	41 07.1 +53.0 19.9	42 02.4 +52.9 19.5	43 57.7 +52.8 19.1	44 53.0 +52.7 18.7	45 48.3 +52.6 18.3	46 43.6 +52.5 17.9	47 38.9 +52.4 17.5	48 34.2 +52.3 17.1	49 29.5 +52.2 16.7	50 24.8 +52.1 16.3	51 20.1 +52.0 15.9	52 15.4 +51.9 15.5	53 10.7 +51.8 15.1	54 06.0 +51.7 14.7	55 01.3 +51.6 14.3	56 56.6 +51.5 13.9	57 51.9 +51.4 13.5	58 47.2 +51.3 13.1	59 42.5 +51.2 12.7	60 37.8 +51.1 12.3	61 33.1 +51.0 11.9	62 28.4 +50.9 11.5	63 23.7 +50.8 11.1	64 19.0 +50.7 10.7	65 14.3 +50.6 10.3	66 09.6 +50.5 9.9	67 04.9 +50.4 9.5	68 50.2 +50.3 9.1	69 45.5 +50.2 8.7	70 40.8 +50.1 8.3	71 36.1 +50.0 7.9	72 31.4 +49.9 7.5	73 26.7 +49.8 7.1	74 22.0 +49.7 6.7	75 17.3 +49.6 6.3	76 12.6 +49.5 5.9	77 07.9 +49.4 5.5	78 03.2 +49.3 5.1	79 58.5 +49.2 4.7	80 53.8 +49.1 4.3	81 49.1 +49.0 3.9	82 44.4 +48.9 3.5	83 39.7 +48.8 3.1	84 35.0 +48.7 2.7	85 30.3 +48.6 2.3	86 25.6 +48.5 1.9	87 20.9 +48.4 1.5	88 16.2 +48.3 1.1	89 11.5 +48.2 0.7	90 06.8 +48.1 0.3	91 02.1 +48.0 0.0	92 57.4 +47.9 0.0	93 52.7 +47.8 0.0	94 48.0 +47.7 0.0	95 43.3 +47.6 0.0	96 38.6 +47.5 0.0	97 33.9 +47.4 0.0	98 29.2 +47.3 0.0	99 24.5 +47.2 0.0	100 19.8 +47.1 0.0	101 15.1 +47.0 0.0	102 10.4 +46.9 0.0	103 05.7 +46.8 0.0	104 01.0 +46.7 0.0	105 56.3 +46.6 0.0	106 51.6 +46.5 0.0	107 46.9 +46.4 0.0	108 42.2 +46.3 0.0	109 37.5 +46.2 0.0	110 32.8 +46.1 0.0	111 28.1 +46.0 0.0	112 23.4 +45.9 0.0	113 18.7 +45.8 0.0	114 14.0 +45.7 0.0	115 09.3 +45.6 0.0	116 04.6 +45.5 0.0	117 59.9 +45.4 0.0	118 55.2 +45.3 0.0	119 50.5 +45.2 0.0	120 45.8 +45.1 0.0	121 41.1 +45.0 0.0	122 36.4 +44.9 0.0	123 31.7 +44.8 0.0	124 27.0 +44.7 0.0	125 22.3 +44.6 0.0	126 17.6 +44.5 0.0	127 12.9 +44.4 0.0	128 08.2 +44.3 0.0	129 03.5 +44.2 0.0	130 58.8 +44.1 0.0	131 54.1 +44.0 0.0	132 49.4 +43.9 0.0	133 44.7 +43.8 0.0	134 40.0 +43.7 0.0	135 35.3 +43.6 0.0	136 30.6 +43.5 0.0	137 25.9 +43.4 0.0	138 21.2 +43.3 0.0	139 16.5 +43.2 0.0	140 11.8 +43.1 0.0	141 07.1 +43.0 0.0	142 02.4 +42.9 0.0	143 57.7 +42.8 0.0	144 53.0 +42.7 0.0	145 48.3 +42.6 0.0	146 43.6 +42.5 0.0	147 38.9 +42.4 0.0	148 34.2 +42.3 0.0	149 29.5 +42.2 0.0	150 24.8 +42.1 0.0	151 20.1 +42.0 0.0	152 15.4 +41.9 0.0	153 10.7 +41.8 0.0	154 06.0 +41.7 0.0	155 01.3 +41.6 0.0	156 56.6 +41.5 0.0	157 51.9 +41.4 0.0	158 47.2 +41.3 0.0	159 42.5 +41.2 0.0	160 37.8 +41.1 0.0	161 33.1 +41.0 0.0	162 28.4 +40.9 0.0	163 23.7 +40.8 0.0	164 19.0 +40.7 0.0	165 14.3 +40.6 0.0	166 09.6 +40.5 0.0	167 04.9 +40.4 0.0	168 00.2 +40.3 0.0	169 55.5 +40.2 0.0	170 50.8 +40.1 0.0	171 46.1 +40.0 0.0	172 41.4 +39.9 0.0	173 36.7 +39.8 0.0	174 32.0 +39.7 0.0	175 27.3 +39.6 0.0	176 22.6 +39.5 0.0	177 17.9 +39.4 0.0	178 13.2 +39.3 0.0	179 08.5 +39.2 0.0	180 03.8 +39.1 0.0	181 59.1 +39.0 0.0	182 54.4 +38.9 0.0	183 49.7 +38.8 0.0	184 45.0 +38.7 0.0	185 40.3 +38.6 0.0	186 35.6 +38.5 0.0	187 30.9 +38.4 0.0	188 26.2 +38.3 0.0	189 21.5 +38.2 0.0	190 16.8 +38.1 0.0	191 12.1 +38.0 0.0	192 07.4 +37.9 0.0	193 02.7 +37.8 0.0	194 58.0 +37.7 0.0	195 53.3 +37.6 0.0	196 48.6 +37.5 0.0	197 43.9 +37.4 0.0	198 39.2 +37.3 0.0	199 34.5 +37.2 0.0	200 29.8 +37.1 0.0	201 25.1 +37.0 0.0	202 20.4 +36.9 0.0	203 15.7 +36.8 0.0	204 11.0 +36.7 0.0	205 06.3 +36.6 0.0	206 01.6 +36.5 0.0	207 56.9 +36.4 0.0	208 52.2 +36.3 0.0	209 47.5 +36.2 0.0	210 42.8 +36.1 0.0	211 38.1 +36.0 0.0	212 33.4 +35.9 0.0	213 28.7 +35.8 0.0	214 24.0 +35.7 0.0	215 19.3 +35.6 0.0	216 14.6 +35.5 0.0	217 09.9 +35.4 0.0	218 05.2 +35.3 0.0	219 50.5 +35.2 0.0	220 45.8 +35.1 0.0	221 41.1 +35.0 0.0	222 36.4 +34.9 0.0	223 31.7 +34.8 0.0	224 27.0 +34.7 0.0	225 22.3 +34.6 0.0	226 17.6 +34.5 0.0	227 12.9 +34.4 0.0	228 08.2 +34.3 0.0	229 03.5 +34.2 0.0	230 58.8 +34.1 0.0	231 54.1 +34.0 0.0	232 49.4 +33.9 0.0	233 44.7 +33.8 0.0	234 40.0 +33.7 0.0	235 35.3 +33.6 0.0	236 30.6 +33.5 0.0	237 25.9 +33.4 0.0	238 21.2 +33.3 0.0	239 16.5 +33.2 0.0	240 11.8 +33.1 0.0	241 07.1 +33.0 0.0	242 02.4 +32.9 0.0	243 57.7 +32.8 0.0	244 53.0 +32.7 0.0	245 48.3 +32.6 0.0	246 43.6 +32.5 0.0	247 38.9 +32.4 0.0	248 34.2 +32.3 0.0	249 29.5 +32.2 0.0	250 24.8 +32.1 0.0	251 20.1 +32.0 0.0	252 15.4 +31.9 0.0	253 10.7 +31.8 0.0	254 06.0 +31.7 0.0	255 01.3 +31.6 0.0	256 56.6 +31.5 0.0	257 51.9 +31.4 0.0	258 47.2 +31.3 0.0	259 42.5 +31.2 0.0	260 37.8 +31.1 0.0	261 33.1 +31.0 0.0	262 28.4 +30.9 0.0	263 23.7 +30.8 0.0	264 19.0 +30.7 0.0	265 14.3 +30.6 0.0	266 09.6 +30.5 0.0	267 04.9 +30.4 0.0	268 00.2 +30.3 0.0	269 55.5 +30.2 0.0	270 50.8 +30.1 0.0	271 46.1 +30.0 0.0	272 41.4 +29.9 0.0	273 36.7 +29.8 0.0	274 32.0 +29.7 0.0	275 27.3 +29.6 0.0	276 22.6 +29.5 0.0	277 17.9 +29.4 0.0	278 13.2 +29.3 0.0	279 08.5 +29.2 0.0	280 03.8 +29.1 0.0	281 59.1 +29.0 0.0	282 54.4 +28.9 0.0	283 49.7 +28.8 0.0	284 45.0 +28.7 0.0	285 40.3 +28.6 0.0	286 35.6 +28.5 0.0	287 30.9 +28.4 0.0	288 26.2 +28.3 0.0	289 21.5 +28.2 0.0	290 16.8 +28.1 0.0	291 12.1 +28.0 0.0	292 07.4 +27.9 0.0	293 02.7 +27.8 0.0	294 58.0 +27.7 0.0	295 53.3 +27.6 0.0	296 48.6 +27.5 0.0	297 43.9 +27.4 0.0	298 39.2 +27.3 0.0	299 34.5 +27.2 0.0	300 29.8 +27.1 0.0	301 25.1 +27.0 0.0	302 20.4 +26.9 0.0	303 15.7 +26.8 0.0	304 11.0 +26.7 0.0	305 06.3 +26.6 0.0	306 01.6 +26.5 0.0	307 56.9 +26.4 0.0	308 52.2 +26.3 0.0	309 47.5 +26.2 0.0	310 42.8 +26.1 0.0	311 38.1 +26.0 0.0	312 33.4 +25.9 0.0	313 28.7 +25.8 0.0	314 24.0 +25.7 0.0	315 19.3 +25.6 0.0	316 14.6 +25.5 0.0	317 09.9 +25.4 0.0	318 05.2 +25.3 0.0	319 50.5 +25.2 0.0	320 45.8 +25.1 0.0	321 41.1 +25.0 0.0	322 36.4 +24.9 0.0	323 31.7 +24.8 0.0	324 27.0 +24.7 0.0	325 22.3 +24.6 0.0	326 17.6 +24.5 0.0	327 12.9 +24.4 0.0	328 08.2 +24.3 0.0	329 03.5 +24.2 0.0	330 58.8 +24.1 0.0	331 54.1 +24.0 0.0	332 49.4 +23.9 0.0	333 44.7 +23.8 0.0	334 40.0 +23.7 0.0	335 35.3 +23.6 0.0	336 30.6 +23.5 0.0	337 25.9 +23.4 0.0	338 21.2 +23.3 0.0	339 16.5 +23.2 0.0	340 11.8 +23.1 0.0	341 07.1 +23.0 0.0	342 02.4 +22.9 0.0	343 57.7 +22.8 0.0	344 53.0 +22.7 0.0	345 48.3 +22.6 0.0	346 43.6 +22.5 0.0	347 38.9 +22.4 0.0	348 34.2 +22.3 0.0	349 29.5 +22.2 0.0	350 24.8 +22.1 0.0	351 20.1 +22.0 0.0	352 15.4 +21.9 0.0	353 10.7 +21.8 0.0	354 06.0 +21.7 0.0	355 01.3 +21.6 0.0	356 56.6 +21.5 0.0	357 51.9 +21.4 0.0	358 47.2 +21.3 0.0	359 42.5 +21.2 0.0	360 37.8 +21.1 0.0	361 33.1 +21.0 0.0	362 28.4 +20.9 0.0	363 23.7 +20.8 0.0	364 19.0 +20.7 0.0	365 14.3 +20.6 0.0	366 09.6 +20.5 0.0	367 04.9 +20.4 0.0	368 00.2 +20.3 0.0	369 55.5 +20.2 0.0	370 50.8 +20.1 0.0	371 46.1 +20.0 0.0	372 41.4 +19.9 0.0	373 36.7 +19.8 0.0	374 32.0 +19.7 0.0	375 27.3 +19.6 0.0	376 22.6 +19.5 0.0	377 17.9 +19.4 0.0	378 13.2 +19.3 0.0	379 08.5 +19.2 0.0	380 03.8 +19.1 0.0	381 59.1 +19.0 0.0	382 54.4 +18.9 0.0	383 49.7 +18.8 0.0	384 45.0 +18.7 0.0	385 40.3 +18.6 0.0	386 35.6 +18.5 0.0	387 30.9 +18.4 0.0	388 26.2 +18.3 0.0	389 21.5 +18.2 0.0	390 16.8 +18.1 0.0	391 12.1 +18.0 0.0	392 07.4 +17.9 0.0	393 02.7 +17.8 0.0	394 58.0 +17.7 0.0	395 53.3 +17.6 0.0	396 48.6 +17.5 0.0	397 43.9 +17.4 0.0	398 39.2 +17.3 0.0	399 34.5 +17.2 0.0	400 29.8 +17.1 0.0	401 25.1 +17.0 0.0	402 20.4 +16.9 0.0	403 15.7 +16.8 0.0	404 11.0 +16.7 0.0	405 06.3 +16.6 0.0	406 01.6 +16.5 0.0	407 56.9 +16.4 0.0	408 52.2 +16.3 0.0	409 47.5 +16.2 0.0	410 42.8 +16.1 0.0	411 38.1 +16.0 0.0	412 33.4 +15.9 0.0	413 28.7 +15.8 0.0	414 24.0 +15.7 0.0	415 19.3 +15.6 0.0	416 14.6 +15.5 0.0	417 09.9 +15.4 0.0	418 05.2 +15.3 0.0	419 50.5 +15.2 0.0	420 45.8 +15.1 0.0	421 41.1 +15.0 0.0	422 36.4 +14.9 0.0	423 31.7 +14.8 0.0	424 27.0 +14.7 0.0	425 22.3 +14.6 0.0	426 17.6 +14.5 0.0	427 12.9 +14.4 0.0	428 08.2 +14.3 0.0	429 03.5 +14.2 0.0	430 58.8 +14.1 0.0	431 54.1 +14.0 0.0	432 49.4 +13.9 0.0	433 44.7 +13.8 0.0	434 40.0 +13.7 0.0	435 35.3 +13.6 0.0	436 30.6 +13.5 0.0	437 25.9 +13.4 0.0	438 21.2 +13.3 0.0	439 16.5 +13.2 0.0	440 11.8 +13.1 0.0	441 07.1 +13.0 0.0	442 02.4 +12.9 0.0	443 57.7 +12.8 0.0	444 53.0 +12.7 0.0	445 48.3 +12.6 0.0	446 43.6 +12.5 0.0	447 38.9 +12.4 0.0	448 34.2 +12.3 0.0	449 29.5 +12.2 0.0	450 24.8 +12.1 0.0	451 20.1 +12.0 0.0	452 15.4 +11.9 0.0	453 10.7 +11.8 0.0	454 06.0 +11.7 0.0	455 01.3 +11.6 0.0	456 56.6 +11.5 0.0	457 51.9 +11.4 0.0	458 47.2 +11.3 0.0	459 42.5 +11.2 0.0	460 37.8 +11.1 0.0	461 33.1 +11.0 0.0	462 28.4 +10.9 0.0	463 23.7 +10.8 0.0	464 19.0 +10.7 0.0	465 14.3 +10.6 0.0	466 09.6 +10.5 0.0	467 04.9 +10.4 0.0	468 00.2 +10.3 0.0	469 55.5 +10.2 0.0	470 50.8 +10.1 0.0	471 46.1 +10.0 0.0	472 41.4 +9.9 0.0	473 36.7 +9.8 0.0	474 32.0 +9.7 0.0	475 27.3 +9.6 0.0	476 22.6 +9.5 0.0	477 17.9 +9.4 0.0	478 13.2 +9.3 0.0	479 08.5 +9.2 0.0	480 03.8 +9.1 0.0	481 59.1 +9.0 0.0	482 54.4 +8.9 0.0	483 49.7 +8.8 0.0	484 45.0 +8.7 0.0	485 40.3 +8.6 0.0	486 35.6 +8.5 0.0	487 30.9 +8.4 0.0	488 26.2 +8.3 0.0	489 21.5 +8.2 0.0	490 16.8 +8.1 0.0	491 12.1 +8.0 0.0	492 07.4 +7.9 0.0	493 02.7 +7.8 0.0	494 58.0 +7.7 0.0	495 53.3 +7.6 0.0	496 48.6 +7.5 0.0	497 43.9 +7.4 0.0	498 39.2 +7.3 0.0	499 34.5 +7.2 0.0	500 29.8 +7.1 0.0	501 25.1 +7.0 0.0	502 20.4 +6.9 0.0	503 15.7 +6.8 0.0	504 11.0 +6.7 0.0	505 06.3 +6.6 0.0	506 01.6 +6.5 0.0	507 56.9 +6.4 0.0	508 52.2 +6.3 0.0	509 47.5 +6.2 0.0	510 42.8 +6.1 0.0	511 38.1 +6.0 0.0	512 33.4 +5.9 0.0	513 28.7 +5.8 0.0	514 24.0 +5.7 0.0	515 19.3 +5.6 0.0	516 14.6 +5.5 0.0	517 09.9 +5.4 0.0	518 05.2 +5.3 0.0	519 50.5 +5.2 0.0	520 45.8 +5.1 0.0

44°, 316° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	52 08.4	+11.2	78.6	52 29.5	+14.5	81.1	52 45.3	+17.8	83.7	52 55.7	+21.1	86.4	53 00.6	+24.3	89.0
31	52 19.6	+9.9	77.0	52 44.0	+13.2	79.5	53 03.1	+16.6	82.1	53 16.8	+19.9	84.8	53 24.9	+23.1	87.5
32	52 29.5	+8.6	75.4	52 57.2	+11.9	77.9	53 19.7	+15.2	80.5	53 36.7	+18.5	83.2	53 48.0	+21.9	85.9
33	52 38.1	+7.2	73.7	53 09.1	+10.6	76.3	53 34.9	+13.9	78.9	53 55.2	+17.3	81.6	54 09.9	+20.7	84.3
34	52 45.3	+5.9	72.1	53 19.7	+9.2	74.6	53 48.8	+12.6	77.3	54 12.5	+15.9	80.0	54 30.6	+19.3	82.7
35	52 51.2	+4.5	70.4	53 28.9	+7.8	73.0	54 01.4	+11.1	75.6	54 28.4	+14.6	78.3	54 49.9	+18.0	81.1
36	52 55.7	+3.1	68.8	53 36.7	+6.3	71.3	54 12.5	+9.8	73.9	54 43.0	+13.2	76.6	55 07.9	+16.6	79.4
37	52 58.8	+1.8	67.1	53 43.0	+5.0	69.6	54 22.3	+8.3	72.2	54 56.2	+11.7	74.9	55 24.5	+15.2	77.7
38	53 00.6	+0.3	65.5	53 48.0	+3.6	67.9	54 30.6	+6.8	70.5	55 07.9	+10.3	73.2	55 39.7	+13.8	76.0
39	53 00.9	-1.0	63.8	53 51.6	+2.1	66.3	54 37.4	+5.4	68.8	55 18.2	+8.8	71.5	55 53.5	+12.2	74.3
40	52 59.9	-2.5	62.2	53 53.7	+0.7	64.6	54 42.8	+4.0	67.1	55 27.0	+7.3	69.8	56 05.7	+10.8	72.6
41	52 57.4	-3.8	60.5	53 54.4	-0.8	62.9	54 46.8	+2.5	65.4	55 34.3	+5.8	68.0	56 16.5	+9.3	70.8
42	52 53.6	-5.2	58.8	53 53.6	-2.1	61.2	54 49.3	+0.9	63.6	55 40.1	+4.3	66.3	56 25.8	+7.7	69.0
43	52 48.4	-6.5	57.2	53 51.5	-3.6	59.5	54 50.2	-0.5	61.9	55 44.4	+2.7	64.5	56 33.5	+6.1	67.2
44	52 41.9	-7.9	55.5	53 47.9	-5.1	57.8	54 49.7	-2.0	60.2	55 47.1	+1.2	62.7	56 39.6	+4.6	65.4
45	52 34.0	-9.3	53.9	53 42.8	-6.4	56.1	54 47.7	-3.4	58.4	55 48.3	-0.3	60.9	56 44.2	+3.0	63.6
46	52 24.7	-10.5	52.3	53 36.4	-7.9	54.4	54 44.3	-5.0	56.7	55 48.0	-1.9	59.1	56 47.2	+1.4	61.8
47	52 14.2	-11.9	50.7	53 28.5	-9.2	52.8	54 39.3	-6.4	55.0	55 46.1	-3.4	57.4	56 48.6	-0.2	59.9
48	52 02.3	-13.2	49.1	53 19.3	-10.6	51.1	54 32.9	-7.9	53.3	55 42.7	-4.9	55.6	56 48.4	-1.9	58.1
49	51 49.1	-14.4	47.5	53 08.7	-12.0	49.4	54 25.0	-9.3	51.6	55 37.8	-6.5	53.8	56 46.5	-3.4	56.3
50	51 34.7	-15.7	45.9	52 56.7	-13.2	47.8	54 15.7	-10.7	49.9	55 31.3	-7.9	52.1	56 43.1	-5.0	54.5
51	51 19.0	-16.8	44.4	52 43.5	-14.6	46.2	54 05.0	-12.1	48.2	55 23.4	-9.5	50.3	56 38.1	-6.6	52.6
52	51 02.2	-18.1	42.9	52 28.9	-15.9	44.6	53 52.9	-13.4	46.5	55 13.9	-10.9	48.6	56 31.5	-8.1	50.8
53	50 44.1	-19.2	41.3	52 13.0	-17.1	43.0	53 39.5	-14.9	44.9	55 03.0	-12.3	46.9	56 23.4	-9.7	49.0
54	50 24.9	-20.3	39.8	51 55.9	-18.3	41.5	53 24.6	-16.1	43.2	54 50.7	-13.8	45.2	56 13.7	-11.2	47.3
55	50 04.6	-21.5	38.4	51 37.6	-19.5	39.9	53 08.5	-17.4	41.6	54 36.9	-15.1	43.5	56 02.5	-12.6	45.5
56	49 43.1	-22.5	36.9	51 18.1	-20.7	38.4	52 51.1	-18.7	40.0	54 21.8	-16.5	41.8	55 49.9	-14.2	43.8
57	49 20.6	-23.6	35.5	50 57.4	-21.8	36.9	52 32.4	-19.9	38.5	54 05.3	-17.9	40.2	55 35.7	-15.6	42.0
58	48 57.0	-24.5	34.1	50 35.6	-22.9	35.4	52 12.5	-21.1	36.9	53 47.4	-19.1	38.5	55 20.1	-17.0	40.3
59	48 32.5	-25.6	32.7	50 12.7	-23.9	34.0	51 51.4	-22.2	35.4	53 28.3	-20.4	36.9	55 03.1	-18.3	38.7
60	48 06.9	-26.4	31.3	49 48.8	-25.0	32.6	51 29.2	-23.4	33.9	53 07.9	-21.6	35.4	54 44.8	-19.7	37.0
61	47 40.5	-27.4	30.0	49 23.8	-26.0	31.2	51 05.8	-24.5	32.4	52 46.3	-22.8	33.8	54 25.1	-21.0	35.4
62	47 13.1	-28.3	28.7	48 57.8	-27.0	29.8	50 41.3	-25.5	31.0	52 23.5	-24.0	32.3	54 04.1	-22.3	33.8
63	46 44.8	-29.2	27.4	48 30.8	-27.9	28.4	50 15.8	-26.6	29.6	51 59.5	-25.1	30.8	53 41.8	-23.4	32.2
64	46 15.6	-30.0	26.1	48 02.9	-28.8	27.1	49 49.2	-27.5	28.2	51 34.4	-26.1	29.3	53 18.4	-24.7	30.6
65	45 45.6	-30.7	24.9	47 34.1	-29.7	25.8	49 21.7	-28.5	26.8	51 08.3	-27.2	27.9	52 53.7	-25.7	29.1
66	45 14.9	-31.6	23.7	47 04.4	-30.5	24.5	48 53.2	-29.4	25.4	50 41.1	-28.2	26.5	52 28.0	-26.9	27.6
67	44 43.3	-32.3	22.5	46 33.9	-31.3	23.3	48 23.8	-30.3	24.1	50 12.9	-29.2	25.1	52 01.1	-28.0	26.2
68	44 11.0	-33.0	21.3	46 02.6	-32.2	22.0	47 53.5	-31.2	22.8	49 43.7	-30.1	23.7	51 33.1	-28.9	24.7
69	43 38.0	-33.7	20.1	45 30.4	-33.2	20.8	47 22.3	-31.9	21.6	49 13.6	-31.0	22.4	51 04.2	-30.0	23.3
70	43 04.3	-34.4	19.0	44 57.6	-33.6	19.6	46 50.4	-32.8	20.3	48 42.6	-31.9	21.1	50 34.2	-30.9	22.0
71	42 29.9	-35.0	17.9	44 24.0	-34.3	18.5	46 17.6	-33.5	19.1	48 10.7	-32.7	19.8	50 03.3	-31.8	20.6
72	41 54.9	-35.6	16.8	43 49.7	-35.0	17.3	45 44.1	-34.3	17.9	47 38.0	-33.5	18.6	49 31.5	-32.6	19.3
73	41 19.3	-36.2	15.7	43 14.7	-35.6	16.2	45 09.8	-35.0	16.7	47 04.5	-34.2	17.4	48 58.9	-33.6	18.0
74	40 43.1	-36.8	14.6	42 39.1	-36.2	15.1	44 34.8	-35.6	15.6	46 30.3	-35.1	16.2	48 25.3	-34.3	16.8
75	40 06.3	-37.3	13.6	42 02.9	-36.8	14.0	43 59.2	-36.3	14.5	45 55.2	-35.7	15.0	47 51.0	-35.1	15.5
76	39 29.0	-37.8	12.6	41 26.1	-37.4	13.0	43 22.9	-36.9	13.4	45 19.5	-36.3	13.8	47 15.9	-35.8	14.3
77	38 51.2	-38.4	11.6	40 48.7	-38.0	11.9	42 46.0	-37.5	12.3	44 43.2	-37.1	12.7	46 40.1	-36.5	13.2
78	38 12.8	-38.8	10.6	40 10.7	-38.4	10.9	42 08.5	-38.1	11.2	44 06.1	-37.6	11.6	46 03.6	-37.2	12.0
79	37 34.0	-39.3	9.6	39 32.3	-39.0	9.9	41 30.4	-38.6	10.2	43 28.5	-38.3	10.5	45 26.4	-37.9	10.9
80	36 54.7	-39.8	8.7	38 53.3	-39.5	8.9	40 51.8	-39.2	9.2	42 50.2	-38.8	9.5	44 48.5	-38.5	9.8
81	36 14.9	-40.1	7.7	38 13.8	-39.9	8.0	40 12.6	-39.6	8.2	42 11.4	-39.4	8.4	44 10.0	-39.0	8.7
82	35 34.8	-40.6	6.8	37 33.9	-40.4	7.0	39 33.0	-40.1	7.2	41 32.0	-39.9	7.4	43 31.0	-39.7	7.7
83	34 54.2	-41.0	5.9	36 53.5	-40.7	6.1	38 52.9	-40.6	6.2	40 52.1	-40.4	6.4	42 51.3	-40.1	6.6
84	34 13.2	-41.3	5.0	36 12.8	-41.2	5.2	38 12.3	-41.1	5.3	40 11.7	-40.8	5.5	42 11.2	-40.7	5.6
85	33 31.9	-41.7	4.2	35 31.6	-41.6	4.3	37 31.2	-41.5	4.4	39 30.9	-41.4	4.5	41 30.5	-41.2	4.6
86	32 50.2	-42.1	3.3	34 50.0	-42.0	3.4	36 49.7	-41.8	3.5	38 49.5	-41.7	3.6	40 49.3	-41.7	3.7
87	32 08.1	-42.4	2.5	34 08.0	-42.3	2.5	36 07.9	-42.3	2.6	38 07.8	-42.2	2.6	40 07.6	-42.1	2.7
88	31 25.7	-42.7	1.6	33 25.7	-42.7	1.7	35 25.6	-42.6	1.7	37 25.6	-42.6	1.7	39 25.5	-42.5	1.8
89	30 43.0	-43.0	0.8	32 43.0	-43.0	0.8	34 43.0	-43.0	0.8	36 43.0	-43.0	0.9	38 43.0	-43.0	0.9
90	30 00.0	-43.3	0.0	32 00.0	-43.3	0.0	34 00.0	-43.3	0.0	36 00.0	-43.3	0.0	38 00.0	-43.4	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 44°, 316°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
16 49.7	-46.7	141.1	15 16.1	-47.5	141.4	13 42.1	-48.4	141.7	12 07.7	-49.1	142.0	10 32.9	-49.8	142.3	30
16 03.0	-46.9	141.7	14 28.6	-47.7	142.1	12 53.7	-48.4	142.3	11 18.6	-49.2	142.6	9 43.1	-50.0	142.8	31
15 16.1	-46.9	142.4	13 40.9	-47.8	142.7	12 05.3	-48.5	143.0	10 29.4	-49.3	143.2	8 53.1	-49.9	143.4	32
14 29.2	-47.1	143.0	12 53.1	-47.8	143.3	11 16.8	-48.6	143.6	9 40.1	-49.3	143.8	8 03.2	-50.1	144.0	33
13 42.1	-47.2	143.6	12 05.3	-47.9	143.9	10 28.2	-48.7	144.2	8 50.8	-49.4	144.4	7 13.1	-50.0	144.5	34
12 54.9	-47.2	144.3	11 17.4	-48.0	144.5	9 39.5	-48.7	144.7	8 01.4	-49.4	144.9	6 23.1	-50.2	145.1	35
12 07.7	-47.4	144.9	10 29.4	-48.1	145.1	8 50.8	-48.8	145.3	7 12.0	-49.5	145.5	5 33.0	-50.1	145.6	36
11 20.3	-47.4	145.5	9 41.3	-48.2	145.8	8 02.0	-48.9	145.9	6 22.5	-49.5	146.1	4 42.9	-50.2	146.2	37
10 32.9	-47.5	146.2	8 53.1	-48.2	146.4	7 13.1	-48.8	146.5	5 33.0	-49.5	146.6	3 52.7	-50.2	146.7	38
9 45.4	-47.5	146.8	8 04.9	-48.2	147.0	6 24.3	-48.9	147.1	4 43.5	-49.6	147.2	3 02.5	-50.1	147.3	39
8 57.9	-47.6	147.4	7 16.7	-48.3	147.6	5 35.4	-49.0	147.7	3 23.9	-49.6	147.8	2 12.4	-50.2	147.8	40
8 10.3	-47.7	148.0	6 28.4	-48.3	148.2	4 46.4	-49.0	148.3	3 04.3	-49.6	148.3	1 22.2	-50.3	148.4	41
7 22.6	-47.7	148.6	5 40.1	-48.4	148.8	3 57.4	-49.0	148.8	2 14.7	-49.6	148.9	0 31.9	-50.2	148.9	42
6 34.9	-47.8	149.2	4 51.7	-48.4	149.3	3 08.4	-49.0	149.4	1 25.1	-49.6	149.5	0 18.3	+50.2	30.5	43
5 47.1	-47.8	149.9	4 03.3	-48.4	149.9	2 19.4	-49.0	150.0	0 35.5	-49.7	150.0	1 08.5	+50.2	30.0	44
4 59.3	-47.8	150.5	3 14.9	-48.5	150.5	1 30.4	-49.1	150.6	0 14.2	+49.6	29.4	1 58.7	+50.2	29.4	45
4 11.5	-47.9	151.1	2 26.4	-48.5	151.1	0 41.3	-49.0	151.1	1 03.8	+49.6	28.9	2 48.9	+50.2	28.9	46
3 23.6	-47.9	151.7	1 37.9	-48.4	151.7	0 07.7	+49.1	28.3	1 53.4	+49.6	28.3	3 39.1	+50.1	28.3	47
2 35.7	-47.9	152.3	0 49.5	-48.5	152.3	0 56.8	+49.0	27.7	2 43.0	+49.6	27.7	4 29.2	+50.1	27.8	48
1 47.8	-47.9	152.9	0 01.0	-48.5	152.9	1 45.8	+49.1	27.1	3 32.6	+49.6	27.2	5 19.3	+50.1	27.2	49
0 59.9	-48.0	153.5	0 47.5	+48.5	26.5	2 34.9	+49.0	26.5	4 22.2	+49.5	26.6	6 09.4	+50.1	26.7	50
0 11.9	-47.9	154.1	1 36.0	+48.5	25.9	3 23.9	+49.0	26.0	5 11.7	+49.6	26.0	6 59.5	+50.0	26.1	51
0 36.0	+47.9	25.3	2 24.5	+48.4	25.3	4 12.9	+49.0	25.4	6 01.3	+49.4	25.5	7 49.5	+50.0	25.6	52
1 23.9	+47.9	24.7	3 12.9	+48.4	24.8	5 01.9	+48.9	24.8	6 50.7	+49.5	24.9	8 39.5	+50.0	25.0	53
2 11.8	+47.9	24.1	4 01.3	+48.4	24.2	5 50.8	+48.9	24.2	7 40.2	+49.4	24.3	9 29.5	+49.9	24.5	54
2 59.7	+47.9	23.5	4 49.7	+48.4	23.6	6 39.7	+48.9	23.6	8 29.9	+49.3	23.8	10 19.4	+49.8	23.9	55
3 47.6	+47.9	22.9	5 38.1	+48.4	23.0	7 28.6	+48.8	23.1	9 18.9	+49.3	23.2	11 09.2	+49.7	23.3	56
4 35.5	+47.8	22.3	6 26.5	+48.3	22.4	8 17.4	+48.7	22.5	10 08.2	+49.2	22.6	11 58.9	+49.7	22.8	57
5 23.3	+47.8	21.7	7 14.8	+48.2	21.8	9 06.1	+48.8	21.9	10 57.4	+49.2	22.0	12 48.6	+49.6	22.2	58
6 11.1	+47.7	21.1	8 03.0	+48.2	21.2	9 54.9	+48.6	21.3	11 46.6	+49.1	21.4	13 38.2	+49.6	21.6	59
6 58.8	+47.7	20.5	8 51.2	+48.1	20.6	10 43.5	+48.6	20.7	12 35.7	+49.0	20.8	14 27.8	+49.4	21.0	60
7 46.5	+47.7	19.9	9 39.3	+48.1	20.0	11 32.1	+48.5	20.1	13 24.7	+48.9	20.3	15 17.2	+49.4	20.4	61
8 34.2	+47.6	19.3	10 27.4	+48.0	19.4	12 20.6	+48.4	19.5	14 13.6	+48.9	19.7	16 06.6	+49.2	19.8	62
9 21.8	+47.5	18.6	11 15.4	+48.0	18.8	13 09.0	+48.3	18.9	15 02.5	+48.7	19.1	16 55.8	+49.2	19.2	63
10 09.3	+47.4	18.0	12 03.4	+47.8	18.1	13 57.3	+48.3	18.3	15 51.2	+48.7	18.5	17 45.0	+49.0	18.6	64
10 56.7	+47.4	17.4	12 51.2	+47.8	17.5	14 45.6	+48.1	17.7	16 39.9	+48.5	17.8	18 34.0	+49.0	18.0	65
11 44.1	+47.3	16.8	13 39.0	+47.6	16.9	15 33.7	+48.1	17.1	17 28.4	+48.4	17.2	19 23.0	+48.8	17.4	66
12 31.4	+47.2	16.1	14 26.6	+47.6	16.3	16 21.8	+47.9	16.4	18 16.8	+48.3	16.6	20 11.8	+48.6	16.8	67
13 18.6	+47.1	15.5	15 14.2	+47.5	15.6	17 09.7	+47.8	15.8	19 05.1	+48.2	16.0	21 00.4	+48.6	16.2	68
14 05.7	+47.0	14.9	16 01.7	+47.3	15.0	17 57.5	+47.7	15.2	19 53.3	+48.0	15.4	21 49.0	+48.4	15.6	69
14 52.7	+46.9	14.2	16 49.0	+47.3	14.4	18 45.2	+47.6	14.5	20 41.3	+47.9	14.7	22 37.4	+48.2	14.9	70
15 39.6	+46.8	13.6	17 36.3	+47.1	13.7	19 32.8	+47.4	13.9	21 29.2	+47.8	14.1	23 25.6	+48.1	14.3	71
16 26.4	+46.7	12.9	18 23.4	+46.9	13.1	20 20.2	+47.3	13.2	22 17.0	+47.6	13.4	24 13.7	+47.9	13.6	72
17 13.1	+46.5	12.3	19 10.3	+46.9	12.4	21 07.5	+47.1	12.6	23 04.6	+47.4	12.8	25 01.6	+47.7	13.0	73
17 59.6	+46.4	11.6	19 57.2	+46.6	11.8	21 54.6	+47.0	11.9	23 52.0	+47.2	12.1	25 49.3	+47.5	12.3	74
18 46.0	+46.3	10.9	20 43.8	+46.6	11.1	22 41.6	+46.8	11.2	24 39.2	+47.1	11.4	26 36.8	+47.4	11.6	75
19 32.3	+46.1	10.3	21 30.4	+46.3	10.4	23 28.4	+46.6	10.6	25 26.3	+46.9	10.7	27 24.2	+47.1	10.9	76
20 18.4	+46.0	9.6	22 16.7	+46.2	9.7	24 15.0	+46.4	9.9	26 13.2	+46.6	10.0	28 11.3	+46.9	10.2	77
21 04.4	+45.7	8.9	23 02.9	+46.0	9.0	25 01.4	+46.2	9.2	26 59.8	+46.5	9.3	28 58.2	+46.7	9.5	78
21 50.1	+45.6	8.2	23 48.9	+45.8	8.3	25 47.6	+46.0	8.5	27 46.3	+46.2	8.6	29 44.9	+46.4	8.8	79
22 35.7	+45.5	7.5	24 34.7	+45.6	7.6	26 33.6	+45.8	7.8	28 32.5	+46.0	7.9	30 31.3	+46.2	8.0	80
23 21.2	+45.2	6.8	25 20.3	+45.4	6.9	27 19.4	+45.6	7.0	29 18.5	+45.8	7.2	31 17.5	+46.0	7.3	81
24 06.4	+45.0	6.1	26 05.7	+45.2	6.2	28 05.0	+45.3	6.3	30 04.3	+45.5	6.4	32 03.5	+45.7	6.6	82
24 51.4	+44.8	5.4	26 50.9	+44.9	5.4	28 50.3	+45.1	5.5	30 49.8	+45.2	5.7	32 49.2	+45.3	5.8	83
25 36.2	+44.6	4.6	27 35.8	+44.7	4.7	29 35.4	+44.8	4.8	31 35.0	+44.9	4.9	33 34.5	+45.1	5.0	84
26 20.8	+44.4	3.9	28 20.5	+44.5	3.9	30 20.2	+44.6	4.0	32 19.9	+44.7	4.1	34 19.6	+44.8	4.2	85
27 05.2	+44.1	3.1	29 05.0	+44.2	3.2	31 04.8	+44.3	3.2	33 04.6	+44.3	3.3	35 04.4	+44.4	3.4	86
27 49.3	+43.8	2.4	29 49.2	+43.9	2.4	31 49.1	+43.9	2.5	33 48.9	+44.1	2.5	35 48.8	+44.1	2.6	87
28 33.1	+43.6	1.6	30 33.1	+43.6	1.6	32 33.0	+43.7	1.6	34 33.0	+43.7	1.7	36 32.9	+43.7	1.7	88
29 16.7	+43.3	0.8	31 16.7	+43.3	0.8	33 16.7	+43.3	0.8	35 16.7	+43.3	0.9	37 16.6	+43.4	0.9	89
30 00.0	+43.0	0.0	32 00.0	+43.0	0.0	34 00.0	+43.0	0.0	36 00.0	+43.0	0.0	38 00.0	+43.0	0.0	90

LATITUDE SAME NAME

L.H.A. 136°, 224°

44°, 316° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	52 59.9	+27.5	91.7	52 53.6	+30.6	94.3	52 41.9	+33.5	96.9	52 24.7	+36.3	99.5	52 02.3	+38.9	102.0
31	53 27.4	+26.3	90.2	53 24.2	+29.4	92.9	53 15.4	+32.5	95.5	53 01.0	+35.4	98.2	52 41.2	+38.1	100.8
32	53 53.7	+25.2	88.7	53 53.6	+28.4	91.4	53 47.9	+31.4	94.1	53 36.4	+34.4	96.8	53 19.3	+37.2	99.5
33	54 18.9	+23.9	87.1	54 22.0	+27.3	89.9	54 19.3	+30.4	92.7	54 10.8	+33.5	95.5	53 56.5	+36.4	98.2
34	54 42.8	+22.8	85.5	54 49.3	+26.0	88.4	54 49.7	+29.3	91.2	54 44.3	+32.4	94.0	54 32.9	+35.4	96.8
35	55 05.6	+21.4	83.9	55 15.3	+24.8	86.8	55 19.0	+28.1	89.7	55 16.7	+31.3	92.6	55 08.3	+34.4	95.4
36	55 27.0	+20.0	82.3	55 40.1	+23.5	85.2	55 47.1	+26.9	88.1	55 48.0	+30.2	91.1	55 42.7	+33.4	94.0
37	55 47.0	+18.7	80.6	56 03.6	+22.2	83.5	56 14.0	+25.6	86.5	56 18.2	+29.0	89.5	56 16.1	+32.3	92.5
38	56 05.7	+17.3	78.9	56 25.8	+20.8	81.9	56 39.6	+24.4	84.9	56 47.2	+27.8	87.9	56 48.4	+31.1	91.0
39	56 23.0	+15.8	77.2	56 46.6	+19.4	80.2	57 04.0	+22.9	83.2	57 15.0	+26.4	86.3	57 19.5	+29.9	89.4
40	56 38.8	+14.4	75.4	57 06.0	+17.9	78.4	57 26.9	+21.5	81.5	57 41.4	+25.1	84.6	57 49.4	+28.6	87.8
41	56 53.2	+12.8	73.7	57 23.9	+16.4	76.7	57 48.4	+20.1	79.7	58 06.5	+23.8	82.9	58 18.0	+27.3	86.1
42	57 06.0	+11.2	71.9	57 40.3	+14.9	74.9	58 08.5	+18.6	78.0	58 30.3	+22.2	81.2	58 45.3	+25.9	84.4
43	57 17.2	+9.7	70.1	57 55.2	+13.3	73.1	58 27.1	+17.0	76.2	58 52.5	+20.8	79.4	59 11.2	+24.5	82.7
44	57 26.9	+8.1	68.2	58 08.5	+11.7	71.2	58 44.1	+15.4	74.3	59 13.3	+19.1	77.5	59 35.7	+23.0	80.9
45	57 35.0	+6.4	66.4	58 20.2	+10.1	69.3	58 59.5	+13.8	72.5	59 32.4	+17.6	75.7	59 58.7	+21.4	79.0
46	57 41.4	+4.8	64.5	58 30.3	+8.3	67.5	59 13.3	+12.0	70.6	59 50.0	+15.9	73.8	60 20.1	+19.8	77.2
47	57 46.2	+3.2	62.7	58 38.6	+6.7	65.6	59 25.3	+10.4	68.6	60 05.9	+14.2	71.9	60 39.9	+18.1	75.2
48	57 49.4	+1.5	60.8	58 45.3	+5.0	63.7	59 35.7	+8.7	66.7	60 20.1	+12.5	69.9	60 58.0	+16.4	73.3
49	57 50.9	-0.2	58.9	58 50.3	+3.3	61.7	59 44.4	+6.8	64.7	60 32.6	+10.6	67.9	61 14.4	+14.6	71.3
50	57 50.7	-1.9	57.0	58 53.6	+1.5	59.8	59 51.2	+5.1	62.8	60 43.2	+8.9	65.9	61 29.0	+12.8	69.3
51	57 48.8	-3.5	55.2	58 55.1	-0.2	57.9	59 56.3	+3.3	60.8	60 52.1	+7.0	63.9	61 41.8	+10.9	67.2
52	57 45.3	-5.1	53.3	58 54.9	-2.0	55.9	59 59.6	+1.5	58.8	60 59.1	+5.1	61.9	61 52.7	+9.0	65.1
53	57 40.2	-6.8	51.4	58 52.9	-3.7	54.0	60 01.1	-0.3	56.8	61 04.2	+3.3	59.8	62 01.7	+7.0	63.0
54	57 33.4	-8.4	49.6	58 50.8	-5.3	52.1	60 00.8	-2.2	54.8	61 07.5	+1.3	57.7	62 08.7	+5.1	60.9
55	57 25.0	-10.0	47.7	58 43.9	-7.2	50.1	59 58.6	-3.9	52.8	61 08.8	-0.5	55.7	62 13.8	+3.2	58.8
56	57 15.0	-11.6	45.9	58 36.7	-8.7	48.2	59 54.7	-5.8	50.8	61 08.3	-2.5	53.6	62 17.0	+1.1	56.6
57	57 03.4	-13.1	44.1	58 28.0	-10.5	46.3	59 48.9	-7.5	48.8	61 05.8	-4.3	51.5	62 18.1	-0.9	54.5
58	56 50.3	-14.7	42.3	58 17.5	-12.1	44.5	59 41.4	-9.3	46.8	61 01.5	-6.2	49.5	62 17.2	-2.8	52.3
59	56 35.6	-16.1	40.5	58 05.4	-13.7	42.6	59 32.1	-11.0	44.9	60 55.3	-8.1	47.4	62 14.4	-4.8	50.2
60	56 19.5	-17.6	38.8	57 51.7	-15.2	40.8	59 21.1	-12.7	42.9	60 47.2	-9.9	45.4	62 09.6	-6.8	48.0
61	56 01.9	-19.0	37.1	57 36.5	-16.8	39.0	59 08.4	-14.3	41.0	60 37.3	-11.6	43.4	62 02.8	-8.8	45.9
62	55 42.9	-20.3	35.4	57 19.7	-18.3	37.2	58 54.1	-16.0	39.2	60 25.7	-13.5	41.4	61 54.0	-10.6	43.8
63	55 22.6	-21.7	33.7	57 01.4	-19.7	35.4	58 38.1	-17.6	37.3	60 12.2	-15.2	39.4	61 43.4	-12.5	41.7
64	55 00.9	-23.0	32.1	56 41.7	-21.2	33.7	58 20.5	-19.1	35.5	59 57.0	-16.9	37.5	61 30.9	-14.4	39.7
65	54 37.9	-24.2	30.5	56 20.5	-22.5	32.0	58 01.4	-20.6	33.7	59 40.1	-18.4	35.5	61 16.5	-16.1	37.7
66	54 13.7	-25.5	28.9	55 58.0	-23.8	30.3	57 40.8	-22.1	31.9	59 21.7	-20.1	33.7	61 00.4	-17.9	35.7
67	53 48.2	-26.6	27.4	55 34.2	-25.1	28.7	57 18.7	-23.5	30.2	59 01.6	-21.6	31.8	60 42.5	-19.6	33.7
68	53 21.6	-27.7	25.9	55 09.1	-26.4	27.1	56 55.2	-24.8	28.5	58 40.0	-23.1	30.0	60 22.9	-21.2	31.8
69	52 53.9	-28.8	24.4	54 42.7	-27.5	25.5	56 30.4	-26.1	26.8	58 16.9	-24.6	28.3	60 01.7	-22.7	29.9
70	52 25.1	-29.8	22.9	54 15.2	-28.6	24.0	56 04.3	-27.3	25.2	57 52.3	-25.9	26.5	59 39.0	-24.3	28.0
71	51 55.3	-30.8	21.5	53 46.6	-29.8	22.5	55 37.0	-28.5	23.6	57 26.4	-27.2	24.8	59 14.7	-25.7	26.2
72	51 24.5	-31.8	20.1	53 16.8	-30.7	21.0	55 08.5	-29.7	22.1	56 59.2	-28.5	23.2	58 49.0	-27.1	24.5
73	50 52.7	-32.7	18.8	52 46.1	-31.8	19.6	54 38.8	-30.8	20.5	56 30.7	-29.6	21.6	58 21.9	-28.5	22.8
74	50 20.0	-33.5	17.5	52 14.3	-32.8	18.2	54 08.0	-31.9	19.1	56 01.1	-30.9	20.0	57 53.4	-29.7	21.1
75	49 46.5	-34.5	16.2	51 41.5	-33.7	16.9	53 36.1	-32.8	17.6	55 30.2	-32.0	18.5	57 23.7	-31.0	19.5
76	49 12.0	-35.2	14.9	51 07.8	-34.5	15.5	53 03.3	-33.9	16.2	54 58.2	-33.0	17.0	56 52.7	-32.1	17.9
77	48 36.8	-36.0	13.7	50 33.3	-35.4	14.2	52 29.4	-34.7	14.9	54 25.2	-34.0	15.6	56 20.6	-33.2	16.4
78	48 00.8	-36.7	12.5	49 57.9	-36.2	13.0	51 54.7	-35.6	13.5	53 51.2	-35.0	14.2	55 47.4	-34.3	14.9
79	47 24.1	-37.4	11.3	49 21.7	-36.9	11.7	51 19.1	-36.5	12.2	53 16.2	-35.8	12.8	55 13.1	-35.3	13.4
80	46 46.7	-38.1	10.1	48 44.8	-37.7	10.5	50 42.6	-37.2	11.0	52 40.4	-36.8	11.5	54 37.8	-36.2	12.0
81	46 08.6	-38.7	9.0	48 07.1	-38.4	9.4	50 05.4	-38.0	9.8	52 03.6	-37.6	10.2	54 01.6	-37.1	10.7
82	45 29.9	-39.4	7.9	47 28.7	-39.1	8.2	49 27.4	-38.7	8.6	51 26.0	-38.4	8.9	53 24.5	-38.0	9.3
83	44 50.5	-39.9	6.9	46 49.6	-39.7	7.1	48 48.7	-39.5	7.4	50 47.6	-39.1	7.7	52 46.5	-38.8	8.0
84	44 10.6	-40.5	5.8	46 09.9	-40.3	6.0	48 09.2	-40.0	6.2	50 08.5	-39.8	6.5	52 07.7	-39.6	6.8
85	43 30.1	-41.1	4.8	45 29.6	-40.8	5.0	47 29.2	-40.7	5.1	49 28.7	-40.5	5.3	51 28.1	-40.3	5.6
86	42 49.0	-41.5	3.8	44 48.8	-41.5	3.9	46 48.5	-41.3	4.1	48 48.2	-41.2	4.2	50 47.8	-41.0	4.4
87	42 07.5	-42.1	2.8	44 07.3	-41.9	2.9	46 07.2	-41.9	3.0	48 07.0	-41.8	3.1	50 06.8	-41.6	3.3
88	41 25.4	-42.5	1.9	43 25.4	-42.5	1.9	45 25.3	-42.4	2.0	47 25.2	-42.3	2.1	49 25.2	-42.3	2.1
89	40 42.9	-42.9	0.9	42 42.9	-42.9	0.9	44 42.9	-42.9	1.0	46 42.9	-42.9	1.0	48 42.9	-42.9	1.1
90	40 00.0	-43.4	0.0	42 00.0	-43.4	0.0	44 00.0	-43.4	0.0	46 00.0	-43.4	0.0	48 00.0	-43.4	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 44°, 316°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
8 57.9	-50.6	142.5	7 22.6	-51.3	142.7	5 47.1	-51.9	142.8	4 11.5	-52.6	142.9	2 35.7	-53.1	143.0	30
8 07.3	-50.6	143.0	6 31.3	-51.2	143.2	4 55.2	-51.9	143.3	3 18.9	-52.5	143.4	1 42.6	-53.1	143.4	31
7 16.7	-50.7	143.6	5 40.1	-51.3	143.7	4 03.3	-52.0	143.8	2 26.4	-52.5	143.9	0 49.5	-53.2	143.9	32
6 26.0	-50.6	144.1	4 48.8	-51.4	144.2	3 11.3	-51.9	144.3	1 33.9	-52.6	144.4	0 03.7	+53.1	35.6	33
5 35.4	-50.8	144.6	3 57.4	-51.3	144.7	2 19.4	-52.0	144.8	0 41.3	-52.5	144.8	0 56.8	+53.1	35.2	34
4 44.6	-50.7	145.2	3 06.1	-51.4	145.3	1 27.4	-51.9	145.3	0 11.2	+52.6	34.7	1 49.9	+53.1	34.7	35
3 53.9	-50.8	145.7	2 14.7	-51.4	145.8	0 35.5	-52.0	145.8	1 03.8	+52.5	34.2	2 43.0	+53.1	34.2	36
3 03.1	-50.7	146.3	1 23.3	-51.4	146.3	0 16.5	+52.0	33.7	1 56.3	+52.6	33.7	3 36.1	+53.1	33.8	37
2 12.4	-50.8	146.8	0 31.9	-51.3	146.8	1 08.5	+51.9	33.2	2 48.9	+52.5	33.2	4 29.2	+53.1	33.3	38
1 21.6	-50.8	147.3	0 19.4	+51.4	32.7	2 00.4	+52.0	32.7	3 41.4	+52.5	32.7	5 22.3	+53.0	32.8	39
0 30.8	-50.8	147.8	1 10.8	+51.4	32.2	2 52.4	+51.9	32.2	4 33.9	+52.5	32.3	6 15.3	+53.1	32.4	40
0 20.0	+50.8	31.6	2 02.2	+51.4	31.6	3 44.3	+52.0	31.7	5 26.4	+52.5	31.8	7 08.4	+52.9	31.9	41
1 10.8	+50.8	31.1	2 53.6	+51.3	31.1	4 36.3	+51.9	31.2	6 18.9	+52.4	31.3	8 01.3	+53.0	31.4	42
2 01.6	+50.8	30.6	3 44.9	+51.4	30.6	5 28.2	+51.9	30.7	7 11.3	+52.4	30.8	8 54.3	+52.9	30.9	43
2 52.4	+50.8	30.0	4 36.3	+51.3	30.1	6 20.1	+51.8	30.2	8 03.7	+52.4	30.3	9 47.2	+52.9	30.5	44
3 43.2	+50.7	29.5	5 27.6	+51.3	29.6	7 11.9	+51.8	29.7	8 56.1	+52.3	29.8	10 40.1	+52.9	30.0	45
4 33.9	+50.7	29.0	6 18.9	+51.2	29.0	8 03.7	+51.8	29.2	9 48.4	+52.3	29.3	11 33.0	+52.8	29.5	46
5 24.6	+50.7	28.4	7 10.1	+51.2	28.5	8 55.5	+51.7	28.7	10 40.7	+52.3	28.8	12 25.8	+52.7	29.0	47
6 15.3	+50.7	27.9	8 01.3	+51.2	28.0	9 47.2	+51.7	28.1	11 33.0	+52.2	28.3	13 18.5	+52.7	28.5	48
7 06.0	+50.6	27.3	8 52.5	+51.2	27.5	10 38.9	+51.7	27.6	12 25.2	+52.1	27.8	14 11.2	+52.6	28.0	49
7 56.6	+50.6	26.8	9 43.7	+51.1	26.9	11 30.6	+51.5	27.1	13 17.3	+52.1	27.3	15 03.8	+52.6	27.5	50
8 47.2	+50.5	26.3	10 34.8	+51.0	26.4	12 22.1	+51.6	26.6	14 09.4	+52.0	26.8	15 56.4	+52.4	27.0	51
9 37.7	+50.5	25.7	11 25.8	+51.0	25.9	13 13.7	+51.4	26.1	15 01.4	+51.9	26.1	16 48.8	+52.5	26.5	52
10 28.2	+50.4	25.2	12 16.8	+50.9	25.3	14 05.1	+51.4	25.5	15 53.3	+51.9	25.8	17 41.3	+52.3	26.0	53
11 18.6	+50.4	24.6	13 07.7	+50.8	24.8	14 56.5	+51.3	25.0	16 45.2	+51.8	25.2	18 33.6	+52.2	25.5	54
12 09.0	+50.3	24.1	13 58.5	+50.8	24.2	15 47.8	+51.3	24.5	17 37.0	+51.7	24.7	19 25.8	+52.2	25.0	55
12 59.3	+50.2	23.5	14 49.3	+50.7	23.7	16 39.1	+51.1	23.9	18 28.7	+51.6	24.2	20 18.0	+52.1	24.5	56
13 49.5	+50.2	22.9	15 40.0	+50.6	23.1	17 30.2	+51.1	23.4	19 20.3	+51.5	23.6	21 10.1	+51.9	23.9	57
14 39.7	+50.0	22.4	16 30.6	+50.5	22.6	18 21.3	+50.9	22.8	20 11.8	+51.4	23.1	22 02.0	+51.9	23.4	58
15 29.7	+50.0	21.8	17 21.1	+50.4	22.0	19 12.2	+50.9	22.3	21 03.2	+51.3	22.5	22 53.9	+51.7	22.9	59
16 19.7	+49.9	21.2	18 11.5	+50.3	21.4	20 03.1	+50.8	21.7	21 54.5	+51.2	22.0	23 45.6	+51.7	22.3	60
17 09.6	+49.8	20.6	19 01.8	+50.2	20.9	20 53.9	+50.6	21.1	22 45.7	+51.0	21.4	24 37.3	+51.5	21.7	61
17 59.4	+49.7	20.1	19 52.0	+50.1	20.3	21 44.5	+50.5	20.6	23 36.7	+51.0	20.8	25 28.8	+51.3	21.2	62
18 49.1	+49.5	19.5	20 42.1	+50.0	19.7	22 35.0	+50.4	20.0	24 27.7	+50.8	20.3	26 20.1	+51.3	20.6	63
19 38.6	+49.5	18.9	21 32.1	+49.8	19.1	23 25.4	+50.2	19.4	25 18.5	+50.7	19.7	27 11.4	+51.0	20.0	64
20 28.1	+49.3	18.3	22 21.9	+49.8	18.5	24 15.6	+50.2	18.8	26 09.2	+50.5	19.1	28 02.4	+51.0	19.4	65
21 17.4	+49.2	17.7	23 11.7	+49.5	17.9	25 05.8	+49.9	18.2	26 59.7	+50.3	18.5	28 53.4	+50.7	18.8	66
22 06.6	+49.0	17.0	24 01.2	+49.5	17.3	25 55.7	+49.8	17.6	27 50.0	+50.2	17.9	29 44.1	+50.6	18.2	67
22 55.6	+48.9	16.4	24 50.7	+49.2	16.7	26 45.5	+49.7	16.9	28 40.2	+50.0	17.3	30 34.7	+50.4	17.6	68
23 44.5	+48.8	15.8	25 39.9	+49.1	16.0	27 35.2	+49.4	16.3	29 30.2	+49.9	16.6	31 25.1	+50.3	17.0	69
24 33.3	+48.5	15.1	26 29.0	+48.9	15.4	28 24.6	+49.3	15.7	30 20.1	+49.6	16.0	32 15.4	+50.0	16.3	70
25 21.8	+48.4	14.5	27 17.9	+48.8	14.7	29 13.9	+49.1	15.0	31 09.7	+49.5	15.3	33 05.4	+49.8	15.7	71
26 10.2	+48.3	13.8	28 06.7	+48.5	14.1	30 03.0	+48.9	14.4	31 59.2	+49.2	14.7	33 55.2	+49.6	15.0	72
26 58.5	+48.0	13.2	28 55.2	+48.4	13.4	30 51.9	+48.7	13.7	32 48.4	+49.0	14.0	34 44.8	+49.3	14.3	73
27 46.5	+47.8	12.5	29 43.6	+48.1	12.7	31 40.6	+48.4	13.0	33 37.4	+48.8	13.3	35 34.1	+49.2	13.6	74
28 34.3	+47.6	11.8	30 31.7	+48.0	12.0	32 29.0	+48.3	12.3	34 26.2	+48.5	12.6	36 23.3	+48.8	12.9	75
29 21.9	+47.5	11.1	31 19.7	+47.6	11.3	33 17.3	+47.9	11.6	35 14.7	+48.3	11.9	37 12.1	+48.6	12.2	76
30 09.4	+47.1	10.4	32 07.3	+47.5	10.6	34 05.2	+47.7	10.9	36 03.0	+48.0	11.1	38 00.7	+48.3	11.4	77
30 56.5	+47.0	9.7	32 54.8	+47.2	9.9	34 52.9	+47.5	10.1	36 51.0	+47.7	10.4	38 49.0	+48.0	10.7	78
31 43.5	+46.6	9.0	33 42.0	+46.9	9.2	35 40.4	+47.2	9.4	37 38.7	+47.5	9.6	39 37.0	+47.7	9.9	79
32 30.1	+46.5	8.2	34 28.9	+46.6	8.4	36 27.6	+46.8	8.6	38 26.2	+47.1	8.9	40 24.7	+47.3	9.1	80
33 16.6	+46.1	7.5	35 15.5	+46.3	7.6	37 14.4	+46.6	7.8	39 13.3	+46.7	8.1	41 12.0	+47.0	8.3	81
34 02.7	+45.8	6.7	36 01.8	+46.1	6.9	38 01.0	+46.2	7.0	40 00.0	+46.5	7.3	41 59.0	+46.7	7.5	82
34 48.5	+45.6	5.9	36 47.9	+45.7	6.1	38 47.2	+45.9	6.2	40 46.5	+46.0	6.4	42 45.7	+46.2	6.6	83
35 34.1	+45.2	5.1	37 33.6	+45.3	5.3	39 33.1	+45.5	5.4	41 32.5	+45.7	5.6	43 31.9	+45.9	5.7	84
36 19.3	+44.9	4.3	38 18.9	+45.0	4.4	40 18.6	+45.1	4.6	42 18.2	+45.2	4.7	44 17.8	+45.4	4.9	85
37 04.2	+44.5	3.5	39 03.9	+44.7	3.6	41 03.7	+44.7	3.7	43 03.4	+44.9	3.8	45 03.2	+44.9	3.9	86
37 48.7	+44.2	2.6	39 48.6	+44.2	2.7	41 48.4	+44.3	2.8	43 48.3	+44.4	2.9	45 48.1	+44.5	3.0	87
38 32.9	+43.7	1.8	40 32.8	+43.8	1.8	42 32.7	+43.9	1.9	44 32.7	+43.9	1.9	46 32.6	+44.0	2.0	88
39 16.6	+43.4	0.9	41 16.6	+43.4	0.9	43 16.6	+43.4	1.0	45 16.6	+43.4	1.0	47 16.6	+43.4	1.0	89
40 00.0	+42.9	0.0	42 00.0	+42.9	0.0	44 00.0	+42.9	0.0	46 00.0	+42.9	0.0	48 00.0	+42.9	0.0	90

LATITUDE SAME NAME

L.H.A. 136°, 224°

44°, 316° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	51 34.7	+41.4	104.5	51 02.2	+43.6	106.9	50 24.9	+45.8	109.3	49 43.1	+47.7	111.5	48 57.0	+49.5	113.6
31	52 16.1	+40.6	103.3	51 45.8	+43.1	105.8	51 10.7	+45.2	108.2	50 30.8	+47.3	110.5	49 46.5	+49.1	112.8
32	52 56.7	+39.9	102.1	52 28.9	+42.4	104.7	51 55.9	+44.7	107.2	51 18.1	+46.8	109.6	50 35.6	+48.7	111.9
33	53 36.6	+39.1	100.9	53 11.3	+41.6	103.5	52 40.6	+44.0	106.1	52 04.9	+46.2	108.6	51 24.3	+48.2	110.9
34	54 15.7	+38.3	99.6	53 52.9	+40.9	102.3	53 24.6	+43.4	105.0	52 51.1	+45.6	107.5	52 12.5	+47.7	110.0
35	54 54.0	+37.3	98.3	54 33.8	+40.1	101.1	54 08.0	+42.7	103.8	53 36.7	+45.1	106.4	53 00.2	+47.2	109.0
36	55 31.3	+36.4	96.9	55 13.9	+39.3	99.8	54 50.7	+41.9	102.6	54 21.8	+44.4	105.3	53 47.4	+46.7	107.9
37	56 07.7	+35.4	95.5	55 53.2	+38.3	98.4	55 32.6	+41.1	101.3	55 06.2	+43.7	104.1	54 34.1	+46.0	106.9
38	56 43.1	+34.4	94.0	56 31.5	+37.5	97.0	56 13.7	+40.3	100.0	55 49.9	+42.9	102.9	55 20.1	+45.4	105.8
39	57 17.5	+33.2	92.5	57 09.0	+36.3	95.6	56 54.0	+39.4	98.7	56 32.8	+42.2	101.7	56 05.5	+44.8	104.6
40	57 50.7	+32.0	91.0	57 45.3	+35.4	94.1	57 33.4	+38.4	97.3	57 15.0	+41.3	100.4	56 50.3	+44.0	103.4
41	58 22.7	+30.9	89.4	58 20.7	+34.2	92.6	58 11.8	+37.4	95.8	57 56.3	+40.4	99.0	57 34.3	+43.2	102.1
42	58 53.6	+29.5	87.7	58 54.9	+33.0	91.0	58 49.2	+36.4	94.3	58 36.7	+39.5	97.6	58 17.5	+42.4	100.8
43	59 23.1	+28.1	86.0	59 27.9	+31.7	89.4	59 25.6	+35.2	92.8	59 16.2	+38.5	96.2	58 59.9	+41.5	99.5
44	59 51.2	+26.8	84.3	59 59.6	+30.5	87.7	60 00.8	+34.0	91.2	59 54.7	+37.4	94.6	59 41.4	+40.6	98.1
45	60 18.0	+25.2	82.5	60 30.1	+29.0	86.0	60 34.8	+32.7	89.5	60 32.1	+36.2	93.1	60 22.0	+39.5	96.6
46	60 43.2	+23.7	80.6	60 59.1	+27.5	84.2	61 07.5	+31.3	87.8	61 08.3	+35.0	91.4	61 01.5	+38.5	95.0
47	61 06.9	+22.1	78.7	61 26.6	+26.1	82.3	61 38.8	+29.9	86.0	61 43.3	+33.7	89.7	61 40.0	+37.2	93.4
48	61 29.0	+20.4	76.8	61 52.7	+24.4	80.4	62 08.7	+28.4	84.2	62 17.0	+32.2	88.0	62 17.2	+36.1	91.8
49	61 49.4	+18.6	74.8	62 17.1	+22.7	78.5	62 37.1	+26.8	82.3	62 49.2	+30.9	86.1	62 53.3	+34.6	90.0
50	62 08.0	+16.8	72.8	62 39.8	+21.0	76.5	63 03.9	+25.2	80.3	63 20.1	+29.2	84.2	63 27.9	+33.3	88.2
51	62 24.8	+15.0	70.7	63 00.8	+19.1	74.4	63 29.1	+23.3	78.3	63 49.3	+27.6	82.3	64 01.2	+31.8	86.3
52	62 39.8	+13.0	68.6	63 19.9	+17.2	72.3	63 52.4	+21.6	76.2	64 16.9	+25.9	80.2	64 33.0	+30.1	84.4
53	62 52.8	+11.1	66.5	63 37.1	+15.3	70.2	64 14.0	+19.6	74.1	64 42.8	+24.0	78.2	65 03.1	+28.4	82.4
54	63 03.9	+9.1	64.3	63 52.4	+13.3	68.0	64 33.6	+17.6	71.9	65 06.8	+22.1	76.0	65 31.5	+26.6	80.3
55	63 13.0	+7.1	62.2	64 05.7	+11.2	65.8	64 51.2	+15.6	69.7	65 28.9	+20.1	73.8	65 58.1	+24.7	78.1
56	63 20.1	+4.9	59.9	64 16.9	+9.1	63.5	65 06.8	+13.5	67.4	65 49.0	+18.0	71.5	66 22.8	+22.7	75.8
57	63 25.0	+2.9	57.7	64 26.0	+7.0	61.2	65 20.3	+11.2	65.1	66 07.0	+15.8	69.1	66 45.5	+20.5	73.5
58	63 27.9	+0.9	55.5	64 33.0	+4.7	58.9	65 31.5	+9.1	62.7	66 22.8	+13.6	66.7	67 06.0	+18.3	71.1
59	63 28.8	-1.3	53.2	64 37.7	+2.6	56.6	65 40.6	+6.7	60.3	66 36.4	+11.2	64.3	67 24.3	+16.0	68.6
60	63 27.5	-3.4	51.0	64 40.3	+0.4	54.3	65 47.3	+4.5	57.9	66 47.6	+8.9	61.8	67 40.3	+13.7	66.1
61	63 24.1	-5.5	48.8	64 40.7	-1.9	51.9	65 51.8	+2.1	55.4	66 56.5	+6.5	59.3	67 54.0	+11.1	63.5
62	63 18.6	-7.5	46.6	64 38.8	-4.0	49.6	65 53.9	-0.2	53.0	67 03.0	+4.0	56.8	68 05.1	+8.6	60.9
63	63 11.1	-9.5	44.4	64 34.8	-6.3	47.3	65 53.7	-2.6	50.5	67 07.0	+1.5	54.2	68 13.7	+6.1	58.2
64	63 01.6	-11.6	42.2	64 28.5	-8.4	45.0	65 51.1	-4.9	48.1	67 08.5	-0.9	51.6	68 19.8	+3.4	55.6
65	62 50.0	-13.5	40.0	64 20.1	-10.5	42.7	65 46.2	-7.2	45.7	67 07.6	-3.5	49.0	68 23.2	+0.8	52.8
66	62 36.5	-15.4	37.9	64 09.6	-12.6	40.4	65 39.0	-9.4	43.3	67 04.1	-5.9	46.5	68 24.0	-1.9	50.1
67	62 21.1	-17.2	35.8	63 57.0	-14.6	38.2	65 29.6	-11.7	40.9	66 58.2	-8.3	43.9	68 22.1	-4.5	47.4
68	62 03.9	-19.1	33.7	63 42.4	-16.7	36.0	65 17.9	-13.8	38.5	66 49.9	-10.7	41.4	68 17.6	-7.1	44.7
69	61 44.8	-20.7	31.7	63 25.7	-18.5	33.8	65 04.1	-16.0	36.2	66 39.2	-13.0	38.9	68 10.5	-9.6	42.0
70	61 24.1	-22.5	29.8	63 07.2	-20.4	31.7	64 48.1	-18.0	33.9	66 26.2	-15.3	36.5	68 00.9	-12.2	39.4
71	61 01.6	-24.0	27.8	62 46.8	-22.1	29.6	64 30.1	-20.0	31.7	66 10.9	-17.5	34.1	67 48.7	-14.6	36.8
72	60 37.6	-25.6	26.0	62 24.7	-23.9	27.6	64 10.1	-21.9	29.5	65 53.4	-19.6	31.7	67 34.1	-17.0	34.2
73	60 12.0	-27.1	24.1	62 00.8	-25.5	25.6	63 48.2	-23.7	27.4	65 33.8	-21.6	29.4	67 17.1	-19.2	31.7
74	59 44.9	-28.5	22.3	61 35.3	-27.0	23.7	63 24.5	-25.4	25.3	65 12.2	-23.6	27.2	66 57.9	-21.4	29.3
75	59 16.4	-29.8	20.6	61 08.3	-28.6	21.9	62 59.1	-27.1	23.3	64 48.6	-25.5	25.0	66 36.5	-23.5	26.9
76	58 46.6	-31.1	18.9	60 39.7	-30.0	20.1	62 32.0	-28.7	21.4	64 23.1	-27.2	22.9	66 13.0	-25.5	24.6
77	58 15.5	-32.4	17.3	60 09.7	-31.3	18.3	62 03.3	-30.2	19.5	63 55.9	-28.8	20.8	65 47.5	-27.3	22.4
78	57 43.1	-33.4	15.7	59 38.4	-32.6	16.6	61 33.1	-31.6	17.6	63 27.1	-30.5	18.9	65 20.2	-29.2	20.2
79	57 09.7	-34.6	14.1	59 05.8	-33.8	15.0	61 01.5	-33.0	15.9	62 56.6	-31.9	16.9	64 51.0	-30.8	18.2
80	56 35.1	-35.7	12.7	58 32.0	-35.0	13.4	60 28.5	-34.2	14.2	62 24.7	-33.4	15.1	64 20.2	-32.4	16.2
81	55 59.4	-36.6	11.2	57 57.0	-36.0	11.8	59 54.3	-35.4	12.5	61 51.3	-34.7	13.3	63 47.8	-33.8	14.2
82	55 22.8	-37.5	9.8	57 21.0	-37.1	10.3	59 18.9	-36.5	10.9	61 16.6	-35.9	11.6	63 14.0	-35.3	12.4
83	54 45.3	-38.5	8.4	56 43.9	-38.1	8.9	58 42.4	-37.6	9.4	60 40.7	-37.1	10.0	62 38.7	-36.5	10.6
84	54 06.8	-39.3	7.1	56 05.8	-38.9	7.5	58 04.8	-38.6	7.9	60 03.6	-38.3	8.4	62 02.2	-37.8	8.9
85	53 27.5	-40.1	5.8	55 26.9	-39.9	6.1	57 26.2	-39.6	6.5	59 25.3	-39.2	6.8	61 24.4	-38.9	7.3
86	52 47.4	-40.8	4.6	54 47.0	-40.6	4.8	56 46.6	-40.4	5.1	58 46.1	-40.2	5.4	60 45.5	-39.9	5.7
87	52 06.6	-41.5	3.4	54 06.4	-41.4	3.6	56 06.2	-41.3	3.7	58 05.9	-41.1	3.9	60 05.6	-41.0	4.2
88	51 25.1	-42.2	2.2	53 25.0	-42.2	2.3	55 24.9	-42.1	2.4	57 24.8	-42.0	2.6	59 24.6	-41.9	2.7
89	50 42.9	-42.9	1.1	52 42.8	-42.8	1.1	54 42.8	-42.8	1.2	56 42.8	-42.8	1.3	58 42.7	-42.7	1.3
90	50 00.0	-43.5	0.0	52 00.0	-43.5	0.0	54 00.0	-43.5	0.0	56 00.0	-43.5	0.0	58 00.0	-43.6	0.0
	50°			52°			54°			56°			58°		

LATITUDE CONTRARY NAME

L.H.A. 44°, 316°

50°				52°				54°				56°				58°				Dec.
Hc	d	Z		Hc	d	Z		Hc	d	Z		Hc	d	Z		Hc	d	Z		
0 59.9	-53.7	143.0		0 36.0	+54.2	37.0		2 11.8	+54.8	37.0		3 47.6	+55.3	37.1		5 23.3	+55.7	37.2		30
0 06.2	-53.7	143.5		1 30.2	+54.3	36.6		3 06.6	+54.7	36.6		4 42.9	+55.2	36.7		6 19.0	+55.8	36.8		31
0 47.5	+53.7	36.1		2 24.5	+54.2	36.1		4 01.3	+54.8	36.2		5 38.1	+55.2	36.3		7 14.8	+55.7	36.4		32
1 41.2	+53.7	35.7		3 18.7	+54.2	35.7		4 56.1	+54.7	35.8		6 33.3	+55.3	35.9		8 10.5	+55.6	36.1		33
2 34.9	+53.6	35.2		4 12.9	+54.2	35.3		5 50.8	+54.7	35.4		7 28.6	+55.2	35.5		9 06.1	+55.7	35.7		34
3 28.5	+53.7	34.8		5 07.1	+54.2	34.8		6 45.5	+54.7	35.0		8 23.8	+55.1	35.1		10 01.8	+55.6	35.3		35
4 22.2	+53.6	34.3		6 01.3	+54.1	34.4		7 40.2	+54.6	34.5		9 18.9	+55.2	34.7		10 57.4	+55.7	34.9		36
5 15.8	+53.6	33.9		6 55.4	+54.1	34.0		8 34.8	+54.7	34.1		10 14.1	+55.1	34.3		11 53.1	+55.5	34.5		37
6 09.4	+53.6	33.4		7 49.5	+54.2	33.5		9 29.5	+54.6	33.7		11 09.2	+55.1	33.9		12 48.6	+55.6	34.2		38
7 03.0	+53.6	33.0		8 43.7	+54.0	33.1		10 24.1	+54.5	33.3		12 04.3	+55.0	33.5		13 44.2	+55.5	33.8		39
7 56.6	+53.6	32.5		9 37.7	+54.1	32.7		11 18.6	+54.6	32.9		12 59.3	+55.0	33.1		14 39.7	+55.4	33.4		40
8 50.2	+53.5	32.0		10 31.8	+54.0	32.2		12 13.2	+54.5	32.4		13 54.3	+55.0	32.7		15 35.1	+55.5	33.0		41
9 43.7	+53.4	31.6		11 25.8	+53.9	31.8		13 07.7	+54.4	32.0		14 49.3	+54.9	32.3		16 30.6	+55.3	32.6		42
10 37.1	+53.5	31.1		12 19.7	+54.0	31.3		14 02.1	+54.4	31.6		15 44.2	+54.9	31.9		17 25.9	+55.4	32.2		43
11 30.6	+53.4	30.7		13 13.7	+53.8	30.9		14 56.5	+54.4	31.1		16 39.1	+54.8	31.4		18 21.3	+55.3	31.8		44
12 24.0	+53.3	30.2		14 07.5	+53.9	30.4		15 50.9	+54.3	30.7		17 33.9	+54.8	31.0		19 16.6	+55.2	31.4		45
13 17.3	+53.3	29.7		15 01.4	+53.7	30.0		16 45.2	+54.2	30.3		18 28.7	+54.7	30.6		20 11.8	+55.1	30.9		46
14 10.6	+53.2	29.3		15 55.1	+53.7	29.5		17 39.4	+54.2	29.8		19 23.7	+54.7	30.1		21 06.9	+55.1	30.5		47
15 03.8	+53.2	28.8		16 48.8	+53.7	29.1		18 33.6	+54.1	29.4		20 18.0	+54.6	29.7		22 02.0	+55.1	30.1		48
15 57.0	+53.1	28.3		17 42.5	+53.6	28.6		19 27.7	+54.1	28.9		21 12.6	+54.5	29.3		22 57.1	+54.9	29.7		49
16 50.1	+53.0	27.8		18 36.1	+53.5	28.1		20 21.8	+53.9	28.4		22 07.1	+54.4	28.8		23 52.0	+54.9	29.2		50
17 43.1	+53.0	27.3		19 29.6	+53.4	27.6		21 15.7	+53.9	28.0		23 01.5	+54.4	28.4		24 46.9	+54.8	28.8		51
18 36.1	+52.9	26.8		20 23.0	+53.4	27.1		22 09.6	+53.8	27.5		23 55.9	+54.2	27.9		25 41.7	+54.7	28.3		52
19 29.0	+52.8	26.3		21 16.4	+53.2	26.7		23 03.4	+53.8	27.0		24 50.1	+54.2	27.4		26 36.4	+54.7	27.9		53
20 21.8	+52.7	25.8		22 09.6	+53.2	26.2		23 57.2	+53.6	26.5		25 44.3	+54.1	27.0		27 31.1	+54.5	27.4		54
21 14.5	+52.6	25.3		23 02.8	+53.1	25.7		24 50.8	+53.5	26.0		26 38.4	+54.0	26.5		28 25.6	+54.9	26.9		55
22 07.1	+52.5	24.8		23 55.9	+53.0	25.1		25 44.3	+53.5	25.5		27 32.4	+53.9	26.0		29 20.1	+54.3	26.5		56
22 59.6	+52.4	24.3		24 48.9	+52.8	24.6		26 37.8	+53.3	25.0		28 26.3	+53.8	25.5		30 14.4	+54.2	26.0		57
23 52.0	+52.3	23.7		25 41.7	+52.8	24.1		27 31.1	+53.2	24.5		29 20.1	+53.6	25.0		31 08.6	+54.1	25.5		58
24 44.3	+52.2	23.2		26 34.5	+52.6	23.6		28 24.3	+53.1	24.0		30 13.7	+53.5	24.5		32 02.7	+54.0	25.0		59
25 36.5	+52.1	22.7		27 27.1	+52.5	23.0		29 17.4	+52.9	23.5		31 07.2	+53.4	23.9		33 56.7	+53.9	24.4		60
26 28.6	+51.9	22.1		28 19.6	+52.4	22.5		30 10.3	+52.8	22.9		32 00.6	+53.3	23.4		33 50.6	+53.7	23.9		61
27 20.5	+51.8	21.5		29 12.0	+52.2	21.9		31 03.1	+52.7	22.4		33 53.9	+53.1	22.9		34 44.3	+53.5	23.4		62
28 12.3	+51.7	21.0		30 04.2	+52.1	21.4		31 55.8	+52.5	21.8		33 47.0	+53.0	22.3		35 37.8	+53.5	22.8		63
29 04.0	+51.5	20.4		30 56.3	+51.9	20.8		32 48.3	+52.4	21.2		34 40.0	+52.8	21.7		36 31.3	+53.2	22.3		64
29 55.5	+51.3	19.8		31 48.2	+51.8	20.2		33 40.7	+52.2	20.7		35 32.8	+52.6	21.2		37 24.5	+53.1	21.7		65
30 46.8	+51.2	19.2		32 40.0	+51.6	19.6		34 32.9	+52.0	20.1		36 25.4	+52.5	20.6		38 17.6	+52.9	21.1		66
31 38.0	+51.0	18.6		33 31.6	+51.4	19.0		35 24.9	+51.8	19.5		37 17.9	+52.2	20.0		39 10.5	+52.7	20.5		67
32 29.0	+50.8	18.0		34 23.0	+51.2	18.4		36 16.7	+51.7	18.8		38 10.1	+52.1	19.3		40 03.2	+52.5	19.9		68
33 19.8	+50.6	17.3		35 14.2	+51.0	17.7		37 08.4	+51.4	18.2		39 02.2	+51.9	18.7		40 55.7	+52.3	19.2		69
34 10.4	+50.4	16.7		36 05.2	+50.8	17.1		37 59.8	+51.2	17.5		39 54.1	+51.6	18.0		41 48.0	+52.0	18.6		70
35 00.8	+50.2	16.0		36 56.0	+50.6	16.4		38 51.0	+51.0	16.9		40 45.7	+51.4	17.4		42 40.0	+51.9	17.9		71
35 51.0	+50.0	15.4		37 46.6	+50.4	15.8		39 42.0	+50.7	16.2		41 37.1	+51.1	16.7		43 31.9	+51.5	17.2		72
36 41.0	+49.7	14.7		38 37.0	+50.0	15.1		40 32.7	+50.5	15.5		42 28.2	+50.9	16.0		44 23.4	+51.3	16.5		73
37 30.7	+49.4	14.0		39 27.0	+49.9	14.4		41 23.2	+50.2	14.8		43 19.1	+50.6	15.3		45 14.7	+51.0	15.8		74
38 20.1	+49.2	13.3		40 16.9	+49.5	13.6		42 13.4	+49.9	14.1		44 09.7	+50.3	14.5		46 05.7	+50.7	15.0		75
39 09.3	+48.9	12.5		41 06.4	+49.3	12.9		43 03.3	+49.6	13.3		45 00.0	+49.9	13.7		46 56.4	+50.4	14.2		76
39 58.2	+48.7	11.8		41 55.7	+48.9	12.1		43 52.9	+49.3	12.5		45 49.9	+49.7	13.0		47 46.8	+50.0	13.4		77
40 46.9	+48.3	11.0		42 44.6	+48.6	11.3		44 42.2	+48.9	11.7		46 39.6	+49.3	12.1		48 36.8	+49.6	12.6		78
41 35.2	+47.9	10.2		43 33.2	+48.3	10.5		45 31.1	+48.6	10.9		47 28.9	+48.9	11.3		49 26.4	+49.3	11.8		79
42 23.1	+47.6	9.4		44 21.5	+47.9	9.7		46 19.7	+48.2	10.1		48 17.8	+48.5	10.4		50 15.7	+48.8	10.9		80
43 10.7	+47.3	8.6		45 09.4	+47.5	8.9		47 07.9	+47.8	9.2		49 06.3	+48.1	9.6		51 04.5	+48.4	10.0		81
43 58.0	+46.9	7.7		45 56.9	+47.1	8.0		47 55.7	+47.3	8.3		49 54.4	+47.6	8.6		51 52.9	+48.0	9.0		82
44 44.9	+46.4	6.8		46 44.0	+46.6	7.1		48 43.0	+46.9	7.4		50 42.0	+47.1	7.7		52 40.9	+47.4	8.0		83
45 31.3	+46.0	5.9		47 30.6	+46.2	6.2		49 29.9	+46.4	6.4		51 29.1	+46.7	6.7		53 28.3	+46.8	7.0		84
46 17.3	+45.6	5.0		48 16.8	+45.8	5.2		50 16.3	+45.9	5.4		52 15.8	+46.0	5.7		54 15.1	+46.3	5.9		85
47 02.9	+45.1	4.1		49 02.6	+45.2	4.2		51 02.2	+45.4	4.4		53 01.8	+45.6	4.6		55 01.4	+45.7	4.8		86
47 48.0	+44.5	3.1		49 47.8	+44.6	3.2		51 47.6	+44.7	3.4		53 47.4	+44.8	3.5		55 47.1	+45.0	3.7		87
48 32.5	+44.0	2.1		50 32.4	+44.1	2.2		52 32.3	+44.2	2.3		54 32.2	+44.3	2.4		56 32.1	+44.3	2.5		88
49 16.5	+43.5	1.1		51 16.5	+43.5	1.1		53 16.5	+43.5	1.2		55 16.5	+43.5	1.2		57 16.4	+43.6	1.3		89
50 00.0	+42.9	0.0		52 00.0	+42.8	0.0		54 00.0	+42.8	0.0		56 00.0	+42.8	0.0		58 00.0	+42.7	0.0		90
50°				52°				54°				56°				58°				

LATITUDE SAME NAME

L.H.A. 136°, 224°

46°, 314° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	50 26.6	+11.8	78.0	50 49.1	+15.0	80.4	51 06.5	+18.2	82.9	51 18.9	+21.3	85.3	51 26.0	+24.5	87.8
31	50 38.4	+10.7	76.5	51 04.1	+13.7	78.9	51 24.7	+17.0	81.3	51 40.2	+20.2	83.8	51 50.5	+23.3	86.4
32	50 49.1	+9.3	74.9	51 17.8	+12.6	77.3	51 41.7	+15.7	79.8	52 00.4	+18.9	82.3	52 13.8	+22.1	84.9
33	50 58.4	+8.1	73.4	51 30.4	+11.3	75.8	51 57.4	+14.5	78.2	52 19.3	+17.7	80.8	52 35.9	+21.0	83.3
34	51 06.5	+6.8	71.8	51 41.7	+10.0	74.2	52 11.9	+13.2	76.6	52 37.0	+16.5	79.2	52 56.9	+19.7	81.8
35	51 13.3	+5.6	70.2	51 51.7	+8.7	72.6	52 25.1	+11.9	75.1	52 53.5	+15.2	77.6	53 16.6	+18.5	80.2
36	51 18.9	+4.2	68.6	52 00.4	+7.3	71.0	52 37.0	+10.6	73.4	53 08.7	+13.8	76.0	53 35.1	+17.1	78.6
37	51 23.1	+2.9	67.0	52 07.7	+6.1	69.4	52 47.6	+9.3	71.8	53 22.5	+12.6	74.4	53 52.2	+15.9	77.0
38	51 26.0	+1.7	65.4	52 13.8	+4.7	67.7	52 56.9	+7.9	70.2	53 35.1	+11.1	72.7	54 08.1	+14.5	75.4
39	51 27.7	+0.3	63.8	52 18.5	+3.3	66.1	53 04.8	+6.5	68.5	53 46.2	+9.8	71.1	54 22.6	+13.1	73.7
40	51 28.0	-1.0	62.2	52 21.8	+2.0	64.5	53 11.3	+5.1	66.9	53 56.0	+8.4	69.4	54 35.7	+11.7	72.0
41	51 27.0	-2.4	60.6	52 23.8	+0.7	62.8	53 16.4	+3.7	65.2	54 04.4	+6.9	67.7	54 47.4	+10.2	70.3
42	51 24.6	-3.6	59.0	52 24.5	-0.7	61.2	53 20.1	+2.4	63.5	54 11.3	+5.5	66.0	54 57.6	+8.8	68.6
43	51 21.0	-4.9	57.4	52 23.8	-2.1	59.6	53 22.5	+0.9	61.9	54 16.8	+4.1	64.3	55 06.4	+7.4	66.9
44	51 16.1	-6.3	55.8	52 21.7	-3.4	57.9	53 23.4	-0.5	60.2	54 20.9	+2.6	62.6	55 13.8	+5.8	65.1
45	51 09.8	-7.5	54.2	52 18.3	-4.8	56.3	53 22.9	-1.9	58.5	54 23.5	+1.1	60.9	55 19.6	+4.3	63.4
46	51 02.3	-8.8	52.6	52 13.5	-6.1	54.7	53 21.0	-3.3	56.8	54 24.6	-0.3	59.2	55 23.9	+2.9	61.6
47	50 53.5	-10.0	51.1	52 07.4	-7.5	53.0	53 17.7	-4.7	55.2	54 24.3	-8.9	57.4	55 26.8	+1.3	59.9
48	50 43.5	-11.3	49.5	51 59.9	-8.8	51.4	53 13.0	-6.0	53.5	54 22.5	-3.2	55.7	55 28.1	-0.3	58.1
49	50 32.2	-12.5	47.9	51 51.1	-10.0	49.8	53 07.0	-7.5	51.8	54 19.3	-4.7	54.0	55 27.8	-1.7	56.4
50	50 19.7	-13.7	46.4	51 41.1	-11.4	48.2	52 59.5	-8.8	50.2	54 14.6	-6.1	52.3	55 26.1	-3.2	54.6
51	50 06.0	-14.9	44.9	51 29.7	-12.6	46.6	52 50.7	-10.2	48.5	54 08.5	-7.6	50.6	55 22.9	-4.8	52.8
52	49 51.1	-16.0	43.4	51 17.1	-13.8	45.1	52 40.5	-11.5	46.9	54 00.9	-8.9	48.9	55 18.1	-6.3	51.1
53	49 35.1	-17.2	41.9	51 03.3	-15.1	43.5	52 29.0	-12.8	45.3	53 52.0	-10.4	47.2	55 11.8	-7.7	49.3
54	49 17.9	-18.3	40.4	50 48.2	-16.3	42.0	52 16.2	-14.1	43.7	53 41.6	-11.8	45.6	55 04.1	-9.2	47.6
55	48 59.6	-19.4	39.0	50 31.9	-17.4	40.5	52 02.1	-15.4	42.1	53 29.8	-13.1	43.9	54 54.9	-10.7	45.9
56	48 40.2	-20.4	37.5	50 14.5	-18.6	39.0	51 46.7	-16.6	40.6	53 16.7	-14.4	42.3	54 44.2	-12.1	44.2
57	48 19.8	-21.5	36.1	49 55.9	-19.7	37.5	51 30.1	-17.7	39.0	53 02.3	-15.7	40.7	54 32.1	-13.5	42.5
58	47 58.3	-22.4	34.7	49 36.2	-20.8	36.0	51 12.4	-19.0	37.5	52 46.6	-17.0	39.1	54 18.6	-14.9	40.8
59	47 35.9	-23.5	33.3	49 15.4	-21.9	34.6	50 53.4	-20.2	36.0	52 29.6	-18.3	37.5	54 03.7	-16.2	39.1
60	47 12.4	-24.4	32.0	48 53.5	-22.9	33.2	50 33.2	-21.2	34.5	52 11.3	-19.5	35.9	53 47.5	-17.5	37.5
61	46 48.0	-25.3	30.6	48 30.6	-23.8	31.8	50 12.0	-22.4	33.0	51 51.8	-20.6	34.4	53 30.0	-18.8	35.9
62	46 22.7	-26.3	29.3	48 06.8	-24.9	30.4	49 49.6	-23.4	31.6	51 31.2	-21.8	32.9	53 11.2	-20.1	34.3
63	45 56.4	-27.1	28.0	47 41.9	-25.8	29.0	49 26.2	-24.4	30.1	51 09.4	-23.0	31.4	52 51.1	-21.3	32.7
64	45 29.3	-27.9	26.7	47 16.1	-26.8	27.7	49 01.8	-25.4	28.7	50 46.4	-24.0	29.9	52 29.8	-22.5	31.2
65	45 01.4	-28.7	25.5	46 49.3	-27.6	26.4	48 36.4	-26.4	27.4	50 22.4	-25.0	28.5	52 07.3	-23.6	29.7
66	44 32.7	-29.6	24.2	46 21.7	-28.5	25.1	48 10.0	-27.3	26.0	49 57.4	-26.1	27.0	51 43.7	-24.7	28.2
67	44 03.1	-30.3	23.0	45 53.2	-29.3	23.8	47 42.7	-28.3	24.7	49 31.3	-27.1	25.7	51 19.0	-25.9	26.7
68	43 32.8	-31.0	21.8	45 23.9	-30.1	22.6	47 14.4	-29.1	23.4	49 04.2	-28.0	24.3	50 53.1	-26.8	25.3
69	43 01.8	-31.7	20.6	44 53.8	-30.8	21.3	46 45.3	-29.9	22.1	48 36.2	-29.0	22.9	50 26.3	-27.9	23.9
70	42 30.1	-32.5	19.5	44 23.0	-31.7	20.1	46 15.4	-30.8	20.8	48 07.2	-29.8	21.6	49 58.4	-28.8	22.5
71	41 57.6	-33.1	18.4	43 51.3	-32.3	19.0	45 44.6	-31.5	19.6	47 37.4	-30.7	20.3	49 29.6	-29.7	21.1
72	41 24.5	-33.7	17.2	43 19.0	-33.1	17.8	45 13.1	-32.4	18.4	47 06.7	-31.5	19.1	48 59.9	-30.7	19.8
73	40 50.8	-34.3	16.1	42 45.9	-33.7	16.6	44 40.7	-33.0	17.2	46 35.2	-32.3	17.8	48 29.2	-31.5	18.5
74	40 16.5	-35.0	15.0	42 12.2	-34.3	15.5	44 07.7	-33.7	16.0	46 02.9	-33.1	16.6	47 57.7	-32.4	17.2
75	39 41.5	-35.5	14.0	41 37.9	-35.0	14.4	43 34.0	-34.4	14.9	45 29.8	-33.8	15.4	47 25.3	-33.1	16.0
76	39 06.0	-36.0	13.0	41 02.9	-35.6	13.3	42 59.6	-35.1	13.8	44 56.0	-34.5	14.2	46 52.2	-33.9	14.7
77	38 30.0	-36.6	11.9	40 27.3	-36.1	12.3	42 24.5	-35.7	12.7	44 21.5	-35.2	13.1	46 18.3	-34.7	13.5
78	37 53.4	-37.1	10.9	39 51.2	-36.7	11.2	41 48.8	-36.3	11.6	43 46.3	-35.8	12.0	45 43.6	-35.4	12.4
79	37 16.3	-37.5	9.9	39 14.5	-37.2	10.2	41 12.5	-36.8	10.5	43 10.5	-36.5	10.8	45 08.2	-36.0	11.2
80	36 38.8	-38.1	9.0	38 37.3	-37.8	9.2	40 35.7	-37.4	9.5	42 34.0	-37.1	9.8	44 32.2	-36.7	10.1
81	36 00.7	-38.5	8.0	37 59.5	-38.2	8.2	39 58.3	-38.0	8.4	41 56.9	-37.6	8.7	43 55.5	-37.3	9.0
82	35 22.2	-38.9	7.1	37 21.3	-38.7	7.2	39 20.3	-38.4	7.4	41 19.3	-38.2	7.7	43 18.2	-38.0	7.9
83	34 43.3	-39.4	6.1	36 42.6	-39.2	6.3	38 41.9	-39.0	6.4	40 41.1	-38.8	6.6	42 40.2	-38.5	6.8
84	34 03.9	-39.7	5.2	36 03.4	-39.5	5.3	38 02.9	-39.4	5.5	40 02.3	-39.2	5.6	42 01.7	-39.0	5.8
85	33 24.2	-40.1	4.3	35 23.9	-40.0	4.4	37 23.5	-39.9	4.5	39 23.1	-39.7	4.7	41 22.7	-39.6	4.8
86	32 44.1	-40.5	3.4	34 43.9	-40.5	3.5	36 43.6	-40.3	3.6	38 43.4	-40.2	3.7	40 43.1	-40.1	3.8
87	32 03.6	-40.9	2.5	34 03.4	-40.7	2.6	36 03.3	-40.7	2.7	38 03.2	-40.7	2.7	40 03.0	-40.5	2.8
88	31 22.7	-41.2	1.7	33 22.7	-41.2	1.7	35 22.6	-41.1	1.8	37 22.5	-41.0	1.8	39 22.5	-41.0	1.9
89	30 41.5	-41.5	0.8	32 41.5	-41.5	0.9	34 41.5	-41.5	0.9	36 41.5	-41.5	0.9	38 41.5	-41.5	0.9
90	30 00.0	-41.8	0.0	32 00.0	-41.8	0.0	34 00.0	-41.9	0.0	36 00.0	-41.9	0.0	38 00.0	-41.9	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 46°, 314°

30°			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
15	43.4	-45.8	139.7	14	11.7	-46.7	140.0	12	39.5	-47.5	140.3	11	07.0	-48.4	140.6	9	34.1	-49.1	140.8	30
14	57.6	-45.9	140.3	13	25.0	-46.8	140.7	11	52.0	-47.6	140.9	10	18.6	-48.4	141.2	8	45.0	-49.2	141.4	31
14	11.7	-46.0	141.0	12	38.2	-46.9	141.3	11	04.4	-47.7	141.6	9	30.2	-48.4	141.8	7	55.8	-49.2	142.0	32
13	25.7	-46.2	141.7	11	51.3	-46.9	141.9	10	16.7	-47.8	142.2	8	41.8	-48.6	142.4	7	06.6	-49.3	142.6	33
12	39.5	-46.2	142.3	11	04.4	-47.0	142.6	9	28.9	-47.8	142.8	7	53.2	-48.5	143.0	6	17.3	-49.3	143.1	34
11	53.3	-46.3	143.0	10	17.4	-47.2	143.2	8	41.1	-47.9	143.4	7	04.7	-48.8	143.6	5	28.0	-49.3	143.7	35
11	07.0	-46.4	143.6	9	30.2	-47.1	143.8	7	53.2	-47.9	144.0	6	16.0	-48.6	144.2	4	38.7	-49.4	144.3	36
10	20.6	-46.5	144.3	8	43.1	-47.3	144.5	7	05.3	-48.0	144.6	5	27.4	-48.7	144.8	3	49.3	-49.4	144.8	37
9	34.1	-46.5	144.9	7	55.8	-47.3	145.1	6	17.3	-48.0	145.2	4	38.7	-48.7	145.3	2	59.9	-49.4	145.4	38
8	47.6	-46.6	145.6	7	08.5	-47.3	145.7	5	29.3	-48.0	145.8	3	50.0	-48.8	145.9	2	10.5	-49.4	146.0	39
8	01.0	-46.7	146.2	6	21.2	-47.4	146.3	4	41.3	-48.1	146.4	3	01.2	-48.8	146.5	1	21.1	-49.4	146.6	40
7	14.3	-46.7	146.8	5	33.8	-47.4	146.9	3	53.2	-48.2	147.0	2	12.4	-48.7	147.1	0	31.7	-49.4	147.1	41
6	27.6	-46.8	147.5	4	46.4	-47.5	147.6	3	05.0	-48.1	147.6	1	23.7	-48.8	147.7	0	17.7	+49.5	32.3	42
5	40.8	-46.8	148.1	3	58.9	-47.5	148.2	2	16.9	-48.1	148.2	0	34.9	-48.8	148.3	1	07.2	+49.4	31.7	43
4	54.0	-46.8	148.7	3	11.4	-47.5	148.8	1	28.8	-48.2	148.8	0	13.9	+48.8	31.2	1	56.6	+49.4	31.2	44
4	07.2	-46.9	149.3	2	23.9	-47.5	149.4	0	40.6	-48.2	149.4	0	40.6	-48.2	149.4	2	46.0	+49.4	30.6	45
3	20.3	-46.9	150.0	1	36.4	-47.6	150.0	0	07.6	+48.1	30.0	1	51.5	+48.8	30.0	3	35.4	+49.4	30.0	46
2	33.4	-46.9	150.6	0	48.8	-47.5	150.6	0	55.7	+48.2	29.4	2	40.3	+48.7	29.4	4	24.8	+49.3	29.5	47
1	46.5	-46.9	151.2	0	01.3	-47.5	151.2	1	43.9	+48.1	28.8	3	29.0	+48.8	28.8	5	14.1	+49.3	28.9	48
0	59.6	-47.0	151.8	0	46.2	+47.6	28.2	2	32.0	+48.1	28.2	4	17.8	+48.7	28.2	6	03.4	+49.3	28.3	49
0	12.6	-46.9	152.5	1	33.8	+47.5	27.6	3	20.1	+48.1	27.6	5	06.5	+48.6	27.7	5	52.7	+49.2	27.8	50
0	34.3	+46.9	26.9	2	21.3	+47.5	26.9	4	08.2	+48.1	27.0	5	55.1	+48.7	27.1	7	41.9	+49.2	27.2	51
1	21.2	+47.0	26.3	3	08.8	+47.5	26.3	4	56.3	+48.1	26.4	6	43.8	+48.6	26.5	8	31.1	+49.2	26.6	52
2	08.2	+46.9	25.7	3	56.3	+47.5	25.7	5	44.4	+48.0	25.8	7	32.4	+48.5	25.9	9	20.3	+49.1	26.0	53
2	55.1	+46.8	25.0	4	43.8	+47.4	25.1	6	32.4	+47.9	25.2	8	20.9	+48.5	25.3	10	09.4	+49.0	25.4	54
3	41.9	+46.9	24.4	5	31.2	+47.4	24.5	7	20.3	+48.0	24.6	9	09.4	+48.8	24.7	10	58.4	+48.9	24.9	55
4	28.8	+46.8	23.8	6	18.6	+47.3	23.9	8	08.3	+47.8	24.0	9	57.9	+48.3	24.1	11	47.3	+48.9	24.3	56
5	15.6	+46.8	23.2	7	05.9	+47.3	23.3	8	56.1	+47.8	23.4	10	46.2	+48.3	23.5	12	36.2	+48.8	23.7	57
6	02.4	+46.8	22.5	7	53.2	+47.3	22.6	9	43.9	+47.8	22.8	11	34.5	+48.3	22.9	13	25.0	+48.7	23.1	58
6	49.2	+46.7	21.9	8	40.5	+47.1	22.0	10	31.7	+47.6	22.1	12	22.8	+48.1	22.3	14	13.7	+48.7	22.5	59
7	35.9	+46.6	21.3	9	27.6	+47.2	21.4	11	19.3	+47.6	21.5	13	10.9	+48.1	21.7	15	02.4	+48.5	21.9	60
8	22.5	+46.6	20.6	10	14.8	+47.0	20.8	12	06.9	+47.5	20.9	13	59.0	+47.9	21.1	15	50.9	+48.4	21.3	61
9	09.1	+46.5	20.0	11	01.8	+47.0	20.1	12	54.4	+47.4	20.3	14	46.9	+47.9	20.4	16	39.3	+48.3	20.6	62
9	55.6	+46.4	19.4	11	48.8	+46.8	19.5	13	41.8	+47.4	19.6	15	34.8	+47.8	19.8	17	27.6	+48.2	20.0	63
10	42.0	+46.4	18.7	12	35.6	+46.8	18.9	14	29.2	+47.2	19.0	16	22.6	+47.6	19.2	18	15.8	+48.1	19.4	64
11	28.4	+46.3	18.1	13	22.4	+46.7	18.2	15	16.4	+47.1	18.4	17	10.2	+47.5	18.6	19	03.9	+47.9	18.8	65
12	14.7	+46.1	17.4	14	09.1	+46.6	17.6	16	03.5	+47.0	17.7	17	57.7	+47.4	17.9	19	51.8	+47.8	18.1	66
13	00.8	+46.1	16.8	14	55.7	+46.5	16.9	16	50.5	+46.8	17.1	18	45.1	+47.3	17.3	20	39.6	+47.7	17.5	67
13	46.9	+46.0	16.1	15	42.2	+46.3	16.3	17	37.3	+46.8	16.4	19	32.4	+47.1	16.6	21	27.3	+47.5	16.8	68
14	32.9	+45.9	15.4	16	28.5	+46.3	15.6	18	24.1	+46.6	15.8	20	19.5	+47.0	16.0	22	14.8	+47.4	16.2	69
15	18.8	+45.7	14.8	17	14.8	+46.1	14.9	19	10.7	+46.4	15.1	21	06.5	+46.8	15.3	23	02.2	+47.1	15.5	70
16	04.5	+45.6	14.1	18	00.9	+45.9	14.3	19	57.1	+46.3	14.4	21	53.3	+46.6	14.6	23	49.3	+47.1	14.8	71
16	50.1	+45.5	13.4	18	46.8	+45.8	13.6	20	43.4	+46.2	13.7	22	39.9	+46.5	13.9	24	36.4	+46.8	14.2	72
17	35.6	+45.4	12.7	19	32.6	+45.7	12.9	21	29.6	+45.9	13.1	23	26.4	+46.3	13.3	25	23.2	+46.6	13.5	73
18	21.0	+45.2	12.1	20	18.3	+45.5	12.2	22	15.5	+45.8	12.4	24	12.7	+46.1	12.6	26	09.8	+46.4	12.8	74
19	06.2	+45.0	11.4	21	03.8	+45.3	11.5	23	01.3	+45.6	11.7	24	58.8	+45.9	11.9	26	56.2	+46.2	12.1	75
19	51.2	+44.9	10.7	21	49.1	+45.1	10.8	23	46.9	+45.4	11.0	25	44.7	+45.7	11.1	27	42.4	+46.0	11.3	76
20	36.1	+44.6	10.0	22	34.2	+45.0	10.1	24	32.3	+45.2	10.2	26	30.4	+45.5	10.4	28	28.4	+45.7	10.6	77
21	20.7	+44.6	9.2	23	19.2	+44.7	9.4	25	17.5	+45.0	9.5	27	15.9	+45.2	9.7	29	14.1	+45.5	9.9	78
22	05.3	+44.3	8.5	24	03.9	+44.6	8.6	26	02.5	+44.8	8.8	28	01.1	+45.0	8.9	29	59.6	+45.2	9.1	79
22	49.6	+44.1	7.8	24	48.5	+44.3	7.9	26	47.3	+44.5	8.0	28	46.1	+44.7	8.2	30	44.8	+45.0	8.4	80
23	33.7	+43.9	7.1	25	32.8	+44.1	7.2	27	31.8	+44.3	7.3	29	30.8	+44.5	7.4	31	29.8	+44.7	7.6	81
24	17.6	+43.7	6.3	26	16.9	+43.8	6.4	28	16.1	+44.0	6.5	30	15.3	+44.2	6.7	32	14.5	+44.4	6.8	82
25	01.3	+43.4	5.6	27	00.7	+43.6	5.6	29	00.1	+43.8	5.8	30	59.5	+43.9	5.9	32	58.9	+44.0	6.0	83
25	44.7	+43.3	4.8	27	44.3	+43.4	4.9	29	43.9	+43.4	5.0	31	43.4	+43.6	5.1	33	42.9	+43.8	5.2	84
26	28.0	+42.9	4.0	28	27.7	+43.0	4.1	30	27.3	+43.2	4.2	32	27.0	+43.3	4.3	34	26.7	+43.4	4.4	85
27	10.9	+42.7	3.2	29	10.7	+42.8	3.3	31	10.5	+42.9	3.4	33	10.3	+43.0	3.4	35	10.1	+43.0	3.5	86
27	53.6	+42.4	2.4	29	53.5	+42.5	2.5	31	53.4	+42.5	2.5	33	53.3	+42.6	2.6	35	53.1	+42.7	2.7	87
28	36.0	+42.2	1.6	30	36.0	+42.2	1.7	32	35.9	+42.2	1.7	34	35.9	+42.2	1.7	36	35.8	+42.3	1.8	88
29	18.2	+41.8	0.8	31	18.2	+41.8	0.8	33	18.1	+41.9	0.9	35	18.1	+41.9	0.9	37	18.1	+41.9	0.9	89
30	00.0	+41.5	0.0	32	00.0	+41.5	0.0	34	00.0	+41.5	0.0	36	00.0	+41.5	0.0	38	00.0	+41.5	0.0	90

LATITUDE SAME NAME

L.H.A. 134°, 226°

46°, 314° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	51 28.0	+27.4	90.3	51 24.6	+30.5	92.8	51 16.1	+33.2	95.3	51 02.3	+36.0	97.8	50 43.5	+38.6	100.2
31	51 55.4	+26.4	88.9	51 55.1	+29.4	91.5	51 49.3	+32.4	94.0	51 38.3	+35.2	96.5	51 22.1	+37.8	99.0
32	52 21.8	+25.3	87.4	52 24.5	+28.4	90.0	52 21.7	+31.4	92.6	52 13.5	+34.2	95.2	51 59.9	+37.0	97.8
33	52 47.1	+24.2	85.9	52 52.9	+27.2	88.6	52 53.1	+30.3	91.2	52 47.7	+33.3	93.9	52 36.9	+36.1	96.5
34	53 11.3	+22.9	84.4	53 20.1	+26.2	87.1	53 23.4	+29.3	89.8	53 21.0	+32.3	92.5	53 13.0	+35.3	95.2
35	53 34.2	+21.8	82.9	53 46.3	+25.0	85.6	53 52.7	+28.2	88.3	53 53.3	+31.3	91.1	53 48.3	+34.2	93.8
36	53 56.0	+20.5	81.3	54 11.3	+23.8	84.0	54 20.9	+27.0	86.8	54 24.6	+30.2	89.6	54 22.5	+33.3	92.4
37	54 16.5	+19.2	79.7	54 35.1	+22.5	82.5	54 47.9	+25.9	85.3	54 54.8	+29.1	88.1	54 55.8	+32.3	91.0
38	54 35.7	+17.8	78.1	54 57.6	+21.3	80.9	55 13.8	+24.5	83.7	55 23.9	+27.9	86.6	55 28.1	+31.1	89.5
39	54 53.5	+16.5	76.4	55 18.9	+19.9	79.2	55 38.3	+23.4	82.1	55 51.8	+26.7	85.0	55 59.2	+30.0	88.0
40	55 10.0	+15.1	74.7	55 38.8	+18.5	77.6	56 01.7	+21.9	80.4	56 18.5	+25.4	83.4	56 29.2	+28.8	86.4
41	55 25.1	+13.7	73.0	55 57.3	+17.1	75.9	56 23.6	+20.6	78.8	56 43.9	+24.1	81.8	56 58.0	+27.5	84.8
42	55 38.8	+12.1	71.3	56 14.4	+15.7	74.1	56 44.2	+19.2	77.1	57 08.0	+22.7	80.1	57 25.5	+26.2	83.2
43	55 50.9	+10.8	69.6	56 30.1	+14.1	72.4	57 03.4	+17.7	75.3	57 30.7	+21.3	78.4	57 51.7	+24.9	81.5
44	56 01.7	+9.2	67.8	56 44.2	+12.7	70.6	57 21.1	+16.2	73.6	57 52.0	+19.8	76.6	58 16.6	+23.4	79.8
45	56 10.9	+7.6	66.0	56 56.9	+11.1	68.8	57 37.3	+14.7	71.8	58 11.8	+18.3	74.8	58 40.0	+22.0	78.0
46	56 18.5	+6.1	64.3	57 08.0	+9.6	67.0	57 52.0	+13.1	70.0	58 30.1	+16.7	73.0	59 02.0	+20.4	76.2
47	56 24.6	+4.6	62.5	57 17.6	+7.9	65.2	58 05.1	+11.5	68.1	58 46.8	+15.2	71.2	59 22.4	+18.9	74.4
48	56 29.2	+3.0	60.7	57 25.5	+6.3	63.4	58 16.6	+9.8	66.3	59 02.0	+13.5	69.3	59 41.3	+17.2	72.5
49	56 32.2	+1.4	58.9	57 31.8	+4.7	61.5	58 26.4	+8.2	64.4	59 15.5	+11.8	67.4	59 58.5	+15.5	70.6
50	56 33.6	-0.2	57.0	57 36.5	+3.1	59.7	58 34.6	+6.5	62.5	59 27.3	+10.0	65.5	60 14.0	+13.9	68.6
51	56 33.4	-1.8	55.2	57 39.6	+1.4	57.8	58 41.1	+4.8	60.6	59 37.3	+8.4	63.5	60 27.9	+12.0	66.7
52	56 31.6	-3.4	53.4	57 41.0	-0.2	55.9	58 45.9	+3.0	58.7	59 45.7	+6.6	61.6	60 39.9	+10.3	64.7
53	56 28.2	-4.9	51.6	57 40.8	-2.0	54.1	58 48.9	+1.4	56.7	59 52.3	+4.7	59.6	60 50.2	+8.5	62.7
54	56 23.3	-6.5	49.8	57 38.8	-3.5	52.2	58 50.3	-0.4	54.8	59 57.0	+3.0	57.6	60 58.7	+6.5	60.6
55	56 16.8	-8.0	48.0	57 35.3	-5.2	50.3	58 49.9	-2.2	52.9	60 00.0	+1.2	55.6	61 05.2	+4.7	58.6
56	56 08.8	-9.6	46.2	57 30.1	-6.8	48.5	58 47.7	-3.8	50.9	60 01.2	-0.7	53.6	61 09.9	+2.8	56.5
57	55 59.2	-11.0	44.5	57 23.3	-8.4	46.6	58 43.9	-5.6	49.0	60 00.5	-2.4	51.6	61 12.7	+1.0	54.4
58	55 48.2	-12.6	42.7	57 14.9	-10.1	44.8	58 38.3	-7.2	47.1	59 58.1	-4.3	49.6	61 13.7	-1.0	52.4
59	55 35.6	-14.0	41.0	57 04.8	-11.5	43.0	58 31.1	-9.0	45.2	59 53.8	-6.0	47.6	61 12.7	-3.0	50.3
60	55 21.6	-15.4	39.3	56 53.3	-13.2	41.2	58 22.1	-10.6	43.3	59 47.8	-7.9	45.6	61 09.7	-4.7	48.2
61	55 06.2	-16.8	37.6	56 40.1	-14.6	39.4	58 11.5	-12.2	41.4	59 39.9	-9.5	43.7	61 05.0	-6.7	46.2
62	54 49.4	-18.2	35.9	56 25.5	-16.1	37.6	57 59.3	-13.8	39.6	59 30.4	-11.3	41.7	60 58.3	-8.6	44.1
63	54 31.2	-19.5	34.2	56 09.4	-17.5	35.9	57 45.5	-15.4	37.7	59 19.1	-13.0	39.8	60 49.7	-10.3	42.1
64	54 11.7	-20.8	32.6	55 51.9	-19.0	34.2	57 30.1	-16.9	35.9	59 06.1	-14.7	37.9	60 39.4	-12.2	40.1
65	53 50.9	-22.1	31.0	55 32.9	-20.3	32.5	57 13.2	-18.4	34.2	58 51.4	-16.3	36.0	60 27.2	-13.9	38.1
66	53 28.8	-23.2	29.4	55 12.6	-21.6	30.8	56 54.8	-19.8	32.4	58 35.1	-17.8	34.1	60 13.3	-15.6	36.1
67	53 05.6	-24.4	27.9	54 51.0	-22.9	29.2	56 35.0	-21.3	30.7	58 17.3	-19.4	32.3	59 57.7	-17.3	34.2
68	52 41.2	-25.6	26.4	54 28.1	-24.2	27.6	56 13.7	-22.6	29.0	57 57.9	-20.8	30.5	59 40.4	-19.0	32.3
69	52 15.6	-26.7	24.9	54 03.9	-25.3	26.1	55 51.1	-23.9	27.3	57 37.1	-22.3	28.8	59 21.4	-20.5	30.4
70	51 48.9	-27.7	23.5	53 38.6	-26.5	24.5	55 27.2	-25.1	25.7	57 14.8	-23.7	27.0	59 00.9	-22.0	28.5
71	51 21.2	-28.7	22.0	53 12.1	-27.6	23.0	55 02.1	-26.4	24.1	56 51.1	-25.1	25.4	58 38.9	-23.5	26.8
72	50 52.5	-29.7	20.6	52 44.5	-28.7	21.5	54 35.7	-27.6	22.6	56 26.0	-26.3	23.7	58 15.4	-25.0	25.0
73	50 22.8	-30.7	19.3	52 15.8	-29.8	20.1	54 08.1	-28.7	21.0	55 59.7	-27.5	22.1	57 50.4	-26.2	23.3
74	49 52.1	-31.6	17.9	51 46.0	-30.7	18.7	53 39.4	-29.8	19.5	55 32.2	-28.8	20.5	57 24.2	-27.6	21.6
75	49 20.5	-32.4	16.6	51 15.3	-31.7	17.3	53 09.6	-30.8	18.1	55 03.4	-29.9	19.0	56 56.6	-28.9	20.0
76	48 48.1	-33.3	15.3	50 43.6	-32.5	16.0	52 38.8	-31.8	16.7	54 33.5	-30.9	17.5	56 27.7	-30.0	18.4
77	48 14.8	-34.1	14.1	50 11.1	-33.5	14.6	52 07.0	-32.8	15.3	54 02.6	-32.1	16.0	55 57.7	-31.2	16.8
78	47 40.7	-34.8	12.8	49 37.6	-34.3	13.3	51 34.2	-33.7	13.9	53 30.5	-33.0	14.6	55 26.5	-32.3	15.3
79	47 05.9	-35.6	11.6	49 03.3	-35.1	12.1	51 00.5	-34.5	12.6	52 57.5	-34.0	13.2	54 54.2	-33.3	13.8
80	46 30.3	-36.3	10.5	48 28.2	-35.9	10.9	50 26.0	-35.4	11.3	52 23.5	-34.9	11.8	54 20.9	-34.4	12.4
81	45 54.0	-37.0	9.3	47 52.3	-36.6	9.7	49 50.6	-36.2	10.0	51 48.6	-35.7	10.5	53 46.5	-35.2	11.0
82	45 17.0	-37.6	8.2	47 15.7	-37.3	8.5	49 14.4	-37.0	8.8	51 12.9	-36.6	9.2	53 11.3	-36.2	9.6
83	44 39.4	-38.3	7.1	46 38.4	-38.0	7.3	48 37.4	-37.7	7.6	50 36.3	-37.4	7.9	52 35.1	-37.1	8.3
84	44 01.1	-38.8	6.0	46 00.4	-38.6	6.2	47 59.7	-38.4	6.5	49 58.9	-38.1	6.7	51 58.0	-37.8	7.0
85	43 22.3	-39.4	4.9	45 21.8	-39.2	5.1	47 21.3	-39.0	5.3	49 20.8	-38.9	5.5	51 20.2	-38.6	5.8
86	42 42.9	-40.0	3.9	44 42.6	-39.9	4.0	46 42.3	-39.7	4.2	48 41.9	-39.5	4.4	50 41.6	-39.4	4.5
87	42 02.9	-40.5	2.9	44 02.7	-40.3	3.0	46 02.6	-40.3	3.1	48 02.4	-40.2	3.2	50 02.2	-40.1	3.4
88	41 22.4	-41.0	1.9	43 22.4	-41.0	2.0	45 22.3	-40.9	2.0	47 22.2	-40.8	2.1	49 22.1	-40.7	2.2
89	40 41.4	-41.4	0.9	42 41.4	-41.4	1.0	44 41.4	-41.4	1.0	46 41.4	-41.4	1.0	48 41.4	-41.4	1.1
90	40 00.0	-41.9	0.0	42 00.0	-41.9	0.0	44 00.0	-41.9	0.0	46 00.0	-42.0	0.0	48 00.0	-42.0	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 46°, 314°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
8	01.0	-49.9	141.0	6	27.6	-50.6	141.2	4	54.0	-51.3	141.3	3	20.3	-52.0	141.4	1	46.5	-52.6	141.4	30
7	11.1	-49.9	141.6	5	37.0	-50.6	141.7	4	02.7	-51.3	141.8	2	28.3	-51.9	141.9	0	53.9	-52.6	141.9	31
6	21.2	-50.0	142.1	4	46.4	-50.7	142.3	3	11.4	-51.3	142.3	1	36.4	-52.0	142.4	0	01.3	-52.6	142.4	32
5	31.2	-49.9	142.7	3	55.7	-50.7	142.8	2	20.1	-51.3	142.9	0	44.4	-52.0	142.9	0	51.3	+52.6	37.1	33
4	41.3	-50.1	143.2	3	05.0	-50.6	143.3	1	28.8	-51.4	143.4	0	07.6	+51.9	36.6	1	43.9	+52.6	36.6	34
3	51.2	-50.0	143.8	2	14.4	-50.7	143.9	0	37.4	-51.3	143.9	0	59.5	+52.0	36.1	2	36.5	+52.5	36.1	35
3	01.2	-50.0	144.4	1	23.7	-50.7	144.4	0	13.9	+51.4	35.6	1	51.5	+51.9	35.6	3	29.0	+52.6	35.7	36
2	11.2	-50.1	144.9	0	33.0	-50.7	144.9	1	05.3	+51.3	35.1	2	43.4	+52.0	35.1	4	21.6	+52.5	35.2	37
1	21.1	-50.1	145.5	0	17.7	+50.8	34.5	1	56.6	+51.3	34.6	3	35.4	+51.9	34.6	5	14.1	+52.5	34.7	38
0	31.0	-50.0	146.0	1	08.5	+50.6	34.0	2	47.9	+51.3	34.0	4	27.3	+51.9	34.1	6	06.6	+52.5	34.2	39
0	19.0	+50.1	33.4	1	59.1	+50.7	33.5	3	39.2	+51.3	33.5	5	19.2	+51.9	33.6	6	59.1	+52.5	33.7	40
1	09.1	+50.0	32.9	2	49.8	+50.7	32.9	4	30.5	+51.3	33.0	6	11.1	+51.9	33.1	7	51.6	+52.4	33.2	41
1	59.1	+50.1	32.3	3	40.5	+50.7	32.4	5	21.8	+51.2	32.5	7	03.0	+51.8	32.6	8	44.0	+52.4	32.7	42
2	49.2	+50.0	31.8	4	31.2	+50.6	31.9	6	13.0	+51.3	32.0	7	54.8	+51.8	32.1	9	36.4	+52.3	32.2	43
3	39.2	+50.0	31.2	5	21.8	+50.6	31.3	7	04.3	+51.1	31.4	8	46.6	+51.7	31.6	10	28.7	+52.3	31.8	44
4	29.2	+50.0	30.7	6	12.4	+50.6	30.8	7	55.4	+51.2	30.9	9	38.3	+51.7	31.1	11	21.0	+52.3	31.3	45
5	19.2	+50.0	30.1	7	03.0	+50.5	30.2	8	46.6	+51.1	30.4	10	30.0	+51.7	30.5	12	13.3	+52.2	30.7	46
6	09.2	+49.9	29.6	7	53.5	+50.5	29.7	9	37.7	+51.0	29.8	11	21.7	+51.6	30.0	13	05.3	+52.1	30.2	47
6	59.1	+49.9	29.0	8	44.0	+50.4	29.1	10	28.7	+51.0	29.3	12	13.3	+51.5	29.5	13	57.6	+52.1	29.7	48
7	49.0	+49.8	28.4	9	34.4	+50.4	28.6	11	19.7	+51.0	28.8	13	04.8	+51.5	29.0	14	49.7	+52.0	29.2	49
8	38.8	+49.8	27.9	10	24.8	+50.4	28.0	12	10.7	+50.8	28.2	13	56.3	+51.4	28.5	15	41.7	+51.9	28.7	50
9	28.6	+49.8	27.3	11	15.2	+50.2	27.5	13	01.5	+50.8	27.7	14	47.7	+51.3	27.9	16	33.6	+51.8	28.2	51
10	18.4	+49.6	26.8	12	05.4	+50.2	26.9	13	52.3	+50.8	27.1	15	39.0	+51.2	27.4	17	25.4	+51.8	27.7	52
11	08.0	+49.6	26.2	12	55.6	+50.2	26.4	14	43.1	+50.6	26.6	16	30.2	+51.2	26.8	18	17.2	+51.7	27.1	53
11	57.6	+49.6	25.6	13	45.8	+50.0	25.8	15	33.7	+50.6	26.0	17	21.4	+51.1	26.3	19	08.9	+51.5	26.6	54
12	47.2	+49.5	25.0	14	35.8	+50.0	25.2	16	24.3	+50.4	25.5	18	12.5	+51.0	25.7	20	00.4	+51.5	26.0	55
13	36.7	+49.3	24.4	15	25.8	+49.9	24.7	17	14.7	+50.4	24.9	19	03.5	+50.8	25.2	20	51.9	+51.4	25.5	56
14	26.0	+49.3	23.9	16	15.7	+49.8	24.1	18	05.1	+50.3	24.3	19	54.3	+50.8	24.6	21	43.3	+51.3	24.9	57
15	15.3	+49.2	23.3	17	05.5	+49.7	23.5	18	55.4	+50.2	23.8	20	45.1	+50.7	24.1	22	34.6	+51.1	24.4	58
16	04.5	+49.1	22.7	17	55.2	+49.5	22.9	19	45.6	+50.0	23.2	21	35.8	+50.5	23.5	23	25.7	+51.0	23.8	59
16	53.6	+49.0	22.1	18	44.7	+49.5	22.3	20	35.6	+50.0	22.6	22	26.3	+50.4	22.9	24	16.7	+50.9	23.2	60
17	42.6	+48.9	21.5	19	34.2	+49.4	21.7	21	25.6	+49.8	22.0	23	16.7	+50.3	22.3	25	07.6	+50.7	22.7	61
18	31.5	+48.8	20.9	20	23.6	+49.2	21.1	22	15.4	+49.7	21.4	24	07.0	+50.1	21.7	25	58.3	+50.7	22.1	62
19	20.3	+48.6	20.2	21	12.8	+49.1	20.5	23	05.1	+49.5	20.8	24	57.1	+50.0	21.1	26	49.0	+50.4	21.5	63
20	08.9	+48.5	19.6	22	01.9	+48.9	19.9	23	54.6	+49.4	20.2	25	47.1	+49.9	20.5	27	39.4	+50.3	20.9	64
20	57.4	+48.4	19.0	22	50.8	+48.8	19.3	24	44.0	+49.2	19.6	26	37.0	+49.6	19.9	28	29.7	+50.1	20.2	65
21	45.8	+48.2	18.4	23	39.6	+48.7	18.6	25	33.2	+49.1	18.9	27	26.6	+49.5	19.2	29	19.8	+49.9	19.6	66
22	34.0	+48.1	17.7	24	28.3	+48.4	18.0	26	22.3	+48.9	18.3	28	16.1	+49.3	18.6	30	09.7	+49.8	19.0	67
23	22.1	+47.9	17.1	25	16.7	+48.3	17.3	27	11.2	+48.7	17.6	29	05.4	+49.2	18.0	30	59.5	+49.5	18.3	68
24	10.0	+47.7	16.4	26	05.0	+48.2	16.7	27	59.9	+48.5	17.0	29	54.6	+48.9	17.3	31	49.0	+49.4	17.7	69
24	57.7	+47.6	15.7	26	53.2	+47.9	16.0	28	48.4	+48.3	16.3	30	43.5	+48.7	16.6	32	38.4	+49.1	17.0	70
25	45.3	+47.3	15.1	27	41.1	+47.7	15.3	29	36.7	+48.1	15.6	31	32.2	+48.5	15.9	33	27.5	+48.9	16.3	71
26	32.6	+47.2	14.4	28	28.8	+47.5	14.6	30	24.8	+47.9	14.9	32	20.7	+48.3	15.3	34	16.4	+48.6	15.6	72
27	19.8	+47.0	13.7	29	16.3	+47.3	14.0	31	12.7	+47.7	14.2	33	09.0	+48.0	14.5	35	05.0	+48.4	14.9	73
28	06.8	+46.7	13.0	30	03.6	+47.1	13.2	32	00.4	+47.4	13.5	33	57.0	+47.7	13.8	35	53.4	+48.1	14.2	74
28	53.5	+46.5	12.3	30	50.7	+46.8	12.5	32	47.8	+47.1	12.8	34	44.7	+47.5	13.1	36	41.5	+47.9	13.4	75
29	40.0	+46.3	11.6	31	37.5	+46.6	11.8	33	34.9	+46.9	12.1	35	32.2	+47.2	12.3	37	29.4	+47.5	12.7	76
30	26.3	+46.0	10.8	32	24.1	+46.3	11.0	34	21.8	+46.6	11.3	36	19.4	+47.0	11.6	38	16.9	+47.3	11.9	77
31	12.3	+45.8	10.1	33	10.4	+46.0	10.3	35	08.4	+46.4	10.5	37	06.4	+46.6	10.8	39	04.2	+46.9	11.1	78
31	58.1	+45.4	9.3	33	56.4	+45.8	9.5	35	54.8	+46.0	9.8	37	53.0	+46.2	10.0	39	51.1	+46.6	10.3	79
32	43.5	+45.2	8.5	34	42.2	+45.4	8.7	36	40.8	+45.6	9.0	38	39.2	+46.0	9.2	40	37.7	+46.2	9.5	80
33	28.7	+44.9	7.8	35	27.6	+45.1	7.9	37	26.4	+45.4	8.1	39	25.2	+45.6	8.4	41	23.9	+45.8	8.6	81
34	13.6	+44.6	7.0	36	12.7	+44.8	7.1	38	11.8	+44.9	7.3	40	10.8	+45.2	7.5	42	09.7	+45.4	7.8	82
34	58.2	+44.2	6.1	36	57.5	+44.4	6.3	38	56.7	+44.6	6.5	40	56.0	+44.8	6.7	42	55.1	+45.0	6.9	83
35	42.4	+43.9	5.3	37	41.9	+44.0	5.5	39	41.3	+44.3	5.6	41	40.8	+44.3	5.8	43	40.1	+44.6	6.0	84
36	26.3	+43.6	4.5	38	25.9	+43.7	4.6	40	25.6	+43.7	4.7	42	25.1	+44.0	4.9	44	24.7	+44.1	5.0	85
37	09.9	+43.1	3.6	39	09.6	+43.3	3.7	41	09.3	+43.4	3.8	43	09.1	+43.5	3.9	45	08.8	+43.6	4.1	86
37	53.0	+42.8	2.7	39	52.9	+42.8	2.8	41	52.7	+42.9	2.9	43	52.6	+43.0	3.0	45	52.4	+43.1	3.1	87
38	35.8	+42.3	1.8	40	35.7	+42.4	1.9	42	35.6	+42.5	2.0	44	35.6	+42.4	2.0	46	35.5	+42.5	2.1	88
39	18.1	+41.9	0.9	41	18.1	+41.9	1.0	43	18.1	+41.9	1.0	45	18.0	+42.0	1.0	47	18.0	+42.0	1.1	89
40	00.0	+41.4	0.0	42	00.0	+41.4	0.0	44	00.0	+41.4	0.0	46	00.0	+41.4	0.0	48	00.0	+41.4	0.0	90

LATITUDE SAME NAME

L.H.A. 134°, 226°

46°, 314° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	50 19.7	+41.0	102.6	49 51.1	+43.3	104.9	49 17.9	+45.4	107.2	48 40.2	+47.4	109.4	47 58.3	+49.2	111.5
31	51 00.7	+40.4	101.5	50 34.4	+42.7	103.9	50 03.3	+44.9	106.2	49 27.6	+46.9	108.4	48 47.5	+48.7	110.6
32	51 41.1	+39.6	100.3	51 17.1	+42.1	102.7	50 48.2	+44.3	105.1	50 14.5	+46.4	107.5	49 36.2	+48.3	109.7
33	52 20.7	+38.8	99.1	51 59.2	+41.3	101.6	51 32.5	+43.7	104.1	51 00.9	+45.8	106.5	50 24.5	+47.9	108.8
34	52 59.5	+38.0	97.8	52 40.5	+40.6	100.4	52 16.2	+43.0	103.0	51 46.7	+45.3	105.4	51 12.4	+47.3	107.9
35	53 37.5	+37.1	96.5	53 21.1	+39.8	99.2	52 59.2	+42.4	101.8	52 32.0	+44.7	104.4	51 59.7	+46.9	106.9
36	54 14.6	+36.2	95.2	54 00.9	+39.0	97.9	53 41.6	+41.6	100.6	53 16.7	+44.1	103.3	52 46.6	+46.3	105.8
37	54 50.8	+35.3	93.8	54 39.9	+38.2	96.6	54 23.2	+40.9	99.4	54 00.8	+43.4	102.1	53 32.9	+45.7	104.8
38	55 26.1	+34.3	92.4	55 18.1	+37.2	95.3	55 04.1	+40.0	98.1	54 44.2	+42.7	100.9	54 18.6	+45.1	103.7
39	56 00.4	+33.2	90.9	55 55.3	+36.3	93.9	55 44.1	+39.2	96.8	55 26.9	+41.9	99.7	55 03.7	+44.5	102.5
40	56 33.6	+32.0	89.4	56 31.6	+35.2	92.5	56 23.3	+38.3	95.5	56 08.8	+41.1	98.4	55 48.2	+43.7	101.4
41	57 05.6	+30.9	87.9	57 06.8	+34.2	91.0	57 01.6	+37.2	94.1	56 49.9	+40.2	97.1	56 31.9	+43.0	100.1
42	57 36.5	+29.7	86.3	57 41.0	+33.0	89.4	57 38.8	+36.3	92.6	57 30.1	+39.3	95.7	57 14.9	+42.1	98.8
43	58 06.2	+28.4	84.7	58 14.0	+31.9	87.9	58 15.1	+35.2	91.1	58 09.4	+38.3	94.3	57 57.0	+41.3	97.5
44	58 34.6	+27.0	83.0	58 45.9	+30.5	86.3	58 50.3	+34.0	89.6	58 47.7	+37.3	92.9	58 38.3	+40.4	96.1
45	59 01.6	+25.7	81.3	59 16.4	+29.3	84.6	59 24.3	+32.7	87.9	59 25.0	+36.2	91.3	59 18.7	+39.4	94.7
46	59 27.3	+24.1	79.5	59 45.7	+27.8	82.9	59 57.0	+31.5	86.3	60 01.2	+35.0	89.7	59 58.1	+38.3	93.2
47	59 51.4	+22.6	77.7	60 13.5	+26.4	81.1	60 28.5	+30.2	84.6	60 36.2	+33.7	88.1	60 36.4	+37.3	91.7
48	60 14.0	+21.1	75.8	60 39.9	+24.9	79.3	60 58.7	+28.6	82.8	61 09.9	+32.5	86.4	61 13.7	+36.0	90.0
49	60 35.1	+19.4	73.9	61 04.8	+23.3	77.4	61 27.3	+27.2	81.0	61 42.4	+31.0	84.6	61 49.7	+34.7	88.4
50	60 54.5	+17.7	72.0	61 28.1	+21.6	75.5	61 54.5	+25.6	79.1	62 13.4	+29.5	82.8	62 24.4	+33.4	86.6
51	61 12.2	+15.9	70.0	61 49.7	+20.0	73.5	62 20.1	+24.0	77.2	62 42.9	+28.0	80.9	62 57.8	+32.0	84.8
52	61 28.1	+14.1	68.0	62 09.7	+18.1	71.5	62 44.1	+22.2	75.2	63 10.9	+26.3	79.0	63 29.8	+30.4	82.9
53	61 42.2	+12.3	66.0	62 27.8	+16.3	69.5	63 06.3	+20.4	73.1	63 37.2	+24.6	77.0	64 00.2	+28.8	81.0
54	61 54.5	+10.4	63.9	62 44.1	+14.4	67.4	63 26.7	+18.6	71.0	64 01.8	+22.8	74.9	64 29.0	+27.0	79.0
55	62 04.9	+8.5	61.8	62 58.5	+12.4	65.2	63 45.3	+16.5	68.9	64 24.6	+20.9	72.8	64 56.0	+25.3	76.9
56	62 13.4	+6.5	59.7	63 10.9	+10.5	63.1	64 01.8	+14.6	66.7	64 45.5	+18.9	70.6	65 21.3	+23.4	74.7
57	62 19.9	+4.5	57.5	63 21.4	+8.4	60.9	64 16.4	+12.6	64.5	65 04.4	+16.9	68.4	65 44.7	+21.3	72.5
58	62 24.4	+2.6	55.4	63 29.8	+6.3	58.7	64 29.0	+10.4	62.2	65 21.3	+14.7	66.1	66 06.0	+19.3	70.2
59	62 27.0	+0.5	53.2	63 36.1	+4.3	56.4	64 39.4	+8.3	59.9	65 36.0	+12.6	63.7	66 25.3	+17.1	67.8
60	62 27.5	-1.5	51.1	63 40.4	+2.1	54.2	64 47.7	+6.0	57.6	65 48.6	+10.3	61.4	66 42.4	+14.8	65.4
61	62 26.0	-3.5	48.9	63 42.5	0.0	51.9	64 53.7	+3.9	55.3	65 58.9	+8.0	59.0	66 57.2	+12.5	63.0
62	62 22.5	-5.4	46.7	63 42.5	-2.1	49.7	64 57.6	+1.6	52.9	66 06.9	+5.7	56.5	67 09.7	+10.1	60.5
63	62 17.1	-7.5	44.6	63 40.4	-4.2	47.4	64 59.2	-0.6	50.6	66 12.6	+3.3	54.1	67 19.8	+7.6	57.9
64	62 09.6	-9.4	42.5	63 36.2	-6.3	45.2	64 58.6	-2.9	48.2	66 15.9	+1.0	51.6	67 27.4	+5.2	55.3
65	62 00.2	-11.3	40.4	63 29.9	-8.4	42.9	64 55.7	-5.1	45.8	66 16.9	-1.5	49.1	67 32.6	+2.6	52.7
66	61 48.9	-13.1	38.3	63 21.5	-10.4	40.7	64 50.6	-7.3	43.5	66 15.4	-3.8	46.6	67 35.2	+0.1	50.1
67	61 35.8	-15.0	36.2	63 11.1	-12.4	38.5	64 43.3	-9.5	41.2	66 11.6	-6.2	44.1	67 35.3	-2.5	47.5
68	61 20.8	-16.8	34.2	62 58.7	-14.3	36.4	64 33.8	-11.6	38.9	66 05.4	-8.5	41.7	67 32.8	-4.9	44.9
69	61 04.0	-18.5	32.2	62 44.4	-16.3	34.3	64 22.2	-13.7	36.6	65 56.9	-10.8	39.2	67 27.9	-7.5	42.3
70	60 45.5	-20.2	30.2	62 28.1	-18.1	32.2	64 08.5	-15.7	34.3	65 46.1	-13.0	36.8	67 20.4	-9.9	39.7
71	60 25.3	-21.8	28.3	62 10.0	-19.8	30.1	63 52.8	-17.7	32.1	65 33.1	-15.2	34.5	67 10.5	-12.3	37.1
72	60 03.5	-23.4	26.4	61 50.2	-21.6	28.1	63 35.1	-19.6	30.0	65 17.9	-17.3	32.1	66 58.2	-14.7	34.6
73	59 40.1	-24.8	24.6	61 28.6	-23.3	26.1	63 15.5	-21.4	27.9	65 00.6	-19.3	29.9	66 43.5	-16.9	32.2
74	59 15.3	-26.3	22.8	61 05.3	-24.8	24.2	62 54.1	-23.2	25.8	64 41.3	-21.3	27.6	66 26.6	-19.1	29.7
75	58 49.0	-27.7	21.1	60 40.5	-26.4	22.3	62 30.9	-24.9	23.8	64 20.0	-23.2	25.5	66 07.5	-21.2	27.4
76	58 21.3	-29.0	19.4	60 14.1	-27.8	20.5	62 06.0	-26.5	21.8	63 56.8	-25.0	23.3	65 46.3	-23.3	25.1
77	57 52.3	-30.3	17.7	59 46.3	-29.3	18.7	61 39.5	-28.0	19.9	63 31.8	-26.7	21.3	65 23.0	-25.1	22.9
78	57 22.0	-31.5	16.1	59 17.0	-30.5	17.0	61 11.5	-29.5	18.1	63 05.1	-28.3	19.3	64 57.9	-26.9	20.7
79	56 50.5	-32.6	14.5	58 46.5	-31.8	15.4	60 42.0	-30.9	16.3	62 36.8	-29.8	17.4	64 31.0	-28.7	18.6
80	56 17.9	-33.7	13.0	58 14.7	-33.0	13.7	60 11.1	-32.3	14.5	62 07.0	-31.4	15.5	64 02.3	-30.3	16.6
81	55 44.2	-34.7	11.5	57 41.7	-34.2	12.2	59 38.8	-33.4	12.9	61 35.6	-32.7	13.7	63 32.0	-31.8	14.6
82	55 09.5	-35.7	10.1	57 07.5	-35.2	10.6	59 05.4	-34.7	11.2	61 02.9	-34.0	11.9	63 00.2	-33.3	12.7
83	54 33.8	-36.7	8.7	56 32.3	-36.2	9.1	58 30.7	-35.8	9.7	60 28.9	-35.3	10.2	62 26.9	-34.7	10.9
84	53 57.1	-37.5	7.3	55 56.1	-37.2	7.7	57 54.9	-36.8	8.1	59 53.6	-36.4	8.6	61 52.2	-35.9	9.2
85	53 19.6	-38.4	6.0	55 18.9	-38.2	6.3	57 18.1	-37.8	6.7	59 17.2	-37.5	7.1	61 16.3	-37.2	7.5
86	52 41.2	-39.2	4.7	54 40.7	-39.0	5.0	56 40.3	-38.8	5.2	58 39.7	-38.5	5.5	60 39.1	-38.2	5.9
87	52 02.0	-40.0	3.5	54 01.7	-39.8	3.7	56 01.5	-39.7	3.9	58 01.2	-39.5	4.1	60 00.9	-39.4	4.3
88	51 22.0	-40.6	2.3	53 21.9	-40.6	2.4	55 21.8	-40.5	2.5	57 21.7	-40.4	2.7	59 21.5	-40.3	2.8
89	50 41.4	-41.4	1.1	52 41.3	-41.3	1.2	54 41.3	-41.3	1.2	56 41.3	-41.3	1.3	58 41.2	-41.2	1.4
90	50 00.0	-42.0	0.0	52 00.0	-42.0	0.0	54 00.0	-42.0	0.0	56 00.0	-42.1	0.0	58 00.0	-42.1	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 46°, 314°

50°				52°				54°				56°				58°				Dec. °
Hc	d	Z		Hc	d	Z		Hc	d	Z		Hc	d	Z		Hc	d	Z		
0	12.6	-53.2	141.5	1	21.2	+53.8	38.5	2	55.1	+54.3	38.6	4	28.8	+54.9	38.7	6	02.4	+55.4	38.8	30
0	40.6	+53.2	38.1	2	15.0	+53.8	38.1	3	49.4	+54.4	38.2	5	23.7	+54.9	38.3	6	57.8	+55.4	38.4	31
1	33.8	+53.2	37.6	3	08.8	+53.8	37.7	4	43.8	+54.3	37.7	6	18.6	+54.8	37.9	7	53.2	+55.4	38.0	32
2	27.0	+53.1	37.1	4	02.6	+53.7	37.2	5	38.1	+54.3	37.3	7	13.4	+54.9	37.5	8	48.6	+55.3	37.6	33
3	20.1	+53.2	36.7	4	56.3	+53.8	36.8	6	32.4	+54.3	36.9	8	08.3	+54.8	37.0	9	43.9	+55.3	37.2	34
4	13.3	+53.2	36.2	5	50.1	+53.7	36.3	7	26.7	+54.2	36.5	9	03.1	+54.8	36.6	10	39.2	+55.3	36.8	35
5	06.5	+53.1	35.8	6	43.8	+53.7	35.9	8	20.9	+54.3	36.0	9	57.9	+54.7	36.2	11	34.5	+55.3	36.4	36
5	59.6	+53.1	35.3	7	37.5	+53.6	35.4	9	15.2	+54.2	35.6	10	52.6	+54.7	35.8	12	29.8	+55.2	36.0	37
6	52.7	+53.1	34.8	8	31.1	+53.7	35.0	10	09.4	+54.1	35.2	11	47.3	+54.7	35.4	13	25.0	+55.2	35.6	38
7	45.8	+53.0	34.3	9	24.8	+53.6	34.5	11	03.5	+54.1	34.7	12	42.0	+54.7	35.0	14	20.2	+55.1	35.2	39
8	38.8	+53.1	33.9	10	18.4	+53.5	34.1	11	57.6	+54.1	34.3	13	36.7	+54.6	34.5	15	15.3	+55.1	34.8	40
9	31.9	+52.9	33.4	11	11.9	+53.5	33.6	12	51.7	+54.1	33.8	14	31.3	+54.5	34.1	16	10.4	+55.1	34.4	41
10	24.8	+53.0	32.9	12	05.4	+53.5	33.1	13	45.8	+54.0	33.4	15	25.8	+54.5	33.7	17	05.5	+55.0	34.0	42
11	17.8	+52.9	32.4	12	58.9	+53.4	32.7	14	39.8	+53.9	32.9	16	20.3	+54.4	33.2	18	00.5	+54.9	33.6	43
12	10.7	+52.8	32.0	13	52.3	+53.4	32.2	15	33.7	+53.9	32.5	17	14.7	+54.4	32.8	18	55.4	+54.9	33.2	44
13	03.5	+52.8	31.5	14	45.7	+53.3	31.7	16	27.6	+53.8	32.0	18	09.1	+54.5	32.4	19	50.3	+54.8	32.7	45
13	56.3	+52.7	31.0	15	39.0	+53.2	31.3	17	21.4	+53.8	31.6	19	03.5	+54.2	31.9	20	45.1	+54.8	32.3	46
14	49.0	+52.7	30.5	16	32.2	+53.2	30.8	18	15.2	+53.7	31.1	19	57.7	+54.2	31.5	21	39.9	+54.7	31.9	47
15	41.7	+52.5	30.0	17	25.4	+53.1	30.3	19	08.9	+53.6	30.6	20	51.9	+54.1	31.0	22	34.6	+54.6	31.4	48
16	34.2	+52.6	29.5	18	18.5	+53.1	29.8	20	02.5	+53.5	30.2	21	46.0	+54.1	30.5	23	29.2	+54.5	31.0	49
17	26.8	+52.4	29.0	19	11.6	+52.9	29.3	20	56.0	+53.5	29.7	22	40.1	+53.9	30.1	24	23.7	+54.4	30.5	50
18	19.2	+52.4	28.5	20	04.5	+52.9	28.8	21	49.5	+53.3	29.2	23	34.0	+53.9	29.6	25	18.1	+54.4	30.0	51
19	11.6	+52.2	28.0	20	57.4	+52.8	28.3	22	42.8	+53.3	28.7	24	27.9	+53.8	29.1	26	12.5	+54.3	29.6	52
20	03.8	+52.2	27.4	21	50.2	+52.6	27.8	23	36.1	+53.2	28.2	25	21.7	+53.7	28.6	27	06.8	+54.1	29.1	53
20	56.0	+52.1	26.9	22	42.8	+52.6	27.3	24	29.3	+53.1	27.7	26	15.4	+53.5	28.1	28	00.9	+54.1	28.6	54
21	48.1	+52.0	26.4	23	35.4	+52.5	26.8	25	22.4	+53.0	27.2	27	08.9	+53.5	27.6	28	55.0	+54.0	28.1	55
22	40.1	+51.8	25.8	24	27.9	+52.4	26.2	26	15.4	+52.8	26.6	28	02.4	+53.3	27.1	29	49.0	+53.8	27.6	56
23	31.9	+51.8	25.3	25	20.3	+52.2	25.7	27	08.2	+52.7	26.1	28	55.7	+53.3	26.6	30	42.8	+53.7	27.1	57
24	23.7	+51.6	24.7	26	12.5	+52.1	25.1	28	00.9	+52.6	25.6	29	49.0	+53.1	26.1	31	36.5	+53.6	26.6	58
25	15.3	+51.5	24.2	27	04.6	+52.0	24.6	28	53.5	+52.5	25.0	30	42.1	+52.9	25.5	32	30.1	+53.5	26.1	59
26	06.8	+51.4	23.6	27	56.6	+51.9	24.0	29	46.0	+52.3	24.5	31	35.0	+52.8	25.0	33	23.6	+53.3	25.5	60
26	58.2	+51.2	23.0	28	48.5	+51.7	23.5	30	38.3	+52.2	23.9	32	27.8	+52.7	24.4	34	16.9	+53.1	25.0	61
27	49.4	+51.1	22.4	29	40.2	+51.5	22.9	31	30.5	+52.0	23.3	33	20.5	+52.5	23.8	35	10.0	+53.0	24.4	62
28	40.5	+50.9	21.9	30	31.7	+51.4	22.3	32	22.5	+51.9	22.7	34	13.0	+52.3	23.3	36	03.0	+52.9	23.8	63
29	31.4	+50.7	21.2	31	23.1	+51.2	21.7	33	14.4	+51.7	22.1	35	05.3	+52.2	22.7	36	55.9	+52.6	23.2	64
30	22.1	+50.6	20.6	32	14.3	+51.0	21.1	34	06.1	+51.5	21.5	35	57.5	+52.0	22.1	37	48.5	+52.5	22.6	65
31	12.7	+50.4	20.0	33	05.3	+50.8	20.4	34	57.6	+51.3	20.9	36	49.5	+51.7	21.4	38	41.0	+52.2	22.0	66
32	03.1	+50.2	19.4	33	56.1	+50.7	19.8	35	48.9	+51.1	20.3	37	41.2	+51.6	20.8	39	33.2	+52.1	21.4	67
32	53.3	+49.9	18.7	34	46.8	+50.4	19.2	36	40.0	+50.8	19.6	38	32.8	+51.4	20.2	40	25.3	+51.8	20.7	68
33	43.2	+49.8	18.1	35	37.2	+50.2	18.5	37	30.8	+50.7	19.0	39	24.2	+51.1	19.5	41	17.1	+51.6	20.1	69
34	33.0	+49.5	17.4	36	27.4	+50.0	17.8	38	21.5	+50.4	18.3	40	15.3	+50.8	18.8	42	08.7	+51.3	19.4	70
35	22.5	+49.3	16.7	37	17.4	+49.7	17.1	39	11.9	+50.2	17.6	41	06.1	+50.6	18.1	43	00.0	+51.1	18.7	71
36	11.8	+49.1	16.0	38	07.1	+49.4	16.4	40	02.1	+49.8	16.9	41	56.7	+50.4	17.4	43	51.1	+50.8	18.0	72
37	00.9	+48.8	15.3	38	56.5	+49.2	15.7	40	51.9	+49.6	16.1	42	47.1	+50.0	16.7	44	41.9	+50.5	17.2	73
37	49.7	+48.5	14.5	39	45.7	+48.9	14.9	41	41.5	+49.3	15.4	43	37.1	+49.7	15.9	45	32.4	+50.1	16.4	74
38	38.2	+48.2	13.8	40	34.6	+48.6	14.2	42	30.8	+49.0	14.6	44	26.8	+49.4	15.1	46	22.5	+49.9	15.7	75
39	26.4	+47.9	13.0	41	23.2	+48.3	13.4	43	19.8	+48.7	13.8	45	16.2	+49.1	14.3	47	12.4	+49.5	14.8	76
40	14.3	+47.6	12.2	42	11.5	+47.9	12.6	44	08.5	+48.3	13.0	46	05.3	+48.7	13.5	48	01.9	+49.1	14.0	77
41	01.9	+47.2	11.4	42	59.4	+47.6	11.8	44	56.8	+47.9	12.2	46	54.0	+48.3	12.6	48	51.0	+48.7	13.1	78
41	49.1	+46.9	10.6	43	47.0	+47.2	11.0	45	44.7	+47.5	11.3	47	42.3	+47.9	11.8	49	39.7	+48.2	12.2	79
42	36.0	+46.5	9.8	44	34.2	+46.8	10.1	46	32.2	+47.2	10.5	48	30.2	+47.4	10.9	50	27.9	+47.9	11.3	80
43	22.5	+46.1	8.9	45	21.0	+46.3	9.2	47	19.4	+46.6	9.6	49	17.6	+47.0	9.9	51	15.8	+47.3	10.4	81
44	08.6	+45.6	8.0	46	07.3	+46.0	8.3	48	06.0	+46.2	8.6	50	04.6	+46.5	8.0	52	03.1	+46.8	9.4	82
44	54.2	+45.2	7.1	46	53.3	+45.4	7.4	48	52.2	+45.7	7.7	50	51.1	+46.0	8.0	52	49.9	+46.3	8.3	83
45	39.4	+44.8	6.2	47	38.7	+45.0	6.4	49	37.9	+45.2	6.7	51	37.1	+45.4	7.0	53	36.2	+45.7	7.3	84
46	24.2	+44.3	5.2	48	23.7	+44.4	5.4	50	23.1	+44.7	5.6	52	22.5	+44.9	5.9	54	21.9	+45.0	6.2	85
47	08.5	+43.7	4.2	49	08.1	+43.9	4.4	51	07.8	+44.0	4.6	53	07.4	+44.2	4.8	55	06.9	+44.4	5.0	86
47	52.2	+43.2	3.2	49	52.0	+43.3	3.3	51	51.8	+43.4	3.5	53	51.6	+43.5	3.7	55	51.3	+43.7	3.8	87
48	35.4	+42.6	2.2	50	35.3	+42.7	2.3	52	35.2	+42.8	2.4	54	35.1	+42.8	2.5	56	35.0	+42.9	2.6	88
49	18.0	+42.0	1.1	51	18.0	+42.0	1.2	53	18.0	+42.0	1.2	55	17.9	+42.1	1.3	57	17.9	+42.1	1.3	89
50	00.0	+41.4	0.0	52	00.0	+41.3	0.0	54	00.0	+41.3	0.0	56	00.0	+41.3	0.0	58	00.0	+41.2	0.0	90

LATITUDE SAME NAME

L.H.A. 134°, 226°

48°, 312° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	48 45.0	+12.5	77.4	49 08.8	+15.5	79.7	49 27.9	+18.6	82.0	49 42.2	+21.6	84.3	49 51.6	+24.6	86.7
31	48 57.5	+11.3	76.0	49 24.3	+14.4	78.2	49 46.5	+17.4	80.5	50 03.8	+20.4	82.9	50 16.2	+23.5	85.3
32	49 08.8	+10.2	74.5	49 38.7	+13.2	76.7	50 03.9	+16.2	79.0	50 24.2	+19.4	81.4	50 39.7	+22.4	83.8
33	49 19.0	+8.9	73.0	49 51.9	+12.0	75.2	50 20.1	+15.1	77.5	50 43.6	+18.2	79.9	51 02.1	+21.3	82.4
34	49 27.9	+7.8	71.4	50 03.9	+10.8	73.7	50 35.2	+13.9	76.0	51 01.8	+17.0	78.4	51 23.4	+20.1	80.9
35	49 35.7	+6.5	69.9	50 14.7	+9.5	72.2	50 49.1	+12.7	74.5	51 18.8	+15.8	76.9	51 43.5	+19.0	79.3
36	49 42.2	+5.3	68.4	50 24.2	+8.4	70.6	51 01.8	+11.4	72.9	51 34.6	+14.6	75.3	52 02.5	+17.7	77.8
37	49 47.5	+4.1	66.8	50 32.6	+7.1	69.1	51 13.2	+10.2	71.4	51 49.2	+13.3	73.8	52 20.2	+16.5	76.2
38	49 51.6	+2.8	65.3	50 39.7	+5.8	67.5	51 23.4	+8.9	69.8	52 02.5	+12.0	72.2	52 36.7	+15.2	74.7
39	49 54.4	+1.6	63.7	50 45.5	+4.5	65.9	51 32.3	+7.6	68.2	52 14.5	+10.7	70.6	52 51.9	+14.0	73.1
40	49 56.0	+0.4	62.2	50 50.0	+3.3	64.3	51 39.9	+6.3	66.6	52 25.2	+9.4	69.0	53 05.9	+12.6	71.5
41	49 56.4	-0.9	60.6	50 53.3	+2.0	62.8	51 46.2	+4.9	65.0	52 34.6	+8.1	67.4	53 18.5	+11.2	69.8
42	49 55.5	-2.1	59.1	50 55.3	+0.7	61.2	51 51.1	+3.7	63.4	52 42.7	+6.7	65.7	53 29.7	+9.9	68.2
43	49 53.4	-3.4	57.5	50 56.0	-0.6	59.6	51 54.8	+2.3	61.8	52 49.4	+5.4	64.1	53 39.6	+8.5	66.5
44	49 50.0	-4.6	56.0	50 55.4	-1.9	58.0	51 57.1	+1.0	60.2	52 54.8	+3.9	62.4	53 48.1	+7.0	64.8
45	49 45.4	-5.8	54.4	50 53.5	-3.1	56.4	51 58.1	-0.4	58.5	52 58.7	+2.6	60.8	53 55.1	+5.7	63.2
46	49 39.6	-7.1	52.9	50 50.4	-4.5	54.8	51 57.7	-1.7	56.9	53 01.3	+1.2	59.1	54 00.8	+4.2	61.5
47	49 32.5	-8.2	51.4	50 45.9	-5.7	53.3	51 56.0	-3.0	55.3	53 02.5	-0.2	57.5	54 05.0	+2.8	59.8
48	49 24.3	-9.5	49.8	50 40.2	-7.0	51.7	51 53.0	-4.4	53.7	53 02.3	-1.6	55.8	54 07.8	+1.3	58.1
49	49 14.8	-10.6	48.3	50 33.2	-8.2	50.1	51 48.6	-5.7	52.1	53 00.7	-3.0	54.1	54 09.1	-0.1	56.4
50	49 04.2	-11.8	46.8	50 25.0	-9.5	48.6	51 42.9	-7.0	50.4	52 57.7	-4.3	52.5	54 09.0	-1.6	54.6
51	48 52.4	-13.0	45.3	50 15.5	-10.7	47.0	51 35.9	-8.3	48.8	52 53.4	-5.8	50.8	54 07.4	-3.0	52.9
52	48 39.4	-14.0	43.8	50 04.8	-11.9	45.5	51 27.6	-9.6	47.3	52 47.6	-7.1	49.2	54 04.4	-4.4	51.2
53	48 25.4	-15.2	42.4	49 52.9	-13.1	44.0	51 18.0	-10.8	45.7	52 40.5	-8.4	47.5	54 00.0	-5.9	49.5
54	48 10.2	-16.3	40.9	49 39.8	-14.3	42.4	51 07.2	-12.1	44.1	52 32.1	-9.8	45.9	53 54.1	-7.3	47.9
55	47 53.9	-17.4	39.5	49 25.5	-15.4	40.9	50 55.1	-13.3	42.5	52 22.3	-11.1	44.3	53 46.8	-8.7	46.2
56	47 36.5	-18.3	38.1	49 10.1	-16.5	39.5	50 41.8	-14.6	41.0	52 11.2	-12.4	42.7	53 38.1	-10.1	44.5
57	47 18.2	-19.5	36.6	48 53.6	-17.6	38.0	50 27.2	-15.7	39.5	51 58.8	-13.7	41.1	53 28.0	-11.4	42.8
58	46 58.7	-20.4	35.3	48 36.0	-18.8	36.5	50 11.5	-16.9	38.0	51 45.1	-14.9	39.5	53 16.6	-12.8	41.2
59	46 38.3	-21.4	33.9	48 17.2	-19.7	35.1	49 54.6	-18.0	36.5	51 30.2	-16.2	37.9	53 03.8	-14.2	39.6
60	46 16.9	-22.3	32.5	47 57.5	-20.8	33.7	49 36.6	-19.2	35.0	51 14.0	-17.3	36.4	52 49.6	-15.4	37.9
61	45 54.6	-23.3	31.2	47 36.7	-21.8	32.3	49 17.4	-20.2	33.5	50 56.7	-18.6	34.9	52 34.2	-16.7	36.4
62	45 31.3	-24.1	29.9	47 14.9	-22.8	30.9	48 57.2	-21.3	32.1	50 38.1	-19.7	33.4	52 17.5	-17.9	34.8
63	45 07.2	-25.0	28.6	46 52.1	-23.7	29.6	48 35.9	-22.3	30.7	50 18.4	-20.8	31.9	51 59.6	-19.1	33.2
64	44 42.2	-25.9	27.3	46 28.4	-24.7	28.2	48 13.6	-23.4	29.3	49 57.6	-21.8	30.4	51 40.5	-20.4	31.7
65	44 16.3	-26.7	26.0	46 03.7	-25.6	26.9	47 50.2	-24.3	27.9	49 35.8	-23.0	29.0	51 20.1	-21.4	30.2
66	43 49.6	-27.6	24.8	45 38.1	-26.4	25.6	47 25.9	-25.2	26.5	49 12.8	-24.0	27.6	50 58.7	-22.6	28.7
67	43 22.0	-28.2	23.5	45 11.7	-27.2	24.3	47 00.7	-26.2	25.2	48 48.8	-24.9	26.2	50 36.1	-23.7	27.2
68	42 53.8	-29.1	22.3	44 44.5	-28.1	23.1	46 34.5	-27.0	23.9	48 23.9	-26.0	24.8	50 12.4	-24.7	25.8
69	42 24.7	-29.7	21.1	44 16.4	-28.9	21.8	46 07.5	-27.9	22.6	47 57.9	-26.8	23.4	49 47.7	-25.8	24.4
70	41 55.0	-30.5	20.0	43 47.5	-29.6	20.6	45 39.6	-28.8	21.3	47 31.1	-27.8	22.1	49 21.9	-26.7	23.0
71	41 24.5	-31.1	18.8	43 17.9	-30.4	19.4	45 10.8	-29.5	20.1	47 03.3	-28.7	20.8	48 55.2	-27.7	21.6
72	40 53.4	-31.8	17.7	42 47.5	-31.1	18.2	44 41.3	-30.3	18.8	46 34.6	-29.5	19.5	48 27.5	-28.6	20.3
73	40 21.6	-32.5	16.6	42 16.4	-31.8	17.1	44 11.0	-31.1	17.6	46 05.1	-30.3	18.3	47 58.9	-29.5	18.9
74	39 49.1	-33.0	15.5	41 44.6	-32.4	15.9	43 39.9	-31.8	16.4	45 34.8	-31.1	17.0	47 29.4	-30.4	17.6
75	39 16.1	-33.7	14.4	41 12.2	-33.1	14.8	43 08.1	-32.5	15.3	45 03.7	-31.9	15.8	46 59.0	-31.2	16.4
76	38 42.4	-34.2	13.3	40 39.1	-33.7	13.7	42 35.6	-33.2	14.1	44 31.8	-32.6	14.6	46 27.8	-32.0	15.1
77	38 08.2	-34.8	12.3	40 05.4	-34.3	12.6	42 02.4	-33.8	13.0	43 59.2	-33.3	13.4	45 55.8	-32.7	13.9
78	37 33.4	-35.3	11.2	39 31.1	-34.9	11.6	41 28.6	-34.5	11.9	43 25.9	-34.0	12.3	45 23.1	-33.5	12.7
79	36 58.1	-35.8	10.2	38 56.2	-35.5	10.5	40 54.1	-35.0	10.8	42 51.9	-34.6	11.2	44 49.6	-34.2	11.5
80	36 22.3	-36.3	9.2	38 20.7	-35.9	9.5	40 19.1	-35.7	9.7	42 17.3	-35.3	10.0	44 15.4	-34.9	10.4
81	35 46.0	-36.7	8.2	37 44.8	-36.5	8.5	39 43.4	-36.2	8.7	41 42.0	-35.9	9.0	43 40.5	-35.5	9.2
82	35 09.3	-37.3	7.3	37 08.3	-37.0	7.5	39 07.2	-36.7	7.7	41 06.1	-36.4	7.9	43 05.0	-36.2	8.1
83	34 32.0	-37.6	6.3	36 31.3	-37.5	6.5	38 30.5	-37.2	6.6	40 29.7	-37.0	6.8	42 28.8	-36.8	7.1
84	33 54.4	-38.1	5.4	35 53.8	-37.9	5.5	37 53.3	-37.8	5.6	39 52.7	-37.6	5.8	41 52.0	-37.3	6.0
85	33 16.3	-38.5	4.4	35 15.9	-38.4	4.5	37 15.5	-38.2	4.7	39 15.1	-38.1	4.8	41 14.7	-37.9	4.9
86	32 37.8	-38.9	3.5	34 37.5	-38.8	3.6	36 37.3	-38.7	3.7	38 37.0	-38.5	3.8	40 36.8	-38.5	3.9
87	31 58.9	-39.3	2.6	33 58.7	-39.1	2.7	35 58.6	-39.1	2.8	37 58.5	-39.1	2.8	39 58.3	-38.9	2.9
88	31 19.6	-39.6	1.7	33 19.6	-39.6	1.8	35 19.5	-39.6	1.8	37 19.4	-39.5	1.9	39 19.4	-39.5	1.9
89	30 40.0	-40.0	0.9	32 40.0	-40.0	0.9	34 39.9	-39.9	0.9	36 39.9	-39.9	0.9	38 39.9	-39.9	1.0
90	30 00.0	-40.3	0.0	32 00.0	-40.3	0.0	34 00.0	-40.3	0.0	36 00.0	-40.4	0.0	38 00.0	-40.4	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 48°, 312°

30°			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
14	35.2	-44.9	138.3	13	05.4	-45.8	138.6	11	35.1	-46.7	138.9	10	04.4	-47.5	139.2	8	33.5	-48.4	139.4	30
13	50.3	-44.9	139.0	12	19.6	-45.9	139.3	10	48.4	-46.8	139.6	9	16.9	-47.6	139.8	7	45.1	-48.4	140.0	31
13	05.4	-45.1	139.7	11	33.7	-46.0	140.0	10	01.6	-46.8	140.2	8	29.3	-47.7	140.4	6	56.7	-48.5	140.6	32
12	20.3	-45.2	140.4	10	47.7	-46.1	140.6	9	14.8	-46.9	140.8	7	41.6	-47.7	141.0	6	08.2	-48.5	141.2	33
11	35.1	-45.3	141.0	10	01.6	-46.1	141.3	8	27.9	-47.0	141.5	6	53.9	-47.8	141.6	5	19.7	-48.5	141.8	34
10	49.8	-45.4	141.7	9	15.5	-46.2	141.9	7	40.9	-47.0	142.1	6	06.1	-47.8	142.2	4	31.2	-48.6	142.4	35
10	04.4	-45.4	142.4	8	29.3	-46.3	142.6	6	53.9	-47.1	142.7	5	18.3	-47.8	142.9	3	42.6	-48.6	143.0	36
9	19.0	-45.5	143.0	7	43.0	-46.3	143.2	6	06.8	-47.1	143.4	4	30.5	-47.9	143.5	2	54.0	-48.6	143.5	37
8	33.5	-45.6	143.7	6	56.7	-46.4	143.8	5	19.7	-47.2	144.0	3	42.6	-47.9	144.1	2	05.4	-48.6	144.1	38
7	47.9	-45.7	144.3	6	10.3	-46.4	144.5	4	32.5	-47.1	144.6	2	54.7	-47.9	144.7	1	16.8	-48.7	144.7	39
7	02.2	-45.7	145.0	5	23.9	-46.5	145.1	3	45.4	-47.2	145.2	2	06.8	-48.0	145.3	0	28.1	-48.6	145.3	40
6	16.5	-45.7	145.7	4	37.4	-46.5	145.8	2	58.2	-47.3	145.8	1	18.8	-47.9	145.9	0	20.5	+48.6	34.1	41
5	30.8	-45.8	146.3	3	50.9	-46.5	146.4	2	10.9	-47.2	146.4	0	30.9	-47.9	146.5	0	10.9	+48.7	33.5	42
4	45.0	-45.8	146.9	3	04.4	-46.6	147.0	1	23.7	-47.3	147.1	0	17.0	+48.0	32.9	1	57.8	+48.6	32.9	43
3	59.2	-45.9	147.6	2	17.8	-46.5	147.7	0	36.4	-47.2	147.7	1	05.0	+47.9	32.3	2	46.4	+48.6	32.4	44
3	13.3	-45.9	148.2	1	31.3	-46.6	148.3	0	10.8	+47.3	31.7	1	52.9	+48.0	31.7	3	35.0	+48.6	31.8	45
2	27.4	-45.9	148.9	0	44.7	-46.6	148.9	0	58.1	+47.2	31.1	2	40.9	+47.9	31.1	4	23.6	+48.5	31.2	46
1	41.5	-45.9	149.5	0	01.9	+46.6	30.5	1	45.3	+47.3	30.5	3	28.8	+47.8	30.5	5	12.1	+48.3	30.6	47
0	55.6	-45.9	150.2	0	48.5	+46.6	29.8	2	32.6	+47.2	29.9	4	16.6	+47.9	29.9	6	00.6	+48.5	30.0	48
0	09.7	-45.9	150.8	1	35.1	+46.5	29.2	3	19.8	+47.2	29.2	5	04.5	+47.8	29.3	6	49.1	+48.4	29.4	49
0	36.2	+45.9	28.5	2	21.6	+46.6	28.6	4	07.0	+47.2	28.6	5	52.3	+47.8	28.7	7	37.5	+48.4	28.8	50
1	22.1	+45.9	27.9	3	08.2	+46.5	27.9	4	54.2	+47.1	28.0	6	40.1	+47.7	28.1	8	25.9	+48.3	28.2	51
2	08.0	+45.9	27.2	3	54.7	+46.5	27.3	5	41.3	+47.1	27.4	7	27.8	+47.7	27.5	9	14.2	+48.3	27.6	52
2	53.9	+45.9	26.6	4	41.2	+46.5	26.7	6	28.4	+47.1	26.8	8	15.5	+47.6	26.9	10	02.5	+48.2	27.0	53
3	39.8	+45.9	26.0	5	27.7	+46.4	26.0	7	15.5	+47.0	26.1	9	03.1	+47.6	26.3	10	50.7	+48.1	26.4	54
4	25.7	+45.8	25.3	6	14.1	+46.4	25.4	8	02.5	+46.9	25.5	9	50.7	+47.5	25.6	11	38.8	+48.1	25.8	55
5	11.5	+45.7	24.7	7	00.5	+46.3	24.8	8	49.4	+46.9	24.9	10	38.2	+47.4	25.0	12	26.9	+48.0	25.2	56
5	57.2	+45.7	24.0	7	46.8	+46.3	24.1	9	36.3	+46.8	24.2	11	25.6	+47.4	24.4	13	14.9	+48.0	24.6	57
6	42.9	+45.7	23.4	8	33.1	+46.2	23.5	10	23.1	+46.7	23.6	12	13.0	+47.2	23.8	14	02.7	+47.8	24.0	58
7	28.6	+45.6	22.7	9	19.3	+46.1	22.8	11	09.8	+46.7	23.0	13	00.2	+47.2	23.1	14	50.5	+47.7	23.3	59
8	14.2	+45.6	22.1	10	05.4	+46.1	22.2	11	56.5	+46.5	22.3	13	47.4	+47.1	22.5	15	38.2	+47.6	22.7	60
8	59.8	+45.5	21.4	10	51.5	+45.9	21.5	12	43.0	+46.5	21.7	14	34.5	+46.9	21.9	16	25.8	+47.4	22.1	61
9	45.3	+45.4	20.7	11	37.4	+45.9	20.9	13	29.5	+46.4	21.0	15	21.4	+46.9	21.2	17	13.2	+47.4	21.4	62
10	30.7	+45.3	20.1	12	23.3	+45.8	20.2	14	15.9	+46.2	20.4	16	08.3	+46.7	20.6	18	00.6	+47.2	20.8	63
11	16.0	+45.2	19.4	13	09.1	+45.7	19.5	15	02.1	+46.2	19.7	16	55.0	+46.6	19.9	18	47.8	+47.1	20.1	64
12	01.2	+45.1	18.7	13	54.8	+45.6	18.9	15	48.3	+46.0	19.1	17	41.6	+46.5	19.2	19	34.9	+46.9	19.5	65
12	46.3	+45.1	18.1	14	40.4	+45.4	18.2	16	34.3	+45.9	18.4	18	28.1	+46.4	18.6	20	21.8	+46.8	18.8	66
13	31.4	+44.9	17.4	15	25.8	+45.4	17.5	17	20.2	+45.8	17.7	19	14.5	+46.1	17.9	21	08.6	+46.6	18.1	67
14	16.3	+44.8	16.7	16	11.2	+45.2	16.9	18	06.0	+45.6	17.0	20	00.6	+46.1	17.2	21	55.2	+46.4	17.5	68
15	01.1	+44.7	16.0	16	56.4	+45.0	16.2	18	51.6	+45.4	16.3	20	46.7	+45.8	16.5	22	41.6	+46.3	16.8	69
15	45.8	+44.5	15.3	17	41.4	+45.0	15.5	19	37.0	+45.4	15.7	21	32.5	+45.7	15.9	23	27.9	+46.1	16.1	70
16	30.3	+44.4	14.6	18	26.4	+44.7	14.8	20	22.4	+45.1	15.0	22	18.2	+45.5	15.2	24	14.0	+45.9	15.4	71
17	14.7	+44.3	13.9	19	11.1	+44.6	14.1	21	07.5	+45.0	14.3	23	03.7	+45.4	14.5	24	59.9	+45.7	14.7	72
17	59.0	+44.1	13.2	19	55.7	+44.5	13.4	21	52.5	+44.7	13.5	23	49.1	+45.1	13.7	25	45.6	+45.5	14.0	73
18	43.1	+43.9	12.5	20	40.2	+44.2	12.6	22	37.2	+44.6	12.8	24	34.2	+44.9	13.0	26	31.1	+45.2	13.2	74
19	27.0	+43.8	11.8	21	24.4	+44.1	11.9	23	21.8	+44.4	12.1	25	19.1	+44.7	12.3	27	16.3	+45.0	12.5	75
20	10.8	+43.5	11.0	22	08.5	+43.9	11.2	24	06.2	+44.2	11.4	26	03.8	+44.5	11.5	28	01.3	+44.8	11.8	76
20	54.3	+43.4	10.3	22	52.4	+43.6	10.5	24	50.4	+43.9	10.6	26	48.3	+44.2	10.8	28	46.1	+44.5	11.0	77
21	37.7	+43.2	9.6	23	36.0	+43.5	9.7	25	34.3	+43.7	9.9	27	32.5	+44.0	10.0	29	30.6	+44.3	10.2	78
22	20.9	+43.0	8.8	24	19.5	+43.2	9.0	26	18.0	+43.5	9.1	28	16.5	+43.7	9.3	30	14.9	+43.9	9.4	79
23	03.9	+42.8	8.1	25	02.7	+43.0	8.2	27	01.5	+43.2	8.3	29	00.2	+43.4	8.5	30	58.8	+43.7	8.7	80
23	46.7	+42.5	7.3	25	45.7	+42.7	7.4	27	44.7	+42.9	7.5	29	43.6	+43.2	7.7	31	42.5	+43.4	7.9	81
24	29.2	+42.3	6.5	26	28.4	+42.5	6.6	28	27.6	+42.7	6.8	30	26.8	+42.8	6.9	32	25.9	+43.0	7.0	82
25	11.5	+42.1	5.7	27	10.9	+42.2	5.8	29	10.3	+42.3	6.0	31	09.6	+42.5	6.1	33	08.9	+42.7	6.2	83
25	53.6	+41.8	5.0	27	53.1	+41.9	5.0	29	52.6	+42.1	5.1	31	52.1	+42.3	5.2	33	51.6	+42.4	5.4	84
26	35.4	+41.5	4.2	28	35.0	+41.7	4.2	30	34.7	+41.8	4.3	32	34.4	+41.8	4.4	34	34.0	+42.0	4.5	85
27	16.9	+41.2	3.3	29	16.7	+41.3	3.4	31	16.5	+41.4	3.5	33	16.2	+41.5	3.6	35	16.0	+41.6	3.6	86
27	58.1	+41.0	2.5	29	58.0	+41.0	2.6	31	57.9	+41.0	2.6	33	57.7	+41.2	2.7	35	57.6	+41.2	2.8	87
28	39.1	+40.6	1.7	30	39.0	+40.7	1.7	32	38.9	+40.8	1.8	34	38.9	+40.7	1.8	36	38.8	+40.8	1.9	88
29	19.7	+40.3	0.9	31	19.7	+40.3	0.9	33	19.7	+40.3	0.9	35	19.6	+40.4	0.9	37	19.6	+40.4	0.9	89
30	00.0	+40.0	0.0	32	00.0	+40.0	0.0	34	00.0	+39.9	0.0	36	00.0	+39.9	0.0	38	00.0	+39.9	0.0	90

LATITUDE SAME NAME

L.H.A. 132°, 228°

48°, 312° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	49 56.0	+27.6	89.1	49 55.5	+30.4	91.4	49 50.0	+33.2	93.8	49 39.6	+35.8	96.2	49 24.3	+38.3	98.5
31	50 23.6	+26.4	87.7	50 25.9	+29.4	90.1	50 23.2	+32.2	92.5	50 15.4	+35.0	94.9	50 02.6	+37.6	97.3
32	50 50.0	+25.5	86.3	50 55.3	+28.4	88.7	50 55.4	+31.3	91.2	50 50.4	+34.1	93.6	50 40.2	+36.8	96.1
33	51 15.5	+24.4	84.8	51 23.7	+27.4	87.3	51 26.7	+30.4	89.8	51 24.5	+33.2	92.3	51 17.0	+36.0	94.8
34	51 39.9	+23.2	83.4	51 51.1	+26.4	85.9	51 57.1	+29.3	88.4	51 57.7	+32.3	91.0	51 53.0	+35.1	93.5
35	52 03.1	+22.1	81.9	52 17.5	+25.2	84.4	52 26.4	+28.4	87.0	52 30.0	+31.3	89.6	52 28.1	+34.2	92.2
36	52 25.2	+21.0	80.3	52 42.7	+24.1	82.9	52 54.8	+27.2	85.6	53 01.3	+30.3	88.2	53 02.3	+33.2	90.9
37	52 46.2	+19.7	78.8	53 06.8	+22.9	81.4	53 22.0	+26.1	84.1	53 31.6	+29.2	86.8	53 35.5	+32.3	89.5
38	53 05.9	+18.4	77.2	53 29.7	+21.7	79.9	53 48.1	+24.9	82.5	54 00.8	+28.1	85.3	54 07.8	+31.2	88.0
39	53 24.3	+17.2	75.6	53 51.4	+20.4	78.3	54 13.0	+23.7	81.0	54 28.9	+26.9	83.8	54 39.0	+30.1	86.6
40	53 41.5	+15.8	74.0	54 11.8	+19.2	76.7	54 36.7	+22.4	79.4	54 55.8	+25.7	82.2	55 09.1	+29.0	85.1
41	53 57.3	+14.5	72.4	54 31.0	+17.8	75.1	54 59.1	+21.2	77.8	55 21.5	+24.5	80.6	55 38.1	+27.8	83.5
42	54 11.8	+13.1	70.7	54 48.8	+16.4	73.4	55 20.3	+19.8	76.2	55 46.0	+23.2	79.0	56 05.9	+26.5	81.9
43	54 24.9	+11.8	69.1	55 05.2	+15.1	71.7	55 40.1	+18.4	74.5	56 09.2	+21.9	77.4	56 32.4	+25.3	80.3
44	54 36.7	+10.3	67.4	55 20.3	+13.6	70.0	55 58.5	+17.0	72.8	56 31.1	+20.4	75.7	56 57.7	+23.9	78.7
45	54 47.0	+8.8	65.7	55 33.9	+12.1	68.3	56 15.5	+15.6	71.1	56 51.5	+19.1	74.0	57 21.6	+22.6	77.0
46	54 55.8	+7.4	64.0	55 46.0	+10.7	66.6	56 31.1	+14.0	69.3	57 10.6	+17.5	72.2	57 44.2	+21.1	75.3
47	55 03.2	+5.9	62.2	55 56.7	+9.2	64.8	56 45.1	+12.6	67.6	57 28.1	+16.1	70.5	58 05.3	+19.6	73.5
48	55 09.1	+4.4	60.5	56 05.9	+7.6	63.1	56 57.7	+11.0	65.8	57 44.2	+14.5	68.7	58 24.9	+18.0	71.7
49	55 13.5	+2.9	58.7	56 13.5	+6.1	61.3	57 08.7	+9.4	64.0	57 58.7	+12.9	66.8	58 42.9	+16.5	69.9
50	55 16.4	+1.5	57.0	56 19.6	+4.6	59.5	57 18.1	+7.9	62.2	58 11.6	+11.2	65.0	58 59.4	+14.9	68.0
51	55 17.9	-0.2	55.2	56 24.2	+2.9	57.7	57 26.0	+6.2	60.3	58 22.8	+9.7	63.1	59 14.3	+13.2	66.1
52	55 17.7	-1.6	53.5	56 27.1	+1.4	55.9	57 32.2	+4.6	58.5	58 32.5	+7.9	61.2	59 27.5	+11.5	64.2
53	55 16.1	-3.1	51.7	56 28.5	-0.2	54.1	57 36.8	+2.9	56.6	58 40.4	+6.3	59.3	59 39.0	+9.8	62.3
54	55 13.0	-4.6	50.0	56 28.3	-1.7	52.3	57 39.7	+1.3	54.7	58 46.7	+4.6	57.4	59 48.8	+8.0	60.3
55	55 08.4	-6.1	48.2	56 26.6	-3.4	50.5	57 41.0	-0.3	52.9	58 51.3	+2.8	55.5	59 56.8	+6.2	58.3
56	55 02.3	-7.6	46.5	56 23.2	-4.9	48.6	57 40.7	-2.0	51.0	58 54.1	+1.1	53.6	60 03.0	+4.5	56.3
57	54 54.7	-9.1	44.8	56 18.3	-6.4	46.9	57 38.7	-3.7	49.1	58 55.2	-0.6	51.6	60 07.5	+2.6	54.3
58	54 45.6	-10.5	43.0	56 11.9	-8.0	45.1	57 35.0	-5.3	47.3	58 54.6	-2.4	49.7	60 10.1	+0.8	52.3
59	54 35.1	-11.9	41.3	56 03.9	-9.6	43.3	57 29.7	-6.9	45.4	58 52.2	-4.1	47.8	60 10.9	-1.1	50.3
60	54 23.2	-13.3	39.6	55 54.3	-11.0	41.5	57 22.8	-8.6	43.6	58 48.1	-5.9	45.8	60 09.8	-2.8	48.3
61	54 09.9	-14.7	38.0	55 43.3	-12.5	39.8	57 14.2	-10.1	41.7	58 42.2	-7.5	43.9	60 07.0	-4.7	46.3
62	53 55.2	-16.1	36.3	55 30.8	-14.0	38.0	57 04.1	-11.7	39.9	58 34.7	-9.2	42.0	60 02.3	-6.5	44.3
63	53 39.1	-17.3	34.7	55 16.8	-15.3	36.3	56 52.4	-13.2	38.1	58 25.5	-10.8	40.1	59 55.8	-8.3	42.3
64	53 21.8	-18.6	33.1	55 01.5	-16.8	34.6	56 39.2	-14.7	36.3	58 14.7	-12.5	38.2	59 47.5	-10.0	40.4
65	53 03.2	-19.9	31.5	54 44.7	-18.1	33.0	56 24.5	-16.2	34.6	58 02.2	-14.1	36.4	59 37.5	-11.7	38.4
66	52 43.3	-21.1	29.9	54 26.6	-19.5	31.3	56 08.3	-17.7	32.9	57 48.1	-15.6	34.6	59 25.8	-13.4	36.5
67	52 22.2	-22.3	28.4	54 07.1	-20.7	29.7	55 50.6	-19.0	31.1	57 32.5	-17.2	32.8	59 12.4	-15.1	34.6
68	51 59.9	-23.4	26.9	53 46.4	-22.0	28.1	55 31.6	-20.4	29.5	57 15.3	-18.7	31.0	58 57.3	-16.8	32.7
69	51 36.5	-24.5	25.4	53 24.4	-23.2	26.5	55 11.2	-21.7	27.8	56 56.6	-20.1	29.2	58 40.5	-18.2	30.8
70	51 12.0	-25.6	23.9	53 01.2	-24.3	25.0	54 49.5	-23.0	26.2	56 36.5	-21.4	27.5	58 22.3	-19.8	29.0
71	50 46.4	-26.7	22.5	52 36.9	-25.5	23.5	54 26.5	-24.3	24.6	56 15.1	-22.9	25.8	58 02.5	-21.3	27.2
72	50 19.7	-27.6	21.1	52 11.4	-26.6	22.0	54 02.2	-25.4	23.0	55 52.2	-24.1	24.2	57 41.2	-22.8	25.4
73	49 52.1	-28.6	19.7	51 44.8	-27.7	20.5	53 36.8	-26.6	21.5	55 28.1	-25.4	22.5	57 18.4	-24.1	23.7
74	49 23.5	-29.6	18.3	51 17.1	-28.6	19.1	53 10.2	-27.7	20.0	55 02.7	-26.7	20.9	56 54.3	-25.4	22.0
75	48 53.9	-30.4	17.0	50 48.5	-29.7	17.7	52 42.5	-28.7	18.5	54 36.0	-27.8	19.4	56 28.9	-26.7	20.4
76	48 23.5	-31.3	15.7	50 18.8	-30.6	16.4	52 13.8	-29.8	17.1	54 08.2	-28.9	17.9	56 02.2	-28.0	18.8
77	47 52.2	-32.2	14.4	49 48.2	-31.5	15.0	51 44.0	-30.8	15.7	53 39.3	-30.0	16.4	55 34.2	-29.1	17.2
78	47 20.0	-32.9	13.2	49 16.7	-32.3	13.7	51 13.2	-31.8	14.3	53 09.3	-31.0	14.9	55 05.1	-30.3	15.7
79	46 47.1	-33.8	12.0	48 44.4	-33.2	12.4	50 41.4	-32.6	12.9	52 38.3	-32.1	13.5	54 34.8	-31.4	14.2
80	46 13.3	-34.4	10.7	48 11.2	-34.0	11.2	50 08.8	-33.5	11.6	52 06.2	-32.9	12.1	54 03.4	-32.4	12.7
81	45 38.9	-35.2	9.6	47 37.2	-34.8	9.9	49 35.3	-34.4	10.3	51 33.3	-33.9	10.8	53 31.0	-33.3	11.3
82	45 03.7	-35.8	8.4	47 02.4	-35.5	8.7	49 00.9	-35.1	9.1	50 59.4	-34.8	9.5	52 57.7	-34.4	9.9
83	44 27.9	-36.6	7.3	46 26.9	-36.3	7.6	48 25.8	-36.0	7.8	50 24.6	-35.6	8.2	52 23.3	-35.2	8.5
84	43 51.3	-37.1	6.2	45 50.6	-36.9	6.4	47 49.8	-36.6	6.6	49 49.0	-36.4	6.9	51 48.1	-36.1	7.2
85	43 14.2	-37.7	5.1	45 13.7	-37.5	5.3	47 13.2	-37.4	5.5	49 12.6	-37.1	5.7	51 12.0	-36.9	5.9
86	42 36.5	-38.3	4.0	44 36.2	-38.2	4.2	46 35.8	-38.0	4.3	48 35.5	-37.9	4.5	50 35.1	-37.7	4.7
87	41 58.2	-38.9	3.0	43 58.0	-38.8	3.1	45 57.8	-38.7	3.2	47 57.6	-38.5	3.3	49 57.4	-38.4	3.5
88	41 19.3	-39.4	2.0	43 19.2	-39.3	2.0	45 19.1	-39.2	2.1	47 19.1	-39.3	2.2	49 19.0	-39.2	2.3
89	40 39.9	-39.9	1.0	42 39.9	-39.9	1.0	44 39.9	-39.9	1.0	46 39.8	-39.8	1.1	48 39.8	-39.8	1.1
90	40 00.0	-40.4	0.0	42 00.0	-40.4	0.0	44 00.0	-40.4	0.0	46 00.0	-40.4	0.0	48 00.0	-40.5	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 48°, 312°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
7	02.2	-49.1	139.6	5	30.8	-49.9	139.7	3	59.2	-50.7	139.8	2	27.4	-51.3	139.9	0	55.6	-52.0	139.9	30
6	13.1	-49.2	140.2	4	40.9	-50.0	140.3	3	08.5	-50.7	140.4	1	36.1	-51.4	140.4	0	03.6	-52.1	140.4	31
5	23.9	-49.3	140.7	3	50.9	-50.0	140.8	2	17.8	-50.7	140.9	0	44.7	-51.4	140.9	0	48.5	+52.0	39.1	32
4	34.6	-49.2	141.3	3	00.9	-50.0	141.4	1	27.1	-50.7	141.4	0	06.7	+51.4	38.6	1	40.5	+52.1	38.6	33
3	45.4	-49.3	141.9	2	10.9	-50.0	141.9	0	36.4	-50.7	142.0	0	58.1	+51.4	38.0	2	32.6	+52.0	38.1	34
2	56.1	-49.3	142.4	1	20.9	-50.0	142.5	0	14.3	+50.7	37.5	1	49.5	+51.4	37.5	3	24.6	+52.0	37.6	35
2	06.8	-49.3	143.0	0	30.9	-50.0	143.0	1	05.0	+50.7	37.0	2	40.9	+51.3	37.0	4	16.6	+52.0	37.1	36
1	17.5	-49.4	143.6	0	19.1	+50.0	36.4	1	55.7	+50.7	36.4	3	32.2	+51.4	36.5	5	08.6	+52.0	36.6	37
0	28.1	-49.3	144.2	1	09.1	+50.1	35.9	2	46.4	+50.7	35.9	4	23.6	+51.3	36.0	6	00.6	+52.0	36.1	38
0	21.2	+49.3	35.3	1	59.2	+50.0	35.3	3	37.1	+50.6	35.4	5	14.9	+51.3	35.4	6	52.6	+51.9	35.6	39
1	10.5	+49.3	34.7	2	49.2	+49.9	34.7	4	27.7	+50.6	34.8	6	06.2	+51.2	34.9	7	44.5	+51.9	35.1	40
1	59.8	+49.4	34.1	3	39.1	+50.0	34.2	5	18.3	+50.7	34.3	6	57.4	+51.3	34.4	8	36.4	+51.8	34.6	41
2	49.2	+49.2	33.6	4	29.1	+49.9	33.6	6	09.0	+50.5	33.7	7	48.7	+51.2	33.9	9	28.2	+51.8	34.0	42
3	38.4	+49.3	33.0	5	19.0	+50.0	33.1	6	59.5	+50.6	33.2	8	39.9	+51.1	33.4	10	20.0	+51.7	33.5	43
4	27.7	+49.3	32.4	6	09.0	+49.8	32.5	7	50.1	+50.5	32.7	9	31.0	+51.1	32.8	11	11.7	+51.7	33.0	44
5	17.0	+49.2	31.9	6	58.8	+49.9	32.0	8	40.6	+50.4	32.1	10	22.1	+51.0	32.3	12	03.4	+51.7	32.5	45
6	06.2	+49.1	31.3	7	48.7	+49.8	31.4	9	31.0	+50.4	31.6	11	13.1	+51.0	31.8	12	55.1	+51.5	32.0	46
6	55.3	+49.2	30.7	8	38.5	+49.7	30.8	10	21.4	+50.3	31.0	12	04.1	+51.0	31.2	13	46.6	+51.5	31.5	47
7	44.5	+49.1	30.1	9	28.2	+49.7	30.3	11	11.7	+50.3	30.5	12	55.1	+50.8	30.7	14	38.1	+51.5	30.9	48
8	33.6	+49.0	29.5	10	17.9	+49.6	29.7	12	02.0	+50.2	29.9	13	45.9	+50.8	30.1	15	29.6	+51.3	30.4	49
9	22.6	+49.0	29.0	11	07.5	+49.6	29.1	12	52.2	+50.2	29.3	14	36.7	+50.7	29.6	16	20.9	+51.3	29.9	50
10	11.6	+48.9	28.4	11	57.1	+49.5	28.6	13	42.4	+50.0	28.8	15	27.4	+50.6	29.0	17	12.2	+51.2	29.3	51
11	00.5	+48.8	27.8	12	46.6	+49.4	28.0	14	32.4	+50.0	28.2	16	18.0	+50.6	28.5	18	03.4	+51.1	28.8	52
11	49.3	+48.8	27.2	13	36.0	+49.3	27.4	15	22.4	+49.9	27.6	17	08.6	+50.4	27.9	18	54.5	+51.0	28.2	53
12	38.1	+48.7	26.6	14	25.3	+49.2	26.8	16	12.3	+49.8	27.1	17	59.0	+50.4	27.3	19	45.5	+50.9	27.7	54
13	26.8	+48.6	26.0	15	14.5	+49.2	26.2	17	02.1	+49.7	26.5	18	49.4	+50.2	26.8	20	36.4	+50.7	27.1	55
14	15.4	+48.5	25.4	16	03.7	+49.0	25.6	17	51.8	+49.6	25.9	19	39.6	+50.1	26.2	21	27.1	+50.7	26.5	56
15	03.9	+48.4	24.8	16	52.7	+49.0	25.0	18	41.4	+49.4	25.3	20	29.7	+50.0	25.6	22	17.8	+50.5	25.9	57
15	52.3	+48.3	24.2	17	41.7	+48.8	24.4	19	30.8	+49.4	24.7	21	19.7	+49.9	25.0	23	08.3	+50.4	25.4	58
16	40.6	+48.2	23.6	18	30.5	+48.7	23.8	20	20.2	+49.2	24.1	22	09.6	+49.8	24.4	23	58.7	+50.3	24.8	59
17	28.8	+48.1	22.9	19	19.2	+48.6	23.2	21	09.4	+49.1	23.5	22	59.4	+49.6	23.8	24	49.0	+50.1	24.2	60
18	16.9	+48.0	22.3	20	07.8	+48.5	22.6	21	58.5	+49.0	22.9	23	49.0	+49.4	23.2	25	39.1	+50.0	23.6	61
19	04.9	+47.8	21.7	20	56.3	+48.3	21.9	22	47.5	+48.8	22.2	24	38.4	+49.3	22.6	26	29.1	+49.8	22.9	62
19	52.7	+47.7	21.0	21	44.6	+48.2	21.3	23	36.3	+48.6	21.6	25	27.7	+49.2	21.9	27	18.9	+49.6	22.3	63
20	40.4	+47.5	20.4	22	32.8	+48.0	20.7	24	24.9	+48.5	21.0	26	16.9	+48.9	21.3	28	08.5	+49.5	21.7	64
21	27.9	+47.4	19.7	23	20.8	+47.8	20.0	25	13.4	+48.3	20.3	27	05.8	+48.8	20.7	28	58.0	+49.3	21.0	65
22	15.3	+47.2	19.1	24	08.6	+47.7	19.3	26	01.7	+48.2	19.7	27	54.6	+48.6	20.0	29	47.3	+49.0	20.4	66
23	02.5	+47.1	18.4	24	56.3	+47.5	18.7	26	49.9	+47.9	19.0	28	43.2	+48.4	19.3	30	36.3	+48.9	19.7	67
23	49.6	+46.9	17.7	25	43.8	+47.3	18.0	27	37.8	+47.8	18.3	29	31.6	+48.2	18.7	31	25.2	+48.6	19.0	68
24	36.5	+46.6	17.0	26	31.1	+47.1	17.3	28	25.6	+47.5	17.6	30	19.8	+48.0	18.0	32	13.8	+48.5	18.4	69
25	23.1	+46.5	16.3	27	18.2	+46.9	16.6	29	13.1	+47.3	16.9	31	07.8	+47.7	17.3	33	02.3	+48.2	17.6	70
26	09.6	+46.3	15.6	28	05.1	+46.7	15.9	30	00.4	+47.1	16.2	31	55.5	+47.5	16.6	33	50.5	+47.9	16.9	71
26	55.9	+46.1	14.9	28	51.8	+46.4	15.2	30	47.5	+46.9	15.5	32	43.0	+47.3	15.8	34	38.4	+47.7	16.2	72
27	42.0	+45.8	14.2	29	38.2	+46.2	14.5	31	34.4	+46.5	14.8	33	30.3	+47.0	15.1	35	26.1	+47.3	15.5	73
28	27.8	+45.6	13.5	30	24.4	+46.0	13.7	32	20.9	+46.4	14.0	34	17.3	+46.7	14.4	36	13.4	+47.1	14.7	74
29	13.4	+45.4	12.7	31	10.4	+45.7	13.0	33	07.3	+46.0	13.3	35	04.0	+46.4	13.6	37	00.5	+46.8	13.9	75
29	58.8	+45.1	12.0	31	56.1	+45.4	12.2	33	53.3	+45.8	12.5	35	50.4	+46.1	12.8	37	47.3	+46.5	13.1	76
30	43.9	+44.8	11.2	32	41.5	+45.1	11.5	34	39.1	+45.4	11.7	36	36.5	+45.8	12.0	38	33.8	+46.1	12.3	77
31	28.7	+44.5	10.4	33	26.6	+44.9	10.7	35	24.5	+45.1	10.9	37	22.3	+45.4	11.2	39	19.9	+45.8	11.5	78
32	13.2	+44.2	9.6	34	11.5	+44.5	9.9	36	09.6	+44.8	10.1	38	07.7	+45.1	10.4	40	05.7	+45.4	10.7	79
32	57.4	+44.0	8.8	34	56.0	+44.1	9.1	36	54.4	+44.5	9.3	38	52.8	+44.7	9.5	40	51.1	+45.0	9.8	80
33	41.4	+43.5	8.0	35	40.1	+43.9	8.2	37	38.9	+44.1	8.4	39	37.5	+44.4	8.7	41	36.1	+44.6	8.9	81
34	24.9	+43.3	7.2	36	24.0	+43.4	7.4	38	23.0	+43.6	7.6	40	21.9	+43.9	7.8	42	20.7	+44.2	8.0	82
35	08.2	+42.9	6.4	37	07.4	+43.1	6.5	39	06.6	+43.3	6.7	41	05.8	+43.5	6.9	43	04.9	+43.7	7.1	83
35	51.1	+42.5	5.5	37	50.5	+42.7	5.6	39	49.9	+42.9	5.8	41	49.3	+43.0	6.0	43	48.6	+43.3	6.2	84
36	33.6	+42.1	4.6	38	33.2	+42.3	4.8	40	32.8	+42.4	4.9	42	32.3	+42.6	5.0	44	31.9	+42.7	5.2	85
37	15.7	+41.8	3.7	39	15.5	+41.8	3.8	41	15.2	+42.0	4.0	43	14.9	+42.1	4.1	45	14.6	+42.2	4.2	86
37	57.5	+41.3	2.8	39	57.3	+41.4	2.9	41	57.2	+41.4	3.0	43	57.0	+41.5	3.1	45	56.8	+41.7	3.2	87
38	38.8	+40.8	1.9	40	38.7	+40.9	2.0	42	38.6	+41.0	2.0	44	38.5	+41.1	2.1	46	38.5	+41.0	2.2	88
39	19.6	+40.4	1.0	41	19.6	+40.4	1.0	43	19.6	+40.4	1.0	45	19.6	+40.4	1.1	47	19.5	+40.5	1.1	89
40	00.0	+39.9	0.0	42	00.0	+39.9	0.0	44	00.0	+39.9	0.0	46	00.0	+39.8	0.0	48	00.0	+39.8	0.0	90

LATITUDE SAME NAME

L.H.A. 132°, 228°

48°, 312° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	49 04.2	+40.7	100.8	48 39.4	+43.0	103.0	48 10.2	+45.1	105.2	47 36.5	+47.1	107.3	46 58.7	+48.8	109.4
31	49 44.9	+40.1	99.6	49 22.4	+42.4	102.0	48 55.3	+44.5	104.2	48 23.6	+46.5	106.4	47 47.5	+48.5	108.5
32	50 25.0	+39.3	98.5	50 04.8	+41.8	100.9	49 39.8	+44.0	103.2	49 10.1	+46.1	105.4	48 36.0	+47.9	107.6
33	51 04.3	+38.6	97.3	50 46.6	+41.0	99.7	50 23.8	+43.4	102.1	49 56.2	+45.6	104.5	49 23.9	+47.6	106.7
34	51 42.9	+37.8	96.1	51 27.6	+40.4	98.6	51 07.2	+42.8	101.0	50 41.8	+45.0	103.4	50 11.5	+47.0	105.8
35	52 20.7	+37.0	94.8	52 08.0	+39.6	97.4	51 50.0	+42.1	99.9	51 26.8	+44.4	102.4	50 58.5	+46.6	104.8
36	52 57.7	+36.1	93.5	52 47.6	+38.8	96.1	52 32.1	+41.4	98.7	52 11.2	+43.8	101.3	51 45.1	+46.0	103.8
37	53 33.8	+35.2	92.2	53 26.4	+38.0	94.9	53 13.5	+40.6	97.5	52 55.0	+43.1	100.2	52 31.1	+45.5	102.7
38	54 09.0	+34.2	90.8	54 04.4	+37.2	93.6	53 54.1	+39.9	96.3	53 38.1	+42.5	99.0	53 16.6	+44.8	101.7
39	54 43.2	+33.2	89.4	54 41.6	+36.1	92.2	54 34.0	+39.0	95.0	54 20.6	+41.7	97.8	54 01.4	+44.2	100.5
40	55 16.4	+32.2	87.9	55 17.7	+35.3	90.8	55 13.0	+38.1	93.7	55 02.3	+40.9	96.6	54 45.6	+43.5	99.4
41	55 48.6	+31.0	86.4	55 53.0	+34.1	89.4	55 51.1	+37.2	92.3	55 43.2	+40.0	95.3	55 29.1	+42.8	98.2
42	56 19.6	+29.9	84.9	56 27.1	+33.1	87.9	56 28.3	+36.3	90.9	56 23.2	+39.2	93.9	56 11.9	+41.9	96.9
43	56 49.5	+28.6	83.3	57 00.2	+32.0	86.4	57 04.6	+35.1	89.5	57 02.4	+38.3	92.6	56 53.8	+41.2	95.6
44	57 18.1	+27.4	81.7	57 32.2	+30.8	84.8	57 39.7	+34.1	88.0	57 40.7	+37.2	91.1	57 35.0	+40.2	94.3
45	57 45.5	+26.1	80.1	58 03.0	+29.5	83.2	58 13.8	+32.9	86.4	58 17.9	+36.2	89.7	58 15.2	+39.4	92.9
46	58 11.6	+24.6	78.4	58 32.5	+28.2	81.6	58 46.7	+31.7	84.8	58 54.1	+35.1	88.1	58 54.6	+38.3	91.4
47	58 36.2	+23.2	76.6	59 00.7	+26.8	79.9	59 18.4	+30.4	83.2	59 29.2	+33.8	86.5	59 32.9	+37.2	89.9
48	58 59.4	+21.7	74.8	59 27.5	+25.4	78.1	59 48.8	+29.0	81.5	60 03.0	+32.6	84.9	60 10.1	+36.0	88.4
49	59 21.1	+20.2	73.0	59 52.9	+23.9	76.3	60 17.8	+27.6	79.7	60 35.6	+31.3	83.2	60 46.1	+34.9	86.8
50	59 41.3	+18.6	71.2	60 16.8	+22.3	74.5	60 45.4	+26.1	77.9	61 06.9	+29.9	81.5	61 21.0	+33.6	85.1
51	59 59.9	+16.9	69.3	60 39.1	+20.7	72.6	61 11.5	+24.6	76.1	61 36.8	+28.4	79.6	61 54.6	+32.2	83.3
52	60 16.8	+15.2	67.3	60 59.8	+19.0	70.7	61 36.1	+22.9	74.1	62 05.2	+26.8	77.8	62 26.8	+30.7	81.5
53	60 32.0	+13.4	65.4	61 18.8	+17.3	68.7	61 59.0	+21.2	72.2	62 32.0	+25.2	75.9	62 57.5	+29.2	79.6
54	60 45.4	+11.7	63.4	61 36.1	+15.4	66.7	62 20.2	+19.4	70.2	62 57.2	+23.5	73.9	63 26.7	+27.6	77.7
55	60 57.1	+9.8	61.4	61 51.5	+13.7	64.7	62 39.6	+17.6	68.1	63 20.7	+21.7	71.8	63 54.3	+25.8	75.7
56	61 06.9	+8.0	59.3	62 05.2	+11.7	62.6	62 57.2	+15.7	66.1	63 42.4	+19.8	69.7	64 20.1	+24.1	73.6
57	61 14.9	+6.1	57.3	62 16.9	+9.9	60.5	63 12.9	+13.8	63.9	64 02.2	+17.9	67.6	64 44.2	+22.2	71.5
58	61 21.0	+4.2	55.2	62 26.8	+7.8	58.4	63 26.7	+11.8	61.7	64 20.1	+15.9	65.4	65 06.4	+20.1	69.3
59	61 25.2	+2.3	53.1	62 34.6	+5.9	56.2	63 38.5	+9.7	59.5	64 36.0	+13.8	63.2	65 26.5	+18.2	67.1
60	61 27.5	+0.3	51.0	62 40.5	+3.9	54.0	63 48.2	+7.6	57.3	64 49.8	+11.7	60.9	65 44.7	+16.0	64.8
61	61 27.8	-1.5	49.0	62 44.4	+1.8	51.9	63 55.8	+5.5	55.1	65 01.5	+9.5	58.6	66 00.7	+13.8	62.4
62	61 26.3	-3.5	46.9	62 46.2	-0.2	49.7	64 01.3	+3.4	52.8	65 11.0	+7.3	56.2	66 14.5	+11.5	60.0
63	61 22.8	-5.4	44.8	62 46.0	-2.3	47.5	64 04.7	+1.3	50.5	65 18.3	+5.1	53.9	66 26.0	+9.2	57.5
64	61 17.4	-7.3	42.7	62 43.7	-4.2	45.3	64 06.0	-1.0	48.2	65 23.4	+2.7	51.5	66 35.2	+6.8	55.1
65	61 10.1	-9.1	40.6	62 39.5	-6.3	43.1	64 05.0	-3.0	45.9	65 26.1	+0.5	49.1	66 42.0	+4.4	52.6
66	61 01.0	-11.0	38.6	62 33.2	-8.2	41.0	64 02.0	-5.2	43.7	65 26.6	-1.8	46.7	66 46.4	+2.0	50.0
67	60 50.0	-12.8	36.6	62 25.0	-10.3	38.8	63 56.8	-7.4	41.4	65 24.8	-4.1	44.3	66 48.4	-0.5	47.5
68	60 37.2	-14.5	34.6	62 14.7	-12.1	36.7	63 49.4	-9.4	39.1	65 20.7	-6.3	41.9	66 47.9	-2.9	45.0
69	60 22.7	-16.3	32.6	62 02.6	-14.0	34.6	63 40.0	-11.5	36.9	65 14.4	-8.6	39.5	66 45.0	-5.3	42.4
70	60 06.4	-18.0	30.7	61 48.6	-15.8	32.6	63 28.5	-13.4	34.7	65 05.8	-10.8	37.1	66 39.7	-7.7	39.9
71	59 48.4	-19.5	28.8	61 32.8	-17.7	30.5	63 15.1	-15.5	32.5	64 55.0	-13.0	34.8	66 32.0	-10.1	37.4
72	59 28.9	-21.2	26.9	61 15.1	-19.3	28.5	62 59.6	-17.3	30.4	64 42.0	-15.0	32.5	66 21.9	-12.4	34.9
73	59 07.7	-22.6	25.1	60 55.8	-21.0	26.6	62 42.3	-19.2	28.3	64 27.0	-17.1	30.2	66 09.5	-14.7	32.5
74	58 45.1	-24.1	23.3	60 34.8	-22.7	24.6	62 23.1	-20.9	26.2	64 09.9	-19.0	28.0	65 54.8	-16.8	30.1
75	58 21.0	-25.6	21.5	60 12.1	-24.2	22.8	62 02.2	-22.7	24.2	63 50.9	-20.9	25.9	65 38.0	-18.9	27.8
76	57 55.4	-26.9	19.8	59 47.9	-25.6	20.9	61 39.5	-24.3	22.3	63 30.0	-22.8	23.8	65 19.1	-21.0	25.5
77	57 28.5	-28.1	18.1	59 22.3	-27.1	19.2	61 15.2	-25.9	20.3	63 07.2	-24.5	21.7	64 58.1	-22.9	23.3
78	57 00.4	-29.4	16.5	58 55.2	-28.5	17.4	60 49.3	-27.4	18.5	62 42.7	-26.1	19.7	64 35.2	-24.7	21.1
79	56 31.0	-30.7	14.9	58 26.7	-29.8	15.7	60 21.9	-28.8	16.7	62 16.6	-27.8	17.7	64 10.5	-26.6	19.0
80	56 00.3	-31.7	13.3	57 56.9	-31.0	14.1	59 53.1	-30.2	14.9	61 48.8	-29.2	15.9	63 43.9	-28.2	17.0
81	55 28.6	-32.8	11.8	57 25.9	-32.2	12.5	59 22.9	-31.5	13.2	61 19.6	-30.7	14.0	63 15.7	-29.7	15.0
82	54 55.8	-33.9	10.4	56 53.7	-33.3	10.9	58 51.4	-32.7	11.5	60 48.9	-32.1	12.2	62 46.0	-31.4	13.1
83	54 21.9	-34.8	8.9	56 20.4	-34.4	9.4	58 18.7	-33.9	9.9	60 16.8	-33.4	10.5	62 14.6	-32.7	11.2
84	53 47.1	-35.8	7.6	55 46.0	-35.4	7.9	57 44.8	-35.0	8.4	59 43.4	-34.5	8.9	61 41.9	-34.0	9.4
85	53 11.3	-36.6	6.2	55 10.6	-36.4	6.5	57 09.8	-36.1	6.9	59 08.9	-35.7	7.3	61 07.9	-35.4	7.7
86	52 34.7	-37.5	4.9	54 34.2	-37.3	5.1	56 33.7	-37.0	5.4	58 33.2	-36.9	5.7	60 32.5	-36.5	6.1
87	51 57.2	-38.3	3.6	53 56.9	-38.1	3.8	55 56.7	-38.1	4.0	57 56.3	-37.8	4.2	59 56.0	-37.6	4.5
88	51 18.9	-39.1	2.4	53 18.8	-39.0	2.5	55 18.6	-38.9	2.6	57 18.5	-38.8	2.8	59 18.4	-38.7	2.9
89	50 39.8	-39.8	1.2	52 39.8	-39.8	1.2	54 39.7	-39.7	1.3	56 39.7	-39.7	1.4	58 39.7	-39.7	1.4
90	50 00.0	-40.5	0.0	52 00.0	-40.5	0.0	54 00.0	-40.5	0.0	56 00.0	-40.6	0.0	58 00.0	-40.6	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 48°, 312°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
0	36.2	+52.7	40.1	2	08.0	+53.4	40.1	3	39.8	+53.9	40.2	5	11.5	+54.5	40.3	30
1	28.9	+52.7	39.6	3	01.4	+53.3	39.6	4	33.7	+54.0	39.7	6	06.0	+54.5	39.8	31
2	21.6	+52.7	39.1	3	54.7	+53.3	39.2	5	27.7	+53.9	39.3	7	00.5	+54.5	39.4	32
3	14.3	+52.7	38.6	4	48.0	+53.3	38.7	6	21.6	+53.9	38.8	7	55.0	+54.4	39.0	33
4	07.0	+52.7	38.1	5	41.3	+53.3	38.3	7	15.5	+53.8	38.4	8	49.4	+54.4	38.6	34
4	59.7	+52.6	37.7	6	34.6	+53.2	37.8	8	09.3	+53.8	37.9	9	43.8	+54.4	38.1	35
5	52.3	+52.6	37.2	7	27.8	+53.2	37.3	9	03.1	+53.8	37.5	10	38.2	+54.4	37.7	36
6	44.9	+52.6	36.7	8	21.0	+53.2	36.9	9	56.9	+53.8	37.1	11	32.6	+54.3	37.3	37
7	37.5	+52.6	36.2	9	14.2	+53.2	36.4	10	50.7	+53.7	36.6	12	26.9	+54.3	36.8	38
8	30.1	+52.5	35.7	10	07.4	+53.1	35.9	11	44.4	+53.7	36.1	13	21.2	+54.2	36.4	39
9	22.6	+52.5	35.2	11	00.5	+53.0	35.4	12	38.1	+53.6	35.7	14	15.4	+54.2	36.0	40
10	15.1	+52.4	34.7	11	53.5	+53.1	35.0	13	31.7	+53.6	35.2	15	09.6	+54.1	35.5	41
11	07.5	+52.4	34.3	12	46.6	+52.9	34.5	14	25.3	+53.5	34.8	16	03.7	+54.1	35.1	42
11	59.9	+52.3	33.8	13	39.5	+52.9	34.0	15	18.8	+53.5	34.3	16	57.8	+54.0	34.6	43
12	52.2	+52.3	33.3	14	32.4	+52.9	33.5	16	12.3	+53.4	33.8	17	51.8	+53.9	34.2	44
13	44.5	+52.2	32.7	15	25.3	+52.7	33.0	17	05.7	+53.3	33.4	18	45.7	+53.9	33.7	45
14	36.7	+52.1	32.2	16	18.0	+52.7	32.5	17	59.0	+53.3	32.9	19	39.6	+53.8	33.2	46
15	28.8	+52.1	31.7	17	10.7	+52.7	32.0	18	52.3	+53.2	32.4	20	33.4	+53.7	32.8	47
16	20.9	+52.0	31.2	18	03.4	+52.5	31.5	19	45.5	+53.1	31.9	21	27.1	+53.7	32.3	48
17	12.9	+51.9	30.7	18	55.9	+52.5	31.0	20	38.6	+53.0	31.4	22	20.8	+53.5	31.8	49
18	04.8	+51.9	30.2	19	48.4	+52.4	30.5	21	31.6	+52.9	30.9	23	14.3	+53.5	31.3	50
18	56.7	+51.7	29.6	20	40.8	+52.3	30.0	22	24.5	+52.8	30.4	24	07.8	+53.4	30.8	51
19	48.4	+51.7	29.1	21	33.1	+52.2	29.5	23	17.3	+52.8	29.9	25	01.2	+53.2	30.3	52
20	40.1	+51.5	28.6	22	25.3	+52.0	28.9	24	10.1	+52.6	29.4	25	54.4	+53.2	29.8	53
21	31.6	+51.4	28.0	23	17.3	+52.0	28.4	25	02.7	+52.5	28.8	26	47.6	+53.0	29.3	54
22	23.0	+51.3	27.5	24	09.3	+51.9	27.8	25	55.2	+52.4	28.3	27	40.6	+53.0	28.8	55
23	14.3	+51.2	26.9	25	01.2	+51.7	27.3	26	47.6	+52.3	27.7	28	33.6	+52.8	28.2	56
24	05.5	+51.1	26.3	25	52.9	+51.6	26.7	27	39.9	+52.1	27.2	29	26.4	+52.6	27.7	57
24	56.6	+50.9	25.7	26	44.5	+51.4	26.2	28	32.0	+52.0	26.6	30	19.0	+52.5	27.1	58
25	47.5	+50.8	25.2	27	35.9	+51.4	25.6	29	24.0	+51.8	26.1	31	11.5	+52.4	26.6	59
26	38.3	+50.6	24.6	28	27.3	+51.1	25.0	30	15.8	+51.7	25.5	32	03.9	+52.2	26.0	60
27	28.9	+50.5	24.0	29	18.4	+51.0	24.4	31	07.5	+51.5	24.9	32	56.1	+52.1	25.4	61
28	19.4	+50.3	23.3	30	09.4	+50.8	23.8	31	59.0	+51.3	24.3	33	48.2	+51.8	24.8	62
29	09.7	+50.2	22.7	31	00.2	+50.7	23.2	32	50.3	+51.2	23.7	34	40.0	+51.7	24.2	63
29	59.9	+49.9	22.1	31	50.9	+50.4	22.6	33	41.5	+51.0	23.1	35	31.7	+51.5	23.6	64
30	49.8	+49.8	21.5	32	41.3	+50.3	21.9	34	32.5	+50.7	22.4	36	23.2	+51.3	23.0	65
31	39.6	+49.5	20.8	33	31.6	+50.1	21.3	35	23.2	+50.6	21.8	37	14.5	+51.0	22.3	66
32	29.1	+49.4	20.1	34	21.7	+49.8	20.6	36	13.8	+50.3	21.1	38	05.5	+50.9	21.7	67
33	18.5	+49.1	19.5	35	11.5	+49.6	19.9	37	04.1	+50.1	20.4	38	56.4	+50.6	21.0	68
34	07.6	+48.9	18.8	36	01.1	+49.3	19.2	37	54.2	+49.9	19.7	39	47.3	+50.3	20.3	69
34	56.5	+48.6	18.1	36	50.4	+49.1	18.5	38	44.1	+49.5	19.0	40	37.3	+50.1	19.6	70
35	45.1	+48.4	17.3	37	39.5	+48.9	17.8	39	33.6	+49.3	18.3	41	27.4	+49.8	18.8	71
36	33.5	+48.1	16.6	38	28.4	+48.5	17.1	40	22.9	+49.0	17.5	42	17.2	+49.5	18.1	72
37	21.6	+47.8	15.9	39	16.9	+48.2	16.3	41	11.9	+48.7	16.8	43	06.7	+49.1	17.3	73
38	09.4	+47.5	15.1	40	05.1	+48.0	15.5	42	00.6	+48.4	16.0	43	55.8	+48.9	16.5	74
38	56.9	+47.2	14.3	40	53.1	+47.6	14.7	42	49.0	+48.0	15.2	44	44.7	+48.4	15.7	75
39	44.1	+46.8	13.5	41	40.7	+47.2	13.9	43	37.0	+47.7	14.4	45	33.1	+48.1	14.9	76
40	30.9	+46.5	12.7	42	27.9	+46.9	13.1	44	24.7	+47.3	13.5	46	21.2	+47.7	14.0	77
41	17.4	+46.2	11.9	43	14.8	+46.5	12.2	45	12.0	+46.8	12.7	47	08.9	+47.3	13.1	78
42	03.6	+45.7	11.0	44	01.3	+46.1	11.4	45	58.8	+46.5	11.8	47	56.2	+46.9	12.2	79
42	49.3	+45.3	10.1	44	47.4	+45.6	10.5	46	45.3	+46.0	10.9	48	43.1	+46.3	11.3	80
43	34.6	+44.9	9.2	45	33.0	+45.2	9.6	47	31.3	+45.5	9.9	49	29.4	+45.9	10.3	81
44	19.5	+44.4	8.3	46	18.2	+44.7	8.6	48	16.8	+45.0	8.9	50	15.3	+45.3	9.3	82
45	03.9	+44.0	7.4	47	02.9	+44.2	7.6	49	01.8	+44.5	7.9	51	00.6	+44.8	8.3	83
45	47.9	+43.4	6.4	47	47.1	+43.7	6.6	49	46.3	+43.9	6.9	51	45.4	+44.1	7.2	84
46	31.3	+43.0	5.4	48	30.8	+43.1	5.6	50	30.2	+43.3	5.8	52	29.5	+43.6	6.1	85
47	14.3	+42.3	4.4	49	13.9	+42.5	4.6	51	13.5	+42.7	4.7	53	13.1	+42.8	5.0	86
47	56.6	+41.8	3.3	49	56.4	+41.9	3.5	51	56.2	+42.0	3.6	53	55.9	+42.2	3.8	87
48	38.4	+41.1	2.2	50	38.3	+41.2	2.3	52	38.2	+41.3	2.4	54	38.1	+41.3	2.6	88
49	19.5	+40.5	1.1	51	19.5	+40.5	1.2	53	19.5	+40.5	1.2	55	19.4	+40.6	1.3	89
50	00.0	+39.8	0.0	52	00.0	+39.8	0.0	54	00.0	+39.7	0.0	56	00.0	+39.7	0.0	90
	50°			52°				54°				56°			58°	

LATITUDE SAME NAME

L.H.A. 132°, 228°

50°, 310° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	47 03.7	+13.1	76.9	47 28.8	+16.0	79.0	47 49.5	+18.9	81.2	48 05.7	+21.8	83.4	48 17.2	+24.8	85.6
31	47 16.8	+12.0	75.4	47 44.8	+15.0	77.6	48 08.4	+17.9	79.7	48 27.5	+20.9	82.0	48 42.0	+23.8	84.2
32	47 28.8	+10.9	74.0	47 59.8	+13.8	76.1	48 26.3	+16.8	78.3	48 48.4	+19.7	80.5	49 05.8	+22.7	82.8
33	47 39.7	+9.8	72.5	48 13.6	+12.7	74.7	48 43.1	+15.7	76.9	49 08.1	+18.7	79.1	49 28.5	+21.7	81.4
34	47 49.5	+8.7	71.1	48 26.3	+11.6	73.2	48 58.8	+14.6	75.4	49 26.8	+17.6	77.6	49 50.2	+20.5	79.9
35	47 58.2	+7.5	69.6	48 37.9	+10.5	71.7	49 13.4	+13.4	73.9	49 44.4	+16.4	76.2	50 10.7	+19.5	78.5
36	48 05.7	+6.3	68.1	48 48.4	+9.3	70.2	49 26.8	+12.3	72.4	50 00.8	+15.3	74.7	50 30.2	+18.3	77.0
37	48 12.0	+5.2	66.6	48 57.7	+8.1	68.7	49 39.1	+11.1	70.9	50 16.1	+14.1	73.2	50 48.5	+17.2	75.5
38	48 17.2	+4.1	65.1	49 05.8	+6.9	67.2	49 50.2	+9.8	69.4	50 30.2	+12.9	71.6	51 05.7	+15.9	74.0
39	48 21.3	+2.9	63.6	49 12.7	+5.7	65.7	50 00.0	+8.7	67.8	50 43.1	+11.7	70.1	51 21.6	+14.8	72.4
40	48 24.2	+1.6	62.1	49 18.4	+4.5	64.2	50 08.7	+7.4	66.3	50 54.8	+10.4	68.5	51 36.4	+13.4	70.9
41	48 25.8	+0.6	60.6	49 22.9	+3.3	62.6	50 16.1	+6.2	64.8	51 05.2	+9.1	67.0	51 49.8	+12.3	69.3
42	48 26.4	-0.7	59.1	49 26.2	+2.1	61.1	50 22.3	+4.9	63.2	51 14.3	+7.9	65.4	52 02.1	+10.9	67.7
43	48 25.7	-1.9	57.6	49 28.3	+0.8	59.6	50 27.2	+3.6	61.6	51 22.2	+6.6	63.8	52 13.0	+9.6	66.1
44	48 23.8	-3.0	56.1	49 29.1	-0.4	58.0	50 30.8	+2.4	60.1	51 28.8	+5.2	62.2	52 22.6	+8.3	64.5
45	48 20.8	-4.2	54.6	49 28.7	-1.6	56.5	50 33.2	+1.2	58.5	51 34.0	+4.0	60.6	52 30.9	+6.9	62.9
46	48 16.6	-5.4	53.1	49 27.1	-2.8	54.9	50 34.4	-0.2	56.9	51 38.0	+2.7	59.0	52 37.8	+5.6	61.2
47	48 11.2	-6.5	51.6	49 24.3	-4.1	53.4	50 34.2	-1.4	55.3	51 40.7	+1.3	57.4	52 43.4	+4.2	59.6
48	48 04.7	-7.7	50.1	49 20.2	-5.2	51.9	50 32.8	-2.7	53.8	51 42.0	0.0	55.8	52 47.6	+2.8	58.0
49	47 57.0	-8.8	48.6	49 15.0	-6.5	50.3	50 30.1	-4.0	52.2	51 42.0	-1.3	54.2	52 50.4	+1.5	56.3
50	47 48.2	-9.9	47.1	49 08.5	-7.6	48.8	50 26.1	-5.2	50.6	51 40.7	-2.7	52.6	52 51.9	+0.1	54.7
51	47 38.3	-11.1	45.7	49 00.9	-8.9	47.3	50 20.9	-6.5	49.1	51 38.0	-3.9	51.0	52 52.0	-1.4	53.0
52	47 27.2	-12.2	44.2	48 52.0	-10.0	45.8	50 14.4	-7.7	47.5	51 34.1	-5.3	49.4	52 50.6	-2.6	51.3
53	47 15.0	-13.2	42.8	48 42.0	-11.1	44.3	50 06.7	-8.9	46.0	51 28.8	-6.6	47.8	52 48.0	-4.1	49.7
54	47 01.8	-14.3	41.3	48 30.9	-12.3	42.8	49 57.8	-10.2	44.4	51 22.2	-7.9	46.2	52 43.9	-5.4	48.0
55	46 47.5	-15.3	39.9	48 18.6	-13.4	41.3	49 47.6	-11.4	42.9	51 14.3	-9.1	44.6	52 38.5	-6.8	46.4
56	46 32.2	-16.4	38.5	48 05.2	-14.6	39.9	49 36.2	-12.5	41.4	51 05.2	-10.4	43.0	52 31.7	-8.2	44.8
57	46 15.8	-17.4	37.1	47 50.6	-15.6	38.4	49 23.7	-13.7	39.9	50 54.8	-11.7	41.4	52 23.5	-9.4	43.1
58	45 58.4	-18.4	35.7	47 35.0	-16.6	37.0	49 10.0	-14.9	38.4	50 43.1	-12.9	39.9	52 14.1	-10.8	41.5
59	45 40.0	-19.3	34.4	47 18.4	-17.8	35.6	48 55.1	-15.9	36.9	50 30.2	-14.1	38.3	52 03.3	-12.1	39.9
60	45 20.7	-20.3	33.0	47 00.6	-18.7	34.2	48 39.2	-17.1	35.4	50 16.1	-15.3	36.8	51 51.2	-13.3	38.3
61	45 00.4	-21.2	31.7	46 41.9	-19.7	32.8	48 22.1	-18.1	34.0	50 00.8	-16.4	35.3	51 37.9	-14.6	36.7
62	44 39.2	-22.1	30.4	46 22.2	-20.7	31.4	48 04.0	-19.2	32.6	49 44.4	-17.6	33.8	51 23.3	-15.8	35.2
63	44 17.1	-23.0	29.1	46 01.5	-21.7	30.1	47 44.8	-20.3	31.1	49 26.8	-18.7	32.3	51 07.5	-17.0	33.6
64	43 54.1	-23.8	27.8	45 39.8	-22.6	28.7	47 24.5	-21.2	29.7	49 08.1	-19.7	30.9	50 50.5	-18.2	32.1
65	43 30.3	-24.7	26.5	45 17.2	-23.4	27.4	47 03.3	-22.2	28.4	48 48.4	-20.9	29.4	50 32.3	-19.4	30.6
66	43 05.6	-25.5	25.3	44 53.8	-24.4	26.1	46 41.1	-23.1	27.0	48 27.5	-21.8	28.0	50 12.9	-20.4	29.1
67	42 40.1	-26.2	24.0	44 29.4	-25.2	24.8	46 18.0	-24.1	25.7	48 05.7	-22.9	26.6	49 52.5	-21.6	27.7
68	42 13.9	-27.0	22.8	44 04.2	-26.0	23.5	45 53.9	-25.0	24.4	47 42.8	-23.8	25.2	49 30.9	-22.6	26.2
69	41 46.9	-27.8	21.6	43 38.2	-26.9	22.3	45 28.9	-25.9	23.1	47 19.0	-24.8	23.9	49 08.3	-23.6	24.8
70	41 19.1	-28.5	20.4	43 11.3	-27.6	21.1	45 03.0	-26.7	21.8	46 54.2	-25.7	22.5	48 44.7	-24.7	23.4
71	40 50.6	-29.2	19.2	42 43.7	-28.4	19.8	44 36.3	-27.5	20.5	46 28.5	-26.6	21.2	48 20.0	-25.6	22.0
72	40 21.4	-29.8	18.1	42 15.3	-29.1	18.7	44 08.8	-28.3	19.3	46 01.9	-27.5	19.9	47 54.4	-26.6	20.7
73	39 51.6	-30.5	17.0	41 46.2	-29.8	17.5	43 40.5	-29.1	18.0	45 34.4	-28.3	18.7	47 27.8	-27.4	19.3
74	39 21.1	-31.2	15.8	41 16.4	-30.5	16.3	43 11.4	-29.9	16.8	45 06.1	-29.2	17.4	47 00.4	-28.4	18.0
75	38 49.9	-31.7	14.7	40 45.9	-31.2	15.2	42 41.5	-30.5	15.6	44 36.9	-29.9	16.2	46 32.0	-29.2	16.8
76	38 18.2	-32.4	13.7	40 14.7	-31.8	14.1	42 11.0	-31.3	14.5	44 07.0	-30.6	15.0	46 02.8	-30.0	15.5
77	37 45.8	-32.9	12.6	39 42.9	-32.5	12.9	41 39.7	-31.9	13.3	43 36.4	-31.4	13.8	45 32.8	-30.8	14.2
78	37 12.9	-33.4	11.5	39 10.4	-33.0	11.9	41 07.8	-32.6	12.2	43 05.0	-32.1	12.6	45 02.0	-31.6	13.0
79	36 39.5	-34.0	10.5	38 37.4	-33.6	10.8	40 35.2	-33.2	11.1	42 32.9	-32.8	11.4	44 30.4	-32.3	11.8
80	36 05.5	-34.6	9.5	38 03.8	-34.2	9.7	40 02.0	-33.8	10.0	42 00.1	-33.4	10.3	43 58.1	-33.0	10.7
81	35 30.9	-35.0	8.5	37 29.6	-34.7	8.7	39 28.2	-34.4	8.9	41 26.7	-34.1	9.2	43 25.1	-33.7	9.5
82	34 55.9	-35.5	7.5	36 54.9	-35.2	7.7	38 53.8	-35.0	7.9	40 52.6	-34.6	8.1	42 51.4	-34.4	8.4
83	34 20.4	-35.9	6.5	36 19.7	-35.8	6.7	38 18.8	-35.5	6.8	40 18.0	-35.3	7.0	42 17.0	-35.0	7.2
84	33 44.5	-36.4	5.5	35 43.9	-36.2	5.7	37 43.3	-36.0	5.8	39 42.7	-35.8	6.0	41 42.0	-35.6	6.2
85	33 08.1	-36.8	4.6	35 07.7	-36.7	4.7	37 07.3	-36.5	4.8	39 06.9	-36.4	4.9	41 06.4	-36.2	5.1
86	32 31.3	-37.3	3.6	34 31.0	-37.1	3.7	36 30.8	-37.0	3.8	38 30.5	-36.9	3.9	40 30.2	-36.7	4.0
87	31 54.0	-37.6	2.7	33 53.9	-37.6	2.8	35 53.8	-37.5	2.8	37 53.6	-37.4	2.9	39 53.5	-37.4	3.0
88	31 16.4	-38.0	1.8	33 16.3	-37.9	1.8	35 16.3	-37.9	1.9	37 16.2	-37.9	1.9	39 16.1	-37.8	2.0
89	30 38.4	-38.4	0.9	32 38.4	-38.4	0.9	34 38.4	-38.4	0.9	36 38.3	-38.3	1.0	38 38.3	-38.3	1.0
90	30 00.0	-38.7	0.0	32 00.0	-38.8	0.0	34 00.0	-38.8	0.0	36 00.0	-38.8	0.0	38 00.0	-38.8	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 50°, 310°

c			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
13	25.2	-43.9	137.0	11	57.2	-44.9	137.3	10	28.8	-45.8	137.6	9	00.1	-46.8	137.8	7	31.1	-47.7	138.0	30
12	41.3	-44.1	137.7	11	12.3	-45.0	138.0	9	43.0	-45.9	138.2	8	13.3	-46.8	138.4	6	43.4	-47.6	138.6	31
11	57.2	-44.1	138.4	10	27.3	-45.1	138.7	8	57.1	-46.0	138.9	7	26.5	-46.8	139.1	5	55.8	-47.7	139.2	32
11	13.1	-44.3	139.1	9	42.2	-45.1	139.3	8	11.1	-46.1	139.5	6	39.7	-46.9	139.7	5	08.1	-47.8	139.8	33
10	28.8	-44.3	139.8	8	57.1	-45.3	140.0	7	25.0	-46.1	140.2	5	52.8	-47.0	140.3	4	20.3	-47.7	140.4	34
9	44.5	-44.4	140.5	8	11.8	-45.3	140.7	6	38.9	-46.1	140.8	5	05.8	-47.0	141.0	3	32.6	-47.8	141.0	35
9	00.1	-44.5	141.1	7	26.5	-45.3	141.3	5	52.8	-46.2	141.5	4	18.8	-47.0	141.6	2	44.8	-47.8	141.7	36
8	15.6	-44.5	141.8	6	41.2	-45.4	142.0	5	06.6	-46.3	142.1	3	31.8	-47.0	142.2	1	57.0	-47.9	142.3	37
7	31.1	-44.7	142.5	5	55.8	-45.5	142.6	4	20.3	-46.2	142.7	2	44.8	-47.1	142.8	1	09.1	-47.8	142.9	38
6	46.4	-44.6	143.2	5	10.3	-45.5	143.3	3	34.1	-46.3	143.4	1	57.7	-47.1	143.4	0	21.3	-47.8	143.5	39
6	01.8	-44.8	143.8	4	24.8	-45.5	143.9	2	47.8	-46.4	144.0	1	10.6	-47.1	144.1	0	26.5	+47.9	35.9	40
5	17.0	-44.7	144.5	3	39.3	-45.6	144.6	2	01.4	-46.3	144.7	0	23.5	-47.1	144.7	1	14.4	+47.8	35.3	41
4	32.3	-44.8	145.2	2	53.7	-45.6	145.2	1	15.1	-46.3	145.3	0	23.6	+47.0	34.7	2	02.2	+47.8	34.7	42
3	47.5	-44.8	145.8	2	08.1	-45.6	145.9	0	28.8	-46.4	145.9	1	10.6	+47.1	34.1	2	50.0	+47.8	34.1	43
3	02.7	-44.9	146.5	1	22.5	-45.6	146.6	0	17.6	+46.3	33.4	1	57.7	+47.1	33.5	3	37.8	+47.8	33.5	44
2	17.8	-44.9	147.2	0	36.9	-45.6	147.2	1	03.9	+46.4	32.8	2	44.8	+47.0	32.8	4	25.6	+47.7	32.9	45
1	32.9	-44.9	147.8	0	08.7	+45.6	32.2	1	50.3	+46.3	32.2	3	31.8	+47.0	32.2	5	13.3	+47.7	32.3	46
0	48.0	-44.9	148.5	0	54.3	+45.6	31.5	2	36.6	+46.3	31.5	4	18.8	+47.0	31.6	6	01.0	+47.7	31.7	47
0	03.1	-44.9	149.2	1	39.9	+45.6	30.9	3	22.9	+46.3	30.9	5	05.8	+47.0	31.0	6	48.7	+47.6	31.1	48
0	41.8	+44.8	30.2	2	25.5	+45.6	30.2	4	09.2	+46.2	30.3	5	52.8	+46.9	30.3	7	36.3	+47.5	30.5	49
1	26.6	+44.9	29.5	3	11.1	+45.5	29.5	4	55.4	+46.2	29.6	6	39.7	+46.9	29.7	8	23.8	+47.5	29.9	50
2	11.5	+44.9	28.8	3	56.6	+45.5	28.9	5	41.6	+46.2	29.0	7	26.6	+46.8	29.1	9	11.3	+47.5	29.2	51
2	56.4	+44.8	28.2	4	42.1	+45.5	28.2	6	27.8	+46.1	28.3	8	13.4	+46.7	28.5	9	58.8	+47.4	28.6	52
3	41.2	+44.8	27.5	5	27.6	+45.5	27.6	7	13.9	+46.1	27.7	9	00.1	+46.7	27.8	10	46.2	+47.3	28.0	53
4	26.0	+44.8	26.8	6	13.1	+45.3	26.9	8	00.0	+46.0	27.0	9	46.8	+46.6	27.2	11	33.5	+47.2	27.4	54
5	10.8	+44.7	26.2	6	58.4	+45.4	26.3	8	46.0	+45.9	26.4	10	33.4	+46.5	26.5	12	20.7	+47.1	26.7	55
5	55.5	+44.7	25.5	7	43.8	+45.3	25.6	9	31.9	+45.9	25.7	11	19.9	+46.5	25.9	13	07.8	+47.0	26.1	56
6	40.2	+44.6	24.8	8	29.1	+45.2	25.0	10	17.8	+45.8	25.1	12	06.4	+46.4	25.3	13	54.8	+47.0	25.5	57
7	24.8	+44.6	24.2	9	14.3	+45.1	24.3	11	03.6	+45.7	24.4	12	52.8	+46.2	24.6	14	41.8	+46.8	24.8	58
8	09.4	+44.5	23.5	9	59.4	+45.0	23.6	11	49.3	+45.6	23.8	13	39.0	+46.2	24.0	15	28.6	+46.7	24.2	59
8	53.9	+44.4	22.8	10	44.4	+45.0	22.9	12	34.9	+45.5	23.1	14	25.2	+46.0	23.3	16	15.3	+46.6	23.5	60
9	38.3	+44.3	22.1	11	29.4	+44.9	22.3	13	20.4	+45.4	22.4	15	11.2	+46.0	22.6	17	01.9	+46.5	22.9	61
10	22.6	+44.3	21.4	12	14.3	+44.8	21.6	14	05.8	+45.3	21.8	15	57.2	+45.8	22.0	17	48.4	+46.3	22.2	62
11	06.9	+44.2	20.8	12	59.1	+44.6	20.9	14	51.1	+45.2	21.1	16	43.0	+45.7	21.3	18	34.7	+46.2	21.5	63
11	51.1	+44.0	20.1	13	43.7	+44.6	20.2	15	36.3	+45.0	20.4	17	28.7	+45.5	20.6	19	20.9	+46.0	20.8	64
12	35.1	+44.0	19.4	14	28.3	+44.4	19.5	16	21.3	+44.9	19.7	18	14.2	+45.4	19.9	20	06.9	+45.9	20.2	65
13	19.1	+43.8	18.7	15	12.7	+44.3	18.8	17	06.2	+44.8	19.0	18	59.6	+45.2	19.2	20	52.8	+45.7	19.5	66
14	02.9	+43.7	18.0	15	57.0	+44.2	18.1	17	51.0	+44.6	18.3	19	44.8	+45.1	18.5	21	38.5	+45.6	18.8	67
14	46.6	+43.6	17.3	16	41.2	+44.0	17.4	18	35.6	+44.5	17.6	20	29.9	+44.9	17.8	22	24.1	+45.3	18.1	68
15	30.2	+43.5	16.6	17	25.2	+43.9	16.7	19	20.1	+44.2	16.9	21	14.8	+44.7	17.1	23	09.4	+45.2	17.4	69
16	13.7	+43.3	15.8	18	09.1	+43.7	16.0	20	04.3	+44.2	16.2	21	59.5	+44.6	16.4	23	54.6	+44.9	16.7	70
16	57.0	+43.1	15.1	18	52.8	+43.5	15.3	20	48.5	+43.9	15.5	22	44.1	+44.3	15.7	24	39.5	+44.8	15.9	71
17	40.1	+43.0	14.4	19	36.3	+43.4	14.6	21	32.4	+43.7	14.7	23	28.4	+44.1	15.0	25	24.3	+44.5	15.2	72
18	23.1	+42.8	13.7	20	19.7	+43.1	13.8	22	16.1	+43.6	14.0	24	12.5	+43.9	14.2	26	08.8	+44.3	14.4	73
19	05.9	+42.6	12.9	21	02.8	+43.0	13.1	22	59.7	+43.3	13.3	24	56.4	+43.7	13.5	26	53.1	+44.0	13.7	74
19	48.5	+42.5	12.2	21	45.8	+42.8	12.3	23	43.0	+43.1	12.5	25	40.1	+43.5	12.7	27	37.1	+43.8	12.9	75
20	31.0	+42.2	11.4	22	28.6	+42.5	11.6	24	26.1	+42.9	11.7	26	23.6	+43.2	11.9	28	20.9	+43.5	12.2	76
21	13.2	+42.1	10.7	23	11.1	+42.4	10.8	25	09.0	+42.6	11.0	27	06.8	+42.9	11.2	29	04.4	+43.3	11.4	77
21	55.3	+41.8	9.9	23	53.5	+42.1	10.0	25	51.6	+42.4	10.2	27	49.7	+42.7	10.4	29	47.7	+42.9	10.6	78
22	37.1	+41.6	9.1	24	35.6	+41.8	9.3	26	34.0	+42.1	9.4	28	32.4	+42.3	9.6	30	30.6	+42.7	9.8	79
23	18.7	+41.4	8.3	25	17.4	+41.6	8.5	27	16.1	+41.9	8.6	29	14.7	+42.1	8.8	31	13.3	+42.3	8.9	80
24	00.1	+41.1	7.5	25	59.0	+41.4	7.7	27	58.0	+41.5	7.8	29	56.8	+41.8	7.9	31	55.6	+42.1	8.1	81
24	41.2	+40.9	6.7	26	40.4	+41.0	6.9	28	39.5	+41.3	7.0	30	38.6	+41.5	7.1	32	37.7	+41.6	7.3	82
25	22.1	+40.6	5.9	27	21.4	+40.8	6.0	29	20.8	+40.9	6.1	31	20.1	+41.1	6.3	33	19.3	+41.3	6.4	83
26	02.7	+40.3	5.1	28	02.2	+40.5	5.2	30	01.7	+40.6	5.3	32	01.2	+40.7	5.4	34	00.6	+41.0	5.5	84
26	43.0	+40.0	4.3	28	42.7	+40.1	4.4	30	42.3	+40.3	4.5	32	41.9	+40.4	4.6	34	41.6	+40.5	4.7	85
27	23.0	+39.8	3.5	29	22.8	+39.8	3.5	31	22.6	+39.9	3.6	33	22.3	+40.1	3.7	35	22.1	+40.1	3.8	86
28	02.8	+39.4	2.6	30	02.6	+39.5	2.7	32	02.5	+39.6	2.7	34	02.4	+39.6	2.8	36	02.2	+39.7	2.8	87
28	42.2	+39.1	1.7	30	42.1	+39.1	1.8	32	42.1	+39.1	1.8	34	42.0	+39.2	1.9	36	41.9	+39.3	1.9	88
29	21.3	+38.7	0.9	31	21.2	+38.8	0.9	33	21.2	+38.8	0.9	35	21.2	+38.8	0.9	37	21.2	+38.8	1.0	89
30	00.0	+38.4	0.0	32	00.0	+38.4	0.0	34	00.0	+38.4	0.0	36	00.0	+38.3	0.0	38	00.0	+38.3	0.0	90
30°			32°			34°			36°			38°								

LATITUDE SAME NAME

L.H.A. 130°, 230°

50°, 310° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	48 24.2	+27.5	87.8	48 26.4	+30.3	90.1	48 23.8	+33.1	92.3	48 16.6	+35.6	94.6	48 04.7	+38.1	96.8
31	48 51.7	+26.7	86.5	48 56.7	+29.5	88.8	48 56.9	+32.2	91.1	48 52.2	+34.9	93.4	48 42.8	+37.4	95.6
32	49 18.4	+25.6	85.1	49 26.2	+28.5	87.4	49 29.1	+31.3	89.8	49 27.1	+34.1	92.1	49 20.2	+36.7	94.4
33	49 44.0	+24.7	83.7	49 54.7	+27.6	86.1	50 00.4	+30.4	88.5	50 01.2	+33.2	90.8	49 56.9	+35.9	93.2
34	50 08.7	+23.6	82.3	50 22.3	+26.5	84.7	50 30.8	+29.5	87.1	50 34.4	+32.3	89.5	50 32.8	+35.0	92.0
35	50 32.3	+22.5	80.9	50 48.8	+25.5	83.3	51 00.3	+28.5	85.7	51 06.7	+31.3	88.2	51 07.8	+34.2	90.7
36	50 54.8	+21.3	79.4	51 14.3	+24.4	81.8	51 28.8	+27.4	84.3	51 38.0	+30.4	86.8	51 42.0	+33.3	89.4
37	51 16.1	+20.3	77.9	51 38.7	+23.4	80.4	51 56.2	+26.4	82.9	52 08.4	+29.4	85.4	52 15.3	+32.3	88.0
38	51 36.4	+19.0	76.4	52 02.1	+22.1	78.9	52 22.6	+25.2	81.4	52 37.8	+28.3	84.0	52 47.6	+31.3	86.6
39	51 55.4	+17.9	74.9	52 24.2	+21.0	77.4	52 47.8	+24.2	79.9	53 06.1	+27.2	82.6	53 18.9	+30.3	85.2
40	52 13.3	+16.6	73.3	52 45.2	+19.8	75.8	53 12.0	+22.9	78.4	53 33.3	+26.1	81.1	53 49.2	+29.2	83.8
41	52 29.9	+15.3	71.7	53 05.0	+18.5	74.3	53 34.9	+21.7	76.9	53 59.4	+24.9	79.5	54 18.4	+28.1	82.3
42	52 45.2	+14.0	70.1	53 23.5	+17.2	72.7	53 56.6	+20.4	75.3	54 24.3	+23.7	78.0	54 46.5	+26.9	80.7
43	52 59.2	+12.8	68.5	53 40.7	+15.9	71.1	54 17.0	+19.2	73.7	54 48.0	+22.5	76.4	55 13.4	+25.7	79.2
44	53 12.0	+11.3	66.9	53 56.6	+14.6	69.4	54 36.2	+17.8	72.1	55 10.5	+21.1	74.8	55 39.1	+24.5	77.6
45	53 23.3	+10.0	65.3	54 11.2	+13.1	67.8	54 54.0	+16.5	70.4	55 31.6	+19.7	73.1	56 03.6	+23.1	76.0
46	53 33.3	+8.7	63.6	54 24.3	+11.8	66.1	55 10.5	+15.0	68.7	55 51.3	+18.4	71.5	56 26.7	+21.7	74.3
47	53 42.0	+7.2	61.9	54 36.1	+10.4	64.4	55 25.5	+13.6	67.0	56 09.7	+17.0	69.8	56 48.4	+20.4	72.6
48	53 49.2	+5.8	60.3	54 46.5	+8.9	62.7	55 39.1	+12.2	65.3	56 26.7	+15.5	68.0	57 08.8	+18.9	70.9
49	53 55.0	+4.4	58.6	54 55.4	+7.5	61.0	55 51.3	+10.6	63.6	56 42.2	+14.0	66.3	57 27.7	+17.4	69.1
50	53 59.4	+3.0	56.9	55 02.9	+6.0	59.3	56 01.9	+9.2	61.8	56 56.2	+12.4	64.5	57 45.1	+15.9	67.3
51	54 02.4	+1.5	55.2	55 08.9	+4.5	57.5	56 11.1	+7.6	60.0	57 08.6	+10.9	62.7	58 01.0	+14.4	65.5
52	54 03.9	0.0	53.5	55 13.4	+2.9	55.8	56 18.7	+6.1	58.2	57 19.5	+9.3	60.9	58 15.4	+12.7	63.7
53	54 03.9	-1.3	51.8	55 16.3	+1.5	54.0	56 24.8	+4.5	56.4	57 28.8	+7.8	59.0	58 28.1	+11.1	61.8
54	54 02.6	-2.9	50.1	55 17.8	0.0	52.3	56 29.3	+2.9	54.6	57 36.6	+6.0	57.2	58 39.2	+9.4	59.9
55	53 59.7	-4.2	48.4	55 17.8	-1.6	50.5	56 32.2	+1.4	52.8	57 42.6	+4.5	55.3	58 48.6	+7.7	58.0
56	53 55.5	-5.7	46.7	55 16.2	-3.0	48.8	56 33.6	-0.3	51.0	57 47.1	+2.8	53.5	58 56.3	+6.0	56.1
57	53 49.8	-7.1	45.0	55 13.2	-4.6	47.0	56 33.3	-1.8	49.2	57 49.9	+1.1	51.6	59 02.3	+4.2	54.2
58	53 42.7	-8.5	43.3	55 08.6	-6.0	45.3	56 31.5	-3.4	47.4	57 51.0	-0.6	49.7	59 06.5	+2.6	52.2
59	53 34.2	-9.9	41.6	55 02.6	-7.5	43.5	56 28.1	-5.0	45.6	57 50.4	-2.2	47.8	59 09.1	+0.7	50.3
60	53 24.3	-11.2	40.0	54 55.1	-9.0	41.8	56 23.1	-6.5	43.8	57 48.2	-3.9	46.0	59 09.8	-1.0	48.4
61	53 13.1	-12.6	38.3	54 46.1	-10.5	40.1	56 16.6	-8.1	42.0	57 44.3	-5.5	44.1	59 08.8	-2.7	46.4
62	53 00.5	-14.0	36.7	54 35.6	-11.8	38.4	56 08.5	-9.6	40.2	57 38.8	-7.1	42.2	59 06.1	-4.5	44.5
63	52 46.5	-15.2	35.1	54 23.8	-13.3	36.7	55 58.9	-11.1	38.4	57 31.7	-8.8	40.4	59 01.6	-6.2	42.5
64	52 31.3	-16.5	33.5	54 10.5	-14.6	35.0	55 47.8	-12.6	36.7	57 22.9	-10.4	38.5	58 55.4	-7.9	40.6
65	52 14.8	-17.7	31.9	53 55.9	-16.0	33.4	55 35.2	-14.0	34.9	57 12.5	-11.9	36.7	58 47.5	-9.6	38.7
66	51 57.1	-18.9	30.4	53 39.9	-17.2	31.7	55 21.2	-15.5	33.2	57 00.6	-13.5	34.9	58 37.9	-11.3	36.8
67	51 38.2	-20.1	28.8	53 22.7	-18.6	30.1	55 05.7	-16.8	31.5	56 47.1	-15.0	33.1	58 26.6	-12.9	34.9
68	51 18.1	-21.3	27.3	53 04.1	-19.8	28.5	54 48.9	-18.3	29.9	56 32.1	-16.4	31.4	58 13.7	-14.5	33.0
69	50 56.8	-22.4	25.8	52 44.3	-21.1	27.0	54 30.6	-19.5	28.2	56 15.7	-17.9	29.6	57 59.2	-16.1	31.2
70	50 34.4	-23.5	24.4	52 23.2	-22.2	25.4	54 11.1	-20.8	26.6	55 57.8	-19.3	27.9	57 43.1	-17.6	29.4
71	50 10.9	-24.5	22.9	52 01.0	-23.3	23.9	53 50.3	-22.1	25.0	55 38.5	-20.7	26.2	57 25.5	-19.1	27.6
72	49 46.4	-25.6	21.5	51 37.7	-24.5	22.4	53 28.2	-23.3	23.4	55 17.8	-22.0	24.6	57 06.4	-20.5	25.8
73	49 20.8	-26.5	20.1	51 13.2	-25.6	21.0	53 04.9	-24.5	21.9	54 55.8	-23.2	22.9	56 45.9	-22.0	24.1
74	48 54.3	-27.6	18.7	50 47.6	-26.6	19.5	52 40.4	-25.6	20.4	54 32.6	-24.5	21.3	56 23.9	-23.3	22.4
75	48 26.7	-28.4	17.4	50 21.0	-27.6	18.1	52 14.8	-26.6	18.9	54 08.1	-25.7	19.8	56 00.6	-24.5	20.8
76	47 58.3	-29.3	16.1	49 53.4	-28.5	16.7	51 48.2	-27.8	17.4	53 42.4	-26.9	18.2	55 36.1	-25.9	19.1
77	47 29.0	-30.2	14.8	49 24.9	-29.5	15.4	51 20.4	-28.8	16.0	53 15.5	-27.9	16.7	55 10.2	-27.1	17.6
78	46 58.8	-31.0	13.5	48 55.4	-30.4	14.0	50 51.6	-29.7	14.6	52 47.6	-29.0	15.3	54 43.1	-28.2	16.0
79	46 27.8	-31.8	12.3	48 25.0	-31.3	12.7	50 21.9	-30.7	13.2	52 18.6	-30.1	13.8	54 14.9	-29.3	14.5
80	45 56.0	-32.6	11.0	47 53.7	-32.1	11.4	49 51.2	-31.6	11.9	51 48.5	-31.0	12.4	53 45.6	-30.5	13.0
81	45 23.4	-33.3	9.8	47 21.6	-32.9	10.2	49 19.6	-32.5	10.6	51 17.5	-32.0	11.0	53 15.1	-31.4	11.6
82	44 50.1	-34.1	8.6	46 48.7	-33.7	9.0	48 47.1	-33.3	9.3	50 45.5	-32.9	9.7	52 43.7	-32.4	10.1
83	44 16.0	-34.7	7.5	46 15.0	-34.5	7.8	48 13.8	-34.1	8.1	50 12.6	-33.8	8.4	52 11.3	-33.4	8.8
84	43 41.3	-35.4	6.4	45 40.5	-35.1	6.6	47 39.7	-34.9	6.8	49 38.8	-34.6	7.1	51 37.9	-34.3	7.4
85	43 05.9	-36.0	5.2	45 05.4	-35.8	5.4	47 04.8	-35.6	5.6	49 04.2	-35.3	5.8	51 03.6	-35.2	6.1
86	42 29.9	-36.6	4.2	44 29.6	-36.5	4.3	46 29.2	-36.3	4.5	48 28.9	-36.2	4.6	50 28.4	-35.9	4.8
87	41 53.3	-37.2	3.1	43 53.1	-37.1	3.2	45 52.9	-37.0	3.3	47 52.7	-36.9	3.4	49 52.5	-36.8	3.6
88	41 16.1	-37.8	2.0	43 16.0	-37.7	2.1	45 15.9	-37.6	2.2	47 15.8	-37.6	2.3	49 15.7	-37.5	2.3
89	40 38.3	-38.3	1.0	42 38.3	-38.3	1.0	44 38.3	-38.3	1.1	46 38.2	-38.2	1.1	48 38.2	-38.2	1.2
90	40 00.0	-38.8	0.0	42 00.0	-38.8	0.0	44 00.0	-38.9	0.0	46 00.0	-38.9	0.0	48 00.0	-38.9	0.0
	40°			42°			44°			46°			48°		

LATITUDE CONTRARY NAME

L.H.A. 50°, 310°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
6	01.8	-48.5	138.2	4	32.3	-49.3	138.3	3	02.7	-50.1	138.4	1	32.9	-50.8	138.4	0	03.1	-51.5	138.4	30
5	13.3	-48.5	138.7	3	43.0	-49.3	138.9	2	12.6	-50.1	138.9	0	42.1	-50.8	139.0	0	48.4	+51.5	41.0	31
4	24.8	-48.5	139.3	2	53.7	-49.3	139.4	1	22.5	-50.0	139.5	0	08.7	+50.8	40.5	1	39.9	+51.5	40.5	32
3	36.3	-48.5	139.9	2	04.4	-49.3	140.0	0	32.5	-50.1	140.0	0	59.5	+50.8	40.0	2	31.4	+51.5	40.0	33
2	47.8	-48.6	140.5	1	15.1	-49.3	140.6	0	17.6	+50.1	39.4	1	50.3	+50.7	39.5	3	22.9	+51.5	39.5	34
1	59.2	-48.6	141.1	0	25.8	-49.4	141.1	1	07.7	+50.0	38.9	2	41.0	+50.8	38.9	4	14.4	+51.4	39.0	35
1	10.6	-48.6	141.7	0	23.6	+49.3	38.3	1	57.7	+50.1	38.3	3	31.8	+50.8	38.4	5	05.8	+51.5	38.5	36
0	22.0	-48.5	142.3	1	12.9	+49.3	37.7	2	47.8	+50.0	37.8	4	22.6	+50.7	37.8	6	57.3	+51.4	38.0	37
0	26.5	+48.6	37.1	2	02.2	+49.3	37.2	3	37.8	+50.0	37.2	5	13.3	+50.7	37.3	6	48.7	+51.3	37.4	38
1	15.1	+48.6	36.5	2	51.5	+49.3	36.6	4	27.8	+50.0	36.7	6	04.0	+50.7	36.8	7	40.0	+51.4	36.9	39
2	03.7	+48.6	36.0	3	40.8	+49.3	36.0	5	17.8	+50.0	36.1	6	54.7	+50.6	36.2	8	31.4	+51.3	36.4	40
2	52.3	+48.5	35.4	4	30.1	+49.2	35.4	6	07.8	+49.9	35.6	7	45.3	+50.6	35.7	9	22.7	+51.2	35.9	41
3	40.8	+48.5	34.8	5	19.3	+49.2	34.9	6	57.7	+49.9	35.0	8	35.9	+50.5	35.2	10	13.9	+51.2	35.3	42
4	29.3	+48.5	34.2	6	08.5	+49.2	34.3	7	47.6	+49.8	34.4	9	26.4	+50.5	34.6	11	05.1	+51.1	34.8	43
5	17.8	+48.5	33.6	6	57.7	+49.1	33.7	8	37.4	+49.8	33.9	10	16.9	+50.5	34.1	11	56.2	+51.1	34.3	44
6	06.3	+48.4	33.0	7	46.8	+49.1	33.1	9	27.2	+49.7	33.3	11	07.4	+50.4	33.5	12	47.3	+51.0	33.7	45
6	54.7	+48.3	32.4	8	35.9	+49.0	32.6	10	16.9	+49.7	32.7	11	57.8	+50.3	33.0	13	38.3	+50.9	33.2	46
7	43.0	+48.4	31.8	9	24.9	+49.0	32.0	11	06.6	+49.6	32.2	12	48.1	+50.2	32.4	14	29.2	+50.9	32.7	47
8	31.4	+48.2	31.2	10	13.9	+48.9	31.4	11	56.2	+49.6	31.6	13	38.3	+50.2	31.8	15	20.1	+50.8	32.1	48
9	19.6	+48.2	30.6	11	02.8	+48.8	30.8	12	45.8	+49.4	31.0	14	28.5	+50.1	31.3	16	10.9	+50.7	31.6	49
10	07.8	+48.2	30.0	11	51.6	+48.8	30.2	13	35.2	+49.4	30.4	15	18.6	+50.0	30.7	17	01.6	+50.6	31.0	50
10	56.0	+48.0	29.4	12	40.4	+48.7	29.6	14	24.6	+49.3	29.9	16	08.6	+49.9	30.1	17	52.2	+50.5	30.4	51
11	44.0	+48.0	28.8	13	29.1	+48.6	29.0	15	13.9	+49.2	29.3	16	58.5	+49.8	29.5	18	42.7	+50.4	29.9	52
12	32.0	+47.9	28.2	14	17.7	+48.5	28.4	16	03.1	+49.1	28.7	17	48.3	+49.7	29.0	19	33.1	+50.3	29.3	53
13	19.9	+47.9	27.6	15	06.2	+48.4	27.8	16	52.2	+49.0	28.1	18	38.0	+49.6	28.4	20	23.4	+50.2	28.7	54
14	07.8	+47.7	26.9	15	54.6	+48.3	27.2	17	41.2	+48.9	27.5	19	27.6	+49.4	27.8	21	13.6	+50.0	28.1	55
14	55.5	+47.6	26.3	16	42.9	+48.2	26.6	18	30.1	+48.8	26.9	20	17.0	+49.4	27.2	22	03.6	+49.9	27.5	56
15	43.1	+47.5	25.7	17	31.1	+48.1	25.9	19	18.9	+48.6	26.2	21	06.4	+49.2	26.6	22	53.5	+49.8	26.9	57
16	30.6	+47.4	25.0	18	19.2	+47.9	25.3	20	07.5	+48.5	25.6	21	55.6	+49.1	26.0	23	43.3	+49.7	26.3	58
17	18.0	+47.2	24.4	19	07.1	+47.9	24.7	20	56.0	+48.4	25.0	22	44.7	+48.9	25.3	24	33.0	+49.5	25.7	59
18	05.2	+47.2	23.8	19	55.0	+47.6	24.0	21	44.4	+48.2	24.4	23	33.6	+48.8	24.7	25	22.5	+49.3	25.1	60
18	52.4	+47.0	23.1	20	42.6	+47.6	23.4	22	32.6	+48.1	23.7	24	22.4	+48.6	24.1	26	11.8	+49.1	24.4	61
19	39.4	+46.8	22.5	21	30.2	+47.4	22.7	23	20.7	+47.9	23.1	25	11.0	+48.4	23.4	27	00.9	+49.0	23.8	62
20	26.2	+46.7	21.8	22	17.6	+47.2	22.1	24	08.6	+47.8	22.4	25	59.4	+48.3	22.8	27	49.9	+48.8	23.2	63
21	12.9	+46.6	21.1	23	04.8	+47.0	21.4	24	56.4	+47.5	21.7	26	47.7	+48.1	22.1	28	38.7	+48.6	22.5	64
21	59.5	+46.3	20.4	23	51.8	+46.9	20.7	25	43.9	+47.4	21.1	27	35.8	+47.8	21.4	29	27.3	+48.4	21.8	65
22	45.8	+46.2	19.7	24	38.7	+46.7	20.0	26	31.3	+47.2	20.4	28	23.6	+47.7	20.7	30	15.7	+48.2	21.1	66
23	32.0	+46.0	19.1	25	25.4	+46.4	19.4	27	18.5	+46.9	19.7	29	11.3	+47.5	20.1	31	03.9	+48.0	20.5	67
24	18.0	+45.8	18.4	26	11.8	+46.3	18.7	28	05.4	+46.8	19.0	29	58.8	+47.2	19.3	31	51.9	+47.7	19.7	68
25	03.8	+45.6	17.6	26	58.1	+46.1	17.9	28	52.2	+46.5	18.3	30	46.0	+47.0	18.6	32	39.6	+47.5	19.0	69
25	49.4	+45.4	16.9	27	44.2	+45.8	17.2	29	38.7	+46.3	17.5	31	33.0	+46.7	17.9	33	27.1	+47.2	18.3	70
26	34.8	+45.2	16.2	28	30.0	+45.6	16.5	30	25.0	+46.0	16.8	32	19.7	+46.5	17.2	34	14.3	+46.9	17.6	71
27	20.0	+44.9	15.5	29	15.6	+45.3	15.7	31	11.0	+45.8	16.1	33	06.2	+46.2	16.4	35	01.2	+46.6	16.8	72
28	04.9	+44.7	14.7	30	00.9	+45.1	15.0	31	56.8	+45.4	15.3	33	52.4	+45.9	15.6	35	47.8	+46.4	16.0	73
28	49.6	+44.4	13.9	30	46.0	+44.8	14.2	32	42.2	+45.2	14.5	34	38.3	+45.6	14.9	36	34.2	+46.0	15.2	74
29	34.0	+44.2	13.2	31	30.8	+44.5	13.4	33	27.4	+44.9	13.7	35	23.9	+45.3	14.1	37	20.2	+45.7	14.4	75
30	18.2	+43.8	12.4	32	15.3	+44.2	12.7	34	12.3	+44.6	12.9	36	09.2	+45.0	13.3	38	05.9	+45.4	13.6	76
31	02.0	+43.6	11.6	32	59.5	+43.9	11.9	34	56.9	+44.3	12.1	36	54.2	+44.6	12.4	38	51.3	+45.0	12.8	77
31	45.6	+43.3	10.8	33	43.4	+43.6	11.0	35	41.2	+43.9	11.3	37	38.8	+44.2	11.6	39	36.3	+44.6	11.9	78
32	28.9	+42.9	10.0	34	27.0	+43.2	10.2	36	25.1	+43.5	10.5	38	23.0	+43.9	10.7	40	20.9	+44.2	11.1	79
33	11.8	+42.6	9.1	35	10.2	+42.9	9.4	37	08.6	+43.2	9.6	39	06.9	+43.4	9.9	41	05.1	+43.7	10.2	80
33	54.4	+42.3	8.3	35	53.1	+42.5	8.5	37	51.8	+42.7	8.7	39	50.3	+43.1	9.0	41	48.8	+43.4	9.3	81
34	36.7	+41.8	7.4	36	35.6	+42.1	7.6	38	34.5	+42.4	7.8	40	33.4	+42.6	8.1	42	32.2	+42.8	8.3	82
35	18.5	+41.5	6.6	37	17.7	+41.7	6.7	39	16.9	+41.9	6.9	41	16.0	+42.1	7.1	43	15.0	+42.4	7.4	83
36	00.0	+41.1	5.7	37	59.4	+41.3	5.8	39	58.8	+41.5	6.0	41	58.1	+41.7	6.2	43	57.4	+41.9	6.4	84
36	41.1	+40.7	4.8	38	40.7	+40.8	4.9	40	40.3	+41.0	5.1	42	39.8	+41.1	5.2	44	39.3	+41.3	5.4	85
37	21.8	+40.3	3.9	39	21.5	+40.4	4.0	41	21.3	+40.4	4.1	43	20.9	+40.7	4.2	45	20.6	+40.8	4.4	86
38	02.1	+39.8	2.9	40	01.9	+39.9	3.0	42	01.7	+40.0	3.1	44	01.6	+40.0	3.2	46	01.4	+40.1	3.3	87
38	41.9	+39.3	2.0	40	41.8	+39.4	2.0	42	41.7	+39.4	2.1	44	41.6	+39.5	2.2	46	41.5	+39.6	2.2	88
39	21.2	+38.8	1.0	41	21.2	+38.8	1.0	43	21.1	+38.9	1.1	45	21.1	+38.9	1.1	47	21.1	+38.9	1.1	89
40	00.0	+38.3	0.0	42	00.0	+38.3	0.0	44	00.0	+38.3	0.0	46	00.0	+38.2	0.0	48	00.0	+38.2	0.0	90

LATITUDE SAME NAME

L.H.A. 130°, 230°

50°, 310° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	47 48.2	+40.5	99.0	47 27.2	+42.7	101.2	47 01.8	+44.8	103.3	46 32.2	+46.7	105.3	45 58.4	+48.5	107.3
31	48 28.7	+39.8	97.9	48 09.9	+42.1	100.1	47 46.6	+44.3	102.3	47 18.9	+46.3	104.4	46 46.9	+48.1	106.5
32	49 08.5	+39.2	96.8	48 52.0	+41.6	99.0	48 30.9	+43.7	101.3	48 05.2	+45.8	103.5	47 35.0	+47.2	105.6
33	49 47.7	+38.4	95.6	49 33.6	+40.8	97.9	49 14.6	+43.2	100.2	48 51.0	+45.2	102.5	48 22.7	+47.3	104.7
34	50 26.1	+37.7	94.4	50 14.4	+40.2	96.8	49 57.8	+42.5	99.2	49 36.2	+44.8	101.5	49 10.0	+46.8	103.8
35	51 03.8	+36.9	93.2	50 54.6	+39.5	95.6	50 40.3	+41.9	98.1	50 21.0	+44.2	100.5	49 56.8	+46.3	102.8
36	51 40.7	+36.0	91.9	51 34.1	+38.6	94.4	51 22.2	+41.2	96.9	51 05.2	+43.5	99.4	50 43.1	+45.8	101.8
37	52 16.7	+35.2	90.6	52 12.7	+37.9	93.2	52 03.4	+40.5	95.7	51 48.7	+43.0	98.3	51 28.9	+45.2	100.8
38	52 51.9	+34.2	89.3	52 50.6	+37.1	91.9	52 43.9	+39.7	94.5	52 31.7	+42.2	97.1	52 14.1	+44.6	99.7
39	53 26.1	+33.3	87.9	53 27.7	+36.2	90.6	53 23.6	+39.0	93.3	53 13.9	+41.6	96.0	52 58.7	+44.0	98.6
40	53 59.4	+32.3	86.5	54 03.9	+35.2	89.2	54 02.6	+38.0	92.0	53 55.5	+40.8	94.8	53 42.7	+43.3	97.5
41	54 31.7	+31.2	85.0	54 39.1	+34.3	87.9	54 40.6	+37.2	90.7	54 36.3	+39.9	93.5	54 26.0	+42.6	96.3
42	55 02.9	+30.1	83.6	55 13.4	+33.2	86.4	55 17.8	+36.3	89.3	55 16.2	+39.2	92.2	55 08.6	+41.9	95.1
43	55 33.0	+28.9	82.0	55 46.6	+32.1	85.0	55 54.1	+35.2	87.9	55 55.4	+38.2	90.9	55 50.5	+41.0	93.8
44	56 01.9	+27.8	80.5	56 18.7	+31.0	83.4	56 29.3	+34.2	86.4	56 33.6	+37.2	89.5	56 31.5	+40.2	92.5
45	56 29.7	+26.5	78.9	56 49.7	+29.8	81.9	57 03.5	+33.1	84.9	57 10.8	+36.3	88.0	57 11.7	+39.3	91.1
46	56 56.2	+25.1	77.3	57 19.5	+28.6	80.3	57 36.6	+31.9	83.4	57 47.1	+35.1	86.6	57 51.0	+38.3	89.7
47	57 21.3	+23.8	75.6	57 48.1	+27.3	78.7	58 08.5	+30.7	81.8	58 22.2	+34.1	85.0	58 29.3	+37.2	88.3
48	57 45.1	+22.4	73.9	58 15.4	+25.9	77.0	58 39.2	+29.4	80.2	58 56.3	+32.8	83.4	59 06.5	+36.2	86.8
49	58 07.5	+21.0	72.1	58 41.3	+24.5	75.2	59 08.6	+28.0	78.5	59 29.1	+31.6	81.8	59 42.7	+35.0	85.2
50	58 28.5	+19.4	70.3	59 05.8	+23.0	73.5	59 36.6	+26.6	76.7	60 00.7	+30.2	80.1	60 17.7	+33.8	83.6
51	58 47.9	+17.9	68.5	59 28.8	+21.4	71.7	60 03.2	+25.2	75.0	60 30.9	+28.9	78.4	60 51.5	+32.5	81.9
52	59 05.8	+16.2	66.7	59 50.2	+19.9	69.8	60 28.4	+23.6	73.1	60 59.8	+27.3	76.6	61 24.0	+31.1	80.1
53	59 22.0	+14.6	64.8	60 10.1	+18.3	67.9	60 52.0	+22.0	71.3	61 27.1	+25.8	74.7	61 55.1	+29.6	78.3
54	59 36.6	+12.9	62.9	60 28.4	+16.5	66.0	61 14.0	+20.3	69.3	61 52.9	+24.2	72.8	62 24.7	+28.1	76.5
55	59 49.5	+11.2	60.9	60 44.9	+14.9	64.1	61 34.3	+18.6	67.4	62 17.1	+22.5	70.9	62 52.8	+26.5	74.6
56	60 00.7	+9.4	59.0	60 59.8	+13.0	62.1	61 52.9	+16.8	65.4	62 39.6	+20.8	68.9	63 19.3	+24.8	72.6
57	60 10.1	+7.6	57.0	61 12.8	+11.2	60.0	62 09.7	+15.0	63.3	63 00.4	+18.9	66.8	63 44.1	+22.9	70.5
58	60 17.7	+5.8	55.0	61 24.0	+9.3	58.0	62 24.7	+13.1	61.2	63 19.3	+17.0	64.7	64 07.0	+21.2	68.4
59	60 23.5	+4.0	53.0	61 33.3	+7.5	55.9	62 37.8	+11.1	59.1	63 36.3	+15.1	62.6	64 28.2	+19.1	66.3
60	60 27.5	+2.2	51.0	61 40.8	+5.5	53.8	62 48.9	+9.2	57.0	63 51.4	+13.0	60.4	64 47.3	+17.2	64.1
61	60 29.7	+0.3	48.9	61 46.3	+3.6	51.7	62 58.1	+7.1	54.8	64 04.4	+11.0	58.1	65 04.5	+15.0	61.8
62	60 30.0	-1.6	46.9	61 49.9	+1.6	49.6	63 05.2	+5.1	52.6	64 15.4	+8.8	55.9	65 19.5	+13.0	59.5
63	60 28.4	-3.4	44.9	61 51.5	-0.3	47.5	63 10.3	+3.1	50.4	64 24.2	+6.7	53.6	65 32.5	+10.7	57.1
64	60 25.0	-5.2	42.9	61 51.2	-2.3	45.4	63 13.4	+0.9	48.2	64 30.9	+4.6	51.3	65 43.2	+8.4	54.8
65	60 19.8	-7.1	40.8	61 48.9	-4.2	43.3	63 14.3	-1.1	46.0	64 35.5	+2.3	49.0	65 51.6	+6.1	52.3
66	60 12.7	-8.8	38.8	61 44.7	-6.2	41.2	63 13.2	-3.1	43.8	64 37.8	+0.1	46.7	65 57.7	+3.8	49.9
67	60 03.9	-10.6	36.9	61 38.5	-8.1	39.1	63 10.1	-5.3	41.5	64 37.9	-2.0	44.3	66 01.5	+1.5	47.4
68	59 53.3	-12.4	34.9	61 30.4	-9.9	37.0	63 04.8	-7.3	39.3	64 35.9	-4.3	42.0	66 03.0	-0.9	45.0
69	59 40.9	-14.1	32.9	61 20.5	-11.8	34.9	62 57.5	-9.2	37.1	64 31.6	-6.5	39.7	66 02.1	-3.3	42.5
70	59 26.8	-15.7	31.0	61 08.7	-13.7	32.9	62 48.3	-11.3	35.0	64 25.1	-8.6	37.4	65 58.8	-5.6	40.1
71	59 11.1	-17.3	29.1	60 55.0	-15.4	30.9	62 37.0	-13.2	32.8	64 16.5	-10.7	35.1	65 53.2	-7.9	37.6
72	58 53.8	-19.0	27.3	60 39.6	-17.1	28.9	62 23.8	-15.1	30.7	64 05.8	-12.8	32.8	65 45.3	-10.1	35.2
73	58 34.8	-20.4	25.4	60 22.5	-18.8	26.9	62 08.7	-16.9	28.6	63 53.0	-14.8	30.6	65 35.2	-12.4	32.8
74	58 14.4	-22.0	23.6	60 03.7	-20.4	25.0	61 51.8	-18.8	26.6	63 38.2	-16.8	28.4	65 22.8	-14.6	30.5
75	57 52.4	-23.3	21.9	59 43.3	-22.0	23.2	61 33.0	-20.4	24.6	63 21.4	-18.7	26.2	65 08.2	-16.7	28.1
76	57 29.1	-24.8	20.2	59 21.3	-23.5	21.3	61 12.6	-22.1	22.6	63 02.7	-20.5	24.1	64 51.5	-18.7	25.9
77	57 04.3	-26.0	18.5	58 57.8	-25.0	19.5	60 50.5	-23.7	20.7	62 42.2	-22.3	22.1	64 32.8	-20.7	23.6
78	56 38.3	-27.4	16.8	58 32.8	-26.3	17.8	60 26.8	-25.3	18.8	62 19.9	-24.0	20.1	64 12.1	-22.5	21.5
79	56 10.9	-28.6	15.2	58 06.5	-27.7	16.1	60 01.5	-26.7	17.0	61 55.9	-25.6	18.1	63 49.6	-24.4	19.4
80	55 42.3	-29.7	13.7	57 38.8	-29.0	14.4	59 34.8	-28.2	15.2	61 30.3	-27.2	16.2	63 25.2	-26.1	17.3
81	55 12.6	-30.9	12.1	57 09.8	-30.2	12.8	59 06.6	-29.4	13.5	61 03.1	-28.6	14.3	62 59.1	-27.7	15.3
82	54 41.7	-31.9	10.6	56 39.6	-31.4	11.2	58 37.2	-30.8	11.8	60 34.5	-30.1	12.5	62 31.4	-29.3	13.4
83	54 09.8	-33.0	9.2	56 08.2	-32.5	9.6	58 06.4	-32.0	10.2	60 04.4	-31.4	10.8	62 02.1	-30.7	11.5
84	53 36.8	-33.9	7.8	55 35.7	-33.6	8.1	57 34.4	-33.2	8.6	59 33.0	-32.7	9.1	61 31.4	-32.2	9.7
85	53 02.9	-34.9	6.4	55 02.1	-34.6	6.7	57 01.2	-34.2	7.0	59 00.3	-33.9	7.4	60 59.2	-33.5	7.9
86	52 28.0	-35.8	5.0	54 27.5	-35.5	5.3	56 27.0	-35.3	5.5	58 26.4	-35.0	5.9	60 25.7	-34.7	6.2
87	51 52.2	-36.6	3.7	53 52.0	-36.5	3.9	55 51.7	-36.3	4.1	57 51.4	-36.2	4.3	59 51.0	-35.9	4.6
88	51 15.6	-37.4	2.4	53 15.5	-37.3	2.6	55 15.4	-37.3	2.7	57 15.2	-37.1	2.8	59 15.1	-37.0	3.0
89	50 38.2	-38.2	1.2	52 38.2	-38.2	1.3	54 38.1	-38.1	1.3	56 38.1	-38.1	1.4	58 38.1	-38.1	1.5
90	50 00.0	-38.9	0.0	52 00.0	-39.0	0.0	54 00.0	-39.0	0.0	56 00.0	-39.0	0.0	58 00.0	-39.0	0.0

50°

52°

54°

56°

58°

52°, 308° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	45 22.6	+13.7	76.3	45 49.0	+16.6	78.3	46 11.3	+19.4	80.3	46 29.3	+22.2	82.4	46 43.0	+25.0	84.5
31	45 36.3	+12.7	74.9	46 05.6	+15.5	76.9	46 30.7	+18.3	79.0	46 51.5	+21.2	81.0	47 08.0	+24.0	83.2
32	45 49.0	+11.7	73.5	46 21.1	+14.5	75.5	46 49.0	+17.4	77.6	47 12.7	+20.2	79.7	47 32.0	+23.1	81.8
33	46 00.7	+10.6	72.1	46 35.6	+13.4	74.1	47 06.4	+16.3	76.2	47 32.9	+19.2	78.3	47 55.1	+22.1	80.4
34	46 11.3	+9.6	70.7	46 49.0	+12.4	72.7	47 22.7	+15.3	74.7	47 52.1	+18.2	76.9	48 17.2	+21.0	79.0
35	46 20.9	+8.4	69.2	47 01.4	+11.3	71.2	47 38.0	+14.1	73.3	48 10.3	+17.1	75.4	48 38.2	+20.0	77.6
36	46 29.3	+7.4	67.8	47 12.7	+10.2	69.8	47 52.1	+13.1	71.9	48 27.4	+15.9	74.0	48 58.2	+18.9	76.2
37	46 36.7	+6.3	66.4	47 22.9	+9.1	68.3	48 05.2	+12.0	70.4	48 43.3	+14.9	72.5	49 17.1	+17.9	74.8
38	46 43.0	+5.2	64.9	47 32.0	+8.0	66.9	48 17.2	+10.8	68.9	48 58.2	+13.8	71.1	49 35.0	+16.6	73.3
39	46 48.2	+4.1	63.5	47 40.0	+6.9	65.4	48 28.0	+9.7	67.5	49 12.0	+12.5	69.6	49 51.6	+15.6	71.8
40	46 52.3	+3.0	62.0	47 46.9	+5.7	63.9	48 37.7	+8.5	66.0	49 24.5	+11.4	68.1	50 07.2	+14.3	70.3
41	46 55.3	+1.9	60.5	47 52.6	+4.5	62.5	48 46.2	+7.4	64.5	49 35.9	+10.3	66.6	50 21.5	+13.2	68.8
42	46 57.2	+0.7	59.1	47 57.1	+3.4	61.0	48 53.6	+6.1	63.0	49 46.2	+9.0	65.1	50 34.7	+11.9	67.2
43	46 57.9	-0.4	57.6	48 00.5	+2.3	59.5	48 59.7	+5.0	61.4	49 55.2	+7.8	63.5	50 46.6	+10.7	65.7
44	46 57.5	-1.5	56.2	48 02.8	+1.1	58.0	49 04.7	+3.8	59.9	50 03.0	+6.5	62.0	50 57.3	+9.5	64.1
45	46 56.0	-2.6	54.7	48 03.9	-0.1	56.5	49 08.5	+2.5	58.4	50 09.5	+5.3	60.4	51 06.8	+8.2	62.6
46	46 53.4	-3.7	53.2	48 03.8	-1.3	55.0	49 11.0	+1.4	56.9	50 14.8	+4.1	58.9	51 15.0	+6.9	61.0
47	46 49.7	-4.9	51.8	48 02.5	-2.4	53.5	49 12.4	+0.1	55.3	50 18.9	+2.8	57.3	51 21.9	+5.6	59.4
48	46 44.8	-5.9	50.3	48 00.1	-3.6	52.0	49 12.5	-1.1	53.8	50 21.7	+1.6	55.7	51 27.5	+4.3	57.8
49	46 38.9	-7.1	48.9	47 56.5	-4.7	50.5	49 11.4	-2.3	52.3	50 23.3	+0.2	54.2	51 31.8	+3.0	56.2
50	46 31.8	-8.1	47.4	47 51.8	-5.9	49.0	49 09.1	-3.5	50.8	50 23.5	-0.9	52.6	51 34.8	+1.6	54.6
51	46 23.7	-9.2	46.0	47 45.9	-7.0	47.5	49 05.6	-4.7	49.2	50 22.6	-2.3	51.0	51 36.4	+0.4	53.0
52	46 14.5	-10.3	44.5	47 38.9	-8.1	46.1	49 00.9	-5.9	47.7	50 20.3	-3.5	49.5	51 36.8	-1.0	51.4
53	46 04.2	-11.3	43.1	47 30.8	-9.3	44.6	48 55.0	-7.0	46.2	50 16.8	-4.8	47.9	51 35.8	-2.3	49.8
54	45 52.9	-12.4	41.7	47 21.5	-10.4	43.1	48 48.0	-8.3	44.7	50 12.0	-6.0	46.4	51 33.5	-3.6	48.2
55	45 40.5	-13.4	40.3	47 11.1	-11.5	41.7	48 39.7	-9.4	43.2	50 06.0	-7.2	44.8	51 29.9	-4.9	46.6
56	45 27.1	-14.3	38.9	46 59.6	-12.5	40.2	48 30.3	-10.6	41.7	49 58.8	-8.5	43.3	51 25.0	-6.2	45.0
57	45 12.8	-15.4	37.5	46 47.1	-13.6	38.8	48 19.7	-11.7	40.2	49 50.3	-9.7	41.7	51 18.8	-7.6	43.4
58	44 57.4	-16.4	36.2	46 33.5	-14.7	37.4	48 08.0	-12.8	38.7	49 40.6	-10.8	40.2	51 11.2	-8.7	41.8
59	44 41.0	-17.3	34.8	46 18.8	-15.6	36.0	47 55.2	-14.0	37.3	49 29.8	-12.1	38.7	51 02.5	-10.1	40.2
60	44 23.7	-18.2	33.5	46 03.2	-16.7	34.6	47 41.2	-15.0	35.8	49 17.7	-13.2	37.2	50 52.4	-11.3	38.6
61	44 05.5	-19.2	32.1	45 46.5	-17.7	33.2	47 26.2	-16.1	34.4	49 04.5	-14.4	35.7	50 41.1	-12.5	37.1
62	43 46.3	-20.1	30.8	45 28.8	-18.6	31.8	47 10.1	-17.1	33.0	48 50.1	-15.5	34.2	50 28.6	-13.8	35.5
63	43 26.2	-20.9	29.5	45 10.2	-19.6	30.5	46 53.0	-18.1	31.6	48 34.6	-16.6	32.7	50 14.8	-14.9	34.0
64	43 05.3	-21.8	28.2	44 50.6	-20.5	29.2	46 34.9	-19.2	30.2	48 18.0	-17.7	31.3	49 59.9	-16.1	32.5
65	42 43.5	-22.6	27.0	44 30.1	-21.4	27.8	46 15.7	-20.1	28.8	48 00.3	-18.7	29.9	49 43.8	-17.2	31.0
66	42 20.9	-23.4	25.7	44 08.7	-22.3	26.5	45 55.6	-21.1	27.4	47 41.6	-19.7	28.4	49 26.6	-18.4	29.5
67	41 57.5	-24.3	24.5	43 46.4	-23.2	25.2	45 34.5	-22.0	26.1	47 21.9	-20.8	27.0	49 08.2	-19.4	28.1
68	41 33.2	-25.0	23.2	43 23.2	-24.0	24.0	45 12.5	-22.9	24.8	47 01.1	-21.8	25.7	48 48.8	-20.5	26.6
69	41 08.2	-25.7	22.0	42 59.2	-24.8	22.7	44 49.6	-23.8	23.5	46 39.3	-22.7	24.3	48 28.3	-21.5	25.2
70	40 42.5	-26.5	20.8	42 34.4	-25.6	21.5	44 25.8	-24.6	22.2	46 16.6	-23.6	23.0	48 06.8	-22.6	23.8
71	40 16.0	-27.2	19.6	42 08.8	-26.4	20.2	44 01.2	-25.5	20.9	45 53.0	-24.6	21.6	47 44.2	-23.5	22.4
72	39 48.8	-27.9	18.5	41 42.4	-27.1	19.0	43 35.7	-26.3	19.6	45 28.4	-25.4	20.3	47 20.7	-24.5	21.1
73	39 20.9	-28.5	17.3	41 15.3	-27.8	17.8	43 09.4	-27.1	18.4	45 03.0	-26.3	19.0	46 56.2	-25.4	19.7
74	38 52.4	-29.2	16.2	40 47.5	-28.6	16.7	42 42.3	-27.9	17.2	44 36.7	-27.1	17.8	46 30.8	-26.3	18.4
75	38 23.2	-29.9	15.1	40 18.9	-29.2	15.5	42 14.4	-28.6	16.0	44 09.6	-27.9	16.5	46 04.5	-27.2	17.1
76	37 53.3	-30.4	14.0	39 49.7	-29.9	14.4	41 45.8	-29.3	14.8	43 41.7	-28.7	15.3	45 37.3	-28.0	15.8
77	37 22.9	-31.0	12.9	39 19.8	-30.5	13.2	41 16.5	-30.0	13.6	43 13.0	-29.4	14.1	45 09.3	-28.8	14.6
78	36 51.9	-31.6	11.8	38 49.3	-31.2	12.1	40 46.5	-30.7	12.5	42 43.6	-30.2	12.9	44 40.5	-29.7	13.3
79	36 20.3	-32.2	10.8	38 18.1	-31.7	11.0	40 15.8	-31.3	11.4	42 13.4	-30.9	11.7	44 10.8	-30.4	12.1
80	35 48.1	-32.7	9.7	37 46.4	-32.4	10.0	39 44.5	-31.9	10.3	41 42.5	-31.5	10.6	43 40.4	-31.1	10.9
81	35 15.4	-33.2	8.7	37 14.0	-32.9	8.9	39 12.6	-32.6	9.2	41 11.0	-32.2	9.4	43 09.3	-31.8	9.7
82	34 42.2	-33.7	7.7	36 41.1	-33.4	7.9	38 40.0	-33.2	8.1	40 38.8	-32.9	8.3	42 37.5	-32.6	8.6
83	34 08.5	-34.1	6.7	36 07.7	-33.9	6.8	38 06.8	-33.7	7.0	40 05.9	-33.4	7.2	42 04.9	-33.2	7.4
84	33 34.4	-34.7	5.7	35 33.8	-34.5	5.8	37 33.1	-34.2	6.0	39 32.5	-34.1	6.1	41 31.7	-33.8	6.3
85	32 59.7	-35.1	4.7	34 59.3	-35.0	4.8	36 58.9	-34.8	4.9	38 58.4	-34.6	5.1	40 57.9	-34.4	5.2
86	32 24.6	-35.5	3.7	34 24.3	-35.4	3.8	36 24.1	-35.3	3.9	38 23.8	-35.2	4.0	40 23.5	-35.1	4.1
87	31 49.1	-36.0	2.8	33 48.9	-35.9	2.8	35 48.8	-35.8	2.9	37 48.6	-35.7	3.0	39 48.4	-35.6	3.1
88	31 13.1	-36.4	1.8	33 13.0	-36.3	1.9	35 13.0	-36.3	1.9	37 12.9	-36.2	2.0	39 12.8	-36.1	2.0
89	30 36.7	-36.7	0.9	32 36.7	-36.7	0.9	34 36.7	-36.7	1.0	36 36.7	-36.7	1.0	38 36.7	-36.7	1.0
90	30 00.0	-37.1	0.0	32 00.0	-37.1	0.0	34 00.0	-37.2	0.0	36 00.0	-37.2	0.0	38 00.0	-37.2	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 52°, 308°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
12 13.5 -43.0 135.7	10 47.4 -44.1 136.0	9 20.9 -45.0 136.2	7 54.0 -45.9 136.5	6 26.9 -46.8 136.6	30										
11 30.5 -43.1 136.4	10 03.3 -44.1 136.7	8 35.9 -45.1 136.9	7 08.1 -46.0 137.1	5 40.1 -46.9 137.3	31										
10 47.4 -43.2 137.1	9 19.2 -44.1 137.4	7 50.8 -45.1 137.6	6 22.1 -46.1 137.7	4 53.2 -47.0 137.9	32										
10 04.2 -43.3 137.8	8 35.1 -44.3 138.1	7 05.7 -45.2 138.2	5 36.0 -46.1 138.4	4 06.2 -46.9 138.5	33										
9 20.9 -43.4 138.5	7 50.8 -44.3 138.7	6 20.5 -45.3 138.9	4 49.9 -46.1 139.0	3 19.3 -47.0 139.1	34										
8 37.5 -43.5 139.2	7 06.5 -44.4 139.4	5 35.2 -45.3 139.6	3 38.2 -46.1 139.7	2 32.3 -47.0 139.7	35										
7 54.0 -43.5 139.9	6 22.1 -44.4 140.1	4 49.9 -45.3 140.2	3 17.7 -46.2 140.3	1 45.3 -47.1 140.4	36										
7 10.5 -43.6 140.6	5 37.7 -44.5 140.8	4 04.6 -45.3 140.9	2 31.5 -46.2 141.0	0 58.2 -47.0 141.0	37										
6 26.9 -43.6 141.3	4 53.2 -44.5 141.4	3 19.3 -45.4 141.5	1 45.3 -46.3 141.6	0 11.2 -47.0 141.6	38										
5 43.3 -43.7 142.0	4 08.7 -44.6 142.1	2 33.9 -45.4 142.2	0 59.0 -46.2 142.2	0 35.8 +47.0 37.8	39										
4 59.6 -43.7 142.7	3 24.1 -44.6 142.8	1 48.5 -45.4 142.8	0 12.8 -46.2 142.9	1 22.8 +47.1 37.1	40										
4 15.9 -43.8 143.4	2 39.5 -44.6 143.5	1 03.1 -45.5 143.5	0 33.4 +46.2 36.5	2 09.9 +47.0 36.5	41										
3 32.1 -43.8 144.1	1 54.9 -44.6 144.1	0 17.6 -45.4 144.2	1 19.6 +46.2 35.9	2 56.9 +46.9 35.9	42										
2 48.3 -43.8 144.8	1 10.3 -44.6 144.8	0 27.8 +45.4 35.2	2 05.8 +46.2 35.2	3 43.8 +47.0 35.3	43										
2 04.5 -43.8 145.4	0 25.7 -44.7 145.5	1 13.2 +45.4 34.5	2 52.0 +46.2 34.6	4 30.8 +46.9 34.7	44										
1 20.7 -43.9 146.1	0 19.0 +44.6 33.9	1 58.6 +45.4 33.9	3 38.2 +46.2 33.9	5 17.7 +46.9 34.0	45										
0 36.8 -43.8 146.8	1 03.6 +44.6 33.2	2 44.0 +45.4 33.2	4 24.4 +46.1 33.3	6 04.6 +46.8 33.4	46										
0 07.0 +43.9 32.5	1 48.2 +44.6 32.5	3 29.4 +45.3 32.6	5 10.3 +46.0 32.7	6 51.4 +46.8 32.8	47										
0 50.9 +43.9 31.8	2 32.8 +44.6 31.9	4 14.7 +45.4 31.9	5 56.5 +46.1 32.0	7 38.2 +46.8 32.1	48										
1 34.8 +43.8 31.1	3 17.4 +44.6 31.2	5 00.1 +45.2 31.3	6 42.6 +46.0 31.4	8 25.0 +46.6 31.5	49										
2 18.6 +43.8 30.5	4 02.0 +44.5 30.5	5 45.3 +45.3 30.6	7 28.6 +45.9 30.7	9 11.6 +46.6 30.9	50										
3 02.4 +43.8 29.8	4 46.5 +44.5 29.8	6 30.6 +45.1 29.9	8 14.5 +45.8 30.1	9 58.2 +46.6 30.2	51										
3 46.2 +43.7 29.1	5 31.0 +44.5 29.2	7 15.7 +45.2 29.3	9 00.3 +45.8 29.4	10 44.8 +46.4 29.6	52										
4 29.9 +43.8 28.4	6 15.5 +44.3 28.5	8 00.9 +45.0 28.6	9 46.1 +45.7 28.8	11 31.2 +46.4 28.9	53										
5 13.7 +43.6 27.7	6 59.8 +44.4 27.8	8 45.9 +45.0 27.9	10 31.8 +45.7 28.1	12 17.6 +46.3 28.3	54										
5 57.3 +43.7 27.0	7 44.2 +44.2 27.1	9 30.9 +44.9 27.3	11 17.5 +45.5 27.4	13 03.9 +46.2 27.6	55										
6 41.0 +43.5 26.3	8 28.4 +44.2 26.5	10 15.8 +44.8 26.6	12 03.0 +45.5 26.8	13 50.1 +46.0 27.0	56										
7 24.5 +43.5 25.6	9 12.6 +44.2 25.8	11 00.6 +44.8 25.9	12 48.5 +45.3 26.1	14 36.1 +46.0 26.3	57										
8 08.0 +43.4 24.9	9 56.8 +44.0 25.1	11 45.4 +44.6 25.2	13 33.8 +45.3 25.4	15 22.1 +45.8 25.7	58										
8 51.4 +43.4 24.3	10 40.8 +43.9 24.4	12 30.0 +44.5 24.6	14 19.1 +45.1 24.8	16 07.9 +45.7 25.0	59										
9 34.8 +43.3 23.6	11 24.7 +43.9 23.7	13 14.5 +44.5 23.9	15 04.2 +45.0 24.1	16 53.6 +45.6 24.3	60										
10 18.1 +43.1 22.8	12 08.6 +43.7 23.0	13 59.0 +44.3 23.2	15 49.2 +44.9 23.4	17 39.2 +45.5 23.6	61										
11 01.2 +43.1 22.1	12 52.3 +43.7 22.3	14 43.3 +44.2 22.5	16 34.1 +44.7 22.7	18 24.7 +45.3 22.9	62										
11 44.3 +43.0 21.4	13 36.0 +43.5 21.6	15 27.5 +44.0 21.8	17 18.8 +44.6 22.0	19 10.0 +45.1 22.3	63										
12 27.3 +42.8 20.7	14 19.5 +43.3 20.9	16 11.5 +43.9 21.1	18 03.4 +44.4 21.3	19 55.1 +45.0 21.6	64										
13 10.1 +42.8 20.0	15 02.8 +43.3 20.2	16 55.4 +43.8 20.4	18 47.8 +44.3 20.6	20 40.1 +44.8 20.9	65										
13 52.9 +42.6 19.3	15 46.1 +43.1 19.5	17 39.2 +43.6 19.7	19 32.1 +44.1 19.9	21 24.9 +44.6 20.1	66										
14 35.5 +42.5 18.6	16 29.2 +42.9 18.7	18 22.8 +43.4 18.9	20 16.2 +43.9 19.2	22 09.5 +44.4 19.4	67										
15 18.0 +42.3 17.8	17 12.1 +42.8 18.0	19 06.2 +43.3 18.2	21 00.1 +43.8 18.4	22 53.9 +44.2 18.7	68										
16 00.3 +42.2 17.1	17 54.9 +42.7 17.3	19 49.5 +43.0 17.5	21 43.9 +43.5 17.7	23 38.1 +44.0 18.0	69										
16 42.5 +42.0 16.3	18 37.6 +42.4 16.5	20 32.5 +42.9 16.7	22 27.4 +43.3 17.0	24 22.1 +43.8 17.2	70										
17 24.5 +41.8 15.6	19 20.0 +42.3 15.8	21 15.4 +42.7 16.0	23 10.7 +43.1 16.2	25 05.9 +43.5 16.5	71										
18 06.3 +41.7 14.8	20 02.3 +42.0 15.0	21 58.1 +42.5 15.2	23 53.8 +42.9 15.4	25 49.4 +43.4 15.7	72										
18 48.0 +41.5 14.1	20 44.3 +41.9 14.3	22 40.6 +42.3 14.5	24 36.7 +42.7 14.7	26 32.8 +43.0 14.9	73										
19 29.5 +41.3 13.3	21 26.2 +41.7 13.5	23 22.9 +42.0 13.7	25 19.4 +42.4 13.9	27 15.8 +42.8 14.1	74										
20 10.8 +41.1 12.5	22 07.9 +41.4 12.7	24 04.9 +41.8 12.9	26 01.8 +42.2 13.1	27 58.6 +42.5 13.4	75										
20 51.9 +40.9 11.8	22 49.3 +41.2 11.9	24 46.7 +41.5 12.1	26 44.0 +41.8 12.3	28 41.1 +42.3 12.6	76										
21 32.8 +40.6 11.0	23 30.5 +41.0 11.1	25 28.2 +41.3 11.3	27 25.8 +41.7 11.5	29 23.4 +41.9 11.7	77										
22 13.4 +40.4 10.2	24 11.5 +40.7 10.3	26 09.5 +41.0 10.5	28 07.5 +41.3 10.7	30 05.3 +41.6 10.9	78										
22 53.8 +40.2 9.4	24 52.2 +40.4 9.5	26 50.5 +40.7 9.7	28 48.8 +41.0 9.9	30 46.9 +41.3 10.1	79										
23 34.0 +39.9 8.6	25 32.6 +40.2 8.7	27 31.2 +40.5 8.9	29 29.8 +40.7 9.0	31 28.2 +41.0 9.2	80										
24 13.9 +39.7 7.8	26 12.8 +39.9 7.9	28 11.7 +40.1 8.0	30 10.5 +40.3 8.2	32 09.2 +40.6 8.4	81										
24 53.6 +39.4 6.9	26 52.7 +39.6 7.1	28 51.8 +39.8 7.2	30 50.8 +40.0 7.5	32 49.8 +40.2 7.5	82										
25 33.0 +39.1 6.1	27 32.3 +39.3 6.2	29 31.6 +39.4 6.3	31 30.8 +39.7 6.5	33 30.0 +39.9 6.6	83										
26 12.1 +38.8 5.3	28 11.6 +38.9 5.4	30 11.0 +39.2 5.5	32 10.5 +39.3 5.6	34 09.9 +39.4 5.7	84										
26 50.9 +38.5 4.4	28 50.5 +38.6 4.5	30 50.2 +38.7 4.6	32 49.8 +38.8 4.7	34 49.3 +39.1 4.8	85										
27 29.4 +38.2 3.6	29 29.1 +38.3 3.6	31 28.9 +38.4 3.7	33 28.6 +38.5 3.8	35 28.4 +38.6 3.9	86										
28 07.6 +37.8 2.7	30 07.4 +37.9 2.7	32 07.3 +38.0 2.8	34 07.1 +38.1 2.9	36 07.0 +38.1 2.9	87										
28 45.4 +37.5 1.8	30 45.3 +37.6 1.8	32 45.3 +37.5 1.9	34 45.2 +37.6 1.9	36 45.1 +37.7 2.0	88										
29 22.9 +37.1 0.9	31 22.9 +37.1 0.9	33 22.8 +37.2 0.9	35 22.8 +37.2 1.0	37 22.8 +37.2 1.0	89										
30 00.0 +36.7 0.0	32 00.0 +36.7 0.0	34 00.0 +36.7 0.0	36 00.0 +36.7 0.0	38 00.0 +36.7 0.0	90										

LATITUDE SAME NAME

L.H.A. 128°, 232°

52°, 308° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	46 52.3	+27.8	86.6	46 57.2	+30.4	88.8	46 57.5	+33.1	90.9	46 53.4	+35.6	93.0	46 44.8	+38.0	95.2
31	47 20.1	+26.8	85.3	47 27.6	+29.5	87.5	47 30.6	+32.2	89.7	47 29.0	+34.8	91.9	47 22.8	+37.3	94.0
32	47 46.9	+25.9	84.0	47 57.1	+28.7	86.2	48 02.8	+31.4	88.4	48 03.8	+34.0	90.6	48 00.1	+36.6	92.9
33	48 12.8	+24.9	82.6	48 25.8	+27.8	84.9	48 34.2	+30.5	87.1	48 37.8	+33.2	89.4	48 36.7	+35.8	91.7
34	48 37.7	+23.9	81.3	48 53.6	+26.8	83.5	49 04.7	+29.6	85.8	49 11.0	+32.4	88.1	49 12.5	+35.0	90.5
35	49 01.6	+22.9	79.9	49 20.4	+25.8	82.2	49 34.3	+28.7	84.5	49 43.4	+31.4	86.8	49 47.5	+34.2	89.2
36	49 24.5	+21.9	78.5	49 46.2	+24.8	80.8	50 03.0	+27.7	83.1	50 14.8	+30.6	85.5	50 21.7	+33.4	87.9
37	49 46.4	+20.8	77.0	50 11.0	+23.7	79.4	50 30.7	+26.6	81.7	50 45.4	+29.6	84.2	50 55.1	+32.4	86.6
38	50 07.2	+19.6	75.6	50 34.7	+22.7	77.9	50 57.3	+25.7	80.3	51 15.0	+28.6	82.8	51 27.5	+31.5	85.3
39	50 26.8	+18.6	74.1	50 57.4	+21.5	76.5	51 23.0	+24.5	78.9	51 43.6	+27.5	81.4	51 59.0	+30.5	83.9
40	50 45.4	+17.3	72.6	51 18.9	+20.4	75.0	51 47.5	+23.5	77.4	52 11.1	+26.5	79.9	52 29.5	+29.5	82.5
41	51 02.7	+16.2	71.1	51 39.3	+19.2	73.5	52 11.0	+22.3	75.9	52 37.6	+25.4	78.5	52 59.0	+28.4	81.0
42	51 18.9	+14.9	69.5	51 58.5	+18.0	71.9	52 33.3	+21.1	74.4	53 03.0	+24.2	77.0	53 27.4	+27.3	79.6
43	51 33.8	+13.7	68.0	52 16.5	+16.8	70.4	52 54.4	+19.9	72.9	53 27.2	+23.0	75.4	53 54.7	+26.2	78.1
44	51 47.5	+12.5	66.4	52 33.3	+15.5	68.8	53 14.3	+18.6	71.3	53 50.2	+21.8	73.9	54 20.9	+24.9	76.5
45	52 00.0	+11.1	64.8	52 48.8	+14.2	67.2	53 32.9	+17.3	69.7	54 12.0	+20.5	72.3	54 45.8	+23.8	75.0
46	52 11.1	+9.9	63.2	53 03.0	+12.9	65.6	53 50.2	+16.0	68.1	54 32.5	+19.2	70.7	55 09.6	+22.4	73.4
47	52 21.0	+8.5	61.6	53 15.9	+11.5	64.0	54 06.2	+14.7	66.4	54 51.7	+17.9	69.0	55 32.0	+21.1	71.7
48	52 29.5	+7.2	60.0	53 27.4	+10.2	62.3	54 20.9	+13.2	64.8	55 09.6	+16.4	67.4	55 53.1	+19.8	70.1
49	52 36.7	+5.8	58.4	53 37.6	+8.7	60.7	54 34.1	+11.9	63.1	55 26.0	+15.1	65.7	56 12.9	+18.3	68.4
50	52 42.5	+4.4	56.7	53 46.3	+7.4	59.0	54 46.0	+10.4	61.4	55 41.1	+13.6	64.0	56 31.2	+16.9	66.7
51	52 46.9	+3.1	55.1	53 53.7	+6.0	57.3	54 56.4	+9.0	59.7	55 54.7	+12.1	62.2	56 48.1	+15.5	64.9
52	52 50.0	+1.7	53.4	53 59.7	+4.5	55.6	55 05.4	+7.5	58.0	56 06.8	+10.7	60.5	57 03.6	+13.8	63.1
53	52 51.7	+0.3	51.8	54 04.2	+3.1	53.9	55 12.9	+6.1	56.2	56 17.5	+9.1	58.7	57 17.4	+12.4	61.4
54	52 52.0	-1.0	50.1	54 07.3	+1.7	52.2	55 19.0	+4.5	54.5	56 26.6	+7.6	56.9	57 29.8	+10.8	59.5
55	52 51.0	-2.5	48.5	54 09.0	+0.2	50.5	55 23.5	+3.0	52.7	56 34.2	+6.0	55.1	57 40.6	+9.1	57.7
56	52 48.5	-3.8	46.8	54 09.2	-1.3	48.8	55 26.5	+1.5	51.0	56 40.2	+4.4	53.3	57 49.7	+7.5	55.9
57	52 44.7	-5.2	45.2	54 07.9	-2.7	47.1	55 28.0	0.0	49.2	56 44.6	+2.8	51.5	57 57.2	+5.9	54.0
58	52 39.5	-6.5	43.5	54 05.2	-4.1	45.4	55 28.0	-1.6	47.4	56 47.4	+1.2	49.7	58 03.1	+4.2	52.1
59	52 33.0	-7.9	41.9	54 01.1	-5.6	43.7	55 26.4	-3.1	45.7	56 48.6	-0.4	47.9	58 07.3	+2.5	50.2
60	52 25.1	-9.2	40.2	53 55.5	-7.0	42.0	55 23.3	-4.5	43.9	56 48.2	-1.9	46.0	58 09.8	+0.9	48.3
61	52 15.9	-10.6	38.6	53 48.5	-8.4	40.3	55 18.8	-6.1	42.2	56 46.3	-3.6	44.2	58 10.7	-0.9	46.4
62	52 05.3	-11.8	37.0	53 40.1	-9.8	38.6	55 12.7	-7.6	40.4	56 42.7	-5.1	42.4	58 09.8	-2.5	44.5
63	51 53.5	-13.1	35.4	53 30.3	-11.1	37.0	55 05.1	-9.0	38.7	56 37.6	-6.8	40.6	58 07.3	-4.2	42.6
64	51 40.4	-14.4	33.9	53 19.2	-12.6	35.3	54 56.1	-10.5	37.0	56 30.8	-8.3	38.8	58 03.1	-5.9	40.8
65	51 26.0	-15.6	32.3	53 06.6	-13.8	33.7	54 45.6	-11.9	35.3	56 22.5	-9.8	37.0	57 57.2	-7.5	38.9
66	51 10.4	-16.8	30.7	52 52.8	-15.1	32.1	54 33.7	-13.4	33.6	56 12.7	-11.3	35.2	57 49.7	-9.2	37.0
67	50 53.6	-18.0	29.2	52 37.7	-16.5	30.5	54 20.3	-14.7	31.9	56 01.4	-12.9	33.4	57 40.5	-10.7	35.2
68	50 35.6	-19.2	27.7	52 21.2	-17.6	28.9	54 05.6	-16.0	30.2	55 48.5	-14.2	31.7	57 29.8	-12.4	33.3
69	50 16.4	-20.2	26.2	52 03.6	-18.9	27.3	53 49.6	-17.4	28.6	55 34.3	-15.8	30.0	57 17.4	-13.9	31.5
70	49 56.2	-21.4	24.8	51 44.7	-20.1	25.8	53 32.2	-18.7	27.0	55 18.5	-17.1	28.3	57 03.5	-15.4	29.7
71	49 34.8	-22.4	23.3	51 24.6	-21.2	24.3	53 13.5	-19.9	25.4	55 01.4	-18.5	26.6	56 48.1	-16.9	27.9
72	49 12.4	-23.5	21.9	51 03.4	-22.4	22.8	52 53.6	-21.1	23.8	54 42.9	-19.8	24.9	56 31.2	-18.4	26.2
73	48 48.9	-24.5	20.5	50 41.0	-23.4	21.3	52 32.5	-22.4	22.3	54 23.1	-21.1	23.3	56 12.8	-19.7	24.5
74	48 24.4	-25.4	19.1	50 17.6	-24.5	19.9	52 10.1	-23.5	20.7	54 02.0	-22.4	21.7	55 53.1	-21.2	22.8
75	47 59.0	-26.4	17.7	49 53.1	-25.6	18.5	51 46.6	-24.6	19.2	53 39.6	-23.6	20.1	55 31.9	-22.4	21.1
76	47 32.6	-27.3	16.4	49 27.5	-26.5	17.1	51 22.0	-25.6	17.8	53 16.0	-24.7	18.6	55 09.5	-23.7	19.5
77	47 05.3	-28.2	15.1	49 01.0	-27.5	15.7	50 56.4	-26.8	16.3	52 51.3	-25.9	17.1	54 45.8	-25.0	17.9
78	46 37.1	-29.0	13.8	48 33.5	-28.4	14.3	50 29.6	-27.7	14.9	52 25.4	-27.0	15.6	54 20.8	-26.2	16.3
79	46 08.1	-29.9	12.5	48 05.1	-29.3	13.0	50 01.9	-28.7	13.5	51 58.4	-28.0	14.1	53 54.6	-27.3	14.8
80	45 38.2	-30.7	11.3	47 35.8	-30.2	11.7	49 33.2	-29.7	12.2	51 30.4	-29.1	12.7	53 27.3	-28.4	13.3
81	45 07.5	-31.4	10.1	47 05.6	-31.0	10.4	49 03.5	-30.5	10.8	51 01.3	-30.0	11.3	52 58.9	-29.5	11.8
82	44 36.1	-32.2	8.9	46 34.6	-31.8	9.2	48 33.0	-31.4	9.5	50 31.3	-31.0	9.9	52 29.4	-30.5	10.4
83	44 03.9	-32.9	7.7	46 02.8	-32.6	8.0	48 01.6	-32.3	8.3	50 00.3	-31.9	8.6	51 58.9	-31.5	9.0
84	43 31.0	-33.6	6.5	45 30.2	-33.3	6.7	47 29.3	-33.0	7.0	49 28.4	-32.8	7.3	51 27.4	-32.4	7.6
85	42 57.4	-34.2	5.4	44 56.9	-34.1	5.6	46 56.3	-33.9	5.8	48 55.6	-33.6	6.0	50 55.0	-33.4	6.3
86	42 23.2	-34.9	4.3	44 22.8	-34.7	4.4	46 22.4	-34.5	4.6	48 22.0	-34.3	4.7	50 21.6	-34.2	4.9
87	41 48.3	-35.5	3.2	43 48.1	-35.4	3.3	45 47.9	-35.3	3.4	47 47.7	-35.2	3.5	49 47.4	-35.0	3.7
88	41 12.8	-36.1	2.1	43 12.7	-36.1	2.2	45 12.6	-36.0	2.2	47 12.5	-35.9	2.3	49 12.4	-35.8	2.4
89	40 36.7	-36.7	1.0	42 36.6	-36.6	1.1	44 36.6	-36.6	1.1	46 36.6	-36.6	1.1	48 36.6	-36.6	1.2
90	40 00.0	-37.2	0.0	42 00.0	-37.2	0.0	44 00.0	-37.2	0.0	46 00.0	-37.3	0.0	48 00.0	-37.3	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 52°, 308°

40°			42°			44°			46°			48°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
4	59.6	-47.7	136.8	3	32.1	-48.6	136.9	2	04.5	-49.4	136.9	0	36.8	-50.2	137.0	0	50.9	+51.0	43.0	30
4	11.9	-47.8	137.4	2	43.5	-48.6	137.5	1	15.1	-49.4	137.5	0	13.4	+50.2	42.5	1	41.9	+50.9	42.5	31
3	24.1	-47.8	138.0	1	54.9	-48.6	138.0	0	25.7	-49.5	138.1	1	03.6	+50.2	41.9	2	32.8	+51.0	42.0	32
2	36.3	-47.8	138.6	1	06.3	-48.7	138.6	0	23.8	+49.4	41.4	1	53.8	+50.2	41.4	3	23.8	+50.9	41.5	33
1	48.5	-47.8	139.2	0	17.6	-48.6	139.2	1	13.2	+49.4	40.8	2	44.0	+50.2	40.8	4	14.7	+51.0	40.9	34
1	00.7	-47.9	139.8	0	31.0	+48.6	40.2	2	02.6	+49.4	40.2	3	34.2	+50.2	40.3	5	05.7	+50.8	40.4	35
0	12.8	-47.8	140.4	1	19.6	+48.6	39.6	2	52.0	+49.4	39.7	4	24.4	+50.1	39.7	5	56.5	+50.9	39.9	36
0	35.0	+47.8	39.0	2	08.2	+48.7	39.0	3	41.4	+49.4	39.1	5	14.5	+50.1	39.2	6	47.4	+50.8	39.3	37
1	22.8	+47.9	38.4	2	56.9	+48.5	38.4	4	30.8	+49.3	38.5	6	04.6	+50.1	38.6	7	38.2	+50.8	38.8	38
2	10.7	+47.8	37.8	3	45.4	+48.6	37.9	5	20.1	+49.3	38.0	6	54.7	+50.0	38.1	8	29.0	+50.8	38.3	39
2	58.5	+47.8	37.2	4	34.0	+48.6	37.3	6	09.4	+49.3	37.4	7	44.7	+50.0	37.5	9	19.8	+50.6	37.7	40
3	46.3	+47.7	36.6	5	22.6	+48.5	36.7	6	58.7	+49.2	36.8	8	34.7	+49.9	37.0	10	10.4	+50.7	37.2	41
4	34.0	+47.7	36.0	6	11.1	+48.4	36.1	7	47.9	+49.2	36.2	9	24.6	+49.9	36.4	11	01.1	+50.6	36.6	42
5	21.7	+47.7	35.4	6	59.5	+48.4	35.5	8	37.1	+49.2	35.7	10	14.5	+49.9	35.8	11	51.7	+50.5	36.1	43
6	09.4	+47.7	34.8	7	47.9	+48.4	34.9	9	26.3	+49.0	35.1	11	04.4	+49.7	35.3	12	42.2	+50.4	35.5	44
6	57.1	+47.6	34.1	8	36.3	+48.3	34.3	10	15.3	+49.1	34.5	11	54.1	+49.7	34.7	13	32.6	+50.4	35.0	45
7	44.7	+47.6	33.5	9	24.6	+48.3	33.7	11	04.4	+48.9	33.9	12	43.8	+49.6	34.1	14	23.0	+50.3	34.4	46
8	32.3	+47.5	32.9	10	12.9	+48.2	33.1	11	53.3	+48.9	33.3	13	33.4	+49.6	33.6	15	13.3	+50.2	33.8	47
9	19.8	+47.4	32.3	11	01.1	+48.1	32.5	12	42.2	+48.8	32.7	14	23.0	+49.4	33.0	16	03.5	+50.1	33.3	48
10	07.2	+47.3	31.7	11	49.2	+48.0	31.9	13	31.0	+48.7	32.1	15	12.4	+49.4	32.4	16	53.6	+50.0	32.7	49
10	54.5	+47.3	31.1	12	37.2	+48.0	31.3	14	19.7	+48.6	31.5	16	01.8	+49.3	31.8	17	43.6	+49.9	32.1	50
11	41.8	+47.2	30.4	13	25.2	+47.8	30.7	15	08.3	+48.5	30.9	16	51.1	+49.1	31.2	18	33.5	+49.8	31.5	51
12	29.0	+47.1	29.8	14	13.0	+47.8	30.0	15	56.8	+48.4	30.3	17	40.2	+49.1	30.6	19	23.3	+49.7	31.0	52
13	16.1	+47.1	29.2	15	00.8	+47.7	29.4	16	45.2	+48.3	29.7	18	29.3	+48.9	30.0	20	13.0	+49.6	30.4	53
14	03.2	+46.9	28.5	15	48.5	+47.5	28.8	17	33.5	+48.2	29.1	19	18.2	+48.8	29.4	21	02.6	+49.4	29.8	54
14	50.1	+46.8	27.9	16	36.0	+47.5	28.1	18	21.7	+48.0	28.4	20	07.0	+48.7	28.8	21	52.0	+49.3	29.1	55
15	36.9	+46.7	27.2	17	23.5	+47.3	27.5	19	09.7	+48.0	27.8	20	55.7	+48.6	28.1	22	41.3	+49.2	28.5	56
16	23.6	+46.5	26.6	18	10.8	+47.1	26.9	19	57.7	+47.8	27.2	21	44.3	+48.4	27.5	23	30.5	+49.0	27.9	57
17	10.1	+46.5	25.9	18	57.9	+47.1	26.2	20	45.5	+47.6	26.5	22	32.7	+48.2	26.9	24	19.5	+48.9	27.3	58
17	56.6	+46.3	25.3	19	45.0	+46.9	25.5	21	33.1	+47.5	25.9	23	20.9	+48.1	26.2	25	08.4	+48.7	26.6	59
18	42.9	+46.2	24.6	20	31.9	+46.7	24.9	22	20.6	+47.3	25.2	24	09.0	+47.9	25.6	25	57.1	+48.5	26.0	60
19	29.1	+46.0	23.9	21	18.6	+46.6	24.2	23	07.9	+47.2	24.5	24	56.9	+47.8	24.9	26	45.6	+48.3	25.3	61
20	15.1	+45.8	23.2	22	05.2	+46.4	23.5	23	55.1	+47.0	23.9	25	44.7	+47.5	24.2	27	33.9	+48.1	24.7	62
21	00.9	+45.7	22.5	22	51.6	+46.3	22.8	24	42.1	+46.8	23.2	26	32.2	+47.4	23.6	28	22.0	+48.0	24.0	63
21	46.6	+45.5	21.8	23	37.9	+46.0	22.2	25	28.9	+46.6	22.5	27	19.6	+47.1	22.9	29	10.0	+47.7	23.3	64
22	32.1	+45.3	21.1	24	23.9	+45.9	21.4	26	15.5	+46.4	21.8	28	06.7	+47.0	22.2	29	57.7	+47.5	22.6	65
23	17.4	+45.1	20.4	25	09.8	+45.6	20.7	27	01.9	+46.1	21.1	28	53.7	+46.7	21.5	30	45.2	+47.2	21.9	66
24	02.5	+45.0	19.7	25	55.4	+45.4	20.0	27	48.0	+46.0	20.4	29	40.4	+46.5	20.8	31	32.4	+47.1	21.2	67
24	47.5	+44.7	19.0	26	40.8	+45.2	19.3	28	34.0	+45.7	19.6	30	26.9	+46.2	20.0	32	19.5	+46.7	20.4	68
25	32.2	+44.4	18.2	27	26.0	+45.0	18.6	29	19.7	+45.4	18.9	31	13.1	+46.0	19.3	33	06.2	+46.5	19.7	69
26	16.6	+44.3	17.5	28	11.0	+44.7	17.8	30	05.1	+45.2	18.1	31	59.1	+45.6	18.5	33	52.7	+46.2	18.9	70
27	00.9	+44.0	16.7	28	55.7	+44.5	17.0	30	50.3	+45.0	17.4	32	44.7	+45.5	17.8	34	38.9	+45.9	18.2	71
27	44.9	+43.7	16.0	29	40.2	+44.2	16.3	31	35.3	+44.6	16.6	33	30.2	+45.1	17.0	35	24.8	+45.6	17.4	72
28	28.6	+43.5	15.2	30	24.4	+43.9	15.5	32	19.9	+44.4	15.8	34	15.3	+44.8	16.2	36	10.4	+45.3	16.6	73
29	12.1	+43.2	14.4	31	08.3	+43.6	14.7	33	04.3	+44.0	15.0	35	00.1	+44.4	15.4	36	55.7	+44.9	15.8	74
29	55.3	+42.9	13.6	31	51.9	+43.3	13.9	33	48.3	+43.7	14.2	35	44.5	+44.2	14.6	37	40.6	+44.5	14.9	75
30	38.2	+42.6	12.8	32	35.2	+43.0	13.1	34	32.0	+43.4	13.4	36	28.7	+43.7	13.7	38	25.1	+44.2	14.1	76
31	20.8	+42.3	12.0	33	18.2	+42.6	12.2	35	15.4	+43.0	12.5	37	12.4	+43.4	12.9	39	09.3	+43.8	13.2	77
32	03.1	+42.0	11.1	34	00.8	+42.3	11.4	35	58.4	+42.6	11.7	37	55.8	+43.0	12.0	39	53.1	+43.4	12.3	78
32	45.1	+41.6	10.3	34	43.1	+41.9	10.5	36	41.0	+42.2	10.8	38	38.8	+42.6	11.1	40	36.5	+43.0	11.4	79
33	26.7	+41.2	9.4	35	25.0	+41.5	9.7	37	23.2	+41.9	9.9	39	21.4	+42.2	10.2	41	19.5	+42.4	10.5	80
34	07.9	+40.9	8.6	36	06.5	+41.2	8.8	38	05.1	+41.4	9.0	40	03.6	+41.7	9.3	42	01.9	+42.1	9.6	81
34	48.8	+40.4	7.7	36	47.7	+40.7	7.9	38	46.5	+41.0	8.1	40	45.3	+41.2	8.3	42	44.0	+41.5	8.6	82
35	29.2	+40.1	6.8	37	28.4	+40.2	7.0	39	27.5	+40.5	7.1	41	26.5	+40.7	7.4	43	25.5	+41.0	7.6	83
36	09.3	+39.6	5.9	38	08.6	+39.9	6.0	40	08.0	+40.0	6.2	42	07.2	+40.3	6.4	44	06.5	+40.4	6.6	84
36	48.9	+39.2	4.9	38	48.5	+39.3	5.1	40	48.0	+39.5	5.2	42	47.5	+39.7	5.4	44	46.9	+39.9	5.6	85
37	28.1	+38.7	4.0	39	27.8	+38.9	4.1	41	27.5	+39.0	4.2	43	27.2	+39.1	4.3	45	26.8	+39.3	4.5	86
38	06.8	+38.3	3.0	40	06.7	+38.3	3.1	42	06.5	+38.4	3.2	44	06.3	+38.5	3.3	46	06.1	+38.6	3.4	87
38	45.1	+37.7	2.0	40	45.0	+37.8	2.1	42	44.9	+37.9	2.1	44	44.8	+37.9	2.2	46	44.7	+38.0	2.3	88
39	22.8	+37.2	1.0	41	22.8	+37.2	1.1	43	22.8	+37.2	1.1	45	22.7	+37.3	1.1	47	22.7	+37.3	1.2	89
40	00.0	+36.7	0.0	42	00.0	+36.6	0.0	44	00.0	+36.6	0.0	46	00.0	+36.6	0.0	48	00.0	+36.6	0.0	90

LATITUDE SAME NAME

L.H.A. 128°, 232°

52°, 308° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	46 31.8	+40.3	97.3	46 14.5	+42.5	99.3	45 52.9	+44.5	101.4	45 27.1	+46.5	103.4	44 57.4	+48.2	105.3
31	47 12.1	+39.7	96.2	46 57.0	+41.9	98.3	46 37.4	+44.1	100.4	46 13.6	+46.0	102.5	45 45.6	+47.9	104.5
32	47 51.8	+39.0	95.1	47 38.9	+41.3	97.3	47 21.5	+43.5	99.4	46 59.6	+45.6	101.5	46 33.5	+47.5	103.6
33	48 30.8	+38.3	93.9	48 20.2	+40.7	96.2	48 05.0	+43.0	98.4	47 45.2	+45.1	100.6	47 21.0	+47.0	102.7
34	49 09.1	+37.6	92.8	49 00.9	+40.1	95.1	48 48.0	+42.3	97.3	48 30.3	+44.5	99.6	48 08.0	+46.6	101.8
35	49 46.7	+36.8	91.6	49 41.0	+39.3	93.9	49 30.3	+41.7	96.3	49 14.8	+44.0	98.6	48 54.6	+46.0	100.9
36	50 23.5	+36.1	90.3	50 20.3	+38.6	92.7	50 12.0	+41.1	95.2	49 58.8	+43.4	97.5	49 40.6	+45.6	99.9
37	50 59.6	+35.2	89.1	50 58.9	+37.9	91.5	50 53.1	+40.4	94.0	50 42.2	+42.8	96.4	50 26.2	+45.0	98.9
38	51 34.8	+34.3	87.8	51 36.8	+37.0	90.3	51 33.5	+39.7	92.8	51 25.0	+42.1	95.3	51 11.2	+44.5	97.8
39	52 09.1	+33.4	86.4	52 13.8	+36.2	89.0	52 13.2	+38.8	91.6	52 07.1	+41.4	94.2	51 55.7	+43.8	96.7
40	52 42.5	+32.4	85.1	52 50.0	+35.3	87.7	52 52.0	+38.1	90.4	52 48.5	+40.7	93.0	52 39.5	+43.2	95.6
41	53 14.9	+31.4	83.7	53 25.3	+34.4	86.4	53 30.1	+37.2	89.1	53 29.2	+40.0	91.8	53 22.7	+42.5	94.5
42	53 46.3	+30.4	82.3	53 59.7	+33.4	85.0	54 07.3	+36.3	87.7	54 09.2	+39.1	90.5	54 05.2	+41.8	93.3
43	54 16.7	+29.3	80.8	54 33.1	+32.3	83.6	54 43.6	+35.4	86.4	54 48.3	+38.2	89.2	54 47.0	+41.0	92.0
44	54 46.0	+28.1	79.3	55 05.4	+31.3	82.1	55 19.0	+34.3	85.0	55 26.5	+37.3	87.8	55 28.0	+40.1	90.8
45	55 14.1	+27.0	77.7	55 36.7	+30.1	80.6	55 53.3	+33.3	83.5	56 03.8	+36.4	86.5	56 08.1	+39.3	89.4
46	55 41.1	+25.7	76.2	56 06.8	+29.0	79.1	56 26.6	+32.2	82.0	56 40.2	+35.3	85.0	56 47.4	+38.3	88.1
47	56 06.8	+24.4	74.6	56 35.8	+27.8	77.5	56 58.8	+31.0	80.5	57 15.5	+34.2	83.5	57 25.7	+37.4	86.6
48	56 31.2	+23.1	72.9	57 03.6	+26.4	75.9	57 29.8	+29.8	78.9	57 49.7	+33.1	82.0	58 03.1	+36.3	85.2
49	56 54.3	+21.7	71.2	57 30.0	+25.1	74.2	57 59.6	+28.5	77.3	58 22.8	+31.9	80.4	58 39.4	+35.2	83.7
50	57 16.0	+20.3	69.5	57 55.1	+23.7	72.5	58 28.1	+27.2	75.6	58 54.7	+30.6	78.8	59 14.6	+34.1	82.1
51	57 36.3	+18.8	67.8	58 18.8	+22.3	70.8	58 55.3	+25.8	73.9	59 25.3	+29.4	77.1	59 48.7	+32.8	80.5
52	57 55.1	+17.3	66.0	58 41.1	+20.8	69.0	59 21.1	+24.3	72.1	59 54.7	+27.9	75.4	60 21.5	+31.5	78.8
53	58 12.4	+15.7	64.2	59 01.9	+19.2	67.2	59 45.4	+22.8	70.3	60 22.6	+26.4	73.6	60 53.0	+30.1	77.1
54	58 28.1	+14.1	62.3	59 21.1	+17.6	65.3	60 08.2	+21.2	68.5	60 49.0	+24.9	71.8	61 23.1	+28.6	75.3
55	58 42.2	+12.5	60.5	59 38.7	+16.0	63.4	60 29.4	+19.6	66.6	61 13.9	+23.3	69.9	61 51.7	+27.1	73.4
56	58 54.7	+10.8	58.6	59 54.7	+14.2	61.5	60 49.0	+17.9	64.6	61 37.2	+21.7	68.0	62 18.8	+25.5	71.5
57	59 05.5	+9.1	56.7	60 08.9	+12.6	59.6	61 06.9	+16.2	62.7	61 58.9	+19.9	66.0	62 44.3	+23.8	69.5
58	59 14.6	+7.4	54.7	60 21.5	+10.7	57.6	61 23.1	+14.3	60.7	62 18.8	+18.1	64.0	63 08.1	+22.0	67.5
59	59 22.0	+5.7	52.8	60 32.2	+9.0	55.6	61 37.4	+12.5	58.6	62 36.9	+16.3	61.9	63 30.1	+20.2	65.5
60	59 27.7	+3.8	50.8	60 41.2	+7.1	53.6	61 49.9	+10.7	56.6	62 53.2	+14.3	59.8	63 50.3	+18.3	63.3
61	59 31.5	+2.1	48.9	60 48.3	+5.3	51.6	62 00.6	+8.7	54.5	63 07.5	+12.4	57.7	64 08.6	+16.3	61.2
62	59 33.6	+0.4	46.9	60 53.6	+3.4	49.5	62 09.3	+6.7	52.4	63 19.9	+10.4	55.5	64 24.9	+14.3	58.9
63	59 34.0	-1.5	44.9	60 57.0	+1.6	47.5	62 16.0	+4.8	50.2	63 30.3	+8.3	53.3	64 39.2	+12.1	56.7
64	59 32.5	-3.2	43.0	60 58.6	-0.4	45.4	62 20.8	+2.8	48.1	63 38.6	+6.3	51.1	64 51.3	+10.0	54.4
65	59 29.3	-5.1	41.0	60 58.2	-2.2	43.3	62 23.6	+0.8	45.9	63 44.9	+4.1	48.8	65 01.3	+7.8	52.1
66	59 24.2	-6.7	39.0	60 56.0	-4.1	41.3	62 24.4	-1.2	43.8	63 49.0	+2.1	46.6	65 09.1	+5.6	49.7
67	59 17.5	-8.5	37.1	60 51.9	-6.0	39.2	62 23.2	-3.2	41.6	63 51.1	-0.1	44.3	65 14.7	+3.3	47.3
68	59 09.0	-10.2	35.1	60 45.9	-7.8	37.2	62 20.0	-5.1	39.5	63 51.0	-2.3	42.0	65 18.0	+1.1	44.9
69	58 58.8	-11.9	33.2	60 38.1	-9.7	35.2	62 14.9	-7.2	37.3	63 48.7	-4.4	39.8	65 19.1	-1.3	42.6
70	58 46.9	-13.5	31.3	60 28.4	-11.4	33.2	62 07.7	-9.1	35.2	63 44.3	-6.4	37.5	65 17.8	-3.5	40.2
71	58 33.4	-15.2	29.5	60 17.0	-13.2	31.2	61 58.6	-11.0	33.1	63 37.9	-8.6	35.3	65 14.3	-5.7	37.8
72	58 18.2	-16.7	27.6	60 03.8	-15.0	29.2	61 47.6	-12.9	31.0	63 29.3	-10.6	33.1	65 08.6	-8.0	35.4
73	58 01.5	-18.3	25.8	59 48.8	-16.5	27.3	61 34.7	-14.7	29.0	63 18.7	-12.6	30.9	65 00.6	-10.2	33.0
74	57 43.2	-19.7	24.0	59 32.3	-18.3	25.4	61 20.0	-16.5	26.9	63 06.1	-14.5	28.7	64 50.4	-12.3	30.7
75	57 23.5	-21.2	22.2	59 14.0	-19.8	23.5	61 03.5	-18.2	24.9	62 51.6	-16.5	26.6	64 38.1	-14.5	28.4
76	57 02.3	-22.6	20.5	58 54.2	-21.3	21.7	60 45.3	-20.0	23.0	62 35.1	-18.3	24.5	64 23.6	-16.5	26.2
77	56 39.7	-24.0	18.8	58 32.9	-22.8	19.9	60 25.3	-21.5	21.0	62 16.8	-20.1	22.4	64 07.1	-18.4	24.0
78	56 15.7	-25.3	17.2	58 10.1	-24.3	18.1	60 03.8	-23.1	19.2	61 56.7	-21.8	20.4	63 48.7	-20.4	21.8
79	55 50.4	-26.5	15.5	57 45.8	-25.6	16.4	59 40.7	-24.6	17.3	61 34.9	-23.5	18.4	63 28.3	-22.2	19.7
80	55 23.9	-27.7	13.9	57 20.2	-26.9	14.7	59 16.1	-26.1	15.5	61 11.4	-25.1	16.5	63 06.1	-23.9	17.6
81	54 56.2	-28.9	12.4	56 53.3	-28.2	13.0	58 50.0	-27.4	13.8	60 46.3	-26.6	14.6	62 42.2	-25.6	15.6
82	54 27.3	-30.0	10.9	56 25.1	-29.4	11.4	58 22.6	-28.8	12.1	60 19.7	-28.0	12.8	62 16.6	-27.3	13.6
83	53 57.3	-31.0	9.4	55 55.7	-30.6	9.9	57 53.8	-30.1	10.4	59 51.7	-29.5	11.0	61 49.3	-28.7	11.7
84	53 26.3	-32.1	7.9	55 25.1	-31.7	8.3	57 23.7	-31.2	8.8	59 22.2	-30.7	9.3	61 20.6	-30.2	9.9
85	52 54.2	-33.0	6.5	54 53.4	-32.8	6.9	56 52.5	-32.4	7.2	58 51.5	-32.0	7.6	60 50.4	-31.6	8.1
86	52 21.2	-34.0	5.2	54 20.6	-33.7	5.4	56 20.1	-33.5	5.7	58 19.5	-33.3	6.0	60 18.8	-32.9	6.4
87	51 47.2	-34.9	3.8	53 46.9	-34.7	4.0	55 46.6	-34.6	4.2	57 46.2	-34.3	4.4	59 45.9	-34.2	4.7
88	51 12.3	-35.8	2.5	53 12.2	-35.7	2.6	55 12.0	-35.5	2.8	57 11.9	-35.5	2.9	59 11.7	-35.3	3.1
89	50 36.5	-36.5	1.2	52 36.5	-36.5	1.3	54 36.5	-36.5	1.4	56 36.4	-36.4	1.4	58 36.4	-36.4	1.5
90	50 00.0	-37.3	0.0	52 00.0	-37.3	0.0	54 00.0	-37.4	0.0	56 00.0	-37.4	0.0	58 00.0	-37.4	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 52°, 308°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
2 18.6 +51.7	43.1		3 46.2 +52.4	43.2		5 13.7 +53.1	43.3		6 41.0 +53.7	43.4		8 08.0 +54.4	43.6		30
3 10.3 +51.7	42.6		4 38.6 +52.4	42.7		6 06.8 +53.0	42.8		7 34.7 +53.7	43.0		9 02.4 +54.4	43.2		31
4 02.0 +51.7	42.1		5 31.0 +52.4	42.2		6 59.8 +53.1	42.3		8 28.4 +53.7	42.5		9 56.8 +54.3	42.7		32
4 53.7 +51.6	41.6		6 23.4 +52.3	41.7		7 52.9 +53.0	41.9		9 22.1 +53.7	42.1		10 51.1 +54.3	42.3		33
5 45.3 +51.7	41.0		7 15.7 +52.4	41.2		8 45.9 +53.0	41.4		10 15.8 +53.6	41.6		11 45.4 +54.2	41.9		34
6 37.0 +51.6	40.5		8 08.1 +52.2	40.7		9 38.9 +52.9	40.9		11 09.4 +53.6	41.1		12 39.6 +54.2	41.4		35
7 28.6 +51.5	40.0		9 00.3 +52.3	40.2		10 31.8 +52.9	40.4		12 03.0 +53.6	40.7		13 33.8 +54.2	41.0		36
8 20.1 +51.5	39.5		9 52.6 +52.2	39.7		11 24.7 +52.9	39.9		12 56.6 +53.5	40.2		14 28.0 +54.1	40.5		37
9 11.6 +51.5	39.0		10 44.8 +52.1	39.2		12 17.6 +52.8	39.5		13 50.1 +53.4	39.8		15 22.1 +54.0	40.1		38
10 03.1 +51.4	38.5		11 36.9 +52.1	38.7		13 10.4 +52.8	39.0		14 43.5 +53.4	39.3		16 16.1 +54.0	39.6		39
10 54.5 +51.4	37.9		12 29.0 +52.1	38.2		14 03.2 +52.6	38.5		15 36.9 +53.3	38.8		17 10.1 +54.0	39.2		40
11 45.9 +51.3	37.4		13 21.1 +51.9	37.7		14 55.8 +52.7	38.0		16 30.2 +53.3	38.3		18 04.1 +53.8	38.7		41
12 37.2 +51.3	36.9		14 13.0 +52.0	37.2		15 48.5 +52.5	37.5		17 23.5 +53.1	37.9		18 57.9 +53.8	38.3		42
13 28.5 +51.2	36.3		15 05.0 +51.8	36.6		16 41.0 +52.5	37.0		18 16.6 +53.1	37.4		19 51.7 +53.8	37.8		43
14 19.7 +51.1	35.8		15 56.8 +51.8	36.1		17 33.5 +52.4	36.5		19 09.7 +53.1	36.9		20 45.5 +53.6	37.3		44
15 10.8 +51.0	35.3		16 48.6 +51.6	35.6		18 25.9 +52.3	36.0		20 02.8 +52.9	36.4		21 39.1 +53.6	36.8		45
16 01.8 +51.0	34.7		17 40.2 +51.6	35.1		19 18.2 +52.3	35.5		20 55.7 +52.9	35.9		22 32.7 +53.4	36.3		46
16 52.8 +50.8	34.2		18 31.8 +51.5	34.5		20 10.5 +52.1	34.9		21 48.6 +52.7	35.4		23 26.1 +53.4	35.9		47
17 43.6 +50.8	33.6		19 23.3 +51.4	34.0		21 02.6 +52.0	34.4		22 41.3 +52.7	34.9		24 19.5 +53.3	35.4		48
18 34.4 +50.6	33.1		20 14.7 +51.3	33.4		21 54.6 +52.0	33.9		23 34.0 +52.6	34.3		25 12.8 +53.2	34.8		49
19 25.0 +50.6	32.5		21 06.0 +51.2	32.9		22 46.6 +51.8	33.3		24 26.6 +52.4	33.8		26 06.0 +53.0	34.3		50
20 15.6 +50.4	31.9		21 57.2 +51.1	32.3		23 38.4 +51.7	32.8		25 19.0 +52.3	33.3		26 59.0 +53.0	33.8		51
21 06.0 +50.4	31.3		22 48.3 +51.0	31.8		24 30.1 +51.6	32.2		26 11.3 +52.2	32.7		27 52.0 +52.8	33.3		52
21 56.4 +50.2	30.7		23 39.3 +50.8	31.2		25 21.7 +51.4	31.7		27 03.5 +52.1	32.2		28 44.8 +52.7	32.7		53
22 46.6 +50.0	30.2		24 30.1 +50.7	30.6		26 13.1 +51.4	31.1		27 55.6 +52.0	31.6		29 37.5 +52.5	32.2		54
23 36.6 +50.0	29.6		25 20.8 +50.5	30.0		27 04.5 +51.1	30.5		28 47.6 +51.7	31.0		30 30.0 +52.5	31.6		55
24 26.6 +49.7	28.9		26 11.3 +50.4	29.4		27 55.6 +51.0	29.9		29 39.3 +51.7	30.5		31 22.5 +52.2	31.1		56
25 16.3 +49.7	28.3		27 01.7 +50.3	28.8		28 46.6 +50.9	29.3		30 31.0 +51.5	29.9		32 14.7 +52.1	30.5		57
26 06.0 +49.4	27.7		27 52.0 +50.1	28.2		29 37.5 +50.7	28.7		31 22.5 +51.3	29.3		33 06.8 +51.9	29.9		58
26 55.4 +49.3	27.1		28 42.1 +49.9	27.6		30 28.2 +50.5	28.1		32 13.8 +51.1	28.7		33 58.7 +51.8	29.3		59
27 44.7 +49.1	26.4		29 32.0 +49.7	26.9		31 18.7 +50.3	27.5		33 04.9 +50.9	28.0		34 50.5 +51.5	28.7		60
28 33.8 +49.0	25.8		30 21.7 +49.5	26.3		32 09.0 +50.1	26.8		33 55.8 +50.8	27.4		35 42.0 +51.4	28.1		61
29 22.8 +48.7	25.1		31 11.2 +49.3	25.6		32 59.1 +50.0	26.2		34 46.6 +50.5	26.8		36 33.4 +51.1	27.4		62
30 11.5 +48.5	24.4		32 00.5 +49.1	25.0		33 49.1 +49.7	25.5		35 37.1 +50.3	26.1		37 24.5 +51.0	26.8		63
31 00.0 +48.3	23.8		32 49.6 +48.9	24.3		34 38.8 +49.4	24.8		36 27.4 +50.1	25.4		38 15.5 +50.7	26.1		64
31 48.3 +48.0	23.1		33 38.5 +48.6	23.6		35 28.2 +49.3	24.1		37 17.5 +49.8	24.7		39 06.2 +50.4	25.4		65
32 36.3 +47.9	22.4		34 27.1 +48.4	22.9		36 17.5 +48.9	23.4		38 07.3 +49.6	24.0		39 56.6 +50.2	24.7		66
33 24.2 +47.5	21.6		35 15.5 +48.1	22.2		37 06.4 +48.7	22.7		38 56.9 +49.3	23.3		40 46.8 +49.9	24.0		67
34 11.7 +47.3	20.9		36 03.6 +47.9	21.4		37 55.1 +48.5	22.0		39 46.2 +49.0	22.6		41 36.7 +49.6	23.3		68
34 59.0 +47.0	20.2		36 51.5 +47.6	20.7		38 43.6 +48.1	21.2		40 35.2 +48.7	21.8		42 26.3 +49.3	22.5		69
35 46.0 +46.8	19.4		37 39.1 +47.2	19.9		39 31.7 +47.8	20.5		41 23.9 +48.4	21.1		43 15.6 +49.0	21.7		70
36 32.8 +46.4	18.6		38 26.3 +47.0	19.1		40 19.5 +47.5	19.7		42 12.3 +48.1	20.3		44 04.6 +48.7	20.9		71
37 19.2 +46.1	17.8		39 13.3 +46.6	18.3		41 07.0 +47.1	18.9		43 00.4 +47.7	19.5		44 53.3 +48.3	20.1		72
38 05.3 +45.7	17.0		39 59.9 +46.2	17.5		41 54.1 +46.8	18.0		43 48.1 +47.3	18.6		45 41.6 +47.9	19.3		73
38 51.0 +45.4	16.2		40 46.1 +45.9	16.7		42 40.9 +46.4	17.2		44 35.4 +46.9	17.8		46 29.5 +47.5	18.4		74
39 36.4 +45.0	15.4		41 32.0 +45.5	15.8		43 27.3 +46.0	16.3		45 22.3 +46.5	16.9		47 17.0 +47.0	17.5		75
40 21.4 +44.7	14.5		42 17.5 +45.1	14.9		44 13.3 +45.6	15.4		46 08.8 +46.1	16.0		48 04.0 +46.6	16.6		76
41 06.1 +44.2	13.6		43 02.6 +44.6	14.0		44 58.9 +45.1	14.5		46 54.9 +45.6	15.0		48 50.6 +46.2	15.6		77
41 50.3 +43.8	12.7		43 47.2 +44.2	13.1		45 44.0 +44.6	13.6		47 40.5 +45.1	14.1		49 36.8 +45.6	14.6		78
42 34.1 +43.3	11.8		44 31.4 +43.8	12.2		46 28.6 +44.2	12.6		48 25.6 +44.6	13.1		50 22.4 +45.1	13.6		79
43 17.4 +42.8	10.8		45 15.2 +43.2	11.2		47 12.8 +43.6	11.6		49 10.2 +44.1	12.1		51 07.5 +44.5	12.6		80
44 00.2 +42.4	9.9		45 58.4 +42.7	10.2		47 56.4 +43.1	10.6		49 54.3 +43.4	11.0		51 52.0 +43.9	11.5		81
44 42.6 +41.8	8.9		46 41.1 +42.1	9.2		48 39.5 +42.5	9.6		50 37.7 +42.9	10.0		52 35.9 +43.2	10.4		82
45 24.4 +41.3	7.9		47 23.2 +41.6	8.2		49 22.0 +41.8	8.5		51 20.6 +42.2	8.8		53 19.1 +42.6	9.3		83
46 05.7 +40.6	6.8		48 04.8 +40.9	7.1		50 03.8 +41.2	7.4		52 02.8 +41.5	7.7		54 01.7 +41.8	8.1		84
46 46.3 +40.1	5.8		48 45.7 +40.3	6.0		50 45.0 +40.6	6.2		52 44.3 +40.8	6.5		54 43.5 +41.0	6.8		85
47 26.4 +39.5	4.7		49 26.0 +39.6	4.8		51 25.6 +39.8	5.1		53 25.1 +40.0	5.3		55 24.5 +40.3	5.6		86
48 05.9 +38.7	3.5		50 05.6 +38.9	3.7		52 05.4 +39.0	3.8		54 05.1 +39.2	4.0		56 04.8 +39.3	4.2		87
48 44.6 +38.1	2.4		50 44.5 +38.2	2.5		52 44.4 +38.2	2.6		54 44.3 +38.3	2.7		56 44.1 +38.5	2.9		88
49 22.7 +37.3	1.2		51 22.7 +37.3	1.3		53 22.6 +37.4	1.3		55 22.6 +37.4	1.4		57 22.6 +37.4	1.5		89
50 00.0 +36.5	0.0		52 00.0 +36.5	0.0		54 00.0 +36.5	0.0		56 00.0 +36.4	0.0		58 00.0 +36.4	0.0		90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 128°, 232°

54°, 306° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	43 41.8	+14.3	75.7	44 09.5	+17.1	77.6	44 33.4	+19.8	79.5	44 53.2	+22.6	81.5	45 09.0	+25.2	83.4
31	43 56.1	+13.4	74.4	44 26.6	+16.1	76.2	44 53.2	+18.8	78.2	45 15.8	+21.6	80.1	45 34.2	+24.4	82.1
32	44 09.5	+12.4	73.0	44 42.7	+15.2	74.9	45 12.0	+17.9	76.8	45 37.4	+20.6	78.8	45 58.6	+23.4	80.8
33	44 21.9	+11.5	71.6	44 57.9	+14.1	73.5	45 29.9	+17.0	75.5	45 58.0	+19.7	77.5	46 22.0	+22.5	79.5
34	44 33.4	+10.4	70.3	45 12.0	+13.2	72.1	45 46.9	+15.9	74.1	46 17.7	+18.8	76.1	46 44.5	+21.5	78.2
35	44 43.8	+9.4	68.9	45 25.2	+12.2	70.8	46 02.8	+14.9	72.7	46 36.5	+17.7	74.7	47 06.0	+20.5	76.8
36	44 53.2	+8.4	67.5	45 37.4	+11.1	69.4	46 17.7	+13.9	71.3	46 54.2	+16.7	73.3	47 26.5	+19.6	75.4
37	45 01.6	+7.4	66.1	45 48.5	+10.1	68.0	46 31.6	+12.9	69.9	47 10.9	+15.6	71.9	47 46.1	+18.5	74.0
38	45 09.0	+6.3	64.7	45 58.6	+9.0	66.5	46 44.5	+11.8	68.5	47 26.5	+14.6	70.5	48 04.6	+17.4	72.6
39	45 15.3	+5.3	63.3	46 07.6	+8.0	65.1	46 56.3	+10.7	67.0	47 41.1	+13.5	69.1	48 22.0	+16.3	71.1
40	45 20.6	+4.3	61.9	46 15.6	+6.8	63.7	47 07.0	+9.6	65.6	47 54.6	+12.4	67.6	48 38.3	+15.3	69.7
41	45 24.9	+3.2	60.4	46 22.4	+5.8	62.2	47 16.6	+8.5	64.1	48 07.0	+11.3	66.1	48 53.6	+14.1	68.2
42	45 28.1	+2.1	59.0	46 28.2	+4.7	60.8	47 25.1	+7.3	62.7	48 18.3	+10.1	64.7	49 07.7	+12.9	66.7
43	45 30.2	+1.0	57.6	46 32.9	+3.6	59.4	47 32.4	+6.3	61.2	48 28.4	+9.0	63.2	49 20.6	+11.8	65.3
44	45 31.2	0.0	56.2	46 36.5	+2.5	57.9	47 38.7	+5.1	59.7	48 37.4	+7.8	61.7	49 32.4	+10.6	63.7
45	45 31.2	-1.1	54.7	46 39.0	+1.4	56.4	47 43.8	+3.9	58.3	48 45.2	+6.6	60.2	49 43.0	+9.4	62.2
46	45 30.1	-2.1	53.3	46 40.4	+0.3	55.0	47 47.7	+2.9	56.8	48 51.8	+5.5	58.7	49 52.4	+8.2	60.7
47	45 28.0	-3.2	51.9	46 40.7	-0.8	53.5	47 50.6	+1.6	55.3	48 57.3	+4.2	57.2	50 00.6	+6.9	59.2
48	45 24.8	-4.3	50.5	46 39.9	-2.0	52.1	47 52.2	+0.5	53.8	49 01.5	+3.1	55.6	50 07.5	+5.8	57.6
49	45 20.5	-5.3	49.0	46 37.9	-3.0	50.6	47 52.7	-0.7	52.3	49 04.6	+1.8	54.1	50 13.3	+4.4	56.1
50	45 15.2	-6.4	47.6	46 34.9	-4.2	49.2	47 52.0	-1.8	50.8	49 06.4	+0.7	52.6	50 17.7	+3.3	54.5
51	45 08.8	-7.4	46.2	46 30.7	-5.2	47.7	47 50.2	-2.9	49.3	49 07.1	-0.6	51.1	50 21.0	+1.9	52.9
52	45 01.4	-8.4	44.8	46 25.5	-6.3	46.3	47 47.3	-4.2	47.8	49 06.5	-1.8	49.5	50 22.9	+0.7	51.4
53	44 53.0	-9.5	43.4	46 19.2	-7.5	44.8	47 43.1	-5.2	46.4	49 04.7	-3.0	48.0	50 23.6	-0.6	49.8
54	44 43.5	-10.4	42.0	46 11.7	-8.5	43.4	47 37.9	-6.4	44.9	49 01.7	-4.2	46.5	50 23.0	-1.8	48.2
55	44 33.1	-11.5	40.6	46 03.2	-9.5	42.0	47 31.5	-7.6	43.4	48 57.5	-5.4	45.0	50 21.2	-3.1	46.7
56	44 21.6	-12.4	39.3	45 53.7	-10.6	40.5	47 23.9	-8.6	41.9	48 52.1	-6.5	43.5	50 18.1	-4.4	45.1
57	44 09.2	-13.4	37.9	45 43.1	-11.7	39.1	47 15.3	-9.8	40.5	48 45.6	-7.8	41.9	50 13.7	-5.6	43.5
58	43 55.8	-14.4	36.5	45 31.4	-12.6	37.7	47 05.5	-10.8	39.0	48 37.8	-8.9	40.4	50 08.1	-6.8	42.0
59	43 41.4	-15.3	35.2	45 18.8	-13.7	36.3	46 54.7	-11.9	37.6	48 28.9	-10.1	38.9	50 01.3	-8.1	40.4
60	43 26.1	-16.2	33.9	45 05.1	-14.6	35.0	46 42.8	-13.0	36.2	48 18.8	-11.2	37.5	49 53.2	-9.3	38.9
61	43 09.9	-17.2	32.5	44 50.5	-15.7	33.6	46 29.8	-14.1	34.7	48 07.6	-12.3	36.0	49 43.9	-10.5	37.4
62	42 52.7	-18.0	31.2	44 34.8	-16.6	32.2	46 15.7	-15.0	33.3	47 55.3	-13.4	34.5	49 33.4	-11.7	35.8
63	42 34.7	-18.9	29.9	44 18.2	-17.5	30.9	46 00.7	-16.1	31.9	47 41.9	-14.6	33.1	49 21.7	-12.8	34.3
64	42 15.8	-19.7	28.6	44 00.7	-18.5	29.5	45 44.6	-17.1	30.5	47 27.3	-15.5	31.6	49 08.9	-14.0	32.8
65	41 56.1	-20.6	27.4	43 42.2	-19.3	28.2	45 27.5	-18.0	29.2	47 11.8	-16.7	30.2	48 54.9	-15.2	31.3
66	41 35.5	-21.4	26.1	43 22.9	-20.3	26.9	45 09.5	-19.0	27.8	46 55.1	-17.7	28.8	48 39.7	-16.2	29.9
67	41 14.1	-22.2	24.9	43 02.6	-21.1	25.6	44 50.5	-20.0	26.5	46 37.4	-18.6	27.4	48 23.5	-17.3	28.4
68	40 51.9	-23.0	23.6	42 41.5	-21.9	24.4	44 30.5	-20.8	25.1	46 18.8	-19.7	26.0	48 06.2	-18.4	27.0
69	40 28.9	-23.7	22.4	42 19.6	-22.8	23.1	44 09.7	-21.7	23.8	45 59.1	-20.6	24.7	47 47.8	-19.5	25.6
70	40 05.2	-24.5	21.2	41 56.8	-23.5	21.8	43 48.0	-22.6	22.5	45 38.5	-21.6	23.3	47 28.3	-20.4	24.2
71	39 40.7	-25.1	20.0	41 33.3	-24.4	20.6	43 25.4	-23.5	21.3	45 16.9	-22.5	22.0	47 07.9	-21.5	22.8
72	39 15.6	-25.9	18.8	41 08.9	-25.1	19.4	43 01.9	-24.2	20.0	44 54.4	-23.3	20.7	46 46.4	-22.4	21.4
73	38 49.7	-26.6	17.7	40 43.8	-25.8	18.2	42 37.7	-25.1	18.8	44 31.1	-24.3	19.4	46 24.0	-23.3	20.1
74	38 23.1	-27.2	16.5	40 18.0	-26.6	17.0	42 12.6	-25.9	17.5	44 06.8	-25.0	18.1	46 00.7	-24.3	18.7
75	37 55.9	-27.9	15.4	39 51.4	-27.2	15.8	41 46.7	-26.6	16.3	43 41.8	-25.9	16.8	45 36.4	-25.1	17.4
76	37 28.0	-28.5	14.3	39 24.2	-28.0	14.7	41 20.1	-27.3	15.1	43 15.9	-26.7	15.6	45 11.3	-26.0	16.1
77	36 59.5	-29.1	13.2	38 56.2	-28.6	13.5	40 52.8	-28.0	13.9	42 49.2	-27.5	14.4	44 45.3	-26.9	14.8
78	36 30.4	-29.7	12.1	38 27.6	-29.2	12.4	40 24.8	-28.8	12.8	42 21.7	-28.2	13.2	44 18.4	-27.6	13.6
79	36 00.7	-30.3	11.0	37 58.4	-29.8	11.3	39 56.0	-29.4	11.6	41 53.5	-29.0	12.0	43 50.8	-28.4	12.4
80	35 30.4	-30.8	9.9	37 28.6	-30.5	10.2	39 26.6	-30.1	10.5	41 24.5	-29.6	10.8	43 22.4	-29.3	11.1
81	34 59.6	-31.4	8.9	36 58.1	-31.0	9.1	38 56.5	-30.7	9.4	40 54.9	-30.3	9.6	42 53.1	-29.9	9.9
82	34 28.2	-31.9	7.8	36 27.1	-31.6	8.0	38 25.8	-31.3	8.3	40 24.6	-31.0	8.5	42 23.2	-30.6	8.8
83	33 56.3	-32.3	6.8	35 55.5	-32.2	7.0	37 54.5	-31.8	7.2	39 53.6	-31.6	7.4	41 52.6	-31.4	7.6
84	33 24.0	-32.9	5.8	35 23.3	-32.6	6.0	37 22.7	-32.5	6.1	39 22.0	-32.3	6.3	41 21.2	-32.0	6.5
85	32 51.1	-33.4	4.8	34 50.7	-33.2	4.9	36 50.2	-33.0	5.1	38 49.7	-32.8	5.2	40 49.2	-32.6	5.3
86	32 17.7	-33.7	3.8	34 17.5	-33.7	3.9	36 17.2	-33.6	4.0	38 16.9	-33.4	4.1	40 16.6	-33.3	4.2
87	31 44.0	-34.3	2.9	33 43.8	-34.1	2.9	35 43.6	-34.0	3.0	37 43.5	-34.0	3.1	39 43.3	-33.9	3.2
88	31 09.7	-34.6	1.9	33 09.7	-34.6	1.9	35 09.6	-34.6	2.0	37 09.5	-34.5	2.0	39 09.4	-34.4	2.1
89	30 35.1	-35.1	0.9	32 35.1	-35.1	1.0	34 35.0	-35.0	1.0	36 35.0	-35.0	1.0	38 35.0	-35.0	1.0
90	30 00.0	-35.5	0.0	32 00.0	-35.5	0.0	34 00.0	-35.5	0.0	36 00.0	-35.5	0.0	38 00.0	-35.5	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 54°, 306°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
11 00.1 -42.1 134.5	9 35.9 -43.2 134.7	8 11.3 -44.2 134.9	6 46.3 -45.1 135.1	5 21.2 -46.1 135.3	30										
10 18.0 -42.1 135.2	8 52.7 -43.2 135.4	7 27.1 -44.2 135.6	6 01.2 -45.2 135.8	4 35.1 -46.2 135.9	31										
9 35.9 -42.3 135.9	8 09.5 -43.3 136.1	6 42.9 -44.3 136.3	5 16.0 -45.2 136.4	3 48.9 -46.1 136.6	32										
8 53.6 -42.3 136.6	7 26.2 -43.3 136.8	5 58.6 -44.3 137.0	4 30.8 -45.3 137.1	3 02.8 -46.2 137.2	33										
8 11.3 -42.5 137.3	6 42.9 -43.4 137.5	5 14.3 -44.4 137.7	3 45.5 -45.3 137.8	2 16.6 -46.2 137.8	34										
7 28.8 -42.5 138.1	5 59.5 -43.5 138.2	4 29.9 -44.4 138.3	3 00.2 -45.3 138.4	1 30.4 -46.2 138.5	35										
6 46.3 -42.5 138.8	5 16.0 -43.5 138.9	3 45.5 -44.4 139.0	2 14.9 -45.4 139.1	0 44.2 -46.3 139.1	36										
6 03.8 -42.6 139.5	4 32.5 -43.6 139.6	3 01.1 -44.5 139.7	1 29.5 -45.3 139.7	0 02.1 +46.2 40.2	37										
5 21.2 -42.7 140.2	3 48.9 -43.5 140.3	2 16.6 -44.5 140.4	0 44.2 -45.4 140.4	0 48.3 +46.2 39.6	38										
4 38.5 -42.7 140.9	3 05.4 -43.6 141.0	1 32.1 -44.5 141.0	0 01.2 +45.4 39.0	1 34.5 +46.2 39.0	39										
3 55.8 -42.7 141.6	2 21.8 -43.7 141.7	0 47.6 -44.5 141.7	0 46.6 +45.3 38.3	2 20.7 +46.2 38.3	40										
3 13.1 -42.7 142.3	1 38.1 -43.6 142.4	0 03.1 -44.5 142.4	1 31.9 +45.4 37.6	3 06.9 +46.2 37.7	41										
2 30.4 -42.8 143.0	0 54.5 -43.7 143.0	0 41.4 +44.5 37.0	2 17.3 +45.3 37.0	3 53.1 +46.1 37.1	42										
1 47.6 -42.8 143.7	0 10.8 -43.6 143.7	1 25.9 +44.5 36.3	3 02.6 +45.3 36.3	4 39.2 +46.1 36.4	43										
1 04.8 -42.8 144.4	0 32.8 +43.7 35.6	2 10.4 +44.4 35.6	3 47.9 +45.3 35.7	5 25.3 +46.1 35.8	44										
0 22.0 -42.8 145.1	1 16.5 +43.6 34.9	2 54.8 +44.5 34.9	4 34.7 +45.2 35.0	6 11.4 +46.0 35.1	45										
0 20.8 +42.9 34.2	2 00.1 +43.6 34.2	3 39.3 +44.4 34.3	5 18.4 +45.2 34.4	6 57.4 +46.0 34.5	46										
1 03.7 +42.8 33.5	2 43.7 +43.6 33.5	4 23.7 +44.4 33.6	6 03.6 +45.1 33.7	7 43.4 +45.9 33.8	47										
1 46.5 +42.7 32.8	3 27.3 +43.6 32.8	5 08.1 +44.3 32.9	6 48.7 +45.1 33.0	8 29.3 +45.8 33.2	48										
2 29.2 +42.8 32.1	4 10.9 +43.5 32.2	5 52.4 +44.3 32.2	7 33.8 +45.1 32.4	9 15.1 +45.8 32.5	49										
3 12.0 +42.7 31.4	4 54.4 +43.5 31.5	6 36.7 +44.2 31.6	8 18.9 +45.0 31.7	10 00.9 +45.7 31.9	50										
3 54.7 +42.7 30.7	5 37.9 +43.4 30.8	7 20.9 +44.2 30.9	9 03.8 +44.9 31.0	10 46.6 +45.6 31.2	51										
4 37.4 +42.7 30.0	6 21.3 +43.4 30.1	8 05.1 +44.1 30.2	9 48.7 +44.8 30.4	11 32.2 +45.5 30.6	52										
5 20.1 +42.6 29.3	7 04.7 +43.3 29.4	8 49.2 +44.0 29.5	10 33.5 +44.8 29.7	12 17.7 +45.4 29.9	53										
6 02.7 +42.5 28.6	7 48.0 +43.3 28.7	9 33.2 +44.0 28.8	11 18.3 +44.6 29.0	13 03.1 +45.3 29.2	54										
6 45.2 +42.5 27.9	8 31.3 +43.1 28.0	10 17.2 +43.8 28.1	12 02.9 +44.5 28.3	13 48.4 +45.2 28.5	55										
7 27.7 +42.4 27.1	9 14.4 +43.1 27.3	11 01.0 +43.8 27.4	12 47.4 +44.4 27.6	14 33.6 +45.1 27.9	56										
8 10.1 +42.4 26.4	9 57.5 +43.0 26.6	11 44.8 +43.6 26.7	13 31.8 +44.4 26.9	15 18.7 +45.0 27.2	57										
8 52.5 +42.3 25.7	10 40.5 +42.9 25.9	12 28.4 +43.6 26.0	14 16.2 +44.1 26.3	16 03.7 +44.8 26.5	58										
9 34.8 +42.1 25.0	11 23.4 +42.8 25.2	13 12.0 +43.4 25.3	15 00.3 +44.1 25.6	16 48.5 +44.7 25.8	59										
10 16.9 +42.1 24.3	12 06.2 +42.7 24.4	13 55.4 +43.3 24.6	15 44.4 +43.9 24.9	17 33.2 +44.5 25.1	60										
10 59.0 +42.0 23.5	12 48.9 +42.6 23.7	14 38.7 +43.2 23.9	16 28.3 +43.8 24.1	18 17.7 +44.4 24.4	61										
11 41.0 +41.8 22.8	13 31.5 +42.5 23.0	15 21.9 +43.0 23.2	17 12.1 +43.6 23.4	19 02.1 +44.2 23.7	62										
12 22.8 +41.8 22.1	14 14.0 +42.3 22.3	16 04.9 +42.9 22.5	17 55.7 +43.5 22.7	19 46.3 +44.1 23.0	63										
13 04.6 +41.6 21.4	14 56.3 +42.2 21.5	16 47.8 +42.8 21.7	18 39.2 +43.3 22.0	20 30.4 +43.8 22.2	64										
13 46.2 +41.5 20.6	15 38.5 +42.0 20.8	17 30.6 +42.5 21.0	19 22.5 +43.1 21.2	21 14.2 +43.7 21.5	65										
14 27.7 +41.3 19.9	16 20.5 +41.9 20.1	18 13.1 +42.4 20.3	20 05.6 +42.9 20.5	21 57.9 +43.5 20.8	66										
15 09.0 +41.2 19.1	17 02.4 +41.7 19.3	18 55.5 +42.2 19.5	20 48.5 +42.8 19.8	22 41.4 +43.2 20.0	67										
15 50.2 +41.1 18.4	17 44.1 +41.5 18.6	19 37.7 +42.1 18.8	21 31.3 +42.5 19.0	23 24.6 +43.1 19.3	68										
16 31.3 +40.8 17.6	18 25.6 +41.3 17.8	20 19.8 +41.8 18.0	22 13.8 +42.3 18.3	24 07.7 +42.8 18.5	69										
17 12.1 +40.7 16.8	19 06.9 +41.2 17.0	21 01.6 +41.6 17.2	22 56.1 +42.1 17.5	24 50.5 +42.6 17.8	70										
17 52.8 +40.5 16.1	19 48.1 +40.9 16.3	21 43.2 +41.4 16.5	23 38.2 +41.9 16.7	25 33.1 +42.3 17.0	71										
18 33.3 +40.4 15.3	20 29.0 +40.8 15.5	22 24.6 +41.2 15.7	24 20.1 +41.6 15.9	26 15.4 +42.1 16.2	72										
19 13.7 +40.1 14.5	21 09.8 +40.5 14.7	23 05.8 +41.0 14.9	25 01.7 +41.4 15.1	26 57.5 +41.8 15.4	73										
19 53.8 +39.9 13.7	21 50.3 +40.3 13.9	23 46.8 +40.6 14.1	25 43.1 +41.1 14.3	27 39.3 +41.5 14.6	74										
20 33.7 +39.7 12.9	22 30.6 +40.1 13.1	24 27.4 +40.5 13.3	26 24.2 +40.8 13.5	28 20.8 +41.2 13.8	75										
21 13.4 +39.4 12.1	23 10.7 +39.8 12.3	25 07.9 +40.1 12.5	27 05.0 +40.5 12.7	29 02.0 +40.9 12.9	76										
21 52.8 +39.3 11.3	23 50.5 +39.5 11.5	25 48.0 +39.9 11.7	27 45.5 +40.3 11.9	29 42.9 +40.6 12.1	77										
22 32.1 +38.9 10.5	24 30.0 +39.3 10.7	26 27.9 +39.6 10.8	28 25.8 +39.9 11.0	30 23.5 +40.2 11.2	78										
23 11.0 +38.7 9.7	25 09.3 +39.0 9.8	27 07.5 +39.3 10.0	29 05.7 +39.6 10.2	31 03.7 +39.9 10.4	79										
23 49.7 +38.5 8.8	25 48.3 +38.7 9.0	27 46.8 +39.0 9.1	29 45.3 +39.2 9.3	31 43.6 +39.6 9.5	80										
24 28.2 +38.1 8.0	26 27.0 +38.4 8.1	28 25.8 +38.6 8.3	30 24.5 +38.9 8.4	32 23.2 +39.1 8.6	81										
25 06.3 +37.9 7.1	27 05.4 +38.1 7.3	29 04.4 +38.3 7.4	31 03.4 +38.5 7.6	33 02.3 +38.8 7.7	82										
25 44.2 +37.6 6.3	27 43.5 +37.7 6.4	29 42.7 +38.0 6.5	31 41.9 +38.2 6.7	33 41.1 +38.3 6.8	83										
26 21.8 +37.2 5.4	28 21.2 +37.4 5.5	30 20.7 +37.5 5.6	32 20.1 +37.7 5.7	34 19.4 +38.0 5.9	84										
26 59.0 +36.9 4.5	28 58.6 +37.1 4.6	30 58.2 +37.2 4.7	32 57.8 +37.3 4.8	34 57.4 +37.5 4.9	85										
27 35.9 +36.6 3.7	29 35.7 +36.6 3.7	31 35.4 +36.8 3.8	33 35.1 +36.9 3.9	35 34.9 +37.0 4.0	86										
28 12.5 +36.2 2.8	30 12.3 +36.3 2.8	32 12.2 +36.4 2.9	34 12.0 +36.5 2.9	36 11.9 +36.5 3.0	87										
28 48.7 +35.8 1.8	30 48.6 +35.9 1.9	32 48.6 +35.9 1.9	34 48.6 +36.0 2.0	36 48.4 +36.1 2.0	88										
29 24.5 +35.5 0.9	31 24.5 +35.5 0.9	33 24.5 +35.5 1.0	35 24.5 +35.5 1.0	37 24.5 +35.5 1.0	89										
30 00.0 +35.1 0.0	32 00.0 +35.1 0.0	34 00.0 +35.0 0.0	36 00.0 +35.0 0.0	38 00.0 +35.0 0.0	90										

LATITUDE SAME NAME

L.H.A. 126°, 234°

54°, 306° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	45 20.6	+27.9	85.4	45 28.1	+30.4	87.5	45 31.2	+33.1	89.5	45 30.1	+35.5	91.5	45 24.8	+37.9	93.6
31	45 48.5	+27.1	84.2	45 58.5	+29.7	86.2	46 04.3	+32.2	88.3	46 05.6	+34.8	90.4	46 02.7	+37.2	92.5
32	46 15.6	+26.1	82.9	46 28.2	+28.9	85.0	46 36.5	+31.5	87.1	46 40.4	+34.1	89.2	46 39.9	+36.5	91.3
33	46 41.7	+25.3	81.6	46 57.1	+28.0	83.7	47 08.0	+30.7	85.8	47 14.5	+33.2	88.0	47 16.4	+35.8	90.2
34	47 07.0	+24.3	80.3	47 25.1	+27.0	82.4	47 38.7	+29.8	84.6	47 47.7	+32.5	86.8	47 52.2	+35.1	89.0
35	47 31.3	+23.3	78.9	47 52.1	+26.2	81.1	48 08.5	+28.9	83.3	48 20.2	+31.6	85.5	48 27.3	+34.2	87.8
36	47 54.6	+22.4	77.5	48 18.3	+25.2	79.7	48 37.4	+28.0	82.0	48 51.8	+30.8	84.2	49 01.5	+33.5	86.5
37	48 17.0	+21.3	76.2	48 43.5	+24.2	78.4	49 05.4	+27.0	80.6	49 22.6	+29.8	82.9	49 35.0	+32.5	85.2
38	48 38.3	+20.3	74.7	49 07.7	+23.1	77.0	49 32.4	+26.0	79.2	49 52.4	+28.9	81.6	50 07.5	+31.7	83.9
39	48 58.6	+19.2	73.3	49 30.8	+22.1	75.5	49 58.4	+25.1	77.8	50 21.3	+27.9	80.2	50 39.2	+30.8	82.6
40	49 17.8	+18.2	71.9	49 52.9	+21.1	74.1	50 23.5	+23.9	76.4	50 49.2	+26.9	78.8	51 10.0	+29.8	81.2
41	49 36.0	+16.9	70.4	50 14.0	+19.9	72.7	50 47.4	+22.9	75.0	51 16.1	+25.8	77.4	51 39.8	+28.8	79.8
42	49 52.9	+15.9	68.9	50 33.9	+18.8	71.2	51 10.3	+21.8	73.5	51 41.9	+24.8	75.9	52 08.6	+27.7	78.4
43	50 08.8	+14.7	67.4	50 52.7	+17.6	69.7	51 32.1	+20.6	72.0	52 06.7	+23.6	74.5	52 36.3	+26.7	77.0
44	50 23.5	+13.4	65.9	51 10.3	+16.4	68.2	51 52.7	+19.4	70.5	52 30.3	+22.5	73.0	53 03.0	+25.5	75.5
45	50 36.9	+12.3	64.4	51 26.7	+15.2	66.6	52 12.1	+18.2	69.0	52 52.8	+21.2	71.4	53 28.5	+24.3	74.0
46	50 49.2	+11.0	62.8	51 41.9	+14.0	65.1	52 30.3	+17.0	67.4	53 14.0	+20.1	69.9	53 52.8	+23.1	72.4
47	51 00.2	+9.8	61.3	51 55.9	+12.7	63.5	52 47.3	+15.7	65.8	53 34.1	+18.7	68.3	54 15.9	+21.9	70.9
48	51 10.0	+8.5	59.7	52 08.6	+11.4	61.9	53 03.0	+14.3	64.2	53 52.8	+17.5	66.7	54 37.8	+20.6	69.3
49	51 18.5	+7.2	58.1	52 20.0	+10.0	60.3	53 17.3	+13.1	62.6	54 10.3	+16.1	65.1	54 58.4	+19.3	67.6
50	51 25.7	+5.9	56.5	52 30.0	+8.8	58.7	53 30.4	+11.7	61.0	54 26.4	+14.7	63.4	55 17.7	+17.9	66.0
51	51 31.6	+4.6	54.9	52 38.8	+7.4	57.0	53 42.1	+10.3	59.3	54 41.1	+13.4	61.7	55 35.6	+16.5	64.3
52	51 36.2	+3.3	53.3	52 46.2	+6.0	55.4	53 52.4	+8.9	57.7	54 54.5	+11.9	60.0	55 52.1	+15.0	62.6
53	51 39.5	+2.0	51.7	52 52.2	+4.7	53.8	54 01.3	+7.5	56.0	55 06.4	+10.5	58.3	56 07.1	+13.6	60.9
54	51 41.5	+0.7	50.1	52 56.9	+3.3	52.1	54 08.8	+6.1	54.3	55 16.9	+9.0	56.6	56 20.7	+12.1	59.1
55	51 42.2	-0.7	48.5	53 00.2	+1.9	50.5	54 14.9	+4.6	52.6	55 25.9	+7.5	54.9	56 32.8	+10.6	57.3
56	51 41.5	-2.0	46.9	53 02.1	+0.5	48.8	54 19.5	+3.2	50.9	55 33.4	+6.0	53.1	56 43.4	+9.0	55.5
57	51 39.5	-3.3	45.3	53 02.6	-0.9	47.1	54 22.7	+1.7	49.2	55 39.4	+4.5	51.4	56 52.4	+7.4	53.7
58	51 36.2	-4.7	43.6	53 01.7	-2.3	45.5	54 24.4	+0.2	47.4	55 43.9	+2.9	49.6	56 59.8	+5.9	51.9
59	51 31.5	-5.9	42.0	52 59.4	-3.7	43.8	54 24.6	-1.2	45.7	55 46.8	+1.5	47.8	57 05.7	+4.2	50.1
60	51 25.6	-7.3	40.4	52 55.7	-5.0	42.1	54 23.4	-2.7	44.0	55 48.3	-0.2	46.0	57 09.9	+2.6	48.2
61	51 18.3	-8.5	38.9	52 50.7	-6.4	40.5	54 20.7	-4.1	42.3	55 48.1	-1.6	44.3	57 12.5	+1.0	46.4
62	51 09.8	-9.8	37.3	52 44.3	-7.8	38.9	54 16.6	-5.6	40.6	55 46.5	-3.2	42.5	57 13.5	-0.6	44.6
63	51 00.0	-11.1	35.7	52 36.5	-9.1	37.2	54 11.0	-7.0	38.9	55 43.3	-4.8	40.7	57 12.9	-2.3	42.7
64	50 48.9	-12.2	34.1	52 27.4	-10.4	35.6	54 04.0	-8.4	37.2	55 38.5	-6.2	38.9	57 10.6	-3.9	40.9
65	50 36.7	-13.5	32.6	52 17.0	-11.8	34.0	53 55.6	-9.8	35.5	55 32.3	-7.8	37.2	57 06.7	-5.5	39.0
66	50 23.2	-14.7	31.1	52 05.2	-13.0	32.4	53 45.8	-11.2	33.8	55 24.5	-9.2	35.4	57 01.2	-7.0	37.2
67	50 08.5	-15.9	29.6	51 52.2	-14.3	30.8	53 34.6	-12.6	32.2	55 15.3	-10.7	33.7	56 54.2	-8.7	35.4
68	49 52.6	-17.0	28.1	51 37.9	-15.5	29.2	53 22.0	-13.9	30.5	55 04.6	-12.2	32.0	56 45.5	-10.2	33.6
69	49 35.6	-18.2	26.6	51 22.4	-16.8	27.7	53 08.1	-15.3	28.9	54 52.4	-13.5	30.3	56 35.3	-11.8	31.8
70	49 17.4	-19.2	25.1	51 05.6	-17.9	26.1	52 52.8	-16.5	27.3	54 38.9	-15.0	28.6	56 23.5	-13.2	30.0
71	48 58.2	-20.3	23.7	50 47.7	-19.1	24.6	52 36.3	-17.8	25.7	54 23.9	-16.3	26.9	56 10.3	-14.8	28.2
72	48 37.9	-21.4	22.2	50 28.6	-20.2	23.1	52 18.5	-19.0	24.1	54 07.6	-17.7	25.3	55 55.5	-16.1	26.5
73	48 16.5	-22.4	20.8	50 08.4	-21.4	21.7	51 59.5	-20.2	22.6	53 49.9	-19.0	23.6	55 39.4	-17.6	24.8
74	47 54.1	-23.4	19.4	49 47.0	-22.4	20.2	51 39.3	-21.3	21.1	53 30.9	-20.2	22.0	55 21.8	-19.0	23.1
75	47 30.7	-24.3	18.1	49 24.6	-23.5	18.8	51 18.0	-22.5	19.6	53 10.7	-21.4	20.4	55 02.8	-20.3	21.4
76	47 06.4	-25.3	16.7	49 01.1	-24.4	17.4	50 55.5	-23.6	18.1	52 49.3	-22.7	18.9	54 42.5	-21.6	19.8
77	46 41.1	-26.1	15.4	48 36.7	-25.5	16.0	50 31.9	-24.7	16.6	52 26.6	-23.8	17.4	54 20.9	-22.9	18.2
78	46 15.0	-27.1	14.1	48 11.2	-26.4	14.6	50 07.2	-25.7	15.2	52 02.8	-24.9	15.9	53 58.0	-24.1	16.6
79	45 47.9	-27.9	12.8	47 44.8	-27.3	13.3	49 41.5	-26.7	13.8	51 37.9	-26.0	14.4	53 33.9	-25.2	15.1
80	45 20.0	-28.7	11.5	47 17.5	-28.2	12.0	49 14.8	-27.7	12.4	51 11.9	-27.1	13.0	53 08.7	-26.4	13.5
81	44 51.3	-29.5	10.3	46 49.3	-29.1	10.7	48 47.1	-28.6	11.1	50 44.8	-28.1	11.5	52 42.3	-27.5	12.1
82	44 21.8	-30.3	9.1	46 20.2	-29.9	9.4	48 18.5	-29.5	9.7	50 16.7	-29.0	10.1	52 14.8	-28.6	10.6
83	43 51.5	-31.1	7.9	45 50.3	-30.7	8.1	47 49.0	-30.3	8.4	49 47.7	-30.0	8.8	51 46.2	-29.5	9.2
84	43 20.4	-31.7	6.7	45 19.6	-31.5	6.9	47 18.7	-31.2	7.2	49 17.7	-30.9	7.5	51 16.7	-30.6	7.8
85	42 48.7	-32.5	5.5	44 48.1	-32.2	5.7	46 47.5	-32.0	5.9	48 46.8	-31.7	6.1	50 46.1	-31.5	6.4
86	42 16.2	-33.1	4.4	44 15.9	-33.0	4.5	46 15.5	-32.8	4.7	48 15.1	-32.6	4.9	50 14.6	-32.4	5.1
87	41 43.1	-33.7	3.3	43 42.9	-33.6	3.4	45 42.7	-33.5	3.5	47 42.5	-33.4	3.6	49 42.2	-33.2	3.8
88	41 09.4	-34.4	2.1	43 09.3	-34.3	2.2	45 09.2	-34.3	2.3	47 09.1	-34.2	2.4	49 09.0	-34.1	2.5
89	40 35.0	-35.0	1.1	42 35.0	-35.0	1.1	44 34.9	-34.9	1.1	46 34.9	-34.9	1.2	48 34.9	-34.9	1.2
90	40 00.0	-35.6	0.0	42 00.0	-35.6	0.0	44 00.0	-35.6	0.0	46 00.0	-35.6	0.0	48 00.0	-35.6	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 54°, 306°

40°			42°			44°									Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
3 55.8	-47.0	135.4	2 30.4	-48.0	135.5	1 04.8	-48.8	135.5	0 20.8	+49.7	44.5	1 46.5	+50.4	44.5	30
3 08.8	-47.0	136.0	1 42.4	-47.9	136.1	0 16.0	-48.8	136.1	1 10.5	+49.6	43.9	2 36.9	+50.4	44.0	31
2 21.8	-47.1	136.6	0 54.5	-48.0	136.7	0 32.8	+48.8	43.3	2 00.1	+49.6	43.4	3 27.3	+50.4	43.4	32
1 34.7	-47.1	137.3	0 06.5	-47.9	137.3	1 21.6	+48.8	42.7	2 49.7	+49.6	42.8	4 17.7	+50.4	42.9	33
0 47.6	-47.1	137.9	0 41.4	+47.9	42.1	2 10.4	+48.7	42.2	3 39.3	+49.6	42.2	5 08.1	+50.3	42.3	34
0 00.5	-47.1	138.5	1 29.3	+48.0	41.5	2 59.1	+48.8	41.6	4 28.9	+49.5	41.7	5 58.4	+50.3	41.8	35
0 46.6	+47.0	40.9	2 17.3	+47.9	40.9	3 47.9	+48.7	41.0	5 18.4	+49.5	41.1	6 48.7	+50.3	41.2	36
1 33.6	+47.1	40.3	3 05.2	+47.9	40.3	4 36.6	+48.7	40.4	6 07.9	+49.5	40.5	7 39.0	+50.3	40.7	37
2 20.7	+47.1	39.6	3 53.1	+47.8	39.7	5 25.3	+48.7	39.8	6 57.4	+49.4	40.0	8 29.3	+50.2	40.1	38
3 07.8	+47.0	39.0	4 40.9	+47.9	39.1	6 14.0	+48.6	39.2	7 46.8	+49.4	39.4	9 19.5	+50.1	39.6	39
3 54.8	+47.0	38.4	5 28.8	+47.8	38.5	7 02.6	+48.6	38.6	8 36.2	+49.4	38.8	10 09.6	+50.1	39.0	40
4 41.8	+47.0	37.8	6 16.6	+47.7	37.9	7 51.2	+48.5	38.1	9 25.6	+49.2	38.2	10 59.7	+50.0	38.5	41
5 28.8	+46.9	37.2	7 04.3	+47.8	37.3	8 39.7	+48.5	37.5	10 14.8	+49.3	37.7	11 49.7	+49.9	37.9	42
6 15.7	+46.9	36.5	7 52.1	+47.6	36.7	9 28.2	+48.4	36.9	11 04.1	+49.1	37.1	12 39.6	+49.9	37.3	43
7 02.6	+46.8	35.9	8 39.7	+47.6	36.1	10 16.6	+48.3	36.3	11 53.2	+49.1	36.5	13 29.5	+49.8	36.8	44
7 49.4	+46.8	35.3	9 27.3	+47.5	35.4	11 04.9	+48.3	35.7	12 42.3	+49.0	35.9	14 19.3	+49.7	36.2	45
8 36.2	+46.7	34.6	10 14.8	+47.5	34.8	11 53.2	+48.2	35.1	13 31.3	+48.9	35.3	15 09.0	+49.7	35.6	46
9 22.9	+46.7	34.0	11 02.3	+47.4	34.2	12 41.4	+48.1	34.4	14 20.2	+48.8	34.7	15 58.7	+49.5	35.0	47
10 09.6	+46.6	33.4	11 49.7	+47.3	33.6	13 29.5	+48.1	33.8	15 09.0	+48.8	34.1	16 48.2	+49.4	34.4	48
10 56.2	+46.5	32.7	12 37.0	+47.2	32.9	14 17.6	+47.9	33.2	15 57.8	+48.6	33.5	17 37.6	+49.4	33.8	49
11 42.7	+46.4	32.1	13 24.2	+47.1	32.3	15 05.5	+47.8	32.6	16 46.6	+48.5	32.9	18 27.0	+49.2	33.2	50
12 29.1	+46.3	31.4	14 11.3	+47.0	31.7	15 53.3	+47.7	32.0	17 34.9	+48.4	32.3	19 16.2	+49.1	32.6	51
13 15.4	+46.2	30.8	14 58.3	+47.0	31.0	16 41.0	+47.6	31.3	18 23.3	+48.3	31.7	20 05.3	+48.9	32.0	52
14 01.6	+46.1	30.1	15 45.3	+46.8	30.4	17 28.6	+47.5	30.7	19 11.6	+48.2	31.0	20 54.2	+48.9	31.4	53
14 47.7	+46.0	29.5	16 32.1	+46.6	29.7	18 16.1	+47.3	30.1	19 59.8	+48.0	30.4	21 43.1	+48.7	30.8	54
15 33.7	+45.9	28.8	17 18.7	+46.6	29.1	19 03.4	+47.2	29.4	20 47.8	+47.9	29.8	22 31.8	+48.5	30.2	55
16 19.6	+45.7	28.1	18 05.3	+46.4	28.4	19 50.6	+47.1	28.7	21 35.7	+47.7	29.1	23 20.3	+48.4	29.5	56
17 05.3	+45.6	27.4	18 51.7	+46.2	27.8	20 37.7	+46.9	28.1	22 23.4	+47.6	28.5	24 08.7	+48.2	28.9	57
17 50.9	+45.5	26.8	19 37.9	+46.1	27.1	21 24.6	+46.8	27.4	23 11.0	+47.4	27.8	24 56.9	+48.1	28.2	58
18 36.4	+45.3	26.1	20 24.0	+46.0	26.4	22 11.4	+46.6	26.7	23 58.4	+47.2	27.1	25 45.0	+47.8	27.6	59
19 21.7	+45.2	25.4	21 10.0	+45.8	25.7	22 58.0	+46.4	26.1	24 45.6	+47.0	26.5	26 32.7	+47.6	26.9	60
20 06.9	+45.0	24.7	21 55.8	+45.6	25.0	23 44.4	+46.2	25.4	25 32.6	+46.9	25.8	27 20.5	+47.5	26.2	61
20 51.9	+44.8	24.0	22 41.4	+45.4	24.3	24 30.6	+46.0	24.7	26 19.5	+46.6	25.1	28 08.0	+47.2	25.5	62
21 36.7	+44.6	23.3	23 26.8	+45.2	23.6	25 16.6	+45.8	24.0	27 06.1	+46.4	24.4	28 55.2	+47.0	24.8	63
22 21.3	+44.5	22.5	24 12.0	+45.0	22.9	26 02.4	+45.6	23.2	27 52.5	+46.2	23.7	29 42.2	+46.8	24.1	64
23 05.8	+44.2	21.8	24 57.0	+44.8	22.2	26 48.0	+45.4	22.5	28 38.7	+46.0	22.9	30 29.0	+46.6	23.4	65
23 50.0	+44.0	21.1	25 41.8	+44.6	21.4	27 33.4	+45.1	21.8	29 24.7	+45.7	22.2	31 15.6	+46.3	22.6	66
24 34.0	+43.8	20.3	26 26.4	+44.4	20.7	28 18.5	+44.9	21.0	30 10.4	+45.5	21.4	32 01.9	+46.1	21.9	67
25 17.8	+43.6	19.6	27 10.8	+44.1	19.9	29 03.4	+44.7	20.3	30 55.9	+45.1	20.7	32 48.0	+45.7	21.1	68
26 01.4	+43.3	18.8	27 54.9	+43.8	19.2	29 48.1	+44.4	19.5	31 41.0	+45.0	19.9	33 33.7	+45.5	20.4	69
26 44.7	+43.1	18.1	28 38.7	+43.6	18.4	30 32.5	+44.0	18.7	32 26.0	+44.6	19.1	34 19.2	+45.1	19.6	70
27 27.8	+42.8	17.3	29 22.3	+43.3	17.6	31 16.5	+43.8	17.9	33 10.6	+44.3	18.3	35 04.3	+44.9	18.8	71
28 10.6	+42.5	16.5	30 05.6	+43.0	16.8	32 00.3	+43.5	17.1	33 54.9	+44.0	17.5	35 49.2	+44.5	18.0	72
28 53.1	+42.2	15.7	30 48.6	+42.7	16.0	32 43.8	+43.2	16.3	34 38.9	+43.6	16.7	36 33.7	+44.1	17.1	73
29 35.3	+42.0	14.9	31 31.3	+42.3	15.2	33 27.0	+42.8	15.5	35 22.5	+43.3	15.9	37 17.8	+43.8	16.3	74
30 17.3	+41.6	14.0	32 13.6	+42.1	14.3	34 09.8	+42.5	14.7	36 05.8	+42.9	15.0	38 01.6	+43.4	15.4	75
30 58.9	+41.3	13.2	32 55.7	+41.7	13.5	34 52.3	+42.1	13.8	36 48.7	+42.6	14.2	38 45.0	+43.0	14.5	76
31 40.2	+40.9	12.3	33 37.4	+41.3	12.6	35 34.4	+41.7	12.9	37 31.3	+42.1	13.3	39 28.0	+42.5	13.6	77
32 21.1	+40.6	11.5	34 18.7	+40.9	11.7	36 16.1	+41.3	12.0	38 13.4	+41.7	12.4	40 10.5	+42.2	12.7	78
33 01.7	+40.3	10.6	34 59.6	+40.6	10.9	36 57.4	+40.9	11.1	38 55.1	+41.3	11.4	40 52.7	+41.6	11.8	79
33 42.0	+39.8	9.7	35 40.2	+40.1	10.0	37 38.3	+40.5	10.2	39 36.4	+40.8	10.5	41 34.3	+41.2	10.8	80
34 21.8	+39.4	8.8	36 20.3	+39.7	9.0	38 18.8	+40.0	9.3	40 17.2	+40.3	9.5	42 15.5	+40.6	9.8	81
35 01.2	+39.0	7.9	37 00.0	+39.3	8.1	38 58.8	+39.6	8.3	40 57.5	+39.8	8.6	42 56.1	+40.2	8.8	82
35 40.2	+38.6	7.0	37 39.3	+38.8	7.2	39 38.4	+39.0	7.4	41 37.3	+39.3	7.6	43 36.3	+39.5	7.8	83
36 18.8	+38.1	6.0	38 18.1	+38.3	6.2	40 17.4	+38.5	6.4	42 16.6	+38.8	6.6	44 15.8	+39.0	6.8	84
36 56.9	+37.7	5.1	38 56.4	+37.8	5.2	40 55.9	+38.0	5.4	42 55.4	+38.2	5.5	44 54.8	+38.4	5.7	85
37 34.6	+37.1	4.1	39 34.2	+37.3	4.2	41 33.9	+37.4	4.3	43 33.6	+37.5	4.5	45 33.2	+37.7	4.6	86
38 11.7	+36.6	3.1	40 11.5	+36.8	3.2	42 11.3	+36.9	3.3	44 11.1	+37.0	3.4	46 10.9	+37.1	3.5	87
38 48.3	+36.1	2.1	40 48.3	+36.1	2.1	42 48.2	+36.2	2.2	44 48.1	+36.3	2.3	46 48.0	+36.4	2.4	88
39 24.4	+35.6	1.0	41 24.4	+35.6	1.1	43 24.4	+35.6	1.1	45 24.4	+35.6	1.2	47 24.4	+35.6	1.2	89
40 00.0	+35.0	0.0	42 00.0	+35.0	0.0	44 00.0	+34.9	0.0	46 00.0	+34.9	0.0	48 00.0	+34.9	0.0	90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 126°, 234°

54°, 306° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	45 15.2	+40.1	95.6	45 01.4	+42.3	97.6	44 43.5	+44.4	99.6	44 21.6	+46.3	101.5	43 55.8	+48.0	103.4
31	45 55.3	+39.6	94.5	45 43.7	+41.8	96.6	45 27.9	+43.8	98.6	45 07.9	+45.8	100.6	44 43.8	+47.6	102.5
32	46 34.9	+38.9	93.4	46 25.5	+41.2	95.5	46 11.7	+43.4	97.6	45 53.7	+45.4	99.7	45 31.4	+47.3	101.7
33	47 13.8	+38.2	92.3	47 06.7	+40.6	94.5	46 55.1	+42.8	96.6	46 39.1	+44.8	98.7	46 18.7	+46.8	100.8
34	47 52.0	+37.6	91.2	47 47.3	+39.9	93.4	47 37.9	+42.2	95.6	47 23.9	+44.4	97.8	47 05.5	+46.4	99.9
35	48 29.6	+36.8	90.0	48 27.2	+39.3	92.3	48 20.1	+41.6	94.5	48 08.3	+43.8	96.7	47 51.9	+45.9	99.0
36	49 06.4	+36.1	88.8	49 06.5	+38.6	91.1	49 01.7	+41.0	93.4	48 52.1	+43.3	95.7	48 37.8	+45.4	98.0
37	49 42.5	+35.2	87.6	49 45.1	+37.8	89.9	49 42.7	+40.3	92.3	49 35.4	+42.7	94.7	49 23.2	+44.9	97.0
38	50 17.7	+34.5	86.3	50 22.9	+37.1	88.7	50 23.0	+39.6	91.2	50 18.1	+42.0	93.6	50 08.1	+44.3	96.0
39	50 52.2	+33.5	85.0	51 00.0	+36.2	87.5	51 02.6	+38.9	90.0	51 00.1	+41.4	92.4	50 52.4	+43.8	94.9
40	51 25.7	+32.7	83.7	51 36.2	+35.5	86.2	51 41.5	+38.1	88.7	51 41.5	+40.6	91.3	51 36.2	+43.0	93.8
41	51 58.4	+31.6	82.4	52 11.7	+34.5	84.9	52 19.6	+37.3	87.5	52 22.1	+40.0	90.1	52 19.2	+42.5	92.7
42	52 30.0	+30.7	81.0	52 46.2	+33.6	83.6	52 56.9	+36.4	86.2	53 02.1	+39.1	88.9	53 01.7	+41.7	91.5
43	53 00.7	+29.7	79.6	53 19.8	+32.6	82.2	53 33.3	+35.5	84.9	53 41.2	+38.3	87.6	53 43.4	+41.0	90.3
44	53 30.4	+28.5	78.1	53 52.4	+31.6	80.8	54 08.8	+34.5	83.5	54 19.5	+37.4	86.3	54 24.4	+40.1	89.1
45	53 58.9	+27.5	76.6	54 24.0	+30.5	79.3	54 43.3	+33.6	82.1	54 56.9	+36.5	84.9	55 04.5	+39.4	87.8
46	54 26.4	+26.2	75.1	54 54.5	+29.4	77.8	55 16.9	+32.5	80.7	55 33.4	+35.5	83.5	55 43.9	+38.4	86.4
47	54 52.6	+25.1	73.5	55 23.9	+28.2	76.3	55 49.4	+31.3	79.2	56 08.9	+34.5	82.1	56 22.3	+37.5	85.1
48	55 17.7	+23.8	72.0	55 52.1	+27.0	74.7	56 20.7	+30.3	77.6	56 43.4	+33.4	80.6	56 59.8	+36.5	83.6
49	55 41.5	+22.5	70.3	56 19.1	+25.7	73.1	56 51.0	+29.0	76.1	57 16.8	+32.2	79.1	57 36.3	+35.5	82.2
50	56 04.0	+21.1	68.7	56 44.8	+24.5	71.5	57 20.0	+27.7	74.5	57 49.0	+31.1	77.5	58 11.8	+34.3	80.7
51	56 25.1	+19.7	67.0	57 09.3	+23.0	69.8	57 47.7	+26.4	72.8	58 20.1	+29.8	75.9	58 46.1	+33.1	79.1
52	56 44.8	+18.3	65.3	57 32.3	+21.7	68.1	58 14.1	+25.1	71.1	58 49.9	+28.5	74.2	59 19.2	+31.9	77.5
53	57 03.1	+16.9	63.5	57 54.0	+20.1	66.4	58 39.2	+23.6	69.4	59 18.4	+27.1	72.5	59 51.1	+30.6	75.8
54	57 20.0	+15.3	61.8	58 14.1	+18.7	64.6	59 02.8	+22.1	67.6	59 45.5	+25.6	70.8	60 21.7	+29.2	74.1
55	57 35.3	+13.7	60.0	58 32.8	+17.1	62.8	59 24.9	+20.6	65.8	60 11.1	+24.1	69.0	60 50.9	+27.8	72.3
56	57 49.0	+12.2	58.1	58 49.9	+15.5	60.9	59 45.5	+18.9	63.9	60 35.2	+22.6	67.1	61 18.7	+26.2	70.5
57	58 01.2	+10.6	56.3	59 05.4	+13.8	59.1	60 04.4	+17.3	62.0	60 57.8	+20.9	65.2	61 44.9	+24.6	68.6
58	58 11.8	+8.9	54.4	59 19.2	+12.2	57.2	60 21.7	+15.6	60.1	61 18.7	+19.2	63.3	62 09.5	+23.0	66.6
59	58 20.7	+7.2	52.6	59 31.4	+10.5	55.2	60 37.3	+13.9	58.1	61 37.9	+17.4	61.3	62 32.5	+21.2	64.6
60	58 27.9	+5.6	50.7	59 41.9	+8.7	53.3	60 51.2	+12.1	56.2	61 55.3	+15.7	59.3	62 53.7	+19.4	62.6
61	58 33.5	+3.8	48.8	59 50.6	+6.9	51.3	61 03.3	+10.2	54.1	62 11.0	+13.8	57.2	63 13.1	+17.5	60.5
62	58 37.3	+2.2	46.8	59 57.5	+5.2	49.3	61 13.5	+8.4	52.1	62 24.8	+11.8	55.1	63 30.6	+15.6	58.4
63	58 39.5	+0.4	44.9	60 02.7	+3.3	47.4	61 21.9	+6.5	50.0	62 36.6	+9.9	53.0	63 46.2	+13.6	56.2
64	58 39.9	-1.3	43.0	60 06.0	+1.5	45.4	61 28.4	+4.6	48.0	62 46.5	+7.9	50.8	63 59.8	+11.5	54.0
65	58 38.6	-3.0	41.1	60 07.5	-0.3	43.3	61 33.0	+2.6	45.9	62 54.4	+5.9	48.7	64 11.3	+9.4	51.7
66	58 35.6	-4.7	39.2	60 07.2	-2.1	41.3	61 35.6	+0.8	43.8	63 00.3	+3.9	46.5	64 20.7	+7.3	49.5
67	58 30.9	-6.4	37.2	60 05.1	-4.0	39.3	61 36.4	-1.3	41.7	63 04.2	+1.8	44.3	64 28.0	+5.1	47.2
68	58 24.5	-8.1	35.3	60 01.1	-5.7	37.3	61 35.1	-3.1	39.6	63 06.0	-0.3	42.1	64 33.1	+3.0	44.9
69	58 16.4	-9.8	33.5	59 55.4	-7.5	35.3	61 32.0	-5.1	37.5	63 05.7	-2.3	39.8	64 36.1	+0.7	42.5
70	58 06.6	-11.3	31.6	59 47.9	-9.3	33.4	61 26.9	-6.9	35.4	63 03.4	-4.4	37.6	64 36.8	-1.5	40.2
71	57 55.3	-13.0	29.7	59 38.6	-11.0	31.4	61 20.0	-8.9	33.3	62 59.0	-6.4	35.4	64 35.3	-3.6	37.9
72	57 42.3	-14.6	27.9	59 27.6	-12.8	29.5	61 11.1	-10.7	31.2	62 52.6	-8.4	33.3	64 31.7	-5.9	35.5
73	57 27.7	-16.1	26.1	59 14.8	-14.4	27.6	61 00.4	-12.5	29.2	62 44.2	-10.4	31.1	64 25.8	-8.0	33.2
74	57 11.6	-17.5	24.3	59 00.4	-16.0	25.7	60 47.9	-14.3	27.2	62 33.8	-12.4	28.9	64 17.8	-10.1	30.9
75	56 54.1	-19.1	22.5	58 44.4	-17.6	23.8	60 33.6	-16.0	25.2	62 21.4	-14.2	26.8	64 07.7	-12.3	28.7
76	56 35.0	-20.4	20.8	58 26.8	-19.2	22.0	60 17.6	-17.8	23.3	62 07.2	-16.1	24.7	63 55.4	-14.2	26.4
77	56 14.6	-21.8	19.1	58 07.6	-20.7	20.2	59 59.8	-19.3	21.3	61 51.1	-17.9	22.7	63 41.2	-16.3	24.2
78	55 52.8	-23.2	17.4	57 46.9	-22.1	18.4	59 40.5	-21.0	19.5	61 33.2	-19.7	20.7	63 24.9	-18.1	22.1
79	55 29.6	-24.4	15.8	57 24.8	-23.5	16.7	59 19.5	-22.5	17.6	61 13.5	-21.3	18.7	63 06.8	-20.0	20.0
80	55 05.2	-25.7	14.2	57 01.3	-24.9	15.0	58 57.0	-23.9	15.8	60 52.2	-22.9	16.8	62 46.8	-21.8	17.9
81	54 39.5	-26.9	12.6	56 36.4	-26.1	13.3	58 33.1	-25.4	14.0	60 29.3	-24.6	14.9	62 25.0	-23.6	15.9
82	54 12.6	-28.0	11.1	56 10.3	-27.4	11.7	58 07.7	-26.8	12.3	60 04.7	-26.0	13.0	62 01.4	-25.1	13.9
83	53 44.6	-29.1	9.6	55 42.9	-28.7	10.1	57 40.9	-28.1	10.6	59 38.7	-27.4	11.3	61 36.3	-26.8	12.0
84	53 15.5	-30.2	8.1	55 14.2	-29.7	8.5	57 12.8	-29.3	9.0	59 11.3	-28.8	9.5	61 09.5	-28.2	10.1
85	52 45.3	-31.2	6.7	54 44.5	-30.9	7.0	56 43.5	-30.5	7.4	58 42.5	-30.2	7.8	60 41.3	-29.7	8.3
86	52 14.1	-32.1	5.3	54 13.6	-31.9	5.5	56 13.0	-31.7	5.8	58 12.3	-31.3	6.1	60 11.6	-31.0	6.5
87	51 42.0	-33.1	3.9	53 41.7	-33.0	4.1	55 41.3	-32.7	4.3	57 41.0	-32.6	4.5	59 40.6	-32.3	4.8
88	51 08.9	-34.0	2.6	53 08.7	-33.9	2.7	55 08.6	-33.8	2.8	57 08.4	-33.7	3.0	59 08.3	-33.6	3.2
89	50 34.9	-34.9	1.3	52 34.8	-34.8	1.3	54 34.8	-34.8	1.4	56 34.7	-34.7	1.5	58 34.7	-34.7	1.6
90	50 00.0	-35.7	0.0	52 00.0	-35.7	0.0	54 00.0	-35.7	0.0	56 00.0	-35.8	0.0	58 00.0	-35.8	0.0

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54°

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58°

LATITUDE CONTRARY NAME

L.H.A. 54°, 306°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.					
3	12.0	+51.2	44.6	4	37.4	+52.0	44.7	6	02.7	+52.7	44.8	7	27.7	+53.4	45.0	8	52.5	+54.0	45.2	30
4	03.2	+51.2	44.0	5	29.4	+51.9	44.2	6	55.4	+52.6	44.3	8	21.1	+53.3	44.5	9	46.5	+54.0	44.7	31
4	54.4	+51.2	43.5	6	21.3	+51.9	43.7	7	48.0	+52.6	43.8	9	14.4	+53.3	44.0	10	40.5	+54.0	44.3	32
5	45.6	+51.1	43.0	7	13.2	+51.9	43.2	8	40.6	+52.6	43.3	10	07.7	+53.3	43.6	11	34.5	+53.9	43.8	33
6	36.7	+51.1	42.5	8	05.1	+51.8	42.6	9	33.2	+52.6	42.9	11	01.0	+53.2	43.1	12	28.4	+53.9	43.4	34
7	27.8	+51.1	41.9	8	56.9	+51.8	42.1	10	25.8	+52.5	42.4	12	43.2	+53.2	42.6	13	22.3	+53.9	42.9	35
8	18.9	+51.0	41.4	9	48.7	+51.8	41.6	11	18.3	+52.4	41.9	12	47.4	+53.1	42.2	14	16.2	+53.7	42.5	36
9	09.9	+51.0	40.9	10	40.5	+51.7	41.1	12	10.7	+52.4	41.4	13	40.5	+53.1	41.7	15	09.9	+53.8	42.0	37
10	00.9	+50.9	40.3	11	32.2	+51.6	40.6	13	03.1	+52.3	40.9	14	33.6	+53.0	41.2	16	03.7	+53.6	41.6	38
10	51.8	+50.9	39.8	12	23.8	+51.6	40.1	13	55.4	+52.3	40.4	15	26.6	+53.0	40.7	16	57.3	+53.6	41.1	39
11	42.7	+50.8	39.3	13	15.4	+51.5	39.5	14	47.7	+52.2	39.9	16	19.6	+52.9	40.2	17	50.9	+53.6	40.6	40
12	33.5	+50.7	38.7	14	06.9	+51.4	39.0	15	39.9	+52.2	39.4	17	12.5	+52.8	39.7	18	44.5	+53.4	40.1	41
13	24.2	+50.7	38.2	14	58.3	+51.4	38.5	16	32.1	+52.0	38.8	18	05.3	+52.7	39.2	19	37.9	+53.4	39.7	42
14	14.9	+50.6	37.6	15	49.7	+51.3	38.0	17	24.1	+52.0	38.3	18	58.0	+52.6	38.7	20	31.3	+53.3	39.2	43
15	05.5	+50.5	37.1	16	41.0	+51.2	37.4	18	16.1	+51.9	37.8	19	50.6	+52.6	38.2	21	24.6	+53.2	38.7	44
15	56.0	+50.4	36.5	17	32.2	+51.1	36.9	19	08.0	+51.8	37.3	20	43.2	+52.5	37.7	22	17.8	+53.2	38.2	45
16	46.4	+50.3	35.9	18	23.3	+51.1	36.3	19	59.8	+51.7	36.7	21	35.7	+52.3	37.2	23	11.0	+53.0	37.7	46
17	36.7	+50.3	35.4	19	14.4	+50.9	35.8	20	51.5	+51.6	36.2	22	28.0	+52.3	36.7	24	04.0	+52.9	37.2	47
18	27.0	+50.1	34.8	20	05.3	+50.8	35.2	21	43.1	+51.5	35.6	23	20.3	+52.2	36.1	24	56.9	+52.8	36.7	48
19	17.1	+50.0	34.2	20	56.1	+50.7	34.6	22	34.6	+51.3	35.1	24	12.5	+52.0	35.6	25	49.7	+52.7	36.1	49
20	07.1	+49.9	33.6	21	46.8	+50.6	34.1	23	25.9	+51.3	34.5	25	04.5	+51.9	35.0	26	42.4	+52.6	35.6	50
20	57.0	+49.8	33.0	22	37.4	+50.4	33.5	24	17.2	+51.1	34.0	25	56.4	+51.8	34.5	27	35.0	+52.4	35.1	51
21	46.8	+49.6	32.4	23	27.8	+50.3	32.9	25	08.3	+51.0	33.4	26	48.2	+51.7	33.9	28	27.4	+52.4	34.5	52
22	36.4	+49.5	31.8	24	18.1	+50.2	32.3	25	59.3	+50.8	32.8	27	39.9	+51.5	33.3	29	19.8	+52.1	33.9	53
23	25.9	+49.4	31.2	25	08.3	+50.0	31.7	26	50.1	+50.7	32.2	28	31.4	+51.3	32.8	30	11.9	+52.1	33.4	54
24	15.3	+49.2	30.6	25	58.3	+49.9	31.1	27	40.8	+50.6	31.6	29	22.7	+51.2	32.2	31	04.0	+51.8	32.8	55
25	04.5	+49.0	30.0	26	48.2	+49.7	30.5	28	31.4	+50.3	31.0	30	13.9	+51.1	31.6	31	55.8	+51.7	32.2	56
25	53.5	+48.9	29.3	27	37.9	+49.5	29.8	29	21.7	+50.2	30.4	31	05.0	+50.8	31.0	32	47.5	+51.5	31.6	57
26	42.4	+48.7	28.7	28	27.4	+49.4	29.2	30	11.9	+50.0	29.7	31	55.8	+50.7	30.3	33	39.0	+51.4	31.0	58
27	31.1	+48.5	28.0	29	16.8	+49.2	28.5	31	01.9	+49.9	29.1	32	46.5	+50.5	29.7	34	30.4	+51.1	30.4	59
28	19.6	+48.3	27.4	30	06.0	+48.9	27.9	31	51.8	+49.6	28.4	33	37.0	+50.2	29.1	35	21.5	+51.0	29.7	60
29	07.9	+48.1	26.7	30	54.9	+48.8	27.2	32	41.4	+49.4	27.8	34	27.2	+50.1	28.4	36	12.5	+50.7	29.1	61
29	56.0	+47.9	26.0	31	43.7	+48.5	26.5	33	30.8	+49.1	27.1	35	17.3	+49.8	27.7	37	03.2	+50.5	28.4	62
30	43.9	+47.7	25.3	32	32.2	+48.3	25.8	34	19.9	+49.0	26.4	36	07.1	+49.6	27.0	37	53.7	+50.2	27.7	63
31	31.6	+47.4	24.6	33	20.5	+48.0	25.1	35	08.9	+48.6	25.7	36	56.7	+49.3	26.3	38	43.9	+50.0	27.0	64
32	19.0	+47.2	23.9	34	08.5	+47.8	24.4	35	57.5	+48.5	25.0	37	46.0	+49.1	25.6	39	33.9	+49.7	26.3	65
33	06.2	+46.9	23.1	34	56.3	+47.5	23.7	36	46.0	+48.1	24.3	38	35.1	+48.8	24.9	40	23.6	+49.5	25.6	66
33	53.1	+46.6	22.4	35	43.8	+47.3	22.9	37	34.1	+47.9	23.5	39	23.9	+48.5	24.1	41	13.1	+49.1	24.8	67
34	39.7	+46.3	21.6	36	31.1	+46.9	22.2	38	22.0	+47.5	22.7	40	12.4	+48.2	23.4	42	02.2	+48.9	24.1	68
35	26.0	+46.1	20.8	37	18.0	+46.6	21.4	39	09.5	+47.2	22.0	41	00.6	+47.8	22.6	42	51.1	+48.5	23.3	69
36	12.1	+45.7	20.1	38	04.6	+46.3	20.6	39	56.7	+46.9	21.2	41	48.4	+47.5	21.8	43	39.6	+48.1	22.5	70
36	57.8	+45.4	19.2	38	50.9	+46.0	19.8	40	43.6	+46.6	20.3	42	35.9	+47.2	21.0	44	27.7	+47.8	21.7	71
37	43.2	+45.0	18.4	39	36.9	+45.5	18.9	41	30.2	+46.1	19.5	43	23.1	+46.7	20.1	45	15.5	+47.4	20.8	72
38	28.2	+44.7	17.6	40	22.4	+45.3	18.1	42	16.3	+45.8	18.6	44	09.8	+46.4	19.3	46	02.9	+47.0	19.9	73
39	12.9	+44.3	16.7	41	07.7	+44.8	17.2	43	02.1	+45.4	17.8	44	56.2	+45.9	18.4	46	49.9	+46.5	19.0	74
39	57.2	+43.8	15.9	41	52.5	+44.3	16.3	43	47.5	+44.9	16.9	45	42.1	+45.5	17.4	47	36.4	+46.1	18.1	75
40	41.0	+43.5	15.0	42	36.8	+44.0	15.4	44	32.4	+44.4	15.9	46	27.6	+45.0	16.5	48	22.5	+45.6	17.1	76
41	24.5	+43.0	14.0	43	20.8	+43.5	14.5	45	16.8	+44.0	15.0	47	12.6	+44.5	15.5	49	08.1	+45.0	16.1	77
42	07.5	+42.5	13.1	44	04.3	+43.0	13.5	46	00.8	+43.5	14.0	47	57.1	+44.0	14.5	49	53.1	+44.5	15.1	78
42	50.0	+42.1	12.2	44	47.3	+42.5	12.6	46	44.3	+42.9	13.0	48	41.1	+43.4	13.5	50	37.6	+44.0	14.1	79
43	32.1	+41.5	11.2	45	29.8	+41.9	11.6	47	27.2	+42.4	12.0	49	24.5	+42.8	12.5	51	21.6	+43.3	13.0	80
44	13.6	+41.1	10.2	46	11.7	+41.4	10.5	48	09.6	+41.8	10.9	50	07.3	+42.2	11.4	52	04.9	+42.6	11.9	81
44	54.7	+40.4	9.1	46	53.1	+40.8	9.5	48	51.4	+41.1	9.9	50	49.5	+41.6	10.3	52	47.5	+42.0	10.7	82
45	35.1	+39.9	8.1	47	33.9	+40.1	8.4	49	32.5	+40.5	8.7	51	31.1	+40.8	9.1	53	29.5	+41.2	9.5	83
46	15.0	+39.2	7.0	48	14.0	+39.5	7.3	50	13.0	+39.8	7.6	52	11.9	+40.1	7.9	54	10.7	+40.5	8.3	84
46	54.2	+38.6	5.9	48	53.5	+38.8	6.2	50	52.8	+39.1	6.4	52	52.0	+39.3	6.7	54	51.2	+39.6	7.0	85
47	32.8	+37.9	4.8	49	32.3	+38.1	5.0	51	31.9	+38.3	5.2	53	31.3	+38.6	5.4	55	30.8	+38.7	5.7	86
48	10.7	+37.2	3.6	50	10.4	+37.4	3.8	52	10.2	+37.4	4.0	54	09.9	+37.6	4.1	56	09.5	+37.9	4.4	87
48	47.9	+36.4	2.5	50	47.8	+36.5	2.6	52	47.6	+36.7	2.7	54	47.5	+36.7	2.8	56	47.4	+36.8	3.0	88
49	24.3	+35.7	1.2	51	24.3	+35.7	1.3	53	24.3	+35.7	1.4	55	24.2	+35.8	1.4	57	24.2	+35.8	1.5	89
50	00.0	+34.9	0.0	52	00.0	+34.8	0.0	54	00.0	+34.8	0.0	56	00.0	+34.7	0.0	58	00.0	+34.7	0.0	90
	50°			52°			54°			56°			58°							

LATITUDE SAME NAME

L.H.A. 126°, 234°

56°, 304° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	42 01.2	+15.0	75.1	42 30.3	+17.6	76.9	42 55.7	+20.2	78.7	43 17.3	+22.9	80.5	43 35.2	+25.5	82.4
31	42 16.2	+14.1	73.8	42 47.9	+16.7	75.6	43 15.9	+19.4	77.4	43 40.2	+22.1	79.2	44 00.7	+24.6	81.1
32	42 30.3	+13.1	72.5	43 04.6	+15.8	74.3	43 35.3	+18.5	76.1	44 02.3	+21.1	78.0	44 25.3	+23.9	79.9
33	42 43.4	+12.3	71.2	43 20.4	+14.9	72.9	43 53.8	+17.6	74.8	44 23.4	+20.3	76.7	44 49.2	+22.9	78.6
34	42 55.7	+11.3	69.8	43 35.3	+14.0	71.6	44 11.4	+16.6	73.4	44 43.7	+19.3	75.3	45 12.1	+22.0	77.3
35	43 07.0	+10.3	68.5	43 49.3	+13.0	70.3	44 28.0	+15.7	72.1	45 03.0	+18.4	74.0	45 34.1	+21.1	75.9
36	43 17.3	+9.4	67.1	44 02.3	+12.0	68.9	44 43.7	+14.7	70.7	45 21.4	+17.4	72.6	45 55.2	+20.1	74.6
37	43 26.7	+8.5	65.8	44 14.3	+11.0	67.5	44 58.4	+13.7	69.4	45 38.8	+16.4	71.3	46 15.3	+19.2	73.2
38	43 35.2	+7.4	64.4	44 25.3	+10.1	66.2	45 12.1	+12.7	68.0	45 55.2	+15.4	69.9	46 34.5	+18.2	71.9
39	43 42.6	+6.5	63.0	44 35.4	+9.0	64.8	45 24.8	+11.7	66.6	46 10.6	+14.4	68.5	46 52.7	+17.1	70.5
40	43 49.1	+5.4	61.7	44 44.4	+8.1	63.4	45 36.5	+10.7	65.2	46 25.0	+13.4	67.1	47 09.8	+16.1	69.1
41	43 54.5	+4.5	60.3	44 52.5	+7.0	62.0	45 47.2	+9.6	63.8	46 38.4	+12.3	65.7	47 25.9	+15.0	67.7
42	43 59.0	+3.5	58.9	44 59.5	+6.0	60.6	45 56.8	+8.5	62.4	46 50.7	+11.2	64.3	47 40.9	+14.0	66.2
43	44 02.5	+2.4	57.5	45 05.5	+4.9	59.2	46 05.3	+7.5	61.0	47 01.9	+10.1	62.8	47 54.9	+12.9	64.8
44	44 04.9	+1.5	56.1	45 10.4	+3.9	57.8	46 12.8	+6.4	59.5	47 12.0	+9.1	61.4	48 07.8	+11.7	63.3
45	44 06.4	+0.4	54.7	45 14.3	+2.8	56.4	46 19.2	+5.4	58.1	47 21.1	+7.9	59.9	48 19.5	+10.6	61.8
46	44 06.8	-0.6	53.3	45 17.1	+1.8	54.9	46 24.6	+4.2	56.6	47 29.0	+6.8	58.4	48 30.1	+9.4	60.4
47	44 06.2	-1.6	51.9	45 18.9	+0.7	53.5	46 28.8	+3.2	55.2	47 35.8	+5.6	57.0	48 39.5	+8.3	58.9
48	44 04.6	-2.6	50.5	45 19.6	-0.4	52.1	46 32.0	+2.0	53.7	47 41.4	+4.6	55.5	48 47.8	+7.1	57.4
49	44 02.0	-3.7	49.2	45 19.2	-1.4	50.7	46 34.0	+0.9	52.3	47 46.0	+3.3	54.0	48 54.9	+5.9	55.9
50	43 58.3	-4.6	47.8	45 17.8	-2.4	49.3	46 34.9	-0.2	50.8	47 49.3	+2.2	52.5	49 00.8	+4.8	54.3
51	43 53.7	-5.6	46.4	45 15.4	-3.5	47.8	46 34.7	-1.2	49.4	47 51.5	+1.1	51.0	49 05.6	+3.5	52.8
52	43 48.1	-6.7	45.0	45 11.9	-4.6	46.4	46 33.5	-2.4	47.9	47 52.6	-0.1	49.6	49 09.1	+2.3	51.3
53	43 41.4	-7.6	43.6	45 07.3	-5.6	45.0	46 31.1	-3.5	46.5	47 52.5	-1.2	48.1	49 11.4	+1.1	49.8
54	43 33.8	-8.6	42.3	45 01.7	-6.7	43.6	46 27.6	-4.6	45.0	47 51.3	-2.5	46.6	49 12.5	-0.1	48.2
55	43 25.2	-9.5	40.9	44 55.0	-7.6	42.2	46 23.0	-5.7	43.6	47 48.8	-3.5	45.1	49 12.4	-1.3	46.7
56	43 15.7	-10.6	39.5	44 47.4	-8.7	40.8	46 17.3	-6.7	42.1	47 45.3	-4.7	43.6	49 11.1	-2.6	45.2
57	43 05.1	-11.4	38.2	44 38.7	-9.7	39.4	46 10.6	-7.9	40.7	47 40.6	-5.9	42.1	49 08.5	-3.7	43.6
58	42 53.7	-12.4	36.8	44 29.0	-10.7	38.0	46 02.7	-8.9	39.3	47 34.7	-7.0	40.6	49 04.8	-5.0	42.1
59	42 41.3	-13.4	35.5	44 18.3	-11.7	36.6	45 53.8	-9.9	37.8	47 27.7	-8.1	39.2	48 59.8	-6.1	40.6
60	42 27.9	-14.2	34.2	44 06.6	-12.7	35.3	45 43.9	-11.0	36.4	47 19.6	-9.2	37.7	48 53.7	-7.3	39.1
61	42 13.7	-15.1	32.9	43 53.9	-13.6	33.9	45 32.9	-12.1	35.0	47 10.4	-10.3	36.2	48 46.4	-8.5	37.6
62	41 58.6	-16.0	31.6	43 40.3	-14.6	32.6	45 20.8	-13.0	33.6	47 00.1	-11.4	34.8	48 37.9	-9.7	36.1
63	41 42.6	-16.9	30.3	43 25.7	-15.5	31.2	45 07.8	-14.0	32.2	46 48.7	-12.5	33.4	48 28.2	-10.8	34.6
64	41 25.7	-17.7	29.0	43 10.2	-16.4	29.9	44 53.8	-15.0	30.9	46 36.2	-13.5	31.9	48 17.4	-11.9	33.1
65	41 08.0	-18.5	27.7	42 53.8	-17.3	28.6	44 38.8	-16.0	29.5	46 22.7	-14.6	30.5	48 05.5	-13.1	31.6
66	40 49.5	-19.4	26.5	42 36.5	-18.2	27.3	44 22.8	-17.0	28.2	46 08.1	-15.6	29.1	47 52.4	-14.2	30.2
67	40 30.1	-20.1	25.2	42 18.3	-19.0	26.0	44 05.8	-17.8	26.8	45 52.5	-16.6	27.7	47 38.2	-15.2	28.7
68	40 10.0	-21.0	24.0	41 59.3	-19.9	24.7	43 48.0	-18.8	25.5	45 35.9	-17.6	26.4	47 23.0	-16.3	27.3
69	39 49.0	-21.7	22.8	41 39.4	-20.7	23.4	43 29.2	-19.7	24.2	45 18.3	-18.5	25.0	47 06.7	-17.3	25.9
70	39 27.3	-22.4	21.5	41 18.7	-21.5	22.2	43 09.5	-20.5	22.9	44 59.8	-19.5	23.6	46 49.4	-18.4	24.5
71	39 04.9	-23.2	20.3	40 57.2	-22.3	20.9	42 49.0	-21.4	21.6	44 40.3	-20.4	22.3	46 31.0	-19.3	23.1
72	38 41.7	-23.9	19.2	40 34.9	-23.1	19.7	42 27.6	-22.2	20.3	44 19.9	-21.3	21.0	46 11.7	-20.3	21.7
73	38 17.8	-24.5	18.0	40 11.8	-23.8	18.5	42 05.4	-23.0	19.1	43 58.6	-22.2	19.7	45 51.4	-21.3	20.4
74	37 53.3	-25.3	16.8	39 48.0	-24.6	17.3	41 42.4	-23.8	17.8	43 36.4	-23.0	18.4	45 30.1	-22.2	19.0
75	37 28.0	-25.9	15.7	39 23.4	-25.2	16.1	41 18.6	-24.6	16.6	43 13.4	-23.9	17.1	45 07.9	-23.1	17.7
76	37 02.1	-26.5	14.6	38 58.2	-26.0	14.9	40 54.0	-25.4	15.4	42 49.5	-24.6	15.9	44 44.8	-24.0	16.4
77	36 35.6	-27.2	13.4	38 32.2	-26.6	13.8	40 28.6	-26.0	14.2	42 24.9	-25.5	14.6	44 20.8	-24.8	15.1
78	36 08.4	-27.8	12.3	38 05.6	-27.3	12.7	40 02.6	-26.8	13.0	41 59.4	-26.2	13.4	43 56.0	-25.6	13.8
79	35 40.6	-28.3	11.2	37 38.3	-28.0	11.5	39 35.8	-27.5	11.8	41 33.2	-27.0	12.2	43 30.4	-26.5	12.6
80	35 12.3	-29.0	10.1	37 10.3	-28.5	10.4	39 08.3	-28.1	10.7	41 06.2	-27.7	11.0	43 03.9	-27.3	11.4
81	34 43.3	-29.4	9.1	36 41.8	-29.1	9.3	38 40.2	-28.8	9.6	40 38.5	-28.4	9.8	42 36.6	-28.0	10.1
82	34 13.9	-30.1	8.0	36 12.7	-29.8	8.2	38 11.4	-29.4	8.4	40 10.1	-29.1	8.7	42 08.6	-28.7	9.0
83	33 43.8	-30.5	7.0	35 42.9	-30.3	7.1	37 42.0	-30.0	7.3	39 41.0	-29.8	7.5	41 39.9	-29.5	7.8
84	33 13.3	-31.0	5.9	35 12.6	-30.8	6.1	37 12.0	-30.7	6.2	39 11.2	-30.4	6.4	41 10.4	-30.1	6.6
85	32 42.3	-31.6	4.9	34 41.8	-31.4	5.0	36 41.3	-31.2	5.2	38 40.8	-31.0	5.3	40 40.3	-30.8	5.5
86	32 10.7	-32.0	3.9	34 10.4	-31.8	4.0	36 10.1	-31.7	4.1	38 09.8	-31.6	4.2	40 09.5	-31.5	4.3
87	31 38.7	-32.4	2.9	33 38.6	-32.4	3.0	35 38.4	-32.3	3.1	37 38.2	-32.2	3.1	39 38.0	-32.0	3.2
88	31 06.3	-33.0	1.9	33 06.2	-32.9	2.0	35 06.1	-32.8	2.0	37 06.0	-32.7	2.1	39 06.0	-32.7	2.1
89	30 33.3	-33.3	1.0	32 33.3	-33.3	1.0	34 33.3	-33.3	1.0	36 33.3	-33.3	1.0	38 33.3	-33.3	1.1
90	30 00.0	-33.8	0.0	32 00.0	-33.8	0.0	34 00.0	-33.8	0.0	36 00.0	-33.8	0.0	38 00.0	-33.8	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 56°, 304°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
9 45.2	-41.2	133.2	8 22.8	-42.3	133.5	7 00.1	-43.4	133.7	5 37.1	-44.4	133.8	4 13.9	-45.4	134.0	30
9 04.0	-41.2	134.0	7 40.5	-42.3	134.2	6 16.7	-43.3	134.4	4 52.7	-44.4	134.5	3 28.5	-45.3	134.6	31
8 22.8	-41.3	134.7	6 58.2	-42.4	134.9	5 33.4	-43.5	135.1	4 08.3	-44.4	135.2	2 43.2	-45.4	135.3	32
7 41.5	-41.4	135.4	6 15.8	-42.4	135.6	4 49.9	-43.4	135.8	3 23.9	-44.4	135.9	1 57.8	-45.5	135.9	33
7 00.1	-41.5	136.2	5 33.4	-42.5	136.3	4 06.5	-43.5	136.4	2 39.5	-44.5	136.5	1 12.3	-45.4	136.6	34
6 18.6	-41.5	136.9	4 50.9	-42.6	137.0	3 23.0	-43.5	137.1	1 55.0	-44.5	137.2	0 26.9	-45.4	137.2	35
5 37.1	-41.6	137.6	4 08.3	-42.5	137.7	2 39.5	-43.6	137.8	1 10.5	-44.5	137.9	0 18.5	+45.4	42.1	36
4 55.5	-41.6	138.4	3 25.8	-42.6	138.4	1 55.9	-43.6	138.5	0 26.0	-44.5	138.5	1 03.9	+45.4	41.5	37
4 13.9	-41.7	139.1	2 43.2	-42.7	139.2	1 12.3	-43.5	139.2	0 18.5	+44.5	40.8	1 49.3	+45.4	40.8	38
3 32.2	-41.7	139.8	2 00.5	-42.6	139.9	0 28.8	-43.6	139.9	1 03.0	+44.5	40.1	2 34.7	+45.4	40.2	39
2 50.5	-41.7	140.5	1 17.9	-42.7	140.6	0 14.8	+43.6	39.4	1 47.5	+44.5	39.4	3 20.1	+45.4	39.5	40
2 08.8	-41.7	141.2	0 35.2	-42.7	141.3	0 58.4	+43.6	38.7	2 32.0	+44.4	38.8	4 05.5	+45.3	38.8	41
1 27.1	-41.8	142.0	0 07.5	+42.6	38.0	1 42.0	+43.5	38.1	3 16.4	+44.5	38.1	4 50.8	+45.3	38.2	42
0 45.3	-41.8	142.7	0 50.1	+42.7	37.3	2 25.5	+43.6	37.4	4 00.9	+44.4	37.4	5 36.1	+45.2	37.5	43
0 03.5	-41.7	143.4	1 32.8	+42.6	36.6	3 09.1	+43.5	36.7	4 45.3	+44.3	36.8	6 21.3	+45.2	36.9	44
0 38.2	+41.8	35.9	2 15.4	+42.6	35.9	3 52.6	+43.4	36.0	5 29.6	+43.3	36.1	7 06.5	+45.2	36.2	45
1 20.0	+41.7	35.2	2 58.0	+42.6	35.2	4 36.0	+43.5	35.3	6 13.9	+44.3	35.4	7 51.7	+45.0	35.5	46
2 01.7	+41.8	34.5	3 40.6	+42.6	34.5	5 19.5	+43.4	34.6	6 58.2	+44.2	34.7	8 36.7	+45.0	34.9	47
2 43.5	+41.7	33.7	4 23.2	+42.5	33.8	6 02.9	+43.3	33.9	7 42.4	+44.1	34.0	9 21.7	+45.0	34.2	48
3 25.2	+41.6	33.0	5 05.7	+42.5	33.1	6 46.2	+43.3	33.2	8 26.5	+44.1	33.4	10 06.7	+44.8	33.5	49
4 06.8	+41.7	32.3	5 48.2	+42.4	32.4	7 29.5	+43.2	32.5	9 10.6	+44.0	32.7	10 51.5	+44.7	32.9	50
4 48.5	+41.5	31.6	6 30.6	+42.4	31.7	8 12.7	+43.1	31.8	9 54.6	+43.9	32.0	11 36.2	+44.7	32.2	51
5 30.0	+41.6	30.8	7 13.0	+42.3	31.0	8 55.8	+43.1	31.1	10 38.5	+43.8	31.3	12 20.9	+44.6	31.5	52
6 11.6	+41.4	30.1	7 55.3	+42.2	30.2	9 38.9	+43.0	30.4	11 22.3	+43.7	30.6	13 05.5	+44.4	30.8	53
6 53.0	+41.4	29.4	8 37.5	+42.2	29.5	10 21.9	+42.8	29.7	12 06.0	+43.6	29.9	13 49.9	+44.3	30.1	54
7 34.4	+41.4	28.7	9 19.7	+42.0	28.8	11 04.7	+42.8	29.0	12 49.6	+43.5	29.2	14 34.2	+44.2	29.4	55
8 15.8	+41.2	27.9	10 01.7	+42.0	28.1	11 47.5	+42.7	28.3	13 33.1	+43.4	28.5	15 18.4	+44.1	28.7	56
8 57.0	+41.2	27.2	10 43.7	+41.8	27.4	12 30.2	+42.5	27.5	14 16.5	+43.2	27.5	16 02.5	+44.0	28.0	57
9 38.2	+41.1	26.5	11 25.5	+41.8	26.6	13 12.7	+42.5	26.8	14 59.7	+43.1	27.1	16 46.5	+43.7	27.3	58
10 19.3	+40.9	25.7	12 07.3	+41.6	25.9	13 55.2	+42.3	26.1	15 42.8	+43.0	26.3	17 30.2	+43.7	26.6	59
11 00.2	+40.9	25.0	12 48.9	+41.5	25.2	14 37.5	+42.1	25.4	16 25.8	+42.8	25.6	18 13.9	+43.4	25.9	60
11 41.1	+40.7	24.2	13 30.4	+41.4	24.4	15 19.6	+42.0	24.6	17 08.6	+42.7	24.9	18 57.3	+43.3	25.1	61
12 21.8	+40.7	23.5	14 11.8	+41.3	23.7	16 01.6	+41.9	23.9	17 51.3	+42.4	24.1	19 40.6	+43.2	24.4	62
13 02.5	+40.4	22.7	14 53.1	+41.1	22.9	16 43.5	+41.7	23.1	18 33.7	+42.4	23.4	20 23.8	+42.9	23.7	63
13 42.9	+40.4	22.0	15 34.2	+40.9	22.2	17 25.2	+41.5	22.4	19 16.1	+42.1	22.6	21 06.7	+42.7	22.9	64
14 23.3	+40.2	21.2	16 15.1	+40.8	21.4	18 06.7	+41.4	21.6	19 58.2	+41.9	21.9	21 49.4	+42.5	22.2	65
15 03.5	+40.0	20.4	16 55.9	+40.6	20.6	18 48.1	+41.1	20.9	20 40.1	+41.7	21.1	22 31.9	+42.4	21.4	66
15 43.5	+39.9	19.7	17 36.5	+40.4	19.9	19 29.2	+41.0	20.1	21 21.8	+41.6	20.4	23 14.3	+42.0	20.6	67
16 23.4	+39.7	18.9	18 16.9	+40.2	19.1	20 10.2	+40.8	19.3	22 03.4	+41.3	19.6	23 56.3	+41.9	19.9	68
17 03.1	+39.6	18.1	18 57.1	+40.1	18.3	20 51.0	+40.5	18.5	22 44.7	+41.0	18.8	24 38.2	+41.6	19.1	69
17 42.7	+39.3	17.3	19 37.2	+39.8	17.5	21 31.5	+40.3	17.7	23 25.7	+40.8	18.0	25 19.8	+41.3	18.3	70
18 22.0	+39.1	16.5	20 17.0	+39.6	16.7	22 11.8	+40.1	16.9	24 06.5	+40.6	17.2	26 01.1	+41.1	17.5	71
19 01.1	+39.0	15.7	20 56.6	+39.4	15.9	22 51.9	+39.9	16.1	24 47.1	+40.3	16.4	26 42.2	+40.7	16.7	72
19 40.1	+38.7	14.9	21 36.0	+39.1	15.1	23 31.8	+39.5	15.3	25 27.4	+40.1	15.6	27 22.9	+40.5	15.8	73
20 18.8	+38.5	14.1	22 15.1	+38.9	14.3	24 11.3	+39.4	14.5	26 07.5	+39.7	14.7	28 03.4	+40.2	15.0	74
20 57.3	+38.2	13.3	22 54.0	+38.6	13.5	24 50.7	+39.0	13.7	26 47.2	+39.4	13.9	28 43.6	+39.9	14.2	75
21 35.5	+38.0	12.5	23 32.6	+38.4	12.6	25 29.7	+38.7	12.8	27 26.6	+39.2	13.1	29 23.5	+39.5	13.3	76
22 13.5	+37.8	11.6	24 11.0	+38.1	11.8	26 08.4	+38.5	12.0	28 05.8	+38.8	12.2	30 03.0	+39.2	12.4	77
22 51.3	+37.4	10.8	24 49.1	+37.8	10.9	26 46.9	+38.1	11.1	28 44.6	+38.5	11.3	30 42.2	+38.8	11.6	78
23 28.7	+37.2	9.9	25 26.9	+37.5	10.1	27 25.0	+37.8	10.3	29 23.1	+38.1	10.5	31 21.0	+38.5	10.7	79
24 05.9	+36.9	9.1	26 04.4	+37.2	9.2	28 02.8	+37.5	9.4	30 01.2	+37.7	9.6	31 59.5	+38.0	9.8	80
24 42.8	+36.6	8.2	26 41.6	+36.8	8.3	28 40.3	+37.1	8.5	30 38.9	+37.4	8.7	32 37.5	+37.7	8.9	81
25 19.4	+36.3	7.3	27 18.4	+36.6	7.5	29 17.4	+36.8	7.6	31 16.3	+37.0	7.8	33 15.2	+37.2	7.9	82
25 55.7	+36.0	6.5	27 55.0	+36.1	6.6	29 54.2	+36.3	6.7	31 53.3	+36.6	6.8	33 52.4	+36.9	7.0	83
26 31.7	+35.6	5.6	28 31.1	+35.8	5.7	30 30.5	+36.0	5.8	32 29.9	+36.2	5.9	34 29.3	+36.3	6.0	84
27 07.3	+35.3	4.7	29 06.9	+35.5	4.7	31 06.5	+35.6	4.8	33 06.1	+35.7	4.9	35 05.6	+35.9	5.1	85
27 42.6	+34.9	3.7	29 42.4	+35.0	3.8	31 42.1	+35.1	3.9	33 41.8	+35.3	4.0	35 41.5	+35.4	4.1	86
28 17.5	+34.6	2.8	30 17.4	+34.6	2.9	32 17.2	+34.7	2.9	34 17.1	+34.8	3.0	36 16.9	+34.9	3.1	87
28 52.1	+34.1	1.9	30 52.0	+34.2	1.9	32 51.9	+34.3	2.0	34 51.9	+34.3	2.0	36 51.8	+34.4	2.1	88
29 26.2	+33.8	1.0	31 26.2	+33.8	1.0	33 26.2	+33.8	1.0	35 26.2	+33.8	1.0	37 26.2	+33.8	1.0	89
30 00.0	+33.3	0.0	32 00.0	+33.3	0.0	34 00.0	+33.3	0.0	36 00.0	+33.3	0.0	38 00.0	+33.3	0.0	90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 124°, 236°

56°, 304° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	43 49.1	+28.1	84.3	43 59.0	+30.6	86.2	44 04.9	+33.1	88.1	44 06.8	+35.5	90.1	44 04.6	+37.8	92.0
31	44 17.2	+27.2	83.1	44 29.6	+29.9	85.0	44 38.0	+32.4	87.0	44 42.3	+34.8	89.0	44 42.4	+37.2	90.9
32	44 44.4	+26.5	81.8	44 59.5	+29.0	83.8	45 10.4	+31.6	85.8	45 17.1	+34.1	87.8	45 19.6	+36.5	89.8
33	45 10.9	+25.6	80.5	45 28.5	+28.3	82.5	45 42.0	+30.8	84.6	45 51.2	+33.4	86.6	45 56.1	+35.9	88.7
34	45 36.5	+24.7	79.3	45 56.8	+27.4	81.3	46 12.8	+30.1	83.3	46 24.6	+32.6	85.4	46 32.0	+35.1	87.5
35	46 01.2	+23.8	78.0	46 24.2	+26.5	80.0	46 42.9	+29.1	82.1	46 57.2	+31.8	84.2	47 07.1	+34.3	86.3
36	46 25.0	+22.9	76.6	46 50.7	+25.6	78.7	47 12.0	+28.3	80.8	47 29.0	+31.0	83.0	47 41.4	+33.6	85.1
37	46 47.9	+21.9	75.3	47 16.3	+24.6	77.4	47 40.3	+27.5	79.5	48 00.0	+30.1	81.7	48 15.0	+32.8	83.9
38	47 09.8	+20.9	73.9	47 40.9	+23.8	76.0	48 07.8	+26.4	78.2	48 30.1	+29.2	80.4	48 47.8	+31.9	82.6
39	47 30.7	+20.0	72.5	48 04.7	+22.7	74.6	48 34.2	+25.5	76.8	48 59.3	+28.3	79.1	49 19.7	+31.1	81.3
40	47 50.7	+18.8	71.1	48 27.4	+21.7	73.3	48 59.7	+24.5	75.5	49 27.6	+27.3	77.7	49 50.8	+30.1	80.0
41	48 09.5	+17.9	69.7	48 49.1	+20.6	71.8	49 24.2	+23.5	74.1	49 54.9	+26.4	76.3	50 20.9	+29.2	78.7
42	48 27.4	+16.7	68.3	49 09.7	+19.6	70.4	49 47.7	+22.5	72.6	50 21.3	+25.3	74.9	50 50.1	+28.2	77.3
43	48 44.1	+15.6	66.8	49 29.3	+18.4	69.0	50 10.2	+21.3	71.2	50 46.6	+24.2	73.5	51 18.3	+27.1	75.9
44	48 59.7	+14.5	65.4	49 47.7	+17.4	67.5	50 47.5	+20.2	69.7	51 10.8	+23.2	72.0	51 45.4	+26.1	74.5
45	49 14.2	+13.4	63.9	50 05.1	+16.2	66.0	50 51.7	+19.1	68.2	51 34.0	+22.0	70.6	52 11.5	+25.0	73.0
46	49 27.6	+12.2	62.4	50 21.3	+15.0	64.5	51 10.8	+17.9	66.7	51 56.0	+20.8	69.1	52 36.5	+23.8	71.5
47	49 39.8	+11.0	60.9	50 36.3	+13.8	63.0	51 28.7	+16.7	65.2	52 16.8	+19.7	67.5	53 00.3	+22.6	70.0
48	49 50.8	+9.8	59.3	50 50.1	+12.6	61.4	51 45.4	+15.5	63.7	52 36.5	+18.4	66.0	53 22.9	+21.5	68.4
49	50 00.6	+8.6	57.8	51 02.7	+11.3	59.9	52 00.9	+14.2	62.1	52 54.9	+17.1	64.4	53 44.4	+20.2	66.9
50	50 09.2	+7.3	56.3	51 14.0	+10.1	58.3	52 15.1	+12.9	60.5	53 12.0	+15.9	62.8	54 04.6	+18.8	65.3
51	50 16.5	+6.1	54.7	51 24.1	+8.8	56.8	52 28.0	+11.6	58.9	53 27.9	+14.5	61.2	54 23.4	+17.6	63.6
52	50 22.6	+4.8	53.2	51 32.9	+7.5	55.2	52 39.6	+10.3	57.3	53 42.4	+13.2	59.6	54 41.0	+16.2	62.0
53	50 27.4	+3.6	51.6	51 40.4	+6.2	53.6	52 49.9	+8.9	55.7	53 55.6	+11.8	57.9	54 57.2	+14.8	60.3
54	50 31.0	+2.3	50.0	51 46.6	+4.8	52.0	52 58.8	+7.6	54.0	54 07.4	+10.4	56.3	55 12.0	+13.4	58.6
55	50 33.3	+1.1	48.5	51 51.4	+3.6	50.3	53 06.4	+6.2	52.4	54 17.8	+9.0	54.6	55 25.4	+11.9	56.9
56	50 34.4	-0.2	46.9	51 55.0	+2.2	48.7	53 12.6	+4.8	50.7	54 26.8	+7.6	52.9	55 37.3	+10.5	55.2
57	50 34.2	-1.6	45.3	51 57.2	+0.9	47.1	53 17.4	+3.4	49.1	54 34.4	+6.1	51.2	55 47.8	+8.9	53.4
58	50 32.6	-2.7	43.7	51 58.1	-0.5	45.5	53 20.8	+2.0	47.4	54 40.5	+4.6	49.4	55 56.7	+7.5	51.7
59	50 29.9	-4.1	42.2	51 57.6	-1.8	43.9	53 22.8	+0.6	45.7	54 45.1	+3.2	47.7	56 04.2	+5.9	49.9
60	50 25.8	-5.3	40.6	51 55.8	-3.1	42.2	53 23.4	-0.8	44.0	54 48.3	+1.7	46.0	56 10.1	+4.3	48.1
61	50 20.5	-6.5	39.0	51 52.7	-4.5	40.6	53 22.6	-2.2	42.4	54 50.0	+0.1	44.3	56 14.4	+2.8	46.3
62	50 14.0	-7.8	37.5	51 48.2	-5.7	39.0	53 20.4	-3.6	40.7	54 50.1	-1.2	42.5	56 17.2	+1.2	44.5
63	50 06.2	-9.0	35.9	51 42.5	-7.1	37.4	53 16.8	-5.0	39.0	54 48.9	-2.8	40.8	56 18.4	-0.4	42.7
64	49 57.2	-10.2	34.4	51 35.4	-8.4	35.8	53 11.8	-6.4	37.3	54 46.1	-4.3	39.0	56 18.0	-1.9	40.9
65	49 47.0	-11.5	32.9	51 27.0	-9.7	34.2	53 05.4	-7.8	35.7	54 41.8	-5.7	37.3	56 16.1	-3.5	39.1
66	49 35.5	-12.6	31.3	51 17.3	-10.9	32.6	52 57.6	-9.2	34.0	54 36.1	-7.2	35.6	56 12.6	-5.0	37.3
67	49 22.9	-13.8	29.8	51 06.4	-12.2	31.1	52 48.4	-10.4	32.4	54 28.9	-8.6	33.9	56 07.6	-6.6	35.5
68	49 09.1	-14.9	28.3	50 54.2	-13.4	29.5	52 38.0	-11.8	30.8	54 20.3	-10.0	32.2	56 01.0	-8.1	33.8
69	48 54.2	-16.0	26.9	50 40.8	-14.7	28.0	52 26.2	-13.1	29.2	54 10.3	-11.5	30.5	55 52.9	-9.7	32.0
70	48 38.2	-17.1	25.4	50 26.1	-15.8	26.4	52 13.1	-14.4	27.6	53 58.8	-12.8	28.8	55 43.2	-11.1	30.2
71	48 21.1	-18.2	24.0	50 10.3	-17.0	24.9	51 58.7	-15.7	26.0	53 46.0	-14.2	27.2	55 32.1	-12.6	28.5
72	48 02.9	-19.3	22.5	49 53.3	-18.1	23.4	51 43.0	-16.8	24.4	53 31.8	-15.5	25.5	55 19.5	-14.0	26.8
73	47 43.6	-20.3	21.1	49 35.2	-19.2	22.0	51 26.2	-18.1	22.9	53 16.3	-16.8	23.9	55 05.5	-15.4	25.1
74	47 23.3	-21.3	19.7	49 16.0	-20.3	20.5	51 08.1	-19.3	21.4	52 59.5	-18.1	22.3	54 50.1	-16.8	23.4
75	47 02.0	-22.2	18.3	48 55.7	-21.4	19.1	50 48.8	-20.4	19.9	52 41.4	-19.3	20.7	54 33.3	-18.2	21.7
76	46 39.8	-23.3	17.0	48 34.3	-22.4	17.6	50 28.4	-21.5	18.4	52 22.1	-20.6	19.2	54 15.1	-19.5	20.1
77	46 16.5	-24.1	15.7	48 11.9	-23.4	16.2	50 06.9	-22.5	16.9	52 01.5	-21.7	17.6	53 55.6	-20.7	18.5
78	45 52.4	-25.0	14.3	47 48.5	-24.3	14.9	49 44.4	-23.7	15.5	51 39.8	-22.8	16.1	53 34.9	-22.0	16.9
79	45 27.4	-25.9	13.0	47 24.2	-25.3	13.5	49 20.7	-24.7	14.1	51 17.0	-24.0	14.6	53 12.9	-23.2	15.3
80	45 01.5	-26.8	11.8	46 58.9	-26.3	12.2	48 56.0	-25.6	12.7	50 53.0	-25.0	13.2	52 49.7	-24.4	13.8
81	44 34.7	-27.6	10.5	46 32.6	-27.1	10.9	48 30.4	-26.6	11.3	50 28.0	-26.1	11.8	52 25.3	-25.4	12.3
82	44 07.1	-28.3	9.2	46 05.5	-28.0	9.6	48 03.8	-27.6	9.9	50 01.9	-27.1	10.3	51 59.9	-26.6	10.8
83	43 38.8	-29.2	8.0	45 37.5	-28.8	8.3	47 36.2	-28.4	8.6	49 34.8	-28.0	9.0	51 33.3	-27.6	9.4
84	43 09.6	-29.9	6.8	45 08.7	-29.6	7.1	47 07.8	-29.3	7.3	49 06.8	-29.0	7.6	51 05.7	-28.6	7.9
85	42 39.7	-30.6	5.6	44 39.1	-30.3	5.8	46 38.5	-30.1	6.0	48 37.8	-29.9	6.3	50 37.1	-29.7	6.5
86	42 09.1	-31.3	4.5	44 08.8	-31.2	4.6	46 08.4	-31.0	4.8	48 07.9	-30.7	5.0	50 07.4	-30.5	5.2
87	41 37.8	-31.9	3.3	43 37.6	-31.8	3.4	45 37.4	-31.7	3.6	47 37.2	-31.6	3.7	49 36.9	-31.4	3.8
88	41 05.9	-32.7	2.2	43 05.8	-32.6	2.3	45 05.7	-32.5	2.3	47 05.6	-32.4	2.4	49 05.5	-32.4	2.5
89	40 33.2	-33.2	1.1	42 33.2	-33.2	1.1	44 33.2	-33.2	1.2	46 33.2	-33.2	1.2	48 33.1	-33.1	1.3
90	40 00.0	-33.8	0.0	42 00.0	-33.9	0.0	44 00.0	-33.9	0.0	46 00.0	-33.9	0.0	48 00.0	-33.9	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 56°, 304°

40°			42°			44°									Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
2 50.5	-46.3	134.0	1 27.1	-47.3	134.1	0 03.5	-48.1	134.1	1 20.0	+49.0	45.9	2 43.5	+49.8	46.0	30
2 04.2	-46.3	134.7	0 39.8	-47.3	134.7	0 44.6	+48.2	45.3	2 09.0	+49.0	45.3	3 33.3	+49.9	45.4	31
1 17.9	-46.4	135.3	0 07.5	+47.2	44.7	1 32.8	+48.1	44.7	2 58.0	+49.1	44.7	4 23.2	+49.9	44.8	32
0 31.5	-46.3	135.9	0 54.7	+47.3	44.1	2 20.9	+48.2	44.1	3 47.1	+48.9	44.2	5 13.1	+49.8	44.3	33
0 14.8	+46.4	43.4	1 42.0	+47.2	43.4	3 09.1	+48.1	43.5	4 36.0	+49.0	43.6	6 02.9	+49.7	43.7	34
1 01.2	+46.3	42.8	2 29.2	+47.2	42.8	3 57.2	+48.1	42.9	5 25.0	+48.9	43.0	6 52.6	+49.8	43.2	35
1 47.5	+46.3	42.1	3 16.4	+47.2	42.2	4 45.3	+48.0	42.3	6 13.9	+48.9	42.4	7 42.4	+49.7	42.6	36
2 33.8	+46.3	41.5	4 03.6	+47.2	41.6	5 33.3	+48.0	41.7	7 02.8	+48.9	41.8	8 32.1	+49.6	42.0	37
3 20.1	+46.3	40.9	4 50.8	+47.1	41.0	6 21.3	+48.0	41.1	7 51.7	+48.7	41.3	9 21.7	+49.6	41.5	38
4 06.4	+46.3	40.2	5 37.9	+47.1	40.3	7 09.3	+47.9	40.5	8 40.4	+48.8	40.7	10 11.3	+49.5	40.9	39
4 52.7	+46.2	39.6	6 25.0	+47.1	39.7	7 57.2	+47.9	39.9	9 29.2	+48.7	40.1	11 00.8	+49.5	40.3	40
5 38.9	+46.1	39.0	7 12.1	+47.0	39.1	8 45.1	+47.8	39.3	10 17.9	+48.6	39.5	11 50.3	+49.4	39.7	41
6 25.0	+46.2	38.3	7 59.1	+46.9	38.5	9 32.9	+47.8	38.5	11 06.5	+48.5	38.9	12 39.7	+49.3	39.2	42
7 11.2	+46.0	37.7	8 46.0	+46.9	37.8	10 20.7	+47.7	38.0	11 55.0	+48.5	38.3	13 29.0	+49.3	38.6	43
7 57.2	+46.0	37.0	9 32.9	+46.8	37.2	11 08.4	+47.6	37.4	12 43.5	+48.4	37.7	14 18.3	+49.1	38.0	44
8 43.2	+46.0	36.4	10 19.7	+46.8	36.6	11 56.0	+47.5	36.8	13 31.9	+48.3	37.1	15 07.4	+49.8	37.4	45
9 29.2	+45.9	35.7	11 06.5	+46.6	35.9	12 43.5	+47.4	36.2	14 20.2	+48.2	36.5	15 56.5	+48.9	36.8	46
10 15.1	+45.7	35.1	11 53.1	+46.6	35.3	13 30.9	+47.4	35.6	15 08.4	+47.9	35.7	16 45.4	+48.9	36.2	47
11 00.8	+45.8	34.4	12 39.7	+46.5	34.6	14 18.3	+47.2	34.9	15 56.5	+48.0	35.2	17 34.3	+48.7	35.6	48
11 46.6	+45.6	33.8	13 28.2	+46.4	34.0	15 05.5	+47.1	34.3	16 44.5	+47.8	34.6	18 23.0	+48.6	35.0	49
12 32.2	+45.5	33.1	14 12.6	+46.2	33.3	15 52.6	+47.1	33.6	17 32.3	+47.8	34.0	19 11.6	+48.5	34.4	50
13 17.7	+45.4	32.4	14 58.8	+46.2	32.7	16 39.7	+46.9	33.0	18 20.1	+47.6	33.3	20 00.1	+48.4	33.7	51
14 03.1	+45.3	31.7	15 45.0	+46.0	32.0	17 26.6	+46.7	32.3	19 07.7	+47.5	32.7	20 48.5	+48.2	33.1	52
14 48.4	+45.2	31.1	16 31.0	+45.9	31.4	18 13.3	+46.6	31.7	19 55.2	+47.4	32.1	21 36.7	+48.1	32.5	53
15 33.6	+45.0	30.4	17 16.9	+45.8	30.7	18 59.9	+46.5	31.0	20 42.6	+47.2	31.4	22 24.8	+47.9	31.8	54
16 18.6	+44.9	29.7	18 02.7	+45.6	30.0	19 46.4	+46.4	30.4	21 29.8	+47.0	30.7	23 12.7	+49.8	31.2	55
17 03.5	+44.8	29.0	18 48.3	+45.5	29.3	20 32.8	+46.1	29.7	22 16.8	+46.9	30.1	24 00.5	+47.5	30.5	56
17 48.3	+44.6	28.3	19 33.8	+45.3	28.6	21 18.9	+46.1	29.0	23 03.7	+46.7	29.4	24 48.0	+47.4	29.8	57
18 32.9	+44.5	27.6	20 19.1	+45.2	27.9	22 05.0	+45.8	28.3	23 50.4	+46.5	28.7	25 35.4	+47.3	29.2	58
19 17.4	+44.3	26.9	21 04.3	+44.9	27.2	22 50.8	+45.6	27.6	24 36.9	+46.4	28.0	26 22.7	+47.0	28.5	59
20 01.7	+44.1	26.2	21 49.2	+44.8	26.5	23 36.4	+45.5	26.9	25 23.3	+46.1	27.3	27 09.7	+46.8	27.8	60
20 45.8	+44.0	25.5	22 34.0	+44.6	25.8	24 21.9	+45.2	26.2	26 09.4	+45.9	26.6	27 56.5	+46.6	27.1	61
21 29.8	+43.7	24.7	23 18.6	+44.4	25.1	25 07.1	+45.1	25.5	26 55.3	+45.7	25.9	28 43.1	+46.3	26.3	62
22 13.5	+43.6	24.0	24 03.0	+44.2	24.3	25 52.2	+44.8	24.7	27 41.0	+45.5	25.2	29 29.4	+46.1	25.6	63
22 57.1	+43.3	23.2	24 47.2	+44.0	23.6	26 37.0	+44.6	24.0	28 28.5	+45.2	24.4	30 15.5	+45.9	24.9	64
23 40.4	+43.1	22.5	25 31.2	+43.7	22.8	27 21.6	+44.3	23.2	29 11.7	+44.9	23.7	31 01.4	+45.6	24.1	65
24 23.5	+42.9	21.7	26 14.9	+43.5	22.1	28 05.9	+44.1	22.5	29 56.6	+44.7	22.9	31 47.0	+45.3	23.4	66
25 06.4	+42.7	21.0	26 58.4	+43.2	21.3	28 50.0	+43.8	21.7	30 41.3	+44.5	22.1	32 32.3	+45.0	22.6	67
25 49.1	+42.4	20.2	27 41.6	+42.9	20.5	29 33.8	+43.6	20.9	31 25.8	+44.1	21.3	33 17.3	+44.8	21.8	68
26 31.5	+42.1	19.4	28 24.5	+42.7	19.7	30 17.4	+43.2	20.1	32 09.9	+43.8	20.5	34 02.1	+44.4	21.0	69
27 13.6	+41.9	18.6	29 07.2	+42.4	18.9	31 00.6	+42.9	19.3	32 53.7	+43.5	19.7	34 46.5	+44.1	20.2	70
27 55.5	+41.5	17.8	29 49.6	+42.1	18.1	31 43.5	+42.7	18.5	33 37.2	+43.2	18.9	35 30.6	+43.7	19.4	71
28 37.0	+41.3	17.0	30 31.7	+41.8	17.3	32 26.2	+42.2	17.7	34 20.4	+42.8	18.1	36 14.3	+43.4	18.5	72
29 18.3	+41.0	16.1	31 13.5	+41.4	16.5	33 08.4	+42.0	16.8	35 03.2	+42.4	17.2	36 57.7	+43.0	17.7	73
29 59.3	+40.6	15.3	31 54.9	+41.1	15.6	33 50.4	+41.6	16.0	35 45.6	+42.1	16.4	37 40.7	+42.6	16.8	74
30 39.9	+40.3	14.4	32 36.0	+40.8	14.8	34 32.0	+41.2	15.1	36 27.7	+41.7	15.5	38 23.3	+42.1	15.9	75
31 20.2	+39.9	13.6	33 16.8	+40.3	13.9	35 13.2	+40.8	14.2	37 09.4	+41.3	14.6	39 05.4	+41.8	15.0	76
32 00.1	+39.6	12.7	33 57.1	+40.0	13.0	35 54.0	+40.4	13.3	37 50.7	+40.8	13.7	39 47.2	+41.3	14.0	77
32 39.7	+39.2	11.8	34 37.1	+39.6	12.1	36 34.4	+39.9	12.4	38 31.5	+40.4	12.7	40 28.5	+40.8	13.1	78
33 18.9	+38.8	10.9	35 16.7	+39.1	11.2	37 14.3	+39.6	11.5	39 11.9	+39.9	11.8	41 09.3	+40.3	12.1	79
33 57.7	+38.4	10.0	35 55.8	+38.7	10.2	37 53.9	+39.0	10.5	39 51.8	+39.4	10.8	41 49.6	+39.8	11.1	80
34 36.1	+37.9	9.1	36 34.5	+38.3	9.3	38 32.9	+38.6	9.5	40 31.2	+38.9	9.8	42 29.4	+39.3	10.1	81
35 14.0	+37.5	8.1	37 12.8	+37.8	8.3	39 11.5	+38.1	8.6	41 10.1	+38.4	8.8	43 08.7	+38.6	9.1	82
35 51.5	+37.1	7.2	37 50.6	+37.3	7.4	39 49.6	+37.5	7.6	41 48.5	+37.8	7.8	43 47.3	+38.1	8.0	83
36 28.6	+36.5	6.2	38 27.9	+36.7	6.4	40 27.1	+37.0	6.5	42 26.3	+37.2	6.7	44 25.4	+37.5	7.0	84
37 05.1	+36.1	5.2	39 04.6	+36.3	5.3	41 04.1	+36.4	5.5	43 03.5	+36.6	5.7	45 02.9	+36.8	5.9	85
37 41.2	+35.5	4.2	39 40.9	+35.6	4.3	41 40.5	+35.8	4.4	43 40.1	+36.0	4.6	45 39.7	+36.2	4.7	86
38 16.7	+35.0	3.2	40 16.5	+35.1	3.3	42 16.3	+35.2	3.4	44 16.1	+35.3	3.5	46 15.9	+35.4	3.6	87
38 51.7	+34.5	2.1	40 51.6	+34.5	2.2	42 51.5	+34.6	2.3	44 51.4	+34.7	2.3	46 51.3	+34.8	2.4	88
39 26.2	+33.8	1.1	41 26.1	+33.9	1.1	43 26.1	+33.9	1.1	45 26.1	+33.9	1.2	47 26.1	+33.9	1.2	89
40 00.0	+33.2	0.0	42 00.0	+33.2	0.0	44 00.0	+33.2	0.0	46 00.0	+33.2	0.0	48 00.0	+33.1	0.0	90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 124°, 236°

56°, 304° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	43 58.3	+40.1	94.0	43 48.1	+42.1	95.9	43 33.8	+44.2	97.8	43 15.7	+46.0	99.6	42 53.7	+47.8	101.5
31	44 38.4	+39.4	92.9	44 30.2	+41.7	94.9	44 18.0	+43.7	96.8	44 01.7	+45.7	98.7	43 41.5	+47.5	100.6
32	45 17.8	+38.9	91.8	45 11.9	+41.0	93.9	45 01.7	+43.2	95.9	44 47.4	+45.2	97.8	44 29.0	+47.1	99.8
33	45 56.7	+38.2	90.8	45 52.9	+40.6	92.8	45 44.9	+42.7	94.9	45 32.6	+44.7	96.9	45 16.1	+46.6	98.9
34	46 34.9	+37.6	89.6	46 33.5	+39.9	91.8	46 27.6	+42.1	93.9	46 17.3	+44.3	96.0	46 02.7	+46.2	98.0
35	47 12.5	+36.8	88.5	47 13.4	+39.2	90.7	47 09.7	+41.6	92.8	47 01.6	+43.7	95.0	46 48.9	+45.8	97.1
36	47 49.3	+36.2	87.3	47 52.6	+38.6	89.5	47 51.3	+40.9	91.8	47 45.3	+43.2	94.0	47 34.7	+45.3	96.1
37	48 25.5	+35.3	86.1	48 31.2	+37.9	88.4	48 32.2	+40.3	90.7	48 28.5	+42.6	92.9	48 20.0	+44.8	95.2
38	49 00.8	+34.6	84.9	49 09.1	+37.1	87.2	49 12.5	+39.6	89.5	49 11.1	+41.9	91.8	49 04.8	+44.2	94.2
39	49 35.4	+33.8	83.7	49 46.2	+36.4	86.0	49 52.1	+38.9	88.4	49 53.0	+41.4	90.7	49 49.0	+43.6	93.1
40	50 09.2	+32.8	82.4	50 22.6	+35.6	84.8	50 31.0	+38.2	87.2	50 34.4	+40.6	89.6	50 32.6	+43.1	92.0
41	50 42.0	+32.0	81.1	50 58.2	+34.7	83.5	51 09.2	+37.4	86.0	51 15.0	+40.0	88.4	51 15.7	+42.4	90.9
42	51 14.0	+31.0	79.7	51 32.9	+33.8	82.2	51 46.6	+36.5	84.7	51 55.0	+39.2	87.2	51 58.1	+41.7	89.8
43	51 45.0	+30.1	78.3	52 06.7	+32.9	80.9	52 23.1	+35.7	83.4	52 34.2	+38.4	86.0	52 39.8	+41.0	88.6
44	52 15.1	+29.0	76.9	52 39.6	+31.9	79.5	52 58.8	+34.8	82.1	53 12.6	+37.5	84.7	53 20.8	+40.2	87.4
45	52 44.1	+27.9	75.5	53 11.5	+30.9	78.1	53 33.6	+33.8	80.7	53 50.1	+36.7	83.4	54 01.0	+39.5	86.2
46	53 12.0	+26.9	74.0	53 42.4	+29.9	76.6	54 07.4	+32.8	79.3	54 26.8	+35.8	82.1	54 40.5	+38.5	84.9
47	53 38.9	+25.7	72.5	54 12.3	+28.7	75.2	54 40.2	+31.8	77.9	55 02.6	+34.7	80.7	55 19.0	+37.7	83.5
48	54 04.6	+24.5	71.0	54 41.0	+27.6	73.7	55 12.0	+30.7	76.4	55 37.3	+33.7	79.2	55 56.7	+36.7	82.1
49	54 29.1	+23.2	69.4	55 08.6	+26.4	72.1	55 42.7	+29.5	74.9	56 11.0	+32.7	77.8	56 33.4	+35.8	80.7
50	54 52.3	+22.0	67.8	55 35.0	+25.1	70.5	56 12.2	+28.3	73.3	56 43.7	+31.5	76.3	57 09.2	+34.6	79.3
51	55 14.3	+20.7	66.2	56 00.1	+23.9	68.9	56 40.5	+27.1	71.7	57 15.2	+30.3	74.7	57 43.8	+33.5	77.7
52	55 35.0	+19.3	64.6	56 24.0	+22.5	67.3	57 07.6	+25.8	70.1	57 45.5	+29.1	73.1	58 17.3	+32.4	76.2
53	55 54.3	+17.9	62.9	56 46.5	+21.1	65.6	57 33.4	+24.4	68.4	58 14.6	+27.7	71.4	58 49.7	+31.1	74.6
54	56 12.2	+16.5	61.2	57 07.6	+19.7	63.9	57 57.8	+23.0	66.7	58 42.3	+26.4	69.7	59 20.8	+29.7	72.9
55	56 28.7	+15.0	59.4	57 27.3	+18.2	62.1	58 20.8	+21.5	65.0	59 08.7	+24.9	68.0	59 50.5	+28.4	71.2
56	56 43.7	+13.5	57.7	57 45.5	+16.7	60.3	58 42.3	+20.0	63.2	59 33.6	+23.5	66.2	60 18.9	+27.0	69.4
57	56 57.2	+12.0	55.9	58 02.2	+15.1	58.5	59 02.3	+18.5	61.4	59 57.1	+21.8	64.4	60 45.9	+25.4	67.6
58	57 09.2	+10.4	54.1	58 17.3	+13.6	56.7	59 20.8	+16.8	59.5	60 18.9	+20.3	62.5	61 11.3	+23.9	65.7
59	57 19.6	+8.8	52.3	58 30.9	+11.9	54.8	59 37.6	+15.2	57.6	60 39.2	+18.6	60.6	61 35.2	+22.2	63.8
60	57 28.4	+7.2	50.4	58 42.8	+10.2	53.0	59 52.8	+13.4	55.7	60 57.8	+16.9	58.7	61 57.4	+20.5	61.8
61	57 35.6	+5.5	48.6	58 53.0	+8.5	51.1	60 06.2	+11.8	53.7	61 14.7	+15.2	56.7	62 17.9	+18.7	59.8
62	57 41.1	+3.9	46.7	59 01.5	+6.9	49.1	60 18.0	+9.9	51.8	61 29.9	+13.3	54.6	62 36.6	+16.9	57.8
63	57 45.0	+2.3	44.9	59 08.4	+5.1	47.2	60 27.9	+8.2	49.8	61 43.2	+11.4	52.6	62 53.5	+15.0	55.7
64	57 47.3	+0.6	43.0	59 13.5	+3.3	45.3	60 36.1	+6.3	47.8	61 54.6	+9.6	50.5	63 08.5	+13.0	53.6
65	57 47.9	-1.1	41.1	59 16.8	+1.6	43.3	60 42.4	+4.5	45.7	62 04.2	+7.6	48.4	63 21.5	+11.0	51.4
66	57 46.8	-2.7	39.2	59 18.4	-0.2	41.3	60 46.9	+2.6	43.7	62 11.8	+5.6	46.3	63 32.5	+9.0	49.2
67	57 44.1	-4.3	37.4	59 18.2	-1.9	39.4	60 49.5	+0.7	41.6	62 17.4	+3.7	44.2	63 41.5	+6.8	47.0
68	57 39.8	-6.1	35.5	59 16.3	-3.7	37.4	60 50.2	-1.1	39.6	62 21.1	+1.6	42.0	63 48.3	+4.8	44.7
69	57 33.7	-7.6	33.6	59 12.6	-5.5	35.5	60 49.1	-3.1	37.5	62 22.7	-0.3	39.9	63 53.1	+2.7	42.5
70	57 26.1	-9.2	31.8	59 07.1	-7.1	33.5	60 46.0	-4.8	35.5	62 22.4	-2.3	37.7	63 55.8	+0.5	40.2
71	57 16.9	-10.9	30.0	59 00.0	-8.9	31.6	60 41.2	-6.8	33.5	62 20.1	-4.3	35.5	63 56.3	-1.6	37.9
72	57 06.0	-12.4	28.1	58 51.1	-10.6	29.7	60 34.4	-8.5	31.4	62 15.8	-6.3	33.4	63 54.7	-3.8	35.6
73	56 53.6	-13.9	26.3	58 40.5	-12.2	27.8	60 25.9	-10.4	29.4	62 09.5	-8.3	31.3	63 50.9	-5.9	33.4
74	56 39.7	-15.4	24.6	58 28.3	-13.9	25.9	60 15.5	-12.1	27.4	62 01.2	-10.2	29.1	63 45.0	-8.0	31.1
75	56 24.3	-16.9	22.8	58 14.4	-15.4	24.1	60 03.4	-13.8	25.5	61 51.0	-12.0	27.1	63 37.0	-10.0	28.9
76	56 07.4	-18.3	21.1	57 59.0	-17.0	22.2	59 49.6	-15.6	23.5	61 39.0	-13.9	25.0	63 27.0	-12.1	26.7
77	55 49.1	-19.6	19.4	57 42.0	-18.5	20.4	59 34.0	-17.2	21.6	61 25.1	-15.8	22.9	63 14.9	-14.0	24.5
78	55 29.5	-21.1	17.7	57 23.5	-20.0	18.7	59 16.8	-18.8	19.7	61 09.3	-17.4	20.9	63 00.9	-16.0	22.3
79	55 08.4	-22.3	16.1	57 03.5	-21.4	16.9	58 58.0	-20.3	17.9	60 51.9	-19.2	19.0	62 44.9	-17.8	20.2
80	54 46.1	-23.6	14.5	56 42.1	-22.8	15.2	58 37.7	-21.9	16.1	60 32.7	-20.8	17.0	62 27.1	-19.6	18.1
81	54 22.5	-24.9	12.9	56 19.3	-24.1	13.5	58 15.8	-23.3	14.3	60 11.9	-22.4	15.1	62 07.5	-21.4	16.1
82	53 57.6	-26.0	11.3	55 55.2	-25.4	11.9	57 52.5	-24.7	12.5	59 49.5	-24.0	13.3	61 46.1	-23.1	14.1
83	53 31.6	-27.1	9.8	55 29.8	-26.6	10.3	57 27.8	-26.1	10.8	59 25.5	-25.4	11.5	61 23.0	-24.7	12.2
84	53 04.5	-28.3	8.3	55 03.2	-27.9	8.7	57 01.7	-27.3	9.2	59 00.1	-26.8	9.7	60 58.3	-26.3	10.3
85	52 36.2	-29.3	6.8	54 35.3	-28.9	7.2	56 34.4	-28.6	7.5	58 33.3	-28.2	8.0	60 32.0	-27.7	8.4
86	52 06.9	-30.3	5.4	54 06.4	-30.1	5.7	56 05.8	-29.8	6.0	58 05.1	-29.5	6.3	60 04.3	-29.1	6.7
87	51 36.6	-31.3	4.0	53 36.3	-31.1	4.2	55 36.0	-30.9	4.4	57 35.6	-30.7	4.6	59 35.2	-30.5	4.9
88	51 05.3	-32.2	2.6	53 05.2	-32.1	2.8	55 05.1	-32.1	2.9	57 04.9	-31.9	3.1	59 04.7	-31.7	3.2
89	50 33.1	-33.1	1.3	52 33.1	-33.1	1.4	54 33.0	-33.0	1.4	56 33.0	-33.0	1.5	58 33.0	-33.0	1.6
90	50 00.0	-34.0	0.0	52 00.0	-34.0	0.0	54 00.0	-34.0	0.0	56 00.0	-34.1	0.0	58 00.0	-34.1	0.0

LATITUDE CONTRARY NAME

L.H.A. 56°, 304°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
4 06.8 +50.7	46.0		5 30.0 +51.5	46.2		6 53.0 +52.3	46.3		8 15.8 +53.0	46.5		9 38.2 +53.7	46.7		30
4 57.5 +50.7	45.5		6 21.5 +51.5	45.6		7 45.3 +52.2	45.8		9 08.8 +52.9	46.0		10 31.9 +53.6	46.3		31
5 48.2 +50.7	45.0		7 13.0 +51.4	45.1		8 37.5 +52.2	45.3		10 01.7 +52.9	45.6		11 25.5 +53.7	45.8		32
6 38.9 +50.6	44.4		8 04.4 +51.4	44.6		9 29.7 +52.2	44.8		10 54.6 +52.9	45.1		12 19.2 +53.5	45.4		33
7 29.5 +50.6	43.9		8 55.8 +51.4	44.1		10 21.9 +52.0	44.3		11 47.5 +52.8	44.6		13 12.7 +53.5	44.9		34
8 20.1 +50.5	43.3		9 47.2 +51.3	43.6		11 13.9 +52.1	43.8		12 40.3 +52.8	44.1		14 06.2 +53.5	44.4		35
9 10.6 +50.5	42.8		10 38.5 +51.2	43.0		12 06.0 +52.0	43.3		13 33.1 +52.7	43.6		14 59.7 +53.4	44.0		36
10 01.1 +50.4	42.2		11 29.7 +51.2	42.5		12 58.0 +51.9	42.8		14 25.8 +52.6	43.1		15 53.1 +53.4	43.5		37
10 51.5 +50.4	41.7		12 20.9 +51.1	42.0		13 49.9 +51.9	42.3		15 18.4 +52.6	42.6		16 46.5 +53.2	43.0		38
11 41.9 +50.3	41.1		13 12.0 +51.1	41.4		14 41.8 +51.8	41.8		16 11.0 +52.5	42.1		17 39.7 +53.2	42.5		39
12 32.2 +50.2	40.6		14 03.1 +51.0	40.9		15 33.6 +51.7	41.2		17 03.5 +52.5	41.6		18 32.9 +53.2	42.1		40
13 22.4 +50.2	40.0		14 54.1 +50.9	40.4		16 25.3 +51.6	40.7		17 56.0 +52.3	41.1		19 26.1 +53.0	41.6		41
14 12.6 +50.0	39.5		15 45.0 +50.8	39.8		17 16.9 +51.6	40.2		18 48.3 +52.3	40.6		20 19.1 +53.0	41.1		42
15 02.6 +50.0	38.9		16 35.8 +50.8	39.2		18 08.5 +51.4	39.6		19 40.6 +52.2	40.1		21 12.1 +52.9	40.6		43
15 52.6 +49.9	38.3		17 26.6 +50.6	38.7		18 59.9 +51.4	39.1		20 32.8 +52.1	39.6		22 05.0 +52.7	40.1		44
16 42.5 +49.8	37.7		18 17.2 +50.5	38.1		19 51.3 +51.3	38.6		21 24.9 +51.9	39.0		22 57.7 +52.7	39.5		45
17 32.3 +49.7	37.2		19 07.7 +50.5	37.6		20 42.6 +51.1	38.0		22 16.8 +51.9	38.5		23 50.4 +52.6	39.0		46
18 22.0 +49.6	36.6		19 58.2 +50.3	37.0		21 33.7 +51.1	37.4		23 08.7 +51.8	37.9		24 43.0 +52.4	38.5		47
19 11.6 +49.5	36.0		20 48.5 +50.2	36.4		22 24.8 +50.9	36.9		24 00.5 +51.6	37.4		25 35.4 +52.4	38.0		48
20 01.1 +49.4	35.4		21 38.7 +50.1	35.8		23 15.7 +50.8	36.3		24 52.1 +51.5	36.8		26 27.8 +52.2	37.4		49
20 50.5 +49.2	34.8		22 28.8 +49.9	35.2		24 06.5 +50.7	35.7		25 43.6 +51.4	36.3		27 20.0 +52.1	36.9		50
21 39.7 +49.1	34.2		23 18.7 +49.8	34.6		24 57.2 +50.5	35.1		26 35.0 +51.2	35.7		28 12.1 +51.9	36.3		51
22 28.8 +48.9	33.5		24 08.5 +49.7	34.0		25 47.7 +50.4	34.5		27 26.2 +51.1	35.1		29 04.0 +51.8	35.7		52
23 17.7 +48.8	32.9		24 58.2 +49.5	33.4		26 38.1 +50.2	33.9		28 17.3 +50.9	34.5		29 55.8 +51.7	35.1		53
24 06.5 +48.7	32.3		25 47.7 +49.4	32.8		27 28.3 +50.1	33.3		29 08.2 +50.8	33.9		30 47.5 +51.4	34.6		54
24 55.2 +48.4	31.6		26 37.1 +49.1	32.1		28 18.4 +49.8	32.7		29 59.0 +50.6	33.3		31 38.9 +51.3	34.0		55
25 43.6 +48.3	31.0		27 26.2 +49.0	31.5		29 08.2 +49.8	32.1		30 49.6 +50.4	32.7		32 30.2 +51.2	33.3		56
26 31.9 +48.1	30.3		28 15.2 +48.8	30.8		29 58.0 +49.5	31.4		31 40.0 +50.2	32.0		33 21.4 +50.9	32.7		57
27 20.0 +47.9	29.6		29 04.0 +48.6	30.2		30 47.5 +49.3	30.8		32 30.2 +50.1	31.4		34 12.3 +50.7	32.1		58
28 07.9 +47.7	29.0		29 52.6 +48.4	29.5		31 36.8 +49.1	30.1		33 20.3 +49.8	30.7		35 03.0 +50.6	31.4		59
28 55.6 +47.5	28.3		30 41.0 +48.2	28.8		32 25.9 +48.8	29.4		34 10.1 +49.6	30.1		35 53.6 +50.3	30.8		60
29 43.1 +47.3	27.6		31 29.2 +48.0	28.1		33 14.7 +48.7	28.7		34 59.7 +49.3	29.4		36 43.9 +50.0	30.1		61
30 30.4 +47.0	26.9		32 17.2 +47.7	27.4		34 03.4 +48.4	28.0		35 49.0 +49.1	28.7		37 33.9 +49.8	29.4		62
31 17.4 +46.8	26.1		33 04.9 +47.4	26.7		34 51.8 +48.1	27.3		36 38.1 +48.8	28.0		38 23.7 +49.6	28.7		63
32 04.2 +46.5	25.4		33 52.3 +47.2	26.0		35 39.9 +47.9	26.6		37 26.9 +48.6	27.2		39 13.3 +49.3	28.0		64
32 50.7 +46.2	24.6		34 39.5 +46.9	25.2		36 27.8 +47.6	25.8		38 15.5 +48.3	26.5		40 02.6 +49.0	27.2		65
33 36.9 +46.0	23.9		35 26.4 +46.6	24.4		37 15.4 +47.3	25.1		39 03.8 +48.0	25.7		40 51.6 +48.6	26.5		66
34 22.9 +45.7	23.1		36 13.0 +46.3	23.7		38 02.7 +47.0	24.3		39 51.8 +47.6	25.0		41 40.2 +48.4	25.7		67
35 08.6 +45.3	22.3		36 59.3 +46.0	22.9		38 49.7 +46.6	23.5		40 39.4 +47.4	24.2		42 28.6 +48.0	24.9		68
35 53.9 +45.0	21.5		37 45.3 +45.7	22.1		39 36.3 +46.3	22.7		41 26.8 +46.9	23.4		43 16.6 +47.7	24.1		69
36 38.9 +44.7	20.7		38 31.0 +45.3	21.2		40 22.6 +45.9	21.9		42 13.7 +46.6	22.5		44 04.3 +47.3	23.2		70
37 23.6 +44.3	19.9		39 16.3 +44.9	20.4		41 08.5 +45.6	21.0		43 00.3 +46.2	21.7		44 51.6 +46.9	22.4		71
38 07.9 +44.0	19.0		40 01.2 +44.5	19.5		41 54.1 +45.1	20.1		43 46.5 +45.8	20.8		45 38.5 +46.4	21.5		72
38 51.9 +43.5	18.1		40 45.7 +44.2	18.7		42 39.2 +44.8	19.2		44 32.3 +45.4	19.9		46 24.9 +46.0	20.6		73
39 35.4 +43.1	17.2		41 29.9 +43.7	17.8		43 24.0 +44.2	18.3		45 17.7 +44.9	19.0		47 10.9 +45.6	19.6		74
40 18.5 +42.7	16.3		42 13.6 +43.2	16.8		44 08.2 +43.8	17.4		46 02.6 +44.4	18.0		47 56.5 +45.0	18.7		75
41 01.2 +42.3	15.4		42 56.8 +42.8	15.9		44 52.0 +43.4	16.4		46 47.0 +43.9	17.0		48 41.5 +44.5	17.7		76
41 43.5 +41.8	14.5		43 39.6 +42.2	14.9		45 35.4 +42.8	15.5		47 30.9 +43.3	16.0		49 26.0 +44.0	16.7		77
42 25.3 +41.2	13.5		44 21.8 +41.8	14.0		46 18.2 +42.2	14.4		48 14.2 +42.8	15.0		50 10.0 +43.3	15.6		78
43 06.5 +40.8	12.5		45 03.6 +41.2	12.9		47 00.4 +41.7	13.4		48 57.0 +42.2	13.9		50 53.3 +42.8	14.5		79
43 47.3 +40.2	11.5		45 44.8 +40.6	11.9		47 42.1 +41.1	12.4		49 39.2 +41.6	12.8		51 36.1 +42.1	13.4		80
44 27.5 +39.6	10.5		46 25.4 +40.0	10.8		48 23.2 +40.4	11.3		50 20.8 +40.9	11.7		52 18.2 +41.3	12.2		81
45 07.1 +39.0	9.4		47 05.4 +39.4	9.8		49 03.6 +39.8	10.1		51 01.7 +40.2	10.6		52 59.5 +40.7	11.1		82
45 46.1 +38.4	8.3		47 44.8 +38.7	8.6		49 43.4 +39.1	9.0		51 41.9 +39.4	9.4		53 40.2 +39.8	9.8		83
46 24.5 +37.8	7.2		48 23.5 +38.1	7.5		50 22.5 +38.3	7.8		52 21.3 +38.7	8.2		54 20.0 +39.1	8.5		84
47 02.3 +37.0	6.1		49 01.6 +37.3	6.3		51 00.8 +37.6	6.6		53 00.0 +37.8	6.9		54 59.1 +38.1	7.2		85
47 39.3 +36.3	4.9		49 38.9 +36.5	5.1		51 38.4 +36.7	5.3		53 37.8 +37.0	5.6		55 37.2 +37.2	5.9		86
48 15.6 +35.6	3.7		50 15.4 +35.7	3.9		52 15.1 +35.9	4.1		54 14.8 +36.0	4.3		56 14.4 +36.3	4.5		87
48 51.2 +34.8	2.5		50 51.1 +34.9	2.6		52 51.0 +35.0	2.7		54 50.8 +35.1	2.9		56 50.7 +35.2	3.0		88
49 26.0 +34.0	1.3		51 26.0 +34.0	1.3		53 26.0 +34.0	1.4		55 25.9 +34.1	1.5		57 25.9 +34.1	1.5		89
50 00.0 +33.1	0.0		52 00.0 +33.1	0.0		54 00.0 +33.0	0.0		56 00.0 +33.0	0.0		58 00.0 +33.0	0.0		90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 124°, 236°

58°, 302° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	40 20.9	+15.6	74.5	40 51.3	+18.2	76.2	41 18.3	+20.7	77.9	41 41.7	+23.3	79.6	42 01.6	+25.8	81.4
31	40 36.5	+14.8	73.2	41 09.5	+17.3	74.9	41 39.0	+19.9	76.6	42 05.0	+22.5	78.4	42 27.4	+25.0	80.2
32	40 51.3	+13.9	72.0	41 26.8	+16.5	73.6	41 58.9	+19.1	75.3	42 27.5	+21.6	77.1	42 52.4	+24.2	78.9
33	41 05.2	+13.1	70.7	41 43.3	+15.6	72.3	42 18.0	+18.2	74.1	42 49.1	+20.8	75.8	43 16.6	+23.4	77.7
34	41 18.3	+12.1	69.4	41 58.9	+14.7	71.0	42 36.2	+17.3	72.8	43 09.9	+19.9	74.6	43 40.0	+22.6	76.4
35	41 30.4	+11.3	68.1	42 13.6	+13.9	69.7	42 53.5	+16.4	71.5	43 29.8	+19.1	73.3	44 02.6	+21.6	75.1
36	41 41.7	+10.4	66.8	42 27.5	+12.9	68.4	43 09.9	+15.5	70.2	43 48.9	+18.1	72.0	44 24.2	+20.8	73.8
37	41 52.1	+9.5	65.4	42 40.4	+12.0	67.1	43 25.4	+14.6	68.8	44 07.0	+17.2	70.6	44 45.0	+19.8	72.5
38	42 01.6	+8.5	64.1	42 52.4	+11.1	65.8	43 40.0	+13.7	67.5	44 24.2	+16.3	69.3	45 04.8	+18.9	71.2
39	42 10.1	+7.6	62.8	43 03.5	+10.1	64.4	43 53.7	+12.6	66.1	44 40.5	+15.3	67.9	45 23.7	+18.0	69.8
40	42 17.7	+6.7	61.4	43 13.6	+9.1	63.1	44 06.3	+11.7	64.8	44 55.8	+14.3	66.6	45 41.7	+16.9	68.4
41	42 24.4	+5.7	60.1	43 22.7	+8.2	61.7	44 18.0	+10.8	63.4	45 10.1	+13.3	65.2	45 58.6	+16.0	67.1
42	42 30.1	+4.8	58.7	43 30.9	+7.2	60.3	44 28.8	+9.7	62.0	45 23.4	+12.3	63.8	46 14.6	+14.9	65.7
43	42 34.9	+3.8	57.4	43 38.1	+6.3	59.0	44 38.5	+8.7	60.7	45 35.7	+11.3	62.4	46 29.5	+13.9	64.3
44	42 38.7	+2.8	56.0	43 44.4	+5.2	57.6	44 47.2	+7.7	59.3	45 47.0	+10.2	61.0	46 43.4	+12.9	62.9
45	42 41.5	+1.9	54.7	43 49.6	+4.2	56.2	44 54.9	+6.7	57.9	45 57.2	+9.2	59.6	46 56.3	+11.7	61.4
46	42 43.4	+1.0	53.3	43 53.8	+3.3	54.8	45 01.6	+5.6	56.5	46 06.4	+8.1	58.2	47 08.0	+10.7	60.0
47	42 44.4	-0.1	52.0	43 57.1	+2.2	53.5	45 07.2	+4.6	55.1	46 14.5	+7.0	56.7	47 18.7	+9.6	58.5
48	42 44.3	-1.0	50.6	43 59.3	+1.2	52.1	45 11.8	+3.5	53.6	46 21.5	+6.0	55.3	47 28.3	+8.5	57.1
49	42 43.3	-2.0	49.2	44 00.5	+0.2	50.7	45 15.3	+2.5	52.2	46 27.5	+5.0	53.9	47 36.8	+7.3	55.6
50	42 41.3	-2.9	47.9	44 00.7	-0.8	49.3	45 17.8	+1.4	50.8	46 32.3	+3.8	52.4	47 44.1	+6.2	54.1
51	42 38.4	-3.9	46.5	43 59.9	-1.8	47.9	45 19.2	+0.4	49.4	46 36.1	+2.6	51.0	47 50.3	+5.0	52.7
52	42 34.5	-4.9	45.2	43 58.1	-2.8	46.5	45 19.6	-0.7	48.0	46 38.7	+1.6	49.5	47 55.3	+3.9	51.2
53	42 29.6	-5.8	43.8	43 55.3	-3.9	45.1	45 18.9	-1.8	46.5	46 40.3	+0.4	48.1	47 59.2	+2.8	49.7
54	42 23.8	-6.8	42.5	43 51.4	-4.8	43.7	45 17.1	-2.8	45.1	46 40.7	-0.6	46.6	48 02.0	+1.6	48.2
55	42 17.0	-7.7	41.1	43 46.6	-5.8	42.4	45 14.3	-3.8	43.7	46 40.1	-1.8	45.1	48 03.6	+0.4	46.7
56	42 09.3	-8.6	39.8	43 40.8	-6.9	41.0	45 10.5	-4.9	42.3	46 38.3	-2.9	43.7	48 04.0	-0.8	45.2
57	42 00.7	-9.5	38.4	43 33.9	-7.8	39.6	45 05.6	-6.0	40.9	46 35.4	-4.0	42.2	48 03.2	-1.9	43.7
58	41 51.2	-10.5	37.1	43 26.1	-8.7	38.2	44 59.6	-7.0	39.5	46 31.4	-5.1	40.8	48 01.3	-3.1	42.2
59	41 40.7	-11.4	35.8	43 17.4	-9.8	36.9	44 52.6	-8.0	38.1	46 26.3	-6.2	39.3	47 58.2	-4.2	40.7
60	41 29.3	-12.2	34.5	43 07.6	-10.6	35.5	44 44.6	-9.0	36.7	46 20.1	-7.2	37.9	47 54.0	-5.4	39.2
61	41 17.1	-13.2	33.2	42 57.0	-11.7	34.2	44 35.6	-10.0	35.3	46 12.9	-8.4	36.5	47 48.6	-6.6	37.7
62	41 03.9	-13.9	31.9	42 45.3	-12.5	32.8	44 25.6	-11.1	33.9	46 04.5	-9.4	35.0	47 42.0	-7.6	36.3
63	40 50.0	-14.9	30.6	42 32.8	-13.5	31.5	44 14.5	-12.0	32.5	45 55.1	-10.4	33.6	47 34.4	-8.8	34.8
64	40 35.1	-15.7	29.3	42 19.3	-14.4	30.2	44 02.5	-13.0	31.1	45 44.7	-11.5	32.2	47 25.6	-9.9	33.3
65	40 19.4	-16.5	28.0	42 04.9	-15.2	28.9	43 49.5	-13.9	29.8	45 33.2	-12.5	30.8	47 15.7	-11.0	31.9
66	40 02.9	-17.3	26.8	41 49.7	-16.2	27.6	43 35.6	-14.9	28.4	45 20.7	-13.6	29.4	47 04.7	-12.1	30.4
67	39 45.6	-18.1	25.5	41 33.5	-17.0	26.3	43 20.7	-15.8	27.1	45 07.1	-14.5	28.0	46 52.6	-13.2	29.0
68	39 27.5	-18.9	24.3	41 16.5	-17.8	25.0	43 04.9	-16.7	25.8	44 52.6	-15.5	26.6	46 39.4	-14.2	27.6
69	39 08.6	-19.7	23.1	40 58.7	-18.7	23.7	42 48.2	-17.6	24.5	44 37.1	-16.5	25.3	46 25.2	-15.2	26.2
70	38 48.9	-20.4	21.9	40 40.0	-19.4	22.5	42 30.6	-18.4	23.2	44 20.6	-17.4	23.9	46 10.0	-16.3	24.8
71	38 28.5	-21.2	20.7	40 20.6	-20.3	21.2	42 12.2	-19.4	21.9	44 03.2	-18.3	22.6	45 53.7	-17.2	23.4
72	38 07.3	-21.8	19.5	40 00.3	-21.0	20.0	41 52.8	-20.1	20.6	43 44.9	-19.2	21.3	45 36.5	-18.3	22.0
73	37 45.5	-22.6	18.3	39 39.3	-21.8	18.8	41 32.7	-21.0	19.3	43 25.7	-20.1	20.0	45 18.2	-19.1	20.6
74	37 22.9	-23.2	17.1	39 17.5	-22.6	17.6	41 11.7	-21.8	18.1	43 05.6	-21.0	18.7	44 59.1	-20.2	19.3
75	36 59.7	-23.9	16.0	38 54.9	-23.2	16.4	40 49.9	-22.5	16.9	42 44.6	-21.8	17.4	44 38.9	-21.0	18.0
76	36 35.8	-24.6	14.8	38 31.7	-24.0	15.2	40 27.4	-23.4	15.6	42 22.8	-22.7	16.1	44 17.9	-21.9	16.7
77	36 11.2	-25.2	13.7	38 07.7	-24.6	14.0	40 04.0	-24.0	14.4	42 00.1	-23.4	14.9	43 56.0	-22.8	15.4
78	35 46.0	-25.8	12.6	37 43.1	-25.3	12.9	39 40.0	-24.8	13.2	41 36.7	-24.2	13.6	43 33.2	-23.6	14.1
79	35 20.2	-26.4	11.4	37 17.8	-26.0	11.7	39 15.2	-25.5	12.1	41 12.5	-25.0	12.4	43 09.6	-24.5	12.8
80	34 53.8	-27.0	10.3	36 51.8	-26.6	10.6	38 49.7	-26.2	10.9	40 47.5	-25.8	11.2	42 45.1	-25.3	11.6
81	34 26.8	-27.6	9.3	36 25.2	-27.2	9.5	38 23.5	-26.9	9.7	40 21.7	-26.4	10.0	42 19.8	-26.0	10.3
82	33 59.2	-28.1	8.2	35 58.0	-27.9	8.4	37 56.6	-27.5	8.6	39 55.3	-27.2	8.9	41 53.8	-26.8	9.1
83	33 31.1	-28.7	7.1	35 30.1	-28.4	7.3	37 29.1	-28.1	7.5	39 28.1	-27.8	7.7	41 27.0	-27.6	7.9
84	33 02.4	-29.2	6.1	35 01.7	-28.9	6.2	37 01.0	-28.7	6.4	39 00.3	-28.5	6.6	40 59.4	-28.2	6.7
85	32 33.2	-29.6	5.0	34 32.8	-29.5	5.1	36 32.3	-29.4	5.3	38 31.8	-29.2	5.4	40 31.2	-28.9	5.6
86	32 03.6	-30.2	4.0	34 03.3	-30.1	4.1	36 02.9	-29.9	4.2	38 02.6	-29.8	4.3	40 02.3	-29.7	4.4
87	31 33.4	-30.7	3.0	33 33.2	-30.6	3.1	35 33.0	-30.4	3.1	37 32.8	-30.3	3.2	39 32.6	-30.2	3.3
88	31 02.7	-31.1	2.0	33 02.6	-31.0	2.0	35 02.6	-31.1	2.1	37 02.5	-31.0	2.1	39 02.4	-30.9	2.2
89	30 31.6	-31.6	1.0	32 31.6	-31.6	1.0	34 31.5	-31.5	1.0	36 31.5	-31.5	1.1	38 31.5	-31.5	1.1
90	30 00.0	-32.0	0.0	32 00.0	-32.0	0.0	34 00.0	-32.0	0.0	36 00.0	-32.1	0.0	38 00.0	-32.1	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 58°, 302°

30°			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
8	28.7	-40.2	132.1	7	08.2	-41.4	132.3	5	47.4	-42.5	132.4	4	26.3	-43.6	132.6	3	05.1	-44.6	132.7	30
7	48.5	-40.3	132.8	6	26.8	-41.4	133.0	5	04.9	-42.6	133.1	3	42.7	-43.5	133.2	2	20.5	-44.6	133.3	31
7	08.2	-40.4	133.5	5	45.4	-41.5	133.7	4	22.3	-42.5	133.8	2	59.2	-43.7	133.9	1	35.9	-44.7	134.0	32
6	27.8	-40.4	134.3	5	03.9	-41.6	134.4	3	39.8	-42.6	134.5	2	15.5	-43.6	134.6	0	51.2	-44.6	134.7	33
5	47.4	-40.6	135.0	4	22.3	-41.5	135.2	2	57.2	-42.6	135.3	1	31.9	-43.6	135.3	0	06.6	-44.6	135.3	34
5	06.8	-40.5	135.8	3	40.8	-41.6	135.9	2	14.6	-42.7	136.0	0	48.3	-43.7	136.0	0	38.0	+44.7	44.0	35
4	26.3	-40.6	136.5	2	59.2	-41.7	136.6	1	31.9	-42.6	136.7	0	04.6	-43.6	136.7	1	22.7	+44.6	43.3	36
3	45.7	-40.6	137.3	2	17.5	-41.6	137.3	0	49.3	-42.7	137.4	0	39.0	+43.7	42.6	2	07.3	+44.6	42.7	37
3	05.1	-40.7	138.0	1	35.9	-41.7	138.0	0	06.6	-42.7	138.1	1	22.7	+43.6	41.9	2	51.9	+44.6	42.0	38
2	24.4	-40.7	138.7	0	54.2	-41.7	138.8	0	36.1	+42.6	41.2	2	06.3	+43.6	41.3	3	36.5	+44.5	41.3	39
1	43.7	-40.7	139.5	0	12.5	-41.7	139.5	1	18.7	+42.7	40.5	2	49.9	+43.6	40.6	4	21.0	+44.5	40.7	40
1	03.0	-40.7	140.2	0	29.2	+41.7	39.8	2	01.4	+42.6	39.8	3	33.5	+43.6	39.9	5	05.5	+44.5	40.0	41
0	22.3	-40.7	140.9	1	10.9	+41.7	39.1	2	44.0	+42.6	39.1	4	17.1	+43.5	39.2	5	50.0	+44.4	39.3	42
0	18.4	+40.8	38.3	1	52.6	+41.6	38.4	3	26.6	+42.6	38.4	5	00.6	+43.5	38.5	6	34.4	+44.4	38.6	43
0	59.2	+40.7	37.6	2	34.2	+41.6	37.6	4	09.2	+42.5	37.7	5	44.1	+43.4	37.8	7	18.8	+44.3	38.0	44
1	39.9	+40.7	36.9	3	15.8	+41.6	36.9	4	51.7	+42.5	37.0	6	27.5	+43.4	37.1	8	03.1	+44.2	37.3	45
2	20.6	+40.6	36.1	3	57.4	+41.6	36.2	5	34.2	+42.5	36.3	7	10.9	+43.3	36.4	8	47.3	+44.2	36.6	46
3	01.2	+40.7	35.4	4	39.0	+41.5	35.5	6	16.7	+42.4	35.6	7	54.2	+43.2	35.7	9	31.5	+44.1	35.9	47
3	41.9	+40.6	34.7	5	20.5	+41.5	34.7	6	59.1	+42.3	34.9	8	37.4	+43.2	35.0	10	15.6	+44.0	35.2	48
4	22.5	+40.5	33.9	6	02.0	+41.4	34.0	7	41.4	+42.2	34.2	9	20.6	+43.1	34.3	10	59.6	+43.9	34.5	49
5	03.0	+40.5	33.2	6	43.4	+41.3	33.3	8	23.6	+42.2	33.4	10	03.7	+43.0	33.6	11	43.5	+43.8	33.8	50
5	43.5	+40.5	32.4	7	24.7	+41.3	32.6	9	05.8	+42.1	32.7	10	46.7	+42.8	32.9	12	27.3	+43.7	33.1	51
6	24.0	+40.4	31.7	8	06.0	+41.2	31.8	9	47.9	+42.0	32.0	11	29.5	+42.8	32.2	13	11.0	+43.5	32.4	52
7	04.4	+40.3	30.9	8	47.2	+41.1	31.1	10	29.9	+41.9	31.3	12	12.3	+42.7	31.5	13	54.5	+43.5	31.7	53
7	44.7	+40.2	30.2	9	28.3	+41.0	30.4	11	11.8	+41.8	30.5	12	55.0	+42.6	30.8	14	38.0	+43.3	31.0	54
8	24.9	+40.2	29.5	10	09.3	+40.9	29.6	11	53.6	+41.6	29.8	13	37.6	+42.4	30.0	15	21.3	+43.2	30.3	55
9	05.1	+40.0	28.7	10	50.2	+40.9	28.9	12	35.2	+41.6	29.1	14	20.0	+42.3	29.3	16	04.5	+43.0	29.6	56
9	45.1	+40.0	27.9	11	31.1	+40.6	28.1	13	16.8	+41.4	28.3	15	12.3	+42.2	28.6	16	47.5	+42.9	28.8	57
10	25.1	+39.8	27.2	12	11.7	+40.6	27.4	13	58.2	+41.3	27.6	15	44.5	+42.0	27.8	17	30.4	+42.8	28.1	58
11	04.9	+39.8	26.4	12	52.3	+40.5	26.6	14	39.5	+41.1	26.8	16	26.5	+41.8	27.1	18	13.2	+42.5	27.4	59
11	44.7	+39.6	25.7	13	32.8	+40.3	25.9	15	20.6	+41.0	26.1	17	08.3	+41.7	26.3	18	55.7	+42.4	26.6	60
12	24.3	+39.5	24.9	14	13.1	+40.1	25.1	16	01.6	+40.9	25.3	17	50.0	+41.5	25.6	19	38.1	+42.2	25.9	61
13	03.8	+39.3	24.1	14	53.2	+40.0	24.3	16	42.5	+40.6	24.6	18	31.5	+41.3	24.8	20	20.3	+42.0	25.1	62
13	43.1	+39.2	23.3	15	33.2	+39.9	23.6	17	23.1	+40.5	23.8	19	12.8	+41.1	24.1	21	02.3	+41.7	24.4	63
14	22.3	+39.1	22.6	16	13.1	+39.6	22.8	18	03.6	+40.3	23.0	19	53.9	+41.0	23.3	21	44.0	+41.6	23.6	64
15	01.4	+38.9	21.8	16	52.7	+39.5	22.0	18	43.9	+40.1	22.2	20	34.9	+40.7	22.5	22	25.6	+41.3	22.8	65
15	40.3	+38.7	21.0	17	32.2	+39.3	21.2	19	24.0	+39.9	21.5	21	15.6	+40.5	21.7	23	06.9	+41.1	22.0	66
16	19.0	+38.5	20.2	18	11.5	+39.1	20.4	20	03.9	+39.7	20.7	21	56.1	+40.2	20.9	23	48.0	+40.9	21.2	67
16	57.5	+38.3	19.4	18	50.6	+38.9	19.6	20	43.6	+39.4	19.9	22	36.3	+40.1	20.1	24	28.9	+40.6	20.4	68
17	35.8	+38.2	18.6	19	29.5	+38.7	18.8	21	23.0	+39.2	19.0	23	16.4	+39.7	19.3	25	09.5	+40.3	19.6	69
18	14.0	+37.9	17.8	20	08.2	+38.4	18.0	22	02.2	+39.0	18.2	23	56.1	+39.5	18.5	25	49.8	+40.1	18.8	70
18	51.9	+37.8	17.0	20	46.6	+38.3	17.2	22	41.2	+38.7	17.4	24	35.6	+39.3	17.7	26	29.9	+39.7	18.0	71
19	29.7	+37.5	16.1	21	24.9	+37.9	16.3	23	19.9	+38.5	16.6	25	14.9	+38.9	16.8	27	09.6	+39.5	17.1	72
20	07.2	+37.2	15.3	22	02.8	+37.8	15.5	23	58.4	+38.2	15.7	25	53.8	+38.7	16.0	27	49.1	+39.1	16.3	73
20	44.4	+37.0	14.5	22	40.6	+37.4	14.7	24	36.6	+37.9	14.9	26	32.5	+38.3	15.1	28	28.2	+38.9	15.4	74
21	21.4	+36.8	13.6	23	18.0	+37.2	13.8	25	14.5	+37.6	14.0	27	10.8	+38.1	14.3	29	07.1	+38.4	14.6	75
21	58.2	+36.5	12.8	23	55.2	+36.9	13.0	25	52.1	+37.3	13.2	27	48.9	+37.7	13.4	29	45.5	+38.2	13.7	76
22	34.7	+36.2	11.9	24	32.1	+36.6	12.1	26	29.4	+36.9	12.3	28	26.6	+37.3	12.5	30	23.7	+37.7	12.8	77
23	10.9	+36.0	11.1	25	08.7	+36.3	11.2	27	06.3	+36.7	11.4	29	03.9	+37.0	11.6	31	01.4	+37.4	11.9	78
23	46.9	+35.6	10.2	25	45.0	+35.9	10.3	27	43.0	+36.3	10.5	29	40.9	+36.6	10.7	31	38.8	+36.9	11.0	79
24	22.5	+35.4	9.3	26	20.9	+35.6	9.5	28	19.3	+35.9	9.6	30	17.5	+36.3	9.8	32	15.7	+36.6	10.0	80
24	57.9	+35.0	8.4	26	56.5	+35.3	8.6	28	55.2	+35.5	8.7	30	53.8	+35.8	8.9	32	52.3	+36.1	9.1	81
25	32.9	+34.7	7.5	27	31.8	+34.9	7.6	29	30.7	+35.2	7.8	31	29.6	+35.4	8.0	33	28.4	+35.7	8.1	82
26	07.6	+34.3	6.6	28	06.7	+34.6	6.7	30	05.9	+34.8	6.9	32	05.0	+35.0	7.0	34	04.1	+35.2	7.2	83
26	41.9	+34.0	5.7	28	41.3	+34.1	5.8	30	40.7	+34.3	5.9	32	40.0	+34.5	6.0	34	39.3	+34.8	6.2	84
27	15.9	+33.6	4.8	29	15.4	+33.8	4.9	31	15.0	+33.9	5.0	33	14.5	+34.1	5.1	35	14.1	+34.2	5.2	85
27	49.5	+33.2	3.8	29	49.2	+33.4	3.9	31	48.9	+33.5	4.0	33	48.6	+33.6	4.1	35	48.3	+33.8	4.2	86
28	22.7	+32.9	2.9	30	22.6	+32.9	2.9	32	22.4	+33.0	3.0	34	22.2	+33.1	3.1	36	22.1	+33.2	3.2	87
28	55.6	+32.4	1.9	30	55.5	+32.5	2.0	32	55.4	+32.6	2.0	34	55.3	+32.6	2.1	36	55.3	+32.6	2.1	88
29	28.0	+32.0	1.0	31	28.0	+32.0	1.0	33	28.0	+32.0	1.0	35	27.9	+32.1	1.0	37	27.9	+32.1	1.1	89
30	00.0	+31.6	0.0	32	00.0	+31.6	0.0	34	00.0	+31.5	0.0	36	00.0	+31.5	0.0	38	00.0	+31.5	0.0	90

LATITUDE SAME NAME

L.H.A. 122°, 238°

58°, 302° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	42 17.7	+28.3	83.2	42 30.1	+30.8	85.0	42 38.7	+33.2	86.8	42 43.4	+35.6	88.7	42 44.3	+37.8	90.5
31	42 46.0	+27.6	82.0	43 00.9	+30.0	83.8	43 11.9	+32.5	85.7	43 19.0	+34.8	87.6	43 22.1	+37.2	89.4
32	43 13.6	+26.8	80.8	43 30.9	+29.3	82.6	43 44.4	+31.8	84.5	43 53.8	+34.3	86.4	43 59.3	+36.6	88.4
33	43 40.4	+25.9	79.5	44 00.2	+28.6	81.4	44 16.2	+31.0	83.3	44 28.1	+33.5	85.3	44 35.9	+35.9	87.3
34	44 06.3	+25.2	78.3	44 28.8	+27.7	80.2	44 47.2	+30.3	82.1	45 01.6	+32.7	84.1	45 11.8	+35.2	86.1
35	44 31.5	+24.3	77.0	44 56.5	+26.9	78.9	45 17.5	+29.5	80.9	45 34.3	+32.1	82.9	45 47.0	+34.5	85.0
36	44 55.8	+23.4	75.7	45 23.4	+26.0	77.7	45 47.0	+28.6	79.7	46 06.4	+31.2	81.7	46 21.5	+33.8	83.8
37	45 19.2	+22.5	74.4	45 49.4	+25.2	76.4	46 15.6	+27.8	78.4	46 37.6	+30.4	80.5	46 55.3	+33.0	82.6
38	45 41.7	+21.5	73.1	46 14.6	+24.2	75.1	46 43.4	+27.0	77.1	47 08.0	+29.6	79.2	47 28.3	+32.2	81.4
39	46 03.2	+20.7	71.7	46 38.8	+23.4	73.7	47 10.4	+26.0	75.8	47 37.6	+28.7	77.9	48 00.5	+31.4	80.1
40	46 23.9	+19.6	70.4	47 02.2	+22.3	72.4	47 36.4	+25.0	74.5	48 06.3	+27.8	76.6	48 31.9	+30.4	78.8
41	46 43.5	+18.7	69.0	47 24.5	+21.4	71.0	48 01.4	+24.2	73.1	48 34.1	+26.9	75.3	49 02.3	+29.6	77.5
42	47 02.2	+17.6	67.6	47 45.9	+20.3	69.6	48 25.6	+23.1	71.8	49 01.0	+25.8	73.9	49 31.9	+28.7	76.2
43	47 19.8	+16.6	66.2	48 06.2	+19.4	68.2	48 48.7	+22.0	70.4	49 26.8	+24.9	72.5	50 00.6	+27.6	74.8
44	47 36.4	+15.5	64.8	48 25.6	+18.2	66.8	49 10.7	+21.1	68.9	49 51.7	+23.9	71.1	50 28.2	+26.7	73.4
45	47 51.9	+14.4	63.4	48 43.8	+17.2	65.4	49 31.8	+19.9	67.5	50 15.6	+22.7	69.7	50 54.9	+25.6	72.0
46	48 06.3	+13.3	61.9	49 01.0	+16.0	63.9	49 51.7	+18.8	66.0	50 38.3	+21.7	68.3	51 20.5	+24.6	70.6
47	48 19.6	+12.3	60.4	49 17.0	+14.9	62.5	50 10.5	+17.7	64.6	51 00.0	+20.5	66.8	51 45.1	+23.4	69.1
48	48 31.9	+11.0	59.0	49 31.9	+13.8	61.0	50 28.2	+16.6	63.1	51 20.5	+19.4	65.3	52 08.5	+22.3	67.6
49	48 42.9	+9.9	57.5	49 45.7	+12.6	59.5	50 44.8	+15.3	61.6	51 39.9	+18.2	63.8	52 30.8	+21.0	66.1
50	48 52.8	+8.8	56.0	49 58.3	+11.3	57.9	51 00.1	+14.1	60.0	51 58.1	+16.9	62.2	52 51.8	+19.9	64.5
51	49 01.6	+7.5	54.5	50 09.6	+10.2	56.4	51 14.2	+12.9	58.5	52 15.0	+15.7	60.7	53 11.7	+18.6	63.0
52	49 09.1	+6.4	53.0	50 19.8	+8.9	54.9	51 27.1	+11.6	56.9	52 30.7	+14.4	59.1	53 30.3	+17.3	61.4
53	49 15.5	+5.1	51.4	50 28.7	+7.7	53.3	51 38.7	+10.4	55.3	52 45.1	+13.2	57.5	53 47.6	+16.0	59.8
54	49 20.6	+4.0	49.9	50 36.4	+6.5	51.8	51 49.1	+9.0	53.7	52 58.3	+11.7	55.9	54 03.6	+14.7	58.1
55	49 24.6	+2.7	48.4	50 42.9	+5.1	50.2	51 58.1	+7.8	52.1	53 10.0	+10.5	54.2	54 18.3	+13.2	56.5
56	49 27.3	+1.5	46.8	50 48.0	+3.9	48.6	52 05.9	+6.4	50.5	53 20.5	+9.0	52.6	54 31.5	+11.9	54.8
57	49 28.8	+0.3	45.3	50 51.9	+2.6	47.0	52 12.3	+5.0	48.9	53 29.5	+7.7	50.9	54 43.4	+10.4	53.1
58	49 29.1	-1.0	43.8	50 54.5	+1.3	45.5	52 17.3	+3.8	47.3	53 37.2	+6.3	49.3	54 53.8	+9.0	51.4
59	49 28.1	-2.1	42.2	50 55.8	+0.1	43.9	52 21.1	+2.3	45.6	53 43.5	+4.9	47.6	55 02.8	+7.5	49.7
60	49 26.0	-3.4	40.7	50 55.9	-1.3	42.3	52 23.4	+1.0	44.0	53 48.4	+3.4	45.9	55 10.3	+6.1	47.9
61	49 22.6	-4.6	39.2	50 54.6	-2.6	40.7	52 24.4	-0.3	42.4	53 51.8	+2.0	44.2	55 16.4	+4.5	46.2
62	49 18.0	-5.9	37.6	50 52.0	-3.8	39.1	52 24.1	-1.7	40.7	53 53.8	+0.6	42.5	55 20.9	+3.0	44.4
63	49 12.1	-7.0	36.1	50 48.2	-5.1	37.5	52 22.4	-3.1	39.1	53 54.4	-0.9	40.8	55 23.9	+1.5	42.7
64	49 05.1	-8.2	34.6	50 43.1	-6.4	36.0	52 19.3	-4.4	37.5	53 53.5	-2.3	39.1	55 25.4	0.0	40.9
65	48 56.9	-9.4	33.1	50 36.7	-7.6	34.4	52 14.9	-5.7	35.8	53 51.2	-3.7	37.4	55 25.4	-1.5	39.2
66	48 47.5	-10.5	31.6	50 29.1	-8.9	32.8	52 09.2	-7.1	34.2	53 47.5	-5.1	35.7	55 23.9	-3.0	37.4
67	48 37.0	-11.7	30.1	50 20.2	-10.1	31.3	52 02.1	-8.4	32.6	53 42.4	-6.6	34.0	55 20.9	-4.6	35.6
68	48 25.3	-12.8	28.6	50 10.1	-11.3	29.7	51 53.7	-9.8	31.0	53 35.8	-8.0	32.4	55 16.3	-6.1	33.9
69	48 12.5	-13.9	27.1	49 58.8	-12.6	28.2	51 43.9	-11.0	29.4	53 27.8	-9.3	30.7	55 10.2	-7.5	32.1
70	47 58.6	-15.1	25.7	49 46.2	-13.7	26.7	51 32.9	-12.2	27.8	53 18.5	-10.7	29.0	55 02.7	-9.0	30.4
71	47 43.5	-16.1	24.2	49 32.5	-14.8	25.2	51 20.7	-13.5	26.2	53 07.8	-12.1	27.4	54 53.7	-10.5	28.7
72	47 27.4	-17.1	22.8	49 17.7	-16.0	23.7	51 07.2	-14.8	24.7	52 55.7	-13.4	25.8	54 43.2	-11.8	27.0
73	47 10.3	-18.2	21.4	49 01.7	-17.1	22.2	50 52.4	-15.9	23.1	52 42.3	-14.6	24.2	54 31.4	-13.3	25.3
74	46 52.1	-19.2	20.0	48 44.6	-18.2	20.8	50 36.5	-17.2	21.6	52 27.7	-16.0	22.6	54 18.1	-14.7	23.6
75	46 32.9	-20.2	18.6	48 26.4	-19.3	19.3	50 19.3	-18.2	20.1	52 11.7	-17.2	21.0	54 03.4	-16.0	22.0
76	46 12.7	-21.2	17.2	48 07.1	-20.3	17.9	50 01.1	-19.4	18.6	51 54.5	-18.4	19.4	53 47.4	-17.4	20.3
77	45 51.5	-22.0	15.9	47 46.8	-21.3	16.5	49 41.7	-20.5	17.2	51 36.1	-19.6	17.9	53 30.0	-18.6	18.7
78	45 29.5	-23.0	14.6	47 25.5	-22.3	15.1	49 21.2	-21.6	15.7	51 16.5	-20.8	16.4	53 11.4	-19.9	17.1
79	45 06.5	-23.9	13.3	47 03.2	-23.3	13.7	48 59.6	-22.6	14.3	50 55.7	-21.9	14.9	52 51.5	-21.1	15.5
80	44 42.6	-24.8	12.0	46 39.9	-24.2	12.4	48 37.0	-23.7	12.9	50 33.8	-23.0	13.4	52 30.4	-22.3	14.0
81	44 17.8	-25.6	10.7	46 15.7	-25.2	11.1	48 13.3	-24.6	11.5	50 10.8	-24.0	12.0	52 08.1	-23.4	12.5
82	43 52.2	-26.4	9.4	45 50.5	-26.0	9.8	47 48.7	-25.5	10.1	49 46.8	-25.1	10.5	51 44.7	-24.6	11.0
83	43 25.8	-27.2	8.2	45 24.5	-26.8	8.5	47 23.2	-26.5	8.8	49 21.7	-26.1	9.1	51 20.1	-25.6	9.5
84	42 58.6	-28.0	7.0	44 57.7	-27.7	7.2	46 56.7	-27.4	7.5	48 55.6	-27.0	7.8	50 54.5	-26.7	8.1
85	42 30.6	-28.7	5.8	44 30.0	-28.5	5.9	46 29.3	-28.2	6.2	48 28.6	-28.0	6.4	50 27.8	-27.7	6.7
86	42 01.9	-29.5	4.6	44 01.5	-29.3	4.7	46 01.1	-29.1	4.9	48 00.6	-28.9	5.1	50 00.1	-28.6	5.3
87	41 32.4	-30.1	3.4	43 32.2	-30.0	3.5	45 32.0	-29.9	3.6	47 31.7	-29.7	3.8	49 31.5	-29.6	3.9
88	41 02.3	-30.8	2.2	43 02.2	-30.7	2.3	45 02.1	-30.7	2.4	47 02.0	-30.6	2.5	49 01.9	-30.5	2.6
89	40 31.5	-31.5	1.1	42 31.5	-31.5	1.2	44 31.4	-31.4	1.2	46 31.4	-31.4	1.2	48 31.4	-31.4	1.3
90	40 00.0	-32.1	0.0	42 00.0	-32.1	0.0	44 00.0	-32.2	0.0	46 00.0	-32.2	0.0	48 00.0	-32.2	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 58°, 302°

40°			42°			44°			46°			48°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
1 43.7	-45.6	132.7	0 22.3	-46.6	132.7	0 59.2	+47.5	47.3	2 20.6	+48.4	47.3	3 41.9	+49.3	47.4	30
0 58.1	-45.6	133.4	0 24.3	+46.6	46.6	1 46.7	+47.5	46.7	3 09.0	+48.4	46.7	4 31.2	+49.3	46.8	31
0 12.5	-45.6	134.0	1 10.9	+46.6	46.0	2 34.2	+47.5	46.0	3 57.4	+48.5	46.1	5 20.5	+49.3	46.2	32
0 33.1	+45.6	45.3	1 57.5	+46.5	45.4	3 21.7	+47.5	45.4	4 45.9	+48.3	45.5	6 09.8	+49.3	45.7	33
1 18.7	+45.6	44.7	2 44.0	+46.6	44.7	4 09.2	+47.5	44.8	5 34.2	+48.4	44.9	6 59.1	+49.2	45.1	34
2 04.3	+45.6	44.0	3 30.6	+46.5	44.1	4 56.7	+47.4	44.2	6 22.6	+48.3	44.3	7 48.3	+49.1	44.5	35
2 49.9	+45.6	43.4	4 17.1	+46.5	43.5	5 44.1	+47.4	43.6	7 10.9	+48.2	43.7	8 37.4	+49.1	43.9	36
3 35.5	+45.5	42.7	5 03.6	+46.4	42.8	6 31.5	+47.3	43.0	7 59.1	+48.2	43.2	9 26.5	+49.1	43.4	37
4 21.0	+45.5	42.1	5 50.0	+46.4	42.2	7 18.8	+47.3	42.4	8 47.3	+48.2	42.5	10 15.6	+49.0	42.8	38
5 06.5	+45.5	41.4	6 36.4	+46.4	41.6	8 06.1	+47.2	41.7	9 35.5	+48.1	41.9	11 04.6	+48.9	42.2	39
5 52.0	+45.4	40.8	7 22.8	+46.2	40.9	8 53.3	+47.2	41.1	10 23.6	+48.0	41.3	11 53.5	+48.8	41.6	40
6 37.4	+45.4	40.1	8 09.0	+46.3	40.3	9 40.5	+47.1	40.5	11 11.6	+47.9	40.7	12 42.3	+48.8	41.0	41
7 22.8	+45.3	39.5	8 55.3	+46.2	39.6	10 27.6	+47.0	39.9	11 59.5	+47.9	40.1	13 31.1	+48.7	40.4	42
8 08.1	+45.2	38.8	9 41.5	+46.1	39.0	11 14.6	+46.9	39.2	12 47.4	+47.7	39.5	14 19.8	+48.6	39.8	43
8 53.3	+45.2	38.1	10 27.6	+46.0	38.3	12 01.5	+46.9	38.6	13 35.1	+47.7	38.9	15 08.4	+48.4	39.2	44
9 38.5	+45.1	37.5	11 13.6	+45.9	37.7	12 48.4	+46.7	37.9	14 22.8	+47.6	38.2	15 56.8	+48.4	38.6	45
10 23.6	+45.0	36.8	11 59.5	+45.8	37.0	13 35.1	+46.7	37.3	15 10.4	+47.5	37.6	16 45.2	+48.3	38.0	46
11 08.6	+44.9	36.1	12 45.3	+45.8	36.4	14 21.8	+46.6	36.7	15 57.9	+47.3	37.0	17 33.5	+48.2	37.3	47
11 53.5	+44.8	35.4	13 31.1	+45.6	35.7	15 08.4	+46.4	36.0	16 45.2	+47.3	36.3	18 21.7	+48.0	36.7	48
12 38.3	+44.7	34.8	14 16.7	+45.5	35.0	15 54.8	+46.3	35.3	17 32.5	+47.1	35.7	19 09.7	+47.9	36.1	49
13 23.0	+44.6	34.1	15 02.2	+45.4	34.4	16 41.1	+46.2	34.7	18 19.6	+47.0	35.0	19 57.6	+47.7	35.4	50
14 07.6	+44.5	33.4	15 47.6	+45.3	33.7	17 27.3	+46.1	34.0	19 06.6	+46.8	34.4	20 45.3	+47.7	34.8	51
14 52.1	+44.4	32.7	16 32.9	+45.2	33.0	18 13.4	+45.9	33.3	19 53.4	+46.7	33.7	21 33.0	+47.4	34.1	52
15 36.5	+44.2	32.0	17 18.1	+45.0	32.3	18 59.3	+45.8	32.7	20 40.1	+46.5	33.1	22 20.4	+47.3	33.5	53
16 20.7	+44.1	31.3	18 03.1	+44.8	31.6	19 45.1	+45.6	32.0	21 26.6	+46.4	32.4	23 07.7	+47.1	32.8	54
17 04.8	+43.9	30.6	18 47.9	+44.7	30.9	20 30.7	+45.4	31.3	22 13.0	+46.2	31.7	23 54.8	+47.0	32.1	55
17 48.7	+43.8	29.9	19 32.6	+44.5	30.2	21 16.1	+45.3	30.6	22 59.2	+46.0	31.0	24 41.8	+46.8	31.5	56
18 32.5	+43.6	29.2	20 17.1	+44.4	29.5	22 01.4	+45.1	29.9	23 45.2	+45.8	30.3	25 28.6	+46.5	30.8	57
19 16.1	+43.5	28.4	21 01.5	+44.1	28.8	22 46.5	+44.9	29.2	24 31.0	+45.6	29.6	26 15.1	+46.4	30.1	58
19 59.6	+43.2	27.7	21 45.6	+44.0	28.1	23 31.4	+44.6	28.4	25 16.6	+45.5	28.9	27 01.5	+46.1	29.4	59
20 42.8	+43.1	27.0	22 29.6	+43.8	27.3	24 16.0	+44.5	27.7	26 02.1	+45.2	28.2	27 47.6	+45.9	28.6	60
21 25.9	+42.9	26.2	23 13.4	+43.6	26.6	25 00.5	+44.3	27.0	26 47.3	+44.9	27.4	28 33.5	+45.7	27.9	61
22 08.8	+42.6	25.5	23 57.0	+43.3	25.8	25 44.8	+44.0	26.2	27 32.2	+44.7	26.7	29 19.2	+45.4	27.2	62
22 51.4	+42.5	24.7	24 40.3	+43.1	25.1	26 28.8	+43.8	25.5	28 16.9	+44.5	26.9	30 04.6	+45.2	26.4	63
23 33.9	+42.2	23.9	25 23.4	+42.9	24.3	27 12.6	+43.5	24.7	29 01.4	+44.2	26.2	30 49.8	+44.9	25.7	64
24 16.1	+42.0	23.2	26 06.3	+42.6	23.5	27 56.1	+43.3	23.9	29 45.6	+43.9	24.4	31 34.7	+44.6	24.9	65
24 58.1	+41.7	22.4	26 48.9	+42.3	22.7	28 39.4	+43.0	23.1	30 29.5	+43.7	23.6	32 19.3	+44.3	24.1	66
25 39.8	+41.4	21.6	27 31.2	+42.1	21.9	29 22.4	+42.7	22.3	31 13.2	+43.3	22.8	33 03.6	+44.0	23.3	67
26 21.2	+41.2	20.8	28 13.3	+41.8	21.1	30 05.1	+42.4	21.5	31 56.5	+43.1	22.0	33 47.6	+43.7	22.5	68
27 02.4	+40.9	20.0	28 55.1	+41.5	20.3	30 47.5	+42.1	20.7	32 39.6	+42.7	21.2	34 31.3	+43.3	21.6	69
27 43.3	+40.6	19.1	29 36.6	+41.1	19.5	31 29.6	+41.7	19.9	33 22.3	+42.3	20.3	35 14.6	+43.0	20.8	70
28 23.9	+40.3	18.3	30 17.7	+40.9	18.6	32 11.3	+41.4	19.0	34 04.6	+42.0	19.5	35 57.6	+42.6	19.9	71
29 04.2	+40.0	17.4	30 58.6	+40.5	17.8	32 52.7	+41.1	18.2	34 46.6	+41.6	18.6	36 40.2	+42.2	19.1	72
29 44.2	+39.6	16.6	31 39.1	+40.2	16.9	33 33.8	+40.7	17.3	35 28.2	+41.3	17.7	37 22.4	+41.8	18.2	73
30 23.8	+39.3	15.7	32 19.3	+39.7	16.1	34 14.5	+40.3	16.4	36 09.5	+40.8	16.8	38 04.2	+41.4	17.3	74
31 03.1	+39.0	14.8	32 59.0	+39.4	15.2	34 54.8	+39.9	15.5	36 50.3	+40.4	15.9	38 45.6	+40.9	16.3	75
31 42.1	+38.5	14.0	33 38.4	+39.0	14.3	35 34.7	+39.4	14.6	37 30.7	+39.9	15.0	39 26.5	+40.4	15.4	76
32 20.6	+38.2	13.1	34 17.4	+38.6	13.4	36 14.1	+39.1	13.7	38 10.6	+39.5	14.0	40 06.9	+40.0	14.4	77
32 58.8	+37.7	12.1	34 56.0	+38.2	12.4	36 53.2	+38.5	12.7	38 50.1	+39.0	13.1	40 46.9	+39.5	13.5	78
33 36.5	+37.4	11.2	35 34.2	+37.7	11.5	37 31.7	+38.1	11.8	39 29.1	+38.5	12.1	41 26.4	+38.9	12.5	79
34 13.9	+36.9	10.3	36 11.9	+37.2	10.5	38 09.8	+37.6	10.8	40 07.6	+38.0	11.1	42 05.3	+38.4	11.4	80
34 50.8	+36.4	9.3	36 49.1	+36.8	9.5	38 47.4	+37.1	9.8	40 45.6	+37.5	10.1	42 43.7	+37.8	10.4	81
35 27.2	+35.9	8.3	37 25.9	+36.2	8.5	39 24.5	+36.6	8.8	41 23.1	+36.8	9.1	43 21.5	+37.2	9.3	82
36 03.1	+35.5	7.3	38 02.1	+35.8	7.5	40 01.1	+36.0	7.8	41 59.9	+36.3	8.0	43 58.7	+36.6	8.3	83
36 38.6	+35.0	6.3	38 37.9	+35.1	6.5	40 37.1	+35.4	6.7	42 36.2	+35.7	6.9	44 35.3	+35.9	7.2	84
37 13.6	+34.4	5.3	39 13.0	+34.6	5.5	41 12.5	+34.8	5.6	43 11.9	+35.0	5.8	45 11.2	+35.3	6.0	85
37 48.0	+33.9	4.3	39 47.6	+34.1	4.4	41 47.3	+34.2	4.6	43 46.9	+34.3	4.7	45 46.5	+34.5	4.9	86
38 21.9	+33.3	3.2	40 21.7	+33.4	3.3	42 21.5	+33.5	3.4	44 21.2	+33.7	3.6	46 21.0	+33.8	3.7	87
38 55.2	+32.7	2.2	40 55.1	+32.8	2.2	42 55.0	+32.8	2.3	44 54.9	+32.9	2.4	46 54.8	+33.0	2.5	88
39 27.9	+32.1	1.1	41 27.9	+32.1	1.1	43 27.8	+32.2	1.2	45 27.8	+32.2	1.2	47 27.8	+32.2	1.3	89
40 00.0	+31.5	0.0	42 00.0	+31.5	0.0	44 00.0	+31.4	0.0	46 00.0	+31.4	0.0	48 00.0	+31.4	0.0	90

LATITUDE SAME NAME

L.H.A. 122°, 238°

58°, 302° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	42 41.3	+40.0	92.4	42 34.5	+42.0	94.2	42 23.8	+44.0	96.0	42 09.3	+46.0	97.8	41 51.2	+47.6	99.6
31	43 21.3	+39.4	91.3	43 16.5	+41.6	93.2	43 07.8	+43.6	95.1	42 55.3	+45.5	96.9	42 38.8	+47.3	98.8
32	44 00.7	+38.9	90.3	43 58.1	+41.0	92.2	43 51.4	+43.1	94.1	43 40.8	+45.0	96.1	43 26.1	+47.0	97.9
33	44 39.6	+38.2	89.2	44 39.1	+40.5	91.2	44 34.5	+42.6	93.2	44 25.8	+44.7	95.1	44 13.1	+46.5	97.1
34	45 17.8	+37.6	88.1	45 19.6	+39.9	90.2	45 17.1	+42.1	92.2	45 10.5	+44.1	94.2	44 59.6	+46.1	96.2
35	45 55.4	+36.9	87.0	45 59.5	+39.2	89.1	45 59.2	+41.5	91.2	45 54.6	+43.7	93.2	45 45.7	+45.7	95.3
36	46 32.3	+36.3	85.9	46 38.7	+38.7	88.0	46 40.7	+41.0	90.1	46 38.3	+43.1	92.2	46 31.4	+45.2	94.3
37	47 08.6	+35.5	84.7	47 17.4	+37.9	86.9	47 21.7	+40.3	89.0	47 21.4	+42.6	91.2	47 16.6	+44.7	93.4
38	47 44.1	+34.8	83.5	47 55.3	+37.3	85.7	48 02.0	+39.6	87.9	48 04.0	+41.9	90.2	48 01.3	+44.2	92.4
39	48 18.9	+33.9	82.3	48 32.6	+36.5	84.5	48 41.6	+39.0	86.8	48 45.9	+41.4	89.1	48 45.5	+43.6	91.4
40	48 52.8	+33.2	81.1	49 09.1	+35.8	83.3	49 20.6	+38.3	85.7	49 27.3	+40.7	88.0	49 29.1	+43.0	90.3
41	49 26.0	+32.3	79.8	49 44.9	+34.9	82.1	49 58.9	+37.5	84.5	50 08.0	+40.0	86.8	50 12.1	+42.4	89.2
42	49 58.3	+31.3	78.5	50 19.8	+34.1	80.8	50 36.4	+36.8	83.2	50 48.0	+39.3	85.7	50 54.5	+41.8	88.1
43	50 29.6	+30.5	77.1	50 53.9	+33.2	79.5	51 13.2	+35.9	82.0	51 27.3	+38.6	84.5	51 36.3	+41.0	87.0
44	51 00.1	+29.5	75.8	51 27.1	+32.3	78.2	51 49.1	+35.0	80.7	52 05.9	+37.7	83.2	52 17.3	+40.4	85.8
45	51 29.6	+28.5	74.4	51 59.4	+31.3	76.9	52 24.1	+34.2	79.4	52 43.6	+36.9	82.0	52 57.7	+39.5	84.6
46	51 58.1	+27.4	73.0	52 30.7	+30.3	75.5	52 58.3	+33.1	78.0	53 20.5	+36.0	80.6	53 37.2	+38.8	83.3
47	52 25.5	+26.3	71.5	53 01.0	+29.3	74.0	53 31.4	+32.2	76.6	53 56.5	+35.0	79.3	54 16.0	+37.8	82.0
48	52 51.8	+25.3	70.0	53 30.3	+28.2	72.6	54 03.6	+31.2	75.2	54 31.5	+34.1	77.9	54 53.8	+37.0	80.7
49	53 17.1	+24.0	68.5	53 58.5	+27.0	71.1	54 34.8	+30.0	73.7	55 05.6	+33.1	76.5	55 30.8	+36.0	79.3
50	53 41.1	+22.8	67.0	54 25.5	+25.9	69.6	55 04.8	+29.0	72.2	55 38.7	+32.0	75.0	56 06.8	+35.0	77.9
51	54 03.9	+21.6	65.4	54 51.4	+24.7	68.0	55 33.8	+27.7	70.7	56 10.7	+30.8	73.5	56 41.8	+34.0	76.4
52	54 25.5	+20.3	63.8	55 16.1	+23.3	66.4	56 01.5	+26.5	69.1	56 41.5	+29.7	71.9	57 15.8	+32.8	74.9
53	54 45.8	+19.0	62.2	55 39.4	+22.1	64.8	56 28.0	+25.2	67.5	57 11.2	+28.4	70.4	57 48.6	+31.6	73.3
54	55 04.8	+17.7	60.6	56 01.5	+20.7	63.1	56 53.2	+23.9	65.8	57 39.6	+27.1	68.7	58 20.2	+30.4	71.7
55	55 22.5	+16.2	58.9	56 22.2	+19.3	61.4	57 17.1	+22.5	64.2	58 06.7	+25.7	67.0	58 50.6	+29.0	70.1
56	55 38.7	+14.8	57.2	56 41.5	+17.9	59.7	57 39.6	+21.0	62.4	58 32.4	+24.4	65.3	59 19.6	+27.7	68.4
57	55 53.5	+13.3	55.5	56 59.4	+16.4	58.0	58 00.6	+19.6	60.7	58 56.8	+22.8	63.6	59 47.3	+26.3	66.6
58	56 06.8	+11.9	53.7	57 15.8	+14.8	56.2	58 20.2	+18.0	58.9	59 19.6	+21.4	61.8	60 13.6	+24.8	64.8
59	56 18.7	+10.3	51.9	57 30.6	+13.3	54.4	58 38.2	+16.5	57.1	59 41.0	+19.7	59.9	60 38.4	+23.2	63.0
60	56 29.0	+8.8	50.2	57 43.9	+11.8	52.6	58 54.7	+14.8	55.2	60 00.7	+18.2	58.0	61 01.6	+21.5	61.1
61	56 37.8	+7.2	48.4	57 55.7	+10.1	50.7	59 09.5	+13.2	53.3	60 18.9	+16.4	56.1	61 23.1	+19.9	59.1
62	56 45.0	+5.7	46.6	58 05.8	+8.5	48.9	59 22.7	+11.5	51.4	60 35.3	+14.7	54.2	61 43.0	+18.1	57.2
63	56 50.7	+4.0	44.7	58 14.3	+6.8	47.0	59 34.2	+9.8	49.5	60 50.0	+12.9	52.2	62 01.1	+16.4	55.1
64	56 54.7	+2.5	42.9	58 21.1	+5.1	45.1	59 44.0	+8.0	47.5	61 02.9	+11.2	50.2	62 17.5	+14.4	53.1
65	56 57.2	+0.8	41.1	58 26.2	+3.4	43.2	59 52.0	+6.2	45.6	61 14.1	+9.2	48.1	62 31.9	+12.6	51.0
66	56 58.0	-0.7	39.3	58 29.6	+1.7	41.3	59 58.2	+4.4	43.6	61 23.3	+7.4	46.1	62 44.5	+10.6	48.9
67	56 57.3	-2.4	37.4	58 31.3	+0.1	39.4	60 02.6	+2.7	41.6	61 30.7	+5.5	44.0	62 55.1	+8.6	46.7
68	56 54.9	-4.0	35.6	58 31.4	-1.7	37.5	60 05.3	+0.8	39.6	61 36.2	+3.6	41.9	63 03.7	+6.5	44.5
69	56 50.9	-5.5	33.8	58 29.7	-3.4	35.6	60 06.1	-1.0	37.6	61 39.8	+1.6	39.8	63 10.2	+4.6	42.3
70	56 45.4	-7.2	31.9	58 26.3	-5.1	33.7	60 05.1	-2.9	35.6	61 41.4	-0.4	37.7	63 14.8	+2.4	40.1
71	56 38.2	-8.7	30.1	58 21.2	-6.8	31.8	60 02.2	-4.6	33.6	61 41.0	-2.2	35.6	63 17.2	+0.4	37.9
72	56 29.5	-10.2	28.3	58 14.4	-8.4	29.9	59 57.6	-6.5	31.6	61 38.8	-4.2	33.5	63 17.6	-1.7	35.7
73	56 19.3	-11.8	26.6	58 06.0	-10.1	28.0	59 51.1	-8.2	29.6	61 34.6	-6.2	31.4	63 15.9	-3.8	33.4
74	56 07.5	-13.2	24.8	57 55.9	-11.7	26.1	59 42.9	-9.9	27.6	61 28.4	-8.0	29.3	63 12.1	-5.8	31.2
75	55 54.3	-14.8	23.1	57 44.2	-13.3	24.3	59 33.0	-11.7	25.7	61 20.4	-9.9	27.2	63 06.3	-7.9	29.0
76	55 39.5	-16.1	21.3	57 30.9	-14.8	22.5	59 21.3	-13.4	23.7	61 10.5	-11.7	25.2	62 58.4	-9.9	26.8
77	55 23.4	-17.6	19.6	57 16.1	-16.4	20.7	59 07.9	-15.0	21.8	60 58.8	-13.6	23.2	62 48.5	-11.9	24.7
78	55 05.8	-18.9	17.9	56 59.7	-17.8	18.9	58 52.9	-16.7	19.9	60 45.2	-15.3	21.2	62 36.6	-13.7	22.5
79	54 46.9	-20.2	16.3	56 41.9	-19.3	17.1	58 36.2	-18.2	18.1	60 29.9	-17.0	19.2	62 22.9	-15.7	20.4
80	54 26.7	-21.5	14.7	56 22.6	-20.7	15.4	58 18.0	-19.7	16.3	60 12.9	-18.7	17.2	62 07.2	-17.5	18.4
81	54 05.2	-22.8	13.1	56 01.9	-22.0	13.7	57 58.3	-21.2	14.5	59 54.2	-20.3	15.3	61 49.7	-19.3	16.3
82	53 42.4	-24.0	11.5	55 39.9	-23.4	12.1	57 37.1	-22.7	12.7	59 33.9	-21.8	13.5	61 30.4	-20.9	14.3
83	53 18.4	-25.1	10.0	55 16.5	-24.6	10.5	57 14.4	-24.0	11.0	59 12.1	-23.4	11.6	61 09.5	-22.7	12.4
84	52 53.3	-26.3	8.4	54 51.9	-25.9	8.9	56 50.4	-25.4	9.3	58 48.7	-24.8	9.9	60 46.8	-24.2	10.5
85	52 27.0	-27.4	7.0	54 26.0	-27.0	7.3	56 25.0	-26.6	7.7	58 23.9	-26.2	8.1	60 22.6	-25.7	8.6
86	51 59.6	-28.4	5.5	53 59.0	-28.1	5.8	55 58.4	-27.9	6.1	57 57.7	-27.6	6.4	59 56.9	-27.2	6.8
87	51 31.2	-29.5	4.1	53 30.9	-29.3	4.3	55 30.5	-29.0	4.5	57 30.1	-28.8	4.7	59 29.7	-28.6	5.0
88	51 01.7	-30.4	2.7	53 01.6	-30.3	2.8	55 01.5	-30.2	3.0	57 01.3	-30.1	3.1	59 01.1	-29.9	3.3
89	50 31.3	-31.3	1.3	52 31.3	-31.3	1.4	54 31.3	-31.3	1.5	56 31.2	-31.2	1.5	58 31.2	-31.2	1.6
90	50 00.0	-32.2	0.0	52 00.0	-32.3	0.0	54 00.0	-32.3	0.0	56 00.0	-32.3	0.0	58 00.0	-32.4	0.0
	50°			52°			54°			56°			58°		

LATITUDE CONTRARY NAME

L.H.A. 58°, 302°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
5	03.0	+50.2	47.5	6	24.0	+51.0	47.6	7	44.7	+51.8	47.8	9	05.1	+52.6	48.1	30
5	53.2	+50.2	47.0	7	15.0	+51.0	47.1	8	36.5	+51.8	47.3	9	57.7	+52.5	47.6	31
6	43.4	+50.1	46.4	8	06.0	+51.0	46.6	9	28.3	+51.8	46.8	10	50.2	+52.6	47.1	32
7	33.5	+50.1	45.8	8	57.0	+50.9	46.1	10	20.1	+51.7	46.3	11	42.8	+52.4	46.6	33
8	23.6	+50.1	45.3	9	47.9	+50.8	45.5	11	11.8	+51.6	45.8	12	35.2	+52.4	46.1	34
9	13.7	+50.0	44.7	10	38.7	+50.8	45.0	12	03.4	+51.6	45.3	13	27.6	+52.4	45.6	35
10	03.7	+49.9	44.2	11	29.5	+50.8	44.4	12	55.0	+51.5	44.7	14	20.0	+52.3	45.1	36
10	53.6	+49.9	43.6	12	20.3	+50.7	43.9	13	46.5	+51.5	44.2	15	12.3	+52.2	44.6	37
11	43.5	+49.8	43.0	13	11.0	+50.6	43.3	14	38.0	+51.4	43.7	16	04.5	+52.2	44.1	38
12	33.3	+49.7	42.5	14	01.6	+50.5	42.8	15	29.4	+51.3	43.1	16	56.7	+52.0	43.5	39
13	23.0	+49.7	41.9	14	52.1	+50.5	42.2	16	20.7	+51.2	42.6	17	48.7	+52.0	43.0	40
14	12.7	+49.5	41.3	15	42.6	+50.3	41.7	17	11.9	+51.2	42.1	18	40.7	+51.9	42.5	41
15	02.2	+49.5	40.7	16	32.9	+50.3	41.1	18	03.1	+51.0	41.5	19	32.6	+51.8	42.0	42
15	51.7	+49.4	40.1	17	23.2	+50.2	40.5	18	54.1	+51.0	41.0	20	24.4	+51.7	41.4	43
16	41.1	+49.3	39.6	18	13.4	+50.0	40.0	19	45.1	+50.8	40.4	21	16.1	+51.6	40.9	44
17	30.4	+49.2	39.0	19	03.4	+50.0	39.4	20	35.9	+50.7	39.8	22	07.7	+51.5	40.3	45
18	19.6	+49.0	38.4	19	53.4	+49.8	38.8	21	26.6	+50.6	39.3	22	59.2	+51.4	39.8	46
19	08.6	+49.0	37.8	20	43.2	+49.8	38.2	22	17.2	+50.5	38.7	23	50.6	+51.2	39.2	47
19	57.6	+48.8	37.1	21	33.0	+49.5	37.6	23	07.7	+50.4	38.1	24	41.8	+51.1	38.7	48
20	46.4	+48.7	36.5	22	22.5	+49.5	37.0	23	58.1	+50.2	37.5	25	32.9	+51.0	38.1	49
21	35.1	+48.5	35.9	23	12.0	+49.3	36.4	24	48.3	+50.1	36.9	26	23.9	+50.9	37.5	50
22	23.6	+48.4	35.3	24	01.3	+49.2	35.8	25	38.4	+49.9	36.3	27	14.7	+50.7	36.9	51
23	12.0	+48.2	34.6	24	50.5	+49.0	35.1	26	28.3	+49.7	35.7	28	05.4	+50.5	36.3	52
24	00.2	+48.1	34.0	25	39.5	+48.8	34.5	27	18.0	+49.6	35.1	28	55.9	+50.3	35.7	53
24	48.3	+47.9	33.3	26	28.3	+48.6	33.8	28	07.6	+49.4	34.4	29	46.2	+50.2	35.0	54
25	36.2	+47.7	32.6	27	16.9	+48.5	33.2	28	57.0	+49.2	33.8	30	36.4	+50.0	34.4	55
26	23.9	+47.5	32.0	28	05.4	+48.2	32.5	29	46.2	+49.1	33.1	31	26.4	+49.8	33.8	56
27	11.4	+47.3	31.3	28	53.6	+48.1	31.8	30	35.3	+48.8	32.4	32	16.2	+49.5	33.1	57
27	58.7	+47.1	30.6	29	41.7	+47.8	31.2	31	24.1	+48.6	31.8	33	05.7	+49.4	32.4	58
28	45.8	+46.9	29.9	30	29.5	+47.7	30.5	32	12.7	+48.3	31.1	33	55.1	+49.1	31.8	59
29	32.7	+46.6	29.2	31	17.2	+47.3	29.7	33	01.0	+48.2	30.4	34	44.2	+48.9	31.1	60
30	19.3	+46.4	28.4	32	04.5	+47.2	29.0	33	49.2	+47.8	29.7	35	33.1	+48.6	30.4	61
31	05.7	+46.2	27.7	32	51.7	+46.8	28.3	34	37.0	+47.6	28.9	36	21.7	+48.4	29.6	62
31	51.9	+45.8	27.0	33	38.5	+46.6	27.5	35	24.6	+47.4	28.2	37	10.1	+48.0	28.9	63
32	37.7	+45.6	26.2	34	25.1	+46.3	26.8	36	12.0	+47.0	27.4	37	58.1	+47.8	28.1	64
33	23.3	+45.3	25.4	35	11.4	+46.1	26.0	36	59.0	+46.7	26.7	38	45.9	+47.5	27.4	65
34	08.6	+45.0	24.6	35	57.5	+45.6	25.2	37	45.7	+46.4	25.9	39	33.4	+47.1	26.6	66
34	53.6	+44.7	23.8	36	43.1	+45.4	24.4	38	32.1	+46.1	25.1	40	20.5	+46.8	25.8	67
35	38.3	+44.3	23.0	37	28.5	+45.0	23.6	39	18.2	+45.7	24.2	41	07.3	+46.5	24.9	68
36	22.6	+44.0	22.2	38	13.5	+44.7	22.8	40	03.9	+45.3	23.4	41	53.8	+46.0	24.1	69
37	06.6	+43.6	21.3	38	58.2	+44.2	21.9	40	49.2	+45.0	22.5	42	39.8	+45.7	23.2	70
37	50.2	+43.2	20.5	39	42.4	+43.9	21.0	41	34.2	+44.5	21.7	43	25.5	+45.2	22.3	71
38	33.4	+42.8	19.6	40	26.3	+43.4	20.1	42	18.7	+44.1	20.8	44	10.7	+44.8	21.4	72
39	16.2	+42.4	18.7	41	09.7	+43.0	19.2	43	02.8	+43.7	19.8	44	55.5	+44.3	20.5	73
39	58.6	+42.0	17.8	41	52.7	+42.6	18.3	43	46.5	+43.1	18.9	45	39.8	+43.8	19.5	74
40	40.6	+41.4	16.8	42	35.3	+42.0	17.3	44	29.6	+42.7	17.9	46	23.6	+43.3	18.6	75
41	22.0	+41.0	15.9	43	17.3	+41.6	16.4	45	12.3	+42.1	16.9	47	06.9	+42.8	17.5	76
42	03.0	+40.5	14.9	43	58.9	+41.0	15.4	45	54.4	+41.6	15.9	47	49.7	+42.1	16.5	77
42	43.5	+40.0	13.9	44	39.9	+40.5	14.4	46	36.0	+41.0	14.9	48	31.8	+41.6	15.4	78
43	23.5	+39.4	12.9	45	20.4	+39.8	13.3	47	17.0	+40.4	13.8	49	13.4	+40.9	14.3	79
44	02.9	+38.8	11.8	46	00.2	+39.3	12.2	47	57.4	+39.7	12.7	49	54.3	+40.3	13.2	80
44	41.7	+38.2	10.8	46	39.5	+38.6	11.1	48	37.1	+39.1	11.6	50	34.6	+39.5	12.1	81
45	19.9	+37.5	9.7	47	18.1	+38.0	10.0	49	16.2	+38.4	10.4	51	14.1	+38.8	10.9	82
45	57.4	+36.9	8.5	47	56.1	+37.2	8.9	49	54.6	+37.6	9.2	51	52.9	+38.0	9.6	83
46	34.3	+36.2	7.4	48	33.3	+36.5	7.7	50	32.2	+36.8	8.0	52	30.9	+37.2	8.4	84
47	10.5	+35.5	6.2	49	09.8	+35.7	6.5	51	09.0	+36.0	6.8	53	08.1	+36.3	7.1	85
47	46.0	+34.7	5.0	49	45.5	+35.0	5.3	51	45.0	+35.2	5.5	53	44.4	+35.4	5.7	86
48	20.7	+34.0	3.8	50	20.5	+34.0	4.0	52	20.2	+34.2	4.2	54	19.8	+34.4	4.4	87
48	54.7	+33.1	2.6	50	54.5	+33.2	2.7	52	54.4	+33.3	2.8	54	54.2	+33.5	3.0	88
49	27.8	+32.2	1.3	51	27.7	+32.3	1.4	53	27.7	+32.3	1.4	55	27.7	+32.3	1.5	89
50	00.0	+31.3	0.0	52	00.0	+31.3	0.0	54	00.0	+31.3	0.0	56	00.0	+31.2	0.0	90
50°			52°			54°			56°			58°				

LATITUDE SAME NAME

L.H.A. 122°, 238°

60°, 300° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	38 40.9	+16.3	73.9	39 12.6	+18.8	75.5	39 41.2	+21.2	77.1	40 06.4	+23.7	78.7	40 28.2	+26.1	80.4
31	38 57.2	+15.4	72.7	39 31.4	+17.9	74.2	40 02.4	+20.4	75.8	40 30.1	+22.9	77.5	40 54.3	+25.5	79.2
32	39 12.6	+14.7	71.4	39 49.3	+17.2	73.0	40 22.8	+19.7	74.6	40 53.0	+22.2	76.3	41 19.8	+24.6	78.0
33	39 27.3	+13.9	70.2	40 06.5	+16.3	71.7	40 42.5	+18.8	73.4	41 15.2	+21.3	75.0	41 44.4	+23.9	76.8
34	39 41.2	+13.0	68.9	40 22.8	+15.5	70.5	41 01.3	+18.0	72.1	41 36.5	+20.6	73.8	42 08.3	+23.0	75.5
35	39 54.2	+12.2	67.6	40 38.3	+14.7	69.2	41 19.3	+17.2	70.8	41 57.1	+19.7	72.5	42 31.3	+22.3	74.3
36	40 06.4	+11.3	66.4	40 53.0	+13.8	67.9	41 36.5	+16.3	69.6	42 16.8	+18.8	71.3	42 53.6	+21.4	73.0
37	40 17.7	+10.5	65.1	41 06.8	+13.0	66.6	41 52.8	+15.5	68.3	42 35.6	+18.0	70.0	43 15.0	+20.5	71.7
38	40 28.2	+9.6	63.8	41 19.8	+12.0	65.3	42 08.3	+14.5	67.0	42 53.6	+17.1	68.7	43 35.5	+19.7	70.4
39	40 37.8	+8.7	62.5	41 31.8	+11.2	64.0	42 22.8	+13.7	65.7	43 10.7	+16.2	67.4	43 55.2	+18.7	69.1
40	40 46.5	+7.9	61.2	41 43.0	+10.3	62.7	42 36.5	+12.7	64.3	43 26.9	+15.2	66.0	44 13.9	+17.8	67.8
41	40 54.4	+7.0	59.9	41 53.3	+9.3	61.4	42 49.2	+11.8	63.0	43 42.1	+14.3	64.7	44 31.7	+16.9	66.5
42	41 01.4	+6.0	58.5	42 02.6	+8.4	60.1	43 01.0	+10.9	61.7	43 56.4	+13.4	63.4	44 48.6	+15.9	65.1
43	41 07.4	+5.2	57.2	42 11.0	+7.5	58.7	43 11.9	+9.9	60.3	44 09.8	+12.4	62.0	45 04.5	+15.0	63.8
44	41 12.6	+4.2	55.9	42 18.5	+6.6	57.4	43 21.8	+9.0	59.0	44 22.2	+11.4	60.6	45 19.5	+13.9	62.4
45	41 16.8	+3.3	54.6	42 25.1	+5.6	56.0	43 30.8	+8.0	57.6	44 33.6	+10.4	59.3	45 33.4	+12.9	61.0
46	41 20.1	+2.4	53.2	42 30.7	+4.7	54.7	43 38.8	+6.9	56.2	44 44.0	+9.4	57.9	45 46.3	+11.9	59.6
47	41 22.5	+1.5	51.9	42 35.4	+3.7	53.3	43 45.7	+6.0	54.9	44 53.4	+8.4	56.5	45 58.2	+10.9	58.2
48	41 24.0	+0.6	50.6	42 39.1	+2.7	52.0	43 51.7	+5.0	53.5	45 01.8	+7.4	55.1	46 09.1	+9.7	56.8
49	41 24.6	-0.4	49.2	42 41.8	+1.8	50.6	43 56.7	+4.0	52.1	45 09.2	+6.3	53.7	46 18.8	+8.8	55.3
50	41 24.2	-1.3	47.9	42 43.6	+0.8	49.3	44 00.7	+3.0	50.7	45 15.5	+5.2	52.3	46 27.6	+7.6	53.9
51	41 22.9	-2.2	46.6	42 44.4	-0.2	47.9	44 03.7	+2.0	49.3	45 20.7	+4.3	50.8	46 35.2	+6.5	52.5
52	41 20.7	-3.1	45.3	42 44.2	-1.1	46.5	44 05.7	+1.0	47.9	45 25.0	+3.1	49.4	46 41.7	+5.5	51.0
53	41 17.6	-4.1	43.9	42 43.1	-2.1	45.2	44 06.7	-0.1	46.5	45 28.1	+2.1	48.0	46 47.2	+4.3	49.6
54	41 13.5	-4.9	42.6	42 41.0	-3.0	43.8	44 06.6	-1.0	45.2	45 30.2	+1.0	46.6	46 51.5	+3.3	48.1
55	41 08.6	-5.9	41.3	42 38.0	-4.1	42.5	44 05.6	-2.1	43.8	45 31.2	0.0	45.1	46 54.8	+2.1	46.6
56	41 02.7	-6.7	39.9	42 33.9	-4.9	41.1	44 03.5	-3.1	42.4	45 31.2	-1.1	43.7	46 56.9	+1.0	45.2
57	40 56.0	-7.7	38.6	42 29.0	-6.0	39.8	44 00.4	-4.1	41.0	45 30.1	-2.2	42.3	46 57.9	-0.2	43.7
58	40 48.3	-8.6	37.3	42 23.0	-6.8	38.4	43 56.3	-5.1	39.6	45 27.9	-3.2	40.9	46 57.7	-1.2	42.3
59	40 39.7	-9.4	36.0	42 16.2	-7.8	37.1	43 51.2	-6.1	38.2	45 24.7	-4.3	39.4	46 56.5	-2.4	40.8
60	40 30.3	-10.3	34.7	42 08.4	-8.8	35.7	43 45.1	-7.1	36.8	45 20.4	-5.3	38.0	46 54.1	-3.5	39.3
61	40 20.0	-11.1	33.4	41 59.6	-9.6	34.4	43 38.0	-8.1	35.5	45 15.1	-6.4	36.6	46 50.6	-4.6	37.9
62	40 08.9	-12.0	32.1	41 50.0	-10.6	33.1	43 29.9	-9.0	34.1	45 08.7	-7.5	35.2	46 46.0	-5.7	36.4
63	39 56.9	-12.9	30.9	41 39.4	-11.5	31.8	43 20.9	-10.0	32.7	45 01.2	-8.4	33.8	46 40.3	-6.8	35.0
64	39 44.0	-13.7	29.6	41 27.9	-12.3	30.4	43 10.9	-11.0	31.4	44 52.8	-9.5	32.4	46 33.5	-7.9	33.5
65	39 30.3	-14.5	28.3	41 15.6	-13.3	29.1	42 59.9	-11.9	30.0	44 43.3	-10.5	31.0	46 25.6	-9.0	32.1
66	39 15.8	-15.3	27.1	41 02.3	-14.1	27.8	42 48.0	-12.8	28.7	44 32.8	-11.4	29.6	46 16.6	-10.0	30.6
67	39 00.5	-16.0	25.8	40 48.2	-14.9	26.6	42 35.2	-13.7	27.4	44 21.4	-12.5	28.2	46 06.6	-11.1	29.2
68	38 44.5	-16.9	24.6	40 33.3	-15.8	25.3	42 21.5	-14.7	26.0	44 08.9	-13.4	26.9	45 55.5	-12.1	27.8
69	38 27.6	-17.6	23.3	40 17.5	-16.6	24.0	42 06.8	-15.5	24.7	43 55.5	-14.4	25.5	45 43.4	-13.2	26.4
70	38 10.0	-18.4	22.1	40 00.9	-17.4	22.8	41 51.3	-16.4	23.4	43 41.1	-15.4	24.2	45 30.2	-14.2	25.0
71	37 51.6	-19.1	20.9	39 43.5	-18.2	21.5	41 34.9	-17.3	22.1	43 25.7	-16.2	22.8	45 16.0	-15.1	23.6
72	37 32.5	-19.8	19.7	39 25.3	-19.0	20.3	41 17.6	-18.1	20.9	43 09.5	-17.2	21.5	45 00.9	-16.2	22.2
73	37 12.7	-20.6	18.5	39 06.3	-19.8	19.0	40 59.5	-18.9	19.6	42 52.3	-18.0	20.2	44 44.7	-17.1	20.9
74	36 52.1	-21.2	17.2	38 46.5	-20.5	17.8	40 40.6	-19.7	18.3	42 34.3	-18.9	18.9	44 27.6	-18.0	19.5
75	36 30.9	-21.9	16.2	38 26.0	-21.2	16.6	40 20.9	-20.6	17.1	42 15.4	-19.8	17.6	44 09.6	-19.0	18.2
76	36 09.0	-22.6	15.0	38 04.8	-22.0	15.4	40 00.3	-21.3	15.9	41 55.6	-20.6	16.4	43 50.6	-19.8	16.9
77	35 46.4	-23.2	13.9	37 42.8	-22.6	14.3	39 39.0	-22.0	14.7	41 35.0	-21.4	15.1	43 30.8	-20.8	15.6
78	35 23.2	-23.8	12.8	37 20.2	-23.3	13.1	39 17.0	-22.8	13.5	41 13.6	-22.2	13.9	43 10.0	-21.6	14.3
79	34 59.4	-24.4	11.6	36 56.9	-24.0	11.9	38 54.2	-23.5	12.3	40 51.4	-23.0	12.6	42 48.4	-22.4	13.0
80	34 35.0	-25.1	10.5	36 32.9	-24.6	10.8	38 30.7	-24.2	11.1	40 28.4	-23.7	11.4	42 26.0	-23.3	11.8
81	34 09.9	-25.6	9.4	36 08.3	-25.3	9.7	38 06.5	-24.9	9.9	40 04.7	-24.5	10.2	42 02.7	-24.0	10.5
82	33 44.3	-26.2	8.3	35 43.0	-25.9	8.5	37 41.6	-25.5	8.8	39 40.2	-25.2	9.0	41 38.7	-24.9	9.3
83	33 18.1	-26.8	7.3	35 17.1	-26.5	7.4	37 16.1	-26.2	7.6	39 15.0	-25.9	7.8	41 13.8	-25.6	8.1
84	32 51.3	-27.3	6.2	34 50.6	-27.1	6.3	36 49.9	-26.9	6.5	38 49.1	-26.6	6.7	40 48.2	-26.3	6.9
85	32 24.0	-27.8	5.1	34 23.5	-27.6	5.2	36 23.0	-27.4	5.4	38 22.5	-27.3	5.5	40 21.9	-27.0	5.7
86	31 56.2	-28.3	4.1	33 55.9	-28.2	4.2	35 55.6	-28.1	4.3	37 55.2	-27.8	4.4	39 54.9	-27.7	4.5
87	31 27.9	-28.8	3.0	33 27.7	-28.7	3.1	35 27.5	-28.6	3.2	37 27.4	-28.6	3.3	39 27.2	-28.5	3.4
88	30 59.1	-29.3	2.0	32 59.0	-29.2	2.1	34 58.9	-29.2	2.1	36 58.8	-29.1	2.2	38 58.7	-29.0	2.2
89	30 29.8	-29.8	1.0	32 29.8	-29.8	1.0	34 29.7	-29.7	1.1	36 29.7	-29.7	1.1	38 29.7	-29.7	1.1
90	30 00.0	-30.2	0.0	32 00.0	-30.2	0.0	34 00.0	-30.3	0.0	36 00.0	-30.3	0.0	38 00.0	-30.3	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 60°, 300°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
7 10.8	-39.3	130.9	5 52.1	-40.5	131.1	4 33.2	-41.6	131.2	3 14.1	-42.8	131.3	1 54.8	-43.8	131.4	30
6 31.5	-39.4	131.7	5 11.6	-40.5	131.8	3 51.6	-41.7	131.9	2 31.3	-42.8	132.0	1 11.0	-43.9	132.1	31
5 52.1	-39.4	132.4	4 31.1	-40.6	132.5	3 09.9	-41.7	132.6	1 48.5	-42.8	132.7	0 27.1	-43.9	132.7	32
5 12.7	-39.5	133.2	3 50.5	-40.6	133.3	2 28.2	-41.8	133.4	1 05.7	-42.8	133.4	0 16.8	+43.8	46.6	33
4 33.2	-39.5	133.9	3 09.9	-40.7	134.0	1 46.4	-41.7	134.1	0 22.9	-42.8	134.1	1 00.6	+43.9	45.9	34
3 53.7	-39.6	134.7	2 29.2	-40.7	134.8	1 04.7	-41.8	134.8	0 19.9	+42.8	45.2	1 44.5	+43.8	45.2	35
3 14.1	-39.7	135.4	1 48.5	-40.7	135.5	0 22.9	-41.7	135.5	1 02.7	+42.8	44.5	2 28.3	+43.8	44.5	36
2 34.4	-39.6	136.2	1 07.8	-40.7	136.2	0 18.8	+41.8	43.8	1 45.5	+42.8	43.8	3 12.1	+43.8	43.8	37
1 54.8	-39.7	136.9	0 27.1	-40.7	137.0	1 00.6	+41.8	43.0	2 28.3	+42.7	43.1	3 55.9	+43.7	43.2	38
0 15.1	-39.6	137.7	0 13.6	+40.7	42.3	1 42.4	+41.7	42.3	3 11.0	+42.8	42.4	4 39.6	+43.7	42.5	39
0 35.5	-39.7	138.4	0 54.3	+40.7	41.6	2 24.1	+41.7	41.6	3 53.8	+42.7	41.7	5 23.3	+43.7	41.8	40
0 04.2	+39.7	40.8	1 35.0	+40.7	40.8	3 05.8	+41.7	40.9	4 36.5	+42.6	41.0	6 07.0	+43.6	41.1	41
0 43.9	+39.7	40.1	2 15.7	+40.7	40.1	3 47.5	+41.6	40.2	5 19.1	+42.6	40.3	6 50.6	+43.5	40.4	42
1 23.6	+39.7	39.3	2 56.4	+40.7	39.4	4 29.1	+41.6	39.4	6 01.7	+42.6	39.6	7 34.1	+43.5	39.7	43
2 03.3	+39.6	38.6	3 37.1	+40.6	38.6	5 10.7	+41.6	38.7	6 44.3	+42.5	38.9	8 17.6	+43.4	39.0	44
2 42.9	+39.6	37.8	4 17.7	+40.5	37.9	5 52.3	+41.5	38.0	7 26.8	+42.4	38.1	9 01.0	+43.4	38.3	45
3 22.5	+39.6	37.1	4 58.2	+40.5	37.1	6 33.8	+41.4	37.3	8 09.2	+42.3	37.4	9 44.4	+43.2	37.6	46
4 02.1	+39.5	36.3	5 38.7	+40.5	36.4	7 15.2	+41.4	36.5	8 51.5	+41.8	36.7	10 27.6	+43.2	36.9	47
4 41.6	+39.5	35.6	6 19.2	+40.4	35.7	7 56.6	+41.3	35.8	9 33.8	+42.2	36.0	11 10.8	+43.0	36.2	48
5 21.1	+39.4	34.8	6 59.6	+40.3	34.9	8 37.9	+41.2	35.1	10 16.0	+42.1	35.3	11 53.8	+43.0	35.5	49
6 00.5	+39.4	34.0	7 39.9	+40.3	34.2	9 19.1	+41.1	34.3	10 58.1	+41.9	34.5	12 36.8	+42.8	34.8	50
6 39.9	+39.3	33.3	8 20.2	+40.1	33.4	10 00.2	+41.0	33.6	11 40.0	+41.9	33.8	13 19.6	+42.7	34.1	51
7 19.2	+39.2	32.5	9 00.3	+40.1	32.7	10 41.2	+40.9	32.9	12 21.9	+41.8	33.1	14 02.3	+42.6	33.3	52
7 58.4	+39.2	31.8	9 40.4	+40.0	31.9	11 22.1	+40.8	32.1	13 03.7	+41.6	32.3	14 44.9	+42.4	32.6	53
8 37.6	+39.0	31.0	10 20.4	+39.8	31.2	12 02.9	+40.7	31.4	13 45.3	+41.5	31.6	15 27.3	+42.3	31.9	54
9 16.6	+39.0	30.2	11 00.2	+39.8	30.4	12 43.6	+40.6	30.6	14 26.8	+41.3	30.9	16 09.6	+42.2	31.1	55
9 55.6	+38.8	29.4	11 40.0	+39.6	29.6	13 24.2	+40.4	29.9	15 08.1	+41.2	30.1	16 51.8	+42.0	30.4	56
10 34.4	+38.7	28.7	12 19.6	+39.5	28.9	14 04.6	+40.3	29.1	15 49.3	+41.1	29.4	17 33.8	+41.8	29.7	57
11 13.1	+38.7	27.9	12 59.1	+39.4	28.1	14 44.9	+40.1	28.3	16 30.4	+40.8	28.6	18 15.6	+41.6	28.9	58
11 51.8	+38.4	27.1	13 38.5	+39.2	27.3	15 25.0	+39.9	27.6	17 11.2	+40.7	27.8	18 57.2	+41.4	28.1	59
12 30.2	+38.4	26.3	14 17.7	+39.1	26.5	16 04.9	+39.8	26.8	17 51.9	+40.5	27.1	19 38.6	+41.3	27.4	60
13 08.6	+38.2	25.5	14 56.8	+38.9	25.8	16 44.7	+39.6	26.0	18 32.4	+40.4	26.3	20 19.9	+41.0	26.6	61
13 46.8	+38.0	24.7	15 35.7	+38.7	25.0	17 24.3	+39.5	25.2	19 12.8	+40.1	25.5	21 00.9	+40.9	25.8	62
14 24.8	+37.9	24.0	16 14.4	+38.5	24.2	18 03.8	+39.2	24.4	19 52.9	+39.9	24.7	21 41.8	+40.6	25.0	63
15 02.7	+37.7	23.1	16 52.9	+38.4	23.4	18 43.0	+39.0	23.6	20 32.8	+39.7	23.9	22 22.4	+40.3	24.2	64
15 40.4	+37.5	22.3	17 31.3	+38.2	22.6	19 22.0	+38.8	22.8	21 12.5	+39.5	23.1	23 02.7	+40.2	23.4	65
16 17.9	+37.4	21.5	18 09.5	+37.9	21.8	20 00.8	+38.6	22.0	21 52.0	+39.2	22.3	23 42.9	+39.8	22.6	66
16 55.3	+37.1	20.7	18 47.4	+37.8	21.0	20 39.4	+38.4	21.2	22 31.2	+39.0	21.5	24 22.7	+39.6	21.8	67
17 32.4	+37.0	19.9	19 25.2	+37.5	20.1	21 17.8	+38.1	20.4	23 10.2	+38.7	20.7	25 02.3	+39.4	21.0	68
18 09.4	+36.7	19.1	20 02.7	+37.3	19.3	21 55.9	+37.9	19.5	23 48.9	+38.4	19.8	25 41.7	+39.0	20.1	69
18 46.1	+36.5	18.2	20 40.0	+37.1	18.5	22 33.8	+37.6	18.7	24 27.3	+38.2	19.0	26 20.7	+38.7	19.3	70
19 22.6	+36.3	17.4	21 17.1	+36.8	17.6	23 11.4	+37.3	17.9	25 05.5	+37.9	18.1	26 59.4	+38.5	18.4	71
19 58.9	+36.0	16.5	21 53.9	+36.5	16.8	23 48.7	+37.0	17.0	25 43.4	+37.5	17.3	27 37.9	+38.1	17.6	72
20 34.9	+35.8	15.7	22 30.4	+36.3	15.9	24 25.7	+36.8	16.1	26 20.9	+37.3	16.4	28 16.0	+37.7	16.7	73
21 10.7	+35.5	14.8	23 06.7	+35.9	15.0	25 02.5	+36.4	15.3	26 58.2	+36.9	15.5	28 53.7	+37.4	15.8	74
21 46.2	+35.3	14.0	23 42.6	+35.7	14.2	25 38.9	+36.1	14.4	27 35.1	+36.6	14.6	29 31.1	+37.1	14.9	75
22 21.5	+34.9	13.1	24 18.3	+35.4	13.3	26 15.0	+35.8	13.5	28 11.7	+36.2	13.8	30 08.2	+36.6	14.0	76
22 56.4	+34.7	12.2	24 53.7	+35.0	12.4	26 50.8	+35.5	12.6	28 47.9	+35.8	12.8	30 44.8	+36.3	13.1	77
23 31.1	+34.4	11.3	25 28.7	+34.8	11.5	27 26.3	+35.1	11.7	29 23.7	+35.5	11.9	31 21.1	+35.9	12.2	78
24 05.5	+34.0	10.4	26 03.5	+34.3	10.6	28 01.4	+34.7	10.8	29 59.2	+35.1	11.0	31 57.0	+35.4	11.2	79
24 39.5	+33.7	9.5	26 37.8	+34.1	9.7	28 36.1	+34.3	9.9	30 34.3	+34.7	10.1	32 32.4	+35.0	10.3	80
25 13.2	+33.4	8.6	27 11.9	+33.6	8.8	29 10.4	+34.0	8.9	31 09.0	+34.2	9.1	33 07.4	+34.6	9.3	81
25 46.6	+33.1	7.7	27 45.5	+33.3	7.8	29 44.4	+33.5	8.0	31 43.2	+33.8	8.1	33 42.0	+34.0	8.3	82
26 19.7	+32.6	6.8	28 18.8	+32.9	6.9	30 17.9	+33.1	7.0	32 17.0	+33.4	7.2	34 16.0	+33.6	7.3	83
26 52.3	+32.3	5.8	28 51.7	+32.5	5.9	30 51.0	+32.7	6.1	32 50.4	+32.8	6.2	34 49.6	+33.1	6.3	84
27 24.6	+31.9	4.9	29 24.2	+32.0	5.0	31 23.7	+32.2	5.1	33 23.2	+32.4	5.2	35 22.7	+32.6	5.3	85
27 56.5	+31.5	3.9	29 56.2	+31.7	4.0	31 55.9	+31.8	4.1	33 55.6	+31.9	4.2	35 55.3	+32.0	4.3	86
28 28.0	+31.1	3.0	30 27.9	+31.1	3.0	32 27.7	+31.3	3.1	34 27.5	+31.4	3.2	36 27.3	+31.5	3.2	87
28 59.1	+30.7	2.0	30 59.0	+30.8	2.0	32 59.0	+30.7	2.1	34 58.9	+30.8	2.1	36 58.8	+30.9	2.2	88
29 29.8	+30.2	1.0	31 29.8	+30.2	1.0	33 29.7	+30.3	1.0	35 29.7	+30.3	1.1	37 29.7	+30.3	1.1	89
30 00.0	+29.8	0.0	32 00.0	+29.8	0.0	34 00.0	+29.7	0.0	36 00.0	+29.7	0.0	38 00.0	+29.7	0.0	90

LATITUDE SAME NAME

L.H.A. 120°, 240°

60°, 300° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	40 46.5	+28.6	82.1	41 01.4	+30.9	83.8	41 12.6	+33.3	85.5	41 20.1	+35.6	87.3	41 24.0	+37.8	89.0
31	41 15.1	+27.9	80.9	41 32.3	+30.3	82.6	41 45.9	+32.6	84.4	41 55.7	+35.0	86.2	42 01.8	+37.3	88.0
32	41 43.0	+27.1	79.7	42 02.6	+29.6	81.5	42 18.5	+32.0	83.3	42 30.7	+34.4	85.1	42 39.1	+36.6	86.9
33	42 10.1	+26.4	78.5	42 32.2	+28.8	80.3	42 50.5	+31.3	82.1	43 05.1	+33.7	84.0	43 15.7	+36.0	85.8
34	42 36.5	+25.6	77.3	43 01.0	+28.1	79.1	43 21.8	+30.6	81.0	43 38.8	+32.9	82.8	43 51.7	+35.4	84.7
35	43 02.1	+24.8	76.1	43 29.1	+27.3	77.9	43 52.4	+29.8	79.8	44 11.7	+32.3	81.7	44 27.1	+34.7	83.6
36	43 26.9	+23.9	74.8	43 56.4	+26.5	76.7	44 22.2	+29.0	78.6	44 44.0	+31.6	80.5	45 01.8	+34.0	82.5
37	43 50.8	+23.1	73.5	44 22.9	+25.7	75.4	44 51.2	+28.3	77.3	45 15.6	+30.7	79.3	45 35.8	+33.3	81.3
38	44 13.9	+22.2	72.3	44 48.6	+24.8	74.1	45 19.5	+27.4	76.1	45 46.3	+30.0	78.1	46 09.1	+32.4	80.1
39	44 36.1	+21.4	71.0	45 13.4	+24.0	72.9	45 46.9	+26.5	74.8	46 16.3	+29.1	76.8	46 41.5	+31.7	78.9
40	44 57.5	+20.4	69.6	45 37.4	+23.0	71.5	46 13.4	+25.6	73.5	46 45.4	+28.3	75.5	47 13.2	+30.9	77.6
41	45 17.9	+19.5	68.3	46 00.4	+22.1	70.2	46 39.0	+24.8	72.2	47 13.7	+27.4	74.3	47 44.1	+30.0	76.4
42	45 37.4	+18.5	67.0	46 22.5	+21.1	68.9	47 03.8	+23.8	70.9	47 41.1	+26.4	72.9	48 14.1	+29.2	75.1
43	45 55.9	+17.5	65.6	46 43.6	+20.2	67.5	47 27.6	+22.8	69.5	48 07.5	+25.5	71.6	48 43.3	+28.2	73.8
44	46 13.4	+16.5	64.2	47 03.8	+19.1	66.1	47 50.4	+21.8	68.1	48 33.0	+24.6	70.2	49 11.5	+27.2	72.4
45	46 29.9	+15.5	62.8	47 22.9	+18.2	64.7	48 12.2	+20.8	66.8	48 57.6	+23.5	68.9	49 38.7	+26.3	71.0
46	46 45.4	+14.5	61.4	47 41.1	+17.0	63.3	48 33.0	+19.8	65.3	49 21.1	+22.5	67.4	50 05.0	+25.3	69.6
47	46 59.9	+13.3	60.0	47 58.1	+16.0	61.9	48 52.8	+18.7	63.9	49 43.6	+21.4	66.0	50 30.3	+24.2	68.2
48	47 13.2	+12.4	58.6	48 14.1	+15.0	60.5	49 11.5	+17.6	62.5	50 05.0	+20.3	64.6	50 54.5	+23.1	66.8
49	47 25.6	+11.2	57.1	48 29.1	+13.7	59.0	49 29.1	+16.4	61.0	50 25.3	+19.2	63.1	51 17.6	+22.0	65.3
50	47 36.8	+10.1	55.7	48 42.8	+12.7	57.5	49 45.5	+15.3	59.5	50 44.5	+18.1	61.6	51 39.6	+20.8	63.8
51	47 46.9	+8.9	54.2	48 55.5	+11.5	56.0	50 00.8	+14.2	58.0	51 02.6	+16.8	60.1	52 00.4	+19.6	62.3
52	47 55.8	+7.9	52.7	49 07.0	+10.3	54.5	50 15.0	+12.9	56.5	51 19.4	+15.6	58.6	52 20.0	+18.5	60.8
53	48 03.7	+6.7	51.2	49 17.3	+9.2	53.0	50 27.9	+11.7	55.0	51 35.0	+14.4	57.0	52 38.5	+17.1	59.2
54	48 10.4	+5.5	49.8	49 26.5	+7.9	51.5	50 39.6	+10.5	53.4	51 49.4	+13.2	55.4	52 55.6	+15.9	57.6
55	48 15.9	+4.4	48.3	49 34.4	+6.8	50.0	50 50.1	+9.2	51.9	52 02.6	+11.8	53.9	53 11.5	+14.6	56.0
56	48 20.3	+3.2	46.8	49 41.2	+5.5	48.5	50 59.3	+8.0	50.3	52 14.4	+10.5	52.3	53 26.1	+13.2	54.4
57	48 23.5	+2.0	45.3	49 46.7	+4.3	46.9	51 07.3	+6.7	48.7	52 24.9	+9.3	50.7	53 39.3	+11.9	52.7
58	48 25.5	+0.8	43.8	49 51.0	+3.1	45.4	51 14.0	+5.4	47.1	52 34.2	+7.9	49.0	53 51.2	+10.5	51.1
59	48 26.3	-0.3	42.2	49 54.1	+1.8	43.8	51 19.4	+4.1	45.5	52 42.1	+6.5	47.4	54 01.7	+9.1	49.4
60	48 26.0	-1.5	40.7	49 55.9	+0.5	42.3	51 23.5	+2.8	43.9	52 48.6	+5.1	45.8	54 10.8	+7.7	47.7
61	48 24.5	-2.7	39.2	49 56.4	-0.6	40.7	51 26.3	+1.5	42.3	52 53.7	+3.8	44.1	54 18.5	+6.2	46.0
62	48 21.8	-3.9	37.7	49 55.8	-2.0	39.2	51 27.8	+0.1	40.7	52 57.5	+2.4	42.4	54 24.7	+4.8	44.3
63	48 17.9	-5.1	36.2	49 53.8	-3.1	37.6	51 27.9	-1.1	39.1	52 59.9	+1.0	40.8	54 29.5	+3.4	42.6
64	48 12.8	-6.2	34.7	49 50.7	-4.4	36.1	51 26.8	-2.5	37.5	53 00.9	-0.4	39.1	54 32.9	+1.8	40.9
65	48 06.6	-7.3	33.2	49 46.3	-5.7	34.5	51 24.3	-3.8	35.9	53 00.5	-1.7	37.5	54 34.7	+0.4	39.2
66	47 59.3	-8.5	31.8	49 40.6	-6.8	33.0	51 20.5	-5.0	34.3	52 58.8	-3.2	35.8	54 35.1	-1.1	37.4
67	47 50.8	-9.6	30.3	49 33.8	-8.1	31.4	51 15.5	-6.4	32.7	52 55.6	-4.5	34.1	54 34.0	-2.5	35.7
68	47 41.2	-10.8	28.8	49 25.7	-9.2	29.9	51 09.1	-7.6	31.1	52 51.1	-5.9	32.5	54 31.5	-4.1	34.0
69	47 30.4	-11.8	27.4	49 16.5	-10.5	28.4	51 01.5	-9.0	29.6	52 45.2	-7.3	30.8	54 27.4	-5.4	32.3
70	47 18.6	-13.0	25.9	49 06.0	-11.6	26.9	50 52.5	-10.1	28.0	52 37.9	-8.6	29.2	54 22.0	-7.0	30.6
71	47 05.6	-14.0	24.5	48 54.4	-12.7	25.4	50 42.4	-11.4	26.4	52 29.3	-10.0	27.6	54 15.0	-8.3	28.9
72	46 51.6	-15.0	23.0	48 41.7	-13.9	23.9	50 31.0	-12.7	24.9	52 19.3	-11.2	26.0	54 06.7	-9.8	27.2
73	46 36.6	-16.1	21.6	48 27.8	-15.0	22.4	50 18.3	-13.8	23.4	52 08.1	-12.6	24.4	53 56.9	-11.1	25.5
74	46 20.5	-17.1	20.2	48 12.8	-16.1	21.0	50 04.5	-15.0	21.8	51 55.5	-13.8	22.8	53 45.8	-12.6	23.8
75	46 03.4	-18.1	18.8	47 56.7	-17.2	19.5	49 49.5	-16.2	20.3	51 41.7	-15.1	21.2	53 33.2	-13.9	22.2
76	45 45.3	-19.1	17.5	47 39.5	-18.2	18.1	49 33.3	-17.3	18.8	51 26.6	-16.3	19.6	53 19.3	-15.2	20.5
77	45 26.2	-20.0	16.1	47 21.3	-19.2	16.7	49 16.0	-18.4	17.4	51 10.3	-17.5	18.1	53 04.1	-16.5	18.9
78	45 06.2	-21.0	14.8	47 02.1	-20.3	15.3	48 57.6	-19.5	15.9	50 52.8	-18.6	16.6	52 47.6	-17.7	17.3
79	44 45.2	-21.8	13.5	46 41.8	-21.2	13.9	48 38.1	-20.5	14.5	50 34.2	-19.8	15.1	52 29.9	-19.0	15.7
80	44 23.4	-22.8	12.1	46 20.6	-22.2	12.6	48 17.6	-21.6	13.1	50 14.4	-21.0	13.6	52 10.9	-20.3	14.2
81	44 00.6	-23.6	10.9	45 58.4	-23.1	11.2	47 56.0	-22.6	11.7	49 53.4	-22.0	12.1	51 50.6	-21.3	12.7
82	43 37.0	-24.4	9.6	45 35.3	-24.0	9.9	47 33.4	-23.5	10.3	49 31.4	-23.0	10.7	51 29.3	-22.6	11.2
83	43 12.6	-25.2	8.3	45 11.3	-24.9	8.6	47 09.9	-24.5	8.9	49 08.4	-24.1	9.3	51 06.7	-23.6	9.7
84	42 47.4	-26.1	7.1	44 46.4	-25.7	7.3	46 45.4	-25.4	7.6	48 44.3	-25.1	7.9	50 43.1	-24.7	8.2
85	42 21.3	-26.8	5.9	44 20.7	-26.6	6.1	46 20.0	-26.3	6.3	48 19.2	-26.0	6.5	50 18.4	-25.7	6.8
86	41 54.5	-27.6	4.7	43 54.1	-27.4	4.8	45 53.7	-27.2	5.0	47 53.2	-27.0	5.2	49 52.7	-26.8	5.4
87	41 26.9	-28.2	3.5	43 26.7	-28.1	3.6	45 26.5	-28.1	3.7	47 26.2	-27.9	3.8	49 25.9	-27.7	4.0
88	40 58.7	-29.0	2.3	42 58.6	-29.0	2.4	44 58.4	-28.8	2.4	46 58.3	-28.7	2.5	48 58.2	-28.6	2.6
89	40 29.7	-29.7	1.1	42 29.6	-29.6	1.2	44 29.6	-29.6	1.2	46 29.6	-29.6	1.3	48 29.6	-29.6	1.3
90	40 00.0	-30.3	0.0	42 00.0	-30.3	0.0	44 00.0	-30.4	0.0	46 00.0	-30.4	0.0	48 00.0	-30.4	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 60°, 300°

40°				42°				44°				46°				48°				Dec. °
Hc	d	Z		Hc	d	Z		Hc	d	Z		Hc	d	Z		Hc	d	Z		
0	35.5	-44.9	131.4	0	43.9	+45.9	48.6	2	03.3	+46.9	48.6	3	22.5	+47.9	48.7	4	41.6	+48.8	48.8	30
0	09.4	+44.9	47.9	1	29.8	+45.9	48.0	2	50.2	+46.9	48.0	4	10.4	+47.8	48.1	5	30.4	+48.8	48.2	31
0	54.3	+44.9	47.3	2	15.7	+45.9	47.3	3	37.1	+46.8	47.4	4	58.2	+47.8	47.5	6	19.2	+48.7	47.6	32
1	39.2	+44.9	46.6	3	01.6	+45.9	46.7	4	23.9	+46.8	46.8	5	46.0	+47.8	46.9	7	07.9	+48.7	47.1	33
2	24.1	+44.8	45.9	3	47.5	+45.8	46.0	5	10.7	+46.8	46.1	6	33.8	+47.7	46.3	7	56.6	+48.6	46.5	34
3	08.9	+44.9	45.3	4	33.3	+45.8	45.4	5	57.5	+46.8	45.5	7	21.5	+47.7	45.7	8	45.2	+48.6	45.9	35
3	53.8	+44.8	44.6	5	19.1	+45.8	44.7	6	44.3	+46.7	44.9	8	09.2	+47.6	45.1	9	33.8	+48.5	45.3	36
4	38.6	+44.7	43.9	6	04.9	+45.7	44.1	7	31.0	+46.6	44.2	8	56.8	+47.6	44.4	10	22.3	+48.5	44.7	37
5	23.3	+44.7	43.3	6	50.6	+45.7	43.4	8	17.6	+46.6	43.6	9	44.4	+47.5	43.8	11	10.8	+48.4	44.1	38
6	08.0	+44.7	42.6	7	36.3	+45.6	42.8	9	04.2	+46.5	43.0	10	31.9	+47.4	43.2	11	59.2	+48.2	43.5	39
6	52.7	+44.6	41.9	8	21.9	+45.5	42.1	9	50.7	+46.5	42.3	11	19.3	+47.3	42.6	12	47.4	+48.3	42.9	40
7	37.3	+44.6	41.3	9	07.4	+45.5	41.5	10	37.2	+46.4	41.7	12	06.6	+47.3	41.9	13	35.7	+48.1	42.3	41
8	21.9	+44.4	40.6	9	52.9	+45.4	40.8	11	23.6	+46.2	41.0	12	53.9	+47.1	41.3	14	23.8	+48.0	41.6	42
9	06.3	+44.4	39.9	10	38.3	+45.3	40.1	12	09.8	+46.2	40.4	13	41.0	+47.1	40.7	15	11.8	+47.9	41.0	43
9	50.7	+44.4	39.2	11	23.6	+45.2	39.5	12	56.0	+46.1	39.7	14	28.1	+47.0	40.0	15	59.7	+47.9	40.4	44
10	35.1	+44.2	38.5	12	08.8	+45.1	38.8	13	42.1	+46.0	39.1	15	15.1	+46.8	39.4	16	47.6	+47.7	39.8	45
11	19.3	+44.1	37.8	12	53.9	+45.0	38.1	14	28.1	+45.9	38.4	16	01.9	+46.8	38.8	17	35.3	+47.5	39.1	46
12	03.4	+44.0	37.2	13	38.9	+44.9	37.4	15	14.0	+45.7	37.7	16	48.7	+46.6	38.1	18	22.8	+48.5	38.5	47
12	47.4	+44.0	36.5	14	23.8	+44.8	36.7	15	59.7	+45.7	37.1	17	35.3	+46.4	37.4	19	10.3	+47.3	37.8	48
13	31.4	+43.8	35.8	15	08.6	+44.6	36.1	16	45.4	+45.5	36.4	18	21.7	+46.4	36.8	19	57.6	+47.2	37.2	49
14	15.2	+43.7	35.1	15	53.2	+44.5	35.4	17	30.9	+45.3	35.7	19	08.1	+46.2	36.1	20	44.8	+47.0	36.5	50
14	58.9	+43.5	34.3	16	37.7	+44.4	34.7	18	16.2	+45.2	35.0	19	54.3	+46.0	35.4	21	31.8	+46.8	35.9	51
15	42.4	+43.4	33.6	17	22.1	+44.3	34.0	19	01.4	+45.1	34.3	20	40.3	+45.9	34.7	22	18.6	+46.7	35.2	52
16	25.8	+43.3	32.9	18	06.4	+44.0	33.3	19	46.5	+44.9	33.6	21	26.2	+45.7	34.1	23	05.3	+46.5	34.5	53
17	09.1	+43.1	32.2	18	50.4	+43.9	32.5	20	31.4	+44.7	32.9	22	11.9	+45.5	33.4	23	51.8	+46.4	33.8	54
17	52.2	+42.9	31.5	19	34.3	+43.8	31.8	21	16.1	+44.5	32.2	22	57.4	+45.3	32.6	24	38.2	+46.1	33.1	55
18	35.1	+42.8	30.7	20	18.1	+43.5	31.1	22	00.6	+44.4	31.5	23	42.7	+45.1	31.9	25	24.3	+45.9	32.4	56
19	17.9	+42.6	30.0	21	01.6	+43.4	30.4	22	45.0	+44.1	30.8	24	27.8	+45.0	31.2	26	10.2	+45.7	31.7	57
20	00.5	+42.3	29.2	21	45.0	+43.1	29.6	23	29.1	+43.9	30.0	25	12.8	+44.7	30.5	26	55.9	+45.5	31.0	58
20	42.8	+42.2	28.5	22	28.1	+43.0	28.9	24	13.0	+43.7	29.3	25	57.5	+44.4	29.7	27	41.4	+45.2	30.2	59
21	25.0	+42.0	27.7	23	11.1	+42.7	28.1	24	56.7	+43.5	28.5	26	41.9	+44.3	29.0	28	26.6	+45.0	29.5	60
22	07.0	+41.8	26.9	23	53.8	+42.5	27.3	25	40.2	+43.3	27.8	27	26.2	+44.0	28.2	29	11.6	+44.8	28.7	61
22	48.8	+41.5	26.2	24	36.3	+42.3	26.6	26	23.5	+42.9	27.0	28	10.2	+43.7	27.5	29	56.4	+44.5	28.0	62
23	30.3	+41.3	25.4	25	18.6	+42.0	25.8	27	06.4	+42.8	26.2	28	53.9	+43.4	26.7	30	40.9	+44.2	27.2	63
24	11.6	+41.1	24.6	26	00.6	+41.7	25.0	27	49.2	+42.4	25.4	29	37.3	+43.2	25.9	31	25.1	+43.8	26.4	64
24	52.7	+40.8	23.8	26	42.3	+41.5	24.2	28	31.6	+42.2	24.6	30	20.5	+42.9	25.1	32	08.9	+43.6	25.6	65
25	33.5	+40.5	23.0	27	23.8	+41.2	23.4	29	13.8	+41.8	23.8	31	03.4	+42.5	24.3	32	52.5	+43.3	24.8	66
26	14.0	+40.3	22.2	28	05.0	+40.9	22.6	29	55.6	+41.6	23.0	31	45.9	+42.3	23.5	33	35.8	+42.9	24.0	67
26	54.3	+39.9	21.3	28	45.9	+40.6	21.7	30	37.2	+41.2	22.1	32	28.2	+41.9	22.6	34	18.7	+42.6	23.1	68
27	34.2	+39.6	20.5	29	26.5	+40.2	20.9	31	18.4	+40.9	21.3	33	10.1	+41.5	21.8	35	01.3	+42.2	22.3	69
28	13.8	+39.4	19.6	30	06.7	+39.9	20.0	31	59.3	+40.6	20.4	33	51.6	+41.2	20.9	35	43.5	+41.8	21.4	70
28	53.2	+38.9	18.8	30	46.6	+39.6	19.2	32	39.9	+40.1	19.6	34	32.8	+40.8	20.0	36	25.3	+41.5	20.5	71
29	32.1	+38.7	17.9	31	26.2	+39.2	18.3	33	20.0	+39.8	18.7	35	13.6	+40.3	19.1	37	06.8	+41.0	19.6	72
30	10.8	+38.3	17.0	32	05.4	+38.8	17.4	33	59.8	+39.4	17.8	35	53.9	+40.0	18.2	37	47.8	+40.5	18.7	73
30	49.1	+37.9	16.1	32	44.2	+38.5	16.5	34	39.2	+39.0	16.9	36	33.9	+39.5	17.3	38	28.3	+40.2	17.8	74
31	27.0	+37.5	15.2	33	22.7	+38.0	15.6	35	18.2	+38.5	15.9	37	13.4	+39.1	16.3	39	08.5	+39.6	16.8	75
32	04.5	+37.1	14.3	34	00.7	+37.6	14.6	35	56.7	+38.1	15.0	37	52.5	+38.6	15.4	39	48.1	+39.1	15.8	76
32	41.6	+36.7	13.4	34	38.3	+37.2	13.7	36	34.8	+37.6	14.0	38	31.1	+38.1	14.4	40	27.2	+38.7	14.8	77
33	18.3	+36.3	12.4	35	15.5	+36.7	12.7	37	12.4	+37.2	13.1	39	09.2	+37.6	13.4	41	05.9	+38.0	13.8	78
33	54.6	+35.8	11.5	35	52.2	+36.2	11.8	37	49.6	+36.6	12.1	39	46.8	+37.1	12.4	41	43.9	+37.6	12.8	79
34	30.4	+35.4	10.5	36	28.4	+35.7	10.8	38	26.2	+36.1	11.1	40	23.9	+36.5	11.4	42	21.5	+36.9	11.7	80
35	05.8	+34.9	9.5	37	04.1	+35.2	9.8	39	02.3	+35.6	10.0	41	00.4	+35.9	10.3	42	58.4	+36.3	10.7	81
35	40.7	+34.3	8.5	37	39.3	+34.7	8.8	39	37.9	+35.0	9.0	41	36.3	+35.4	9.3	43	34.7	+35.7	9.6	82
36	15.0	+33.9	7.5	38	14.0	+34.1	7.7	40	12.9	+34.4	7.9	42	11.7	+34.7	8.2	44	10.4	+35.0	8.5	83
36	48.9	+33.3	6.5	38	48.1	+33.5	6.7	40	47.3	+33.7	6.9	42	46.4	+34.0	7.1	44	45.4	+34.4	7.3	84
37	22.2	+32.8	5.4	39	21.6	+33.0	5.6	41	21.0	+33.2	5.8	43	20.4	+33.4	6.0	45	19.8	+33.6	6.2	85
37	55.0	+32.1	4.4	39	54.6	+32.3	4.5	41	54.2	+32.5	4.7	43	53.8	+32.7	4.8	45	53.4	+32.8	5.0	86
38	27.1	+31.6	3.3	40	26.9	+31.7	3.4	42	26.7	+31.8	3.5	44	26.5	+31.9	3.6	46	26.2	+32.1	3.8	87
38	58.7	+31.0	2.2	40	58.6	+31.1	2.3	42	58.5	+31.1	2.4	44	58.4	+31.2	2.4	46	58.3	+31.3	2.5	88
39	29.7	+30.3	1.1	41	29.7	+30.3	1.2	43	29.6	+30.4	1.2	45	29.6	+30.4	1.2	47	29.6	+30.4	1.3	89
40	00.0	+29.7	0.0	42	00.0	+29.6	0.0	44	00.0	+29.6	0.0	46	00.0	+29.6	0.0	48	00.0	+29.6	0.0	90

LATITUDE SAME NAME

L.H.A. 120°, 240°

60°, 300° L.H.A.

LATITUDE SAME NAME

Dec. °	50°			52°			54°			56°			58°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	41 24.2	+40.0	90.8	41 20.7	+42.0	92.5	41 13.5	+44.0	94.3	41 02.7	+45.8	96.0	40 48.3	+47.5	97.8
31	42 04.2	+39.4	89.8	42 02.7	+41.5	91.6	41 57.5	+43.5	93.4	41 48.5	+45.4	95.2	41 35.8	+47.2	97.0
32	42 43.6	+38.9	88.8	42 44.2	+41.0	90.6	42 41.0	+43.1	92.5	42 33.9	+45.0	94.3	42 23.0	+46.9	96.1
33	43 22.5	+38.2	87.7	43 25.2	+40.5	89.6	43 24.1	+42.5	91.5	43 18.9	+44.6	93.4	43 09.9	+46.4	95.3
34	44 00.7	+37.7	86.7	44 05.7	+39.9	88.6	44 06.6	+42.1	90.5	44 03.5	+44.1	92.5	43 56.3	+46.0	94.4
35	44 38.4	+37.1	85.6	44 45.6	+39.4	87.5	44 48.7	+41.5	89.5	44 47.6	+43.6	91.5	44 42.3	+45.6	93.5
36	45 15.5	+36.4	84.5	45 25.0	+38.7	86.5	45 30.2	+41.0	88.5	45 31.2	+43.1	90.5	45 27.9	+45.2	92.6
37	45 51.9	+35.7	83.3	46 03.7	+38.0	85.4	46 11.2	+40.3	87.5	46 14.3	+42.6	89.5	46 13.1	+44.6	91.6
38	46 27.6	+34.9	82.2	46 41.7	+37.4	84.3	46 51.5	+39.8	86.4	46 56.9	+42.0	88.5	46 57.7	+44.2	90.7
39	47 02.5	+34.3	81.0	47 19.1	+36.7	83.1	47 31.3	+39.1	85.3	47 38.9	+41.4	87.5	47 41.9	+43.6	89.7
40	47 36.8	+33.4	79.8	47 55.8	+36.0	81.9	48 10.4	+38.4	84.2	48 20.3	+40.8	86.4	48 25.5	+43.0	88.6
41	48 10.2	+32.6	78.5	48 31.8	+35.2	80.7	48 48.8	+37.7	83.0	49 01.1	+40.1	85.3	49 08.5	+42.5	87.6
42	48 42.8	+31.8	77.3	49 07.0	+34.4	79.5	49 26.5	+36.9	81.8	49 41.2	+39.4	84.1	49 51.0	+41.8	86.5
43	49 14.6	+30.9	76.0	49 41.4	+33.6	78.3	50 03.4	+36.2	80.6	50 20.6	+38.7	83.0	50 32.8	+41.2	85.4
44	49 45.5	+30.0	74.7	50 15.0	+32.6	77.0	50 39.6	+35.3	79.3	50 59.3	+38.0	81.8	51 14.0	+40.4	84.2
45	50 15.5	+29.0	73.3	50 47.6	+31.8	75.6	51 14.9	+34.5	78.1	51 37.3	+37.1	80.5	51 54.4	+39.8	83.0
46	50 44.5	+28.1	71.9	51 19.4	+30.8	74.3	51 49.4	+33.6	76.7	52 14.4	+36.3	79.2	52 34.2	+38.9	81.8
47	51 12.6	+27.0	70.5	51 50.2	+29.8	72.9	52 23.0	+32.6	75.4	52 50.7	+35.4	77.9	53 13.1	+38.1	80.5
48	51 39.6	+25.9	69.1	52 20.0	+28.8	71.5	52 55.6	+31.7	74.0	53 26.1	+34.5	76.6	53 51.2	+37.3	79.2
49	52 05.5	+24.8	67.6	52 48.8	+27.7	70.1	53 27.3	+30.6	72.6	54 00.6	+33.5	75.2	54 28.5	+36.3	77.9
50	52 30.3	+23.7	66.1	53 16.5	+26.6	68.6	53 57.9	+29.5	71.1	54 34.1	+32.4	73.8	55 04.8	+35.4	76.5
51	52 54.0	+22.5	64.6	53 43.1	+25.5	67.1	54 27.4	+28.4	69.6	55 06.5	+31.4	72.3	55 40.2	+34.3	75.1
52	53 16.5	+21.3	63.1	54 08.6	+24.2	65.5	54 55.8	+27.2	68.1	55 37.9	+30.3	70.8	56 14.5	+33.3	73.6
53	53 37.8	+20.1	61.5	54 32.8	+23.0	64.0	55 23.0	+26.1	66.6	56 08.2	+29.1	69.3	56 47.8	+32.2	72.1
54	53 57.9	+18.7	59.9	54 55.8	+21.7	62.4	55 49.1	+24.7	65.0	56 37.3	+27.8	67.7	57 20.0	+31.0	70.6
55	54 16.6	+17.5	58.3	55 17.5	+20.4	60.7	56 13.8	+23.5	63.3	57 05.1	+26.6	66.1	57 51.0	+29.7	69.0
56	54 34.1	+16.0	56.7	55 37.9	+19.0	59.1	56 37.3	+22.0	61.7	57 31.7	+25.2	64.4	58 20.7	+28.5	67.3
57	54 50.1	+14.7	55.0	55 56.9	+17.6	57.4	56 59.3	+20.7	60.0	57 56.9	+23.8	62.7	58 49.2	+27.1	65.6
58	55 04.8	+13.3	53.3	56 14.5	+16.2	55.7	57 20.0	+19.2	58.2	58 20.7	+22.4	61.0	59 16.3	+25.6	63.9
59	55 18.1	+11.8	51.6	56 30.7	+14.7	53.9	57 39.2	+17.7	56.5	58 43.1	+20.9	59.2	59 41.9	+24.2	62.1
60	55 29.9	+10.4	49.9	56 45.4	+13.2	52.2	57 56.9	+16.2	54.7	59 04.0	+19.3	57.4	60 06.1	+22.6	60.3
61	55 40.3	+8.8	48.1	56 58.6	+11.6	50.4	58 13.1	+14.6	52.9	59 23.3	+17.8	55.5	60 28.7	+21.1	58.4
62	55 49.1	+7.4	46.4	57 10.2	+10.1	48.6	58 27.7	+13.0	51.0	59 41.1	+16.1	53.7	60 49.8	+19.3	56.5
63	55 56.5	+5.8	44.6	57 20.3	+8.5	46.8	58 40.7	+11.3	49.1	59 57.2	+14.4	51.7	61 09.1	+17.7	54.6
64	56 02.3	+4.2	42.8	57 28.8	+6.9	44.9	58 52.0	+9.7	47.2	60 11.6	+12.6	49.8	61 26.8	+15.9	52.6
65	56 06.5	+2.7	41.0	57 35.7	+5.2	43.1	59 01.7	+8.0	45.3	60 24.2	+10.9	47.8	61 42.7	+14.0	50.6
66	56 09.2	+1.2	39.2	57 40.9	+3.6	41.2	59 09.7	+6.2	43.4	60 35.1	+9.1	45.8	61 56.7	+12.2	48.5
67	56 10.4	-0.4	37.4	57 44.5	+1.9	39.3	59 15.9	+4.5	41.5	60 44.2	+7.2	43.8	62 08.9	+10.3	46.4
68	56 10.0	-2.0	35.6	57 46.4	+0.3	37.5	59 20.4	+2.7	39.5	60 51.4	+5.4	41.8	62 19.2	+8.3	44.3
69	56 08.0	-3.5	33.8	57 46.7	-1.4	35.6	59 23.1	+0.9	37.5	60 56.8	+3.5	39.7	62 27.5	+6.3	42.2
70	56 04.5	-5.1	32.1	57 45.3	-3.1	33.7	59 24.0	-0.8	35.6	61 00.3	+1.7	37.7	62 33.8	+4.4	40.0
71	55 59.4	-6.6	30.3	57 42.2	-4.7	31.9	59 23.2	-2.6	33.6	61 02.0	-0.3	35.6	62 38.2	+2.3	37.8
72	55 52.8	-8.1	28.5	57 37.5	-6.3	30.0	59 20.6	-4.3	31.7	61 01.7	-2.1	33.5	62 40.5	+0.3	35.7
73	55 44.7	-9.7	26.7	57 31.2	-8.0	28.1	59 16.3	-6.1	29.7	60 59.6	-4.1	31.5	62 40.8	-1.7	33.5
74	55 35.0	-11.1	25.0	57 23.2	-9.5	26.3	59 10.2	-7.9	27.8	60 55.5	-5.9	29.4	62 39.1	-3.8	31.3
75	55 23.9	-12.5	23.2	57 13.7	-11.1	24.5	59 02.3	-9.5	25.8	60 49.6	-7.7	27.4	62 35.3	-5.7	29.1
76	55 11.4	-14.1	21.5	57 02.6	-12.7	22.7	58 52.8	-11.2	23.9	60 41.9	-9.6	25.3	62 29.6	-7.7	27.0
77	54 57.3	-15.4	19.8	56 49.9	-14.2	20.9	58 41.6	-12.9	22.0	60 32.3	-11.4	23.3	62 21.9	-9.7	24.8
78	54 41.9	-16.8	18.2	56 35.7	-15.7	19.1	58 28.7	-14.5	20.1	60 20.9	-13.1	21.3	62 12.2	-11.6	22.7
79	54 25.1	-18.1	16.5	56 20.0	-17.2	17.3	58 14.2	-16.1	18.3	60 07.8	-14.9	19.4	62 00.6	-13.5	20.6
80	54 07.0	-19.4	14.9	56 02.8	-18.6	15.6	57 58.1	-17.6	16.5	59 52.9	-16.5	17.4	61 47.1	-15.4	18.5
81	53 47.6	-20.7	13.3	55 44.2	-19.9	13.9	57 40.5	-19.1	14.7	59 36.4	-18.2	15.5	61 31.7	-17.1	16.5
82	53 26.9	-21.9	11.7	55 24.3	-21.3	12.3	57 21.4	-20.6	12.9	59 18.2	-19.8	13.7	61 14.6	-18.9	14.5
83	53 05.0	-23.2	10.1	55 03.0	-22.6	10.6	57 00.8	-21.9	11.2	58 58.4	-21.3	11.8	60 55.7	-20.5	12.5
84	52 41.8	-24.3	8.6	54 40.4	-23.8	9.0	56 38.9	-23.4	9.5	58 37.1	-22.8	10.0	60 35.2	-22.2	10.6
85	52 17.5	-25.4	7.1	54 16.6	-25.1	7.4	56 15.5	-24.6	7.8	58 14.3	-24.2	8.2	60 13.0	-23.7	8.7
86	51 52.1	-26.5	5.6	53 51.5	-26.2	5.9	55 50.9	-26.0	6.2	57 50.1	-25.6	6.5	59 49.3	-25.2	6.9
87	51 25.6	-27.5	4.2	53 25.3	-27.4	4.4	55 24.9	-27.1	4.6	57 24.5	-26.9	4.8	59 24.1	-26.7	5.1
88	50 58.1	-28.6	2.8	52 57.9	-28.4	2.9	54 57.8	-28.3	3.0	56 57.6	-28.2	3.2	58 57.4	-28.0	3.4
89	50 29.5	-29.5	1.4	52 29.5	-29.5	1.4	54 29.5	-29.5	1.5	56 29.4	-29.4	1.6	58 29.4	-29.4	1.7
90	50 00.0	-30.5	0.0	52 00.0	-30.5	0.0	54 00.0	-30.5	0.0	56 00.0	-30.6	0.0	58 00.0	-30.6	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 60°, 300°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
6 00.5	+49.7	49.0	7 19.2	+50.6	49.1	8 37.6	+51.4	49.3	9 55.6	+52.2	49.6	11 13.1	+53.1	49.9	30
6 50.2	+49.7	48.4	8 09.8	+50.5	48.6	9 29.0	+51.4	48.8	10 47.8	+52.2	49.1	12 06.2	+52.9	49.4	31
7 39.9	+49.6	47.8	9 00.3	+50.5	48.0	10 20.4	+51.3	48.3	11 40.0	+52.1	48.6	12 59.1	+52.9	48.9	32
8 29.5	+49.6	47.3	9 50.8	+50.4	47.5	11 11.7	+51.2	47.8	12 32.1	+52.1	48.1	13 52.0	+52.9	48.4	33
9 19.1	+49.5	46.7	10 41.2	+50.4	46.9	12 02.9	+51.2	47.2	13 24.2	+52.0	47.6	14 44.9	+52.7	47.9	34
10 08.6	+49.5	46.1	11 31.6	+50.3	46.4	12 54.1	+51.2	46.7	14 16.2	+51.9	47.1	15 37.6	+52.8	47.4	35
10 58.1	+49.4	45.5	12 21.9	+50.2	45.8	13 45.3	+51.0	46.2	15 08.1	+51.9	46.5	16 30.4	+52.6	46.9	36
11 47.5	+49.3	45.0	13 12.1	+50.2	45.3	14 36.3	+51.0	45.6	16 00.0	+51.8	46.0	17 23.0	+52.6	46.4	37
12 36.8	+49.2	44.4	14 02.3	+50.1	44.7	15 27.3	+50.9	45.1	16 51.8	+51.7	45.5	18 15.6	+52.5	45.9	38
13 26.0	+49.2	43.8	14 52.4	+50.0	44.1	16 18.2	+50.9	44.5	17 43.5	+51.6	45.0	19 08.1	+52.4	45.4	39
14 15.2	+49.0	43.2	15 42.4	+49.9	43.6	17 09.1	+50.7	44.0	18 35.1	+51.5	44.4	20 00.5	+52.3	44.9	40
15 04.2	+49.0	42.6	16 32.3	+49.8	43.0	17 59.8	+50.6	43.4	19 26.6	+51.5	43.9	20 52.8	+52.2	44.4	41
15 53.2	+48.9	42.0	17 22.1	+49.7	42.4	18 50.4	+50.6	42.8	20 18.1	+51.3	43.3	21 45.0	+52.1	43.9	42
16 42.1	+48.8	41.4	18 11.8	+49.6	41.8	19 41.0	+50.4	42.3	21 09.4	+51.2	42.8	22 37.1	+52.0	43.3	43
17 30.9	+48.6	40.8	19 01.4	+49.5	41.2	20 31.4	+50.3	41.7	22 00.6	+51.1	42.2	23 29.1	+51.9	42.8	44
18 19.5	+48.6	40.2	19 50.9	+49.4	40.6	21 21.7	+50.2	41.1	22 51.7	+51.0	41.7	24 21.0	+51.8	42.2	45
19 08.1	+48.4	39.6	20 40.3	+49.2	40.0	22 11.9	+50.0	40.5	23 42.7	+50.9	41.1	25 12.8	+51.6	41.7	46
19 56.5	+48.3	38.9	21 29.5	+49.1	39.4	23 01.9	+49.9	39.9	24 33.6	+50.7	40.5	26 04.4	+51.5	41.1	47
20 44.8	+48.1	38.3	22 18.6	+49.0	38.8	23 51.8	+49.8	39.3	25 24.3	+50.6	39.9	26 55.9	+51.4	40.5	48
21 32.9	+48.0	37.7	23 07.6	+48.8	38.2	24 41.6	+49.6	38.7	26 14.9	+50.4	39.3	27 47.3	+51.2	40.0	49
22 20.9	+47.8	37.0	23 56.4	+48.7	37.5	25 31.2	+49.5	38.1	27 05.3	+50.3	38.7	28 38.5	+51.1	39.4	50
23 08.7	+47.7	36.3	24 45.1	+48.4	36.9	26 20.7	+49.3	37.5	27 55.5	+50.1	38.1	29 29.6	+50.9	38.8	51
23 56.4	+47.5	35.7	25 33.5	+48.4	36.2	27 10.0	+49.1	36.8	28 45.6	+50.0	37.5	30 20.5	+50.7	38.2	52
24 43.9	+47.3	35.0	26 21.9	+48.1	35.6	27 59.1	+48.9	36.2	29 35.6	+49.7	36.8	31 11.2	+50.5	37.5	53
25 31.2	+47.2	34.3	27 10.0	+47.9	34.9	28 48.0	+48.8	35.5	30 25.3	+49.6	36.2	32 01.7	+50.4	36.9	54
26 18.4	+46.9	33.6	27 57.9	+47.7	34.2	29 36.8	+48.5	34.8	31 14.9	+49.3	35.5	32 52.1	+50.1	36.3	55
27 05.3	+46.7	33.0	28 45.6	+47.6	33.5	30 25.3	+48.3	34.2	32 04.2	+49.1	34.9	33 42.2	+50.0	35.6	56
27 52.0	+46.5	32.2	29 33.2	+47.3	32.8	31 13.6	+48.1	33.5	32 53.3	+48.9	34.2	34 32.2	+49.7	34.9	57
28 38.5	+46.3	31.5	30 20.5	+47.0	32.1	32 01.7	+47.9	32.8	33 42.2	+48.7	33.5	35 21.9	+49.5	34.2	58
29 24.8	+46.0	30.8	31 07.5	+46.8	31.4	32 49.6	+47.6	32.1	34 30.9	+48.4	32.8	36 11.4	+49.2	33.5	59
30 10.8	+45.8	30.1	31 54.3	+46.6	30.7	33 37.2	+47.4	31.3	35 19.3	+48.2	32.1	37 00.6	+49.0	32.8	60
30 56.6	+45.5	29.3	32 40.9	+46.3	29.9	34 24.6	+47.0	30.6	36 07.5	+47.8	31.3	37 49.6	+48.7	32.1	61
31 42.1	+45.2	28.5	33 27.2	+46.0	29.2	35 11.6	+46.8	29.8	36 55.3	+47.6	30.6	38 38.3	+48.4	31.4	62
32 27.3	+45.0	27.8	34 13.2	+45.7	28.4	35 58.4	+46.5	29.1	37 42.9	+47.3	29.8	39 26.7	+48.1	30.6	63
33 12.3	+44.6	27.0	34 58.9	+45.4	27.6	36 44.9	+46.2	28.3	38 30.2	+47.0	29.0	40 14.8	+47.7	29.8	64
33 56.9	+44.3	26.2	35 44.3	+45.1	26.8	37 31.1	+45.8	27.5	39 17.2	+46.6	28.2	41 02.5	+47.5	29.0	65
34 41.2	+44.0	25.4	36 29.4	+44.7	26.0	38 16.9	+45.5	26.7	40 03.8	+46.3	27.4	41 50.0	+47.1	28.2	66
35 25.2	+43.7	24.5	37 14.1	+44.4	25.2	39 02.4	+45.2	25.8	40 50.1	+45.9	26.6	42 37.1	+46.7	27.4	67
36 08.9	+43.2	23.7	37 58.5	+44.0	24.3	39 47.6	+44.7	25.0	41 36.0	+45.5	25.7	43 23.8	+46.3	26.5	68
36 52.1	+42.9	22.8	38 42.5	+43.6	23.4	40 32.3	+44.4	24.1	42 21.5	+45.2	24.8	44 10.1	+45.9	25.6	69
37 35.0	+42.5	21.9	39 26.1	+43.2	22.6	41 16.7	+43.9	23.2	43 06.7	+44.6	23.9	44 56.0	+45.5	24.7	70
38 17.5	+42.1	21.1	40 09.3	+42.8	21.6	42 00.6	+43.5	22.3	43 51.3	+44.3	23.0	45 41.5	+45.0	23.8	71
38 59.6	+41.7	20.1	40 52.1	+42.3	20.7	42 44.1	+43.0	21.4	44 35.6	+43.7	22.1	46 26.5	+44.5	22.9	72
39 41.3	+41.2	19.2	41 34.4	+41.8	19.8	43 27.1	+42.5	20.4	45 19.3	+43.2	21.1	47 11.0	+44.0	21.9	73
40 22.5	+40.7	18.3	42 16.2	+41.4	18.8	44 09.6	+42.0	19.4	46 02.5	+42.8	20.1	47 55.0	+43.4	20.9	74
41 03.2	+40.2	17.3	42 57.6	+40.8	17.8	44 51.6	+41.5	18.4	46 45.3	+42.1	19.1	48 38.4	+42.9	19.8	75
41 43.4	+39.7	16.3	43 38.4	+40.3	16.8	45 33.1	+40.9	17.4	47 27.4	+41.6	18.1	49 21.3	+42.3	18.8	76
42 23.1	+39.2	15.3	44 18.7	+39.8	15.8	46 14.0	+40.4	16.4	48 09.0	+41.0	17.0	50 03.6	+41.6	17.7	77
43 02.3	+38.6	14.3	44 58.5	+39.1	14.7	46 54.4	+39.7	15.3	48 50.0	+40.3	15.9	50 45.2	+40.9	16.5	78
43 40.9	+38.0	13.2	45 37.6	+38.5	13.7	47 34.1	+39.0	14.2	49 30.3	+39.6	14.7	51 26.1	+40.3	15.4	79
44 18.9	+37.4	12.1	46 16.1	+37.9	12.6	48 13.1	+38.4	13.0	50 09.9	+38.9	13.6	52 06.4	+39.5	14.2	80
44 56.3	+36.7	11.0	46 54.0	+37.1	11.4	48 51.5	+37.6	11.9	50 48.8	+38.2	12.4	52 45.9	+38.7	12.9	81
45 33.0	+36.1	9.9	47 31.1	+36.5	10.3	49 29.1	+36.9	10.7	51 27.0	+37.3	11.2	53 24.6	+37.9	11.7	82
46 09.1	+35.3	8.8	48 07.6	+35.7	9.1	50 06.0	+36.1	9.5	52 04.3	+36.5	9.9	54 02.5	+36.9	10.4	83
46 44.4	+34.6	7.6	48 43.3	+35.0	7.9	50 42.1	+35.3	8.2	52 40.8	+35.7	8.6	54 39.4	+36.1	9.0	84
47 19.0	+33.9	6.4	49 18.3	+34.1	6.6	51 17.4	+34.4	6.9	53 16.5	+34.7	7.3	55 15.5	+35.1	7.6	85
47 52.9	+33.0	5.2	49 52.4	+33.3	5.4	51 51.8	+33.5	5.6	53 51.2	+33.8	5.9	55 50.6	+34.0	6.2	86
48 25.9	+32.3	3.9	50 25.7	+32.3	4.1	52 25.3	+32.6	4.3	54 25.0	+32.7	4.5	56 24.6	+33.0	4.7	87
48 58.2	+31.3	2.6	50 58.0	+31.5	2.8	52 57.9	+31.6	2.9	54 57.7	+31.7	3.0	56 57.6	+31.8	3.2	88
49 29.5	+30.5	1.3	51 29.5	+30.5	1.4	53 29.5	+30.5	1.5	55 29.4	+30.6	1.5	57 29.4	+30.6	1.6	89
50 00.0	+29.5	0.0	52 00.0	+29.5	0.0	54 00.0	+29.5	0.0	56 00.0	+29.4	0.0	58 00.0	+29.4	0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 120°, 240°

62°, 298° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	37 01.2	+16.9	73.3	37 34.3	+19.3	74.7	38 04.4	+21.7	76.2	38 31.3	+24.2	77.8	38 55.1	+26.5	79.4
31	37 18.1	+16.2	72.1	37 53.6	+18.6	73.5	38 26.1	+21.0	75.1	38 55.5	+23.4	76.6	39 21.6	+25.8	78.2
32	37 34.3	+15.4	70.9	38 12.2	+17.8	72.3	38 47.1	+20.2	73.9	39 18.9	+22.6	75.4	39 47.4	+25.1	77.0
33	37 49.7	+14.7	69.6	38 30.0	+17.1	71.1	39 07.3	+19.5	72.6	39 41.5	+22.0	74.2	40 12.5	+24.4	75.8
34	38 04.4	+13.8	68.4	38 47.1	+16.3	69.9	39 26.8	+18.7	71.4	40 03.5	+21.1	73.0	40 36.9	+23.6	74.6
35	38 18.2	+13.1	67.2	39 03.4	+15.5	68.7	39 45.5	+18.0	70.2	40 24.6	+20.4	71.8	41 00.5	+22.9	73.4
36	38 31.3	+12.3	65.9	39 18.9	+14.7	67.4	40 03.5	+17.1	69.0	40 45.0	+19.6	70.5	41 23.4	+22.0	72.2
37	38 43.6	+11.5	64.7	39 33.6	+13.8	66.2	40 20.6	+16.3	67.7	41 04.6	+18.8	69.3	41 45.4	+21.2	71.0
38	38 55.1	+10.7	63.4	39 47.4	+13.1	64.9	40 36.9	+15.5	66.4	41 23.4	+17.9	68.0	42 06.6	+20.4	69.7
39	39 05.8	+9.8	62.1	40 00.5	+12.2	63.6	40 52.4	+14.6	65.2	41 41.3	+17.0	66.8	42 27.0	+19.6	68.4
40	39 15.6	+9.0	60.9	40 12.7	+11.4	62.3	41 07.0	+13.8	63.9	41 58.3	+16.2	65.5	42 46.6	+18.6	67.1
41	39 24.6	+8.2	59.6	40 24.1	+10.5	61.1	41 20.8	+12.8	62.6	42 14.5	+15.4	64.2	43 05.2	+17.8	65.8
42	39 32.8	+7.3	58.3	40 34.6	+9.6	59.8	41 33.6	+12.0	61.3	42 29.9	+14.4	62.9	43 23.0	+16.9	64.5
43	39 40.1	+6.5	57.0	40 44.2	+8.7	58.5	41 45.6	+11.1	60.0	42 44.3	+13.5	61.5	43 39.9	+16.0	63.2
44	39 46.6	+5.6	55.7	40 52.9	+7.9	57.1	41 56.7	+10.2	58.6	42 57.8	+12.5	60.2	43 55.9	+15.0	61.9
45	39 52.2	+4.7	54.4	41 00.8	+7.0	55.8	42 06.9	+9.3	57.3	43 10.3	+11.7	58.9	44 10.9	+14.0	60.5
46	39 56.9	+3.9	53.1	41 07.8	+6.0	54.5	42 16.2	+8.3	56.0	43 22.0	+10.6	57.5	44 24.9	+13.1	59.2
47	40 00.8	+3.0	51.8	41 13.8	+5.2	53.2	42 24.5	+7.4	54.6	43 32.6	+9.7	56.2	44 38.0	+12.1	57.8
48	40 03.8	+2.1	50.5	41 19.0	+4.2	51.9	42 31.9	+6.4	53.3	43 42.3	+8.8	54.8	44 50.1	+11.1	56.4
49	40 05.9	+1.2	49.2	41 23.2	+3.3	50.5	42 38.3	+5.5	51.9	43 51.1	+7.7	53.4	45 01.2	+10.1	55.0
50	40 07.1	+0.3	47.9	41 26.5	+2.4	49.2	42 43.8	+4.5	50.6	43 58.8	+6.7	52.1	45 11.3	+9.0	53.6
51	40 07.4	-0.5	46.6	41 28.9	+1.5	47.9	42 48.3	+3.6	49.2	44 05.5	+5.8	50.7	45 20.3	+8.0	52.2
52	40 06.9	-1.5	45.3	41 30.4	+0.5	46.5	42 51.9	+2.6	47.9	44 11.3	+4.7	49.3	45 28.3	+7.0	50.8
53	40 05.4	-2.3	44.0	41 30.9	-0.4	45.2	42 54.5	+1.6	46.5	44 16.0	+3.7	47.9	45 35.3	+5.9	49.4
54	40 03.1	-3.1	42.7	41 30.5	-1.3	43.9	42 56.1	+0.6	45.1	44 19.7	+2.7	46.5	45 41.2	+4.8	48.0
55	40 00.0	-4.1	41.4	41 29.2	-2.2	42.5	42 56.7	-0.3	43.8	44 22.4	+1.7	45.1	45 46.0	+3.8	46.6
56	39 55.9	-4.9	40.1	41 27.0	-3.2	41.2	42 56.4	-1.3	42.4	44 24.1	+0.6	43.7	45 49.8	+2.7	45.1
57	39 51.0	-5.8	38.8	41 23.8	-4.1	39.9	42 55.1	-2.3	41.0	44 24.7	-0.3	42.3	45 52.5	+1.6	43.7
58	39 45.2	-6.7	37.5	41 19.7	-5.0	38.5	42 52.8	-3.2	39.7	44 24.4	-1.4	40.9	45 54.1	+0.6	42.3
59	39 38.5	-7.5	36.2	41 14.7	-5.9	37.2	42 49.6	-4.2	38.3	44 23.0	-2.5	39.5	45 54.7	-0.6	40.8
60	39 31.0	-8.4	34.9	41 08.8	-6.8	35.9	42 45.4	-5.2	37.0	44 20.5	-3.4	38.1	45 54.1	-1.6	39.4
61	39 22.6	-9.2	33.6	41 02.0	-7.7	34.6	42 40.2	-6.1	35.6	44 17.1	-4.5	36.7	45 52.5	-2.7	37.9
62	39 13.4	-10.0	32.3	40 54.3	-8.6	33.3	42 34.1	-7.1	34.3	44 12.6	-5.5	35.3	45 49.8	-3.8	36.5
63	39 03.4	-10.9	31.1	40 45.7	-9.5	32.0	42 27.0	-8.0	32.9	44 07.1	-6.4	33.9	45 46.0	-4.8	35.1
64	38 52.5	-11.7	29.8	40 36.2	-10.4	30.7	42 19.0	-9.0	31.6	44 00.7	-7.5	32.6	45 41.2	-5.9	33.6
65	38 40.8	-12.4	28.6	40 25.8	-11.2	29.4	42 10.0	-9.9	30.2	43 53.2	-8.5	31.2	45 35.3	-7.0	32.2
66	38 28.4	-13.3	27.3	40 14.6	-12.0	28.1	42 00.1	-10.8	28.9	43 44.7	-9.4	29.8	45 28.3	-8.0	30.8
67	38 15.1	-14.1	26.1	40 02.6	-13.0	26.8	41 49.3	-11.7	27.6	43 35.3	-10.5	28.4	45 20.3	-9.1	29.4
68	38 01.0	-14.8	24.8	39 49.6	-13.7	25.5	41 37.6	-12.6	26.3	43 24.8	-11.3	27.1	45 11.2	-10.0	28.0
69	37 46.2	-15.6	23.6	39 35.9	-14.6	24.2	41 25.0	-13.5	25.0	43 13.5	-12.4	25.7	45 01.2	-11.1	26.6
70	37 30.6	-16.3	22.4	39 21.3	-15.3	23.0	41 11.5	-14.3	23.7	43 01.1	-13.2	24.4	44 50.1	-12.1	25.2
71	37 14.3	-17.1	21.2	39 06.0	-16.2	21.7	40 57.2	-15.2	22.4	42 47.9	-14.2	23.1	44 38.0	-13.1	23.8
72	36 57.2	-17.8	20.0	38 49.8	-16.9	20.5	40 42.0	-16.0	21.1	42 33.7	-15.1	21.7	44 24.9	-14.1	22.5
73	36 39.4	-18.5	18.8	38 32.9	-17.7	19.3	40 26.0	-16.9	19.8	42 18.6	-15.9	20.4	44 10.8	-15.0	21.1
74	36 20.9	-19.2	17.6	38 15.2	-18.5	18.1	40 09.1	-17.7	18.6	42 02.7	-16.9	19.1	43 55.8	-15.9	19.8
75	36 01.7	-19.8	16.4	37 56.7	-19.2	16.8	39 51.4	-18.4	17.3	41 45.8	-17.7	17.8	43 39.9	-16.9	18.4
76	35 41.9	-20.6	15.2	37 37.5	-19.9	15.6	39 33.0	-19.3	16.1	41 28.1	-18.5	16.6	43 23.0	-17.8	17.1
77	35 21.3	-21.2	14.1	37 17.6	-20.6	14.5	39 13.7	-20.0	14.9	41 09.6	-19.4	15.3	43 05.2	-18.7	15.8
78	35 00.1	-21.8	13.0	36 57.0	-21.3	13.3	38 53.7	-20.8	13.6	40 50.2	-20.2	14.0	42 46.5	-19.5	14.5
79	34 38.3	-22.5	11.8	36 35.7	-22.0	12.1	38 32.9	-21.4	12.4	40 30.0	-20.9	12.8	42 27.0	-20.4	13.2
80	34 15.8	-23.0	10.7	36 13.7	-22.7	11.0	38 11.5	-22.3	11.2	40 09.1	-21.8	11.6	42 06.6	-21.3	11.9
81	33 52.8	-23.7	9.6	35 51.0	-23.2	9.8	37 49.2	-22.9	10.1	39 47.3	-22.4	10.4	41 45.3	-22.0	10.7
82	33 29.1	-24.2	8.5	35 27.8	-24.0	8.7	37 26.3	-23.5	8.9	39 24.9	-23.3	9.2	41 23.3	-22.9	9.4
83	33 04.9	-24.9	7.4	35 03.8	-24.5	7.6	37 02.8	-24.3	7.7	39 01.6	-23.9	8.0	41 00.4	-23.6	8.2
84	32 40.0	-25.3	6.3	34 39.3	-25.1	6.4	36 38.5	-24.9	6.6	38 37.7	-24.6	6.8	40 36.8	-24.3	7.0
85	32 14.7	-25.9	5.2	34 14.2	-25.8	5.3	36 13.6	-25.5	5.5	38 13.1	-25.4	5.6	40 12.5	-25.1	5.8
86	31 48.8	-26.5	4.2	33 48.4	-26.3	4.3	35 48.1	-26.1	4.4	37 47.7	-25.9	4.5	39 47.4	-25.9	4.6
87	31 22.3	-26.9	3.1	33 22.1	-26.8	3.2	35 22.0	-26.8	3.2	37 21.8	-26.7	3.3	39 21.5	-26.5	3.4
88	30 55.4	-27.5	2.1	32 55.3	-27.4	2.1	34 55.2	-27.3	2.2	36 55.1	-27.2	2.2	38 55.0	-27.2	2.3
89	30 27.9	-27.9	1.0	32 27.9	-27.9	1.0	34 27.9	-27.9	1.1	36 27.9	-27.9	1.1	38 27.8	-27.8	1.1
90	30 00.0	-28.4	0.0	32 00.0	-28.4	0.0	34 00.0	-28.4	0.0	36 00.0	-28.5	0.0	38 00.0	-28.5	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 62°, 298°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
5 51.6	-38.4	129.8	4 34.7	-39.6	129.9	3 17.7	-40.8	130.0	2 00.5	-42.0	130.1	0 43.2	-43.1	130.1	30
5 13.2	-38.5	130.5	3 55.1	-39.7	130.7	2 36.9	-40.9	130.7	1 18.5	-42.0	130.8	0 00.1	-43.1	130.8	31
4 34.7	-38.5	131.3	3 15.4	-39.7	131.4	1 56.0	-40.8	131.5	0 36.5	-42.0	131.5	0 43.0	+43.1	48.5	32
3 56.2	-38.5	132.1	2 35.7	-39.7	132.2	1 15.2	-40.9	132.2	0 05.5	+42.0	47.8	1 26.1	+43.1	47.8	33
3 17.7	-38.6	132.8	1 56.0	-39.7	132.9	0 34.3	-40.9	132.9	0 47.5	+42.0	47.1	2 09.2	+43.1	47.1	34
2 39.1	-38.6	133.6	1 16.3	-39.8	133.7	0 06.6	+40.9	46.3	1 29.5	+41.9	46.3	2 52.3	+43.0	46.4	35
2 00.5	-38.7	134.4	0 36.5	-39.8	134.4	0 47.5	+40.8	45.6	2 11.4	+42.0	45.6	3 35.3	+43.0	45.7	36
1 21.8	-38.6	135.1	0 03.3	+39.7	44.8	1 28.3	+40.9	44.9	2 53.4	+41.9	44.9	4 18.3	+42.9	45.0	37
0 43.2	-38.7	135.9	0 43.0	+39.8	44.1	2 09.2	+40.8	44.1	3 35.3	+41.9	44.2	5 01.2	+43.0	44.3	38
0 04.5	-38.7	136.7	1 22.8	+39.7	43.3	2 50.0	+40.8	43.4	4 17.2	+41.8	43.5	5 44.2	+42.8	43.6	39
0 34.2	+38.6	42.6	2 02.5	+39.8	42.6	3 30.8	+40.8	42.7	4 59.0	+41.8	42.8	6 27.0	+42.8	42.9	40
1 12.8	+38.7	41.8	2 42.3	+39.7	41.8	4 11.6	+40.7	41.9	5 40.8	+41.8	42.0	7 09.8	+42.8	42.2	41
1 51.5	+38.6	41.0	3 22.0	+39.6	41.1	4 52.3	+40.7	41.2	6 22.6	+41.6	41.3	7 52.6	+42.6	41.5	42
2 30.1	+38.6	40.3	4 01.6	+39.6	40.3	5 33.0	+40.6	40.5	7 04.2	+41.7	40.6	8 35.2	+42.6	40.8	43
3 08.7	+38.6	39.5	4 41.2	+39.6	39.6	6 13.6	+40.6	39.7	7 45.9	+41.5	39.9	9 17.8	+42.5	40.1	44
3 47.3	+38.5	38.7	5 20.8	+39.5	38.8	6 54.2	+40.5	39.0	8 27.4	+41.5	39.1	10 00.3	+42.5	39.3	45
4 25.8	+38.5	38.0	6 00.3	+39.5	38.1	7 34.7	+40.4	38.2	9 08.9	+41.3	38.4	10 42.8	+42.3	38.6	46
5 04.3	+38.4	37.2	6 39.8	+39.4	37.3	8 15.1	+40.4	37.5	9 50.2	+41.3	37.7	11 25.1	+42.2	37.9	47
5 42.7	+38.4	36.4	7 19.2	+39.3	36.6	8 55.5	+40.2	36.7	10 31.5	+41.2	36.9	12 07.3	+42.1	37.2	48
6 21.1	+38.2	35.7	7 58.5	+39.2	35.8	9 35.7	+40.2	36.0	11 12.7	+41.0	36.2	12 49.4	+41.9	36.4	49
6 59.3	+38.3	34.9	8 37.7	+39.1	35.0	10 15.9	+40.0	35.2	11 53.7	+41.0	35.5	13 31.3	+41.9	35.7	50
7 37.6	+38.1	34.1	9 16.8	+39.1	34.3	10 55.9	+39.9	34.5	12 34.7	+40.8	34.7	14 13.2	+41.7	35.0	51
8 15.7	+38.0	33.3	9 55.9	+38.9	33.5	11 35.8	+39.8	33.7	13 15.5	+40.7	34.0	14 54.9	+41.6	34.2	52
8 53.7	+38.0	32.5	10 34.8	+38.8	32.7	12 15.6	+39.7	32.9	13 56.2	+40.6	33.2	15 36.5	+41.4	33.5	53
9 31.7	+37.8	31.8	11 13.6	+38.7	31.9	12 55.3	+39.6	32.2	14 36.8	+40.4	32.4	16 17.9	+41.2	32.7	54
10 09.5	+37.7	31.0	11 52.3	+38.6	31.2	13 34.9	+39.4	31.4	15 17.2	+40.2	31.7	16 59.1	+41.1	32.0	55
10 47.2	+37.6	30.2	12 30.9	+38.4	30.4	14 14.3	+39.2	30.6	15 57.4	+40.1	30.9	17 40.2	+40.9	31.2	56
11 24.8	+37.5	29.4	13 09.3	+38.3	29.6	14 53.5	+39.1	29.8	16 37.5	+39.9	30.1	18 21.1	+40.7	30.4	57
12 02.3	+37.4	28.6	13 47.6	+38.1	28.8	15 32.6	+38.9	29.1	17 17.4	+39.7	29.3	19 01.8	+40.5	29.7	58
12 39.7	+37.2	27.8	14 25.7	+38.0	28.0	16 11.5	+38.8	28.3	17 57.1	+39.5	28.6	19 42.3	+40.4	28.9	59
13 16.9	+37.0	27.0	15 03.7	+37.8	27.2	16 50.3	+38.6	27.5	18 36.6	+39.4	27.8	20 22.7	+40.1	28.1	60
13 53.9	+36.9	26.2	15 41.5	+37.6	26.4	17 28.9	+38.3	26.7	19 16.0	+39.1	27.0	21 02.8	+39.8	27.3	61
14 30.8	+36.7	25.4	16 19.1	+37.5	25.6	18 07.2	+38.2	25.9	19 55.1	+38.9	26.2	21 42.6	+39.7	26.5	62
15 07.5	+36.5	24.5	16 56.6	+37.2	24.8	18 45.4	+37.9	25.0	20 34.0	+38.6	25.3	22 22.3	+39.4	25.7	63
15 44.0	+36.4	23.7	17 33.8	+37.0	24.0	19 23.3	+37.8	24.2	21 12.6	+38.5	24.5	23 01.7	+39.1	24.9	64
16 20.4	+36.1	22.9	18 10.8	+36.9	23.1	20 01.1	+37.5	23.4	21 51.1	+38.2	23.7	23 40.8	+38.9	24.0	65
16 56.5	+36.0	22.1	18 47.7	+36.6	22.3	20 38.6	+37.2	22.6	22 29.3	+37.9	22.9	24 19.7	+38.6	23.2	66
17 32.5	+35.7	21.2	19 24.3	+36.3	21.5	21 15.8	+37.0	21.7	23 07.2	+37.6	22.0	24 58.3	+38.3	22.4	67
18 08.2	+35.5	20.4	20 00.6	+36.1	20.6	21 52.8	+36.8	20.9	23 44.8	+37.4	21.2	25 36.6	+38.0	21.5	68
18 43.7	+35.3	19.5	20 36.7	+35.9	19.8	22 29.6	+36.5	20.0	24 22.2	+37.1	20.3	26 14.6	+37.7	20.7	69
19 19.0	+35.0	18.7	21 12.6	+35.6	18.9	23 06.1	+36.1	19.2	24 59.3	+36.8	19.5	26 52.3	+37.4	19.8	70
19 54.0	+34.8	17.8	21 48.2	+35.4	18.0	23 42.2	+35.9	18.3	25 36.1	+36.4	18.6	27 29.7	+37.1	18.9	71
20 28.8	+34.6	16.9	22 23.6	+35.0	17.2	24 18.1	+35.6	17.4	26 12.5	+36.2	17.7	28 06.8	+36.7	18.0	72
21 03.4	+34.2	16.1	22 58.6	+34.8	16.3	24 53.7	+35.3	16.5	26 48.7	+35.8	16.8	28 43.5	+36.3	17.1	73
21 37.6	+34.0	15.2	23 33.4	+34.4	15.4	25 29.0	+35.0	15.6	27 24.5	+35.4	15.9	29 19.8	+36.0	16.2	74
22 11.6	+33.7	14.3	24 07.8	+34.2	14.5	26 04.0	+34.6	14.7	27 59.9	+35.1	15.0	29 55.8	+35.5	15.3	75
22 45.3	+33.4	13.4	24 42.0	+33.8	13.6	26 38.6	+34.2	13.8	28 35.0	+34.7	14.1	30 31.3	+35.2	14.4	76
23 18.7	+33.0	12.5	25 15.8	+33.5	12.7	27 12.8	+33.9	12.9	29 09.7	+34.3	13.1	31 06.5	+34.8	13.4	77
23 51.7	+32.8	11.6	25 49.3	+33.1	11.8	27 46.7	+33.5	12.0	29 44.0	+33.9	12.2	31 41.3	+34.3	12.5	78
24 24.5	+32.4	10.7	26 22.4	+32.8	10.8	28 20.2	+33.1	11.0	30 17.9	+33.5	11.3	32 15.6	+33.9	11.5	79
24 56.9	+32.1	9.7	26 55.2	+32.3	9.9	28 53.3	+32.7	10.1	30 51.4	+33.1	10.3	32 49.5	+33.4	10.5	80
25 29.0	+31.7	8.8	27 27.5	+32.0	9.0	29 26.0	+32.3	9.1	31 24.5	+32.6	9.3	33 22.9	+32.9	9.5	81
26 00.7	+31.3	7.9	27 59.5	+31.6	8.0	29 58.3	+31.9	8.2	31 57.1	+32.2	8.3	33 55.8	+32.5	8.5	82
26 32.0	+31.0	6.9	28 31.1	+31.2	7.0	30 30.2	+31.4	7.2	32 29.3	+31.6	7.3	34 28.3	+31.9	7.5	83
27 03.0	+30.5	5.9	29 02.3	+30.8	6.1	31 01.6	+31.0	6.2	33 00.9	+31.2	6.3	35 00.2	+31.4	6.5	84
27 33.5	+30.2	5.0	29 33.1	+30.3	5.1	31 32.6	+30.5	5.2	33 32.1	+30.7	5.3	35 31.6	+30.8	5.4	85
28 03.7	+29.7	4.0	30 03.4	+29.9	4.1	32 03.1	+30.0	4.2	34 02.8	+30.1	4.3	36 02.4	+30.3	4.4	86
28 33.4	+29.3	3.0	30 33.3	+29.4	3.1	32 33.1	+29.5	3.1	34 32.9	+29.6	3.2	36 32.7	+29.7	3.3	87
29 02.7	+28.9	2.0	31 02.7	+28.9	2.1	33 02.6	+29.0	2.1	35 02.5	+29.0	2.2	37 02.4	+29.1	2.2	88
29 31.6	+28.4	1.0	31 31.6	+28.4	1.0	33 31.6	+28.4	1.1	35 31.5	+28.5	1.1	37 31.5	+28.5	1.1	89
30 00.0	+27.9	0.0	32 00.0	+27.9	0.0	34 00.0	+27.9	0.0	36 00.0	+27.9	0.0	38 00.0	+27.8	0.0	90

LATITUDE SAME NAME

L.H.A. 118°, 242°

62°, 298° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	39 15.6	+28.9	81.0	39 32.8	+31.2	82.6	39 46.6	+33.5	84.2	39 56.9	+35.7	85.9	40 03.8	+37.8	87.6
31	39 44.5	+28.2	79.8	40 04.0	+30.6	81.5	40 20.1	+32.8	83.1	40 32.6	+35.2	84.8	40 41.6	+37.4	86.6
32	40 12.7	+27.5	78.7	40 34.6	+29.8	80.3	40 52.9	+32.3	82.0	41 07.8	+34.5	83.8	41 19.0	+36.7	85.5
33	40 40.2	+26.8	77.5	41 04.4	+29.2	79.2	41 25.2	+31.5	80.9	41 42.3	+33.9	82.7	41 55.7	+36.2	84.5
34	41 07.0	+26.1	76.3	41 33.6	+28.5	78.0	41 56.7	+30.9	79.8	42 16.2	+33.2	81.6	42 31.9	+35.5	83.4
35	41 33.1	+25.2	75.1	42 02.1	+27.8	76.9	42 27.6	+30.2	78.6	42 49.4	+32.6	80.4	43 07.4	+34.9	82.3
36	41 58.3	+24.6	73.9	42 29.9	+26.9	75.7	42 57.8	+29.4	77.5	43 22.0	+31.8	79.3	43 42.3	+34.3	81.2
37	42 22.9	+23.7	72.7	42 56.8	+26.2	74.4	43 27.2	+28.7	76.3	43 53.8	+31.1	78.1	44 16.6	+33.5	80.0
38	42 46.6	+22.9	71.4	43 23.0	+25.4	73.2	43 55.9	+27.9	75.0	44 24.9	+30.4	76.9	44 50.1	+32.8	78.9
39	43 09.5	+22.0	70.2	43 48.4	+24.6	72.0	44 23.8	+27.0	73.8	44 55.3	+29.6	75.7	45 22.9	+32.1	77.7
40	43 31.5	+21.2	68.9	44 13.0	+23.7	70.7	44 50.8	+26.3	72.6	45 24.9	+28.8	74.5	45 55.0	+31.3	76.5
41	43 52.7	+20.3	67.6	44 36.7	+22.8	69.4	45 17.1	+25.4	71.3	45 53.7	+27.9	73.2	46 26.3	+30.5	75.2
42	44 13.0	+19.4	66.3	44 59.5	+21.9	68.1	45 42.5	+24.4	70.0	46 21.6	+27.1	71.9	46 56.8	+29.6	74.0
43	44 32.4	+18.4	65.0	45 21.4	+21.1	66.8	46 06.9	+23.6	68.7	46 48.7	+26.1	70.6	47 26.4	+28.8	72.7
44	44 50.8	+17.5	63.6	45 42.5	+20.0	65.4	46 30.5	+22.7	67.3	47 14.8	+25.3	69.3	47 55.2	+27.8	71.4
45	45 08.3	+16.6	62.3	46 02.5	+19.1	64.1	46 53.2	+21.6	66.0	47 40.1	+24.3	68.0	48 23.0	+27.0	70.1
46	45 24.9	+15.5	60.9	46 21.6	+18.1	62.7	47 14.8	+20.7	64.6	48 04.4	+23.3	66.6	48 50.0	+25.9	68.7
47	45 40.4	+14.6	59.5	46 39.7	+17.1	61.3	47 35.5	+19.7	63.2	48 27.7	+22.3	65.2	49 15.9	+25.0	67.3
48	45 55.0	+13.5	58.1	46 56.8	+16.0	59.9	47 55.2	+18.6	61.8	48 50.0	+21.2	63.8	49 40.9	+24.0	65.9
49	46 08.5	+12.5	56.7	47 12.8	+15.0	58.5	48 13.8	+17.5	60.4	49 11.2	+20.2	62.4	50 04.9	+22.8	64.5
50	46 21.0	+11.5	55.3	47 27.8	+13.9	57.1	48 31.3	+16.5	59.0	49 31.4	+19.1	61.0	50 27.7	+21.8	63.1
51	46 32.5	+10.3	53.9	47 41.7	+12.8	55.6	48 47.8	+15.4	57.5	49 50.5	+18.0	59.5	50 49.5	+20.7	61.6
52	46 42.8	+9.3	52.5	47 54.5	+11.7	54.2	49 03.2	+14.2	56.0	50 08.5	+16.8	58.0	51 10.2	+19.5	60.1
53	46 52.1	+8.2	51.0	48 06.2	+10.6	52.7	49 17.4	+13.1	54.6	50 25.3	+15.7	56.5	51 29.7	+18.3	58.6
54	47 00.3	+7.1	49.6	48 16.8	+9.4	51.2	49 30.5	+11.8	53.1	50 41.0	+14.4	55.0	51 48.0	+17.1	57.1
55	47 07.4	+6.0	48.1	48 26.2	+8.3	49.8	49 42.3	+10.7	51.5	50 55.4	+13.2	53.5	52 05.1	+15.9	55.5
56	47 13.4	+4.8	46.6	48 34.5	+7.1	48.3	49 53.0	+9.5	50.0	51 08.6	+12.0	51.9	52 21.0	+14.6	53.9
57	47 18.2	+3.7	45.2	48 41.6	+6.0	46.8	50 02.5	+8.3	48.5	51 20.6	+10.8	50.3	52 35.6	+13.3	52.3
58	47 21.9	+2.6	43.7	48 47.6	+4.7	45.3	50 10.8	+7.1	46.9	51 31.4	+9.4	48.8	52 48.9	+12.0	50.7
59	47 24.5	+1.5	42.2	48 52.3	+3.6	43.7	50 17.9	+5.7	45.4	51 40.8	+8.1	47.2	53 00.9	+10.6	49.1
60	47 26.0	+0.3	40.7	48 55.9	+2.4	42.2	50 23.6	+4.6	43.8	51 48.9	+6.9	45.6	53 11.5	+9.3	47.5
61	47 26.3	-0.8	39.3	48 58.3	+1.1	40.7	50 28.2	+3.2	42.3	51 55.8	+5.5	44.0	53 20.8	+7.9	45.8
62	47 25.5	-2.0	37.8	48 59.4	0.0	39.2	50 31.4	+2.0	40.7	52 01.3	+4.2	42.3	53 28.7	+6.5	44.1
63	47 23.5	-3.1	36.3	48 59.4	-1.3	37.7	50 33.4	+0.8	39.1	52 05.5	+2.8	40.7	53 35.2	+5.1	42.5
64	47 20.4	-4.2	34.8	48 58.1	-2.4	36.1	50 34.2	-0.6	37.5	52 08.3	+1.5	39.1	53 40.3	+3.7	40.8
65	47 16.2	-5.4	33.4	48 55.7	-3.7	34.6	50 33.6	-1.8	36.0	52 09.8	+0.2	37.5	53 44.0	+2.3	39.1
66	47 10.8	-6.5	31.9	48 52.0	-4.8	33.1	50 31.8	-3.1	34.4	52 10.0	-1.2	35.8	53 46.3	+0.8	37.4
67	47 04.3	-7.6	30.4	48 47.2	-6.0	31.6	50 28.7	-4.3	32.8	52 08.8	-2.6	34.2	53 47.1	-0.6	35.7
68	46 56.7	-8.7	29.0	48 41.2	-7.2	30.1	50 24.4	-5.6	31.3	52 06.2	-3.8	32.6	53 46.5	-2.0	34.0
69	46 48.0	-9.7	27.5	48 34.0	-8.4	28.6	50 18.8	-6.9	29.7	52 02.4	-5.3	31.0	53 44.5	-3.4	32.3
70	46 38.3	-10.9	26.1	48 25.6	-9.5	27.1	50 11.9	-8.1	28.1	51 57.1	-6.5	29.3	53 41.1	-4.9	30.7
71	46 27.4	-11.9	24.7	48 16.1	-10.7	25.6	50 03.8	-9.3	26.6	51 50.6	-7.9	27.7	53 36.2	-6.3	29.0
72	46 15.5	-13.0	23.2	48 05.4	-11.8	24.1	49 54.5	-10.5	25.1	51 42.7	-9.1	26.1	53 29.9	-7.6	27.3
73	46 02.5	-14.0	21.8	47 53.6	-12.9	22.6	49 44.0	-11.7	23.5	51 33.6	-10.5	24.5	53 22.3	-9.1	25.6
74	45 48.5	-15.0	20.4	47 40.7	-14.0	21.2	49 32.3	-12.9	22.0	51 23.1	-11.7	23.0	53 13.2	-10.4	24.0
75	45 33.5	-16.0	19.0	47 26.7	-15.1	19.7	49 19.4	-14.1	20.5	51 11.4	-12.9	21.4	53 02.8	-11.7	22.3
76	45 17.5	-17.0	17.7	47 11.6	-16.1	18.3	49 05.3	-15.2	19.0	50 58.5	-14.2	19.8	52 51.1	-13.1	20.7
77	45 00.5	-17.9	16.3	46 55.5	-17.1	16.9	48 50.1	-16.3	17.6	50 44.3	-15.4	18.3	52 38.0	-14.4	19.1
78	44 42.6	-18.9	15.0	46 38.4	-18.2	15.5	48 33.8	-17.4	16.1	50 28.9	-16.5	16.8	52 23.6	-15.7	17.5
79	44 23.7	-19.8	13.6	46 20.2	-19.2	14.1	48 16.4	-18.4	14.7	50 12.4	-17.8	15.3	52 07.9	-16.9	15.9
80	44 03.9	-20.7	12.3	46 01.0	-20.1	12.8	47 58.0	-19.6	13.2	49 54.6	-18.8	13.8	51 51.0	-18.1	14.4
81	43 43.2	-21.6	11.0	45 40.9	-21.1	11.4	47 38.4	-20.5	11.8	49 35.8	-19.9	12.3	51 32.9	-19.3	12.8
82	43 21.6	-22.4	9.7	45 19.8	-22.0	10.1	47 17.9	-21.5	10.4	49 15.9	-21.1	10.9	51 13.6	-20.5	11.3
83	42 59.2	-23.3	8.5	44 57.8	-22.9	8.7	46 56.4	-22.5	9.1	48 54.8	-22.0	9.4	50 53.1	-21.6	9.8
84	42 35.9	-24.1	7.2	44 34.9	-23.7	7.4	46 33.9	-23.4	7.7	48 32.8	-23.1	8.0	50 31.5	-22.7	8.3
85	42 11.8	-24.8	6.0	44 11.2	-24.7	6.2	46 10.5	-24.4	6.4	48 09.7	-24.1	6.6	50 08.8	-23.7	6.9
86	41 47.0	-25.7	4.7	43 46.5	-25.4	4.9	45 46.1	-25.3	5.1	47 45.6	-25.0	5.3	49 45.1	-24.8	5.5
87	41 21.3	-26.4	3.5	43 21.1	-26.3	3.6	45 20.8	-26.1	3.8	47 20.6	-26.0	3.9	49 20.3	-25.8	4.1
88	40 54.9	-27.1	2.3	42 54.8	-27.0	2.4	44 54.7	-26.9	2.5	46 54.6	-26.9	2.6	48 54.5	-26.8	2.7
89	40 27.8	-27.8	1.2	42 27.8	-27.8	1.2	44 27.8	-27.8	1.2	46 27.7	-27.7	1.3	48 27.7	-27.7	1.3
90	40 00.0	-28.5	0.0	42 00.0	-28.5	0.0	44 00.0	-28.6	0.0	46 00.0	-28.6	0.0	48 00.0	-28.6	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 62°, 298°

Hc			d			Z			Hc			d			Z			Hc			d			Z			Hc			d			Z			Dec.	
°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	
0	34.2	+44.2	49.9	1	51.5	+45.2	49.9	3	08.7	+46.3	50.0	4	25.8	+47.3	50.1	5	42.7	+48.3	50.2	30																	
1	18.4	+44.1	49.2	2	36.7	+45.3	49.3	3	55.0	+46.2	49.3	5	13.1	+47.2	49.5	6	31.0	+48.2	49.6	31																	
2	02.5	+44.2	48.5	3	22.0	+45.2	48.6	4	41.2	+46.3	48.7	6	00.3	+47.2	48.8	7	19.2	+48.1	49.0	32																	
2	46.7	+44.1	47.8	4	07.2	+45.1	47.9	5	27.5	+46.1	48.1	6	47.5	+47.2	48.2	8	07.3	+48.2	48.4	33																	
3	30.8	+44.1	47.2	4	52.3	+45.2	47.3	6	13.6	+46.2	47.4	7	34.7	+47.1	47.6	8	55.5	+48.0	47.8	34																	
4	14.9	+44.1	46.5	5	37.5	+45.1	46.6	6	59.8	+46.1	46.8	8	21.8	+47.1	47.0	9	43.5	+48.0	47.2	35																	
4	59.0	+44.0	45.8	6	22.6	+45.0	46.0	7	45.9	+46.0	46.1	9	08.9	+46.9	46.3	10	31.5	+47.9	46.6	36																	
5	43.0	+44.0	45.1	7	07.6	+45.0	45.3	8	31.9	+45.9	45.5	9	55.8	+47.0	45.7	11	19.4	+47.9	46.0	37																	
6	27.0	+43.9	44.4	7	52.6	+44.9	44.6	9	17.8	+45.9	44.8	10	42.8	+46.8	45.1	12	07.3	+47.7	45.4	38																	
7	10.9	+43.9	43.8	8	37.5	+44.8	43.9	10	03.7	+45.8	44.2	11	29.6	+46.7	44.4	12	55.0	+47.7	44.7	39																	
7	54.8	+43.8	43.1	9	22.3	+44.8	43.3	10	49.5	+45.8	43.5	12	16.3	+46.7	43.8	13	42.7	+47.6	44.1	40																	
8	38.6	+43.7	42.4	10	07.1	+44.7	42.6	11	35.3	+45.6	42.9	13	03.0	+46.6	43.2	14	30.3	+47.5	43.5	41																	
9	22.3	+43.7	41.7	10	51.8	+44.6	41.9	12	20.9	+45.5	42.2	13	49.6	+46.4	42.5	15	17.8	+47.4	42.9	42																	
10	06.0	+43.5	41.0	11	36.4	+44.5	41.2	13	06.4	+45.5	41.5	14	36.0	+46.4	41.9	16	05.2	+47.2	42.2	43																	
10	49.5	+43.5	40.3	12	20.9	+44.4	40.6	13	51.9	+45.3	40.9	15	22.4	+46.2	41.2	16	52.4	+47.1	41.6	44																	
11	33.0	+43.3	39.6	13	05.3	+44.3	39.9	14	37.2	+45.2	40.2	16	08.6	+46.1	40.5	17	39.5	+47.1	40.9	45																	
12	16.3	+43.3	38.9	13	49.6	+44.1	39.2	15	22.4	+45.1	39.5	16	54.7	+46.0	39.9	18	26.6	+46.8	40.3	46																	
12	59.6	+43.1	38.2	14	33.7	+44.1	38.5	16	07.5	+44.9	38.8	17	40.7	+45.9	39.2	19	13.4	+46.8	39.6	47																	
13	42.7	+43.0	37.5	15	17.8	+43.9	37.8	16	52.4	+44.8	38.1	18	26.6	+45.7	38.5	20	00.2	+46.5	39.0	48																	
14	25.7	+42.9	36.7	16	01.7	+43.8	37.1	17	37.2	+44.7	37.4	19	12.3	+45.5	37.8	20	46.7	+46.5	38.3	49																	
15	08.6	+42.7	36.0	16	45.5	+43.6	36.4	18	21.9	+44.5	36.7	19	57.8	+45.4	37.1	21	33.2	+46.2	37.6	50																	
15	51.3	+42.6	35.3	17	29.1	+43.4	35.6	19	06.4	+44.3	36.0	20	43.2	+45.2	36.4	22	19.4	+46.1	36.9	51																	
16	33.9	+42.5	34.6	18	12.5	+43.4	34.9	19	50.7	+44.2	35.3	21	28.4	+45.0	35.7	23	05.5	+45.9	36.2	52																	
17	16.4	+42.2	33.8	18	55.9	+43.1	34.2	20	34.9	+44.0	34.6	22	13.4	+44.9	35.0	23	51.4	+45.7	35.5	53																	
17	58.6	+42.1	33.1	19	39.0	+42.9	33.4	21	18.9	+43.8	33.9	22	58.3	+44.6	34.3	24	37.1	+45.5	34.8	54																	
18	40.7	+41.9	32.3	20	21.9	+42.8	32.7	22	02.7	+43.6	33.1	23	42.9	+44.5	33.6	25	22.6	+45.3	34.1	55																	
19	22.6	+41.8	31.6	21	04.7	+42.5	31.9	22	46.3	+43.4	32.4	24	27.4	+44.2	32.8	26	07.9	+45.0	33.4	56																	
20	04.4	+41.5	30.8	21	47.2	+42.4	31.2	23	29.7	+43.1	31.6	25	11.6	+44.0	32.1	26	52.9	+44.9	32.6	57																	
20	45.9	+41.3	30.0	22	29.6	+42.1	30.4	24	12.8	+43.0	30.9	25	55.6	+43.7	31.3	27	37.8	+44.6	31.9	58																	
21	27.2	+41.1	29.2	23	11.7	+41.9	29.7	24	55.8	+42.7	30.1	26	39.3	+43.6	30.6	28	22.4	+44.3	31.1	59																	
22	08.3	+40.9	28.5	23	53.6	+41.7	28.9	25	38.5	+42.4	29.3	27	22.9	+43.2	29.8	29	06.7	+44.1	30.4	60																	
22	49.2	+40.6	27.7	24	35.3	+41.4	28.1	26	20.9	+42.2	28.5	28	06.1	+43.0	29.0	29	50.8	+43.8	29.6	61																	
23	29.8	+40.4	26.9	25	16.7	+41.2	27.3	27	03.1	+42.0	27.7	28	49.1	+42.7	28.2	30	34.6	+43.4	28.8	62																	
24	10.2	+40.2	26.1	25	57.9	+40.8	26.5	27	45.1	+41.6	26.9	29	31.8	+42.4	27.4	31	18.0	+43.2	28.0	63																	
24	50.4	+39.8	25.2	26	38.7	+40.6	25.7	28	26.7	+41.3	26.1	30	14.2	+42.1	26.6	32	01.2	+42.9	27.2	64																	
25	30.2	+39.6	24.4	27	19.3	+40.3	24.8	29	08.0	+41.1	25.3	30	56.3	+41.8	25.8	32	44.1	+42.6	26.3	65																	
26	09.8	+39.3	23.6	27	59.6	+40.0	24.0	29	49.1	+40.7	24.5	31	38.1	+41.4	24.9	33	26.7	+42.1	25.5	66																	
26	49.1	+39.0	22.7	28	39.6	+39.7	23.2	30	29.8	+40.4	23.6	32	19.5	+41.1	24.1	34	08.8	+41.9	24.6	67																	
27	28.1	+38.7	21.9	29	19.3	+39.3	22.3	31	10.2	+40.0	22.7	33	00.6	+40.8	23.2	34	50.7	+41.4	23.8	68																	
28	06.8	+38.3	21.0	29	58.6	+39.0	21.4	31	50.2	+39.6	21.9	33	41.4	+40.3	22.4	35	32.1	+41.1	22.9	69																	
28	45.1	+38.0	20.1	30	37.6	+38.7	20.5	32	29.8	+39.3	21.0	34	21.7	+40.0	21.5	36	13.2	+40.6	22.0	70																	
29	23.1	+37.7	19.3	31	16.3	+38.2	19.7	33	09.1	+38.9	20.1	35	01.7	+39.5	20.6	36	53.8	+40.3	21.1	71																	
30	00.8	+37.2	18.4	31	54.5	+37.9	18.7	33	48.0	+38.5	19.2	35	41.2	+39.1	19.6	37	34.1	+39.7	20.1	72																	
30	38.0	+36.9	17.5	32	32.4	+37.5	17.8	34	26.5	+38.1	18.2	36	20.3	+38.7	18.7	38	13.8	+39.3	19.2	73																	
31	14.9	+36.5	16.5	33	09.9	+37.0	16.9	35	04.6	+37.6	17.3	36	59.0	+38.2	17.7	38	53.1	+38.9	18.2	74																	
31	51.4	+36.1	15.6	33	46.9	+36.6	16.0	35	42.2	+37.1	16.3	37	37.2	+37.7	16.8	39	32.0	+38.3	17.2	75																	
32	27.5	+35.7	14.7	34	23.5	+36.2	15.0	36	19.3	+36.7	15.4	38	14.9	+37.2	15.8	40	10.3	+37.8	16.2	76																	
33	03.2	+35.2	13.7	34	59.7	+35.7	14.0	36	56.0	+36.2	14.4	38	52.1	+36.7	14.8	40	48.1	+37.2	15.2	77																	
33	38.4	+34.7	12.7	35	35.4	+35.2	13.0	37	32.2	+35.6	13.4																										

62°, 298° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	40 07.1	+39.9	89.3	40 06.9	+41.9	90.9	40 03.1	+43.9	92.6	39 55.9	+45.7	94.3	39 45.2	+47.4	96.0
31	40 47.0	+39.5	88.3	40 48.8	+41.6	90.0	40 47.0	+43.5	91.7	40 41.6	+45.4	93.4	40 32.6	+47.1	95.2
32	41 26.5	+38.9	87.3	41 30.4	+41.0	89.0	41 30.5	+43.0	90.8	41 27.0	+44.9	92.6	41 19.7	+46.8	94.3
33	42 05.4	+38.4	86.3	42 11.4	+40.5	88.1	42 13.5	+42.6	89.9	42 11.9	+44.5	91.7	42 06.5	+46.3	93.5
34	42 43.8	+37.8	85.2	42 51.9	+40.0	87.1	42 56.1	+42.1	88.9	42 56.4	+44.1	90.8	42 52.8	+46.0	92.6
35	43 21.6	+37.2	84.2	43 31.9	+39.4	86.0	43 38.2	+41.5	87.9	43 40.5	+43.6	89.8	43 38.8	+45.6	91.8
36	43 58.8	+36.6	83.1	44 11.3	+38.8	85.0	44 19.7	+41.0	86.9	44 24.1	+43.1	88.9	44 24.4	+45.1	90.9
37	44 35.4	+35.9	82.0	44 50.1	+38.2	83.9	45 00.7	+40.5	85.9	45 07.2	+42.6	87.9	45 09.5	+44.6	89.9
38	45 11.3	+35.2	80.8	45 28.3	+37.6	82.8	45 41.2	+39.9	84.9	45 49.8	+42.1	86.9	45 54.1	+44.2	89.0
39	45 46.5	+34.5	79.7	46 05.9	+36.9	81.7	46 21.1	+39.2	83.8	46 31.9	+41.5	85.9	46 38.3	+43.6	88.0
40	46 21.0	+33.8	78.5	46 42.8	+36.2	80.6	47 00.3	+38.6	82.7	47 13.4	+40.9	84.8	47 21.9	+43.2	87.0
41	46 54.8	+33.0	77.3	47 19.0	+35.5	79.4	47 38.9	+37.9	81.6	47 54.3	+40.2	83.7	48 05.1	+42.5	85.9
42	47 27.8	+32.2	76.1	47 54.5	+34.7	78.2	48 16.8	+37.2	80.4	48 34.5	+39.6	82.6	48 47.6	+41.9	84.9
43	48 00.0	+31.3	74.8	48 29.2	+34.0	77.0	48 54.0	+36.5	79.2	49 14.1	+38.9	81.5	49 29.5	+41.3	83.8
44	48 31.3	+30.5	73.5	49 03.2	+33.1	75.7	49 30.5	+35.6	78.0	49 53.0	+38.2	80.3	50 10.8	+40.6	82.7
45	49 01.8	+29.6	72.2	49 36.3	+32.2	74.4	50 06.1	+34.9	76.7	50 31.2	+37.4	79.1	50 51.4	+40.0	81.5
46	49 31.4	+28.7	70.9	50 08.5	+31.3	73.1	50 41.0	+33.9	75.5	51 08.6	+36.6	77.9	51 31.4	+39.1	80.3
47	50 00.1	+27.6	69.5	50 39.8	+30.4	71.8	51 14.9	+33.1	74.2	51 45.2	+35.8	76.6	52 10.5	+38.4	79.1
48	50 27.7	+26.7	68.1	51 10.2	+29.4	70.4	51 48.0	+32.2	72.8	52 21.0	+34.9	75.3	52 48.9	+37.6	77.8
49	50 54.4	+25.6	66.7	51 39.6	+28.4	69.0	52 20.2	+31.2	71.4	52 55.9	+33.9	73.9	53 26.5	+36.7	76.5
50	51 20.0	+24.6	65.3	52 08.0	+27.3	67.6	52 51.4	+30.1	70.0	53 29.8	+33.0	72.6	54 03.2	+35.7	75.2
51	51 44.6	+23.4	63.8	52 35.3	+26.3	66.2	53 21.5	+29.1	68.6	54 02.8	+32.0	71.2	54 38.9	+34.8	73.8
52	52 08.0	+22.3	62.3	53 01.6	+25.1	64.7	53 50.6	+28.0	67.1	54 34.8	+30.8	69.7	55 13.7	+33.8	72.4
53	52 30.3	+21.1	60.8	53 26.7	+23.9	63.1	54 18.6	+26.8	65.6	55 05.6	+29.8	68.2	55 47.5	+32.7	70.9
54	52 51.4	+19.8	59.3	53 50.6	+22.7	61.6	54 45.4	+25.6	64.1	55 35.4	+28.6	66.7	56 20.2	+31.6	69.4
55	53 11.2	+18.6	57.7	54 13.3	+21.5	60.0	55 11.0	+24.4	62.5	56 04.0	+27.4	65.1	56 51.8	+30.5	67.9
56	53 29.8	+17.4	56.1	54 34.8	+20.1	58.4	55 35.4	+23.1	60.9	56 31.4	+26.1	63.5	57 22.3	+29.2	66.3
57	53 47.2	+16.0	54.5	54 54.9	+18.8	56.8	55 58.5	+21.7	59.2	56 57.5	+24.8	61.9	57 51.5	+27.9	64.7
58	54 03.2	+14.6	52.8	55 13.7	+17.5	55.1	56 20.2	+20.4	57.6	57 22.3	+23.4	60.2	58 19.4	+26.5	63.0
59	54 17.8	+13.3	51.2	55 31.2	+16.0	53.4	56 40.6	+19.0	55.9	57 45.7	+22.0	58.5	58 45.9	+25.2	61.3
60	54 31.1	+11.9	49.5	55 47.2	+14.6	51.7	56 59.6	+17.5	54.1	58 07.7	+20.5	56.7	59 11.1	+23.7	59.5
61	54 43.0	+10.4	47.8	56 01.8	+13.2	50.0	57 17.1	+16.0	52.4	58 28.2	+19.0	54.9	59 34.8	+22.1	57.7
62	54 53.4	+9.0	46.1	56 15.0	+11.6	48.3	57 33.1	+14.4	50.6	58 47.2	+17.4	53.1	59 56.9	+20.6	55.9
63	55 02.4	+7.5	44.4	56 26.6	+10.1	46.5	57 47.5	+12.9	48.8	59 04.6	+15.9	51.3	60 17.5	+19.0	54.0
64	55 09.9	+6.1	42.7	56 36.7	+8.6	44.7	58 00.4	+11.3	46.9	59 20.5	+14.1	49.4	60 36.5	+17.2	52.1
65	55 16.0	+4.5	40.9	56 45.3	+7.0	42.9	58 11.7	+9.6	45.1	59 34.6	+12.5	47.5	60 53.7	+15.5	50.1
66	55 20.5	+3.0	39.2	56 52.3	+5.4	41.1	58 21.3	+7.9	43.2	59 47.1	+10.7	45.5	61 09.2	+13.8	48.1
67	55 23.5	+1.5	37.4	56 57.7	+3.8	39.3	58 29.2	+6.3	41.3	59 57.8	+9.0	43.6	61 23.0	+11.9	46.1
68	55 25.0	0.0	35.6	57 01.5	+2.2	37.4	58 35.5	+4.6	39.4	60 06.8	+7.2	41.6	61 34.9	+10.0	44.0
69	55 25.0	-1.5	33.9	57 03.7	+0.6	35.6	58 40.1	+2.9	37.5	60 14.0	+5.4	39.6	61 44.9	+8.1	41.9
70	55 23.5	-3.0	32.1	57 04.3	-1.1	33.7	58 43.0	+1.1	35.6	60 19.4	+3.5	37.6	61 53.0	+6.2	39.9
71	55 20.5	-4.6	30.4	57 03.2	-2.6	31.9	58 44.1	-0.5	33.6	60 22.9	+1.7	35.6	61 59.2	+4.3	37.7
72	55 15.9	-6.0	28.6	57 00.6	-4.3	30.1	58 43.6	-2.3	31.7	60 24.6	-0.1	33.5	62 03.5	+2.2	35.6
73	55 09.9	-7.5	26.9	56 56.3	-5.9	28.2	58 41.3	-4.1	29.8	60 24.5	-2.0	31.5	62 05.7	+0.3	33.5
74	55 02.4	-9.0	25.1	56 50.4	-7.4	26.4	58 37.2	-5.7	27.9	60 22.5	-3.8	29.5	62 06.0	-1.6	31.3
75	54 53.4	-10.5	23.4	56 43.0	-9.0	24.6	58 31.5	-7.4	26.0	60 18.7	-5.6	27.5	62 04.4	-3.7	29.2
76	54 42.9	-11.8	21.7	56 34.0	-10.5	22.8	58 24.1	-9.1	24.1	60 13.1	-7.5	25.5	62 00.7	-5.6	27.1
77	54 31.1	-13.3	20.0	56 23.5	-12.1	21.0	58 15.0	-10.7	22.2	60 05.6	-9.2	23.5	61 55.1	-7.6	25.0
78	54 17.8	-14.7	18.3	56 11.4	-13.6	19.3	58 04.3	-12.3	20.3	59 56.4	-11.0	21.5	61 47.5	-9.4	22.9
79	54 03.1	-16.0	16.7	55 57.8	-15.0	17.5	57 52.0	-14.0	18.5	59 45.4	-12.7	19.5	61 38.1	-11.4	20.8
80	53 47.1	-17.3	15.0	55 42.8	-16.5	15.8	57 38.0	-15.5	16.6	59 32.7	-14.4	17.6	61 26.7	-13.1	18.7
81	53 29.8	-18.6	13.4	55 26.3	-17.8	14.1	57 22.5	-17.0	14.8	59 18.3	-16.0	15.7	61 13.6	-15.0	16.7
82	53 11.2	-19.9	11.8	55 08.5	-19.2	12.4	57 05.5	-18.4	13.1	59 02.3	-17.7	13.8	60 58.6	-16.8	14.7
83	52 51.3	-21.1	10.3	54 49.3	-20.5	10.8	56 47.1	-19.9	11.3	58 44.6	-19.2	12.0	60 41.8	-18.4	12.7
84	52 30.2	-22.3	8.7	54 28.8	-21.9	9.1	56 27.2	-21.3	9.6	58 25.4	-20.8	10.2	60 23.4	-20.1	10.8
85	52 07.9	-23.4	7.2	54 06.9	-23.0	7.5	56 05.9	-22.7	7.9	58 04.6	-22.2	8.4	60 03.3	-21.7	8.9
86	51 44.5	-24.5	5.7	53 43.9	-24.3	6.0	55 43.2	-24.0	6.3	57 42.4	-23.6	6.6	59 41.6	-23.2	7.0
87	51 20.0	-25.7	4.2	53 19.6	-25.4	4.4	55 19.2	-25.2	4.7	57 18.8	-25.0	4.9	59 18.4	-24.8	5.2
88	50 54.3	-26.6	2.8	52 54.2	-26.6	2.9	54 54.0	-26.4	3.1	56 53.8	-26.2	3.2	58 53.6	-26.1	3.4
89	50 27.7	-27.7	1.4	52 27.6	-27.6	1.4	54 27.6	-27.6	1.5	56 27.6	-27.6	1.6	58 27.5	-27.5	1.7
90	50 00.0	-28.6	0.0	52 00.0	-28.7	0.0	54 00.0	-28.7	0.0	56 00.0	-28.8	0.0	58 00.0	-28.8	0.0
	50°			52°			54°			56°			58°		

LATITUDE CONTRARY NAME

L.H.A. 62°, 298°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
6	59.3	+49.3	50.4	8	15.7	+50.1	50.6	9	31.7	+51.0	50.8	10	47.2	+51.9	51.1	30
7	48.6	+49.1	49.8	9	05.8	+50.1	50.0	10	22.7	+50.9	50.3	11	39.1	+51.8	50.6	31
8	37.7	+49.1	49.2	9	55.9	+50.0	49.5	11	13.6	+50.9	49.8	12	30.9	+51.7	50.1	32
9	26.8	+49.1	48.6	10	45.9	+49.9	48.9	12	04.5	+50.8	49.2	13	22.6	+51.7	49.6	33
10	15.9	+48.9	48.1	11	35.8	+49.9	48.4	12	55.3	+50.8	48.7	14	14.3	+51.6	49.0	34
11	04.8	+48.9	47.5	12	25.7	+49.8	47.8	13	46.1	+50.7	48.1	15	05.9	+51.5	48.5	35
11	53.7	+48.9	46.9	13	15.5	+49.7	47.2	14	36.8	+50.6	47.6	15	57.4	+51.4	48.0	36
12	42.6	+48.7	46.3	14	05.2	+49.7	46.6	15	27.4	+50.5	47.0	16	48.8	+51.4	47.4	37
13	31.3	+48.7	45.7	14	54.9	+49.6	46.1	16	17.9	+50.4	46.5	17	40.2	+51.3	46.9	38
14	20.0	+48.6	45.1	15	44.5	+49.4	45.5	17	08.3	+50.3	45.9	18	31.5	+51.1	46.4	39
15	08.6	+48.5	44.5	16	33.9	+49.4	44.9	17	58.6	+50.3	45.3	19	22.6	+51.1	45.8	40
15	57.1	+48.4	43.9	17	23.3	+49.2	44.3	18	48.9	+50.1	44.7	20	13.7	+51.0	45.2	41
16	45.5	+48.2	43.3	18	12.5	+49.2	43.7	19	39.0	+50.0	44.2	21	04.7	+50.8	44.7	42
17	33.7	+48.2	42.6	19	01.7	+49.0	43.1	20	29.0	+49.9	43.6	21	55.5	+50.8	44.1	43
18	21.9	+48.0	42.0	19	50.7	+48.9	42.5	21	18.9	+49.7	43.0	22	46.3	+50.6	43.5	44
19	09.9	+47.9	41.4	20	39.6	+48.8	41.9	22	08.6	+49.7	42.4	23	36.9	+50.5	43.0	45
19	57.8	+47.8	40.7	21	28.4	+48.6	41.2	22	58.3	+49.5	41.8	24	27.4	+50.3	42.4	46
20	45.6	+47.6	40.1	22	17.0	+48.5	40.6	23	47.8	+49.3	41.2	25	17.7	+50.2	41.8	47
21	33.2	+47.4	39.4	23	05.5	+48.3	40.0	24	37.1	+49.2	40.5	26	07.9	+50.0	41.2	48
22	20.6	+47.3	38.8	23	53.8	+48.2	39.3	25	26.3	+49.0	39.9	26	57.9	+49.9	40.5	49
23	07.9	+47.1	38.1	24	42.0	+48.0	38.7	26	15.3	+48.8	39.3	27	47.8	+49.7	39.9	50
23	55.0	+47.0	37.4	25	30.0	+47.8	38.0	27	04.1	+48.7	38.6	28	37.5	+49.5	39.3	51
24	42.0	+46.7	36.8	26	17.8	+47.6	37.3	27	52.8	+48.5	38.0	29	27.0	+49.3	38.6	52
25	28.7	+46.6	36.1	27	05.4	+47.4	36.6	28	41.3	+48.3	37.3	30	16.3	+49.2	38.0	53
26	15.3	+46.4	35.4	27	52.8	+47.2	36.0	29	29.6	+48.0	36.6	31	05.5	+48.9	37.3	54
27	01.7	+46.1	34.6	28	40.0	+47.0	35.3	30	17.6	+47.9	35.9	31	54.4	+48.7	36.6	55
27	47.8	+45.9	33.9	29	27.0	+46.8	34.5	31	05.5	+47.6	35.2	32	43.1	+48.4	35.9	56
28	33.7	+45.7	33.2	30	13.8	+46.5	33.8	31	53.1	+47.3	34.5	33	31.5	+48.3	35.2	57
29	19.4	+45.4	32.5	31	00.3	+46.2	33.1	32	40.4	+47.1	33.8	34	19.8	+47.9	34.5	58
30	04.8	+45.1	31.7	31	46.5	+46.0	32.3	33	27.5	+46.9	33.0	35	07.7	+47.7	33.8	59
30	49.9	+44.9	30.9	32	32.5	+45.7	31.6	34	14.4	+46.5	32.3	35	55.4	+47.4	33.0	60
31	34.8	+44.6	30.2	33	18.2	+45.5	30.8	35	00.9	+46.3	31.5	36	42.8	+47.1	32.3	61
32	19.4	+44.3	29.4	34	03.7	+45.1	30.0	35	47.2	+46.0	30.7	37	29.9	+46.9	31.5	62
33	03.7	+44.0	28.6	34	48.8	+44.8	29.2	36	33.2	+45.6	29.9	38	16.8	+46.4	30.7	63
33	47.7	+43.7	27.8	35	33.6	+44.5	28.4	37	18.8	+45.3	29.1	39	03.2	+46.2	29.9	64
34	31.4	+43.3	26.9	36	18.1	+44.1	27.6	38	04.1	+44.9	28.3	39	49.4	+45.7	29.1	65
35	14.7	+43.0	26.1	37	02.2	+43.7	26.7	38	49.0	+44.6	27.4	40	35.1	+45.4	28.2	66
35	57.7	+42.6	25.2	37	45.9	+43.4	25.9	39	33.6	+44.2	26.6	41	20.5	+45.0	27.4	67
36	40.3	+42.2	24.4	38	29.3	+43.0	25.0	40	17.8	+43.7	25.7	42	05.5	+44.6	26.5	68
37	22.5	+41.7	23.5	39	12.3	+42.5	24.1	41	01.5	+43.3	24.8	42	50.1	+44.2	25.6	69
38	04.2	+41.4	22.6	39	54.8	+42.1	23.2	41	44.8	+42.9	23.9	43	34.3	+43.6	24.6	70
38	45.6	+40.9	21.6	40	36.9	+41.7	22.3	42	27.7	+42.4	22.9	44	17.9	+43.2	23.7	71
39	26.5	+40.5	20.7	41	18.6	+41.1	21.3	43	10.1	+41.9	22.0	45	01.1	+42.7	22.7	72
40	07.0	+40.0	19.7	41	59.7	+40.7	20.3	43	52.0	+41.4	21.0	45	43.8	+42.1	21.7	73
40	47.0	+39.4	18.7	42	40.4	+40.1	19.3	44	33.4	+40.8	20.0	46	25.9	+41.6	20.7	74
41	26.4	+38.9	17.7	43	20.5	+39.6	18.3	45	14.2	+40.3	18.9	47	07.5	+41.0	19.6	75
42	05.3	+38.4	16.7	44	00.1	+39.0	17.3	45	54.5	+39.7	17.9	47	48.5	+40.4	18.5	76
42	43.7	+37.8	15.7	44	39.1	+38.4	16.2	46	34.2	+39.0	16.8	48	28.9	+39.7	17.4	77
43	21.5	+37.2	14.6	45	17.5	+37.8	15.1	47	13.2	+38.4	15.7	49	08.6	+39.0	16.3	78
43	58.7	+36.6	13.5	45	55.3	+37.1	14.0	47	51.6	+37.6	14.5	49	47.6	+38.2	15.1	79
44	35.3	+35.9	12.4	46	32.4	+36.4	12.9	48	29.2	+37.0	13.4	50	25.8	+37.6	13.9	80
45	11.2	+35.2	11.3	47	08.8	+35.7	11.7	49	06.2	+36.2	12.2	51	03.4	+36.7	12.7	81
45	46.4	+34.5	10.1	47	44.5	+34.9	10.5	49	42.4	+35.4	11.0	51	40.1	+35.9	11.4	82
46	20.9	+33.8	9.0	48	19.4	+34.2	9.3	50	17.8	+34.5	9.7	52	16.0	+35.0	10.1	83
46	54.7	+33.0	7.8	48	53.6	+33.3	8.1	50	52.3	+33.7	8.4	52	51.0	+34.1	8.8	84
47	27.7	+32.2	6.5	49	26.9	+32.5	6.8	51	26.0	+32.8	7.1	53	25.1	+33.1	7.4	85
47	59.9	+31.4	5.3	49	59.4	+31.6	5.5	51	58.8	+31.8	5.7	53	58.2	+32.1	6.0	86
48	31.3	+30.5	4.0	50	31.0	+30.6	4.2	52	30.6	+30.9	4.4	54	30.3	+31.0	4.6	87
49	01.8	+29.6	2.7	51	01.6	+29.7	2.8	53	01.5	+29.8	2.9	55	01.3	+29.9	3.1	88
49	31.4	+28.6	1.4	51	31.3	+28.7	1.4	53	31.3	+28.7	1.5	55	31.2	+28.8	1.6	89
50	00.0	+27.7	0.0	52	00.0	+27.6	0.0	54	00.0	+27.6	0.0	56	00.0	+27.6	0.0	90
50°			52°			54°			56°			58°				

LATITUDE SAME NAME

L.H.A. 118°, 242°

64°, 296° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	35 21.9	+17.5	72.6	35 56.3	+19.9	74.0	36 27.9	+22.2	75.4	36 56.6	+24.6	76.9	37 22.3	+26.9	78.4
31	35 39.4	+16.9	71.5	36 16.2	+19.2	72.9	36 50.1	+21.6	74.3	37 21.2	+23.9	75.7	37 49.2	+26.3	77.2
32	35 56.3	+16.2	70.3	36 35.4	+18.5	71.7	37 11.7	+20.9	73.1	37 45.1	+23.2	74.6	38 15.5	+25.5	76.1
33	36 12.5	+15.4	69.1	36 53.9	+17.8	70.5	37 32.6	+20.1	71.9	38 08.3	+22.5	73.4	38 41.0	+24.9	74.9
34	36 27.9	+14.7	67.9	37 11.7	+17.1	69.3	37 52.7	+19.4	70.7	38 30.8	+21.8	72.2	39 05.9	+24.2	73.8
35	36 42.6	+14.0	66.7	37 28.8	+16.3	68.1	38 12.1	+18.7	69.5	38 52.6	+21.1	71.0	39 30.1	+23.4	72.6
36	36 56.6	+13.3	65.5	37 45.1	+15.6	66.9	38 30.8	+18.0	68.3	39 13.7	+20.3	69.8	39 53.5	+22.7	71.4
37	37 09.9	+12.4	64.3	38 00.7	+14.8	65.7	38 48.8	+17.1	67.1	39 34.0	+19.5	68.6	40 16.2	+22.0	70.2
38	37 22.3	+11.8	63.0	38 15.5	+14.0	64.4	39 05.9	+16.4	65.9	39 53.5	+18.8	67.4	40 38.2	+21.1	69.0
39	37 34.1	+10.9	61.8	38 29.5	+13.2	63.2	39 22.3	+15.6	64.6	40 12.3	+17.9	66.1	40 59.3	+20.4	67.7
40	37 45.0	+10.1	60.5	38 42.7	+12.5	61.9	39 37.9	+14.7	63.4	40 30.2	+17.2	64.9	41 19.7	+19.5	66.5
41	37 55.1	+9.4	59.3	38 55.2	+11.6	60.7	39 52.6	+14.0	62.1	40 47.4	+16.3	63.6	41 39.2	+18.7	65.2
42	38 04.5	+8.6	58.0	39 06.8	+10.8	59.4	40 06.6	+13.1	60.8	41 03.7	+15.4	62.4	41 57.9	+17.8	63.9
43	38 13.1	+7.7	56.8	39 17.6	+10.0	58.1	40 19.7	+12.2	59.6	41 19.1	+14.6	61.1	42 15.7	+17.0	62.6
44	38 20.8	+6.9	55.5	39 27.6	+9.1	56.9	40 31.9	+11.4	58.3	41 33.7	+13.7	59.8	42 32.7	+16.1	61.3
45	38 27.7	+6.1	54.3	39 36.7	+8.3	55.6	40 43.3	+10.5	57.0	41 47.4	+12.8	58.5	42 48.8	+15.1	60.0
46	38 33.8	+5.3	53.0	39 45.0	+7.4	54.3	40 53.8	+9.7	55.7	42 00.2	+11.9	57.2	43 03.9	+14.3	58.7
47	38 39.1	+4.5	51.7	39 52.4	+6.6	53.0	41 03.5	+8.7	54.4	42 12.1	+11.0	55.8	43 18.2	+13.3	57.4
48	38 43.6	+3.6	50.4	39 59.0	+5.7	51.7	41 12.2	+7.9	53.1	42 23.1	+10.1	54.5	43 31.5	+12.4	56.0
49	38 47.2	+2.8	49.2	40 04.7	+4.8	50.4	41 20.1	+6.9	51.7	42 33.2	+9.1	53.2	43 43.9	+11.4	54.7
50	38 50.0	+1.9	47.9	40 09.5	+4.0	49.1	41 27.0	+6.1	50.4	42 42.3	+8.2	51.8	43 55.3	+10.4	53.3
51	38 51.9	+1.1	46.6	40 13.5	+3.0	47.8	41 33.1	+5.1	49.1	42 50.5	+7.3	50.5	44 05.7	+9.5	52.0
52	38 53.0	+0.2	45.3	40 16.5	+2.2	46.5	41 38.2	+4.2	47.8	42 57.8	+6.3	49.1	44 15.2	+8.4	50.6
53	38 53.2	-0.6	44.0	40 18.7	+1.3	45.2	41 42.4	+3.2	46.4	43 04.1	+5.3	47.8	44 23.6	+7.4	49.2
54	38 52.6	-1.4	42.7	40 20.0	+0.4	43.9	41 45.6	+2.3	45.1	43 09.4	+4.3	46.4	44 31.0	+6.5	47.8
55	38 51.2	-2.3	41.5	40 20.4	-0.5	42.6	41 47.9	+1.4	43.8	43 13.7	+3.3	45.0	44 37.5	+5.4	46.4
56	38 48.9	-3.1	40.2	40 19.9	-1.4	41.2	41 49.3	+0.5	42.4	43 17.0	+2.4	43.7	44 42.9	+4.3	45.0
57	38 45.8	-4.0	38.9	40 18.5	-2.3	39.9	41 49.8	-0.5	41.1	43 19.4	+1.4	42.3	44 47.2	+3.4	43.6
58	38 41.8	-4.8	37.6	40 16.2	-3.1	38.6	41 49.3	-1.4	39.7	43 20.8	+0.4	40.9	44 50.6	+2.3	42.2
59	38 37.0	-5.6	36.3	40 13.1	-4.0	37.3	41 47.9	-2.4	38.4	43 21.2	-0.6	39.5	44 52.9	+1.2	40.8
60	38 31.4	-6.5	35.1	40 09.1	-5.0	36.0	41 45.5	-3.3	37.0	43 20.6	-1.6	38.2	44 54.1	+0.2	39.4
61	38 24.9	-7.2	33.8	40 04.1	-5.7	34.7	41 42.2	-4.2	35.7	43 19.0	-2.6	36.8	44 54.3	-0.8	38.0
62	38 17.7	-8.1	32.5	39 58.4	-6.7	33.4	41 38.0	-5.2	34.4	43 16.4	-3.5	35.4	44 53.5	-1.9	36.6
63	38 09.6	-8.9	31.3	39 51.7	-7.5	32.1	41 32.8	-6.0	33.0	43 12.9	-4.6	34.0	44 51.6	-2.9	35.1
64	38 00.7	-9.7	30.0	39 44.2	-8.4	30.8	41 26.8	-7.0	31.7	43 08.3	-5.5	32.7	44 48.7	-3.9	33.7
65	37 51.0	-10.5	28.8	39 35.8	-9.2	29.5	41 19.8	-7.9	30.4	43 02.8	-6.5	31.3	44 44.8	-5.0	32.3
66	37 40.5	-11.2	27.5	39 26.6	-10.1	28.3	41 11.9	-8.8	29.1	42 56.3	-7.4	30.0	44 39.8	-6.0	30.9
67	37 29.3	-12.1	26.3	39 16.5	-10.9	27.0	41 03.1	-9.7	27.8	42 48.9	-8.4	28.6	44 33.8	-7.0	29.5
68	37 17.2	-12.8	25.0	39 05.6	-11.7	25.7	40 53.4	-10.5	26.4	42 40.5	-9.3	27.3	44 26.8	-8.1	28.1
69	37 04.4	-13.5	23.8	38 53.9	-12.5	24.4	40 42.9	-11.5	25.1	42 31.2	-10.3	25.9	44 18.7	-9.0	26.8
70	36 50.9	-14.3	22.6	38 41.4	-13.3	23.2	40 31.4	-12.2	23.9	42 20.9	-11.2	24.6	44 09.7	-10.1	25.4
71	36 36.6	-15.1	21.4	38 28.1	-14.1	21.9	40 19.2	-13.2	22.6	42 09.7	-12.1	23.3	43 59.6	-11.0	24.0
72	36 21.5	-15.7	20.2	38 14.0	-14.9	20.7	40 06.0	-14.0	21.3	41 57.6	-13.0	21.9	43 48.6	-11.9	22.6
73	36 05.8	-16.5	19.0	37 59.1	-15.6	19.5	39 52.0	-14.7	20.0	41 44.6	-13.9	20.6	43 36.7	-13.0	21.3
74	35 49.3	-17.1	17.8	37 43.5	-16.4	18.3	39 37.3	-15.7	18.8	41 30.7	-14.8	19.3	43 23.7	-13.9	19.9
75	35 32.2	-17.8	16.6	37 27.1	-17.2	17.0	39 21.6	-16.4	17.5	41 15.9	-15.6	18.0	43 09.8	-14.8	18.6
76	35 14.4	-18.6	15.4	37 09.9	-17.9	15.8	39 05.2	-17.2	16.3	41 00.3	-16.5	16.7	42 55.0	-15.7	17.3
77	34 55.8	-19.1	14.3	36 52.0	-18.5	14.6	38 48.0	-17.9	15.0	40 43.8	-17.3	15.5	42 39.3	-16.6	16.0
78	34 36.7	-19.8	13.1	36 33.5	-19.3	13.5	38 30.1	-18.7	13.8	40 26.5	-18.1	14.2	42 22.7	-17.5	14.7
79	34 16.9	-20.5	12.0	36 14.2	-20.0	12.3	38 11.4	-19.5	12.6	40 08.4	-18.9	13.0	42 05.2	-18.3	13.4
80	33 56.4	-21.1	10.8	35 54.2	-20.6	11.1	37 51.9	-20.2	11.4	39 49.5	-19.7	11.7	41 46.9	-19.2	12.1
81	33 35.3	-21.6	9.7	35 33.6	-21.3	10.0	37 31.7	-20.9	10.2	39 29.8	-20.5	10.5	41 27.7	-20.0	10.8
82	33 13.7	-22.3	8.6	35 12.3	-21.9	8.8	37 10.8	-21.5	9.0	39 09.3	-21.2	9.3	41 07.7	-20.8	9.6
83	32 51.4	-22.8	7.5	34 50.4	-22.6	7.7	36 49.3	-22.3	7.9	38 48.1	-22.0	8.1	40 46.9	-21.6	8.3
84	32 28.6	-23.5	6.4	34 27.8	-23.2	6.5	36 27.0	-22.9	6.7	38 26.1	-22.6	6.9	40 25.3	-22.4	7.1
85	32 05.1	-23.9	5.3	34 04.6	-23.8	5.4	36 04.1	-23.6	5.6	38 03.5	-23.4	5.7	40 02.9	-23.2	5.9
86	31 41.2	-24.5	4.2	33 40.8	-24.3	4.3	35 40.5	-24.2	4.4	37 40.1	-24.0	4.5	39 39.7	-23.9	4.7
87	31 16.7	-25.1	3.2	33 16.5	-25.0	3.2	35 16.3	-24.9	3.3	37 16.1	-24.7	3.4	39 15.8	-24.5	3.5
88	30 51.6	-25.5	2.1	32 51.5	-25.5	2.1	34 51.4	-25.4	2.2	36 51.4	-25.4	2.2	38 51.3	-25.3	2.3
89	30 26.1	-26.1	1.0	32 26.0	-26.0	1.1	34 26.0	-26.0	1.1	36 26.0	-26.0	1.1	38 26.0	-26.0	1.1
90	30 00.0	-26.5	0.0	32 00.0	-26.6	0.0	34 00.0	-26.6	0.0	36 00.0	-26.6	0.0	38 00.0	-26.6	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 64°, 296°

30°			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
4	31.1	-37.5	128.7	3	16.0	-38.7	128.8	2	00.8	-40.0	128.8	0	45.5	-41.2	128.9	0	29.8	+42.4	51.1	30
3	53.6	-37.6	129.4	2	37.3	-38.8	129.5	1	20.8	-40.0	129.6	0	04.3	-41.1	129.6	1	12.2	+42.3	50.4	31
3	16.0	-37.6	130.2	1	58.5	-38.8	130.3	0	40.8	-40.0	130.3	0	36.8	+41.2	49.7	1	54.5	+42.3	49.7	32
2	38.4	-37.6	131.0	1	19.7	-38.9	131.1	0	00.8	-40.0	131.1	1	18.0	+41.2	48.9	2	36.8	+42.3	49.0	33
2	00.8	-37.6	131.8	0	40.8	-38.8	131.8	0	39.2	+40.0	48.2	1	59.2	+41.2	48.2	3	19.1	+42.3	48.3	34
1	23.2	-37.7	132.6	0	02.0	-38.8	132.6	1	19.2	+40.0	47.4	2	40.4	+41.1	47.5	4	01.4	+42.2	47.6	35
0	45.5	-37.6	133.3	0	36.8	+38.9	46.7	1	59.2	+40.0	46.7	3	21.5	+41.1	46.8	4	43.6	+42.2	46.9	36
0	07.9	-37.7	134.1	1	15.7	+38.8	45.9	2	39.2	+39.9	45.9	4	02.6	+41.0	46.0	5	25.8	+42.1	46.1	37
0	29.8	+37.7	45.1	1	54.5	+38.8	45.1	3	19.1	+39.9	45.2	4	43.6	+41.0	45.3	6	07.9	+42.1	45.4	38
1	07.5	+37.6	44.3	2	33.3	+38.8	44.4	3	59.0	+39.9	44.4	5	24.6	+41.0	44.6	6	50.0	+42.0	44.7	39
1	45.1	+37.6	43.5	3	12.1	+38.7	43.6	4	38.9	+39.8	43.7	6	05.6	+40.9	43.8	7	32.0	+42.0	44.0	40
2	22.7	+37.6	42.8	3	50.8	+38.7	42.8	5	18.7	+39.8	42.9	6	46.5	+40.8	43.1	8	14.0	+41.9	43.3	41
3	00.3	+37.6	42.0	4	29.5	+38.6	42.1	5	58.5	+39.7	42.2	7	27.3	+40.8	42.3	8	55.9	+41.7	42.5	42
3	37.9	+37.5	41.2	5	08.1	+38.6	41.3	6	38.2	+39.6	41.4	8	08.1	+40.6	41.6	9	37.6	+41.7	41.8	43
4	15.4	+37.5	40.4	5	46.7	+38.6	40.5	7	17.8	+39.6	40.7	8	48.7	+40.6	40.9	10	19.3	+41.6	41.1	44
4	52.9	+37.5	39.6	6	25.3	+38.4	39.8	7	57.4	+39.5	39.9	9	29.3	+40.5	40.1	11	00.8	+41.5	40.4	45
5	30.4	+37.3	38.8	7	03.7	+38.4	39.0	8	36.9	+39.4	39.2	10	09.8	+40.4	39.4	11	42.4	+41.4	39.6	46
6	07.7	+37.3	38.1	7	42.1	+38.3	38.2	9	16.3	+39.3	38.4	10	50.3	+39.6	38.6	12	23.8	+41.2	38.9	47
6	45.0	+37.2	37.3	8	20.4	+38.2	37.4	9	55.6	+39.2	37.6	11	30.5	+40.1	37.9	13	05.0	+41.2	38.1	48
7	22.2	+37.2	36.5	8	58.6	+38.1	36.7	10	34.8	+39.0	36.9	12	10.6	+40.1	37.1	13	46.2	+41.0	37.4	49
7	59.4	+37.0	35.7	9	36.7	+38.0	35.9	11	13.8	+39.0	36.1	12	50.7	+39.9	36.3	14	27.2	+40.8	36.6	50
8	36.4	+37.0	34.9	10	14.7	+37.9	35.1	11	52.8	+38.8	35.3	13	30.6	+39.7	35.6	15	08.0	+40.7	35.9	51
9	13.4	+36.8	34.1	10	52.6	+37.8	34.3	12	31.6	+38.7	34.5	14	10.3	+39.6	34.8	15	48.7	+40.5	35.1	52
9	50.2	+36.7	33.3	11	30.4	+37.6	33.5	13	10.3	+38.6	33.7	14	49.9	+39.5	34.0	16	29.2	+40.4	34.3	53
10	26.9	+36.7	32.5	12	08.0	+37.5	32.7	13	48.9	+38.4	33.0	15	29.4	+39.3	33.2	17	09.6	+40.2	33.6	54
11	03.6	+36.4	31.7	12	45.5	+37.4	31.9	14	27.3	+38.2	32.2	16	08.7	+39.1	32.5	17	49.8	+40.0	32.8	55
11	40.0	+36.4	30.9	13	22.9	+37.2	31.1	15	05.5	+38.1	31.4	16	47.8	+38.9	31.7	18	29.8	+39.8	32.0	56
12	16.4	+36.2	30.1	14	00.1	+37.1	30.3	15	43.6	+37.9	30.6	17	26.7	+38.8	30.9	19	09.6	+39.6	31.2	57
12	52.6	+36.0	29.2	14	37.2	+36.8	29.5	16	21.5	+37.7	29.8	18	05.5	+38.5	30.1	19	49.2	+39.3	30.4	58
13	28.6	+35.9	28.4	15	14.0	+36.7	28.7	16	59.2	+37.5	28.9	18	44.0	+38.4	29.3	20	28.5	+39.2	29.6	59
14	04.5	+35.7	27.6	15	50.7	+36.5	27.8	17	36.7	+37.3	28.1	19	22.4	+38.1	28.4	21	07.7	+38.9	28.8	60
14	40.2	+35.6	26.8	16	27.2	+36.4	27.0	18	14.0	+37.1	27.3	20	00.5	+37.9	27.6	21	46.6	+38.7	28.0	61
15	15.8	+35.3	25.9	17	03.6	+36.1	26.2	18	51.1	+36.9	26.5	20	38.4	+37.6	26.8	22	25.3	+38.4	27.2	62
15	51.1	+35.2	25.1	17	39.7	+35.9	25.4	19	28.0	+36.6	25.6	21	16.0	+37.4	26.0	23	03.7	+38.2	26.3	63
16	26.3	+34.9	24.3	18	15.6	+35.6	24.5	20	04.6	+36.4	24.8	21	53.4	+37.2	25.1	23	41.9	+37.9	25.5	64
17	01.2	+34.8	23.4	18	51.2	+35.5	23.7	20	41.0	+36.2	24.0	22	30.6	+36.8	24.3	24	19.8	+37.6	24.6	65
17	36.0	+34.5	22.6	19	26.7	+35.2	22.8	21	17.2	+35.9	23.1	23	07.4	+36.6	23.4	24	57.4	+37.3	23.8	66
18	10.5	+34.3	21.7	20	01.9	+34.9	22.0	21	53.1	+35.6	22.2	23	44.0	+36.3	22.6	25	34.7	+37.0	22.9	67
18	44.8	+34.0	20.8	20	36.8	+34.7	21.1	22	28.7	+35.3	21.4	24	20.3	+36.0	21.7	26	11.7	+36.7	22.0	68
19	18.8	+33.8	20.0	21	11.5	+34.4	20.2	23	04.0	+35.1	20.5	24	56.3	+35.7	20.8	26	48.4	+36.3	21.2	69
19	52.6	+33.6	19.1	21	45.9	+34.2	19.3	23	39.1	+34.7	19.6	25	32.0	+35.4	19.9	27	24.7	+36.0	20.3	70
20	26.2	+33.2	18.2	22	20.1	+33.8	18.4	24	13.8	+34.5	18.7	26	07.4	+35.0	19.0	28	00.7	+35.7	19.4	71
20	59.4	+33.0	17.3	22	53.9	+33.6	17.5	24	48.3	+34.1	17.8	26	42.4	+34.7	18.1	28	36.4	+35.2	18.4	72
21	32.4	+32.7	16.4	23	27.5	+33.2	16.6	25	22.4	+33.7	16.9	27	17.1	+34.3	17.2	29	11.6	+34.9	17.5	73
22	05.1	+32.4	15.5	24	00.7	+32.9	15.7	25	56.1	+33.4	16.0	27	51.4	+33.9	16.3	29	46.5	+34.5	16.6	74
22	37.5	+32.1	14.6	24	33.6	+32.6	14.8	26	29.5	+33.1	15.1	28	25.3	+33.6	15.3	30	21.0	+34.1	15.6	75
23	09.6	+31.8	13.7	25	06.2	+32.2	13.9	27	02.6	+32.7	14.1	28	58.9	+33.1	14.4	30	55.1	+33.6	14.7	76
23	41.4	+31.4	12.8	25	38.4	+31.8	13.0	27	35.3	+32.3	13.2	29	32.0	+32.8	13.4	31	28.7	+33.2	13.7	77
24	12.8	+31.1	11.8	26	10.2	+31.5	12.0	28	07.6	+31.9	12.2	30	04.8	+32.3	12.5	32	01.9	+32.7	12.7	78
24	43.9	+30.8	10.9	26	41.7	+31.1	11.1	28	39.5	+31.4	11.3	30	37.1	+31.9	11.5	32	34.6	+32.3	11.7	79
25	14.7	+30.3	9.9	27	12.8	+30.7	10.1	29	10.9	+31.1	10.3	31	09.0	+31.4	10.5	33	06.9	+31.8	10.7	80
25	45.0	+30.0	9.0	27	43.5	+30.3	9.1	29	42.0	+30.6	9.3	31	40.4	+30.9	9.5	33	38.7	+31.3	9.7	81
26	15.0	+29.6	8.0	28	13.8	+29.9	8.2	30	12.6	+30.2	8.3	32	11.3	+30.5	8.5	34	10.0	+30.7	8.7	82
26	44.6	+29.3	7.0	28	43.7	+29.5	7.2	30	42.8	+29.7	7.3	32	41.8	+29.9	7.5	34	40.7	+30.2	7.7	83
27	13.9	+28.8	6.1	29	13.2	+29.0	6.2	31	12.5	+29.2	6.3	33	11.7	+29.5	6.4	35	10.9	+29.7	6.6	84
27	42.7	+28.3	5.1	29	42.2	+28.5	5.2	31	41.7	+28.7	5.3	33	41.2	+28.9	5.4	35	40.6	+29.1	5.5	85
28	11.0	+28.0	4.1	30	10.7	+28.1	4.2	32	10.4	+28.2	4.2	34	10.1	+28.3	4.3	36	09.7	+28.5	4.5	86
28	39.0	+27.4	3.1	30	38.8	+27.6	3.1	32	38.6	+27.7	3.2	34	38.4	+27.8	3.3	36	38.2	+27.9	3.4	87
29	06.4	+27.1	2.1	31	06.4	+27.0	2.1	33	06.3	+27.1	2.1	35	06.2	+27.2	2.2	37	06.1	+27.3	2.3	88
29	33.5	+26.5	1.0	31	33.4	+26.6	1.1	33	33.4	+26.6	1.1	35	33.4	+26.6	1.1	37	33.4	+26.6	1.1	89
30	00.0	+26.1	0.0	32	00.0	+26.0	0.0	34	00.0	+26.0	0.0	36	00.0	+26.0	0.0	38	00.0	+26.0	0.0	90

LATITUDE SAME NAME

L.H.A. 116°, 244°

64°, 296° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	37 45.0	+29.2	79.9	38 04.5	+31.5	81.4	38 20.8	+33.7	83.0	38 33.8	+35.9	84.6	38 43.6	+37.9	86.1
31	38 14.2	+28.5	78.8	38 36.0	+30.8	80.3	38 54.5	+33.1	81.9	39 09.7	+35.3	83.5	39 21.5	+37.5	85.1
32	38 42.7	+27.9	77.6	39 06.8	+30.2	79.2	39 27.6	+32.5	80.8	39 45.0	+34.7	82.5	39 59.0	+36.9	84.1
33	39 10.6	+27.3	76.5	39 37.0	+29.6	78.1	40 00.1	+31.8	79.7	40 19.7	+34.1	81.4	40 35.9	+36.3	83.1
34	39 37.9	+26.5	75.4	40 06.6	+28.9	77.0	40 31.9	+31.2	78.6	40 53.8	+33.6	80.3	41 12.2	+35.8	82.0
35	40 04.4	+25.8	74.2	40 35.5	+28.2	75.8	41 03.1	+30.6	77.5	41 27.4	+32.8	79.2	41 48.0	+35.1	81.0
36	40 30.2	+25.1	73.0	41 03.7	+27.4	74.7	41 33.7	+29.8	76.4	42 00.2	+32.2	78.1	42 23.1	+34.5	79.9
37	40 55.3	+24.4	71.8	41 31.1	+26.8	73.5	42 03.5	+29.2	75.2	42 32.4	+31.5	77.0	42 57.6	+33.9	78.8
38	41 19.7	+23.5	70.6	41 57.9	+26.0	72.3	42 32.7	+28.4	74.0	43 03.9	+30.8	75.8	43 31.5	+33.2	77.6
39	41 43.2	+22.8	69.4	42 23.9	+25.2	71.1	43 01.1	+27.6	72.8	43 34.7	+30.1	74.6	44 04.7	+32.4	76.5
40	42 06.0	+21.9	68.1	42 49.1	+24.3	69.8	43 28.7	+26.8	71.6	44 04.8	+29.3	73.4	44 37.1	+31.7	75.3
41	42 27.9	+21.2	66.9	43 13.4	+23.6	68.6	43 55.5	+26.1	70.4	44 34.1	+28.5	72.2	45 08.8	+31.0	74.1
42	42 49.1	+20.2	65.6	43 37.0	+22.7	67.3	44 21.6	+25.2	69.1	45 02.6	+27.6	71.0	45 39.8	+30.2	72.9
43	43 09.3	+19.4	64.3	43 59.7	+21.9	66.0	44 46.8	+24.3	67.8	45 30.2	+26.9	69.7	46 10.0	+29.3	71.6
44	43 28.7	+18.5	63.0	44 21.6	+20.9	64.7	45 11.1	+23.4	66.5	45 57.1	+25.9	68.4	46 39.3	+28.5	70.4
45	43 47.2	+17.6	61.7	44 42.5	+20.1	63.4	45 34.5	+22.6	65.2	46 23.0	+25.1	67.1	47 07.8	+27.6	69.1
46	44 04.8	+16.6	60.4	45 02.6	+19.1	62.1	45 57.1	+21.6	63.9	46 48.1	+24.1	65.8	47 35.4	+26.7	67.8
47	44 21.4	+15.7	59.0	45 21.7	+18.1	60.7	46 18.7	+20.6	62.6	47 12.2	+23.2	64.5	48 02.1	+25.7	66.4
48	44 37.1	+14.8	57.7	45 39.8	+17.2	59.4	46 39.3	+19.7	61.2	47 35.4	+22.2	63.1	48 27.8	+24.8	65.1
49	44 51.9	+13.7	56.3	45 57.0	+16.1	58.0	46 59.0	+18.6	59.8	47 57.6	+21.2	61.7	48 52.6	+23.8	63.7
50	45 05.6	+12.8	54.9	46 13.1	+15.2	56.6	47 17.6	+17.6	58.4	48 18.8	+20.1	60.3	49 16.4	+22.7	62.3
51	45 18.4	+11.7	53.5	46 28.3	+14.1	55.2	47 35.2	+16.6	57.0	48 38.9	+19.1	58.9	49 39.1	+21.7	60.9
52	45 30.1	+10.7	52.1	46 42.4	+13.0	53.8	47 51.8	+15.4	55.6	48 58.0	+18.0	57.4	50 00.8	+20.6	59.4
53	45 40.8	+9.7	50.7	46 55.4	+12.0	52.4	48 07.2	+14.4	54.1	49 16.0	+16.9	56.0	50 21.4	+19.5	58.0
54	45 50.5	+8.6	49.3	47 07.4	+10.9	50.9	48 21.6	+13.3	52.7	49 32.9	+15.7	54.5	50 40.9	+18.3	56.5
55	45 59.1	+7.5	47.9	47 18.3	+9.8	49.5	48 34.9	+12.1	51.2	49 48.6	+14.6	53.0	50 59.2	+17.1	55.0
56	46 06.6	+6.5	46.5	47 28.1	+8.7	48.0	48 47.0	+11.0	49.7	50 03.2	+13.4	51.5	51 16.3	+15.9	53.5
57	46 13.1	+5.4	45.0	47 36.8	+7.5	46.6	48 58.0	+9.9	48.2	50 16.6	+12.2	50.0	51 32.2	+14.7	51.9
58	46 18.5	+4.3	43.6	47 44.3	+6.5	45.1	49 07.9	+8.6	46.7	50 28.8	+11.0	48.5	51 46.9	+13.5	50.3
59	46 22.8	+3.2	42.1	47 50.8	+5.2	43.6	49 16.5	+7.4	45.2	50 39.8	+9.7	46.9	52 00.4	+12.1	48.8
60	46 26.0	+2.1	40.7	47 56.0	+4.1	42.1	49 23.9	+6.3	43.7	50 49.5	+8.5	45.4	52 12.5	+10.9	47.2
61	46 28.1	+1.0	39.2	48 00.1	+3.0	40.6	49 30.2	+5.0	42.1	50 58.0	+7.2	43.8	52 23.4	+9.5	45.6
62	46 29.1	-0.1	37.8	48 03.1	+1.8	39.1	49 35.2	+3.8	40.6	51 05.2	+6.0	42.2	52 32.9	+8.2	43.9
63	46 29.0	-1.1	36.3	48 04.9	+0.6	37.6	49 39.0	+2.6	39.1	51 11.2	+4.6	40.6	52 41.1	+6.8	42.3
64	46 27.9	-2.3	34.9	48 05.5	-0.5	36.1	49 41.6	+1.3	37.5	51 15.8	+3.3	39.0	52 47.9	+5.5	40.7
65	46 25.6	-3.4	33.4	48 05.0	-1.7	34.7	49 42.9	+0.1	36.0	51 19.1	+2.1	37.4	52 53.4	+4.1	39.0
66	46 22.2	-4.5	32.0	48 03.3	-2.9	33.2	49 43.0	-1.1	34.4	51 21.2	+0.7	35.8	52 57.5	+2.8	37.4
67	46 17.7	-5.6	30.5	48 00.4	-4.0	31.7	49 41.9	-2.4	32.9	51 21.9	-0.6	34.2	53 00.3	+1.3	35.7
68	46 12.1	-6.7	29.1	47 56.4	-5.2	30.2	49 39.5	-3.6	31.3	51 21.3	-1.9	32.6	53 01.6	-0.1	34.0
69	46 05.4	-7.7	27.7	47 51.2	-6.3	28.7	49 35.9	-4.8	29.8	51 19.4	-3.2	31.0	53 01.5	-1.4	32.4
70	45 57.7	-8.8	26.2	47 44.9	-7.5	27.2	49 31.1	-6.0	28.3	51 16.2	-4.5	29.4	53 00.1	-2.8	30.7
71	45 48.9	-9.8	24.8	47 37.4	-8.6	25.7	49 25.1	-7.3	26.7	51 11.7	-5.7	27.8	52 57.3	-4.3	29.1
72	45 39.1	-10.9	23.4	47 28.8	-9.7	24.3	49 17.8	-8.4	25.2	51 06.0	-7.1	26.2	52 53.0	-5.5	27.4
73	45 28.2	-11.9	22.0	47 19.1	-10.8	22.8	49 09.4	-9.6	23.7	50 58.9	-8.4	24.7	52 47.5	-7.0	25.8
74	45 16.3	-12.9	20.6	47 08.3	-11.9	21.4	48 59.8	-10.8	22.2	50 50.5	-9.6	23.1	52 40.5	-8.3	24.1
75	45 03.4	-13.9	19.2	46 56.4	-12.9	19.9	48 49.0	-12.0	20.7	50 40.9	-10.8	21.5	52 32.2	-9.6	22.5
76	44 49.5	-14.9	17.9	46 43.5	-14.1	18.5	48 37.0	-13.0	19.2	50 30.1	-12.1	20.0	52 22.6	-11.0	20.9
77	44 34.6	-15.9	16.5	46 29.4	-15.0	17.1	48 24.0	-14.2	17.7	50 18.0	-13.2	18.5	52 11.6	-12.3	19.3
78	44 18.7	-16.8	15.1	46 14.4	-16.1	15.7	48 09.8	-15.3	16.3	50 04.8	-14.5	16.9	51 59.3	-13.5	17.7
79	44 01.9	-17.7	13.8	45 58.3	-17.1	14.3	47 54.5	-16.4	14.8	49 50.3	-15.6	15.4	51 45.8	-14.8	16.1
80	43 44.2	-18.7	12.5	45 41.2	-18.0	12.9	47 38.1	-17.5	13.4	49 34.7	-16.8	13.9	51 31.0	-16.0	14.5
81	43 25.5	-19.5	11.2	45 23.2	-19.1	11.5	47 20.6	-18.4	12.0	49 17.9	-17.8	12.5	51 15.0	-17.2	13.0
82	43 06.0	-20.4	9.9	45 04.1	-19.9	10.2	47 02.2	-19.5	10.6	49 00.1	-19.0	11.0	50 57.8	-18.4	11.5
83	42 45.6	-21.3	8.6	44 44.2	-20.9	8.9	46 42.7	-20.5	9.2	48 41.1	-20.0	9.6	50 39.4	-19.6	9.9
84	42 24.3	-22.1	7.3	44 23.3	-21.8	7.6	46 22.2	-21.4	7.8	48 21.1	-21.1	8.1	50 19.8	-20.7	8.5
85	42 02.2	-22.9	6.1	44 01.5	-22.6	6.3	46 00.8	-22.4	6.5	48 00.0	-22.1	6.7	49 59.1	-21.7	7.0
86	41 39.3	-23.7	4.8	43 38.9	-23.5	5.0	45 38.4	-23.3	5.1	47 37.9	-23.1	5.3	49 37.4	-22.9	5.6
87	41 15.6	-24.4	3.6	43 15.4	-24.3	3.7	45 15.1	-24.2	3.8	47 14.8	-24.0	4.0	49 14.5	-23.8	4.1
88	40 51.2	-25.3	2.4	42 51.1	-25.2	2.5	44 50.9	-25.0	2.5	46 50.8	-24.9	2.6	48 50.7	-24.9	2.7
89	40 25.9	-25.9	1.2	42 25.9	-25.9	1.2	44 25.9	-25.9	1.3	46 25.9	-25.9	1.3	48 25.8	-25.8	1.4
90	40 00.0	-26.7	0.0	42 00.0	-26.7	0.0	44 00.0	-26.7	0.0	46 00.0	-26.7	0.0	48 00.0	-26.8	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 64°, 296°

Hc			d			Z			Hc			d			Z			Hc			d			Z			Hc			d			Z			Dec.			
°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°	'	"	°
1	45.1	+43.5	51.1	3	00.3	+44.6	51.2	4	15.4	+45.7	51.3	5	30.4	+46.7	51.4	6	45.0	+47.7	51.6	30																			
2	28.6	+43.5	50.5	3	44.9	+44.6	50.5	5	01.1	+45.6	50.7	6	17.1	+46.6	50.8	7	32.7	+47.7	51.0	31																			
3	12.1	+43.4	49.8	4	29.5	+44.5	49.9	5	46.7	+45.6	50.0	7	03.7	+46.6	50.2	8	20.4	+47.6	50.4	32																			
3	55.5	+43.4	49.1	5	14.0	+44.5	49.2	6	32.3	+45.5	49.4	7	50.3	+46.6	49.5	9	08.0	+47.6	49.8	33																			
4	38.9	+43.4	48.4	5	58.5	+44.4	48.5	7	17.8	+45.5	48.7	8	36.9	+46.5	48.9	9	55.6	+47.5	49.2	34																			
5	22.3	+43.3	47.7	6	42.9	+44.4	47.8	8	03.3	+45.4	48.0	9	23.4	+46.4	48.3	10	43.1	+47.4	48.5	35																			
6	05.6	+43.2	47.0	7	27.3	+44.3	47.2	8	48.7	+45.4	47.4	10	09.8	+46.4	47.6	11	30.5	+47.3	47.9	36																			
6	48.8	+43.2	46.3	8	11.6	+44.3	46.5	9	34.1	+45.2	46.7	10	56.2	+46.2	47.0	12	17.8	+47.2	47.3	37																			
7	32.0	+43.2	45.6	8	55.9	+44.1	45.8	10	19.3	+45.2	46.0	11	42.4	+46.2	46.3	13	05.0	+47.2	46.6	38																			
8	15.2	+43.0	44.9	9	40.0	+44.1	45.1	11	04.5	+45.1	45.4	12	28.6	+46.1	45.7	13	52.2	+47.0	46.0	39																			
8	58.2	+43.0	44.2	10	24.1	+44.0	44.4	11	49.6	+45.0	44.7	13	14.7	+46.0	45.0	14	39.2	+47.0	45.4	40																			
9	41.2	+42.9	43.5	11	08.1	+43.9	43.7	12	34.6	+44.9	44.0	14	00.7	+45.8	44.4	15	26.2	+46.8	44.7	41																			
10	24.1	+42.8	42.8	11	52.0	+43.8	43.0	13	19.5	+44.8	43.3	14	46.5	+45.8	43.7	16	13.0	+46.7	44.1	42																			
11	06.9	+42.7	42.1	12	35.8	+43.7	42.3	14	04.3	+44.7	42.7	15	32.3	+45.6	43.0	16	59.7	+46.6	43.4	43																			
11	49.6	+42.6	41.3	13	19.5	+43.6	41.6	14	49.0	+44.5	42.0	16	17.9	+45.5	42.3	17	46.3	+46.5	42.8	44																			
12	32.2	+42.5	40.6	14	03.1	+43.4	40.9	15	33.5	+44.4	41.3	17	03.4	+45.4	41.7	18	32.8	+46.3	42.1	45																			
13	14.7	+42.3	39.9	14	46.5	+43.3	40.2	16	17.9	+44.3	40.6	17	48.8	+45.2	41.0	19	19.1	+46.1	41.4	46																			
13	57.0	+42.2	39.2	15	29.8	+43.2	39.5	17	02.2	+44.1	39.9	18	34.0	+45.1	40.3	20	05.2	+46.0	40.7	47																			
14	39.2	+42.1	38.4	16	13.0	+43.1	38.8	17	46.3	+44.0	39.2	19	19.1	+44.9	39.6	20	51.2	+45.9	40.1	48																			
15	21.3	+42.0	37.7	16	56.1	+42.8	38.1	18	30.3	+43.8	38.4	20	04.0	+44.7	38.9	21	37.1	+45.7	39.4	49																			
16	03.3	+41.7	37.0	17	38.9	+42.7	37.3	19	14.1	+43.6	37.7	20	48.7	+44.6	38.2	22	22.8	+45.4	38.7	50																			
16	45.0	+41.7	36.2	18	21.6	+42.6	36.6	19	57.7	+43.5	37.0	21	33.3	+44.4	37.5	23	08.2	+45.3	38.0	51																			
17	26.7	+41.4	35.5	19	04.2	+42.3	35.8	20	41.2	+43.3	36.3	22	17.7	+44.2	36.7	23	53.5	+45.1	37.2	52																			
18	08.1	+41.3	34.7	19	46.5	+42.2	35.1	21	24.5	+43.0	35.5	23	01.9	+43.9	36.0	24	38.6	+44.9	36.5	53																			
18	49.4	+41.0	33.9	20	28.7	+42.0	34.3	22	07.5	+42.9	34.8	23	45.8	+43.8	35.3	25	23.5	+44.7	35.8	54																			
19	30.4	+40.9	33.2	21	10.7	+41.7	33.6	22	50.4	+42.7	34.0	24	29.6	+43.5	34.5	26	08.2	+44.4	35.0	55																			
20	11.3	+40.7	32.4	21	52.4	+41.6	32.8	23	33.1	+42.4	33.2	25	13.1	+43.3	33.7	26	52.6	+44.2	34.3	56																			
20	52.0	+40.4	31.6	22	34.0	+41.3	32.0	24	15.5	+42.2	32.5	25	56.4	+43.1	33.0	27	36.8	+43.9	33.5	57																			
21	32.4	+40.3	30.8	23	15.3	+41.1	31.2	24	57.7	+41.9	31.7	26	39.5	+42.8	32.2	28	20.7	+43.7	32.8	58																			
22	12.7	+40.0	30.0	23	56.4	+40.8	30.4	25	39.6	+41.7	30.9	27	22.3	+42.5	31.4	29	04.4	+43.4	32.0	59																			
22	52.7	+39.7	29.2	24	37.2	+40.6	29.6	26	21.3	+41.4	30.1	28	04.8	+42.3	30.6	29	47.8	+43.1	31.2	60																			
23	32.4	+39.5	28.4	25	17.8	+40.3	28.8	27	02.7	+41.1	29.3	28	47.1	+41.9	29.8	30	30.9	+42.8	30.4	61																			
24	11.9	+39.2	27.6	25	58.1	+40.0	28.0	27	43.8	+40.8	28.5	29	29.0	+41.7	29.0	31	13.7	+42.5	29.6	62																			
24	51.1	+38.9	26.7	26	38.1	+39.7	27.2	28	24.6	+40.6	27.6	30	10.7	+41.3	28.2	31	56.2	+42.2	28.7	63																			
25	30.0	+38.7	25.9	27	17.8	+39.4	26.3	29	05.2	+40.2	26.8	30	52.0	+41.0	27.3	32	38.4	+41.8	27.9	64																			
26	08.7	+38.3	25.0	27	57.2	+39.1	25.5	29	45.4	+39.8	25.9	31	33.0	+40.7	26.5	33	20.2	+41.4	27.0	65																			
26	47.0	+38.1	24.2	28	36.3	+38.8	24.6	30	25.2	+39.6	25.1	32	13.7	+40.3	25.6	34	01.6	+41.1	26.2	66																			
27	25.1	+37.7	23.3	29	15.1	+38.4	23.7	31	04.8	+39.1	24.2	32	54.0	+39.9	24.7	34	42.7	+40.7	25.3	67																			
28	02.8	+37.3	22.4	29	53.5	+38.1	22.9	31	43.9	+38.8	23.3	33	33.9	+39.5	23.8	35	23.4	+40.3	24.4	68																			
28	40.1	+37.1	21.5	30	31.6	+37.7	22.0	32	22.7	+38.4	22.4	34	13.4	+39.2	22.9	36	03.7	+39.9	23.5	69																			
29	17.2	+36.6	20.6	31	09.3	+37.3	21.1	33	01.1	+38.0	21.5	34	52.6	+38.7	22.0	36	43.6	+39.5	22.6	70																			
29	53.8	+36.3	19.7	31	46.6	+36.9	20.1	33	39.1	+37.6	20.6	35	31.3	+38.3	21.1	37	23.1	+38.9	21.6	71																			
30	30.1	+35.8	18.8	32	23.5	+36.5	19.2	34	16.7	+37.1	19.6	36	09.6	+37.8	20.1	38	02.0	+38.5	20.6	72																			
31	05.9	+35.5	17.9	33	00.0	+36.1	18.3	34	53.8	+36.7	18.7	36	47.4	+37.3	19.2	38	40.5	+38.0	19.7	73																			
31	41.4	+35.0	16.9	33	36.1	+35.6	17.3	35	30.5	+36.3	17.7	37	24.7	+36.8	18.2	39	18.5	+37.5	18.7	74																			
32	16.4	+34.7	16.0	34	11.7	+35.2	16.3	36	06.8	+35.7	16.7	38	01.5	+36.4	17.2	39	56.0	+37.0	17.7	75																			
32	51.1	+34.1	15.0	34	46.9	+34.6	15.4	36	42.5	+35.2	15.7	38	37.9	+35.8	16.2	40	33.0	+36.4	16.6	76																			
33	25.2	+33.7	14.0	35	21.5	+34.2	14.4	37	17.7	+34.7	14.7	39	13.7	+35.2	15.1	41	09.4	+35.8	15.6	77																			
33	58.9	+33.2	13.0	35	55.7	+33.7	13.3	37	52.4	+34.1	13.7	39	48.9	+34.6	14.1	41	45.2	+35.2	14.5	78																			
34	32.1	+32.7	12.0	36	29.4	+33.1	12.3	38	26.5	+33.6	12.6	40	23.5	+34.1	13.0	42	20.4	+34.5	13.4	79																			
35	04.8	+32.1	11.0	37	02.5	+32.6	11.3	39	00.1	+33.0	11.6	40	57.6	+33.4	11.9	42	54.9	+33.9	12.3	80																			
35	36.9	+31.7	10.0	37	35.1	+32.0	10.2	39	33.1	+32.4	10.5	41	31.0	+32.8	10.8	43	28.8	+33.3	11.2	81																			
36	08.6	+31.0	8.9	38	07.1	+31.4	9.1	40	05.5	+31.8	9.4	42	03.8	+32.2	9.7	44	02.1	+32.5	10.0	82																			
36	39.6	+30.5	7.8	38	38.5	+30.8	8.1	40	37.3	+31.1	8.3	42	36.0	+31.4	8.6	44	34.6	+31.8	8.8	83																			
37	10.1	+29.9	6.8	39	09.3	+30.1	7.0	41	08.4	+30.4	7.2	43	07.4	+30.7	7.4	45	06.4	+31.0	7.6	84																			
37	40.0	+29.3	5.7	39	39.4	+29.5	5.8	41	38.8	+29.7	6.0	43	38.1	+30.0	6.2	45	37.4	+30.2	6.4	85																			
38	09.3	+28.7	4.6	40	08.9	+28.9	4.7	42	08.5	+29.0	4.9	44	08.1	+29.2	5.0	46	07.6	+29.4	5.2	86																			
38	38.0	+28.0	3.5	40	37.8	+28.1	3.6	42	37.5	+28.3	3.7	44	37.3	+28.4	3.8	46	37.0	+28.6	3.9	87																			
39	06.0	+27.3	2.3	41	05.9	+27.4	2.4	43	05.8	+27.5	2.5	45	05.7	+27.6	2.5	47	05.6	+27.6	2.6	88																			
39	33.3	+26.7	1.2	41	33.3	+26.7	1.2	43	33.3	+26.7	1.2	45	33.3	+26.7	1.3	47	33.2	+26.8	1.3	89																			
40	00.0	+25.9	0.0	42	00.0	+25.9	0.0	44	00.0	+25.9	0.0	46	00.0	+25.9	0.0	48	00.0	+25.8	0.0	90																			
40°			42°			44°			46°			48°																											

LATITUDE SAME NAME

L.H.A. 116°, 244°

64°, 296° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	38 50.0	+40.0	87.8	38 53.0	+42.0	89.4	38 52.6	+43.9	91.0	38 48.9	+45.7	92.6	38 41.8	+47.4	94.2
31	39 30.0	+39.5	86.8	39 35.0	+41.5	88.4	39 36.5	+43.5	90.1	39 34.6	+45.3	91.7	39 29.2	+47.0	93.4
32	40 09.5	+39.0	85.8	40 16.5	+41.1	87.5	40 20.0	+43.0	89.2	40 19.9	+44.9	90.9	40 16.2	+46.7	92.6
33	40 48.5	+38.5	84.8	40 57.6	+40.6	86.5	41 03.0	+42.6	88.3	41 04.8	+44.5	90.0	41 02.9	+46.4	91.8
34	41 27.0	+38.0	83.8	41 38.2	+40.0	85.6	41 45.6	+42.1	87.3	41 49.3	+44.1	89.1	41 49.3	+45.9	90.9
35	42 05.0	+37.3	82.8	42 18.2	+39.6	84.6	42 27.7	+41.7	86.4	42 33.4	+43.6	88.2	42 35.2	+45.6	90.0
36	42 42.3	+36.8	81.7	42 57.8	+39.0	83.5	43 09.4	+41.1	85.4	43 17.0	+43.2	87.3	43 20.8	+45.1	89.2
37	43 19.1	+36.2	80.6	43 36.8	+38.4	82.5	43 50.5	+40.5	84.4	44 00.2	+42.7	86.3	44 05.9	+44.7	88.2
38	43 55.3	+35.5	79.5	44 15.2	+37.7	81.4	44 31.0	+40.1	83.4	44 42.9	+42.1	85.3	44 50.6	+44.2	87.3
39	44 30.8	+34.8	78.4	44 52.9	+37.2	80.3	45 11.1	+39.4	82.3	45 25.0	+41.6	84.3	45 34.8	+43.7	86.3
40	45 05.6	+34.1	77.2	45 30.1	+36.5	79.2	45 50.5	+38.8	81.2	46 06.6	+41.1	83.3	46 18.5	+43.2	85.4
41	45 39.7	+33.4	76.1	46 06.6	+35.8	78.1	46 29.3	+38.1	80.1	46 47.7	+40.4	82.2	47 01.7	+42.6	84.4
42	46 13.1	+32.7	74.9	46 42.4	+35.0	76.9	47 07.4	+37.5	79.0	47 28.1	+39.8	81.1	47 44.3	+42.1	83.3
43	46 45.8	+31.8	73.7	47 17.4	+34.4	75.7	47 44.9	+36.7	77.9	48 07.9	+39.1	80.0	48 26.4	+41.5	82.2
44	47 17.6	+31.0	72.4	47 51.8	+33.5	74.5	48 21.6	+36.0	76.7	48 47.0	+38.5	78.9	49 07.9	+40.8	81.1
45	47 48.6	+30.2	71.1	48 25.3	+32.7	73.3	48 57.6	+35.3	75.5	49 25.5	+37.7	77.7	49 48.7	+40.1	80.0
46	48 18.8	+29.2	69.8	48 58.0	+31.9	72.0	49 32.9	+34.4	74.2	50 03.2	+37.0	76.5	50 28.8	+39.4	78.9
47	48 48.0	+28.4	68.5	49 29.9	+30.9	70.7	50 07.3	+33.6	72.9	50 40.2	+36.1	75.3	51 08.2	+38.7	77.7
48	49 16.4	+27.4	67.2	50 00.8	+30.1	69.4	50 40.9	+32.6	71.6	51 16.3	+35.3	74.0	51 46.9	+37.9	76.4
49	49 43.8	+26.4	65.8	50 30.9	+29.0	68.0	51 13.5	+31.8	70.3	51 51.6	+34.4	72.7	52 24.8	+37.1	75.2
50	50 10.2	+25.4	64.4	50 59.9	+28.1	66.6	51 45.3	+30.8	69.0	52 26.0	+33.5	71.4	53 01.9	+36.2	73.9
51	50 35.6	+24.3	63.0	51 28.0	+27.0	65.2	52 16.1	+29.7	67.6	52 59.5	+32.5	70.0	53 38.1	+35.2	72.5
52	50 59.9	+23.3	61.6	51 55.0	+26.0	63.8	52 45.8	+28.8	66.1	53 32.0	+31.6	68.6	54 13.3	+34.3	71.2
53	51 23.2	+22.1	60.1	52 21.0	+24.8	62.3	53 14.6	+27.6	64.7	54 03.6	+30.4	67.2	54 47.6	+33.3	69.8
54	51 45.3	+21.0	58.6	52 45.8	+23.7	60.8	53 42.2	+26.5	63.2	54 34.0	+29.4	65.7	55 20.9	+32.3	68.3
55	52 06.3	+19.7	57.1	53 09.5	+22.5	59.3	54 08.7	+25.3	61.7	55 03.4	+28.1	64.2	55 53.2	+31.1	66.8
56	52 26.0	+18.6	55.5	53 32.0	+21.3	57.7	54 34.0	+24.1	60.1	55 31.5	+27.0	62.6	56 24.3	+29.9	65.3
57	52 44.6	+17.3	54.0	53 53.3	+20.0	56.2	54 58.1	+22.8	58.5	55 58.5	+25.8	61.0	56 54.2	+28.7	63.7
58	53 01.9	+16.0	52.4	54 13.3	+18.7	54.6	55 20.9	+21.5	56.9	56 24.3	+24.4	59.4	57 22.9	+27.5	62.1
59	53 17.9	+14.7	50.8	54 32.0	+17.4	52.9	55 42.4	+20.2	55.2	56 48.7	+23.1	57.7	57 50.4	+26.1	60.4
60	53 32.6	+13.3	49.1	54 49.4	+16.0	51.3	56 02.6	+18.8	53.6	57 11.8	+21.7	56.0	58 16.5	+24.7	58.7
61	53 45.9	+12.0	47.5	55 05.4	+14.6	49.6	56 21.4	+17.3	51.9	57 33.5	+20.2	54.3	58 41.2	+23.3	57.0
62	53 57.9	+10.6	45.8	55 20.0	+13.2	47.9	56 38.7	+15.9	50.1	57 53.7	+18.8	52.6	59 04.5	+21.8	55.2
63	54 08.5	+9.2	44.2	55 33.2	+11.7	46.2	56 54.6	+14.4	48.4	58 12.5	+17.2	50.8	59 26.3	+20.2	53.4
64	54 17.7	+7.8	42.5	55 44.9	+10.2	44.4	57 09.0	+12.8	46.6	58 29.7	+15.6	48.9	59 46.5	+18.6	51.5
65	54 25.5	+6.3	40.8	55 55.1	+8.7	42.7	57 21.8	+11.3	44.8	58 45.3	+14.0	47.1	60 05.1	+17.0	49.6
66	54 31.8	+4.9	39.1	56 03.8	+7.2	40.9	57 33.1	+9.7	42.9	58 59.3	+12.4	45.2	60 22.1	+15.2	47.7
67	54 36.7	+3.4	37.3	56 11.0	+5.6	39.1	57 42.8	+8.0	41.1	59 11.7	+10.7	43.3	60 37.3	+13.5	45.7
68	54 40.1	+1.9	35.6	56 16.6	+4.1	37.3	57 50.8	+6.4	39.2	59 22.4	+8.9	41.4	60 50.8	+11.7	43.7
69	54 42.0	+0.5	33.9	56 20.7	+2.5	35.5	57 57.2	+4.8	37.4	59 31.3	+7.2	39.4	61 02.5	+9.9	41.7
70	54 42.5	-1.0	32.1	56 23.2	+1.0	33.7	58 02.0	+3.1	35.5	59 38.5	+5.4	37.5	61 12.4	+8.0	39.7
71	54 41.5	-2.5	30.4	56 24.2	-0.7	31.9	58 05.1	+1.4	33.6	59 43.9	+3.7	35.5	61 20.4	+6.1	37.6
72	54 39.0	-4.0	28.7	56 23.5	-2.2	30.1	58 06.5	-0.3	31.7	59 47.6	+1.8	33.5	61 26.5	+4.2	35.5
73	54 35.0	-5.5	27.0	56 21.3	-3.8	28.3	58 06.2	-2.0	29.8	59 49.4	+0.1	31.5	61 30.7	+2.3	33.4
74	54 29.5	-6.9	25.2	56 17.5	-5.3	26.5	58 04.2	-3.6	27.9	59 49.5	-1.8	29.5	61 33.0	+0.3	31.3
75	54 22.6	-8.3	23.5	56 12.2	-6.9	24.7	58 00.6	-5.3	26.0	59 47.7	-3.5	27.5	61 33.3	-1.6	29.2
76	54 14.3	-9.7	21.8	56 05.3	-8.4	22.9	57 55.3	-7.0	24.2	59 44.2	-5.4	25.6	61 31.7	-3.5	27.1
77	54 04.6	-11.2	20.2	55 56.9	-10.0	21.2	57 48.3	-8.6	22.3	59 38.8	-7.1	23.6	61 28.2	-5.4	25.0
78	53 53.4	-12.5	18.5	55 46.9	-11.4	19.4	57 39.7	-10.2	20.4	59 31.7	-8.8	21.6	61 22.8	-7.3	23.0
79	53 40.9	-13.9	16.8	55 35.5	-12.9	17.7	57 29.5	-11.8	18.6	59 22.9	-10.6	19.7	61 15.5	-9.2	20.9
80	53 27.0	-15.2	15.2	55 22.6	-14.3	15.9	57 17.7	-13.3	16.8	59 12.3	-12.2	17.7	61 06.3	-11.1	18.8
81	53 11.8	-16.5	13.6	55 08.3	-15.8	14.2	57 04.4	-14.9	15.0	59 00.1	-13.9	15.8	60 55.2	-12.8	16.8
82	52 55.3	-17.8	12.0	54 52.5	-17.1	12.6	56 49.5	-16.4	13.2	58 46.2	-15.6	14.0	60 42.4	-14.6	14.8
83	52 37.5	-19.1	10.4	54 35.4	-18.5	10.9	56 33.1	-17.8	11.5	58 30.6	-17.1	12.1	60 27.8	-16.4	12.8
84	52 18.4	-20.2	8.8	54 16.9	-19.7	9.3	56 15.3	-19.2	9.7	58 13.5	-18.7	10.3	60 11.4	-18.0	10.9
85	51 58.2	-21.4	7.3	53 57.2	-21.1	7.6	55 56.1	-20.7	8.0	57 54.8	-20.1	8.5	59 53.4	-19.6	9.0
86	51 36.8	-22.6	5.8	53 36.1	-22.2	6.1	55 35.4	-21.9	6.4	57 34.7	-21.7	6.7	59 33.8	-21.2	7.1
87	51 14.2	-23.7	4.3	53 13.9	-23.5	4.5	55 13.5	-23.3	4.7	57 13.0	-23.0	5.0	59 12.6	-22.8	5.3
88	50 50.5	-24.7	2.8	52 50.4	-24.6	3.0	54 50.2	-24.5	3.1	56 50.0	-24.3	3.3	58 49.8	-24.2	3.5
89	50 25.8	-25.8	1.4	52 25.8	-25.8	1.5	54 25.7	-25.7	1.5	56 25.7	-25.7	1.6	58 25.6	-25.6	1.7
90	50 00.0	-26.8	0.0	52 00.0	-26.8	0.0	54 00.0	-26.9	0.0	56 00.0	-26.9	0.0	58 00.0	-27.0	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 64°, 296°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
7	59.4	+48.7	51.8	9	13.4	+49.6	52.1	10	26.9	+50.6	52.3	11	40.0	+51.5	52.6	30
8	48.1	+48.6	51.2	10	03.0	+49.6	51.5	11	17.5	+50.5	51.8	12	31.5	+51.4	52.1	31
9	36.7	+48.6	50.6	10	52.6	+49.6	50.9	12	08.0	+50.5	51.2	13	22.9	+51.3	51.6	32
10	25.3	+48.5	50.0	11	42.2	+49.4	50.3	12	58.5	+50.4	50.7	14	14.2	+51.3	51.0	33
11	13.8	+48.5	49.4	12	31.6	+49.4	49.8	13	48.9	+50.3	50.1	15	05.5	+51.2	50.5	34
12	02.3	+48.4	48.8	13	21.0	+49.3	49.2	14	39.2	+50.2	49.6	15	56.7	+51.1	50.0	35
12	50.7	+48.3	48.2	14	10.3	+49.3	48.6	15	29.4	+50.1	49.0	16	47.8	+51.0	49.4	36
13	39.0	+48.2	47.6	14	59.6	+49.1	48.0	16	19.5	+50.1	48.4	17	38.8	+51.0	48.9	37
14	27.2	+48.1	47.0	15	48.7	+49.0	47.4	17	09.6	+49.9	47.8	18	29.8	+50.8	48.3	38
15	15.3	+48.0	46.4	16	37.7	+49.0	46.8	17	59.5	+49.9	47.3	19	20.6	+50.7	47.8	39
16	03.3	+47.8	45.8	17	26.7	+48.8	46.2	18	49.4	+49.7	46.7	20	11.3	+50.6	47.2	40
16	51.1	+47.8	45.1	18	15.5	+48.7	45.6	19	39.1	+49.6	46.1	21	01.9	+50.5	46.6	41
17	38.9	+47.7	44.5	19	04.2	+48.6	45.0	20	28.7	+49.5	45.5	21	52.4	+50.4	46.0	42
18	26.6	+47.5	43.9	19	52.8	+48.4	44.3	21	18.2	+49.3	44.9	22	42.8	+50.3	45.4	43
19	14.1	+47.4	43.2	20	41.2	+48.3	43.7	22	07.5	+49.3	44.3	23	33.1	+50.1	44.9	44
20	01.5	+47.2	42.6	21	29.5	+48.2	43.1	22	56.8	+49.0	43.6	24	23.2	+49.9	44.3	45
20	48.7	+47.1	41.9	22	17.7	+48.0	42.4	23	45.8	+48.9	43.0	25	13.1	+49.8	43.6	46
21	35.8	+47.0	41.2	23	05.7	+47.8	41.8	24	34.7	+48.8	42.4	26	02.9	+49.7	43.0	47
22	22.8	+46.7	40.6	23	53.5	+47.7	41.1	25	23.5	+48.6	41.7	26	52.6	+49.5	42.4	48
23	09.5	+46.6	39.9	24	41.2	+47.5	40.5	26	12.1	+48.4	41.1	27	42.1	+49.3	41.8	49
23	56.1	+46.4	39.2	25	28.7	+47.3	39.8	27	00.5	+48.2	40.4	28	31.4	+49.1	41.1	50
24	42.5	+46.2	38.5	26	16.0	+47.1	39.1	27	48.7	+48.0	39.8	29	20.5	+48.9	40.5	51
25	28.7	+46.0	37.8	27	03.1	+46.9	38.4	28	36.7	+47.8	39.1	30	09.4	+48.7	39.8	52
26	14.7	+45.8	37.1	27	50.0	+46.7	37.7	29	24.5	+47.6	38.4	30	58.1	+48.5	39.1	53
27	00.5	+45.5	36.4	28	36.7	+46.5	37.0	30	12.1	+47.4	37.7	31	46.6	+48.3	38.4	54
27	46.0	+45.4	35.6	29	23.2	+46.2	36.3	30	59.5	+47.1	37.0	32	34.9	+48.1	37.7	55
28	31.4	+45.1	34.9	30	09.4	+46.0	35.5	31	46.6	+46.9	36.2	33	23.0	+47.7	37.0	56
29	16.5	+44.8	34.1	30	55.4	+45.7	34.8	32	33.5	+46.6	35.5	34	10.7	+47.6	36.3	57
30	01.3	+44.5	33.4	31	41.1	+45.5	34.0	33	20.1	+46.4	34.8	34	58.3	+47.2	35.5	58
30	45.8	+44.3	32.6	32	26.6	+45.1	33.3	34	06.5	+46.0	34.0	35	45.5	+47.0	34.8	59
31	30.1	+44.0	31.8	33	11.7	+44.9	32.5	34	52.5	+45.8	33.2	36	32.5	+46.6	34.0	60
32	14.1	+43.6	31.0	33	56.6	+44.5	31.7	35	38.3	+45.4	32.4	37	19.1	+46.4	33.2	61
32	57.7	+43.4	30.2	34	41.1	+44.2	30.9	36	23.7	+45.1	31.6	38	05.5	+46.0	32.4	62
33	41.1	+43.0	29.4	35	25.3	+43.9	30.0	37	08.8	+44.8	30.8	38	51.5	+45.6	31.6	63
34	24.1	+42.7	28.5	36	09.2	+43.5	29.2	37	53.6	+44.4	30.0	39	37.1	+45.3	30.8	64
35	06.8	+42.3	27.7	36	52.7	+43.1	28.4	38	38.0	+44.0	29.1	40	22.4	+44.9	29.9	65
35	49.1	+41.9	26.8	37	35.8	+42.8	27.5	39	22.0	+43.6	28.2	41	07.3	+44.5	29.0	66
36	31.0	+41.5	25.9	38	18.6	+42.3	26.6	40	05.6	+43.1	27.3	41	51.8	+44.0	28.1	67
37	12.5	+41.1	25.0	39	00.9	+41.9	25.7	40	48.7	+42.8	26.4	42	35.8	+43.6	27.2	68
37	53.6	+40.6	24.1	39	42.8	+41.5	24.8	41	31.5	+42.3	25.5	43	19.4	+43.2	26.3	69
38	34.2	+40.2	23.2	40	24.3	+41.0	23.8	42	13.8	+41.8	24.5	44	02.6	+42.6	25.3	70
39	14.4	+39.7	22.2	41	05.3	+40.4	22.8	42	55.6	+41.2	23.6	44	45.2	+42.2	24.3	71
39	54.1	+39.2	21.2	41	45.7	+40.0	21.9	43	36.8	+40.8	22.6	45	27.4	+41.5	23.3	72
40	33.3	+38.7	20.2	42	25.7	+39.5	20.9	44	17.6	+40.2	21.5	46	08.9	+41.0	22.3	73
41	12.0	+38.2	19.2	43	05.2	+38.8	19.8	44	57.8	+39.6	20.5	46	49.9	+40.4	21.2	74
41	50.2	+37.6	18.2	43	44.0	+38.3	18.8	45	37.4	+39.0	19.4	47	30.3	+39.8	20.1	75
42	27.8	+37.0	17.1	44	22.3	+37.7	17.7	46	16.4	+38.4	18.3	48	10.1	+39.1	19.0	76
43	04.8	+36.4	16.1	45	00.0	+37.0	16.6	46	54.8	+37.7	17.2	48	49.2	+38.4	17.9	77
43	41.2	+35.8	15.0	45	37.0	+36.4	15.5	47	32.5	+37.0	16.1	49	27.6	+37.7	16.7	78
44	17.0	+35.1	13.9	46	13.4	+35.6	14.4	48	09.5	+36.2	14.9	50	05.3	+36.9	15.5	79
44	52.1	+34.4	12.7	46	49.0	+35.0	13.2	48	45.7	+35.5	13.7	50	42.2	+36.1	14.3	80
45	26.5	+33.7	11.6	47	24.0	+34.1	12.0	49	21.2	+34.7	12.5	51	18.3	+35.2	13.0	81
46	00.2	+32.9	10.4	47	58.1	+33.4	10.8	49	55.9	+33.9	11.2	51	53.5	+34.4	11.7	82
46	33.1	+32.1	9.2	48	31.5	+32.6	9.5	50	29.8	+33.0	9.9	52	27.9	+33.5	10.4	83
47	05.2	+31.4	7.9	49	04.1	+31.6	8.2	51	02.8	+32.0	8.6	53	01.4	+32.4	9.0	84
47	36.6	+30.5	6.7	49	35.7	+30.8	6.9	51	34.8	+31.1	7.2	53	33.8	+31.5	7.6	85
48	07.1	+29.6	5.4	50	06.5	+29.9	5.6	52	05.9	+30.1	5.9	54	05.3	+30.4	6.1	86
48	36.7	+28.7	4.1	50	36.4	+28.9	4.3	52	36.0	+29.1	4.4	54	35.7	+29.3	4.7	87
49	05.4	+27.8	2.7	51	05.3	+27.9	2.9	53	05.1	+28.0	3.0	55	05.0	+28.1	3.1	88
49	33.2	+26.8	1.4	51	33.2	+26.8	1.4	53	33.1	+26.9	1.5	55	33.1	+26.9	1.6	89
50	00.0	+25.8	0.0	52	00.0	+25.8	0.0	54	00.0	+25.7	0.0	56	00.0	+25.7	0.0	90
	50°			52°				54°				56°				

LATITUDE SAME NAME

L.H.A. 116°, 244°

66°, 294° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	33 42.9	+18.2	72.0	34 18.6	+20.5	73.3	34 51.8	+22.8	74.6	35 22.2	+25.1	76.0	35 49.9	+27.3	77.4
31	34 01.1	+17.5	70.9	34 39.1	+19.9	72.2	35 14.6	+22.1	73.5	35 47.3	+24.4	74.9	36 17.2	+26.7	76.3
32	34 18.6	+17.0	69.7	34 59.0	+19.2	71.0	35 36.7	+21.5	72.4	36 11.7	+23.8	73.7	36 43.9	+26.0	75.2
33	34 35.6	+16.2	68.5	35 18.2	+18.5	69.9	35 58.2	+20.8	71.2	36 35.5	+23.1	72.6	37 09.9	+25.4	74.0
34	34 51.8	+15.6	67.4	35 36.7	+17.8	68.7	36 19.0	+20.1	70.0	36 58.6	+22.4	71.4	37 35.3	+24.8	72.9
35	35 07.4	+14.8	66.2	35 54.5	+17.2	67.5	36 39.1	+19.5	68.9	37 21.0	+21.8	70.3	38 00.1	+24.0	71.7
36	35 22.2	+14.2	65.0	36 11.7	+16.4	66.3	36 58.6	+18.7	67.7	37 42.8	+21.0	69.1	38 24.1	+23.4	70.6
37	35 36.4	+13.5	63.8	36 28.1	+15.8	65.1	37 17.3	+18.0	66.5	38 03.8	+20.3	67.9	38 47.5	+22.6	69.4
38	35 49.9	+12.7	62.6	36 43.9	+15.0	63.9	37 35.3	+17.3	65.3	38 24.1	+19.6	66.7	39 10.1	+21.9	68.2
39	36 02.6	+12.1	61.4	36 58.9	+14.2	62.7	37 52.6	+16.5	64.1	38 43.7	+18.8	65.5	39 32.0	+21.2	67.0
40	36 14.7	+11.2	60.2	37 13.1	+13.5	61.5	38 09.1	+15.8	62.9	39 02.5	+18.1	64.3	39 53.2	+20.4	65.8
41	36 25.9	+10.6	59.0	37 26.6	+12.8	60.3	38 24.9	+15.0	61.6	39 20.6	+17.3	63.1	40 13.6	+19.6	64.6
42	36 36.5	+9.7	57.7	37 39.4	+11.9	59.0	38 39.9	+14.2	60.4	39 37.9	+16.4	61.8	40 33.2	+18.7	63.3
43	36 46.2	+9.1	56.5	37 51.3	+11.2	57.8	38 54.1	+13.4	59.2	39 54.3	+15.7	60.6	40 51.9	+18.0	62.1
44	36 55.3	+8.2	55.3	38 02.5	+10.4	56.6	39 07.5	+12.6	57.9	40 10.0	+14.8	59.3	41 09.9	+17.1	60.8
45	37 03.5	+7.5	54.0	38 12.9	+9.6	55.3	39 20.1	+11.7	56.6	40 24.8	+14.0	58.0	41 27.0	+16.3	59.5
46	37 11.0	+6.6	52.8	38 22.5	+8.8	54.0	39 31.8	+11.0	55.4	40 38.8	+13.2	56.8	41 43.3	+15.4	58.2
47	37 17.6	+5.9	51.6	38 31.3	+7.9	52.8	39 42.8	+10.0	54.1	40 52.0	+12.3	55.5	41 58.7	+14.6	56.9
48	37 23.5	+5.1	50.3	38 39.2	+7.2	51.5	39 52.8	+9.3	52.8	41 04.3	+11.3	54.2	42 13.3	+13.6	55.6
49	37 28.6	+4.3	49.0	38 46.4	+6.3	50.2	40 02.1	+8.4	51.5	41 15.6	+10.6	52.9	42 26.9	+12.7	54.3
50	37 32.9	+3.5	47.8	38 52.7	+5.4	49.0	40 10.5	+7.5	50.2	41 26.2	+9.6	51.6	42 39.6	+11.8	53.0
51	37 36.4	+2.7	46.5	38 58.1	+4.7	47.7	40 18.0	+6.6	48.9	41 35.8	+8.7	50.2	42 51.4	+10.8	51.7
52	37 39.1	+1.9	45.3	39 02.8	+3.7	46.4	40 24.6	+5.7	47.6	41 44.5	+7.8	48.9	43 02.2	+9.9	50.3
53	37 41.0	+1.1	44.0	39 06.5	+3.0	45.1	40 30.3	+4.9	46.3	41 52.3	+6.8	47.6	43 12.1	+9.0	49.0
54	37 42.1	+0.3	42.7	39 09.5	+2.1	43.8	40 35.2	+4.0	45.0	41 59.1	+6.0	46.3	43 21.1	+8.0	47.6
55	37 42.4	-0.6	41.5	39 11.6	+1.2	42.5	40 39.2	+3.0	43.7	42 05.1	+5.0	44.9	43 29.1	+7.0	46.2
56	37 41.8	-1.3	40.2	39 12.8	+0.4	41.2	40 42.2	+2.2	42.4	42 10.1	+4.0	43.6	43 36.1	+6.0	44.9
57	37 40.5	-2.2	38.9	39 13.2	-0.5	40.0	40 44.4	+1.3	41.0	42 14.1	+3.1	42.2	43 42.1	+5.0	43.5
58	37 38.3	-2.9	37.7	39 12.7	-1.4	38.7	40 45.7	+0.4	39.7	42 17.2	+2.2	40.9	43 47.1	+4.0	42.1
59	37 35.4	-3.8	36.4	39 11.3	-2.1	37.4	40 46.1	-0.6	38.4	42 19.4	+1.2	39.5	43 51.1	+3.1	40.7
60	37 31.6	-4.5	35.2	39 09.2	-3.1	36.1	40 45.5	-1.4	37.1	42 20.6	+0.2	38.2	43 54.2	+2.0	39.3
61	37 27.1	-5.4	33.9	39 06.1	-3.9	34.8	40 44.1	-2.3	35.8	42 20.8	-0.7	36.8	43 56.2	+1.0	38.0
62	37 21.7	-6.2	32.7	39 02.2	-4.7	33.5	40 41.8	-3.3	34.4	42 20.1	-1.7	35.5	43 57.2	0.0	36.6
63	37 15.5	-6.9	31.4	38 57.5	-5.6	32.2	40 38.5	-4.1	33.1	42 18.4	-2.6	34.1	43 57.2	-1.0	35.2
64	37 08.6	-7.7	30.2	38 51.9	-6.4	31.0	40 34.4	-5.0	31.8	42 15.8	-3.5	32.8	43 56.2	-2.0	33.8
65	37 00.9	-8.5	28.9	38 45.5	-7.2	29.7	40 29.4	-5.9	30.5	42 12.3	-4.5	31.4	43 54.2	-3.1	32.4
66	36 52.4	-9.3	27.7	38 38.3	-8.1	28.4	40 23.5	-6.8	29.2	42 07.8	-5.5	30.1	43 51.1	-4.0	31.0
67	36 43.1	-10.0	26.4	38 30.2	-8.8	27.1	40 16.7	-7.7	27.9	42 02.3	-6.4	28.7	43 47.1	-5.0	29.6
68	36 33.1	-10.8	25.2	38 21.4	-9.7	25.9	40 09.0	-8.5	26.6	41 55.9	-7.3	27.4	43 42.1	-6.0	28.3
69	36 22.3	-11.5	24.0	38 11.7	-10.5	24.6	40 00.5	-9.4	25.3	41 48.6	-8.2	26.1	43 36.1	-7.0	26.9
70	36 10.8	-12.3	22.8	38 01.2	-11.3	23.4	39 51.1	-10.3	24.0	41 40.4	-9.2	24.7	43 29.1	-8.0	25.5
71	35 58.5	-13.0	21.6	37 49.9	-12.0	22.1	39 40.8	-11.0	22.7	41 31.2	-10.0	23.4	43 21.1	-9.0	24.1
72	35 45.5	-13.7	20.4	37 37.9	-12.9	20.9	39 29.8	-12.0	21.5	41 21.2	-10.9	22.1	43 12.1	-9.9	22.8
73	35 31.8	-14.4	19.2	37 25.0	-13.6	19.7	39 17.8	-12.7	20.2	41 10.3	-11.9	20.8	43 02.2	-10.8	21.4
74	35 17.4	-15.1	18.0	37 11.4	-14.3	18.4	39 05.1	-13.5	18.9	40 58.4	-12.7	19.5	42 51.4	-11.8	20.1
75	35 02.3	-15.8	16.8	36 57.1	-15.1	17.2	38 51.6	-14.4	17.7	40 45.7	-13.5	18.2	42 39.6	-12.8	18.8
76	34 46.5	-16.4	15.6	36 42.0	-15.8	16.0	38 37.2	-15.1	16.4	40 32.2	-14.4	16.9	42 26.8	-13.6	17.4
77	34 30.1	-17.2	14.4	36 26.2	-16.5	14.8	38 22.1	-15.9	15.2	40 17.8	-15.3	15.6	42 13.2	-14.5	16.1
78	34 12.9	-17.7	13.3	36 09.7	-17.3	13.6	38 06.2	-16.7	14.0	40 02.5	-16.0	14.4	41 58.7	-15.4	14.8
79	33 55.2	-18.5	12.1	35 52.4	-17.9	12.4	37 49.5	-17.4	12.7	39 46.5	-16.9	13.1	41 43.3	-16.3	13.5
80	33 36.7	-19.0	11.0	35 34.5	-18.6	11.2	37 32.1	-18.1	11.5	39 29.6	-17.6	11.9	41 27.0	-17.1	12.2
81	33 17.7	-19.7	9.8	35 15.9	-19.3	10.1	37 14.0	-18.9	10.3	39 12.0	-18.5	10.6	41 09.9	-18.0	10.9
82	32 58.0	-20.2	8.7	34 56.6	-19.9	8.9	36 55.1	-19.6	9.2	38 53.5	-19.1	9.4	40 51.9	-18.8	9.7
83	32 37.8	-20.9	7.6	34 36.7	-20.6	7.8	36 35.5	-20.2	8.0	38 34.4	-20.0	8.2	40 33.1	-19.6	8.4
84	32 16.9	-21.4	6.5	34 16.1	-21.2	6.6	36 15.3	-21.0	6.8	38 14.4	-20.7	7.0	40 13.5	-20.4	7.2
85	31 55.5	-22.1	5.4	33 54.9	-21.8	5.5	35 54.3	-21.6	5.6	37 53.7	-21.3	5.8	39 53.1	-21.1	6.0
86	31 33.4	-22.5	4.3	33 33.1	-22.4	4.4	35 32.7	-22.2	4.5	37 32.4	-22.1	4.6	39 32.0	-21.9	4.7
87	31 10.9	-23.1	3.2	33 10.7	-23.0	3.3	35 10.5	-22.9	3.4	37 10.3	-22.8	3.4	39 10.1	-22.7	3.5
88	30 47.8	-23.7	2.1	32 47.7	-23.6	2.2	34 47.6	-23.5	2.2	36 47.5	-23.4	2.3	38 47.4	-23.3	2.3
89	30 24.1	-24.1	1.1	32 24.1	-24.1	1.1	34 24.1	-24.1	1.1	36 24.1	-24.1	1.1	38 24.1	-24.1	1.2
90	30 00.0	-24.7	0.0	32 00.0	-24.7	0.0	34 00.0	-24.7	0.0	36 00.0	-24.7	0.0	38 00.0	-24.7	0.0

LATITUDE CONTRARY NAME

L.H.A. 66°, 294°

30°			32°			34°			36°			38°			Dec.					
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z						
3	09.4	-36.7	127.6	1	56.1	-37.9	127.7	0	42.7	-39.2	127.7	0	30.7	+40.4	52.3	1	44.0	+41.7	52.3	30
2	32.7	-36.6	128.4	1	18.2	-38.0	128.4	0	03.5	-39.1	128.5	1	11.1	+40.4	51.6	2	25.7	+41.5	51.6	31
1	56.1	-36.7	129.2	0	40.2	-37.9	129.2	0	35.6	+39.2	50.8	1	51.5	+40.4	50.8	3	07.2	+41.6	50.9	32
1	19.4	-36.7	130.0	0	02.3	-37.9	130.0	1	14.8	+39.2	50.0	2	31.9	+40.3	50.1	3	48.8	+41.5	50.2	33
0	42.7	-36.7	130.8	0	35.6	+38.0	49.2	1	54.0	+39.1	49.3	3	12.2	+40.3	49.3	4	30.3	+41.5	49.4	34
0	06.0	-36.7	131.6	1	13.6	+37.9	48.5	2	33.1	+39.1	48.5	3	52.5	+40.3	48.6	5	11.8	+41.5	48.7	35
0	30.7	+36.7	47.7	1	51.5	+37.9	47.7	3	12.2	+39.1	47.8	4	32.8	+40.3	47.9	5	53.3	+41.3	48.0	36
1	07.4	+36.6	46.9	2	29.4	+37.8	46.9	3	51.3	+39.0	47.0	5	13.1	+40.2	47.1	6	34.6	+41.3	47.3	37
1	44.0	+36.7	46.1	3	07.2	+37.9	46.1	4	30.3	+39.0	46.2	5	53.3	+40.1	46.4	7	15.9	+41.3	46.5	38
2	20.7	+36.6	45.3	3	45.1	+37.8	45.4	5	09.3	+39.0	45.5	6	33.4	+40.0	45.6	7	57.2	+41.2	45.8	39
2	57.3	+36.6	44.5	4	22.9	+37.7	44.6	5	48.3	+38.8	44.7	7	13.4	+40.0	44.9	8	38.4	+41.0	45.1	40
3	33.9	+36.6	43.7	5	00.6	+37.7	43.8	6	27.1	+38.8	43.9	7	53.4	+39.9	44.1	9	19.4	+41.0	44.3	41
4	10.5	+36.5	42.9	5	38.3	+37.6	43.0	7	05.9	+38.8	43.2	8	33.3	+39.9	43.4	10	00.4	+40.9	43.6	42
4	47.0	+36.4	42.1	6	15.9	+37.6	42.2	7	44.7	+38.6	42.4	9	13.2	+39.7	42.6	10	41.3	+40.8	42.8	43
5	23.4	+36.4	41.3	6	53.5	+37.5	41.4	8	23.3	+38.6	41.6	9	52.9	+39.6	41.8	11	22.1	+40.7	42.1	44
5	59.8	+36.3	40.5	7	31.0	+37.4	40.7	9	01.9	+38.4	40.9	10	32.5	+39.5	41.1	12	02.8	+40.5	41.3	45
6	36.1	+36.3	39.7	8	08.4	+37.3	39.9	9	40.3	+38.4	40.1	11	12.0	+39.4	40.3	12	43.3	+40.4	40.6	46
7	12.4	+36.2	38.9	8	45.7	+37.2	39.1	10	18.7	+38.2	39.3	11	51.4	+39.3	39.5	13	23.7	+40.3	39.8	47
7	48.6	+36.0	38.1	9	22.9	+37.1	38.3	10	56.9	+38.1	38.5	12	30.7	+39.1	38.8	14	04.0	+40.2	39.1	48
8	24.6	+36.0	37.3	10	00.0	+37.0	37.5	11	35.0	+38.0	37.7	13	09.8	+39.0	38.0	14	44.2	+40.0	38.3	49
9	00.6	+35.9	36.5	10	37.0	+36.8	36.7	12	13.0	+37.9	36.9	13	48.8	+38.8	37.2	15	24.2	+39.8	37.5	50
9	36.5	+35.7	35.7	11	13.8	+36.7	35.9	12	50.9	+37.7	36.1	14	27.6	+38.7	36.4	16	04.0	+39.7	36.7	51
10	12.2	+35.6	34.9	11	50.5	+36.6	35.1	13	28.6	+37.6	35.3	15	06.3	+38.5	35.6	16	43.7	+39.4	36.0	52
10	47.8	+35.5	34.0	12	27.1	+36.5	34.3	14	06.2	+37.4	34.5	15	44.8	+38.4	34.8	17	23.1	+39.3	35.2	53
11	23.3	+35.4	33.2	13	03.6	+36.3	33.5	14	43.6	+37.2	33.7	16	23.2	+38.1	34.0	18	02.4	+39.1	34.4	54
11	58.7	+35.2	32.4	13	39.9	+36.1	32.6	15	20.8	+37.0	32.9	17	01.3	+38.0	33.2	18	41.5	+38.9	33.6	55
12	33.9	+35.1	31.6	14	16.0	+36.0	31.8	15	57.8	+36.9	32.1	17	39.3	+37.8	32.4	19	20.4	+38.7	32.8	56
12	09.0	+34.9	30.7	14	52.0	+35.8	31.0	16	34.7	+36.7	31.3	18	17.1	+37.6	31.6	19	59.1	+38.5	32.0	57
13	43.9	+34.7	29.9	15	27.8	+35.6	30.2	17	11.4	+36.4	30.4	18	54.7	+37.3	30.8	20	37.6	+38.2	31.1	58
14	18.6	+34.5	29.1	16	03.4	+35.4	29.3	17	47.8	+36.3	29.6	19	32.0	+37.1	29.9	21	15.8	+38.0	30.3	59
14	53.1	+34.4	28.2	16	38.8	+35.2	28.5	18	24.1	+36.0	28.8	20	09.1	+36.9	29.1	21	53.8	+37.7	29.5	60
15	27.5	+34.2	27.4	17	14.0	+34.9	27.6	19	00.1	+35.8	27.9	20	46.0	+36.6	28.3	22	31.5	+37.4	28.7	61
16	01.7	+33.9	26.5	17	48.9	+34.8	26.8	19	35.9	+35.6	27.1	21	22.6	+36.4	27.4	23	08.9	+37.2	27.8	62
16	35.6	+33.8	25.6	18	23.7	+34.5	25.9	20	11.5	+35.3	26.2	21	59.0	+36.1	26.6	23	46.1	+36.9	26.9	63
17	09.4	+33.5	24.8	18	58.2	+34.3	25.1	20	46.8	+35.0	25.4	22	35.1	+35.8	25.7	24	23.0	+36.6	26.1	64
17	42.9	+33.3	23.9	19	32.5	+34.0	24.2	21	21.8	+34.8	24.5	23	10.9	+35.5	24.8	24	59.6	+36.3	25.2	65
18	16.2	+33.1	23.0	20	06.5	+33.8	23.3	21	56.6	+34.5	23.6	23	46.4	+35.3	24.0	25	35.9	+36.0	24.3	66
18	49.3	+32.8	22.2	20	40.3	+33.5	22.4	22	31.1	+34.2	22.7	24	21.7	+34.9	23.1	26	11.9	+35.7	23.4	67
19	22.1	+32.5	21.3	21	13.8	+33.2	21.5	23	05.3	+33.9	21.8	24	56.6	+34.6	22.2	26	47.6	+35.3	22.5	68
19	54.6	+32.3	20.4	21	47.0	+33.0	20.6	23	39.2	+33.6	20.9	25	31.2	+34.2	21.3	27	22.9	+34.9	21.6	69
20	26.9	+32.0	19.5	22	20.0	+32.6	19.7	24	12.8	+33.3	20.0	26	05.4	+34.0	20.4	27	57.8	+34.6	20.7	70
20	58.9	+31.8	18.6	22	52.6	+32.3	18.8	24	46.1	+32.9	19.1	26	39.4	+33.5	19.4	28	32.4	+34.2	19.8	71
21	30.7	+31.4	17.7	23	24.9	+32.0	17.9	25	19.0	+32.6	18.2	27	12.9	+33.2	18.5	29	06.6	+33.8	18.9	72
22	02.1	+31.1	16.7	23	56.9	+31.7	17.0	25	51.6	+32.2	17.3	27	46.1	+32.8	17.6	29	40.4	+33.4	17.9	73
22	33.2	+30.8	15.8	24	28.6	+31.3	16.1	26	23.8	+31.9	16.3	28	18.9	+32.4	16.6	30	13.8	+32.9	16.9	74
23	04.0	+30.4	14.9	24	59.9	+30.9	15.1	26	55.7	+31.4	15.4	28	51.3	+32.0	15.7	30	46.7	+32.6	16.0	75
23	34.4	+30.2	14.0	25	30.8	+30.6	14.2	27	27.1	+31.1	14.4	29	23.3	+31.5	14.7	31	19.3	+32.0	15.0	76
24	04.6	+29.7	13.0	26	01.4	+30.2	13.2	27	58.2	+30.7	13.5	29	54.8	+31.2	13.7	31	51.3	+31.7	14.0	77
24	34.3	+29.4	12.1	26	31.6	+29.9	12.3	28	28.9	+30.2	12.5	30	26.0	+30.6	12.7	32	23.0	+31.1	13.0	78
25	03.7	+29.1	11.1	27	01.5	+29.4	11.3	28	59.1	+29.8	11.5	30	56.6	+30.2	11.7	32	54.1	+30.6	12.0	79
25	32.8	+28.6	10.1	27	30.9	+29.0	10.3	29	28.9	+29.3	10.5	31	26.8	+29.8	10.7	33	24.7	+30.1	11.0	80
26	01.4	+28.3	9.2	27	59.9	+28.5	9.3	29	58.2	+28.9	9.5	31	56.6	+29.2	9.7	33	54.8	+29.6	9.9	81
26	29.7	+27.8	8.2	28	28.4	+28.2	8.3	30	27.1	+28.5	8.5	32	25.8	+28.7	8.7	34	24.4	+29.0	8.9	82
26	57.5	+27.4	7.2	28	56.6	+27.6	7.3	30	55.6	+27.9	7.5	32	54.5	+28.2	7.6	34	53.4	+28.5	7.8	83
27	24.9	+27.0	6.2	29	24.2	+27.2	6.3	31	23.5	+27.4	6.4	33	22.7	+27.7	6.6	35	21.9	+27.9	6.7	84
27	51.9	+26.6	5.2	29	51.4	+26.8	5.3	31	50.9	+26.9	5.4	33	50.4	+27.1	5.5	35	49.8	+27.3	5.6	85
28	18.5	+26.1	4.2	30	18.2	+26.2	4.2	32	17.8	+26.4	4.3	34	17.5	+26.5	4.4	36	17.1	+26.7	4.5	86
28	44.6	+25.6	3.1	30	44.4	+25.7	3.2	32	44.2	+25.8	3.3	34	44.0	+25.9	3.3	36	43.8	+26.0	3.4	87
29	10.2	+25.1	2.1	31	10.1	+25.2	2.1	33	10.0	+25.3	2.2	35	09.9	+25.4	2.2	37	09.8	+25.5	2.3	88
29	35.3	+24.7	1.1	31	35.3	+24.7	1.1	33	35.3	+24.7	1.1	35	35.3	+24.7	1.1	37	35.3	+24.7	1.2	89
30	00.0	+24.1	0.0	32	00.0	+24.1	0.0	34	00.0	+24.1	0.0	36	00.0	+24.1	0.0	38	00.0	+24.1	0.0	90

LATITUDE SAME NAME

L.H.A. 114°, 246°

66°, 294° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	36 14.7	+29.5	78.8	36 36.5	+31.7	80.3	36 55.3	+33.9	81.7	37 11.0	+36.0	83.2	37 23.5	+38.1	84.7
31	36 44.2	+28.9	77.7	37 08.2	+31.2	79.2	37 29.2	+33.3	80.7	37 47.0	+35.5	82.2	38 01.6	+37.6	83.8
32	37 13.1	+28.3	76.6	37 39.4	+30.5	78.1	38 02.5	+32.8	79.6	38 22.5	+34.9	81.2	38 39.2	+37.1	82.8
33	37 41.4	+27.7	75.5	38 09.9	+30.0	77.0	38 35.3	+32.2	78.6	38 57.4	+34.4	80.2	39 16.3	+36.5	81.8
34	38 09.1	+27.1	74.4	38 39.9	+29.3	75.9	39 07.5	+31.6	77.5	39 31.8	+33.8	79.1	39 52.8	+36.0	80.7
35	38 36.2	+26.3	73.3	39 09.2	+28.7	74.8	39 39.1	+30.9	76.4	40 05.6	+33.2	78.0	40 28.8	+35.5	79.7
36	39 02.5	+25.7	72.1	39 37.9	+28.0	73.7	40 10.0	+30.3	75.3	40 38.8	+32.6	76.9	41 04.3	+34.8	78.6
37	39 28.2	+25.0	70.9	40 05.9	+27.3	72.5	40 40.3	+29.6	74.1	41 11.4	+31.9	75.8	41 39.1	+34.2	77.5
38	39 53.2	+24.2	69.7	40 33.2	+26.5	71.3	41 09.9	+28.9	73.0	41 43.3	+31.3	74.7	42 13.3	+33.5	76.4
39	40 17.4	+23.5	68.6	40 59.7	+25.9	70.2	41 38.8	+28.2	71.8	42 14.6	+30.5	73.5	42 46.8	+32.9	75.3
40	40 40.9	+22.7	67.3	41 25.6	+25.1	69.0	42 07.0	+27.5	70.6	42 45.1	+29.8	72.4	43 19.7	+32.1	74.2
41	41 03.6	+22.0	66.1	41 50.7	+24.3	67.7	42 34.5	+26.7	69.4	43 14.9	+29.1	71.2	43 51.8	+31.5	73.0
42	41 25.6	+21.1	64.9	41 25.6	+23.5	66.5	43 01.2	+25.9	68.2	43 44.0	+28.3	70.0	44 23.3	+30.7	71.8
43	41 46.7	+20.3	63.6	42 38.5	+22.7	65.3	43 27.1	+25.1	67.0	44 12.3	+27.5	68.8	44 54.0	+29.9	70.6
44	42 07.0	+19.5	62.4	43 01.2	+21.8	64.0	43 52.2	+24.2	65.7	44 39.8	+26.7	67.5	45 23.9	+29.1	69.4
45	42 26.5	+18.6	61.1	43 23.0	+21.0	62.7	44 16.4	+23.4	64.4	45 06.5	+25.8	66.2	45 53.0	+28.3	68.1
46	42 45.1	+17.7	59.8	43 44.0	+20.1	61.4	44 39.8	+22.5	63.2	45 32.3	+25.0	65.0	46 21.3	+27.4	66.8
47	43 02.8	+16.9	58.5	44 04.1	+19.2	60.1	45 02.3	+21.6	61.8	45 57.3	+24.0	63.7	46 48.7	+26.6	65.6
48	43 19.7	+15.9	57.2	44 23.3	+18.3	58.8	45 23.9	+20.7	60.5	46 21.3	+23.1	62.3	47 15.3	+25.6	64.2
49	43 35.6	+15.0	55.8	44 41.6	+17.3	57.5	45 44.6	+19.7	59.2	46 44.4	+22.2	61.0	47 40.9	+24.6	62.9
50	43 50.6	+14.0	54.5	44 58.9	+16.3	56.1	46 04.3	+18.7	57.8	47 06.6	+21.2	59.6	48 05.5	+23.7	61.5
51	44 04.6	+13.1	53.2	45 15.2	+15.4	54.8	46 23.0	+17.8	56.5	47 27.8	+20.2	58.3	48 29.2	+22.7	60.2
52	44 17.7	+12.1	51.8	45 30.6	+14.4	53.4	46 40.8	+16.7	55.1	47 48.0	+19.1	56.9	48 51.9	+21.7	58.8
53	44 29.8	+11.1	50.4	45 45.0	+13.3	52.0	46 57.5	+15.7	53.7	48 07.1	+18.1	55.4	49 13.6	+20.5	57.3
54	44 40.9	+10.1	49.0	45 58.3	+12.4	50.6	47 13.2	+14.6	52.2	48 25.2	+17.0	54.0	49 34.1	+19.5	55.9
55	44 51.0	+9.1	47.7	46 10.7	+11.2	49.2	47 27.8	+13.6	50.8	48 42.2	+15.9	52.6	49 53.6	+18.4	54.4
56	45 00.1	+8.1	46.3	46 21.9	+10.3	47.8	47 41.4	+12.4	49.4	48 58.1	+14.8	51.1	50 12.0	+17.2	52.9
57	45 08.2	+7.0	44.9	46 32.2	+9.1	46.3	47 53.8	+11.4	47.9	49 12.9	+13.7	49.6	50 29.2	+16.1	51.4
58	45 15.2	+6.0	43.4	46 41.3	+8.0	44.9	48 05.2	+10.2	46.4	49 26.6	+12.5	48.1	50 45.3	+14.8	49.9
59	45 21.2	+4.9	42.0	46 49.3	+7.0	43.4	48 15.4	+9.0	45.0	49 39.1	+11.3	46.6	51 00.1	+13.7	48.4
60	45 26.1	+3.9	40.6	46 56.3	+5.8	42.0	48 24.4	+7.9	43.5	49 50.4	+10.0	45.1	51 13.8	+12.4	46.8
61	45 30.0	+2.8	39.2	47 02.1	+4.8	40.5	48 32.3	+6.8	42.0	50 00.4	+8.9	43.6	51 26.2	+11.1	45.3
62	45 32.8	+1.8	37.8	47 06.9	+3.6	39.1	48 39.1	+5.6	40.5	50 09.3	+7.7	42.0	51 37.3	+9.9	43.7
63	45 34.6	+0.7	36.3	47 10.5	+2.4	37.6	48 44.7	+4.3	39.0	50 17.0	+6.4	40.5	51 47.2	+8.5	42.1
64	45 35.3	-0.4	34.9	47 12.9	+1.4	36.1	48 49.0	+3.2	37.5	50 23.4	+5.1	38.9	51 55.7	+7.2	40.5
65	45 34.9	-1.5	33.5	47 14.3	+0.2	34.7	48 52.2	+2.0	35.9	50 28.5	+3.9	37.3	52 02.9	+6.0	38.9
66	45 33.4	-2.5	32.1	47 14.5	-0.9	33.2	48 54.2	+0.8	34.4	50 32.4	+2.6	35.8	52 08.9	+4.5	37.3
67	45 30.9	-3.6	30.6	47 13.6	-2.1	31.7	48 55.0	-0.4	32.9	50 35.0	+1.4	34.2	52 13.4	+3.3	35.6
68	45 27.3	-4.6	29.2	47 11.5	-3.1	30.2	48 54.6	-1.6	31.4	50 36.4	0.0	32.6	52 16.7	+1.8	34.0
69	45 22.7	-5.7	27.8	47 08.4	-4.3	28.8	48 53.0	-2.8	29.9	50 36.4	-1.2	31.1	52 18.5	+0.6	32.4
70	45 17.0	-6.8	26.4	47 04.1	-5.5	27.3	48 50.2	-4.0	28.3	50 35.2	-2.4	29.5	52 19.1	-0.9	30.7
71	45 10.2	-7.8	25.0	46 58.6	-6.5	25.8	48 46.2	-5.2	26.8	50 32.8	-3.8	27.9	52 18.2	-2.2	29.1
72	45 02.4	-8.8	23.5	46 52.1	-7.6	24.4	48 41.0	-6.4	25.3	50 29.0	-5.0	26.3	52 16.0	-3.5	27.5
73	44 53.6	-9.8	22.1	46 44.5	-8.7	22.9	48 34.6	-7.5	23.8	50 24.0	-6.2	24.8	52 12.5	-4.9	25.8
74	44 43.8	-10.8	20.8	46 35.8	-9.9	21.5	48 27.1	-8.7	22.3	50 17.8	-7.6	23.2	52 07.6	-6.2	24.2
75	44 33.0	-11.8	19.4	46 25.9	-10.8	20.1	48 18.4	-9.9	20.8	50 10.2	-8.7	21.7	52 01.4	-7.5	22.6
76	44 21.2	-12.9	18.0	46 15.1	-12.0	18.6	48 08.5	-10.9	19.3	50 01.5	-10.0	20.1	51 53.9	-8.9	21.0
77	44 08.3	-13.7	16.6	46 03.1	-12.9	17.2	47 57.6	-12.1	17.9	49 51.5	-11.1	18.6	51 45.0	-10.1	19.4
78	43 54.6	-14.8	15.3	45 50.2	-14.0	15.8	47 45.5	-13.2	16.4	49 40.4	-12.4	17.1	51 34.9	-11.4	17.8
79	43 39.8	-15.6	13.9	45 36.2	-15.0	14.4	47 32.3	-14.3	15.0	49 28.0	-13.5	15.6	51 23.5	-12.7	16.2
80	43 24.2	-16.6	12.6	45 21.2	-16.0	13.0	47 18.0	-15.4	13.5	49 14.5	-14.6	14.1	51 10.8	-13.9	14.7
81	43 07.6	-17.5	11.3	45 05.2	-17.0	11.7	47 02.6	-16.4	12.1	48 59.9	-15.8	12.6	50 56.9	-15.2	13.1
82	42 50.1	-18.3	10.0	44 48.2	-17.9	10.3	46 46.2	-17.4	10.7	48 44.1	-16.9	11.1	50 41.7	-16.3	11.6
83	42 31.8	-19.3	8.7	44 30.3	-18.8	9.0	46 28.8	-18.4	9.3	48 27.2	-18.0	9.7	50 25.4	-17.5	10.1
84	42 12.5	-20.0	7.4	44 11.5	-19.8	7.7	46 10.4	-19.4	7.9	48 09.2	-19.0	8.2	50 07.9	-18.6	8.6
85	41 52.5	-21.0	6.1	43 51.7	-20.6	6.3	45 51.0	-20.4	6.6	47 50.2	-20.1	6.8	49 49.3	-19.8	7.1
86	41 31.5	-21.7	4.9	43 31.1	-21.5	5.0	45 30.6	-21.3	5.2	47 30.1	-21.1	5.4	49 29.5	-20.8	5.6
87	41 09.8	-22.5	3.6	43 09.6	-22.4	3.8	45 09.3	-22.2	3.9	47 09.0	-22.0	4.0	49 08.7	-21.9	4.2
88	40 47.3	-23.3	2.4	42 47.2	-23.2	2.5	44 47.1	-23.1	2.6	46 47.0	-23.1	2.7	48 46.8	-22.9	2.8
89	40 24.0	-24.0	1.2	42 24.0	-24.0	1.2	44 24.0	-24.0	1.3	46 23.9	-23.9	1.3	48 23.9	-23.9	1.4
90	40 00.0	-24.8	0.0	42 00.0	-24.8	0.0	44 00.0	-24.8	0.0	46 00.0	-24.9	0.0	48 00.0	-24.9	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 66°, 294°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.					
2	57.3	+42.8	52.4	4	10.5	+43.9	52.5	5	23.4	+45.1	52.6	6	36.1	+46.2	52.8	7	48.6	+47.1	53.0	30
3	40.1	+42.8	51.7	4	54.4	+43.9	51.8	6	08.5	+45.0	52.0	7	22.3	+46.1	52.1	8	35.7	+47.2	52.4	31
4	22.9	+42.7	51.0	5	38.3	+43.9	51.1	6	53.5	+44.9	51.3	8	08.4	+46.0	51.5	9	22.9	+47.0	51.7	32
5	05.6	+42.7	50.3	6	22.2	+43.7	50.4	7	38.4	+44.9	50.6	8	54.4	+45.9	50.9	10	09.9	+47.0	51.1	33
5	48.3	+42.6	49.6	7	05.9	+43.8	49.7	8	23.3	+44.8	50.0	9	40.3	+45.9	50.2	10	56.9	+46.9	50.5	34
6	30.9	+42.5	48.9	7	49.7	+43.6	49.1	9	08.1	+44.8	49.3	10	26.2	+45.8	49.5	11	43.8	+46.9	49.8	35
7	13.4	+42.5	48.2	8	33.3	+43.6	48.4	9	52.9	+44.6	48.6	11	12.0	+45.7	48.9	12	30.7	+46.7	49.2	36
7	55.9	+42.5	47.4	9	16.9	+43.5	47.7	10	37.5	+44.6	47.9	11	57.7	+45.6	48.2	13	17.4	+46.6	48.6	37
8	38.4	+42.3	46.7	10	00.4	+43.4	47.0	11	22.1	+44.5	47.2	12	43.3	+45.5	47.6	14	04.0	+46.6	47.9	38
9	20.7	+42.2	46.0	10	43.8	+43.4	46.3	12	06.6	+44.4	46.6	13	28.8	+45.5	46.9	14	50.6	+46.4	47.3	39
10	02.9	+42.2	45.3	11	27.2	+43.2	45.6	12	51.0	+44.2	45.9	14	14.3	+45.2	46.2	15	37.0	+46.3	46.6	40
10	45.1	+42.1	44.6	12	10.4	+43.1	44.9	13	35.2	+44.2	45.2	14	59.5	+45.2	45.5	16	23.3	+46.2	45.9	41
11	27.2	+41.9	43.8	12	53.5	+43.0	44.1	14	19.4	+44.0	44.5	15	44.7	+45.1	44.9	17	09.5	+46.0	45.3	42
12	09.1	+41.9	43.1	13	36.5	+42.9	43.4	15	03.4	+43.9	43.8	16	29.8	+44.9	44.2	17	55.5	+45.9	44.6	43
12	51.0	+41.7	42.4	14	19.4	+42.7	42.7	15	47.3	+43.8	43.1	17	14.7	+44.7	43.5	18	41.4	+45.8	43.9	44
13	32.7	+41.6	41.6	15	02.1	+42.6	42.0	16	31.1	+43.6	42.4	17	59.4	+44.7	42.8	19	27.2	+45.6	43.2	45
14	14.3	+41.4	40.9	15	44.7	+42.5	41.2	17	14.7	+43.4	41.6	18	44.1	+44.4	42.1	20	12.8	+45.4	42.6	46
14	55.7	+41.3	40.2	16	27.2	+42.3	40.5	17	58.1	+43.3	40.9	19	28.5	+44.3	41.4	20	58.2	+45.3	41.9	47
15	37.0	+41.1	39.4	17	09.5	+42.1	39.8	18	41.4	+43.2	40.2	20	12.8	+44.1	40.6	21	43.5	+45.1	41.1	48
16	18.1	+41.0	38.6	17	51.6	+42.0	39.0	19	24.6	+42.9	39.5	20	56.9	+43.9	39.9	22	28.6	+44.9	40.4	49
16	59.1	+40.8	37.9	18	33.6	+41.8	38.3	20	07.5	+42.8	38.7	21	40.8	+43.8	38.2	23	13.5	+44.7	39.7	50
17	39.9	+40.7	37.1	19	15.4	+41.6	37.5	20	50.3	+42.5	38.0	22	24.6	+43.5	38.5	23	58.2	+44.5	39.0	51
18	20.6	+40.4	36.3	19	57.0	+41.4	36.8	21	32.8	+42.4	37.2	23	08.1	+43.3	37.7	24	42.7	+44.3	38.3	52
19	01.0	+40.2	35.6	20	38.4	+41.2	36.0	22	15.2	+42.1	36.4	23	51.4	+43.1	37.0	25	27.0	+44.0	37.5	53
19	41.2	+40.1	34.8	21	19.6	+40.9	35.2	22	57.3	+41.9	35.7	24	34.5	+42.9	36.2	26	11.0	+43.8	36.8	54
20	21.3	+39.8	34.0	22	00.5	+40.8	34.4	23	39.2	+41.7	34.9	25	17.4	+42.6	35.4	26	54.8	+43.6	36.0	55
21	01.1	+39.6	33.2	22	41.3	+40.5	33.6	24	20.9	+41.5	34.1	26	00.0	+42.3	34.6	27	38.4	+43.3	35.2	56
21	40.7	+39.3	32.4	23	21.8	+40.2	32.8	25	02.4	+41.1	33.3	26	42.3	+42.1	33.8	28	21.7	+43.0	34.4	57
22	20.0	+39.1	31.6	24	02.0	+40.0	32.0	25	43.5	+40.9	32.5	27	24.4	+41.8	33.0	29	04.7	+42.7	33.6	58
22	59.1	+38.9	30.7	24	42.0	+39.8	31.2	26	24.4	+40.7	31.7	28	06.2	+41.6	32.2	29	47.4	+42.5	32.8	59
23	38.0	+38.6	29.9	25	21.8	+39.4	30.4	27	05.1	+40.3	30.9	28	47.8	+41.2	31.4	30	29.9	+42.1	32.0	60
24	16.6	+38.3	29.1	26	01.2	+39.2	29.5	27	45.4	+40.0	30.0	29	29.0	+40.9	30.6	31	12.0	+41.8	31.2	61
24	54.9	+38.0	28.2	26	40.4	+38.9	28.7	28	25.4	+39.7	29.2	30	09.9	+40.6	29.7	31	53.8	+41.5	30.3	62
25	32.9	+37.7	27.4	27	19.3	+38.5	27.8	29	05.1	+39.4	28.3	30	50.5	+40.2	28.9	32	35.3	+41.1	29.5	63
26	10.6	+37.4	26.5	27	57.8	+38.2	27.0	29	44.5	+39.1	27.5	31	30.7	+39.9	28.0	33	16.4	+40.7	28.6	64
26	48.0	+37.1	25.6	28	36.0	+37.9	26.1	30	23.6	+38.6	26.6	32	10.6	+39.5	27.1	33	57.1	+40.4	27.7	65
27	25.1	+36.7	24.7	29	13.9	+37.5	25.2	31	02.2	+38.4	25.7	32	50.1	+39.2	26.2	34	37.5	+39.9	26.8	66
28	01.8	+36.4	23.9	29	51.4	+37.2	24.3	31	40.6	+37.9	24.8	33	29.3	+38.7	25.3	35	17.4	+39.6	25.9	67
28	38.2	+36.1	22.9	30	28.6	+36.7	23.4	32	18.5	+37.5	23.9	34	08.0	+38.3	24.4	35	57.0	+39.1	25.0	68
29	14.3	+35.6	22.0	31	05.3	+36.4	22.5	32	56.0	+37.1	23.0	34	46.3	+37.9	23.5	36	36.1	+38.7	24.1	69
29	49.9	+35.3	21.1	31	41.7	+36.0	21.5	33	33.1	+36.7	22.0	35	24.2	+37.4	22.5	37	14.8	+38.2	23.1	70
30	25.2	+34.8	20.2	32	17.7	+35.5	20.6	34	09.8	+36.2	21.1	36	01.6	+37.0	21.6	37	53.0	+37.7	22.1	71
31	00.0	+34.5	19.2	32	53.2	+35.1	19.6	34	46.0	+35.8	20.1	36	38.6	+36.4	20.6	38	30.7	+37.2	21.1	72
31	34.5	+34.0	18.3	33	28.3	+34.6	18.7	35	21.8	+35.3	19.1	37	15.0	+36.0	19.6	39	07.9	+36.7	20.1	73
32	08.5	+33.5	17.3	34	02.9	+34.2	17.7	35	57.1	+34.8	18.1	37	51.0	+35.4	18.6	39	44.6	+36.1	19.1	74
32	42.0	+33.1	16.3	34	37.1	+33.6	16.7	36	31.9	+34.2	17.1	38	26.4	+34.9	17.6	40	20.7	+35.5	18.1	75
33	15.1	+32.6	15.3	35	10.7	+33.2	15.7	37	06.1	+33.8	16.1	39	01.3	+34.3	16.5	40	56.2	+35.0	17.0	76
33	47.7	+32.1	14.3	35	43.9	+32.6	14.7	37	39.9	+33.1	15.0	39	35.6	+33.8	15.5	41	31.2	+34.3	15.9	77
34	19.8	+31.6	13.3	36	16.5	+32.1	13.6	38	13.0	+32.6	14.0	40	09.4	+33.1	14.4	42	05.5	+33.7	14.8	78
34	51.4	+31.1	12.3	36	48.6	+31.5	12.6	38	45.6	+32.0	12.9	40	42.5	+32.5	13.3	42	39.2	+33.0	13.7	79
35	22.5	+30.5	11.2	37	20.1	+31.0	11.5	39	17.6	+31.4	11.8	41	15.0	+31.9	12.2	43	12.2	+32.4	12.6	80
35	53.0	+29.9	10.2	37	51.1	+30.3	10.4	39	49.0	+30.8	10.7	41	46.9	+31.1	11.0	43	44.6	+31.6	11.4	81
36	22.9	+29.4	9.1	38	21.4	+29.7	9.3	40	19.8	+30.0	9.6	42	18.0	+30.5	9.9	44	16.2	+30.8	10.2	82
36	52.3	+28.8	8.0	38	51.1	+29.1	8.2	40	49.8	+29.4	8.5	42	48.5	+29.7	8.7	44	47.0	+30.1	9.0	83
37	21.1	+28.1	6.9	39	20.2	+28.4	7.1	41	19.2	+28.7	7.3	43	18.2	+29.0	7.5	45	17.1	+29.4	7.8	84
37	49.2	+27.5	5.8	39	48.6	+27.7	5.9	41	47.9	+28.0	6.1	43	47.2	+28.2	6.3	45	46.5	+28.4	6.6	85
38	16.7	+26.9	4.7	40	16.3	+27.0	4.8	42	15.9	+27.2	4.9	44	15.4	+27.4	5.1	46	14.9	+27.7	5.3	86
38	43.6	+26.2	3.5	40	43.3	+26.3	3.6	42	43.1	+26.4	3.7	44	42.8	+26.6	3.9	46	42.6	+26.7	4.0	87
39	09.8	+25.4	2.4	41	09.6	+25.6	2.4	43	09.5	+25.7	2.5	45	09.4	+25.7	2.6	47	09.3	+25.8	2.7	88
39	35.2	+24.8	1.2	41	35.2	+24.8	1.2	43	35.2	+24.8	1.3	45	35.1	+24.9	1.3	47	35.1	+24.9	1.4	89
40	00.0	+24.0	0.0	42	00.0	+24.0	0.0	44	00.0	+24.0	0.0	46	00.0	+23.9	0.0	48	00.0	+23.9	0.0	90
	40°			42°				44°				46°				48°				

LATITUDE SAME NAME

L.H.A. 114°, 246°

66°, 294° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	37 32.9	+40.1	86.3	37 39.1	+42.1	87.8	37 42.1	+43.9	89.4	37 41.8	+45.7	90.9	37 38.3	+47.4	92.4
31	38 13.0	+39.7	85.3	38 21.2	+41.6	86.9	38 26.0	+43.5	88.5	38 27.5	+45.3	90.1	38 25.7	+47.0	91.7
32	38 52.7	+39.1	84.4	39 02.8	+41.1	86.0	39 09.5	+43.1	87.6	39 12.8	+44.9	89.2	39 12.7	+46.7	90.9
33	39 31.8	+38.7	83.4	39 43.9	+40.7	85.0	39 52.6	+42.6	86.7	39 57.7	+44.5	88.4	39 59.4	+46.3	90.1
34	40 10.5	+38.1	82.4	40 24.6	+40.2	84.1	40 35.2	+42.2	85.8	40 42.2	+44.2	87.5	40 45.7	+45.9	89.2
35	40 48.6	+37.6	81.4	41 04.8	+39.7	83.1	41 17.4	+41.7	84.8	41 26.4	+43.7	86.6	41 31.6	+45.6	88.4
36	41 26.2	+37.0	80.3	41 44.5	+39.1	82.1	41 59.1	+41.3	83.9	42 10.1	+43.2	85.7	42 17.2	+45.2	87.5
37	42 03.2	+36.4	79.3	42 23.6	+38.6	81.1	42 40.4	+40.7	82.9	42 53.3	+42.8	84.7	43 02.4	+44.7	86.6
38	42 39.6	+35.8	78.2	43 02.2	+38.1	80.0	43 21.1	+40.2	81.9	43 36.1	+42.2	83.8	43 47.1	+44.3	85.7
39	43 15.4	+35.2	77.1	43 40.3	+37.4	79.0	44 01.3	+39.6	80.9	44 18.3	+41.8	82.8	44 31.4	+43.8	84.7
40	43 50.6	+34.5	76.0	44 17.7	+36.8	77.9	44 40.9	+39.0	79.8	45 00.1	+41.2	81.8	45 15.2	+43.3	83.8
41	44 25.1	+33.8	74.9	44 54.5	+36.1	76.8	45 19.9	+38.4	78.7	45 41.3	+40.6	80.7	45 58.5	+42.8	82.8
42	44 58.9	+33.1	73.7	45 30.6	+35.5	75.6	45 58.3	+37.8	77.6	46 21.9	+40.1	79.7	46 41.3	+42.2	81.8
43	45 32.0	+32.3	72.5	46 06.1	+34.7	74.5	46 36.1	+37.1	76.5	47 02.0	+39.4	78.6	47 23.5	+41.7	80.7
44	46 04.3	+31.6	71.3	46 40.8	+34.0	73.3	47 13.2	+36.4	75.4	47 41.4	+38.7	77.5	48 05.2	+41.0	79.7
45	46 35.9	+30.7	70.1	47 14.8	+33.2	72.1	47 49.6	+35.6	74.2	48 20.1	+38.0	76.3	48 46.2	+40.4	78.6
46	47 06.6	+29.9	68.8	47 48.0	+32.4	70.9	48 25.2	+34.9	73.0	48 58.1	+37.4	75.2	49 26.6	+39.7	77.4
47	47 36.5	+29.0	67.5	48 20.4	+31.5	69.6	49 00.1	+34.0	71.7	49 35.5	+36.5	74.0	50 06.3	+39.0	76.3
48	48 05.5	+28.2	66.2	48 51.9	+30.7	68.3	49 34.1	+33.3	70.5	50 12.0	+35.8	72.7	50 45.3	+38.2	75.1
49	48 33.7	+27.2	64.9	49 22.6	+29.8	67.0	50 07.4	+32.3	69.2	50 47.8	+34.9	71.5	51 23.5	+37.5	73.8
50	49 00.9	+26.2	63.6	49 52.4	+28.8	65.7	50 39.7	+31.4	67.9	51 22.7	+34.0	70.2	52 01.0	+36.6	72.6
51	49 27.1	+25.3	62.2	50 21.2	+27.8	64.3	51 11.1	+30.5	66.5	51 56.7	+33.1	68.9	52 37.6	+35.8	71.3
52	49 52.4	+24.2	60.8	50 49.0	+26.8	62.9	51 41.6	+29.5	65.1	52 29.8	+32.2	67.5	53 13.4	+34.8	70.0
53	50 16.6	+23.1	59.3	51 15.8	+25.8	61.5	52 11.1	+28.4	63.7	53 02.0	+31.1	66.1	53 48.2	+33.9	68.6
54	50 39.7	+22.0	57.9	51 41.6	+24.7	60.0	52 39.5	+27.4	62.3	53 33.1	+30.1	64.7	54 22.1	+32.8	67.2
55	51 01.7	+21.0	56.4	52 06.3	+23.5	58.5	53 06.9	+26.2	60.8	54 03.2	+29.0	63.2	54 54.9	+31.9	65.7
56	51 22.7	+19.7	54.9	52 29.8	+22.4	57.0	53 33.1	+25.1	59.3	54 32.2	+27.9	61.7	55 26.8	+30.7	64.2
57	51 42.4	+18.6	53.4	52 52.2	+21.2	55.5	53 58.2	+23.9	57.8	55 00.1	+26.7	60.2	55 57.5	+29.5	62.7
58	52 01.0	+17.3	51.9	53 13.4	+19.9	54.0	54 22.1	+22.6	56.2	55 26.8	+25.4	58.6	56 27.0	+28.3	61.2
59	52 18.3	+16.1	50.3	53 33.3	+18.7	52.4	54 44.7	+21.4	54.6	55 52.2	+24.2	57.0	56 55.3	+27.1	59.6
60	52 34.4	+14.8	48.7	53 52.0	+17.3	50.8	55 06.1	+20.0	53.0	56 16.4	+22.8	55.4	57 22.4	+25.7	57.9
61	52 49.2	+13.6	47.1	54 09.3	+16.1	49.1	55 26.1	+18.7	51.3	56 39.2	+21.5	53.7	57 48.1	+24.4	56.2
62	53 02.8	+12.1	45.5	54 25.4	+14.6	47.5	55 44.8	+17.3	49.6	57 00.7	+20.0	52.0	58 12.5	+23.0	54.5
63	53 14.9	+10.9	43.9	54 40.0	+13.3	45.8	56 02.1	+15.8	47.9	57 20.7	+18.6	50.2	58 35.5	+21.4	52.7
64	53 25.8	+9.4	42.2	54 53.3	+11.8	44.1	56 17.9	+14.4	46.2	57 39.3	+17.1	48.5	58 56.9	+20.0	50.9
65	53 35.2	+8.1	40.6	55 05.1	+10.4	42.4	56 32.3	+12.9	44.4	57 56.4	+15.5	46.7	59 16.9	+18.3	49.1
66	53 43.3	+6.7	38.9	55 15.5	+9.0	40.7	56 45.2	+11.3	42.7	58 11.9	+13.9	44.8	59 35.2	+16.7	47.2
67	53 50.0	+5.2	37.2	55 24.5	+7.4	39.0	56 56.5	+9.8	40.9	58 25.8	+12.3	43.0	59 51.9	+15.1	45.3
68	53 55.2	+3.9	35.5	55 31.9	+5.9	37.2	57 06.3	+8.2	39.1	58 38.1	+10.7	41.1	60 07.0	+13.3	43.4
69	53 59.1	+2.4	33.8	55 37.8	+4.4	35.4	57 14.5	+6.6	37.2	58 48.8	+9.0	39.2	60 20.3	+11.6	41.4
70	54 01.5	+0.9	32.1	55 42.2	+2.9	33.7	57 21.1	+5.0	35.4	58 57.8	+7.2	37.3	60 31.9	+9.7	39.4
71	54 02.4	-0.5	30.4	55 45.1	+1.3	31.9	57 26.1	+3.3	33.5	59 05.0	+5.6	35.4	60 41.6	+8.0	37.4
72	54 01.9	-1.9	28.7	55 46.4	-0.2	30.1	57 29.4	+1.7	31.7	59 10.6	+3.8	33.4	60 49.6	+6.1	35.4
73	54 00.0	-3.4	27.0	55 46.2	-1.7	28.3	57 31.1	+0.1	29.8	59 14.4	+2.0	31.5	60 55.7	+4.2	33.3
74	53 56.6	-4.8	25.3	55 44.5	-3.3	26.6	57 31.2	-1.6	28.0	59 16.4	+0.3	29.5	60 59.9	+2.3	31.3
75	53 51.8	-6.3	23.6	55 41.2	-4.8	24.8	57 29.6	-3.2	26.1	59 16.7	-1.5	27.6	61 02.2	+0.5	29.2
76	53 45.5	-7.6	22.0	55 36.4	-6.3	23.0	57 26.4	-4.9	24.2	59 15.2	-3.2	25.6	61 02.7	-1.4	27.2
77	53 37.9	-9.0	20.3	55 30.1	-7.8	21.3	57 21.5	-6.5	22.4	59 12.0	-5.0	23.7	61 01.3	-3.4	25.1
78	53 28.9	-10.4	18.6	55 22.3	-9.3	19.5	57 15.0	-8.0	20.6	59 07.0	-6.8	21.7	60 57.9	-5.2	23.0
79	53 18.5	-11.8	17.0	55 13.0	-10.8	17.8	57 07.0	-9.7	18.7	59 00.2	-8.4	19.8	60 52.7	-7.0	21.0
80	53 06.7	-13.1	15.3	55 02.2	-12.2	16.1	56 57.3	-11.2	16.9	58 51.8	-10.1	17.9	60 45.7	-8.9	19.0
81	52 53.6	-14.4	13.7	54 50.0	-13.6	14.4	56 46.1	-12.8	15.1	58 41.7	-11.8	16.0	60 36.8	-10.7	16.9
82	52 39.2	-15.7	12.1	54 36.4	-15.0	12.7	56 33.3	-14.3	13.3	58 29.9	-13.4	14.1	60 26.1	-12.5	14.9
83	52 23.5	-17.0	10.5	54 21.4	-16.4	11.0	56 19.0	-15.7	11.6	58 16.5	-15.1	12.2	60 13.6	-14.2	13.0
84	52 06.5	-18.2	8.9	54 05.0	-17.7	9.4	56 03.3	-17.2	9.8	58 01.4	-16.5	10.4	59 59.4	-16.0	11.0
85	51 48.3	-19.4	7.4	53 47.3	-19.0	7.7	55 46.1	-18.5	8.1	57 44.9	-18.1	8.6	59 43.4	-17.5	9.1
86	51 28.9	-20.5	5.9	53 28.3	-20.3	6.1	55 27.6	-20.0	6.5	57 26.8	-19.6	6.8	59 25.9	-19.2	7.2
87	51 08.4	-21.7	4.4	53 08.0	-21.5	4.6	55 07.6	-21.3	4.8	57 07.2	-21.0	5.1	59 06.7	-20.8	5.3
88	50 46.7	-22.8	2.9	52 46.5	-22.7	3.0	54 46.3	-22.5	3.2	56 46.2	-22.5	3.3	58 45.9	-22.2	3.5
89	50 23.9	-23.9	1.4	52 23.8	-23.8	1.5	54 23.8	-23.8	1.6	56 23.7	-23.7	1.7	58 23.7	-23.7	1.7
90	50 00.0	-24.9	0.0	52 00.0	-25.0	0.0	54 00.0	-25.0	0.0	56 00.0	-25.0	0.0	58 00.0	-25.1	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 66°, 294°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
9	00.6	+48.2	53.2	10	12.2	+49.2	53.5	11	23.3	+50.2	53.8	12	33.9	+51.1	54.2	30
9	48.8	+48.2	52.6	11	01.4	+49.1	52.9	12	13.5	+50.1	53.2	13	25.0	+51.0	53.6	31
10	37.0	+48.0	52.0	11	50.5	+49.1	52.3	13	03.6	+50.0	52.7	14	16.0	+51.0	53.1	32
11	25.0	+48.0	51.4	12	39.6	+49.0	51.7	13	53.6	+50.0	52.1	15	07.0	+50.8	52.5	33
12	13.0	+48.0	50.8	13	28.6	+48.9	51.2	14	43.6	+49.8	51.5	15	57.8	+50.8	52.0	34
13	01.0	+47.8	50.2	14	17.5	+48.8	50.6	15	33.4	+49.8	51.0	16	48.6	+50.7	51.4	35
13	48.8	+47.7	49.6	15	06.3	+48.7	50.0	16	23.2	+49.7	50.4	17	39.3	+50.6	50.9	36
14	36.5	+47.7	48.9	15	55.0	+48.7	49.3	17	12.9	+49.5	49.8	18	29.9	+50.5	50.3	37
15	24.2	+47.5	48.3	16	43.7	+48.5	48.7	18	02.4	+49.5	49.2	19	20.4	+50.4	49.7	38
16	11.7	+47.4	47.7	17	32.2	+48.4	48.1	18	51.9	+49.3	48.6	20	10.8	+50.3	49.1	39
16	59.1	+47.3	47.0	18	20.6	+48.2	47.5	19	41.2	+49.3	48.0	21	01.1	+50.1	48.6	40
17	46.4	+47.2	46.4	19	08.8	+48.2	46.9	20	30.5	+49.1	47.4	21	51.2	+50.1	48.0	41
18	33.6	+47.0	45.7	19	57.0	+48.0	46.2	21	19.6	+48.9	46.8	22	41.3	+49.9	47.4	42
19	20.6	+46.9	45.1	20	45.0	+47.8	45.6	22	08.5	+48.8	46.2	23	31.2	+49.7	46.8	43
20	07.5	+46.7	44.4	21	32.8	+47.7	45.0	22	57.3	+48.7	45.5	24	20.9	+49.6	46.2	44
20	54.2	+46.6	43.7	22	20.5	+47.6	44.3	23	46.0	+48.5	44.9	25	10.5	+49.5	45.5	45
21	40.8	+46.4	43.1	23	08.1	+47.4	43.6	24	34.5	+48.3	44.3	26	00.0	+49.3	44.9	46
22	27.2	+46.3	42.4	23	55.5	+47.2	43.0	25	22.8	+48.2	43.6	26	49.3	+49.1	44.3	47
23	13.5	+46.1	41.7	24	42.7	+47.0	42.3	26	11.0	+48.0	42.9	27	38.4	+48.9	43.6	48
23	59.6	+45.8	41.0	25	29.7	+46.8	41.6	26	59.0	+47.8	42.3	28	27.3	+48.7	43.0	49
24	45.4	+45.7	40.3	26	16.5	+46.7	40.9	27	46.8	+47.5	41.6	29	16.0	+48.6	42.3	50
25	31.1	+45.4	39.6	27	03.2	+46.4	40.2	28	34.3	+47.4	40.9	30	04.6	+48.3	41.6	51
26	16.5	+45.3	38.8	27	49.6	+46.2	39.5	29	21.7	+47.2	40.2	30	52.9	+48.1	40.9	52
27	01.8	+45.0	38.1	28	35.8	+45.9	38.8	30	08.9	+46.9	39.5	31	41.0	+47.8	40.2	53
27	46.8	+44.7	37.4	29	21.7	+45.7	38.0	30	55.8	+46.6	38.8	32	28.8	+47.7	39.5	54
28	31.5	+44.5	36.6	30	07.4	+45.5	37.3	31	42.4	+46.4	38.0	33	16.5	+47.3	38.8	55
29	16.0	+44.3	35.8	30	52.9	+45.2	36.5	32	28.8	+46.2	37.3	34	03.8	+47.1	38.1	56
30	00.3	+43.9	35.1	31	38.1	+44.9	35.8	33	15.0	+45.8	36.5	34	50.9	+46.8	37.3	57
30	44.2	+43.7	34.3	32	23.0	+44.6	35.0	34	00.8	+45.6	35.7	35	37.7	+46.6	36.6	58
31	27.9	+43.3	33.5	33	07.6	+44.3	34.2	34	46.4	+45.2	34.9	36	24.3	+46.2	35.8	59
32	11.2	+43.1	32.7	33	51.9	+43.9	33.4	35	31.6	+45.0	34.1	37	10.5	+45.9	35.0	60
32	54.3	+42.7	31.8	34	35.8	+43.7	32.6	36	16.6	+44.5	33.3	37	56.4	+45.5	34.2	61
33	37.0	+42.4	31.0	35	19.5	+43.3	31.7	37	01.1	+44.3	32.5	38	41.9	+45.2	33.5	62
34	19.4	+42.0	30.1	36	02.8	+42.9	30.9	37	45.4	+43.8	31.6	39	27.1	+44.8	32.5	63
35	01.4	+41.6	29.3	36	45.7	+42.5	30.0	38	29.2	+43.5	30.8	40	11.9	+44.4	31.6	64
35	43.0	+41.2	28.4	37	28.2	+42.2	29.1	39	12.7	+43.0	29.9	40	56.3	+44.0	30.7	65
36	24.2	+40.9	27.5	38	10.4	+41.7	28.2	39	55.7	+42.6	29.0	41	40.3	+43.5	29.8	66
37	05.1	+40.4	26.6	38	52.1	+41.2	27.3	40	38.3	+42.2	28.1	42	23.8	+43.1	28.9	67
37	45.5	+39.9	25.6	39	33.3	+40.8	26.4	41	20.5	+41.7	27.1	43	06.9	+42.6	28.0	68
38	25.4	+39.5	24.7	40	14.1	+40.4	25.4	42	02.2	+41.2	26.2	43	49.5	+42.1	27.0	69
39	04.9	+39.0	23.7	40	54.5	+39.8	24.4	42	43.4	+40.7	25.2	44	31.6	+41.6	26.0	70
39	43.9	+38.5	22.8	41	34.3	+39.3	23.4	43	24.1	+40.1	24.2	45	13.2	+41.1	25.0	71
40	22.4	+37.9	21.7	42	13.6	+38.7	22.4	44	04.2	+39.6	23.1	45	54.3	+40.4	23.9	72
41	00.3	+37.4	20.7	42	52.3	+38.2	21.4	44	43.8	+39.0	22.1	46	34.7	+39.8	22.9	73
41	37.7	+36.9	19.7	43	30.5	+37.6	20.3	45	22.8	+38.4	21.0	47	14.5	+39.2	21.8	74
42	14.6	+36.2	18.6	44	08.1	+36.9	19.2	46	01.2	+37.7	19.9	47	53.7	+38.5	20.6	75
42	50.8	+35.6	17.5	44	45.0	+36.3	18.1	46	38.9	+37.0	18.8	48	32.2	+37.9	19.5	76
43	26.4	+35.0	16.4	45	21.3	+35.7	17.0	47	15.9	+36.3	17.6	49	10.1	+37.0	18.3	77
44	01.4	+34.3	15.3	45	57.0	+34.9	15.9	47	52.2	+35.6	16.4	49	47.1	+36.3	17.1	78
44	35.7	+33.6	14.2	46	31.9	+34.2	14.7	48	27.8	+34.8	15.2	50	23.4	+35.5	15.9	79
45	09.3	+32.8	13.0	47	06.1	+33.4	13.5	49	02.6	+34.0	14.0	50	58.9	+34.7	14.6	80
45	42.1	+32.1	11.8	47	39.5	+32.6	12.2	49	36.6	+33.2	12.7	51	33.6	+33.7	13.3	81
46	14.2	+31.3	10.6	48	12.1	+31.8	11.0	50	09.8	+32.3	11.4	52	07.3	+32.8	12.0	82
46	45.5	+30.5	9.4	48	43.9	+30.9	9.7	50	42.1	+31.3	10.1	52	40.1	+31.8	10.6	83
47	16.0	+29.6	8.1	49	14.8	+30.0	8.4	51	13.4	+30.4	8.8	53	11.9	+30.9	9.2	84
47	45.6	+28.8	6.8	49	44.8	+29.0	7.1	51	43.8	+29.4	7.4	53	42.8	+29.7	7.7	85
48	14.4	+27.8	5.5	50	13.8	+28.1	5.7	52	13.2	+28.4	6.0	54	12.5	+28.7	6.3	86
48	42.2	+27.0	4.2	50	41.9	+27.1	4.3	52	41.6	+27.2	4.5	54	41.2	+27.5	4.7	87
49	09.2	+25.9	2.8	51	09.0	+26.0	2.9	53	08.8	+26.2	3.0	55	08.7	+26.3	3.2	88
49	35.1	+24.9	1.4	51	35.0	+25.0	1.5	53	35.0	+25.0	1.5	55	35.0	+25.0	1.6	89
50	00.0	+23.9	0.0	52	00.0	+23.8	0.0	54	00.0	+23.8	0.0	56	00.0	+23.7	0.0	90
50°			52°			54°			56°			58°				

LATITUDE SAME NAME

L.H.A. 114°, 246°

68°, 292° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	32 04.2	+18.9	71.4	32 41.4	+21.1	72.6	33 16.1	+23.3	73.8	33 48.2	+25.6	75.1	34 17.8	+27.7	76.4
31	32 23.1	+18.3	70.2	33 02.5	+20.5	71.5	33 39.4	+22.7	72.7	34 13.8	+24.9	74.0	34 45.5	+27.2	75.3
32	32 41.4	+17.6	69.1	33 23.0	+19.8	70.3	34 02.1	+22.1	71.6	34 38.7	+24.3	72.9	35 12.7	+26.5	74.2
33	32 59.0	+17.1	68.0	33 42.8	+19.3	69.2	34 24.2	+21.5	70.5	35 03.0	+23.8	71.8	35 39.2	+26.0	73.1
34	33 16.1	+16.4	66.8	34 02.1	+18.6	68.1	34 45.7	+20.9	69.3	35 26.8	+23.1	70.7	36 05.2	+25.3	72.0
35	33 32.5	+15.7	65.7	34 20.7	+18.0	66.9	35 06.6	+20.2	68.2	35 49.9	+22.4	69.5	36 30.5	+24.7	70.9
36	33 48.2	+15.1	64.5	34 38.7	+17.3	65.8	35 26.8	+19.5	67.0	36 12.3	+21.8	68.4	36 55.2	+24.0	69.8
37	34 03.3	+14.5	63.4	34 56.0	+16.7	64.6	35 46.3	+18.9	65.9	36 34.1	+21.1	67.2	37 19.2	+23.4	68.6
38	34 17.8	+13.8	62.2	35 12.7	+15.9	63.4	36 05.2	+18.1	64.7	36 55.2	+20.4	66.0	37 42.6	+22.6	67.4
39	34 31.6	+13.0	61.0	35 28.6	+15.3	62.2	36 23.3	+17.5	63.5	37 15.6	+19.7	64.9	38 05.2	+22.0	66.3
40	34 44.6	+12.4	59.8	35 43.9	+14.5	61.0	36 40.8	+16.8	62.3	37 35.3	+19.0	63.7	38 27.2	+21.2	65.1
41	34 57.0	+11.7	58.6	35 58.4	+13.9	59.8	36 57.6	+16.0	61.1	37 54.3	+18.2	62.5	38 48.4	+20.5	63.9
42	35 08.7	+11.0	57.4	36 12.3	+13.1	58.6	37 13.6	+15.3	59.9	38 12.5	+17.5	61.3	39 08.9	+19.7	62.7
43	35 19.7	+10.3	56.2	36 25.4	+12.4	57.4	37 28.9	+14.5	58.7	38 30.0	+16.7	60.0	39 28.6	+19.0	61.5
44	35 30.0	+9.5	55.0	36 37.8	+11.6	56.2	37 43.4	+13.8	57.5	38 46.7	+16.0	58.8	39 47.6	+18.2	60.2
45	35 39.5	+8.8	53.8	36 49.4	+10.9	55.0	37 57.2	+12.9	56.2	39 02.7	+15.1	57.6	40 05.8	+17.3	59.0
46	35 48.3	+8.1	52.6	37 00.3	+10.1	53.8	38 10.1	+12.2	55.0	39 17.8	+14.4	56.3	40 23.1	+16.6	57.7
47	35 56.4	+7.3	51.4	37 10.4	+9.3	52.5	38 22.3	+11.5	53.8	39 32.2	+13.5	55.1	40 39.7	+15.7	56.5
48	36 03.7	+6.5	50.1	37 19.7	+8.5	51.3	38 33.8	+10.5	52.5	39 45.7	+12.7	53.8	40 55.4	+14.9	55.2
49	36 10.2	+5.8	48.9	37 28.2	+7.8	50.0	38 44.3	+9.8	51.2	39 58.4	+11.9	52.5	41 10.3	+14.0	53.9
50	36 16.0	+5.1	47.7	37 36.0	+7.0	48.8	38 54.1	+9.0	50.0	40 10.3	+11.0	51.3	41 24.3	+13.1	52.6
51	36 21.1	+4.3	46.4	37 43.0	+6.1	47.5	39 03.1	+8.1	48.7	40 21.3	+10.1	50.0	41 37.4	+12.2	51.3
52	36 25.4	+3.5	45.2	37 49.1	+5.4	46.3	39 11.2	+7.3	47.4	40 31.4	+9.3	48.7	41 49.6	+11.4	50.0
53	36 28.9	+2.7	43.9	37 54.5	+4.6	45.0	39 18.5	+6.4	46.1	40 40.7	+8.4	47.4	42 01.0	+10.4	48.7
54	36 31.6	+2.0	42.7	37 59.1	+3.7	43.7	39 24.9	+5.6	44.9	40 49.1	+7.5	46.1	42 11.4	+9.5	47.4
55	36 33.6	+1.1	41.5	38 02.8	+2.9	42.5	39 30.5	+4.8	43.6	40 56.6	+6.6	44.8	42 20.9	+8.6	46.0
56	36 34.7	+0.5	40.2	38 05.7	+2.1	41.2	39 35.3	+3.8	42.3	41 03.2	+5.7	43.4	42 29.5	+7.6	44.7
57	36 35.2	-0.4	39.0	38 07.8	+1.3	39.9	39 39.1	+3.0	41.0	41 08.9	+4.8	42.1	42 37.1	+6.7	43.3
58	36 34.8	-1.2	37.7	38 09.1	+0.5	38.7	39 42.1	+2.2	39.7	41 13.7	+3.9	40.8	42 43.8	+5.7	42.0
59	36 33.6	-1.9	36.5	38 09.6	-0.4	37.4	39 44.3	+1.2	38.4	41 17.6	+3.0	39.5	42 49.5	+4.8	40.6
60	36 31.7	-2.7	35.2	38 09.2	-1.2	36.1	39 45.5	+0.4	37.1	41 20.6	+2.0	38.1	42 54.3	+3.7	39.3
61	36 29.0	-3.5	34.0	38 08.0	-2.0	34.9	39 45.9	-0.5	35.8	41 22.6	+1.2	36.8	42 58.0	+2.9	37.9
62	36 25.5	-4.2	32.8	38 06.0	-2.8	33.6	39 45.4	-1.3	34.5	41 23.8	+0.2	35.5	43 00.9	+1.8	36.5
63	36 21.3	-5.0	31.5	38 03.2	-3.7	32.3	39 44.1	-2.2	33.2	41 24.0	-0.7	34.1	43 02.7	+0.9	35.2
64	36 16.3	-5.8	30.3	37 59.5	-4.4	31.0	39 41.9	-3.1	31.9	41 23.3	-1.7	32.8	43 03.6	-0.1	33.8
65	36 10.5	-6.5	29.0	37 55.1	-5.3	29.8	39 38.8	-4.0	30.6	41 21.6	-2.5	31.5	43 03.5	-1.1	32.4
66	36 04.0	-7.3	27.8	37 49.8	-6.1	28.5	39 34.8	-4.8	29.3	41 19.1	-3.5	30.1	43 02.4	-2.1	31.1
67	35 56.7	-8.0	26.6	37 43.7	-6.9	27.3	39 30.0	-5.6	28.0	41 15.6	-4.4	28.8	43 00.3	-3.1	29.7
68	35 48.7	-8.8	25.4	37 36.8	-7.6	26.0	39 24.4	-6.5	26.7	41 11.2	-5.3	27.5	42 57.2	-4.0	28.3
69	35 39.9	-9.5	24.1	37 29.2	-8.5	24.8	39 17.9	-7.4	25.4	41 05.9	-6.2	26.2	42 53.2	-4.9	27.0
70	35 30.4	-10.2	22.9	37 20.7	-9.2	23.5	39 10.5	-8.2	24.1	40 59.7	-7.1	24.8	42 48.3	-6.0	25.6
71	35 20.2	-10.9	21.7	37 11.5	-10.0	22.3	39 02.3	-9.0	22.9	40 52.6	-8.0	23.5	42 42.3	-6.9	24.3
72	35 09.3	-11.7	20.5	37 01.5	-10.8	21.0	38 53.3	-9.9	21.6	40 44.6	-8.9	22.2	42 35.4	-7.8	22.9
73	34 57.6	-12.4	19.3	36 50.7	-11.6	19.8	38 43.4	-10.7	20.3	40 35.7	-9.8	20.9	42 27.6	-8.8	21.6
74	34 45.2	-13.0	18.1	36 39.1	-12.3	18.6	38 32.7	-11.5	19.1	40 25.9	-10.6	19.6	42 18.8	-9.7	20.2
75	34 32.2	-13.8	16.9	36 26.8	-13.0	17.4	38 21.2	-12.2	17.8	40 15.3	-11.5	18.3	42 09.1	-10.7	18.9
76	34 18.4	-14.4	15.8	36 13.8	-13.7	16.1	38 09.0	-13.1	16.6	40 03.8	-12.3	17.0	41 58.4	-11.5	17.6
77	34 04.0	-15.1	14.6	36 00.1	-14.5	14.9	37 55.9	-13.8	15.3	39 51.5	-13.1	15.8	41 46.9	-12.5	16.2
78	33 48.9	-15.7	13.4	35 45.6	-15.2	13.7	37 42.1	-14.6	14.1	39 38.4	-14.0	14.5	41 34.4	-13.3	14.9
79	33 33.2	-16.4	12.3	35 30.4	-15.9	12.6	37 27.5	-15.4	12.9	39 24.4	-14.8	13.2	41 21.1	-14.2	13.6
80	33 16.8	-17.0	11.1	35 14.5	-16.5	11.4	37 12.1	-16.1	11.7	39 09.6	-15.6	12.0	41 06.9	-15.1	12.3
81	32 59.8	-17.6	10.0	34 58.0	-17.3	10.2	36 56.0	-16.8	10.5	38 54.0	-16.4	10.7	40 51.8	-15.9	11.1
82	32 42.2	-18.3	8.8	34 40.7	-17.9	9.0	36 39.2	-17.5	9.3	38 37.6	-17.2	9.5	40 35.9	-16.7	9.8
83	32 23.9	-18.8	7.7	34 22.8	-18.5	7.9	36 21.7	-18.3	8.1	38 20.4	-17.9	8.3	40 19.2	-17.6	8.5
84	32 05.1	-19.5	6.6	34 04.3	-19.2	6.7	36 03.4	-18.9	6.9	38 02.5	-18.6	7.1	40 01.6	-18.4	7.3
85	31 45.6	-20.0	5.5	33 45.1	-19.8	5.6	35 44.5	-19.6	5.7	37 43.9	-19.4	5.9	39 43.2	-19.1	6.0
86	31 25.6	-20.6	4.3	33 25.3	-20.5	4.4	35 24.9	-20.3	4.6	37 24.5	-20.1	4.7	39 24.1	-19.9	4.8
87	31 05.0	-21.1	3.2	33 04.8	-21.0	3.3	35 04.6	-20.9	3.4	37 04.4	-20.8	3.5	39 04.2	-20.7	3.6
88	30 43.9	-21.7	2.2	32 43.8	-21.6	2.2	34 43.7	-21.5	2.3	36 43.6	-21.5	2.3	38 43.5	-21.4	2.4
89	30 22.2	-22.2	1.1	32 22.2	-22.2	1.1	34 22.2	-22.2	1.1	36 22.1	-22.1	1.2	38 22.1	-22.1	1.2
90	30 00.0	-22.7	0.0	32 00.0	-22.8	0.0	34 00.0	-22.8	0.0	36 00.0	-22.8	0.0	38 00.0	-22.8	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 68°, 292°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
1 46.4	-35.7	126.5	0 34.9	-37.0	126.6	0 36.6	+38.4	53.4	1 48.1	+39.6	53.5	2 59.5	+40.9	53.5	30
1 10.7	-35.8	127.4	0 02.1	+37.1	52.6	1 15.0	+38.3	52.6	2 27.7	+39.6	52.7	3 40.4	+40.8	52.8	31
0 34.9	-35.7	128.2	0 39.2	+37.1	51.8	1 53.3	+38.3	51.9	3 07.3	+39.6	51.9	4 21.2	+40.8	52.1	32
0 00.8	+35.8	51.0	1 16.3	+37.0	51.1	2 31.6	+38.4	51.1	3 46.9	+39.6	51.2	5 02.0	+40.8	51.3	33
0 36.6	+35.7	50.2	1 53.3	+37.0	50.3	3 10.0	+38.2	50.3	4 26.5	+39.5	50.4	5 42.8	+40.7	50.6	34
1 12.3	+35.8	49.4	2 30.3	+37.0	49.5	3 48.2	+38.3	49.6	5 06.0	+39.4	49.7	6 23.5	+40.6	49.8	35
1 48.1	+35.7	48.6	3 07.3	+37.0	48.7	4 26.5	+38.2	48.8	5 45.4	+39.4	48.9	7 04.1	+40.6	49.1	36
2 23.8	+35.7	47.8	3 44.3	+36.9	47.9	5 04.7	+38.1	48.0	6 24.8	+39.3	48.2	7 44.7	+40.5	48.4	37
2 59.5	+35.6	47.0	4 21.2	+36.9	47.1	5 42.8	+38.1	47.2	7 04.1	+39.3	47.4	8 25.2	+40.4	47.6	38
3 35.1	+35.6	46.2	4 58.1	+36.8	46.3	6 20.9	+37.9	46.5	7 43.4	+39.1	46.6	9 05.6	+40.3	46.9	39
4 10.7	+35.6	45.4	5 34.9	+36.8	45.5	6 58.8	+38.0	45.7	8 22.5	+39.1	45.9	9 45.9	+40.2	46.1	40
4 46.3	+35.5	44.6	6 11.7	+36.6	44.7	7 36.8	+37.8	44.9	9 01.6	+39.0	45.1	10 26.1	+40.1	45.4	41
5 21.8	+35.5	43.8	6 48.3	+36.6	43.9	8 14.6	+37.8	44.1	9 40.6	+38.9	44.3	11 06.2	+40.0	44.6	42
5 57.3	+35.3	43.0	7 24.9	+36.5	43.1	8 52.4	+37.6	43.3	10 19.5	+38.7	43.6	11 46.2	+39.9	43.8	43
6 32.6	+35.3	42.2	8 01.4	+36.5	42.3	9 30.0	+37.5	42.6	10 58.2	+38.7	42.8	12 26.1	+39.7	43.1	44
7 07.9	+35.2	41.4	8 37.9	+36.3	41.5	10 07.5	+37.5	41.8	11 36.9	+38.5	42.0	13 05.8	+39.6	42.3	45
7 43.1	+35.1	40.5	9 14.2	+36.2	40.7	10 45.0	+37.3	41.0	12 15.4	+38.4	41.2	13 45.4	+39.5	41.5	46
8 18.2	+35.0	39.7	9 50.4	+36.1	39.9	11 22.3	+37.1	40.2	12 53.8	+38.2	40.4	14 24.9	+39.3	40.8	47
8 53.2	+35.0	38.9	10 26.5	+36.0	39.1	11 59.4	+37.1	39.4	13 32.0	+38.1	39.7	15 04.2	+39.2	40.0	48
9 28.2	+34.7	38.1	11 02.5	+35.8	38.3	12 36.5	+36.9	38.6	14 10.1	+38.0	38.9	15 43.4	+38.9	39.2	49
10 02.9	+34.7	37.2	11 38.3	+35.7	37.5	13 13.4	+36.7	37.7	14 48.1	+37.7	38.1	16 22.3	+38.8	38.4	50
10 37.6	+34.5	36.4	12 14.0	+35.6	36.7	13 50.1	+36.6	36.9	15 25.8	+37.6	37.3	17 01.1	+38.6	37.6	51
11 12.1	+34.4	35.6	12 49.6	+35.4	35.8	14 26.7	+36.4	36.1	16 03.4	+37.4	36.4	17 39.7	+38.5	36.8	52
11 46.5	+34.3	34.7	13 25.0	+35.2	35.0	15 03.1	+36.2	35.3	16 40.8	+37.3	35.6	18 18.2	+38.2	36.0	53
12 20.8	+34.1	33.9	14 00.2	+35.1	34.2	15 39.3	+36.1	34.5	17 18.1	+37.0	34.8	18 56.4	+38.0	35.2	54
12 54.9	+33.9	33.1	14 35.3	+34.9	33.3	16 15.4	+35.8	33.6	17 55.1	+36.8	34.0	19 34.4	+37.7	34.4	55
13 28.8	+33.8	32.2	15 10.2	+34.7	32.5	16 51.2	+35.7	32.8	18 31.9	+36.6	33.1	20 12.1	+37.6	33.5	56
14 02.6	+33.5	31.4	15 44.9	+34.5	31.6	17 26.9	+35.4	32.0	19 08.5	+36.3	32.3	20 49.7	+37.3	32.7	57
14 36.1	+33.4	30.5	16 19.4	+34.3	30.8	18 02.3	+35.2	31.1	19 44.8	+36.2	31.5	21 27.0	+37.0	31.9	58
15 09.5	+33.2	29.7	16 53.7	+34.0	29.9	18 37.5	+35.0	30.3	20 21.0	+35.8	30.6	22 04.0	+36.8	31.0	59
15 42.7	+33.0	28.8	17 27.7	+33.9	29.1	19 12.5	+34.7	29.4	20 56.8	+35.6	29.8	22 40.8	+36.5	30.2	60
16 15.7	+32.8	27.9	18 01.6	+33.6	28.2	19 47.2	+34.5	28.5	21 32.4	+35.4	28.9	23 17.3	+36.2	29.3	61
16 48.5	+32.5	27.0	18 35.2	+33.4	27.3	20 21.7	+34.2	27.7	22 07.8	+35.0	28.0	23 53.5	+35.9	28.4	62
17 21.0	+32.4	26.2	19 08.6	+33.1	26.5	20 55.9	+33.9	26.8	22 42.8	+34.8	27.2	24 29.4	+35.6	27.6	63
17 53.4	+32.0	25.3	19 41.7	+32.9	25.6	21 29.8	+33.7	25.9	23 17.6	+34.5	26.3	25 05.0	+35.3	26.7	64
18 25.4	+31.9	24.4	20 14.6	+32.6	24.7	22 03.5	+33.4	25.0	23 52.1	+34.2	25.4	25 40.3	+35.0	25.8	65
18 57.3	+31.6	23.5	20 47.2	+32.3	23.8	22 36.9	+33.0	24.1	24 26.3	+33.8	24.5	26 15.3	+34.6	24.9	66
19 28.9	+31.3	22.6	21 19.5	+32.0	22.9	23 09.9	+32.8	23.2	25 00.1	+33.5	23.6	26 49.9	+34.3	24.0	67
20 00.2	+31.0	21.7	21 51.5	+31.8	22.0	23 42.7	+32.4	22.3	25 33.6	+33.2	22.6	27 24.2	+33.9	23.0	68
20 31.2	+30.7	20.8	22 23.3	+31.4	21.1	24 15.1	+32.1	21.4	26 06.8	+32.8	21.7	27 58.1	+33.5	22.1	69
21 01.9	+30.5	19.9	22 54.7	+31.1	20.1	24 47.2	+31.8	20.4	26 39.6	+32.4	20.8	28 31.6	+33.1	21.2	70
21 32.4	+30.1	18.9	23 25.8	+30.7	19.2	25 19.0	+31.4	19.5	27 12.0	+32.0	19.8	29 04.7	+32.8	20.2	71
22 02.5	+29.8	18.0	23 56.5	+30.4	18.3	25 50.4	+31.0	18.6	27 44.0	+31.7	18.9	29 37.5	+32.2	19.2	72
22 32.3	+29.5	17.1	24 26.9	+30.1	17.3	26 21.4	+30.6	17.6	28 15.7	+31.2	17.9	30 09.7	+31.9	18.3	73
23 01.8	+29.1	16.1	24 57.0	+29.7	16.4	26 52.0	+30.3	16.6	28 46.9	+30.8	17.0	30 41.6	+31.4	17.3	74
23 30.9	+28.8	15.2	25 26.7	+29.3	15.4	27 22.3	+29.8	15.7	29 17.7	+30.4	16.0	31 13.0	+31.0	16.3	75
23 59.7	+28.5	14.2	25 56.0	+28.9	14.4	27 52.1	+29.5	14.7	29 48.1	+30.0	15.0	31 44.0	+30.4	15.3	76
24 28.2	+28.0	13.2	26 24.9	+28.5	13.5	28 21.6	+28.9	13.7	30 18.1	+29.4	14.0	32 14.4	+30.0	14.3	77
24 56.2	+27.7	12.3	26 53.4	+28.1	12.5	28 50.5	+28.6	12.7	30 47.5	+29.1	13.0	32 44.4	+29.5	13.2	78
25 23.9	+27.3	11.3	27 21.5	+27.7	11.5	29 19.1	+28.1	11.7	31 16.6	+28.5	11.9	33 13.9	+28.9	12.2	79
25 51.2	+26.9	10.3	27 49.2	+27.3	10.5	29 47.2	+27.6	10.7	31 45.1	+28.0	10.9	33 42.8	+28.5	11.2	80
26 18.1	+26.5	9.3	28 16.5	+26.8	9.5	30 14.8	+27.1	9.7	32 13.1	+27.5	9.9	34 11.3	+27.8	10.1	81
26 44.6	+26.0	8.3	28 43.3	+26.3	8.5	30 41.9	+26.7	8.6	32 40.6	+26.9	8.8	34 39.1	+27.3	9.0	82
27 10.6	+25.6	7.3	29 09.6	+25.9	7.4	31 08.6	+26.1	7.6	33 07.5	+26.4	7.8	35 06.4	+26.7	7.9	83
27 36.2	+25.2	6.3	29 35.5	+25.4	6.4	31 34.7	+25.6	6.5	33 33.9	+25.9	6.7	35 33.1	+26.1	6.8	84
28 01.4	+24.7	5.3	30 00.9	+24.8	5.4	32 00.3	+25.1	5.5	33 59.8	+25.2	5.6	35 59.2	+25.4	5.7	85
28 26.1	+24.2	4.2	30 25.7	+24.4	4.3	32 25.4	+24.5	4.4	34 25.0	+24.7	4.5	36 24.6	+24.9	4.6	86
28 50.3	+23.7	3.2	30 50.1	+23.8	3.2	32 49.9	+24.0	3.3	34 49.7	+24.1	3.4	36 49.5	+24.2	3.5	87
29 14.0	+23.3	2.1	31 13.9	+23.3	2.2	33 13.9	+23.3	2.2	35 13.8	+23.4	2.3	37 13.7	+23.5	2.3	88
29 37.3	+22.7	1.1	31 37.2	+22.8	1.1	33 37.2	+22.8	1.1	35 37.2	+22.8	1.1	37 37.2	+22.8	1.2	89
30 00.0	+22.2	0.0	32 00.0	+22.2	0.0	34 00.0	+22.2	0.0	36 00.0	+22.1	0.0	38 00.0	+22.1	0.0	90

LATITUDE SAME NAME

L.H.A. 112°, 248°

68°, 292° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	34 44.6	+29.9	77.7	35 08.7	+32.1	79.1	35 30.0	+34.1	80.5	35 48.3	+36.2	81.9	36 03.7	+38.2	83.4
31	35 14.5	+29.4	76.7	35 40.8	+31.5	78.1	36 04.1	+33.7	79.5	36 24.5	+35.8	80.9	36 41.9	+37.8	82.4
32	35 43.9	+28.7	75.6	36 12.3	+30.9	77.0	36 37.8	+33.1	78.5	37 00.3	+35.2	79.9	37 19.7	+37.3	81.4
33	36 12.6	+28.2	74.5	36 43.2	+30.4	76.0	37 10.9	+32.5	77.4	37 35.5	+34.6	78.9	37 57.0	+36.8	80.4
34	36 40.8	+27.6	73.4	37 13.6	+29.8	74.9	37 43.4	+32.0	76.4	38 10.1	+34.2	77.9	38 33.8	+36.2	79.4
35	37 08.4	+26.9	72.3	37 43.4	+29.1	73.8	38 15.4	+31.3	75.3	38 44.3	+33.5	76.8	39 10.0	+35.7	78.4
36	37 35.3	+26.3	71.2	38 12.5	+28.5	72.7	38 46.7	+30.8	74.2	39 17.8	+33.0	75.8	39 45.7	+35.2	77.4
37	38 01.6	+25.6	70.1	38 41.0	+27.9	71.5	39 17.5	+30.1	73.1	39 50.8	+32.3	74.7	40 20.9	+34.5	76.3
38	38 27.2	+24.9	68.9	39 08.9	+27.2	70.4	39 47.6	+29.5	72.0	40 23.1	+31.7	73.6	40 55.4	+33.9	75.2
39	38 52.1	+24.2	67.7	39 36.1	+26.5	69.3	40 17.1	+28.7	70.8	40 54.8	+31.1	72.5	41 29.3	+33.3	74.1
40	39 16.3	+23.5	66.6	40 02.6	+25.8	68.1	40 45.8	+28.1	69.7	41 25.9	+30.4	71.3	42 02.6	+32.7	73.0
41	39 39.8	+22.8	65.4	40 28.4	+25.0	66.9	41 13.9	+27.4	68.5	41 56.3	+29.6	70.2	42 35.3	+31.9	71.9
42	40 02.6	+22.0	64.2	40 53.4	+24.3	65.7	41 41.3	+26.6	67.3	42 25.9	+29.0	69.0	43 07.2	+31.3	70.7
43	40 24.6	+21.2	62.9	41 17.7	+23.6	64.5	42 07.9	+25.8	66.1	42 54.9	+28.1	67.8	43 38.5	+30.5	69.6
44	40 45.8	+20.5	61.7	41 41.3	+22.7	63.3	42 33.7	+25.1	64.9	43 23.0	+27.4	66.6	44 09.0	+29.8	68.4
45	41 06.3	+19.6	60.5	42 04.0	+21.9	62.0	42 58.8	+24.2	63.7	43 50.4	+26.6	65.4	44 38.8	+28.9	67.1
46	41 25.9	+18.8	59.2	42 25.9	+21.1	60.8	43 23.0	+23.5	62.4	44 17.0	+25.8	64.1	45 07.7	+28.2	65.9
47	41 44.7	+17.9	57.9	42 47.0	+20.2	59.5	43 46.5	+22.5	61.1	44 42.8	+24.9	62.9	45 35.9	+27.3	64.7
48	42 02.6	+17.1	56.7	43 07.2	+19.4	58.2	44 09.0	+21.7	59.8	45 07.7	+24.1	61.6	46 03.2	+26.5	63.4
49	42 19.7	+16.2	55.4	43 26.6	+18.5	56.9	44 30.7	+20.8	58.5	45 31.8	+23.1	60.3	46 29.7	+25.5	62.1
50	42 35.9	+15.3	54.1	43 45.1	+17.5	55.6	44 51.5	+19.8	57.2	45 54.9	+22.2	58.9	46 55.2	+24.6	60.8
51	42 51.2	+14.4	52.7	44 02.6	+16.6	54.3	45 11.3	+18.9	55.9	46 17.1	+21.3	57.6	47 19.8	+23.7	59.4
52	43 05.6	+13.5	51.4	44 19.2	+15.7	52.9	45 30.2	+18.0	54.5	46 38.4	+20.3	56.2	47 43.5	+22.7	58.1
53	43 19.1	+12.5	50.1	44 34.9	+14.7	51.6	45 48.2	+17.0	53.2	46 58.7	+19.3	54.9	48 06.2	+21.7	56.7
54	43 31.6	+11.6	48.7	44 49.6	+13.8	50.2	46 05.2	+15.9	51.8	47 18.0	+18.3	53.5	48 27.9	+20.7	55.3
55	43 43.2	+10.6	47.4	45 03.4	+12.7	48.8	46 21.1	+14.9	50.4	47 36.3	+17.2	52.1	48 48.6	+19.5	53.9
56	43 53.8	+9.6	46.0	45 16.1	+11.7	47.5	46 36.0	+13.9	49.0	47 53.5	+16.1	50.6	49 08.1	+18.6	52.4
57	44 03.4	+8.7	44.6	45 27.8	+10.7	46.1	46 49.9	+12.9	47.6	48 09.6	+15.1	49.2	49 26.7	+17.3	51.0
58	44 12.1	+7.6	43.3	45 38.5	+9.6	44.6	47 02.8	+11.7	46.1	48 24.7	+13.9	47.7	49 44.0	+16.3	49.5
59	44 19.7	+6.7	41.9	45 48.1	+8.6	43.2	47 14.5	+10.7	44.7	48 38.6	+12.9	46.3	50 00.3	+15.1	48.0
60	44 26.4	+5.6	40.5	45 56.7	+7.6	41.8	47 25.2	+9.5	43.2	48 51.5	+11.6	44.8	50 15.4	+13.9	46.5
61	44 32.0	+4.6	39.1	46 04.3	+6.4	40.4	47 34.7	+8.4	41.8	49 03.1	+10.5	43.3	50 29.3	+12.7	45.0
62	44 36.6	+3.5	37.7	46 10.7	+5.4	39.0	47 43.1	+7.3	40.3	49 13.6	+9.4	41.8	50 42.0	+11.4	43.4
63	44 40.1	+2.6	36.3	46 16.1	+4.3	37.5	47 50.4	+6.2	38.8	49 23.0	+8.1	40.3	50 53.4	+10.3	41.9
64	44 42.7	+1.5	34.9	46 20.4	+3.2	36.1	47 56.6	+5.0	37.4	49 31.1	+6.9	38.8	51 03.7	+8.9	40.3
65	44 44.2	+0.4	33.5	46 23.6	+2.1	34.6	48 01.6	+3.9	35.9	49 38.0	+5.7	37.2	51 12.6	+7.7	38.7
66	44 44.6	-0.6	32.1	46 25.7	+1.0	33.2	48 05.5	+2.6	34.4	49 43.7	+4.5	35.7	51 20.3	+6.4	37.1
67	44 44.0	-1.6	30.7	46 26.7	-0.1	31.7	48 08.1	+1.6	32.9	49 48.2	+3.2	34.1	51 26.7	+5.1	35.5
68	44 42.4	-2.6	29.3	46 26.6	-1.2	30.3	48 09.7	+0.3	31.4	49 51.4	+2.0	32.6	51 31.8	+3.8	33.9
69	44 39.8	-3.7	27.9	46 25.4	-2.3	28.8	48 10.0	-0.8	29.9	49 53.4	+0.8	31.0	51 35.6	+2.4	32.3
70	44 36.1	-4.7	26.4	46 23.1	-3.4	27.4	48 09.2	-2.0	28.4	49 54.2	-0.5	29.5	51 38.0	+1.2	30.7
71	44 31.4	-5.8	25.0	46 19.7	-4.5	25.9	48 07.2	-3.2	26.9	49 53.7	-1.7	27.9	51 39.2	-0.2	29.1
72	44 25.6	-6.7	23.7	46 15.2	-5.6	24.5	48 04.0	-4.3	25.4	49 52.0	-3.0	26.4	51 39.0	-1.5	27.5
73	44 18.9	-7.8	22.3	46 09.6	-6.6	23.0	47 59.7	-5.5	23.9	49 49.0	-4.2	24.8	51 37.5	-2.9	25.9
74	44 11.1	-8.7	20.9	46 03.0	-7.7	21.6	47 54.2	-6.6	22.4	49 44.8	-5.4	23.3	51 34.6	-4.1	24.3
75	44 02.4	-9.8	19.5	45 55.3	-8.8	20.2	47 47.6	-7.7	20.9	49 39.4	-6.6	21.8	51 30.5	-5.5	22.7
76	43 52.6	-10.7	18.1	45 46.5	-9.9	18.8	47 39.9	-8.9	19.5	49 32.8	-7.9	20.2	51 25.0	-6.7	21.1
77	43 41.9	-11.7	16.8	45 36.6	-10.8	17.3	47 31.0	-10.0	18.0	49 24.9	-9.1	18.7	51 18.3	-8.0	19.5
78	43 30.2	-12.6	15.4	45 25.8	-11.9	15.9	47 21.0	-11.1	16.5	49 15.8	-10.2	17.2	51 10.3	-9.4	17.9
79	43 17.6	-13.6	14.1	45 13.9	-12.9	14.5	47 09.9	-12.2	15.1	49 05.6	-11.4	15.7	51 00.9	-10.5	16.3
80	43 04.0	-14.5	12.7	45 01.0	-13.9	13.2	46 57.7	-13.3	13.6	48 54.2	-12.6	14.2	50 50.4	-11.8	14.8
81	42 49.5	-15.4	11.4	44 47.1	-14.9	11.8	46 44.4	-14.3	12.2	48 41.6	-13.7	12.7	50 38.6	-13.1	13.2
82	42 34.1	-16.3	10.1	44 32.2	-15.9	10.4	46 30.1	-15.3	10.8	48 27.9	-14.8	11.2	50 25.5	-14.2	11.7
83	42 17.8	-17.2	8.8	44 16.3	-16.7	9.1	46 14.8	-16.4	9.4	48 13.1	-15.9	9.8	50 11.3	-15.4	10.2
84	42 00.6	-18.0	7.5	43 59.6	-17.8	7.7	45 58.4	-17.3	8.0	47 57.2	-17.0	8.3	49 55.9	-16.6	8.7
85	41 42.6	-18.9	6.2	43 41.8	-18.6	6.4	45 41.1	-18.4	6.6	47 40.2	-18.0	6.9	49 39.3	-17.7	7.2
86	41 23.7	-19.8	4.9	43 23.2	-19.5	5.1	45 22.7	-19.3	5.3	47 22.2	-19.1	5.5	49 21.6	-18.8	5.7
87	41 03.9	-20.5	3.7	43 03.7	-20.4	3.8	45 03.4	-20.2	3.9	47 03.1	-20.0	4.1	49 02.8	-19.9	4.2
88	40 43.4	-21.3	2.4	42 43.3	-21.2	2.5	44 43.2	-21.2	2.6	46 43.1	-21.1	2.7	48 42.9	-20.9	2.8
89	40 22.1	-22.1	1.2	42 22.1	-22.1	1.3	44 22.0	-22.0	1.3	46 22.0	-22.0	1.3	48 22.0	-22.0	1.4
90	40 00.0	-22.9	0.0	42 00.0	-22.9	0.0	44 00.0	-22.9	0.0	46 00.0	-22.9	0.0	48 00.0	-23.0	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 68°, 292°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
4 10.7	+42.1	53.6	5 21.8	+43.3	53.8	6 32.6	+44.5	53.9	7 43.1	+45.6	54.1	8 53.2	+46.7	54.4	30
4 52.8	+42.1	52.9	6 05.1	+43.2	53.1	7 17.1	+44.3	53.2	8 28.7	+45.5	53.5	9 39.9	+46.6	53.7	31
5 34.9	+42.0	52.2	6 48.3	+43.2	52.4	8 01.4	+44.4	52.6	9 14.2	+45.4	52.8	10 26.5	+46.5	53.1	32
6 16.9	+41.9	51.5	7 31.5	+43.1	51.7	8 45.8	+44.2	51.9	9 59.6	+45.4	52.1	11 13.0	+46.4	52.4	33
6 58.8	+41.9	50.8	8 14.6	+43.0	51.0	9 30.0	+44.2	51.2	10 45.0	+45.2	51.5	11 59.4	+46.4	51.8	34
7 40.7	+41.8	50.0	8 57.6	+43.0	50.3	10 14.2	+44.0	50.5	11 30.2	+45.2	50.8	12 45.8	+46.2	51.1	35
8 22.5	+41.8	49.3	9 40.6	+42.9	49.5	10 58.2	+44.0	49.8	12 15.4	+45.1	50.1	13 32.0	+46.2	50.5	36
9 04.3	+41.6	48.6	10 23.5	+42.7	48.8	11 42.2	+43.9	49.1	13 00.5	+44.9	49.5	14 18.2	+46.0	49.8	37
9 45.9	+41.5	47.8	11 06.2	+42.7	48.1	12 26.1	+43.8	48.4	13 45.4	+44.9	48.8	15 04.2	+45.9	49.2	38
10 27.4	+41.5	47.1	11 48.9	+42.6	47.4	13 09.9	+43.6	47.7	14 30.3	+44.7	48.1	15 50.1	+45.8	48.5	39
11 08.9	+41.3	46.4	12 31.5	+42.4	46.7	13 53.5	+43.6	47.0	15 15.0	+44.6	47.4	16 35.9	+45.7	47.8	40
11 50.2	+41.3	45.6	13 13.9	+42.3	46.0	14 37.1	+43.4	46.3	15 59.6	+44.5	46.7	17 21.6	+45.5	47.2	41
12 31.5	+41.1	44.9	13 56.2	+42.2	45.2	15 20.5	+43.2	45.6	16 44.1	+44.3	46.0	18 07.1	+45.4	46.5	42
13 12.6	+40.9	44.1	14 38.4	+42.1	44.5	16 03.7	+43.1	44.9	17 28.4	+44.2	45.3	18 52.5	+45.2	45.8	43
13 53.5	+40.8	43.4	15 20.5	+41.9	43.8	16 46.8	+43.0	44.2	18 12.6	+44.0	44.6	19 37.7	+45.1	45.1	44
14 34.3	+40.7	42.6	16 02.4	+41.7	43.0	17 29.8	+42.8	43.4	18 56.6	+43.9	43.9	20 22.8	+44.9	44.4	45
15 15.0	+40.6	41.9	16 44.1	+41.6	42.3	18 12.6	+42.7	42.7	19 40.5	+43.7	43.2	21 07.7	+44.7	43.7	46
15 55.6	+40.3	41.1	17 25.7	+41.4	41.5	18 55.3	+42.4	41.9	20 24.2	+43.5	42.4	21 52.4	+44.5	43.0	47
16 35.9	+40.2	40.3	18 07.1	+41.2	40.8	19 37.7	+42.3	41.2	21 07.7	+43.3	41.7	22 36.9	+44.3	42.2	48
17 16.1	+40.0	39.6	18 48.3	+41.1	40.0	20 20.0	+42.1	40.4	21 51.0	+43.1	40.9	23 21.2	+44.2	41.5	49
17 56.1	+39.9	38.8	19 29.4	+40.8	39.2	21 02.1	+41.8	39.7	22 34.1	+42.9	40.2	24 05.4	+43.9	40.8	50
18 36.0	+39.6	38.0	20 10.2	+40.7	38.4	21 43.9	+41.7	38.9	23 17.0	+42.6	39.4	24 49.3	+43.6	40.0	51
19 15.6	+39.4	37.2	20 50.9	+40.4	37.6	22 25.6	+41.4	38.1	23 59.6	+42.5	38.7	25 32.9	+43.5	39.2	52
19 55.0	+39.2	36.4	21 31.3	+40.2	36.9	23 07.0	+41.2	37.4	24 42.1	+42.2	37.9	26 16.4	+43.2	38.5	53
20 34.2	+39.0	35.6	22 11.5	+40.0	36.1	23 48.2	+41.0	36.6	25 24.3	+41.9	37.1	26 59.6	+42.9	37.7	54
21 13.2	+38.7	34.8	22 51.5	+39.7	35.2	24 29.2	+40.6	35.8	26 06.2	+41.7	36.3	27 42.5	+42.7	36.9	55
21 51.9	+38.5	34.0	23 31.2	+39.4	34.4	25 09.8	+40.5	34.9	26 47.9	+41.4	35.5	28 25.2	+42.4	36.1	56
22 30.4	+38.3	33.1	24 10.6	+39.2	33.6	25 50.3	+40.1	34.1	27 29.3	+41.1	34.7	29 07.6	+42.1	35.3	57
23 08.7	+37.9	32.3	24 49.8	+38.9	32.8	26 30.4	+39.9	33.3	28 10.4	+40.8	33.9	29 49.7	+41.7	34.5	58
23 46.6	+37.7	31.5	25 28.7	+38.6	31.9	27 10.3	+39.5	32.5	28 51.2	+40.5	33.0	30 31.4	+41.5	33.7	59
24 24.3	+37.4	30.6	26 07.3	+38.4	31.1	27 49.8	+39.3	31.6	29 31.7	+40.2	32.2	31 12.9	+41.1	32.8	60
25 01.7	+37.1	29.7	26 45.7	+38.0	30.2	28 29.1	+38.9	30.8	30 11.9	+39.8	31.3	31 54.0	+40.8	32.0	61
25 38.8	+36.8	28.9	27 23.7	+37.6	29.4	29 08.0	+38.6	29.9	30 51.7	+39.5	30.5	32 34.8	+40.4	31.1	62
26 15.6	+36.5	28.0	28 01.3	+37.4	28.5	29 46.6	+38.2	29.0	31 31.2	+39.1	29.6	33 15.2	+40.1	30.2	63
26 52.1	+36.1	27.1	28 38.7	+37.0	27.6	30 24.8	+37.8	28.1	32 10.3	+38.8	28.7	33 55.3	+39.6	29.3	64
27 28.2	+35.8	26.2	29 15.7	+36.6	26.7	31 02.6	+37.5	27.2	32 49.1	+38.3	27.8	34 34.9	+39.3	28.4	65
28 04.0	+35.4	25.3	29 52.3	+36.2	25.8	31 40.1	+37.1	26.3	33 27.4	+37.9	26.9	35 14.2	+38.8	27.5	66
28 39.4	+35.1	24.4	30 28.5	+35.8	24.9	32 17.2	+36.6	25.4	34 05.3	+37.5	25.9	35 53.0	+38.3	26.6	67
29 14.5	+34.6	23.5	31 04.3	+35.5	23.9	32 53.8	+36.3	24.4	34 42.8	+37.1	25.0	36 31.3	+37.9	25.6	68
29 49.1	+34.3	22.5	31 39.8	+35.0	23.0	33 30.1	+35.7	23.5	35 19.9	+36.6	24.0	37 09.2	+37.4	24.6	69
30 23.4	+33.8	21.6	32 14.8	+34.6	22.0	34 05.8	+35.4	22.5	35 56.5	+36.1	23.1	37 46.6	+37.0	23.7	70
30 57.2	+33.4	20.6	32 49.4	+34.1	21.1	34 41.2	+34.8	21.5	36 32.6	+35.6	22.1	38 23.6	+36.4	22.7	71
31 30.6	+33.0	19.6	33 23.5	+33.6	20.1	35 16.0	+34.4	20.5	37 08.2	+35.1	21.1	39 00.0	+35.8	21.6	72
32 03.6	+32.5	18.7	33 57.1	+33.2	19.1	35 50.4	+33.8	19.5	37 43.3	+34.6	20.0	39 35.8	+35.3	20.6	73
32 36.1	+32.0	17.7	34 30.3	+32.6	18.1	36 24.2	+33.3	18.5	38 17.9	+34.0	19.0	40 11.1	+34.7	19.5	74
33 08.1	+31.5	16.7	35 02.9	+32.2	17.0	36 57.5	+32.8	17.5	38 51.9	+33.4	18.0	40 45.8	+34.2	18.5	75
33 39.6	+31.1	15.6	35 35.1	+31.6	16.0	37 30.3	+32.2	16.4	39 25.3	+32.8	16.9	41 20.0	+33.4	17.4	76
34 10.7	+30.5	14.6	36 06.7	+31.0	15.0	38 02.5	+31.6	15.4	39 58.1	+32.2	15.8	41 53.4	+32.9	16.3	77
34 41.2	+29.9	13.6	36 37.7	+30.5	13.9	38 34.1	+31.0	14.3	40 30.3	+31.6	14.7	42 26.3	+32.1	15.1	78
35 11.1	+29.4	12.5	37 08.2	+29.9	12.8	39 05.1	+30.4	13.2	41 01.9	+30.9	13.6	42 58.4	+31.5	14.0	79
35 40.5	+28.8	11.4	37 38.1	+29.2	11.7	39 35.5	+29.7	12.1	41 32.8	+30.2	12.4	43 29.9	+30.7	12.8	80
36 09.3	+28.3	10.3	38 07.3	+28.7	10.6	40 05.2	+29.1	10.9	42 03.0	+29.5	11.3	44 00.6	+30.0	11.6	81
36 37.6	+27.6	9.3	38 36.0	+28.0	9.5	40 34.3	+28.3	9.8	42 32.5	+28.8	10.1	44 30.6	+29.2	10.4	82
37 05.2	+27.0	8.1	39 04.0	+27.3	8.4	41 02.6	+27.7	8.6	43 01.3	+28.0	8.9	44 59.8	+28.3	9.2	83
37 32.2	+26.4	7.0	39 31.3	+26.6	7.2	41 30.3	+26.9	7.4	43 29.3	+27.2	7.7	45 28.1	+27.6	7.9	84
37 58.6	+25.6	5.9	39 57.9	+25.9	6.1	41 57.2	+26.2	6.2	43 56.5	+26.4	6.4	45 55.7	+26.7	6.7	85
38 24.2	+25.1	4.7	40 23.8	+25.2	4.9	42 23.4	+25.4	5.0	44 22.9	+25.6	5.2	46 22.4	+25.8	5.4	86
38 49.3	+24.3	3.6	40 49.0	+24.5	3.7	42 48.8	+24.5	3.8	44 48.5	+24.7	3.9	46 48.2	+24.9	4.1	87
39 13.6	+23.5	2.4	41 13.5	+23.6	2.5	43 13.3	+23.8	2.5	45 13.2	+23.9	2.6	47 13.1	+23.9	2.7	88
39 37.1	+22.9	1.2	41 37.1	+22.9	1.2	43 37.1	+22.9	1.3	45 37.1	+22.9	1.3	47 37.0	+23.0	1.4	89
40 00.0	+22.1	0.0	42 00.0	+22.1	0.0	44 00.0	+22.0	0.0	46 00.0	+22.0	0.0	48 00.0	+22.0	0.0	90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 112°, 248°

68°, 292° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	36 16.0	+40.2	84.8	36 25.4	+42.1	86.3	36 31.6	+43.9	87.8	36 34.7	+45.7	89.2	36 34.8	+47.3	90.7
31	36 56.2	+39.8	83.9	37 07.5	+41.6	85.4	37 15.5	+43.6	86.9	37 20.4	+45.3	88.4	37 22.1	+47.0	90.0
32	37 36.0	+39.3	82.9	37 49.1	+41.3	84.5	37 59.1	+43.1	86.0	38 05.7	+45.0	87.6	38 09.1	+46.7	89.2
33	38 15.3	+38.8	82.0	38 30.4	+40.8	83.6	38 42.2	+42.7	85.2	38 50.7	+44.6	86.8	38 55.8	+46.3	88.4
34	38 54.1	+38.4	81.0	39 11.2	+40.4	82.6	39 24.9	+42.3	84.2	39 35.3	+44.1	85.9	39 42.1	+46.0	87.5
35	39 32.5	+37.8	80.0	39 51.6	+39.8	81.7	40 07.2	+41.9	83.3	40 19.4	+43.8	85.0	40 28.1	+45.6	86.7
36	40 10.3	+37.3	79.0	40 31.4	+39.4	80.7	40 49.1	+41.4	82.4	41 03.2	+43.4	84.1	41 13.7	+45.3	85.8
37	40 47.6	+36.7	78.0	41 10.8	+38.8	79.7	41 30.5	+40.9	81.4	41 46.6	+42.9	83.2	41 59.0	+44.8	85.0
38	41 24.3	+36.1	76.9	41 49.6	+38.3	78.7	42 11.4	+40.4	80.4	42 29.5	+42.4	82.2	42 43.8	+44.4	84.1
39	42 00.4	+35.5	75.9	42 27.9	+37.7	77.6	42 51.8	+39.8	79.4	43 11.9	+41.9	81.3	43 28.2	+43.9	83.1
40	42 35.9	+34.9	74.8	43 05.6	+37.2	76.6	43 31.6	+39.3	78.4	43 53.8	+41.4	80.3	44 12.1	+43.4	82.2
41	43 10.8	+34.3	73.7	43 42.8	+36.4	75.5	44 10.9	+38.7	77.4	44 35.2	+40.9	79.3	44 55.5	+43.0	81.2
42	43 45.1	+33.5	72.5	44 19.2	+35.9	74.4	44 49.6	+38.1	76.3	45 16.1	+40.3	78.2	45 38.5	+42.4	80.2
43	44 18.6	+32.9	71.4	44 55.1	+35.1	73.3	45 27.7	+37.5	75.2	45 56.4	+39.6	77.2	46 20.9	+41.9	79.2
44	44 51.5	+32.1	70.2	45 30.2	+34.5	72.1	46 05.2	+36.7	74.1	46 36.0	+39.1	76.1	47 02.8	+41.2	78.2
45	45 23.6	+31.3	69.0	46 04.7	+33.7	70.9	46 41.9	+36.1	72.9	47 15.1	+38.4	75.0	47 44.0	+40.7	77.1
46	45 54.9	+30.6	67.8	46 38.4	+33.0	69.7	47 18.0	+35.3	71.8	47 53.5	+37.7	73.8	48 24.7	+40.0	76.0
47	46 25.5	+29.7	66.5	47 11.4	+32.1	68.5	47 53.3	+34.6	70.6	48 31.2	+36.9	72.7	49 04.7	+39.3	74.9
48	46 55.2	+28.9	65.3	47 43.5	+31.3	67.3	48 27.9	+33.8	69.3	49 08.1	+36.3	71.5	49 44.0	+38.7	73.7
49	47 24.1	+28.0	64.0	48 14.8	+30.5	66.0	49 01.7	+32.9	68.1	49 44.4	+35.4	70.3	50 22.7	+37.8	72.5
50	47 52.1	+27.1	62.7	48 45.3	+29.6	64.7	49 34.6	+32.1	66.8	50 19.8	+34.6	69.0	51 00.5	+37.1	71.3
51	48 19.2	+26.1	61.3	49 14.9	+28.6	63.4	50 06.7	+31.2	65.5	50 54.4	+33.7	67.7	51 37.6	+36.3	70.0
52	48 45.3	+25.2	60.0	49 43.5	+27.7	62.0	50 37.9	+30.2	64.1	51 28.1	+32.8	66.4	52 13.9	+35.3	68.7
53	49 10.5	+24.1	58.6	50 11.2	+26.7	60.6	51 08.1	+29.2	62.8	52 00.9	+31.8	65.0	52 49.2	+34.5	67.4
54	49 34.6	+23.1	57.2	50 37.9	+25.6	59.2	51 37.3	+28.2	61.4	52 32.7	+30.9	63.7	53 23.7	+33.5	66.1
55	49 57.7	+22.1	55.8	51 03.5	+24.6	57.8	52 05.5	+27.2	60.0	53 03.6	+29.8	62.2	53 57.2	+32.5	64.7
56	50 19.8	+20.9	54.3	51 28.1	+23.4	56.3	52 32.7	+26.1	58.5	53 33.4	+28.7	60.8	54 29.7	+31.5	63.2
57	50 40.7	+19.8	52.8	51 51.5	+22.4	54.9	52 58.8	+24.9	57.0	54 02.1	+27.6	59.3	55 01.2	+30.3	61.7
58	51 00.5	+18.7	51.3	52 13.9	+21.1	53.3	53 23.7	+23.8	55.5	54 29.7	+26.5	57.8	55 31.5	+29.3	60.2
59	51 19.2	+17.4	49.8	52 35.0	+20.0	51.8	53 47.5	+22.5	53.9	54 56.2	+25.2	56.2	56 00.8	+28.0	58.7
60	51 36.6	+16.3	48.3	52 55.0	+18.7	50.2	54 10.0	+21.3	52.4	55 21.4	+24.0	54.6	56 28.8	+26.7	57.1
61	51 52.9	+15.0	46.7	53 13.7	+17.4	48.7	54 31.3	+20.0	50.8	55 45.4	+22.6	53.0	56 55.5	+25.5	55.5
62	52 07.9	+13.7	45.2	53 31.1	+16.1	47.1	54 51.3	+18.6	49.1	56 08.0	+21.3	51.4	57 21.0	+24.1	53.8
63	52 21.6	+12.5	43.6	53 47.2	+14.8	45.4	55 09.9	+17.3	47.5	56 29.3	+19.9	49.7	57 45.1	+22.7	52.1
64	52 34.1	+11.1	42.0	54 02.0	+13.4	43.8	55 27.2	+15.9	45.8	56 49.2	+18.5	48.0	58 07.8	+21.2	50.3
65	52 45.2	+9.8	40.3	54 15.4	+12.1	42.1	55 43.1	+14.4	44.1	57 07.7	+17.0	46.2	58 29.0	+19.7	48.6
66	52 55.0	+8.4	38.7	54 27.5	+10.6	40.4	55 57.5	+13.0	42.4	57 24.7	+15.5	44.4	58 48.7	+18.2	46.7
67	53 03.4	+7.1	37.1	54 38.1	+9.2	38.8	56 10.5	+11.5	40.6	57 40.2	+13.9	42.6	59 06.9	+16.5	44.9
68	53 10.5	+5.7	35.4	54 47.3	+7.7	37.0	56 22.0	+9.9	38.8	57 54.1	+12.4	40.8	59 23.4	+15.0	43.0
69	53 16.2	+4.3	33.8	54 55.0	+6.3	35.3	56 31.9	+8.4	37.1	58 06.5	+10.7	39.0	59 38.4	+13.2	41.1
70	53 20.5	+2.8	32.1	55 01.3	+4.8	33.6	56 40.3	+6.8	35.3	58 17.2	+9.0	37.1	59 51.6	+11.5	39.2
71	53 23.3	+1.5	30.4	55 06.1	+3.3	31.8	56 47.1	+5.3	33.4	58 26.2	+7.4	35.2	60 03.1	+9.7	37.2
72	53 24.8	+0.1	28.7	55 09.4	+1.8	30.1	56 52.4	+3.6	31.6	58 33.6	+5.7	33.3	60 12.8	+8.0	35.2
73	53 24.9	-1.3	27.1	55 11.2	+0.2	28.3	56 56.0	+2.1	29.8	58 39.3	+4.0	31.4	60 20.8	+6.1	33.2
74	53 23.6	-2.8	25.4	55 11.4	-1.2	26.6	56 58.1	+0.4	28.0	58 43.3	+2.3	29.5	60 26.9	+4.3	31.2
75	53 20.8	-4.1	23.7	55 10.2	-2.7	24.8	56 58.5	-1.1	26.1	58 45.6	+0.6	27.6	60 31.2	+2.5	29.2
76	53 16.7	-5.6	22.0	55 07.5	-4.2	23.1	56 57.4	-2.8	24.3	58 46.2	-1.2	25.6	60 33.7	+0.6	27.2
77	53 11.1	-6.9	20.4	55 03.3	-5.8	21.4	56 54.6	-4.4	22.5	58 45.0	-2.9	23.7	60 34.3	-1.3	25.1
78	53 04.2	-8.3	18.7	54 57.5	-7.1	19.6	56 50.2	-5.9	20.6	58 42.1	-4.6	21.8	60 33.0	-3.1	23.1
79	52 55.9	-9.7	17.1	54 50.4	-8.7	17.9	56 44.3	-7.6	18.8	58 37.5	-6.3	19.9	60 29.9	-4.9	21.1
80	52 46.2	-11.0	15.4	54 41.7	-10.1	16.2	56 36.7	-9.1	17.0	58 31.2	-8.0	18.0	60 25.0	-6.8	19.0
81	52 35.2	-12.3	13.8	54 31.6	-11.5	14.5	56 27.6	-10.6	15.2	58 23.2	-9.7	16.1	60 18.2	-8.6	17.0
82	52 22.9	-13.6	12.2	54 20.1	-12.9	12.8	56 17.0	-12.2	13.4	58 13.5	-11.3	14.2	60 09.6	-10.3	15.0
83	52 09.3	-14.8	10.6	54 07.2	-14.3	11.1	56 04.8	-13.6	11.7	58 02.2	-12.9	12.3	59 59.3	-12.1	13.1
84	51 54.5	-16.2	9.0	53 52.9	-15.6	9.5	55 51.2	-15.1	9.9	57 49.3	-14.5	10.5	59 47.2	-13.9	11.1
85	51 38.3	-17.3	7.5	53 37.3	-17.0	7.8	55 36.1	-16.5	8.2	57 34.8	-16.0	8.7	59 33.3	-15.5	9.2
86	51 21.0	-18.5	5.9	53 20.3	-18.2	6.2	55 19.6	-17.9	6.5	57 18.8	-17.6	6.9	59 17.8	-17.1	7.3
87	51 02.5	-19.7	4.4	53 02.1	-19.5	4.6	55 01.7	-19.3	4.9	57 01.2	-19.0	5.1	59 00.7	-18.7	5.4
88	50 42.8	-20.9	2.9	52 42.6	-20.7	3.1	54 42.4	-20.5	3.2	56 42.2	-20.4	3.4	58 42.0	-20.3	3.6
89	50 21.9	-21.9	1.5	52 21.9	-21.9	1.5	54 21.9	-21.9	1.6	56 21.8	-21.8	1.7	58 21.7	-21.7	1.8
90	50 00.0	-23.0	0.0	52 00.0	-23.0	0.0	54 00.0	-23.1	0.0	56 00.0	-23.1	0.0	58 00.0	-23.2	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 68°, 292°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
10 02.9 +47.8 54.6	11 12.1 +48.8 54.9	12 20.8 +49.7 55.3	13 28.8 +50.7 55.7	14 36.1 +51.7 56.1	30										
10 50.7 +47.6 54.0	12 00.9 +48.7 54.3	13 10.5 +49.7 54.7	14 19.5 +50.7 55.1	15 27.8 +51.6 55.5	31										
11 38.3 +47.6 53.4	12 49.6 +48.6 53.7	14 00.2 +49.6 54.1	15 10.2 +50.5 54.6	16 19.4 +51.5 55.0	32										
12 25.9 +47.5 52.8	13 38.2 +48.5 53.1	14 49.8 +49.5 53.6	16 00.7 +50.5 54.0	17 10.9 +51.4 54.5	33										
13 13.4 +47.4 52.1	14 26.7 +48.4 52.5	15 39.3 +49.4 53.0	16 51.2 +50.4 53.4	18 02.3 +51.3 53.9	34										
14 00.8 +47.3 51.5	15 15.1 +48.3 51.9	16 28.7 +49.4 52.4	17 41.6 +50.3 52.9	18 53.6 +51.2 53.4	35										
14 48.1 +47.2 50.9	16 03.4 +48.2 51.3	17 18.1 +49.2 51.8	18 31.9 +50.2 52.3	19 44.8 +51.2 52.8	36										
15 35.3 +47.0 50.2	16 51.6 +48.1 50.7	18 07.3 +49.1 51.2	19 22.1 +50.0 51.7	20 36.0 +51.0 52.3	37										
16 22.3 +47.0 49.6	17 39.7 +48.0 50.1	18 56.4 +48.9 50.6	20 12.1 +50.0 51.1	21 27.0 +50.9 51.7	38										
17 09.3 +46.8 48.9	18 27.7 +47.9 49.4	19 45.3 +48.9 50.0	21 02.1 +49.8 50.5	22 17.9 +50.8 51.2	39										
17 56.1 +46.7 48.3	19 15.6 +47.7 48.8	20 34.2 +48.7 49.3	21 51.9 +49.7 49.9	23 08.7 +50.6 50.6	40										
18 42.8 +46.6 47.6	20 03.3 +47.6 48.2	21 22.9 +48.6 48.7	22 41.6 +49.6 49.3	23 59.3 +50.5 50.0	41										
19 29.4 +46.4 47.0	20 50.9 +47.4 47.5	22 11.5 +48.4 48.1	23 31.2 +49.4 48.7	24 49.8 +50.4 49.4	42										
20 15.8 +46.3 46.3	21 38.3 +47.3 46.8	22 59.9 +48.3 47.4	24 20.6 +49.2 48.1	25 40.2 +50.2 48.8	43										
21 02.1 +46.1 45.6	22 25.6 +47.1 46.2	23 48.2 +48.1 46.8	25 09.8 +49.1 47.5	26 30.4 +50.1 48.2	44										
21 48.2 +45.9 44.9	23 12.7 +46.9 45.5	24 36.3 +48.0 46.1	25 58.9 +49.0 46.8	27 20.5 +49.9 47.6	45										
22 34.1 +45.7 44.2	23 59.6 +46.8 44.8	25 24.3 +47.7 45.5	26 47.9 +48.7 46.2	28 10.4 +49.7 46.9	46										
23 19.8 +45.6 43.5	24 46.4 +46.5 44.1	26 12.0 +47.6 44.8	27 36.6 +48.6 45.5	29 00.1 +49.6 46.3	47										
24 05.4 +45.3 42.8	25 32.9 +46.4 43.4	26 59.6 +47.3 44.1	28 25.2 +48.3 44.9	29 49.7 +49.3 45.7	48										
24 50.7 +45.1 42.1	26 19.3 +46.2 42.7	27 46.9 +47.2 43.4	29 13.5 +48.2 44.2	30 39.0 +49.2 45.0	49										
25 35.8 +45.0 41.4	27 05.5 +45.9 42.0	28 34.1 +46.9 42.7	30 01.7 +47.9 43.5	31 28.2 +48.9 44.3	50										
26 20.8 +44.7 40.6	27 51.4 +45.7 41.3	29 21.0 +46.8 42.0	30 49.6 +47.8 42.8	32 17.1 +48.7 43.6	51										
27 05.5 +44.4 39.9	28 37.1 +45.5 40.6	30 07.8 +46.4 41.3	31 37.4 +47.4 42.1	33 05.8 +48.5 43.0	52										
27 49.9 +44.2 39.1	29 22.6 +45.2 39.8	30 54.2 +46.2 40.6	32 24.8 +47.3 41.4	33 54.3 +48.2 42.2	53										
28 34.1 +43.9 38.4	30 07.8 +44.9 39.1	31 40.4 +46.0 39.8	33 12.1 +46.9 40.6	34 42.5 +48.0 41.5	54										
29 18.0 +43.7 37.6	30 52.7 +44.7 38.3	32 26.4 +45.7 39.1	33 59.0 +45.7 39.1	35 30.5 +47.7 40.8	55										
30 01.7 +43.4 36.8	31 37.4 +44.3 37.5	33 12.1 +45.3 38.3	34 45.7 +46.4 39.1	36 18.2 +47.4 40.0	56										
30 45.1 +43.1 36.0	32 21.7 +44.1 36.7	33 57.4 +45.1 37.5	35 32.1 +46.1 38.4	37 05.6 +47.1 39.3	57										
31 28.2 +42.7 35.2	33 05.8 +43.8 35.9	34 42.5 +44.8 36.7	36 18.2 +45.8 37.6	37 52.7 +46.8 38.5	58										
32 10.9 +42.5 34.3	33 49.6 +43.4 35.1	35 27.3 +44.4 35.9	37 04.0 +45.4 36.8	38 39.5 +46.5 37.7	59										
32 53.4 +42.1 33.5	34 33.0 +43.1 34.3	36 11.7 +44.1 35.1	37 49.4 +45.1 35.9	39 26.0 +46.1 36.9	60										
33 35.5 +41.7 32.7	35 16.1 +42.7 33.4	36 55.8 +43.7 34.2	38 34.5 +44.7 35.1	40 12.1 +45.7 36.1	61										
34 17.2 +41.4 31.8	35 58.8 +42.3 32.5	37 39.5 +43.3 33.4	39 19.2 +44.3 34.2	40 57.8 +45.4 35.2	62										
34 58.6 +40.9 30.9	36 41.1 +42.0 31.7	38 22.8 +42.9 32.5	40 03.5 +44.0 33.4	41 43.2 +45.0 34.3	63										
35 39.5 +40.6 30.0	37 23.1 +41.5 30.8	39 05.7 +42.5 31.6	40 47.5 +43.5 32.5	42 28.2 +44.5 33.4	64										
36 20.1 +40.2 29.1	38 04.6 +41.1 29.9	39 48.2 +42.1 30.7	41 31.0 +43.0 31.6	43 12.7 +44.1 32.5	65										
37 00.3 +39.7 28.2	38 45.7 +40.6 28.9	40 30.3 +41.6 29.7	42 14.0 +42.6 30.6	43 56.8 +43.6 31.6	66										
37 40.0 +39.2 27.2	39 26.3 +40.2 28.0	41 11.9 +41.1 28.8	42 56.6 +42.2 29.7	44 40.4 +43.1 30.6	67										
38 19.2 +38.8 26.3	40 06.5 +39.7 27.0	41 53.0 +40.7 27.8	43 38.8 +41.5 28.7	45 23.5 +42.6 29.6	68										
38 58.0 +38.3 25.3	40 46.2 +39.2 26.0	42 33.7 +40.1 26.8	44 20.3 +41.1 27.7	46 06.1 +42.1 28.6	69										
39 36.3 +37.8 24.3	41 25.4 +38.6 25.0	43 13.8 +39.5 25.8	45 01.4 +40.5 26.7	46 48.2 +41.5 27.6	70										
40 14.1 +37.2 23.3	42 04.0 +38.1 24.0	43 53.3 +39.0 24.8	45 41.9 +39.9 25.6	47 29.7 +40.9 26.5	71										
40 51.3 +36.6 22.3	42 42.1 +37.5 22.9	44 32.3 +38.3 23.7	46 21.8 +39.3 24.5	48 10.6 +40.2 25.4	72										
41 27.9 +36.1 21.2	43 19.6 +36.8 21.9	45 10.6 +37.8 22.6	47 01.1 +38.6 23.4	48 50.8 +39.6 24.3	73										
42 04.0 +35.5 20.1	43 56.4 +36.3 20.8	45 48.4 +37.0 21.5	47 39.7 +38.0 22.3	49 30.4 +38.9 23.2	74										
42 39.5 +34.8 19.0	44 32.7 +35.6 19.7	46 25.4 +36.4 20.4	48 17.7 +37.2 21.1	50 09.3 +38.1 22.0	75										
43 14.3 +34.2 17.9	45 08.3 +34.9 18.5	47 01.8 +35.7 19.2	48 54.9 +36.5 20.0	50 47.4 +37.4 20.8	76										
43 48.5 +33.5 16.8	45 43.2 +34.2 17.4	47 37.5 +34.9 18.0	49 31.4 +35.7 18.7	51 24.8 +36.5 19.5	77										
44 22.0 +32.7 15.6	46 17.4 +33.4 16.2	48 12.4 +34.2 16.8	50 07.1 +34.9 17.5	52 01.3 +35.7 18.3	78										
44 54.7 +32.1 14.5	46 50.8 +32.7 15.0	48 46.6 +33.3 15.6	50 42.0 +34.0 16.2	52 37.0 +34.8 16.9	79										
45 26.8 +31.2 13.3	47 23.5 +31.8 13.8	49 19.9 +32.4 14.3	51 16.0 +33.1 14.9	53 11.8 +33.8 15.6	80										
45 58.0 +30.5 12.0	47 55.3 +31.0 12.5	49 52.3 +31.6 13.0	51 49.1 +32.2 13.6	53 45.6 +32.9 14.2	81										
46 28.5 +29.7 10.8	48 26.3 +30.1 11.2	50 23.9 +30.7 11.7	52 21.3 +31.2 12.2	54 18.5 +31.8 12.8	82										
46 58.2 +28.8 9.5	48 56.4 +29.3 9.9	50 54.6 +29.7 10.3	52 52.5 +30.2 10.8	54 50.3 +30.8 11.3	83										
47 27.0 +27.9 8.2	49 25.7 +28.2 8.6	51 24.3 +28.7 8.9	53 22.7 +29.2 9.4	55 21.1 +29.6 9.8	84										
47 54.9 +26.9 6.9	49 53.9 +27.4 7.2	51 53.0 +27.6 7.5	53 51.9 +28.0 7.9	55 50.7 +28.4 8.3	85										
48 21.8 +26.1 5.6	50 21.3 +26.2 5.8	52 20.6 +26.6 6.1	54 19.9 +26.9 6.4	56 19.1 +27.2 6.7	86										
48 47.9 +25.0 4.2	50 47.5 +25.3 4.4	52 47.2 +25.4 4.6	54 46.8 +25.6 4.8	56 46.3 +25.9 5.1	87										
49 12.9 +24.1 2.8	51 12.8 +24.2 3.0	53 12.6 +24.3 3.1	55 12.4 +24.5 3.3	57 12.2 +24.6 3.4	88										
49 37.0 +23.0 1.4	51 37.0 +23.0 1.5	53 36.9 +23.1 1.6	55 36.9 +23.1 1.6	57 36.8 +23.2 1.7	89										
50 00.0 +21.9 0.0	52 00.0 +21.9 0.0	54 00.0 +21.9 0.0	56 00.0 +21.8 0.0	58 00.0 +21.7 0.0	90										
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 112°, 248°

70°, 290° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	30 25.9	+19.6	70.7	31 04.5	+21.7	71.8	31 40.7	+23.9	73.0	32 14.6	+26.1	74.2	32 46.1	+28.1	75.4
31	30 45.5	+19.0	69.6	31 26.2	+21.1	70.7	32 04.6	+23.3	71.9	32 40.7	+25.4	73.1	33 14.2	+27.7	74.4
32	31 04.5	+18.4	68.5	31 47.3	+20.6	69.6	32 27.9	+22.8	70.8	33 06.1	+24.9	72.0	33 41.9	+27.0	73.3
33	31 22.9	+17.8	67.4	32 07.9	+20.0	68.5	32 50.7	+22.1	69.7	33 31.0	+24.4	71.0	34 08.9	+26.6	72.2
34	31 40.7	+17.3	66.3	32 27.9	+19.4	67.4	33 12.8	+21.6	68.6	33 55.4	+23.7	69.9	34 35.5	+25.9	71.1
35	31 58.0	+16.6	65.1	32 47.3	+18.8	66.3	33 34.4	+21.0	67.5	34 19.1	+23.2	68.7	35 01.4	+25.3	70.0
36	32 14.6	+16.1	64.0	33 06.1	+18.2	65.2	33 55.4	+20.3	66.4	34 42.3	+22.5	67.6	35 26.7	+24.7	68.9
37	32 30.7	+15.4	62.9	33 24.3	+17.6	64.0	34 15.7	+19.8	65.2	35 04.8	+21.9	66.5	35 51.4	+24.1	67.8
38	32 46.1	+14.8	61.7	33 41.9	+16.9	62.9	34 35.5	+19.0	64.1	35 26.7	+21.2	65.4	36 15.5	+23.4	66.7
39	33 00.9	+14.1	60.6	33 58.8	+16.2	61.7	34 54.5	+18.4	62.9	35 47.9	+20.6	64.2	36 38.9	+22.8	65.5
40	33 15.0	+13.5	59.4	34 15.0	+15.6	60.6	35 12.9	+17.8	61.8	36 08.5	+19.9	63.0	37 01.7	+22.0	64.4
41	33 28.5	+12.8	58.2	34 30.6	+15.0	59.4	35 30.7	+17.0	60.6	36 28.4	+19.2	61.9	37 23.7	+21.4	63.2
42	33 41.3	+12.2	57.1	34 45.6	+14.2	58.2	35 47.7	+16.4	59.4	36 47.6	+18.5	60.7	37 45.1	+20.7	62.0
43	33 53.5	+11.5	55.9	34 59.8	+13.6	57.0	36 04.1	+15.6	58.2	37 06.1	+17.8	59.5	38 05.8	+20.0	60.8
44	34 05.0	+10.8	54.7	35 13.4	+12.8	55.8	36 19.7	+14.9	57.0	37 23.9	+17.0	58.3	38 25.8	+19.2	59.6
45	34 15.8	+10.1	53.5	35 26.2	+12.1	54.6	36 34.6	+14.2	55.8	37 40.9	+16.3	57.1	38 45.0	+18.4	58.4
46	34 25.9	+9.4	52.3	35 38.3	+11.5	53.4	36 48.8	+13.5	54.6	37 57.2	+15.6	55.9	39 03.4	+17.7	57.2
47	34 35.3	+8.7	51.1	35 49.8	+10.6	52.2	37 02.3	+12.7	53.4	38 12.8	+14.8	54.7	39 21.1	+16.9	56.0
48	34 44.0	+8.0	49.9	36 00.4	+10.0	51.0	37 15.0	+11.9	52.2	38 27.6	+13.9	53.4	39 38.0	+16.1	54.7
49	34 52.0	+7.3	48.7	36 10.4	+9.2	49.8	37 26.9	+11.2	50.9	38 41.5	+13.2	52.2	39 54.1	+15.2	53.5
50	34 59.3	+6.6	47.5	36 19.6	+8.4	48.6	37 38.1	+10.4	49.7	38 54.7	+12.4	50.9	40 09.3	+14.5	52.2
51	35 05.9	+5.8	46.3	36 28.0	+7.7	47.3	37 48.5	+9.6	48.5	39 07.1	+11.6	49.7	40 23.8	+13.6	50.9
52	35 11.7	+5.1	45.1	36 35.7	+6.9	46.1	37 58.1	+8.8	47.2	39 18.7	+10.7	48.4	40 37.4	+12.7	49.7
53	35 16.8	+4.4	43.8	36 42.6	+6.2	44.9	38 06.9	+8.0	46.0	39 29.4	+9.9	47.1	40 50.1	+11.9	48.4
54	35 21.2	+3.6	42.6	36 48.8	+5.3	43.6	38 14.9	+7.1	44.7	39 39.3	+9.1	45.8	41 02.0	+11.0	47.1
55	35 24.8	+2.9	41.4	36 54.1	+4.6	42.4	38 22.0	+6.4	43.4	39 48.4	+8.2	44.6	41 13.0	+10.1	45.8
56	35 27.7	+2.1	40.2	36 58.7	+3.8	41.1	38 28.4	+5.5	42.2	39 56.6	+7.3	43.3	41 23.1	+9.2	44.5
57	35 29.8	+1.4	38.9	37 02.5	+3.0	39.9	38 33.9	+4.7	40.9	40 03.9	+6.5	42.0	41 32.3	+8.3	43.1
58	35 31.2	+0.6	37.7	37 05.5	+2.3	38.6	38 38.6	+3.9	39.6	40 10.4	+5.6	40.7	41 40.6	+7.4	41.8
59	35 31.8	-0.1	36.5	37 07.8	+1.4	37.4	38 42.5	+3.1	38.3	40 16.0	+4.7	39.4	41 48.0	+6.5	40.5
60	35 31.7	-0.8	35.3	37 09.2	+0.6	36.1	38 45.6	+2.2	37.1	40 20.7	+3.8	38.1	41 54.5	+5.5	39.1
61	35 30.9	-1.6	34.0	37 09.8	-0.1	34.9	38 47.8	+1.3	35.8	40 24.5	+3.0	36.7	42 00.0	+4.6	37.8
62	35 29.3	-2.4	32.8	37 09.7	-1.0	33.6	38 49.1	+0.5	34.5	40 27.5	+2.0	35.4	42 04.6	+3.7	36.5
63	35 26.9	-3.1	31.6	37 08.7	-1.7	32.4	38 49.6	-0.3	33.2	40 29.5	+1.2	34.1	42 08.3	+2.7	35.1
64	35 23.8	-3.8	30.4	37 07.0	-2.5	31.1	38 49.3	-1.2	31.9	40 30.7	+0.2	32.8	42 11.0	+1.7	33.8
65	35 20.0	-4.6	29.1	37 04.5	-3.4	29.9	38 48.1	-2.0	30.6	40 30.9	-0.6	31.5	42 12.7	+0.9	32.4
66	35 15.4	-5.3	27.9	37 01.1	-4.1	28.6	38 46.1	-2.8	29.4	40 30.3	-1.5	30.2	42 13.6	-0.2	31.1
67	35 10.1	-6.0	26.7	36 57.0	-4.9	27.4	38 43.3	-3.7	28.1	40 28.8	-2.5	28.9	42 13.4	-1.1	29.7
68	35 04.1	-6.8	25.5	36 52.1	-5.6	26.1	38 39.6	-4.5	26.8	40 26.3	-3.3	27.5	42 12.3	-2.0	28.4
69	34 57.3	-7.5	24.3	36 46.5	-6.5	24.9	38 35.1	-5.4	25.5	40 23.0	-4.2	26.2	42 10.3	-3.0	27.0
70	34 49.8	-8.2	23.1	36 40.0	-7.2	23.6	38 29.7	-6.2	24.2	40 18.8	-5.0	24.9	42 07.3	-3.9	25.7
71	34 41.6	-8.9	21.8	36 32.8	-8.0	22.4	38 23.5	-7.0	23.0	40 13.8	-6.0	23.6	42 03.4	-4.9	24.3
72	34 32.7	-9.6	20.6	36 24.8	-8.7	21.2	38 16.5	-7.8	21.7	40 07.8	-6.8	22.3	41 58.5	-5.8	23.0
73	34 23.1	-10.3	19.4	36 16.1	-9.5	19.9	38 08.7	-8.6	20.4	40 01.0	-7.7	21.0	41 52.7	-6.7	21.7
74	34 12.8	-11.0	18.3	36 06.6	-10.2	18.7	38 00.1	-9.4	19.2	39 53.3	-8.6	19.7	41 46.0	-7.6	20.3
75	34 01.8	-11.7	17.1	35 56.4	-11.0	17.5	37 50.7	-10.2	17.9	39 44.7	-9.4	18.4	41 38.4	-8.6	19.0
76	33 50.1	-12.4	15.9	35 45.4	-11.7	16.3	37 40.5	-11.0	16.7	39 35.3	-10.3	17.2	41 29.8	-9.5	17.7
77	33 37.7	-13.0	14.7	35 33.7	-12.4	15.1	37 29.5	-11.8	15.5	39 25.0	-11.0	15.9	41 20.3	-10.3	16.4
78	33 24.7	-13.7	13.5	35 21.3	-13.1	13.9	37 17.7	-12.5	14.2	39 14.0	-12.0	14.6	41 10.0	-11.3	15.0
79	33 11.0	-14.3	12.4	35 08.2	-13.8	12.7	37 05.2	-13.3	13.0	39 02.0	-12.7	13.3	40 58.7	-12.1	13.7
80	32 56.7	-14.9	11.2	34 54.4	-14.5	11.5	36 51.9	-14.0	11.8	38 49.3	-13.5	12.1	40 46.6	-13.0	12.4
81	32 41.8	-15.6	10.1	34 39.9	-15.2	10.3	36 37.9	-14.8	10.6	38 35.8	-14.3	10.8	40 33.6	-13.8	11.2
82	32 26.2	-16.3	8.9	34 24.7	-15.9	9.1	36 23.1	-15.5	9.3	38 21.5	-15.1	9.6	40 19.8	-14.7	9.9
83	32 09.9	-16.8	7.8	34 08.8	-16.5	8.0	36 07.6	-16.2	8.2	38 06.4	-15.9	8.4	40 05.1	-15.5	8.6
84	31 53.1	-17.4	6.6	33 52.3	-17.2	6.8	35 51.4	-16.9	7.0	37 50.5	-16.6	7.1	39 49.6	-16.3	7.3
85	31 35.7	-18.0	5.5	33 35.1	-17.8	5.6	35 34.5	-17.5	5.8	37 33.9	-17.3	5.9	39 33.3	-17.2	6.1
86	31 17.7	-18.6	4.4	33 17.3	-18.4	4.5	35 17.0	-18.3	4.6	37 16.6	-18.1	4.7	39 16.1	-17.9	4.9
87	30 59.1	-19.1	3.3	32 58.9	-19.0	3.4	34 58.7	-18.9	3.4	36 58.5	-18.8	3.5	38 58.2	-18.6	3.6
88	30 40.0	-19.7	2.2	32 39.9	-19.7	2.2	34 39.8	-19.6	2.3	36 39.7	-19.5	2.3	38 39.6	-19.4	2.4
89	30 20.3	-20.3	1.1	32 20.2	-20.2	1.1	34 20.2	-20.2	1.1	36 20.2	-20.2	1.2	38 20.2	-20.2	1.2
90	30 00.0	-20.8	0.0	32 00.0	-20.8	0.0	34 00.0	-20.8	0.0	36 00.0	-20.9	0.0	38 00.0	-20.9	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 70°, 290°

30°			32°			34°			36°			38°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
0 22.4	-34.9	125.5	0 47.3	+36.3	54.5	1 57.0	+37.6	54.5	3 06.6	+38.9	54.6	4 16.1	+40.2	54.7	31
0 12.5	+34.8	53.7	1 23.6	+36.2	53.7	2 34.6	+37.6	53.7	3 45.5	+38.9	53.8	4 56.3	+40.1	53.9	32
0 47.3	+34.9	52.8	1 59.8	+36.2	52.9	3 12.2	+37.5	53.0	4 24.4	+38.8	53.1	5 36.4	+40.0	53.2	33
1 22.2	+34.8	52.0	2 36.0	+36.2	52.1	3 49.7	+37.4	52.2	5 03.2	+38.7	52.3	6 16.4	+40.0	52.5	34
1 57.0	+34.8	51.2	3 12.2	+36.1	51.3	4 27.1	+37.4	51.4	5 41.9	+38.7	51.5	6 56.4	+39.9	51.7	35
2 31.8	+34.8	50.4	3 48.3	+36.1	50.5	5 04.5	+37.4	50.6	6 20.6	+38.6	50.8	7 36.3	+39.9	50.9	36
3 06.6	+34.8	49.6	4 24.4	+36.0	49.7	5 41.9	+37.3	49.8	6 59.2	+38.5	50.0	8 16.2	+39.7	50.2	37
3 41.4	+34.7	48.8	5 00.4	+36.0	48.9	6 19.2	+37.2	49.0	7 37.7	+38.5	49.2	8 55.9	+39.7	49.4	38
4 16.1	+34.6	47.9	5 36.4	+35.9	48.1	6 56.4	+37.2	48.2	8 16.2	+38.4	48.4	9 35.6	+39.6	48.7	39
4 50.7	+34.6	47.1	6 12.3	+35.8	47.3	7 33.6	+37.0	47.4	8 54.6	+38.2	47.7	10 15.2	+39.4	47.9	40
5 25.3	+34.6	46.3	6 48.1	+35.8	46.5	8 10.6	+37.0	46.7	9 32.8	+38.2	46.9	10 54.6	+39.4	47.1	41
5 59.9	+34.4	45.5	7 23.9	+35.6	45.7	8 47.6	+36.9	45.9	10 11.0	+38.0	46.1	11 34.0	+39.2	46.4	42
6 34.3	+34.4	44.7	7 59.5	+35.6	44.8	9 24.5	+36.7	45.1	10 49.0	+38.0	45.3	12 13.2	+39.1	45.6	43
7 08.7	+34.3	43.8	8 35.1	+35.5	44.0	10 01.2	+36.7	44.3	11 27.0	+37.8	44.5	12 52.3	+39.0	44.8	44
7 43.0	+34.1	43.0	9 10.6	+35.3	43.2	10 37.9	+36.5	43.5	12 04.8	+37.6	43.7	13 31.3	+38.8	44.0	45
8 17.1	+34.1	42.2	9 45.9	+35.3	42.4	11 14.4	+36.4	42.6	12 42.4	+37.6	42.9	14 10.1	+38.6	43.3	46
8 51.2	+34.0	41.3	10 21.2	+35.1	41.6	11 50.8	+36.2	41.8	13 20.0	+37.3	42.1	14 48.7	+38.5	42.5	47
9 25.2	+33.9	40.5	10 56.3	+35.0	40.7	12 27.0	+36.1	41.0	13 57.3	+37.2	41.3	15 27.2	+38.3	41.7	48
9 59.1	+33.7	39.7	11 31.3	+34.8	39.9	13 03.1	+35.9	40.2	14 34.5	+37.1	40.5	16 05.5	+38.2	40.9	49
10 32.8	+33.6	38.8	12 06.1	+34.7	39.1	13 39.0	+35.8	39.4	15 11.6	+36.9	39.7	16 43.7	+37.9	40.1	50
11 06.4	+33.4	38.0	12 40.8	+34.5	38.3	14 14.8	+35.6	38.5	15 48.5	+36.3	38.9	17 21.6	+37.8	39.3	51
11 39.8	+33.3	37.1	13 15.3	+34.4	37.4	14 50.4	+35.5	37.7	16 25.1	+36.5	38.1	17 59.4	+37.5	38.4	52
12 13.1	+33.2	36.3	13 49.7	+34.2	36.6	15 25.9	+35.2	36.9	17 01.6	+36.3	37.2	18 36.9	+37.4	37.6	53
12 46.3	+33.0	35.4	14 23.9	+34.0	35.7	16 01.1	+35.1	36.0	17 37.9	+36.1	36.4	19 14.3	+37.1	36.8	54
13 19.3	+32.8	34.6	14 57.9	+33.8	34.9	16 36.2	+34.8	35.2	18 14.0	+35.9	35.6	19 51.4	+36.9	36.0	55
13 52.1	+32.6	33.7	15 31.7	+33.6	34.0	17 11.0	+34.6	34.3	18 49.9	+35.6	34.7	20 28.3	+36.6	35.1	56
14 24.7	+32.4	32.9	16 05.3	+33.5	33.2	17 45.6	+34.4	33.5	19 25.5	+35.4	33.9	21 04.9	+36.4	34.3	57
14 57.1	+32.3	32.0	16 38.8	+33.2	32.3	18 20.0	+34.2	32.6	20 00.9	+35.1	33.0	21 41.3	+36.1	33.4	58
15 29.4	+32.0	31.1	17 12.0	+32.9	31.4	18 54.2	+33.9	31.8	20 36.0	+34.9	32.1	22 17.4	+35.8	32.6	59
16 01.4	+31.8	30.2	17 44.9	+32.8	30.5	19 28.1	+33.7	30.9	21 10.9	+34.6	31.3	22 53.2	+35.6	31.7	60
16 33.2	+31.6	29.4	18 17.7	+32.5	29.7	20 01.8	+33.4	30.0	21 45.5	+34.3	30.4	23 28.8	+35.2	30.8	61
17 04.8	+31.4	28.5	18 50.2	+32.2	28.8	20 35.2	+33.1	29.1	22 19.8	+34.0	29.5	24 04.0	+35.0	29.9	62
17 36.2	+31.1	27.6	19 22.4	+32.0	27.9	21 08.3	+32.8	28.2	22 53.8	+33.8	28.6	24 39.0	+34.6	29.0	63
18 07.3	+30.9	26.7	19 54.4	+31.7	27.0	21 41.1	+32.6	27.3	23 27.6	+33.4	27.7	25 13.6	+34.3	28.1	64
18 38.2	+30.6	25.8	20 26.1	+31.4	26.1	22 13.7	+32.3	26.4	24 01.0	+33.1	26.8	25 47.9	+34.0	27.2	65
19 08.8	+30.3	24.9	20 57.5	+31.1	25.2	22 46.0	+31.9	25.5	24 34.1	+32.8	25.9	26 21.9	+33.6	26.3	66
19 39.1	+30.0	23.9	21 28.6	+30.9	24.3	23 17.9	+31.6	24.6	25 06.9	+32.4	25.0	26 55.5	+33.2	25.4	67
20 09.1	+29.8	23.0	21 59.5	+30.5	23.3	23 49.5	+31.3	23.7	25 39.3	+32.0	24.0	27 28.7	+32.8	24.4	68
20 38.9	+29.5	22.1	22 30.0	+30.2	22.4	24 20.8	+30.9	22.7	26 11.3	+31.7	23.1	28 01.5	+32.5	23.5	69
21 08.4	+29.1	21.2	23 00.2	+29.8	21.5	24 51.7	+30.6	21.8	26 43.0	+31.3	22.1	28 34.0	+32.1	22.5	70
21 37.5	+28.9	20.2	23 30.0	+29.6	20.5	25 22.3	+30.2	20.8	27 14.3	+30.9	21.2	29 06.1	+31.6	21.6	71
22 06.4	+28.5	19.3	23 59.6	+29.1	19.6	25 52.5	+29.8	19.9	27 45.2	+30.6	20.2	29 37.7	+31.2	20.6	72
22 34.9	+28.2	18.3	24 28.7	+28.8	18.6	26 22.3	+29.5	18.9	28 15.8	+30.0	19.2	30 08.9	+30.8	19.6	73
23 03.1	+27.8	17.4	24 57.5	+28.4	17.6	26 51.8	+29.0	17.9	28 45.8	+29.7	18.3	30 39.7	+30.3	18.6	74
23 30.9	+27.5	16.4	25 25.9	+28.1	16.7	27 20.8	+28.6	17.0	29 15.5	+29.2	17.3	31 10.0	+29.8	17.6	75
23 58.4	+27.1	15.4	25 54.0	+27.6	15.7	27 49.4	+28.2	16.0	29 44.7	+28.8	16.3	31 39.8	+29.3	16.6	76
24 25.5	+26.7	14.5	26 21.6	+27.2	14.7	28 17.6	+27.7	15.0	30 13.5	+28.2	15.3	32 09.1	+28.9	15.6	77
24 52.2	+26.3	13.5	26 48.8	+26.8	13.7	28 45.3	+27.3	14.0	30 41.7	+27.8	14.2	32 38.0	+28.3	14.5	78
25 18.5	+25.9	12.5	27 15.6	+26.4	12.7	29 12.6	+26.9	12.9	31 09.5	+27.3	13.2	33 06.3	+27.8	13.5	79
25 44.4	+25.5	11.5	27 42.0	+25.9	11.7	29 39.5	+26.3	11.9	31 36.8	+26.8	12.2	33 34.1	+27.2	12.4	80
26 09.9	+25.1	10.5	28 07.9	+25.5	10.7	30 05.8	+25.8	10.9	32 03.6	+26.3	11.1	34 01.3	+26.7	11.4	81
26 35.0	+24.7	9.5	28 33.4	+25.0	9.6	30 31.6	+25.4	9.8	32 29.9	+25.7	10.0	34 28.0	+26.1	10.3	82
26 59.7	+24.2	8.4	28 58.4	+24.5	8.6	30 57.0	+24.8	8.8	32 55.6	+25.1	9.0	34 54.1	+25.5	9.2	83
27 23.9	+23.8	7.4	29 22.9	+24.0	7.6	31 21.8	+24.3	7.7	33 20.7	+24.6	7.9	35 19.6	+24.8	8.1	84
27 47.7	+23.3	6.4	29 46.9	+23.5	6.5	31 46.1	+23.8	6.6	33 45.3	+24.0	6.8	35 44.4	+24.3	7.0	85
28 11.0	+22.8	5.3	30 10.4	+23.0	5.4	32 09.9	+23.2	5.6	34 09.3	+23.4	5.7	36 08.7	+23.6	5.8	86
28 33.8	+22.3	4.3	30 33.4	+22.5	4.4	32 33.1	+22.6	4.5	34 32.7	+22.8	4.6	36 32.3	+23.0	4.7	87
28 56.1	+21.8	3.2	30 55.9	+21.9	3.3	32 55.7	+22.0	3.4	34 55.5	+22.1	3.4	36 55.3	+22.2	3.5	88
29 17.9	+21.3	2.2	31 17.8	+21.4	2.2	33 17.7	+21.5	2.2	35 17.6	+21.5	2.3	37 17.5	+21.6	2.4	89
29 39.2	+20.8	1.1	31 39.2	+20.8	1.1	33 39.2	+20.8	1.1	35 39.1	+20.9	1.2	37 39.1	+20.9	1.2	90
30 00.0	+20.3	0.0	32 00.0	+20.2	0.0	34 00.0	+20.2	0.0	36 00.0	+20.2	0.0	38 00.0	+20.2	0.0	

LATITUDE SAME NAME

L.H.A. 110°, 250°

70°, 290° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	33 15.0	+30.3	76.7	33 41.3	+32.4	78.0	34 05.0	+34.4	79.3	34 25.9	+36.5	80.6	34 44.0	+38.5	82.0
31	33 45.3	+29.7	75.6	34 13.7	+31.9	77.0	34 39.4	+34.0	78.3	35 02.4	+35.9	79.7	35 22.5	+37.9	81.1
32	34 15.0	+29.3	74.6	34 45.6	+31.3	75.9	35 13.4	+33.4	77.3	35 38.3	+35.5	78.7	36 00.4	+37.6	80.1
33	34 44.3	+28.6	73.5	35 16.9	+30.8	74.9	35 46.8	+32.9	76.3	36 13.8	+35.0	77.7	36 38.0	+37.0	79.1
34	35 12.9	+28.1	72.5	35 47.7	+30.3	73.8	36 19.7	+32.4	75.2	36 48.8	+34.5	76.7	37 15.0	+36.5	78.2
35	35 41.0	+27.5	71.4	36 18.0	+29.6	72.8	36 52.1	+31.8	74.2	37 23.3	+33.9	75.7	37 51.5	+36.1	77.1
36	36 08.5	+26.9	70.3	36 47.6	+29.1	71.7	37 23.9	+31.2	73.1	37 57.2	+33.4	74.6	38 27.6	+35.4	76.1
37	36 35.4	+26.3	69.2	37 16.7	+28.4	70.6	37 55.1	+30.7	72.0	38 30.6	+32.8	73.6	39 03.0	+35.0	75.1
38	37 01.7	+25.6	68.1	37 45.1	+27.8	69.5	38 25.8	+30.0	71.0	39 03.4	+32.2	72.5	39 38.0	+34.3	74.0
39	37 27.3	+24.9	66.9	38 12.9	+27.2	68.4	38 55.8	+29.3	69.8	39 35.6	+31.6	71.4	40 12.3	+33.8	73.0
40	37 52.2	+24.3	65.8	38 40.1	+26.5	67.2	39 25.1	+28.8	68.7	40 07.2	+30.9	70.3	40 46.1	+33.1	71.9
41	38 16.5	+23.6	64.6	39 06.6	+25.8	66.1	39 53.9	+28.0	67.6	40 38.1	+30.3	69.2	41 19.2	+32.5	70.8
42	38 40.1	+22.9	63.4	39 32.4	+25.1	64.9	40 21.9	+27.3	66.4	41 08.4	+29.5	68.0	41 51.7	+31.8	69.7
43	39 03.0	+22.1	62.2	39 57.5	+24.4	63.7	40 49.2	+26.6	65.2	41 37.9	+28.9	66.9	42 23.5	+31.1	68.5
44	39 25.1	+21.4	61.0	40 21.9	+23.6	62.5	41 15.8	+25.9	64.1	42 06.8	+28.1	65.7	42 54.6	+30.4	67.4
45	39 46.5	+20.7	59.8	40 45.5	+22.9	61.3	41 41.7	+25.1	62.9	42 34.9	+27.4	64.5	43 25.0	+29.7	66.2
46	40 07.2	+19.8	58.6	41 08.4	+22.0	60.1	42 06.8	+24.3	61.6	43 02.3	+26.6	63.3	43 54.7	+28.9	65.0
47	40 27.0	+19.1	57.4	41 30.4	+21.3	58.8	42 31.1	+23.5	60.4	43 28.9	+25.8	62.0	44 23.6	+28.1	63.8
48	40 46.1	+18.2	56.1	41 51.7	+20.4	57.6	42 54.6	+22.7	59.1	43 54.7	+25.0	60.8	44 51.7	+27.3	62.5
49	41 04.3	+17.4	54.9	42 12.1	+19.6	56.3	43 17.3	+21.9	57.9	44 19.7	+24.1	59.5	45 19.0	+26.4	61.2
50	41 21.7	+16.6	53.6	42 31.7	+18.8	55.0	43 39.2	+20.9	56.6	44 43.8	+23.2	58.2	45 45.4	+25.6	60.0
51	41 38.3	+15.7	52.3	42 50.5	+17.8	53.8	44 00.1	+20.1	55.3	45 07.0	+22.4	56.9	46 11.0	+24.6	58.7
52	41 54.0	+14.8	51.0	43 08.3	+17.0	52.5	44 20.2	+19.1	54.0	45 29.4	+21.4	55.6	46 35.6	+23.8	57.3
53	42 08.8	+13.9	49.7	43 25.3	+16.0	51.1	44 39.3	+18.2	52.7	45 50.8	+20.4	54.3	46 59.4	+22.8	56.0
54	42 22.7	+13.0	48.4	43 41.3	+15.1	49.8	44 57.5	+17.3	51.3	46 11.2	+19.5	52.9	47 22.2	+21.8	54.6
55	42 35.7	+12.1	47.1	43 56.4	+14.2	48.5	45 14.8	+16.3	50.0	46 30.7	+18.5	51.6	47 44.0	+20.8	53.3
56	42 47.8	+11.2	45.7	44 10.6	+13.1	47.1	45 31.1	+15.3	48.6	46 49.2	+17.5	50.2	48 04.8	+19.7	51.9
57	42 59.0	+10.2	44.4	44 23.7	+12.3	45.7	45 46.4	+14.3	47.2	47 06.7	+16.5	48.8	48 24.5	+18.7	50.4
58	43 09.2	+9.3	43.0	44 36.0	+11.2	44.4	46 00.7	+13.2	45.8	47 23.2	+15.4	47.3	48 43.2	+17.6	49.0
59	43 18.5	+8.3	41.7	44 47.2	+10.2	43.0	46 13.9	+12.3	44.4	47 38.6	+14.3	45.9	49 00.8	+16.5	47.6
60	43 26.8	+7.3	40.3	44 57.4	+9.2	41.6	46 26.2	+11.1	43.0	47 52.9	+13.2	44.5	49 17.3	+15.4	46.1
61	43 34.1	+6.3	39.0	45 06.6	+8.1	40.2	46 37.3	+10.1	41.6	48 06.1	+12.1	43.0	49 32.7	+14.3	44.6
62	43 40.4	+5.4	37.6	45 14.7	+7.2	38.8	46 47.4	+9.0	40.1	48 18.2	+11.0	41.5	49 47.0	+13.0	43.1
63	43 45.8	+4.3	36.2	45 21.9	+6.0	37.4	46 56.4	+7.9	38.7	48 29.2	+9.8	40.1	50 00.0	+11.9	41.6
64	43 50.1	+3.4	34.8	45 27.9	+5.1	36.0	47 04.3	+6.8	37.2	48 39.0	+8.7	38.6	50 11.9	+10.6	40.1
65	43 53.5	+2.3	33.4	45 33.0	+3.9	34.5	47 11.1	+5.7	35.8	48 47.7	+7.5	37.1	50 22.5	+9.4	38.5
66	43 55.8	+1.3	32.1	45 36.9	+2.9	33.1	47 16.8	+4.5	34.3	48 55.2	+6.3	35.6	50 31.9	+8.2	37.0
67	43 57.1	+0.4	30.7	45 39.8	+1.8	31.7	47 21.3	+3.4	32.8	49 01.5	+5.1	34.1	50 40.1	+6.9	35.4
68	43 57.5	-0.7	29.3	45 41.6	+0.8	30.3	47 24.7	+2.3	31.3	49 06.6	+3.9	32.5	50 47.0	+5.7	33.8
69	43 56.8	-1.7	27.9	45 42.4	-0.3	28.8	47 27.0	+1.1	29.9	49 10.5	+2.7	31.0	50 52.7	+4.3	32.3
70	43 55.1	-2.7	26.5	45 42.1	-1.4	27.4	47 28.1	0.0	28.4	49 13.2	+1.5	29.5	50 57.0	+3.1	30.7
71	43 52.4	-3.7	25.1	45 40.7	-2.5	26.0	47 28.1	-1.1	26.9	49 14.7	+0.2	27.9	51 00.1	+1.8	29.1
72	43 48.7	-4.7	23.7	45 38.2	-3.5	24.5	47 27.0	-2.3	25.4	49 14.9	-0.9	26.4	51 01.9	+0.5	27.5
73	43 44.0	-5.7	22.3	45 34.7	-4.6	23.1	47 24.7	-3.4	24.0	49 14.0	-2.2	24.9	51 02.4	-0.8	25.9
74	43 38.3	-6.7	21.0	45 30.1	-5.7	21.7	47 21.3	-4.6	22.5	49 11.8	-3.3	23.4	51 01.6	-2.1	24.3
75	43 31.6	-7.6	19.6	45 24.4	-6.7	20.3	47 16.7	-5.6	21.0	49 08.5	-4.6	21.8	50 59.5	-3.4	22.7
76	43 24.0	-8.7	18.2	45 17.7	-7.7	18.9	47 11.1	-6.8	19.5	49 03.9	-5.8	20.3	50 56.1	-4.6	21.1
77	43 15.3	-9.6	16.9	45 10.0	-8.8	17.4	47 04.3	-7.9	18.1	48 58.1	-7.0	18.8	50 51.5	-6.0	19.6
78	43 05.7	-10.5	15.5	45 01.2	-9.8	16.0	46 56.4	-9.0	16.6	48 51.1	-8.1	17.3	50 45.5	-7.2	18.0
79	42 55.2	-11.5	14.2	44 51.4	-10.8	14.7	46 47.4	-10.1	15.2	48 43.0	-9.3	15.8	50 38.3	-8.5	16.4
80	42 43.7	-12.4	12.8	44 40.6	-11.8	13.3	46 37.3	-11.2	13.7	48 33.7	-10.5	14.3	50 29.8	-9.7	14.9
81	42 31.3	-13.4	11.5	44 28.8	-12.8	11.9	46 26.1	-12.2	12.3	48 23.2	-11.6	12.8	50 20.1	-10.9	13.3
82	42 17.9	-14.2	10.2	44 16.0	-13.8	10.5	46 13.9	-13.3	10.9	48 11.6	-12.7	11.3	50 09.2	-12.1	11.8
83	42 03.7	-15.1	8.9	44 02.2	-14.7	9.2	46 00.6	-14.3	9.5	47 58.9	-13.8	9.9	49 57.1	-13.4	10.3
84	41 48.6	-16.0	7.6	43 47.5	-15.7	7.8	45 46.3	-15.3	8.1	47 45.1	-14.9	8.4	49 43.7	-14.5	8.7
85	41 32.6	-16.9	6.3	43 31.8	-16.6	6.5	45 31.0	-16.3	6.7	47 30.2	-16.0	7.0	49 29.2	-15.6	7.2
86	41 15.7	-17.7	5.0	43 15.2	-17.5	5.2	45 14.7	-17.2	5.3	47 14.2	-17.0	5.5	49 13.6	-16.8	5.8
87	40 58.0	-18.5	3.7	42 57.7	-18.3	3.9	44 57.5	-18.3	4.0	46 57.2	-18.1	4.1	48 56.8	-17.8	4.3
88	40 39.5	-19.4	2.5	42 39.4	-19.3	2.6	44 39.2	-19.1	2.6	46 39.1	-19.1	2.7	48 39.0	-19.0	2.8
89	40 20.1	-20.1	1.2	42 20.1	-20.1	1.3	44 20.1	-20.1	1.3	46 20.0	-20.0	1.4	48 20.0	-20.0	1.4
90	40 00.0	-20.9	0.0	42 00.0	-20.9	0.0	44 00.0	-21.0	0.0	46 00.0	-21.0	0.0	48 00.0	-21.0	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 70°, 290°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.					
5	25.3	+41.4	54.8	6	34.3	+42.6	55.0	7	43.0	+43.8	55.2	8	51.2	+45.0	55.4	9	59.1	+46.1	55.7	30
6	06.7	+41.4	54.1	7	16.9	+42.6	54.3	8	26.8	+43.8	54.5	9	36.2	+45.0	54.8	10	45.2	+46.1	55.1	31
6	48.1	+41.3	53.4	7	59.5	+42.5	53.6	9	10.6	+43.7	53.8	10	21.2	+44.8	54.1	11	31.3	+45.9	54.4	32
7	29.4	+41.2	52.6	8	42.0	+42.5	52.9	9	54.3	+43.6	53.1	11	06.0	+44.8	53.4	12	17.2	+45.9	53.8	33
8	10.6	+41.2	51.9	9	24.5	+42.3	52.2	10	37.9	+43.5	52.4	11	50.8	+44.6	52.7	13	03.1	+45.8	53.1	34
8	51.8	+41.0	51.2	10	06.8	+42.2	51.4	11	21.4	+43.4	51.7	12	35.4	+44.6	52.1	13	48.9	+45.6	52.4	35
9	32.8	+41.0	50.4	10	49.0	+42.2	50.7	12	04.8	+43.3	51.0	13	20.0	+44.4	51.4	14	34.5	+45.6	51.8	36
10	13.8	+40.8	49.7	11	31.2	+42.0	50.0	12	48.1	+43.2	50.3	14	04.4	+44.3	50.7	15	20.1	+45.4	51.1	37
10	54.6	+40.8	48.9	12	13.2	+41.9	49.3	13	31.3	+43.0	49.6	14	48.7	+44.2	50.0	16	05.5	+45.3	50.4	38
11	35.4	+40.6	48.2	12	55.1	+41.8	48.5	14	14.3	+43.0	48.9	15	32.9	+44.1	49.3	16	50.8	+45.2	49.7	39
12	16.0	+40.5	47.4	13	36.9	+41.7	47.8	14	57.3	+42.8	48.2	16	17.0	+43.9	48.6	17	36.0	+45.0	49.0	40
12	56.5	+40.4	46.7	14	18.6	+41.5	47.0	15	40.1	+42.6	47.4	17	00.9	+43.8	47.9	18	21.0	+44.9	48.3	41
13	36.9	+40.3	45.9	15	00.1	+41.4	46.3	16	22.7	+42.5	46.7	17	44.7	+43.6	47.2	19	05.9	+44.7	47.6	42
14	17.2	+40.1	45.2	15	41.5	+41.2	45.5	17	05.2	+42.4	46.0	18	28.3	+43.4	46.4	19	50.6	+44.5	46.9	43
14	57.3	+39.9	44.4	16	22.7	+41.1	44.8	17	47.6	+42.1	45.2	19	11.7	+43.3	45.7	20	35.1	+44.4	46.2	44
15	37.2	+39.8	43.6	17	03.8	+40.9	44.0	18	29.7	+42.0	44.5	19	55.0	+43.1	45.0	21	19.5	+44.2	45.5	45
16	17.0	+39.6	42.8	17	44.7	+40.7	43.3	19	11.7	+41.8	43.7	20	38.1	+42.9	44.2	22	03.7	+44.0	44.8	46
16	56.6	+39.4	42.1	18	25.4	+40.5	42.5	19	53.5	+41.6	43.0	21	21.0	+42.7	43.5	22	47.7	+43.7	44.0	47
17	36.0	+39.2	41.3	19	05.9	+40.3	41.7	20	35.1	+41.4	42.2	22	03.7	+42.5	42.7	23	31.4	+43.6	43.3	48
18	15.2	+39.1	40.5	19	46.2	+40.1	40.9	21	16.5	+41.2	41.4	22	46.2	+42.2	42.0	24	15.0	+43.3	42.5	49
18	54.3	+38.8	39.7	20	26.3	+39.9	40.1	21	57.7	+41.0	40.6	23	28.4	+42.1	41.2	24	58.3	+43.1	41.8	50
19	33.1	+38.6	38.9	21	06.2	+39.7	39.3	22	38.7	+40.7	39.8	24	10.5	+41.8	40.4	25	41.4	+42.9	41.0	51
20	11.7	+38.4	38.1	21	45.9	+39.4	38.5	23	19.4	+40.5	39.1	24	52.3	+41.5	39.6	26	24.3	+42.6	40.2	52
20	50.1	+38.1	37.2	22	25.3	+39.2	37.7	23	59.9	+40.3	38.2	25	33.8	+41.3	38.8	27	06.9	+42.3	39.4	53
21	28.2	+37.9	36.4	23	04.5	+38.9	36.9	24	40.2	+39.9	37.4	26	15.1	+41.0	38.0	27	49.2	+42.1	38.6	54
22	06.1	+37.7	35.6	23	43.4	+38.7	36.1	25	20.1	+39.7	36.6	26	56.1	+40.9	37.2	28	31.3	+41.7	37.8	55
22	43.8	+37.4	34.7	24	22.1	+38.4	35.2	25	59.8	+39.4	35.8	27	36.8	+40.4	36.4	29	13.0	+41.5	37.0	56
23	21.2	+37.1	33.9	25	00.5	+38.1	34.4	26	39.2	+39.1	34.9	28	17.2	+40.1	35.5	29	54.5	+41.1	36.2	57
23	58.3	+36.8	33.0	25	38.6	+37.8	33.5	27	18.3	+38.8	34.1	28	57.3	+39.8	34.7	30	35.6	+40.8	35.3	58
24	35.1	+36.5	32.2	26	16.4	+37.5	32.7	27	57.1	+38.5	33.2	29	37.1	+39.5	33.8	31	16.4	+40.5	34.5	59
25	11.6	+36.2	31.3	26	53.9	+37.1	31.8	28	35.6	+38.1	32.4	30	16.6	+39.1	33.0	31	56.9	+40.1	33.6	60
25	47.8	+35.9	30.4	27	31.0	+36.8	30.9	29	13.7	+37.7	31.5	30	55.7	+38.7	32.1	32	37.0	+39.7	32.7	61
26	23.7	+35.5	29.5	28	07.8	+36.5	30.0	29	51.4	+37.5	30.6	31	34.4	+38.4	31.2	33	16.7	+39.4	31.8	62
26	59.2	+35.2	28.6	28	44.3	+36.1	29.1	30	28.9	+37.0	29.7	32	12.8	+38.0	30.3	33	56.1	+38.9	30.9	63
27	34.4	+34.8	27.7	29	20.4	+35.7	28.2	31	05.9	+36.6	28.8	32	50.8	+37.5	29.4	34	35.0	+38.5	30.0	64
28	09.2	+34.5	26.8	29	56.1	+35.3	27.3	31	42.5	+36.2	27.8	33	28.3	+37.2	28.4	35	13.5	+38.1	29.1	65
28	43.7	+34.0	25.8	30	31.4	+35.0	26.3	32	18.7	+35.8	26.9	34	05.5	+36.7	27.5	35	51.6	+37.6	28.1	66
29	17.7	+33.7	24.9	31	06.4	+34.5	25.4	32	54.5	+35.4	25.9	34	42.2	+36.2	26.5	36	29.2	+37.2	27.2	67
29	51.4	+33.3	23.9	31	40.9	+34.0	24.4	33	29.9	+34.9	25.0	35	18.4	+35.8	25.6	37	06.4	+36.7	26.2	68
30	24.7	+32.8	23.0	32	14.9	+33.7	23.5	34	04.8	+34.4	24.0	35	54.2	+35.3	24.6	37	43.1	+36.1	25.2	69
30	57.5	+32.4	22.0	32	48.6	+33.1	22.5	34	39.2	+34.0	23.0	36	29.5	+34.7	23.6	38	19.2	+35.6	24.2	70
31	29.9	+31.9	21.0	33	21.7	+32.7	21.5	35	13.2	+33.4	22.0	37	04.2	+34.3	22.5	38	54.8	+35.1	23.2	71
32	01.8	+31.5	20.0	33	54.4	+32.2	20.5	35	46.6	+32.9	21.0	37	38.5	+33.7	21.5	39	29.9	+34.5	22.1	72
32	33.3	+30.9	19.0	34	26.6	+31.6	19.5	36	19.5	+32.4	19.9	38	12.2	+33.1	20.5	40	04.4	+33.9	21.0	73
33	04.2	+30.5	18.0	34	58.2	+31.1	18.4	36	51.9	+31.8	18.9	38	45.3	+32.5	19.4	40	38.3	+33.2	20.0	74
33	34.7	+29.9	17.0	35	29.3	+30.6	17.4	37	23.7	+31.3	17.8	39	17.8	+31.9	18.3	41	11.5	+32.7	18.9	75
34	04.6	+29.4	15.9	35	59.9	+30.0	16.3	37	55.0	+30.6	16.7	39	49.7	+31.3	17.2	41	44.2	+32.0	17.7	76
34	34.0	+28.9	14.9	36	29.9	+29.4	15.2	38	25.6	+30.0	15.7	40	21.0	+30.6	16.1	42	16.2	+31.2	16.6	77
35	02.9	+28.3	13.8	36	59.3	+28.9	14.2	38	55.6	+29.4	14.5	40	51.6	+30.0	15.0	42	47.4	+30.6	15.4	78
35	31.2	+27.7	12.7	37	28.2	+28.2	13.1	39	25.0	+28.7	13.4	41	21.6	+29.3	13.8	43	18.0	+29.9	14.3	79
35	58.9	+27.1	11.6	37	56.4	+27.5	11.9	39	53.7	+28.0	12.3	41	50.9	+28.5	12.7	43	47.9	+29.0	13.1	80
36	26.0	+26.5	10.5	38	23.9	+26.9	10.8	40	21.7	+27.4	11.1	42	19.4	+27.8	11.5	44	16.9	+28.3	11.8	81
36	52.5	+25.8	9.4	38	50.8	+26.3	9.7	40	49.1	+26.6	10.0	42	47.2	+27.0	10.3	44	45.2	+27.5	10.6	82
37	18.3	+25.2	8.3	39	17.1	+25.5	8.5	41	15.7	+25.9	8.8	43	14.2	+26.3	9.0	45	12.7	+26.6	9.4	83
37	43.5	+24.6	7.1	39	42.6	+24.8	7.3	41	41.6	+25.1	7.6	43	40.5	+25.4	7.8	45	39.3	+25.8	8.1	84
38	08.1	+23.8	6.0	40	07.4	+24.1	6.1	42	06.7	+24.3	6.3	44	05.9	+24.6	6.5	46	05.1	+24.9	6.8	85
38	31.9	+23.1	4.8	40	31.5	+23.3	4.9	42	31.0	+23.5	5.1	44	30.5	+23.7	5.3	46	30.0	+23.9	5.5	86
38	55.0	+22.4	3.6	40	54.8	+22.5	3.7	42	54.5	+22.7	3.9	44	54.2	+22.9	4.0	46	53.9	+23.0	4.1	87
39	17.4	+21.7	2.4	41	17.3	+21.8	2.5	43	17.2	+21.8	2.6	45	17.1	+21.9	2.7	47	16.9	+22.1	2.8	88
39	39.1	+20.9	1.2	41	39.1	+20.9	1.3	43	39.0	+21.0	1.3	45	39.0	+21.0	1.3	47	39.0	+21.0	1.4	89
40	00.0	+20.1	0.0	42	00.0	+20.1	0.0	44	00.0	+20.1	0.0	46	00.0	+20.0	0.0	48	00.0	+20.0	0.0	90
40°			42°			44°			46°			48°								

LATITUDE SAME NAME

L.H.A. 110°, 250°

70°, 290° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	34 59.3	+40.4	83.4	35 11.7	+42.2	84.8	35 21.2	+43.9	86.2	35 27.7	+45.7	87.6	35 31.2	+47.3	89.0
31	35 39.7	+39.9	82.5	35 53.9	+41.8	83.9	36 05.1	+43.7	85.3	36 13.4	+45.3	86.8	36 18.5	+47.0	88.3
32	36 19.6	+39.5	81.5	36 35.7	+41.4	83.0	36 48.8	+43.2	84.5	36 58.7	+45.0	86.0	37 05.5	+46.7	87.5
33	36 59.1	+39.0	80.6	37 17.1	+41.0	82.1	37 32.0	+42.9	83.6	37 43.7	+44.7	85.2	37 52.2	+46.4	86.7
34	37 38.1	+38.6	79.7	37 58.1	+40.5	81.2	38 14.9	+42.4	82.7	38 28.4	+44.3	84.3	38 38.6	+46.1	85.9
35	38 16.7	+38.0	78.7	38 38.6	+40.1	80.2	38 57.3	+42.0	81.8	39 12.7	+43.9	83.4	39 24.7	+45.7	85.1
36	38 54.7	+37.6	77.7	39 18.7	+39.6	79.3	39 39.3	+41.6	80.9	39 56.6	+43.5	82.6	40 10.4	+45.3	84.2
37	39 32.3	+37.0	76.7	39 58.3	+39.1	78.3	40 20.9	+41.1	80.0	40 40.1	+43.0	81.7	40 55.7	+44.9	83.4
38	40 09.3	+36.5	75.7	40 37.4	+38.6	77.3	41 02.0	+40.6	79.0	41 23.1	+42.6	80.7	41 40.6	+44.5	82.5
39	40 45.8	+35.9	74.6	41 16.0	+38.0	76.3	41 42.6	+40.1	78.0	42 05.7	+42.1	79.8	42 25.1	+44.1	81.6
40	41 21.7	+35.3	73.6	41 54.0	+37.4	75.3	42 22.7	+39.6	77.0	42 47.8	+41.7	78.8	43 09.2	+43.6	80.7
41	41 57.0	+34.7	72.5	42 31.4	+36.9	74.2	43 02.3	+39.0	76.0	43 29.5	+41.1	77.8	43 52.8	+43.2	79.7
42	42 31.7	+34.1	71.4	43 08.3	+36.3	73.1	43 41.3	+38.4	75.0	44 10.6	+40.5	76.8	44 36.0	+42.6	78.7
43	43 05.8	+33.4	70.2	43 44.6	+35.6	72.0	44 19.7	+37.8	73.9	44 51.1	+40.0	75.8	45 18.6	+42.1	77.7
44	43 39.2	+32.6	69.1	44 20.2	+34.9	70.9	44 57.5	+37.2	72.8	45 31.1	+39.4	74.7	46 00.7	+41.5	76.7
45	44 11.8	+32.0	67.9	44 55.1	+34.3	69.8	45 34.7	+36.5	71.7	46 10.5	+38.7	73.7	46 42.2	+41.0	75.7
46	44 43.8	+31.2	66.8	45 29.4	+33.5	68.6	46 11.2	+35.9	70.5	46 49.2	+38.1	72.5	47 23.2	+40.3	74.6
47	45 15.0	+30.4	65.5	46 02.9	+32.7	67.4	46 47.1	+35.1	69.4	47 27.3	+37.5	71.4	48 03.5	+39.7	73.5
48	45 45.4	+29.6	64.3	46 35.6	+32.0	66.2	47 22.2	+34.3	68.2	48 04.8	+36.6	70.2	48 43.2	+39.0	72.4
49	46 15.0	+28.8	63.1	47 07.6	+31.2	65.0	47 56.5	+33.6	67.0	48 41.4	+36.0	69.1	49 22.2	+38.3	71.2
50	46 43.8	+28.0	61.8	47 38.8	+30.3	63.7	48 30.1	+32.7	65.7	49 17.4	+35.1	67.8	50 00.5	+37.6	70.0
51	47 11.8	+27.0	60.5	48 09.1	+29.4	62.4	49 02.8	+31.8	64.5	49 52.5	+34.3	66.6	50 38.1	+36.7	68.8
52	47 38.8	+26.1	59.2	48 38.5	+28.6	61.1	49 34.6	+31.0	63.2	50 26.8	+33.5	65.3	51 14.8	+36.0	67.6
53	48 04.9	+25.2	57.8	49 07.1	+27.5	59.8	50 05.6	+30.1	61.8	51 00.3	+32.5	64.0	51 50.8	+35.0	66.3
54	48 30.1	+24.1	56.5	49 34.6	+26.6	58.4	50 35.7	+29.1	60.5	51 32.8	+31.7	62.6	52 25.8	+34.2	64.9
55	48 54.2	+23.2	55.1	50 01.2	+25.6	57.0	51 04.8	+28.0	59.1	52 04.5	+30.6	61.3	53 00.0	+33.2	63.6
56	49 17.4	+22.1	53.7	50 26.8	+24.6	55.6	51 32.8	+27.1	57.7	52 35.1	+29.6	59.9	53 33.2	+32.2	62.2
57	49 39.5	+21.0	52.2	50 51.4	+23.4	54.2	51 59.9	+25.9	56.2	53 04.7	+28.5	58.4	54 05.4	+31.2	60.8
58	50 00.5	+20.0	50.8	51 14.8	+22.4	52.7	52 25.8	+24.9	54.8	53 33.2	+27.4	57.0	54 36.6	+30.1	59.3
59	50 20.5	+18.8	49.3	51 37.2	+21.2	51.2	52 50.7	+23.7	53.3	54 00.6	+26.3	55.4	55 06.7	+28.9	57.8
60	50 39.3	+17.6	47.8	51 58.4	+20.0	49.7	53 14.4	+22.5	51.7	54 26.9	+25.1	53.9	55 35.6	+27.8	56.3
61	50 56.9	+16.5	46.3	52 18.4	+18.8	48.2	53 36.9	+21.2	50.2	54 52.0	+23.8	52.3	56 03.4	+26.5	54.7
62	51 13.4	+15.2	44.8	52 37.2	+17.6	46.6	53 58.1	+20.0	48.6	55 15.8	+22.6	50.7	56 29.9	+25.2	53.1
63	51 28.6	+14.0	43.2	52 54.8	+16.3	45.0	54 18.1	+18.7	47.0	55 38.4	+21.2	49.1	56 55.1	+23.9	51.4
64	51 42.6	+12.8	41.7	53 11.1	+14.9	43.4	54 36.8	+17.4	45.3	55 59.6	+19.9	47.4	57 19.0	+22.5	49.7
65	51 55.4	+11.5	40.1	53 26.0	+13.7	41.8	54 54.2	+15.9	43.7	56 19.5	+18.4	45.7	57 41.5	+21.1	48.0
66	52 06.9	+10.1	38.5	53 39.7	+12.3	40.2	55 10.1	+14.6	42.0	56 37.9	+17.0	44.0	58 02.6	+19.6	46.2
67	52 17.0	+8.9	36.9	53 52.0	+10.9	38.5	55 24.7	+13.1	40.3	56 54.9	+15.5	42.3	58 22.2	+18.0	44.4
68	52 25.9	+7.5	35.3	54 02.9	+9.5	36.8	55 37.8	+11.7	38.6	57 10.4	+14.0	40.5	58 40.2	+16.5	42.6
69	52 33.4	+6.1	33.6	54 12.4	+8.1	35.2	55 49.5	+10.2	36.8	57 24.4	+12.4	38.7	58 56.7	+14.9	40.8
70	52 39.5	+4.8	32.0	54 20.5	+6.6	33.5	55 59.7	+8.6	35.1	57 36.8	+10.8	36.9	59 11.6	+13.1	38.9
71	52 44.3	+3.5	30.4	54 27.1	+5.2	31.8	56 08.3	+7.2	33.3	57 47.6	+9.3	35.0	59 24.7	+11.5	37.0
72	52 47.8	+2.0	28.7	54 32.3	+3.8	30.0	56 15.5	+5.5	31.5	57 56.9	+7.5	33.2	59 36.2	+9.8	35.0
73	52 49.8	+0.7	27.0	54 36.1	+2.3	28.3	56 21.0	+4.0	29.7	58 04.4	+5.9	31.3	59 46.0	+8.0	33.1
74	52 50.5	-0.7	25.4	54 38.4	+0.8	26.6	56 25.0	+2.5	27.9	58 10.3	+4.3	29.4	59 54.0	+6.2	31.1
75	52 49.8	-2.1	23.7	54 39.2	-0.7	24.9	56 27.5	+0.8	26.1	58 14.6	+2.5	27.5	60 00.2	+4.5	29.1
76	52 47.7	-3.5	22.1	54 38.5	-2.2	23.1	56 28.3	-0.7	24.3	58 17.1	+0.9	25.6	60 04.7	+2.6	27.1
77	52 44.2	-4.8	20.4	54 36.3	-3.6	21.4	56 27.6	-2.3	22.5	58 18.0	-0.8	23.7	60 07.3	+0.8	25.1
78	52 39.4	-6.2	18.8	54 32.7	-5.1	19.7	56 25.3	-3.8	20.7	58 17.2	-2.5	21.8	60 08.1	-1.0	23.1
79	52 33.2	-7.5	17.2	54 27.6	-6.5	18.0	56 21.5	-5.5	18.9	58 14.7	-4.3	19.9	60 07.1	-2.9	21.1
80	52 25.7	-8.9	15.5	54 21.1	-8.0	16.3	56 16.0	-7.0	17.1	58 10.4	-5.8	18.0	60 04.2	-4.7	19.1
81	52 16.8	-10.2	13.9	54 13.1	-9.4	14.6	56 09.0	-8.5	15.3	58 04.6	-7.6	16.1	59 59.5	-6.4	17.1
82	52 06.6	-11.5	12.3	54 03.7	-10.8	12.9	56 00.5	-10.0	13.5	57 57.0	-9.2	14.3	59 53.1	-8.2	15.1
83	51 55.1	-12.8	10.7	53 52.9	-12.2	11.2	55 50.5	-11.5	11.8	57 47.8	-10.8	12.4	59 44.9	-10.0	13.1
84	51 42.3	-14.1	9.1	53 40.7	-13.5	9.5	55 39.0	-13.0	10.0	57 37.0	-12.4	10.6	59 34.9	-11.7	11.2
85	51 28.2	-15.2	7.6	53 27.2	-14.9	7.9	55 26.0	-14.5	8.3	57 24.6	-13.9	8.7	59 23.2	-13.4	9.3
86	51 13.0	-16.5	6.0	53 12.3	-16.2	6.3	55 11.5	-15.8	6.6	57 10.7	-15.5	6.9	59 09.8	-15.1	7.3
87	50 56.5	-17.7	4.5	52 56.1	-17.5	4.7	54 55.7	-17.3	4.9	56 55.2	-17.0	5.2	58 54.7	-16.7	5.5
88	50 38.8	-18.8	3.0	52 38.6	-18.7	3.1	54 38.4	-18.5	3.2	56 38.2	-18.4	3.4	58 38.0	-18.2	3.6
89	50 20.0	-20.0	1.5	52 19.9	-19.9	1.5	54 19.9	-19.9	1.6	56 19.8	-19.8	1.7	58 19.8	-19.8	1.8
90	50 00.0	-21.1	0.0	52 00.0	-21.1	0.0	54 00.0	-21.2	0.0	56 00.0	-21.2	0.0	58 00.0	-21.3	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 70°, 290°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
11 06.4 +47.2 56.0	12 13.1 +48.4 56.4	13 19.3 +49.3 56.8	14 24.7 +50.4 57.2	15 29.4 +51.3 57.6	30										
11 53.6 +47.2 55.4	13 01.5 +48.2 55.8	14 08.6 +49.3 56.2	15 15.1 +50.2 56.6	16 20.7 +51.3 57.1	31										
12 40.8 +47.1 54.8	13 49.7 +48.1 55.2	14 57.9 +49.2 55.6	16 05.3 +50.2 56.0	17 12.0 +51.1 56.5	32										
13 27.9 +46.9 54.1	14 37.8 +48.1 54.5	15 47.1 +49.1 55.0	16 55.5 +50.1 55.5	18 03.1 +51.1 56.0	33										
14 14.8 +46.9 53.5	15 25.9 +47.9 53.9	16 36.2 +48.9 54.4	17 45.6 +50.0 54.9	18 54.2 +50.9 55.4	34										
15 01.7 +46.8 52.8	16 13.8 +47.8 53.3	17 25.1 +48.9 53.8	18 35.6 +49.9 54.3	19 45.1 +50.9 54.9	35										
15 48.5 +46.6 52.2	17 01.6 +47.7 52.7	18 14.0 +48.8 53.2	19 25.5 +49.7 53.7	20 36.0 +50.7 54.3	36										
16 35.1 +46.5 51.5	17 49.3 +47.6 52.0	19 02.8 +48.6 52.6	20 15.2 +49.7 53.1	21 26.7 +50.7 53.7	37										
17 21.6 +46.4 50.9	18 36.9 +47.5 51.4	19 51.4 +48.5 51.9	21 04.9 +49.5 52.5	22 17.4 +50.5 53.2	38										
18 08.0 +46.3 50.2	19 24.4 +47.3 50.7	20 39.9 +48.3 51.3	21 54.4 +49.4 51.9	23 07.9 +50.4 52.6	39										
18 54.3 +46.1 49.5	20 11.7 +47.2 50.1	21 28.2 +48.3 50.7	22 48.4 +49.2 51.3	23 58.3 +50.2 52.0	40										
19 40.4 +45.9 48.9	20 58.9 +47.0 49.4	22 16.5 +48.0 50.0	23 33.0 +49.1 50.7	24 48.5 +50.1 51.4	41										
20 26.3 +45.8 48.2	21 45.9 +46.8 48.8	23 04.5 +47.9 49.4	24 22.1 +48.9 50.1	25 38.6 +49.9 50.8	42										
21 12.1 +45.6 47.5	22 32.7 +46.7 48.1	23 52.4 +47.8 48.7	25 11.0 +48.8 49.4	26 28.5 +49.8 50.2	43										
21 57.7 +45.5 46.8	23 19.4 +46.5 47.4	24 40.2 +47.5 48.1	25 59.8 +48.6 48.8	27 18.3 +49.6 49.5	44										
22 43.2 +45.2 46.1	24 05.9 +46.4 46.7	25 27.7 +47.4 47.4	26 48.4 +48.4 48.1	28 07.9 +49.4 48.9	45										
23 28.4 +45.1 45.4	24 52.3 +46.1 46.0	26 15.1 +47.1 46.7	27 36.8 +48.2 47.4	28 57.3 +49.3 48.2	46										
24 13.5 +44.8 44.6	25 38.4 +45.9 45.3	27 02.2 +47.0 46.0	28 25.0 +48.0 46.8	29 46.6 +49.0 47.6	47										
24 58.3 +44.7 43.9	26 24.3 +45.7 44.6	27 49.2 +46.8 45.3	29 13.0 +47.8 46.1	30 35.6 +48.9 46.9	48										
25 43.0 +44.4 43.2	27 10.0 +45.4 43.9	28 36.0 +46.5 44.6	30 00.8 +47.6 45.4	31 24.5 +48.6 46.2	49										
26 27.4 +44.1 42.4	27 55.4 +45.3 43.1	29 22.5 +46.3 43.9	30 48.4 +47.3 44.7	32 13.1 +48.4 45.6	50										
27 11.5 +43.9 41.7	28 40.7 +45.0 42.4	30 08.8 +46.0 43.1	31 35.7 +47.1 44.0	33 01.5 +48.1 44.9	51										
27 55.4 +43.7 40.9	29 25.7 +44.7 41.6	30 54.8 +45.8 42.4	32 22.8 +46.9 43.2	33 49.6 +47.9 44.1	52										
28 39.1 +43.4 40.1	30 10.4 +44.4 40.9	31 40.6 +45.5 41.6	33 09.7 +46.6 42.5	34 37.5 +47.6 43.4	53										
29 22.5 +43.1 39.3	30 54.8 +44.2 40.1	32 26.1 +45.2 40.9	33 56.3 +46.2 41.7	35 25.1 +47.4 42.7	54										
30 05.6 +42.8 38.5	31 39.0 +43.8 39.3	33 11.3 +45.0 40.1	34 42.5 +46.0 41.0	36 12.5 +47.1 41.9	55										
30 48.4 +42.5 37.7	32 22.8 +43.6 38.5	33 56.3 +44.6 39.3	35 28.5 +45.7 40.2	36 59.6 +46.7 41.1	56										
31 30.9 +42.2 36.9	33 06.4 +43.2 37.7	34 40.9 +44.2 38.5	36 14.2 +45.4 39.4	37 46.3 +46.5 40.4	57										
32 13.1 +41.8 36.1	33 49.6 +42.9 36.8	35 25.1 +44.0 37.7	36 59.6 +45.0 38.6	38 32.8 +46.0 39.5	58										
32 54.9 +41.5 35.2	34 32.5 +42.5 36.0	36 09.1 +43.6 36.8	37 44.6 +44.6 37.7	39 18.8 +45.8 38.7	59										
33 36.4 +41.1 34.3	35 15.0 +42.2 35.1	36 52.7 +43.2 36.0	38 29.2 +44.3 36.9	40 04.5 +45.4 37.9	60										
34 17.5 +40.8 33.5	35 57.2 +41.8 34.2	37 35.9 +42.8 35.1	39 13.5 +43.9 36.0	40 50.0 +44.9 37.0	61										
34 58.3 +40.3 32.6	36 39.0 +41.3 33.4	38 18.7 +42.4 34.2	39 57.4 +43.5 35.1	41 34.9 +44.6 36.1	62										
35 38.6 +39.9 31.7	37 20.3 +41.0 32.5	39 01.1 +42.0 33.3	40 40.9 +43.0 34.2	42 19.5 +44.1 35.2	63										
36 18.5 +39.5 30.7	38 01.3 +40.5 31.5	39 43.1 +41.5 32.4	41 23.9 +42.6 33.3	43 03.6 +43.7 34.3	64										
36 58.0 +39.1 29.8	38 41.8 +40.0 30.6	40 24.6 +41.1 31.4	42 06.5 +42.1 32.4	43 47.3 +43.2 33.4	65										
37 37.1 +38.6 28.9	39 21.8 +39.6 29.6	41 05.7 +40.6 30.5	42 48.6 +41.6 31.4	44 30.5 +42.7 32.4	66										
38 15.7 +38.1 27.9	40 01.4 +39.0 28.7	41 46.3 +40.0 29.5	43 30.2 +41.1 30.4	45 13.2 +42.2 31.4	67										
38 53.8 +37.5 26.9	40 40.4 +38.6 27.7	42 26.3 +39.5 28.5	44 11.3 +40.6 29.4	45 55.4 +41.6 30.4	68										
39 31.3 +37.1 25.9	41 19.0 +37.9 26.6	43 05.8 +39.0 27.5	44 51.9 +39.9 28.4	46 37.0 +41.0 29.4	69										
40 08.4 +36.5 24.9	41 56.9 +37.5 25.6	43 44.8 +38.4 26.4	45 31.8 +39.4 27.3	47 18.0 +40.4 28.3	70										
40 44.9 +35.9 23.8	42 34.4 +36.8 24.5	44 23.2 +37.7 25.3	46 11.2 +38.8 26.2	47 58.4 +39.8 27.2	71										
41 20.8 +35.3 22.8	43 11.2 +36.2 23.5	45 00.9 +37.2 24.3	46 50.0 +38.1 25.1	48 38.2 +39.1 26.1	72										
41 56.1 +34.7 21.7	43 47.4 +35.5 22.4	45 38.1 +36.4 23.1	47 28.1 +37.4 24.0	49 17.3 +38.4 24.9	73										
42 30.8 +34.1 20.6	44 22.9 +34.9 21.2	46 14.5 +35.8 22.0	48 05.5 +36.6 22.8	49 55.7 +37.6 23.7	74										
43 04.9 +33.4 19.5	44 57.8 +34.2 20.1	46 50.3 +35.0 20.8	48 42.1 +35.9 21.6	50 33.3 +36.9 22.5	75										
43 38.3 +32.7 18.3	45 32.0 +33.5 18.9	47 25.3 +34.3 19.6	49 18.0 +35.2 20.4	51 10.2 +36.0 21.3	76										
44 11.0 +32.0 17.1	46 05.5 +32.7 17.7	47 59.6 +33.4 18.4	49 53.2 +34.3 19.2	51 46.2 +35.2 20.0	77										
44 43.0 +31.2 16.0	46 38.2 +31.9 16.5	48 33.0 +32.7 17.2	50 27.5 +33.4 17.9	52 21.4 +34.3 18.7	78										
45 14.2 +30.4 14.8	47 10.1 +31.1 15.3	49 05.7 +31.8 15.9	51 00.9 +32.5 16.6	52 55.7 +33.3 17.3	79										
45 44.6 +29.7 13.5	47 41.2 +30.2 14.0	49 37.5 +30.9 14.6	51 33.4 +31.6 15.2	53 29.0 +32.4 15.9	80										
46 14.3 +28.8 12.3	48 11.4 +29.4 12.7	50 08.4 +29.9 13.3	52 05.0 +30.6 13.8	54 01.4 +31.3 14.5	81										
46 43.1 +27.9 11.0	48 40.8 +28.5 11.4	50 38.3 +29.0 11.9	52 35.6 +29.6 12.4	54 32.7 +30.2 13.0	82										
47 11.0 +27.1 9.7	49 09.3 +27.5 10.1	51 07.3 +28.0 10.5	53 05.2 +28.5 11.0	55 02.9 +29.1 11.5	83										
47 38.1 +26.1 8.4	49 36.8 +26.5 8.7	51 35.3 +27.0 9.1	53 33.7 +27.5 9.5	55 32.0 +27.9 10.0	84										
48 04.2 +25.2 7.0	50 03.3 +25.5 7.3	52 02.3 +25.8 7.7	54 01.2 +26.2 8.0	55 59.9 +26.7 8.4	85										
48 29.4 +24.2 5.7	50 28.8 +24.5 5.9	52 28.1 +24.8 6.2	54 27.4 +25.1 6.5	56 26.6 +25.4 6.8	86										
48 53.6 +23.2 4.3	50 53.3 +23.3 4.5	52 52.9 +23.6 4.7	54 52.5 +23.8 4.9	56 52.0 +24.1 5.2	87										
49 16.8 +22.1 2.9	51 16.6 +22.3 3.0	53 16.5 +22.3 3.1	55 16.3 +22.5 3.3	57 16.1 +22.6 3.5	88										
49 38.9 +21.1 1.5	51 38.9 +21.1 1.5	53 38.8 +21.2 1.6	55 38.8 +21.2 1.7	57 38.7 +21.3 1.8	89										
50 00.0 +20.0 0.0	52 00.0 +19.9 0.0	54 00.0 +19.9 0.0	56 00.0 +19.8 0.0	58 00.0 +19.8 0.0	90										
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 110°, 250°

72°, 288° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	28 48.0	+20.3	70.0	29 28.0	+22.3	71.1	30 05.8	+24.4	72.2	30 41.4	+26.6	73.3	31 14.8	+28.6	74.4
31	29 08.3	+19.7	69.0	29 50.3	+21.8	70.0	30 30.2	+24.0	71.1	31 08.0	+26.0	72.2	31 43.4	+28.1	73.4
32	29 28.0	+19.2	67.9	30 12.1	+21.3	68.9	30 54.2	+23.4	70.0	31 34.0	+25.5	71.2	32 11.5	+27.6	72.4
33	29 47.2	+18.6	66.8	30 33.4	+20.8	67.9	31 17.6	+22.8	69.0	31 59.5	+25.0	70.1	32 39.1	+27.1	71.3
34	30 05.8	+18.1	65.7	30 54.2	+20.2	66.8	31 40.4	+22.3	67.9	32 24.5	+24.4	69.1	33 06.2	+26.5	70.3
35	30 23.9	+17.5	64.6	31 14.4	+19.6	65.7	32 02.7	+21.8	66.8	32 48.9	+23.8	68.0	33 32.7	+26.0	69.2
36	30 41.4	+17.0	63.5	31 34.0	+19.1	64.6	32 24.5	+21.1	65.7	33 12.7	+23.3	66.9	33 58.7	+25.4	68.1
37	30 58.4	+16.4	62.4	31 53.1	+18.4	63.4	32 45.6	+20.6	64.6	33 36.0	+22.7	65.8	34 24.1	+24.8	67.0
38	31 14.8	+15.8	61.2	32 11.5	+17.9	62.3	33 06.2	+20.0	63.5	33 58.7	+22.1	64.7	34 48.9	+24.2	65.9
39	31 30.6	+15.2	60.1	32 29.4	+17.2	61.2	33 26.2	+19.3	62.3	34 20.8	+21.4	63.5	35 13.1	+23.6	64.8
40	31 45.8	+14.5	59.0	32 46.6	+16.7	60.1	33 45.5	+18.7	61.2	34 42.2	+20.8	62.4	35 36.7	+22.9	63.7
41	32 00.3	+14.0	57.8	33 03.3	+16.0	58.9	34 04.2	+18.1	60.1	35 03.0	+20.2	61.3	35 59.6	+22.3	62.5
42	32 14.3	+13.3	56.7	33 19.3	+15.3	57.8	34 22.3	+17.4	58.9	35 23.2	+19.5	60.1	36 21.9	+21.6	61.4
43	32 27.6	+12.8	55.5	33 34.6	+14.8	56.6	34 39.7	+16.8	57.7	35 42.7	+18.8	58.9	36 43.5	+20.9	60.2
44	32 40.4	+12.0	54.4	33 49.4	+14.0	55.4	34 56.5	+16.0	56.6	36 01.5	+18.2	57.8	37 04.4	+20.2	59.0
45	32 52.4	+11.4	53.2	34 03.4	+13.4	54.3	35 12.5	+15.4	55.4	36 19.7	+17.4	56.6	37 24.6	+19.6	57.8
46	33 03.8	+10.8	52.0	34 16.8	+12.7	53.1	35 27.9	+14.7	54.2	36 37.1	+16.7	55.4	37 44.2	+18.8	56.7
47	33 14.6	+10.1	50.9	34 29.5	+12.0	51.9	35 42.6	+14.0	53.0	36 53.8	+16.0	54.2	38 03.0	+18.0	55.5
48	33 24.7	+9.4	49.7	34 41.5	+11.3	50.7	35 56.6	+13.3	51.8	37 09.8	+15.3	53.0	38 21.0	+17.3	54.2
49	33 34.1	+8.7	48.5	34 52.8	+10.6	49.5	36 09.9	+12.5	50.6	37 25.1	+14.5	51.8	38 38.3	+16.5	53.0
50	33 42.8	+8.1	47.3	35 03.4	+9.9	48.3	36 22.4	+11.8	49.4	37 39.6	+13.7	50.6	38 54.8	+15.8	51.8
51	33 50.9	+7.3	46.1	35 13.3	+9.2	47.1	36 34.2	+11.0	48.2	37 53.3	+13.0	49.3	39 10.6	+14.9	50.5
52	33 58.2	+6.7	44.9	35 22.5	+8.4	45.9	36 45.2	+10.3	47.0	38 06.3	+12.1	48.1	39 25.5	+14.1	49.3
53	34 04.9	+6.0	43.7	35 30.9	+7.7	44.7	36 55.5	+9.5	45.7	38 18.4	+11.4	46.8	39 39.6	+13.3	48.0
54	34 10.9	+5.2	42.5	35 38.6	+7.0	43.5	37 05.0	+8.8	44.5	38 29.8	+10.6	45.6	39 52.9	+12.5	46.8
55	34 16.1	+4.6	41.3	35 45.6	+6.3	42.2	37 13.8	+7.9	43.2	38 40.4	+9.8	44.3	40 05.4	+11.6	45.5
56	34 20.7	+3.8	40.1	35 51.9	+5.4	41.0	37 21.7	+7.2	42.0	38 50.2	+8.9	43.1	40 17.0	+10.8	44.2
57	34 24.5	+3.1	38.9	35 57.3	+4.8	39.8	37 28.9	+6.4	40.7	38 59.1	+8.1	41.8	40 27.8	+9.9	42.9
58	34 27.6	+2.4	37.7	36 02.1	+3.9	38.6	37 35.3	+5.6	39.5	39 07.2	+7.3	40.5	40 37.7	+9.0	41.6
59	34 30.0	+1.7	36.5	36 06.0	+3.2	37.3	37 40.9	+4.8	38.2	39 14.5	+6.4	39.2	40 46.7	+8.2	40.3
60	34 31.7	+1.0	35.3	36 09.2	+2.5	36.1	37 45.7	+3.9	37.0	39 20.9	+5.6	37.9	40 54.9	+7.2	39.0
61	34 32.7	+0.2	34.0	36 11.7	+1.6	34.8	37 49.6	+3.2	35.7	39 26.5	+4.7	36.7	41 02.1	+6.4	37.7
62	34 32.9	-0.4	32.8	36 13.3	+1.0	33.6	37 52.8	+2.4	34.4	39 31.2	+3.9	35.4	41 08.5	+5.4	36.4
63	34 32.5	-1.2	31.6	36 14.3	+0.1	32.4	37 55.2	+1.5	33.2	39 35.1	+3.0	34.1	41 13.9	+4.6	35.0
64	34 31.3	-1.9	30.4	36 14.4	-0.6	31.1	37 56.7	+0.7	31.9	39 38.1	+2.1	32.8	41 18.5	+3.6	33.7
65	34 29.4	-2.7	29.2	36 13.8	-1.4	29.9	37 57.4	-0.1	30.6	39 40.2	+1.3	31.5	41 22.1	+2.7	32.4
66	34 26.7	-3.3	28.0	36 12.4	-2.2	28.6	37 57.3	-0.9	29.4	39 41.5	+0.4	30.2	41 24.8	+1.7	31.1
67	34 23.4	-4.1	26.8	36 10.2	-2.9	27.4	37 56.4	-1.7	28.1	39 41.9	-0.5	28.9	41 26.5	+0.9	29.7
68	34 19.3	-4.8	25.6	36 07.3	-3.7	26.2	37 54.7	-2.5	26.8	39 41.4	-1.3	27.6	41 27.4	-0.1	28.4
69	34 14.5	-5.4	24.3	36 03.6	-4.4	24.9	37 52.2	-3.4	25.6	39 40.1	-2.2	26.3	41 27.3	-1.0	27.0
70	34 09.1	-6.2	23.1	35 59.2	-5.2	23.7	37 48.8	-4.2	24.3	39 37.9	-3.1	25.0	41 26.3	-1.9	25.7
71	34 02.9	-6.9	21.9	35 54.0	-6.0	22.5	37 44.6	-4.9	23.1	39 34.8	-3.9	23.7	41 24.4	-2.8	24.4
72	33 56.0	-7.6	20.7	35 48.0	-6.7	21.2	37 39.7	-5.8	21.8	39 30.9	-4.8	22.4	41 21.6	-3.8	23.1
73	33 48.4	-8.3	19.6	35 41.3	-7.4	20.0	37 33.9	-6.6	20.5	39 26.1	-5.7	21.1	41 17.8	-4.7	21.7
74	33 40.1	-8.9	18.4	35 33.9	-8.2	18.8	37 27.3	-7.3	19.3	39 20.4	-6.5	19.8	41 13.1	-5.6	20.4
75	33 31.2	-9.6	17.2	35 25.7	-8.9	17.6	37 20.0	-8.2	18.0	39 13.9	-7.3	18.5	41 07.5	-6.5	19.1
76	33 21.6	-10.3	16.0	35 16.8	-9.6	16.4	37 11.8	-8.9	16.8	39 06.6	-8.2	17.2	41 01.0	-7.4	17.8
77	33 11.3	-11.0	14.8	35 07.2	-10.4	15.2	37 02.9	-9.7	15.5	38 58.4	-9.0	16.0	40 53.6	-8.3	16.4
78	33 00.3	-11.6	13.6	34 56.8	-11.0	14.0	36 53.2	-10.4	14.3	38 49.4	-9.8	14.7	40 45.3	-9.1	15.1
79	32 48.7	-12.3	12.5	34 45.8	-11.8	12.8	36 42.8	-11.3	13.1	38 39.6	-10.7	13.4	40 36.2	-10.1	13.8
80	32 36.4	-12.9	11.3	34 34.0	-12.4	11.6	36 31.5	-11.9	11.9	38 28.9	-11.4	12.2	40 26.1	-10.9	12.5
81	32 23.5	-13.5	10.1	34 21.6	-13.1	10.4	36 19.6	-12.7	10.6	38 17.5	-12.3	10.9	40 15.2	-11.7	11.2
82	32 10.0	-14.2	9.0	34 08.5	-13.8	9.2	36 06.9	-13.4	9.4	38 05.2	-13.0	9.7	40 03.5	-12.6	10.0
83	31 55.8	-14.8	7.8	33 54.7	-14.5	8.0	35 53.5	-14.2	8.2	37 52.2	-13.8	8.4	39 50.9	-13.5	8.7
84	31 41.0	-15.3	6.7	33 40.2	-15.1	6.9	35 39.3	-14.8	7.0	37 38.4	-14.6	7.2	39 37.4	-14.2	7.4
85	31 25.7	-16.0	5.6	33 25.1	-15.8	5.7	35 24.5	-15.6	5.8	37 23.8	-15.3	6.0	39 23.2	-15.1	6.2
86	31 09.7	-16.6	4.4	33 09.3	-16.4	4.5	35 08.9	-16.2	4.7	37 08.5	-16.0	4.8	39 08.1	-15.9	4.9
87	30 53.1	-17.1	3.3	32 52.9	-17.0	3.4	34 52.7	-16.9	3.5	36 52.5	-16.8	3.6	38 52.2	-16.6	3.7
88	30 36.0	-17.7	2.2	32 35.9	-17.7	2.3	34 35.8	-17.6	2.3	36 35.7	-17.5	2.4	38 35.6	-17.4	2.4
89	30 18.3	-18.3	1.1	32 18.2	-18.2	1.1	34 18.2	-18.2	1.2	36 18.2	-18.2	1.2	38 18.2	-18.2	1.2
90	30 00.0	-18.8	0.0	32 00.0	-18.8	0.0	34 00.0	-18.9	0.0	36 00.0	-18.9	0.0	38 00.0	-18.9	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 72°, 288°

Hc			Hc			Hc			Hc			Hc			Dec.					
°	'	"	°	'	"	°	'	"	°	'	"	°	'	"						
1	02.7	+34.0	55.5	2	10.7	+35.4	55.5	3	18.6	+36.8	55.6	4	26.3	+38.1	55.7	5	33.8	+39.5	55.8	30
1	36.7	+34.0	54.6	2	46.1	+35.4	54.7	3	55.4	+36.7	54.8	5	04.4	+38.1	54.9	6	13.3	+39.3	55.1	31
2	10.7	+34.0	53.8	3	21.5	+35.3	53.9	4	32.1	+36.7	54.0	5	42.5	+38.0	54.2	6	52.6	+39.4	54.3	32
2	44.7	+33.9	53.0	3	56.8	+35.3	53.1	5	08.8	+36.6	53.2	6	20.5	+38.0	53.4	7	32.0	+39.2	53.6	33
3	18.6	+33.9	52.2	4	32.1	+35.2	52.3	5	45.4	+36.6	52.4	6	58.5	+37.8	52.6	8	11.2	+39.1	52.8	34
3	52.5	+33.8	51.3	5	07.3	+35.2	51.5	6	22.0	+36.5	51.6	7	36.3	+37.8	51.8	8	50.3	+39.1	52.0	35
4	26.3	+33.8	50.5	5	42.5	+35.1	50.6	6	58.5	+36.4	50.8	8	14.1	+37.7	51.0	9	29.4	+38.9	51.3	36
5	00.1	+33.7	49.7	6	17.6	+35.0	49.8	7	34.9	+36.3	50.0	8	51.8	+37.6	50.2	10	08.3	+38.9	50.5	37
5	33.8	+33.6	48.9	6	52.6	+35.0	49.0	8	11.2	+36.2	49.2	9	29.4	+37.5	49.5	10	47.2	+38.7	49.7	38
6	07.4	+33.6	48.0	7	27.6	+34.8	48.2	8	47.4	+36.1	48.4	10	06.9	+37.4	48.7	11	25.9	+38.6	48.9	39
6	41.0	+33.5	47.2	8	02.4	+34.8	47.4	9	23.5	+36.0	47.6	10	44.3	+37.2	47.9	12	04.5	+38.5	48.2	40
7	14.5	+33.4	46.3	8	37.2	+34.6	46.5	9	59.5	+35.9	46.8	11	21.5	+37.1	47.1	12	43.0	+38.3	47.4	41
7	47.9	+33.3	45.5	9	11.8	+34.6	45.7	10	35.4	+35.8	46.0	11	58.6	+37.0	46.3	13	21.3	+38.2	46.6	42
8	21.2	+33.2	44.7	9	46.4	+34.4	44.9	11	11.2	+35.6	45.2	12	35.6	+36.8	45.5	13	59.5	+38.1	45.8	43
8	54.4	+33.1	43.8	10	20.8	+34.3	44.1	11	46.8	+35.5	44.3	13	12.4	+36.7	44.6	14	37.6	+37.8	45.0	44
9	27.5	+32.9	43.0	10	55.1	+34.1	43.2	12	22.3	+35.4	43.5	13	49.1	+36.5	43.8	15	15.4	+37.7	44.2	45
10	00.4	+32.8	42.1	11	29.2	+34.0	42.4	12	57.7	+35.1	42.7	14	25.6	+36.4	43.0	15	53.1	+37.5	43.4	46
10	33.2	+32.7	41.3	12	03.2	+33.9	41.5	13	32.8	+35.1	41.8	15	02.0	+36.2	42.2	16	30.6	+37.4	42.6	47
11	05.9	+32.6	40.4	12	37.1	+33.7	40.7	14	07.9	+34.8	41.0	15	38.2	+36.0	41.4	17	08.0	+37.1	41.8	48
11	38.5	+32.4	39.6	13	10.8	+33.5	39.9	14	42.7	+34.7	40.2	16	14.2	+35.7	40.5	17	45.1	+36.9	40.9	49
12	10.9	+32.2	38.7	13	44.3	+33.4	39.0	15	17.4	+34.4	39.3	16	49.9	+35.6	39.7	18	22.0	+36.7	40.1	50
12	43.1	+32.1	37.8	14	17.7	+33.1	38.1	15	51.8	+34.3	38.5	17	25.5	+35.4	38.9	18	58.7	+36.5	39.3	51
13	15.2	+31.8	37.0	14	50.8	+33.0	37.3	16	26.1	+34.1	37.6	18	00.9	+35.1	38.0	19	35.2	+36.2	38.4	52
13	47.0	+31.7	36.1	15	23.8	+32.8	36.4	17	00.2	+33.8	36.8	18	36.0	+35.0	37.2	20	11.4	+36.0	37.6	53
14	18.7	+31.5	35.2	15	56.6	+32.5	35.5	17	34.0	+33.6	35.9	19	11.0	+34.6	36.3	20	47.4	+35.8	36.7	54
14	50.2	+31.4	34.4	16	29.1	+32.4	34.7	18	07.6	+33.4	35.0	19	45.6	+34.5	35.4	21	23.2	+35.4	35.9	55
15	21.6	+31.0	33.5	17	01.5	+32.1	33.8	18	41.0	+33.1	34.2	20	20.1	+34.1	34.6	21	58.6	+35.2	35.0	56
15	52.6	+30.9	32.6	17	33.6	+31.9	32.9	19	14.1	+32.9	33.3	20	54.2	+33.9	33.7	22	33.8	+34.9	34.1	57
16	23.5	+30.7	31.7	18	05.5	+31.6	32.0	19	47.0	+32.6	32.4	21	28.1	+33.6	32.8	23	08.7	+34.7	33.2	58
16	54.2	+30.4	30.8	18	37.1	+31.4	31.1	20	19.6	+32.4	31.5	22	01.7	+33.3	31.9	23	43.4	+34.3	32.3	59
17	24.6	+30.2	29.9	19	08.5	+31.1	30.2	20	52.0	+32.0	30.6	22	35.0	+33.1	31.0	24	17.7	+33.9	31.4	60
17	54.8	+29.9	29.0	19	39.6	+30.8	29.3	21	24.0	+31.8	29.7	23	08.1	+32.7	30.1	24	51.6	+33.7	30.5	61
18	24.7	+29.6	28.1	20	10.4	+30.5	28.4	21	55.8	+31.4	28.8	23	40.8	+32.3	29.2	25	25.3	+33.3	29.6	62
18	54.3	+29.4	27.2	20	40.9	+30.3	27.5	22	27.2	+31.2	27.9	24	13.1	+32.1	28.3	25	58.6	+33.0	28.7	63
19	23.7	+29.1	26.2	21	11.2	+30.0	26.6	22	58.4	+30.8	26.9	24	45.2	+31.7	27.3	26	31.6	+32.6	27.8	64
19	52.8	+28.8	25.3	21	41.2	+29.6	25.6	23	29.2	+30.5	26.0	25	16.9	+31.3	26.4	27	04.2	+32.2	26.8	65
20	21.6	+28.5	24.4	22	10.8	+29.3	24.7	23	59.7	+30.1	25.1	25	48.2	+31.0	25.4	27	36.4	+31.8	25.9	66
20	50.1	+28.2	23.4	22	40.1	+29.0	23.7	24	29.8	+29.8	24.1	26	19.2	+30.6	24.5	28	08.2	+31.4	24.9	67
21	18.3	+27.9	22.5	23	09.1	+28.6	22.8	24	59.6	+29.4	23.1	26	49.8	+30.1	23.5	28	39.6	+31.0	24.0	68
21	46.2	+27.6	21.5	23	37.7	+28.3	21.8	25	29.0	+29.0	22.2	27	19.9	+29.8	22.6	29	10.6	+30.6	23.0	69
22	13.8	+27.2	20.6	24	06.0	+27.9	20.9	25	58.0	+28.6	21.2	27	49.7	+29.4	21.6	29	41.2	+30.1	22.0	70
22	41.0	+26.8	19.6	24	33.9	+27.6	19.9	26	26.6	+28.3	20.2	28	19.1	+28.9	20.6	30	11.3	+29.7	21.0	71
23	07.8	+26.5	18.6	25	01.5	+27.1	18.9	26	54.9	+27.8	19.2	28	48.0	+28.5	19.6	30	41.0	+29.1	20.0	72
23	34.3	+26.2	17.7	25	28.6	+26.8	17.9	27	22.7	+27.4	18.2	29	16.5	+28.1	18.6	31	10.1	+28.7	19.0	73
24	00.5	+25.7	16.7	25	55.4	+26.3	16.9	27	50.1	+26.9	17.2	29	44.6	+27.5	17.6	31	38.8	+28.3	17.9	74
24	26.2	+25.4	15.7	26	21.7	+25.9	15.9	28	17.0	+26.5	16.2	30	12.1	+27.1	16.5	32	07.1	+27.6	16.9	75
24	51.6	+25.0	14.7	26	47.6	+25.5	14.9	28	43.5	+26.0	15.2	30	39.2	+26.6	15.5	32	34.7	+27.2	15.8	76
25	16.6	+24.5	13.7	27	13.1	+25.1	13.9	29	09.5	+25.6	14.2	31	05.8	+26.1	14.5	33	01.9	+26.6	14.8	77
25	41.1	+24.2	12.7	27	38.2	+24.6	12.9	29	35.1	+25.0	13.1	31	31.9	+25.5	13.4	33	28.5	+26.1	13.7	78
26	05.3	+23.7	11.7	28	02.8	+24.1	11.9	30	00.1	+24.6	12.1	31	57.4	+25.0	12.4	33	54.6	+25.5	12.6	79
26	29.0	+23.2	10.6	28	26.9	+23.6	10.8	30	24.7	+24.1	11.0	32	22.4	+24.5	11.3	34	20.1	+24.9	11.5	80
26	52.2	+22.9	9.6	28	50.5	+23.2	9.8	30	48.8	+23.5	10.0	32	46.9	+23.9	10.2	34	45.0	+24.3	10.4	81
27	15.1	+22.3	8.6	29	13.7	+22.7	8.7	31	12.3	+23.0	8.9	33	10.8	+23.3	9.1	35	09.3	+23.6	9.3	82
27	37.4	+21.9	7.5	29	36.4	+22.1	7.7	31	35.3	+22.4	7.8	33	34.1	+22.8	8.0	35	32.9	+23.1	8.2	83
27	59.3	+21.4	6.5	29	58.5	+21.6	6.6	31	57.7	+21.9	6.7	33	56.9	+22.1	6.9	35	56.0	+22.4	7.1	84
28	20.7	+20.9	5.4	30	20.1	+21.1	5.5	32	19.6	+21.3	5.6	34	19.0	+21.5	5.8	36	18.4	+21.7	5.9	85
28	41.6	+20.4	4.3	30	41.2	+20.6	4.4	32	40.9	+20.7	4.5	34	40.5	+20.8	4.6	36	40.1	+21.0	4.7	86
29	02.0	+19.8	3.3	31	01.8	+19.9	3.3	33	01.6	+20.1	3.4	35	01.3	+20.3	3.5	37	01.1	+20.4	3.6	87
29	21.8	+19.4	2.2	31	21.7	+19.5	2.2	33	21.7	+19.4	2.3	35	21.6	+19.5	2.3	37	21.5	+19.6	2.4	88
29	41.2	+18.8	1.1	31	41.2	+18.8	1.1	33	41.1	+18.9	1.1	35	41.1	+18.9	1.2	37	41.1	+18.9	1.2	89
30	00.0	+18.3	0.0	32	00.0	+18.2	0.0	34	00.0	+18.2	0.0	36	00.0	+18.2	0.0	38	00.0	+18.2	0.0	90
30°			32°			34°			36°			38°								

LATITUDE SAME NAME

L.H.A. 108°, 252°

72°, 288° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	31 45.8	+30.6	75.6	32 14.3	+32.7	76.8	32 40.4	+34.7	78.1	33 03.8	+36.7	79.4	33 24.7	+38.6	80.6
31	32 16.4	+30.2	74.6	32 47.0	+32.3	75.9	33 15.1	+34.3	77.1	33 40.5	+36.3	78.4	34 03.3	+38.2	79.7
32	32 46.6	+29.7	73.6	33 19.3	+31.7	74.8	33 49.4	+33.8	76.1	34 16.8	+35.8	77.4	34 41.5	+37.8	78.8
33	33 16.3	+29.2	72.6	33 51.0	+31.3	73.8	34 23.2	+33.3	75.1	34 52.6	+35.3	76.5	35 19.3	+37.3	77.8
34	33 45.5	+28.6	71.5	34 22.3	+30.7	72.8	34 56.5	+32.8	74.1	35 27.9	+34.9	75.5	35 56.6	+36.8	76.9
35	34 14.1	+28.1	70.4	34 53.0	+30.2	71.8	35 29.3	+32.2	73.1	36 02.8	+34.3	74.5	36 33.4	+36.4	75.9
36	34 42.2	+27.5	69.4	35 23.2	+29.6	70.7	36 01.5	+31.8	72.1	36 37.1	+33.8	73.5	37 09.8	+35.9	74.9
37	35 09.7	+27.0	68.3	35 52.8	+29.1	69.6	36 33.3	+31.1	71.0	37 10.9	+33.3	72.4	37 45.7	+35.3	73.9
38	35 36.7	+26.3	67.2	36 21.9	+28.4	68.5	37 04.4	+30.6	69.9	37 44.2	+32.7	71.4	38 21.0	+34.8	72.9
39	36 03.0	+25.7	66.1	36 50.3	+27.9	67.4	37 35.0	+30.0	68.9	38 16.9	+32.1	70.3	38 55.8	+34.2	71.8
40	36 28.7	+25.0	65.0	37 18.2	+27.2	66.3	38 05.0	+29.3	67.8	38 49.0	+31.5	69.2	39 30.0	+33.6	70.8
41	36 53.7	+24.5	63.8	37 45.4	+26.5	65.2	38 34.3	+28.7	66.6	39 20.5	+30.8	68.1	40 03.6	+33.1	69.7
42	37 18.2	+23.7	62.7	38 11.9	+25.9	64.1	39 03.0	+28.1	65.5	39 51.3	+30.3	67.0	40 36.7	+32.4	68.6
43	37 41.9	+23.1	61.5	38 37.8	+25.2	62.9	39 31.1	+27.4	64.4	40 21.6	+29.5	65.9	41 09.1	+31.7	67.5
44	38 05.0	+22.3	60.4	39 03.0	+24.6	61.8	39 58.5	+26.7	63.2	40 51.1	+28.9	64.8	41 40.8	+31.1	66.3
45	38 27.3	+21.7	59.2	39 27.6	+23.7	60.6	40 25.2	+25.9	62.0	41 20.0	+28.2	63.6	42 11.9	+30.3	65.2
46	38 49.0	+20.9	58.0	39 51.3	+23.1	59.4	40 51.1	+25.3	60.9	41 48.2	+27.4	62.4	42 42.2	+29.7	64.0
47	39 09.9	+20.1	56.8	40 14.4	+22.3	58.2	41 16.4	+24.4	59.7	42 15.6	+26.6	61.2	43 11.9	+28.9	62.8
48	39 30.0	+19.4	55.6	40 36.7	+21.5	57.0	41 40.8	+23.7	58.4	42 42.2	+25.9	60.0	43 40.8	+28.1	61.6
49	39 49.4	+18.6	54.3	40 58.2	+20.7	55.7	42 04.5	+22.9	57.2	43 08.1	+25.1	58.8	44 08.9	+27.3	60.4
50	40 08.0	+17.8	53.1	41 18.9	+19.9	54.5	42 27.4	+22.0	56.0	43 33.2	+24.2	57.5	44 36.2	+26.5	59.2
51	40 25.8	+16.9	51.8	41 38.8	+19.0	53.2	42 49.4	+21.2	54.7	43 57.4	+23.4	56.2	45 02.7	+25.6	57.9
52	40 42.7	+16.2	50.6	41 57.8	+18.3	51.9	43 10.6	+20.4	53.4	44 20.8	+22.6	55.0	45 28.3	+24.8	56.6
53	40 58.9	+15.3	49.3	42 16.1	+17.3	50.7	43 31.0	+19.4	52.1	44 43.4	+21.6	53.7	45 53.1	+23.8	55.3
54	41 14.2	+14.4	48.0	42 33.4	+16.5	49.4	43 50.4	+18.6	50.8	45 05.0	+20.7	52.3	46 16.9	+23.0	54.0
55	41 28.6	+13.6	46.7	42 49.9	+15.5	48.1	44 09.0	+17.6	49.5	45 25.7	+19.8	51.0	46 39.9	+22.0	52.6
56	41 42.2	+12.6	45.4	43 05.4	+14.7	46.7	44 26.6	+16.7	48.2	45 45.5	+18.8	49.7	47 01.9	+20.9	51.3
57	41 54.8	+11.8	44.1	43 20.1	+13.7	45.4	44 43.3	+15.7	46.8	46 04.3	+17.8	48.3	47 22.8	+20.0	49.9
58	42 06.6	+10.9	42.8	43 33.8	+12.7	44.1	44 59.0	+14.7	45.4	46 22.1	+16.8	46.9	47 42.8	+19.0	48.5
59	42 17.5	+9.9	41.5	43 46.5	+11.8	42.7	45 13.7	+13.8	44.1	46 38.9	+15.8	45.5	48 01.8	+17.9	47.1
60	42 27.4	+9.0	40.1	43 58.3	+10.8	41.4	45 27.5	+12.7	42.7	46 54.7	+14.7	44.1	48 19.7	+16.8	45.7
61	42 36.4	+8.0	38.8	44 09.1	+9.9	40.0	45 40.2	+11.7	41.3	47 09.4	+13.7	42.7	48 36.5	+15.8	44.2
62	42 44.4	+7.1	37.4	44 19.0	+8.8	38.6	45 51.9	+10.7	39.9	47 23.1	+12.6	41.3	48 52.3	+14.6	42.8
63	42 51.5	+6.2	36.1	44 27.8	+7.8	37.2	46 02.6	+9.6	38.5	47 35.7	+11.5	39.8	49 06.9	+13.4	41.3
64	42 57.7	+5.2	34.7	44 35.6	+6.9	35.8	46 12.2	+8.5	37.0	47 47.2	+10.3	38.4	49 20.3	+12.3	39.8
65	43 02.9	+4.2	33.4	44 42.5	+5.8	34.4	46 20.7	+7.5	35.6	47 57.5	+9.3	36.9	49 32.6	+11.2	38.3
66	43 07.1	+3.2	32.0	44 48.3	+4.7	33.0	46 28.2	+6.4	34.2	48 06.8	+8.1	35.4	49 43.8	+9.9	36.8
67	43 10.3	+2.2	30.6	44 53.0	+3.7	31.6	46 34.6	+5.3	32.7	48 14.9	+6.9	33.9	49 53.7	+8.7	35.2
68	43 12.5	+1.3	29.3	44 56.7	+2.7	30.2	46 39.9	+4.1	31.3	48 21.8	+5.8	32.4	50 02.4	+7.5	33.7
69	43 13.8	+0.3	27.9	44 59.4	+1.6	28.8	46 44.0	+3.1	29.8	48 27.6	+4.6	30.9	50 09.9	+6.2	32.1
70	43 14.1	-0.7	26.5	45 01.0	+0.6	27.4	46 47.1	+2.0	28.4	48 32.2	+3.4	29.4	50 16.1	+5.0	30.6
71	43 13.4	-1.7	25.1	45 01.6	-0.4	26.0	46 49.1	+0.8	26.9	48 35.6	+2.2	27.9	50 21.1	+3.7	29.0
72	43 11.7	-2.7	23.8	45 01.2	-1.6	24.6	46 49.9	-0.3	25.4	48 37.8	+1.1	26.4	50 24.8	+2.5	27.5
73	43 09.0	-3.6	22.4	44 59.6	-2.5	23.2	46 49.6	-1.3	24.0	48 38.9	-0.1	24.9	50 27.3	+1.2	25.9
74	43 05.4	-4.7	21.0	44 57.1	-3.6	21.7	46 48.3	-2.5	22.5	48 38.8	-1.4	23.4	50 28.5	0.0	24.3
75	43 00.7	-5.6	19.7	44 53.5	-4.6	20.3	46 45.8	-3.7	21.1	48 37.4	-2.5	21.9	50 28.5	-1.4	22.8
76	42 55.1	-6.5	18.3	44 48.9	-5.7	18.9	46 42.1	-4.7	19.6	48 34.9	-3.7	20.4	50 27.1	-2.6	21.2
77	42 48.6	-7.5	17.0	44 43.2	-6.7	17.5	46 37.4	-5.8	18.2	48 31.2	-4.9	18.8	50 24.5	-3.8	19.6
78	42 41.1	-8.5	15.6	44 36.5	-7.7	16.1	46 31.6	-6.9	16.7	48 26.3	-6.0	17.3	50 20.7	-5.1	18.1
79	42 32.6	-9.4	14.3	44 28.8	-8.7	14.7	46 24.7	-8.0	15.3	48 20.3	-7.2	15.8	50 15.6	-6.4	16.5
80	42 23.2	-10.3	12.9	44 20.1	-9.8	13.3	46 16.7	-9.1	13.8	48 13.1	-8.4	14.4	50 09.2	-7.6	14.9
81	42 12.9	-11.3	11.6	44 10.3	-10.7	12.0	46 07.6	-10.1	12.4	48 04.7	-9.5	12.9	50 01.6	-8.8	13.4
82	42 01.6	-12.2	10.3	43 59.6	-11.7	10.6	45 57.5	-11.2	11.0	47 55.2	-10.6	11.4	49 52.8	-10.1	11.9
83	41 49.4	-13.0	8.9	43 47.9	-12.6	9.2	45 46.3	-12.2	9.6	47 44.6	-11.7	9.9	49 42.7	-11.2	10.3
84	41 36.4	-14.0	7.6	43 35.3	-13.6	7.9	45 34.1	-13.2	8.2	47 32.9	-12.9	8.5	49 31.5	-12.4	8.8
85	41 22.4	-14.8	6.3	43 21.7	-14.5	6.5	45 20.9	-14.3	6.8	47 20.0	-13.9	7.0	49 19.1	-13.6	7.3
86	41 07.6	-15.6	5.1	43 07.2	-15.5	5.2	45 06.6	-15.2	5.4	47 06.1	-15.0	5.6	49 05.5	-14.7	5.8
87	40 52.0	-16.5	3.8	42 51.7	-16.3	3.9	44 51.4	-16.2	4.0	46 51.1	-16.0	4.2	48 50.8	-15.9	4.3
88	40 35.5	-17.4	2.5	42 35.4	-17.3	2.6	44 35.2	-17.1	2.7	46 35.1	-17.1	2.8	48 34.9	-16.9	2.9
89	40 18.1	-18.1	1.2	42 18.1	-18.1	1.3	44 18.1	-18.1	1.3	46 18.0	-18.0	1.4	48 18.0	-18.0	1.4
90	40 00.0	-18.9	0.0	42 00.0	-19.0	0.0	44 00.0	-19.0	0.0	46 00.0	-19.0	0.0	48 00.0	-19.1	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 72°, 288°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
6	41.0	+40.8	56.0	7	47.9	+42.0	56.2	8	54.4	+43.2	56.5	10	00.4	+44.5	56.8	30
7	21.8	+40.6	55.3	8	29.9	+41.9	55.5	9	37.6	+43.2	55.8	10	44.9	+44.3	56.1	31
8	02.4	+40.6	54.5	9	11.8	+41.9	54.8	10	20.8	+43.1	55.1	11	29.2	+44.3	55.4	32
8	43.0	+40.5	53.8	9	53.7	+41.7	54.1	11	03.9	+42.9	54.4	12	13.5	+44.2	54.7	33
9	23.5	+40.4	53.1	10	35.4	+41.7	53.3	11	46.8	+42.9	53.7	12	57.7	+44.0	54.0	34
10	03.9	+40.4	52.3	11	17.1	+41.5	52.6	12	29.7	+42.7	52.9	13	41.7	+43.9	53.3	35
10	44.3	+40.1	51.5	11	58.6	+41.4	51.9	13	12.4	+42.7	52.2	14	25.6	+43.9	52.6	36
11	24.4	+40.1	50.8	12	40.0	+41.3	51.1	13	55.1	+42.5	51.5	15	09.5	+43.6	51.9	37
12	04.5	+40.0	50.0	13	21.3	+41.2	50.4	14	37.6	+42.3	50.8	15	53.1	+43.6	51.2	38
12	44.5	+39.8	49.3	14	02.5	+41.0	49.6	15	19.9	+42.2	50.0	16	36.7	+43.3	50.5	39
13	24.3	+39.7	48.5	14	43.5	+40.9	48.9	16	02.1	+42.1	49.3	17	20.0	+43.3	49.8	40
14	04.0	+39.5	47.7	15	24.4	+40.7	48.1	16	44.2	+41.9	48.5	18	03.3	+43.0	49.0	41
14	43.5	+39.4	47.0	16	05.1	+40.6	47.4	17	26.1	+41.7	47.8	18	46.3	+42.9	48.3	42
15	22.9	+39.2	46.2	16	45.7	+40.4	46.6	18	07.8	+41.6	47.0	19	29.2	+42.7	47.5	43
16	02.1	+39.1	45.4	17	26.1	+40.2	45.8	18	49.4	+41.4	46.3	20	11.9	+42.6	46.8	44
16	41.2	+38.8	44.6	18	06.3	+40.0	45.0	19	30.8	+41.1	45.5	20	54.5	+42.3	46.0	45
17	20.0	+38.7	43.8	18	46.3	+39.9	44.2	20	11.9	+41.0	44.7	21	36.8	+42.1	45.3	46
17	58.7	+38.5	43.0	19	26.2	+39.6	43.5	20	52.9	+40.8	44.0	22	18.9	+41.9	44.5	47
18	37.2	+38.3	42.2	20	05.8	+39.4	42.7	21	33.7	+40.5	43.2	23	00.8	+41.6	43.7	48
19	15.5	+38.0	41.4	20	45.2	+39.1	41.9	22	14.2	+40.3	42.4	23	42.4	+41.4	43.0	49
19	53.5	+37.8	40.6	21	24.3	+39.0	41.0	22	54.5	+40.0	41.6	24	23.8	+41.2	42.2	50
20	31.3	+37.6	39.7	22	03.3	+38.7	40.2	23	34.5	+39.8	40.8	25	05.0	+40.9	41.4	51
21	08.9	+37.3	38.9	22	42.0	+38.4	39.4	24	14.3	+39.6	40.0	25	45.9	+40.7	40.6	52
21	46.2	+37.1	38.0	23	20.4	+38.2	38.6	24	53.9	+39.2	39.1	26	26.6	+40.3	39.7	53
22	23.3	+36.8	37.2	23	58.6	+37.9	37.7	25	33.1	+39.0	38.3	27	06.9	+40.1	38.9	54
23	00.1	+36.6	36.3	24	36.5	+37.6	36.9	26	12.1	+38.7	37.4	27	47.0	+39.9	38.1	55
23	36.7	+36.2	35.5	25	14.1	+37.2	36.0	26	50.8	+38.3	36.6	28	26.7	+39.5	37.2	56
24	12.9	+35.9	34.6	25	51.3	+37.0	35.1	27	29.1	+38.1	35.7	29	06.2	+39.1	36.4	57
24	48.8	+35.7	33.7	26	28.3	+36.7	34.3	28	07.2	+37.7	34.9	29	45.3	+38.7	35.5	58
25	24.5	+35.3	32.8	27	05.0	+36.3	33.4	28	44.9	+37.3	34.0	30	24.0	+38.4	34.6	59
25	59.8	+34.9	31.9	27	41.3	+36.0	32.5	29	22.2	+37.0	33.1	31	02.4	+38.0	33.7	60
26	34.7	+34.7	31.0	28	17.3	+35.6	31.6	29	59.2	+36.6	32.2	31	40.4	+37.6	32.8	61
27	09.4	+34.2	30.1	28	52.9	+35.2	30.7	30	35.8	+36.2	31.2	32	18.0	+37.3	31.9	62
27	43.6	+33.9	29.2	29	28.1	+34.8	29.7	31	12.0	+35.8	30.3	32	55.3	+36.8	31.0	63
28	17.5	+33.5	28.3	30	02.9	+34.5	28.8	31	47.8	+35.4	29.4	33	32.1	+36.3	30.0	64
28	51.0	+33.1	27.3	30	37.4	+34.0	27.8	32	23.2	+35.0	28.4	34	08.4	+35.9	29.1	65
29	24.1	+32.7	26.4	31	11.4	+33.6	26.9	32	58.2	+34.5	27.5	34	44.3	+35.5	28.1	66
29	56.8	+32.3	25.4	31	45.0	+33.1	25.9	33	32.7	+34.0	26.5	35	19.8	+34.9	27.1	67
30	29.1	+31.8	24.4	32	18.1	+32.7	24.9	34	06.7	+33.5	25.5	35	54.7	+34.5	26.1	68
31	00.9	+31.4	23.4	32	50.8	+32.2	23.9	34	40.2	+33.1	24.5	36	29.2	+33.9	25.1	69
31	32.3	+30.9	22.4	33	23.0	+31.7	22.9	35	13.3	+32.5	23.5	37	03.1	+33.4	24.1	70
32	03.2	+30.4	21.4	33	54.7	+31.2	21.9	35	45.8	+32.0	22.4	37	36.5	+32.8	23.0	71
32	33.6	+29.9	20.4	34	25.9	+30.6	20.9	36	17.8	+31.4	21.4	38	09.3	+32.3	21.9	72
33	03.5	+29.4	19.4	34	56.5	+30.2	19.8	36	49.2	+30.9	20.3	38	41.6	+31.6	20.9	73
33	32.9	+28.9	18.3	35	26.7	+29.5	18.8	37	20.1	+30.3	19.3	39	13.2	+31.0	19.8	74
34	01.8	+28.3	17.3	35	56.2	+29.0	17.7	37	50.4	+29.7	18.2	39	44.2	+30.4	18.7	75
34	30.1	+27.7	16.2	36	25.2	+28.4	16.6	38	20.1	+29.0	17.1	40	14.6	+29.7	17.5	76
34	57.8	+27.2	15.1	36	53.6	+27.7	15.5	38	49.1	+28.4	15.9	40	44.3	+29.1	16.4	77
35	25.0	+26.6	14.0	37	21.3	+27.2	14.4	39	17.5	+27.7	14.8	41	13.4	+28.3	15.2	78
35	51.6	+26.0	12.9	37	48.5	+26.5	13.3	39	45.2	+27.0	13.7	41	41.7	+27.6	14.1	79
36	17.6	+25.3	11.8	38	15.0	+25.8	12.1	40	12.2	+26.3	12.5	42	09.3	+26.8	12.9	80
36	42.9	+24.7	10.7	38	40.8	+25.1	11.0	40	38.5	+25.6	11.3	42	36.1	+26.1	11.7	81
37	07.6	+24.1	9.6	39	05.9	+24.4	9.8	41	04.1	+24.8	10.1	43	02.2	+25.3	10.4	82
37	31.7	+23.3	8.4	39	30.3	+23.7	8.6	41	28.9	+24.1	8.9	43	27.5	+24.4	9.2	83
37	55.0	+22.7	7.2	39	54.0	+23.0	7.4	41	53.0	+23.3	7.7	43	51.9	+23.6	7.9	84
38	17.7	+21.9	6.1	40	17.0	+22.2	6.2	42	16.3	+22.4	6.4	44	15.5	+22.7	6.6	85
38	39.6	+21.3	4.9	40	39.2	+21.4	5.0	42	38.7	+21.6	5.2	44	38.2	+21.9	5.3	86
39	00.9	+20.4	3.7	41	00.6	+20.6	3.8	43	00.3	+20.8	3.9	45	00.1	+20.9	4.0	87
39	21.3	+19.8	2.5	41	21.2	+19.8	2.5	43	21.1	+19.9	2.6	45	21.0	+20.0	2.7	88
39	41.1	+18.9	1.2	41	41.0	+19.0	1.3	43	41.0	+19.0	1.3	45	41.0	+19.0	1.4	89
40	00.0	+18.1	0.0	42	00.0	+18.1	0.0	44	00.0	+18.1	0.0	46	00.0	+18.0	0.0	90
40°			42°			44°			46°			48°				

LATITUDE SAME NAME

L.H.A. 108°, 252°

72°, 288° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	33 42.8	+40.5	82.0	33 58.2	+42.3	83.3	34 10.9	+44.0	84.6	34 20.7	+45.7	86.0	34 27.6	+47.4	87.4
31	34 23.3	+40.1	81.1	34 40.5	+42.0	82.4	34 54.9	+43.7	83.8	35 06.4	+45.5	85.2	35 15.0	+47.1	86.6
32	35 03.4	+39.7	80.2	35 22.5	+41.6	81.6	35 38.6	+43.4	83.0	35 51.9	+45.1	84.4	36 02.1	+46.7	85.8
33	35 43.1	+39.3	79.2	36 04.1	+41.1	80.7	36 22.0	+43.0	82.1	36 37.0	+44.7	83.6	36 48.8	+46.5	85.1
34	36 22.4	+38.8	78.3	36 45.2	+40.8	79.8	37 05.0	+42.6	81.2	37 21.7	+44.4	82.7	37 35.3	+46.1	84.3
35	37 01.2	+38.4	77.4	37 26.0	+40.3	78.8	37 47.6	+42.2	80.4	38 06.1	+44.1	81.9	38 21.4	+45.8	83.5
36	37 39.6	+37.8	76.4	38 06.3	+39.8	77.9	38 29.8	+41.8	79.5	38 50.2	+43.6	81.0	39 07.2	+45.4	82.6
37	38 17.4	+37.4	75.4	38 46.1	+39.4	77.0	39 11.6	+41.3	78.5	39 33.8	+43.2	80.1	39 52.6	+45.1	81.8
38	38 54.8	+36.9	74.4	39 25.5	+38.9	76.0	39 52.9	+40.9	77.6	40 17.0	+42.8	79.2	40 37.7	+44.7	80.9
39	39 31.7	+36.3	73.4	40 04.4	+38.3	75.0	40 33.8	+40.4	76.6	40 59.8	+42.4	78.3	41 22.4	+44.2	80.0
40	40 08.0	+35.7	72.3	40 42.7	+37.9	74.0	41 14.2	+39.9	75.7	41 42.2	+41.8	77.4	42 06.6	+43.8	79.1
41	40 43.7	+35.2	71.3	41 20.6	+37.2	72.9	41 54.1	+39.3	74.7	42 24.0	+41.4	76.4	42 50.4	+43.4	78.2
42	41 18.9	+34.5	70.2	41 57.8	+36.7	71.9	42 33.4	+38.8	73.6	43 05.4	+40.9	75.4	43 33.8	+42.8	77.3
43	41 53.4	+34.0	69.1	42 34.5	+36.1	70.8	43 12.2	+38.2	72.6	43 46.3	+40.3	74.4	44 16.6	+42.4	76.3
44	42 27.4	+33.2	68.0	43 10.6	+35.5	69.7	43 50.4	+37.6	71.5	44 26.6	+39.7	73.4	44 59.0	+41.8	75.3
45	43 00.6	+32.6	66.9	43 46.1	+34.7	68.6	44 28.0	+37.0	70.4	45 06.3	+39.2	72.3	45 40.8	+41.3	74.3
46	43 33.2	+31.9	65.7	44 20.8	+34.1	67.5	45 05.0	+36.3	69.3	45 45.5	+38.5	71.2	46 22.1	+40.7	73.2
47	44 05.1	+31.1	64.6	44 54.9	+33.4	66.3	45 41.3	+35.6	68.2	46 24.0	+37.9	70.1	47 02.8	+40.0	72.2
48	44 36.2	+30.4	63.4	45 28.3	+32.7	65.2	46 16.9	+35.0	67.0	47 01.9	+37.1	69.0	47 42.8	+39.5	71.1
49	45 06.6	+29.5	62.1	46 01.0	+31.8	64.0	46 51.9	+34.1	65.9	47 39.0	+36.5	67.9	48 22.3	+38.7	69.9
50	45 36.1	+28.8	60.9	46 32.8	+31.1	62.7	47 26.0	+33.4	64.7	48 15.5	+35.7	66.7	49 01.0	+38.0	68.8
51	46 04.9	+27.9	59.6	47 03.9	+30.2	61.5	47 59.4	+32.6	63.4	48 51.2	+34.9	65.5	49 39.0	+37.3	67.6
52	46 32.8	+27.1	58.4	47 34.1	+29.4	60.2	48 32.0	+31.7	62.2	49 26.1	+34.2	64.2	50 16.3	+36.5	66.4
53	46 59.9	+26.1	57.1	48 03.5	+28.5	58.9	49 03.7	+30.9	60.9	50 00.3	+33.2	62.9	50 52.8	+35.7	65.1
54	47 26.0	+25.2	55.7	48 32.0	+27.5	57.6	49 34.6	+29.9	59.6	50 33.5	+32.4	61.6	51 28.5	+34.8	63.8
55	47 51.2	+24.3	54.4	48 59.5	+26.6	56.2	50 04.5	+29.0	58.2	51 05.9	+31.4	60.3	52 03.3	+33.9	62.5
56	48 15.5	+23.3	53.0	49 26.1	+25.6	54.9	50 33.5	+28.0	56.8	51 37.3	+30.5	58.9	52 37.2	+33.0	61.2
57	48 38.8	+22.2	51.6	49 51.7	+24.6	53.5	51 01.5	+27.0	55.4	52 07.8	+29.4	57.5	53 10.2	+32.0	59.8
58	49 01.0	+21.2	50.2	50 16.3	+23.5	52.0	51 28.5	+25.9	54.0	52 37.2	+28.4	56.1	53 42.2	+30.9	58.4
59	49 22.2	+20.1	48.8	50 39.8	+22.5	50.6	51 54.4	+24.9	52.6	53 05.6	+27.4	54.7	54 13.1	+29.9	56.9
60	49 42.3	+19.0	47.3	51 02.3	+21.3	49.1	52 19.3	+23.7	51.1	53 33.0	+26.1	53.2	54 43.0	+28.8	55.4
61	50 01.3	+17.9	45.9	51 23.6	+20.1	47.6	52 43.0	+22.5	49.6	53 59.1	+25.0	51.6	55 11.8	+27.5	53.9
62	50 19.2	+16.8	44.4	51 43.7	+19.0	46.1	53 05.5	+21.3	48.0	54 24.1	+23.8	50.1	55 39.3	+26.4	52.3
63	50 36.0	+15.5	42.9	52 02.7	+17.8	44.6	53 26.8	+20.1	46.5	54 47.9	+22.5	48.5	56 05.7	+25.0	50.7
64	50 51.5	+14.4	41.3	52 20.5	+16.5	43.0	53 46.9	+18.7	44.9	55 10.4	+21.2	46.9	56 30.7	+23.8	49.1
65	51 05.9	+13.1	39.8	52 37.0	+15.2	41.5	54 05.6	+17.5	43.3	55 31.6	+19.9	45.2	56 54.5	+22.4	47.4
66	51 19.0	+11.8	38.2	52 52.2	+13.9	39.9	54 23.1	+16.1	41.6	55 51.5	+18.4	43.6	57 16.9	+21.0	45.7
67	51 30.8	+10.6	36.7	53 06.1	+12.6	38.2	54 39.2	+14.8	40.0	56 09.9	+17.1	41.9	57 37.9	+19.5	44.0
68	51 41.4	+9.3	35.1	53 18.7	+11.3	36.6	54 54.0	+13.3	38.3	56 27.0	+15.6	40.1	57 57.4	+17.9	42.2
69	51 50.7	+8.0	33.5	53 30.0	+9.8	35.0	55 07.3	+11.9	36.6	56 42.6	+14.1	38.4	58 15.3	+16.5	40.4
70	51 58.7	+6.7	31.9	53 39.8	+8.5	33.3	55 19.2	+10.5	34.9	56 56.7	+12.5	36.6	58 31.8	+14.8	38.5
71	52 05.4	+5.4	30.3	53 48.3	+7.1	31.6	55 29.7	+9.0	33.1	57 09.2	+11.0	34.8	58 46.6	+13.2	36.7
72	52 10.8	+4.0	28.6	53 55.4	+5.7	29.9	55 38.7	+7.4	31.4	57 20.2	+9.4	33.0	58 59.8	+11.6	34.8
73	52 14.8	+2.6	27.0	54 01.1	+4.2	28.2	55 46.1	+6.0	29.6	57 29.6	+7.8	31.2	59 11.4	+9.8	32.9
74	52 17.4	+1.3	25.4	54 05.3	+2.8	26.5	55 52.1	+4.4	27.9	57 37.4	+6.2	29.3	59 21.2	+8.2	30.9
75	52 18.7	0.0	23.7	54 08.1	+1.3	24.8	55 56.5	+2.8	26.1	57 43.6	+4.5	27.5	59 29.4	+6.3	29.0
76	52 18.7	-1.4	22.1	54 09.4	-0.1	23.1	55 59.3	+1.3	24.3	57 48.1	+2.9	25.6	59 35.7	+4.6	27.0
77	52 17.3	-2.8	20.5	54 09.3	-1.5	21.4	56 00.6	-0.2	22.5	57 51.0	+1.2	23.7	59 40.3	+2.8	25.1
78	52 14.5	-4.1	18.8	54 07.8	-3.0	19.7	56 00.4	-1.8	20.7	57 52.2	-0.4	21.8	59 43.1	+1.1	23.1
79	52 10.4	-5.4	17.2	54 04.8	-4.5	18.0	55 58.6	-3.3	18.9	57 51.8	-2.1	19.9	59 44.2	-0.8	21.1
80	52 05.0	-6.8	15.6	54 00.3	-5.8	16.3	55 55.3	-4.9	17.1	57 49.7	-3.8	18.1	59 43.4	-2.6	19.1
81	51 58.2	-8.1	14.0	53 54.5	-7.3	14.6	55 50.4	-6.4	15.4	57 45.9	-5.5	16.2	59 40.8	-4.3	17.1
82	51 50.1	-9.4	12.4	53 47.2	-8.7	12.9	55 44.0	-7.9	13.6	57 40.4	-7.0	14.3	59 36.5	-6.1	15.2
83	51 40.7	-10.7	10.8	53 38.5	-10.1	11.3	55 36.1	-9.5	11.8	57 33.4	-8.7	12.5	59 30.4	-7.9	13.2
84	51 30.0	-11.9	9.2	53 28.4	-11.4	9.6	55 26.6	-10.9	10.1	57 24.7	-10.3	10.6	59 22.5	-9.6	11.3
85	51 18.1	-13.2	7.6	53 17.0	-12.8	8.0	55 15.7	-12.3	8.4	57 14.4	-11.9	8.8	59 12.9	-11.3	9.3
86	51 04.9	-14.5	6.1	53 04.2	-14.2	6.3	55 03.4	-13.8	6.7	57 02.5	-13.4	7.0	59 01.6	-13.0	7.4
87	50 50.4	-15.6	4.5	52 50.0	-15.4	4.7	54 49.6	-15.2	5.0	56 49.1	-14.9	5.2	58 48.6	-14.6	5.5
88	50 34.8	-16.8	3.0	52 34.6	-16.7	3.1	54 34.4	-16.5	3.3	56 34.2	-16.4	3.5	58 34.0	-16.2	3.6
89	50 18.0	-18.0	1.5	52 17.9	-17.9	1.6	54 17.9	-17.9	1.6	56 17.8	-17.8	1.7	58 17.8	-17.8	1.8
90	50 00.0	-19.1	0.0	52 00.0	-19.1	0.0	54 00.0	-19.2	0.0	56 00.0	-19.2	0.0	58 00.0	-19.3	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 72°, 288°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
12	10.9	+46.7	57.4	13	15.2	+47.8	57.8	14	18.7	+49.0	58.2	15	21.6	+50.0	58.7	30
12	57.6	+46.7	56.8	14	03.0	+47.8	57.2	15	07.7	+48.9	57.6	16	11.6	+49.9	58.1	31
13	44.3	+46.6	56.1	14	50.8	+47.7	56.6	15	56.6	+48.7	57.0	17	01.5	+49.8	57.5	32
14	30.9	+46.5	55.5	15	38.5	+47.6	55.9	16	45.3	+48.7	56.4	17	51.3	+49.7	56.9	33
15	17.4	+46.3	54.8	16	26.1	+47.5	55.3	17	34.0	+48.5	55.8	18	41.0	+49.6	56.3	34
16	03.7	+46.2	54.2	17	13.6	+47.3	54.7	18	22.5	+48.5	55.2	19	30.6	+49.5	55.7	35
16	49.9	+46.1	53.5	18	00.9	+47.2	54.0	19	11.0	+48.3	54.6	20	20.1	+49.3	55.1	36
17	36.0	+46.0	52.8	18	48.1	+47.1	53.4	19	59.3	+48.1	53.9	21	09.4	+49.2	54.5	37
18	22.0	+45.8	52.2	19	35.2	+46.9	52.7	20	47.4	+48.0	53.3	21	58.6	+49.1	53.9	38
19	07.8	+45.7	51.5	20	22.1	+46.8	52.0	21	35.4	+47.9	52.6	22	47.7	+49.0	53.3	39
19	53.5	+45.5	50.8	21	08.9	+46.6	51.4	22	23.3	+47.7	52.0	23	36.7	+48.7	52.7	40
20	39.0	+45.3	50.1	21	55.5	+46.5	50.7	23	11.0	+47.6	51.3	24	25.4	+48.7	52.0	41
21	24.3	+45.2	49.4	22	42.0	+46.2	50.0	23	58.6	+47.3	50.7	25	14.1	+48.4	51.4	42
22	09.5	+45.0	48.7	23	28.2	+46.1	49.3	24	45.9	+47.2	50.0	26	02.5	+48.3	50.7	43
22	54.5	+44.8	48.0	24	14.3	+45.9	48.6	25	33.1	+47.0	49.3	26	50.8	+48.0	50.1	44
23	39.3	+44.5	47.2	25	00.2	+45.7	47.9	26	20.1	+46.8	48.6	27	38.8	+47.9	49.4	45
24	23.8	+44.4	46.5	25	45.9	+45.5	47.2	27	06.9	+46.6	47.9	28	26.7	+47.7	48.7	46
25	08.2	+44.2	45.8	26	31.4	+45.3	46.5	27	53.5	+46.4	47.2	29	14.4	+47.5	48.0	47
25	52.4	+43.9	45.0	27	16.7	+45.0	45.7	28	39.9	+46.1	46.5	30	01.9	+47.2	47.3	48
26	36.3	+43.6	44.3	28	01.7	+44.8	45.0	29	26.0	+45.9	45.8	30	49.1	+47.0	46.6	49
27	19.9	+43.4	43.5	28	46.5	+44.5	44.2	30	11.9	+45.6	45.0	31	36.1	+46.7	45.9	50
28	03.3	+43.2	42.7	29	31.0	+44.2	43.5	30	57.5	+45.4	44.3	32	22.8	+46.5	45.1	51
28	46.5	+42.8	41.9	30	15.2	+44.0	42.7	31	42.9	+45.1	43.5	33	09.3	+46.2	44.4	52
29	29.3	+42.6	41.1	30	59.2	+43.7	41.9	32	28.0	+44.7	42.7	33	55.5	+45.9	43.6	53
30	11.9	+42.2	40.3	31	42.9	+43.3	41.1	33	12.7	+44.5	41.9	34	41.4	+45.6	42.8	54
30	54.1	+42.0	39.5	32	26.2	+43.1	40.3	33	57.2	+44.2	41.1	35	27.0	+45.3	42.0	55
31	36.1	+41.6	38.6	33	09.3	+42.7	39.4	34	41.4	+43.8	40.3	36	12.3	+44.9	41.2	56
32	17.7	+41.3	37.8	33	52.0	+42.4	38.6	35	25.2	+43.5	39.5	36	57.2	+44.7	40.4	57
32	59.0	+40.9	36.9	34	34.4	+42.0	37.7	36	08.7	+43.1	38.6	37	41.9	+44.2	39.6	58
33	39.9	+40.5	36.1	35	16.4	+41.6	36.9	36	51.8	+42.8	37.8	38	26.1	+43.9	38.7	59
34	20.4	+40.1	35.2	35	58.0	+41.2	36.0	37	34.6	+42.3	36.9	39	10.0	+43.4	37.8	60
35	00.5	+39.7	34.3	36	39.2	+40.8	35.1	38	16.9	+41.9	36.0	39	53.4	+43.0	36.9	61
35	40.2	+39.3	33.3	37	20.0	+40.4	34.2	38	58.8	+41.5	35.1	40	36.4	+42.6	36.0	62
36	19.5	+38.9	32.4	38	00.4	+39.9	33.2	39	40.3	+41.0	34.1	41	19.0	+42.2	35.1	63
36	58.4	+38.4	31.5	38	40.3	+39.5	32.3	40	21.3	+40.5	33.2	42	01.2	+41.6	34.1	64
37	36.8	+37.9	30.5	39	19.8	+38.9	31.3	41	01.8	+40.0	32.2	42	42.8	+41.2	33.2	65
38	14.7	+37.4	29.5	39	58.7	+38.5	30.3	41	41.8	+39.6	31.2	43	24.0	+40.6	32.2	66
38	52.1	+36.9	28.5	40	37.2	+37.9	29.3	42	21.4	+38.9	30.2	44	04.6	+40.0	31.1	67
39	29.0	+36.4	27.5	41	15.1	+37.3	28.3	43	00.3	+38.4	29.2	44	44.6	+39.5	30.1	68
40	05.4	+35.7	26.5	41	52.4	+36.8	27.2	43	38.7	+37.8	28.1	45	24.1	+38.9	29.0	69
40	41.1	+35.2	25.4	42	29.2	+36.2	26.2	44	16.5	+37.2	27.0	46	03.0	+38.2	27.9	70
41	16.3	+34.6	24.3	43	05.4	+35.5	25.1	44	53.7	+36.5	25.9	46	41.2	+37.6	26.8	71
41	50.9	+34.0	23.2	43	40.9	+34.9	24.0	45	30.2	+35.9	24.8	47	18.8	+36.8	25.7	72
42	24.9	+33.3	22.1	44	15.8	+34.2	22.8	46	06.1	+35.1	23.6	47	55.6	+36.1	24.5	73
42	58.2	+32.6	21.0	44	50.0	+33.5	21.7	46	41.2	+34.4	22.5	48	31.7	+35.4	23.3	74
43	30.8	+32.0	19.8	45	23.5	+32.7	20.5	47	15.6	+33.6	21.3	49	07.1	+34.6	22.1	75
44	02.8	+31.1	18.7	45	56.2	+32.0	19.3	47	49.2	+32.9	20.0	49	41.7	+33.7	20.8	76
44	33.9	+30.5	17.5	46	28.2	+31.2	18.1	48	22.1	+32.0	18.8	50	15.4	+32.9	19.5	77
45	04.4	+29.6	16.3	46	59.4	+30.4	16.9	48	54.1	+31.1	17.5	50	48.3	+31.9	18.2	78
45	34.0	+28.8	15.0	47	29.8	+29.5	15.6	49	25.2	+30.2	16.2	51	20.2	+31.0	16.9	79
46	02.8	+28.0	13.8	47	59.3	+28.6	14.3	49	55.4	+29.3	14.9	51	51.2	+30.0	15.5	80
46	30.8	+27.1	12.5	48	27.9	+27.7	13.0	50	24.7	+28.3	13.5	52	21.2	+29.0	14.1	81
46	57.9	+26.3	11.2	48	55.6	+26.7	11.6	50	53.0	+27.3	12.1	52	50.2	+27.9	12.7	82
47	24.2	+25.2	9.9	49	22.3	+25.8	10.3	51	20.3	+26.3	10.7	53	18.1	+26.8	11.2	83
47	49.4	+24.4	8.5	49	48.1	+24.7	8.9	51	46.6	+25.1	9.2	53	44.9	+25.7	9.7	84
48	13.8	+23.3	7.1	50	12.8	+23.7	7.4	52	11.7	+24.1	7.8	54	10.6	+24.4	8.1	85
48	37.1	+22.3	5.8	50	36.5	+22.6	6.0	52	35.8	+22.9	6.3	54	35.0	+23.2	6.6	86
48	59.4	+21.3	4.4	50	59.1	+21.4	4.5	52	58.7	+21.7	4.7	54	58.2	+22.0	5.0	87
49	20.7	+20.2	2.9	51	20.5	+20.4	3.0	53	20.4	+20.4	3.2	55	20.2	+20.6	3.3	88
49	40.9	+19.1	1.5	51	40.9	+19.1	1.5	53	40.8	+19.2	1.6	55	40.8	+19.2	1.7	89
50	00.0	+18.0	0.0	52	00.0	+17.9	0.0	54	00.0	+17.9	0.0	56	00.0	+17.8	0.0	90
50°			52°			54°			56°			58°				

LATITUDE SAME NAME

L.H.A. 108°, 252°

74°, 286° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	27 10.6	+20.9	69.4	27 51.9	+23.0	70.3	28 31.3	+25.0	71.3	29 08.7	+27.0	72.4	29 43.9	+29.1	73.5
31	27 31.5	+20.4	68.3	28 14.9	+22.5	69.3	28 56.3	+24.6	70.3	29 35.7	+26.6	71.4	30 13.0	+28.6	72.5
32	27 51.9	+20.0	67.2	28 37.4	+22.0	68.2	29 20.9	+24.1	69.3	30 02.3	+26.2	70.3	30 41.6	+28.2	71.4
33	28 11.9	+19.4	66.2	28 59.4	+21.5	67.2	29 45.0	+23.5	68.2	30 28.5	+25.6	69.3	31 09.8	+27.6	70.4
34	28 31.3	+19.0	65.1	29 20.9	+21.0	66.1	30 08.5	+23.1	67.2	30 54.1	+25.1	68.2	31 37.4	+27.2	69.4
35	28 50.3	+18.4	64.0	29 41.9	+20.4	65.0	30 31.6	+22.5	66.1	31 19.2	+24.5	67.2	32 04.6	+26.6	68.3
36	29 08.7	+17.8	62.9	30 02.3	+20.0	63.9	30 54.1	+21.9	65.0	31 43.7	+24.1	66.1	32 31.2	+26.1	67.3
37	29 26.5	+17.4	61.8	30 22.3	+19.3	62.8	31 16.0	+21.4	63.9	32 07.8	+23.4	65.0	32 57.3	+25.5	66.2
38	29 43.9	+16.8	60.7	30 41.6	+18.8	61.8	31 37.4	+20.9	62.8	32 31.2	+22.9	63.9	33 22.8	+25.0	65.1
39	30 00.7	+16.2	59.6	31 00.4	+18.3	60.6	31 58.3	+20.3	61.7	32 54.1	+22.3	62.8	33 47.8	+24.4	64.0
40	30 16.9	+15.7	58.5	31 18.7	+17.7	59.5	32 18.6	+19.7	60.6	33 16.4	+21.8	61.7	34 12.2	+23.8	62.9
41	30 32.6	+15.1	57.4	31 36.4	+17.0	58.4	32 38.3	+19.0	59.5	33 38.2	+21.1	60.6	34 36.0	+23.1	61.8
42	30 47.7	+14.5	56.3	31 53.4	+16.5	57.3	32 57.3	+18.5	58.4	33 59.3	+20.5	59.5	34 59.1	+22.6	60.7
43	31 02.2	+13.9	55.1	32 09.9	+15.9	56.1	33 15.8	+17.9	57.2	34 19.8	+19.9	58.4	35 21.7	+21.9	59.5
44	31 16.1	+13.3	54.0	32 25.8	+15.2	55.0	33 33.7	+17.2	56.1	34 39.7	+19.2	57.2	35 43.6	+21.2	58.4
45	31 29.4	+12.7	52.9	32 41.0	+14.6	53.9	33 50.9	+16.6	54.9	34 58.9	+18.5	56.1	36 04.8	+20.6	57.2
46	31 42.1	+12.1	51.7	32 55.6	+14.0	52.7	34 07.5	+15.9	53.8	35 17.4	+17.9	54.9	36 25.4	+19.9	56.1
47	31 54.2	+11.4	50.6	33 09.6	+13.3	51.5	34 23.4	+15.2	52.6	35 35.3	+17.2	53.7	36 45.3	+19.2	54.9
48	32 05.6	+10.8	49.4	33 22.9	+12.7	50.4	34 38.6	+14.6	51.4	35 52.5	+16.5	52.5	37 04.5	+18.5	53.7
49	32 16.4	+10.2	48.2	33 35.6	+12.0	49.2	34 53.2	+13.8	50.2	36 09.0	+15.8	51.4	37 23.0	+17.8	52.5
50	32 26.6	+9.5	47.1	33 47.6	+11.3	48.0	35 07.0	+13.2	49.1	36 24.8	+15.1	50.2	37 40.8	+17.0	51.3
51	32 36.1	+8.9	45.9	33 58.9	+10.7	46.8	35 20.2	+12.5	47.9	36 39.9	+14.3	49.0	37 57.8	+16.2	50.1
52	32 45.0	+8.2	44.7	34 09.6	+9.9	45.7	35 32.7	+11.7	46.7	36 54.2	+13.6	47.7	38 14.0	+15.5	48.9
53	32 53.2	+7.5	43.5	34 19.5	+9.3	44.5	35 44.4	+11.0	45.5	37 07.8	+12.9	46.5	38 29.5	+14.7	47.7
54	33 00.7	+6.9	42.4	34 28.8	+8.5	43.3	35 55.4	+10.3	44.2	37 20.7	+12.0	45.3	38 44.2	+14.0	46.4
55	33 07.6	+6.2	41.2	34 37.3	+7.9	42.1	36 05.7	+9.6	43.0	37 32.7	+11.3	44.1	38 58.2	+13.1	45.2
56	33 13.8	+5.5	40.0	34 45.2	+7.1	40.9	36 15.3	+8.8	41.8	37 44.0	+10.5	42.8	39 11.3	+12.3	43.9
57	33 19.3	+4.9	38.8	34 52.3	+6.4	39.7	36 24.1	+8.0	40.6	37 54.5	+9.8	41.6	39 23.6	+11.5	42.6
58	33 24.2	+4.1	37.6	34 58.7	+5.7	38.4	36 32.1	+7.3	39.3	38 04.3	+8.9	40.3	39 35.1	+10.6	41.4
59	33 28.3	+3.5	36.4	35 04.4	+4.9	37.2	36 39.4	+6.5	38.1	38 13.2	+8.1	39.1	39 45.7	+9.8	40.1
60	33 31.8	+2.7	35.2	35 09.3	+4.3	36.0	36 45.9	+5.7	36.9	38 21.3	+7.3	37.8	39 55.5	+8.9	38.8
61	33 34.5	+2.1	34.0	35 13.6	+3.4	34.8	36 51.6	+5.0	35.6	38 28.6	+6.5	36.5	40 04.4	+8.1	37.5
62	33 36.6	+1.4	32.8	35 17.0	+2.8	33.6	36 56.6	+4.1	34.4	38 35.1	+5.6	35.3	40 12.5	+7.2	36.2
63	33 38.0	+0.7	31.6	35 19.8	+2.0	32.3	37 00.7	+3.4	33.1	38 40.7	+4.9	34.0	40 19.7	+6.3	34.9
64	33 38.7	0.0	30.4	35 21.8	+1.3	31.1	37 04.1	+2.6	31.9	38 45.6	+4.0	32.7	40 26.0	+5.5	33.6
65	33 38.7	-0.7	29.2	35 23.1	+0.5	29.9	37 06.7	+1.8	30.6	38 49.6	+3.1	31.4	40 31.5	+4.5	32.3
66	33 38.0	-1.5	28.0	35 23.6	-0.2	28.7	37 08.5	+1.0	29.4	38 52.7	+2.3	30.1	40 36.0	+3.7	31.0
67	33 36.5	-2.1	26.8	35 23.4	-1.0	27.4	37 09.5	+0.2	28.1	38 55.0	+1.5	28.9	40 39.7	+2.8	29.7
68	33 34.4	-2.8	25.6	35 22.4	-1.7	26.2	37 09.7	-0.5	26.9	38 56.5	+0.6	27.6	40 42.5	+1.8	28.4
69	33 31.6	-3.4	24.4	35 20.7	-2.5	25.0	37 09.2	-1.4	25.6	38 57.1	-0.3	26.3	40 44.3	+1.0	27.0
70	33 28.2	-4.2	23.2	35 18.2	-3.2	23.8	37 07.8	-2.2	24.4	38 56.8	-1.0	25.0	40 45.3	0.0	25.7
71	33 24.0	-4.9	22.0	35 15.0	-3.9	22.5	37 05.6	-2.9	23.1	38 55.8	-2.0	23.7	40 45.3	-0.8	24.4
72	33 19.1	-5.5	20.8	35 11.1	-4.7	21.3	37 02.7	-3.8	21.8	38 53.8	-2.7	22.4	40 44.5	-1.7	23.1
73	33 13.6	-6.3	19.6	35 06.4	-5.4	20.1	36 58.9	-4.5	20.6	38 51.1	-3.6	21.2	40 42.8	-2.7	21.8
74	33 07.3	-6.9	18.4	35 01.0	-6.1	18.9	36 54.4	-5.3	19.4	38 47.5	-4.5	19.9	40 40.1	-3.5	20.4
75	33 00.4	-7.5	17.3	34 54.9	-6.8	17.7	36 49.1	-6.1	18.1	38 43.0	-5.3	18.6	40 36.6	-4.5	19.1
76	32 52.9	-8.3	16.1	34 48.1	-7.6	16.5	36 43.0	-6.8	16.9	38 37.7	-6.1	17.3	40 32.1	-5.3	17.8
77	32 44.6	-8.9	14.9	34 40.5	-8.3	15.2	36 36.2	-7.6	15.6	38 31.6	-6.9	16.0	40 26.8	-6.2	16.5
78	32 35.7	-9.5	13.7	34 32.2	-9.0	14.0	36 28.6	-8.4	14.4	38 24.7	-7.8	14.8	40 20.6	-7.1	15.2
79	32 26.2	-10.2	12.6	34 23.2	-9.6	12.8	36 20.2	-9.2	13.2	38 16.9	-8.5	13.5	40 13.5	-7.9	13.9
80	32 16.0	-10.9	11.4	34 13.6	-10.4	11.6	36 11.0	-9.9	11.9	38 08.4	-9.4	12.3	40 05.6	-8.9	12.6
81	32 05.1	-11.4	10.2	34 03.2	-11.1	10.5	36 01.1	-10.6	10.7	37 59.0	-10.2	11.0	39 56.7	-9.6	11.3
82	31 53.7	-12.1	9.1	33 52.1	-11.7	9.3	35 50.5	-11.3	9.5	37 48.8	-10.9	9.7	39 47.1	-10.6	10.0
83	31 41.6	-12.8	7.9	33 40.4	-12.4	8.1	35 39.2	-12.1	8.3	37 37.9	-11.7	8.5	39 36.5	-11.3	8.7
84	31 28.8	-13.3	6.8	33 28.0	-13.1	6.9	35 27.1	-12.8	7.1	37 26.2	-12.5	7.3	39 25.2	-12.2	7.5
85	31 15.5	-13.9	5.6	33 14.9	-13.7	5.7	35 14.3	-13.5	5.9	37 13.7	-13.3	6.0	39 13.0	-13.0	6.2
86	31 01.6	-14.5	4.5	33 01.2	-14.4	4.6	35 00.8	-14.2	4.7	37 00.4	-14.0	4.8	39 00.0	-13.8	4.9
87	30 47.1	-15.2	3.4	32 46.8	-14.9	3.4	34 46.6	-14.8	3.5	36 46.4	-14.7	3.6	38 46.2	-14.7	3.7
88	30 31.9	-15.6	2.2	32 31.9	-15.7	2.3	34 31.8	-15.6	2.3	36 31.7	-15.5	2.4	38 31.5	-15.3	2.5
89	30 16.3	-16.3	1.1	32 16.2	-16.2	1.1	34 16.2	-16.2	1.2	36 16.2	-16.2	1.2	38 16.2	-16.2	1.2
90	30 00.0	-16.8	0.0	32 00.0	-16.8	0.0	34 00.0	-16.9	0.0	36 00.0	-16.9	0.0	38 00.0	-16.9	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 74°, 286°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
2	28.8	+33.2	56.4	3	35.1	+34.6	56.5	4	41.2	+36.0	56.6	5	47.0	+37.4	56.8	30
3	02.0	+33.1	55.6	4	09.7	+34.5	55.7	5	17.2	+35.9	55.8	6	24.4	+37.3	56.0	31
3	35.1	+33.1	54.8	4	44.2	+34.5	54.9	5	53.1	+35.9	55.0	7	01.7	+37.3	55.2	32
4	08.2	+33.0	53.9	5	18.7	+34.4	54.1	6	29.0	+35.8	54.2	7	39.0	+37.1	54.4	33
4	41.2	+32.9	53.1	5	53.1	+34.4	53.2	7	04.8	+35.7	53.4	8	16.1	+37.1	53.6	34
5	14.1	+32.9	52.3	6	27.5	+34.2	52.4	7	40.5	+35.6	52.6	8	53.2	+36.9	52.8	35
5	47.0	+32.8	51.4	7	01.7	+34.2	51.6	8	16.1	+35.5	51.8	9	30.1	+36.9	52.0	36
6	19.8	+32.8	50.6	7	35.9	+34.1	50.8	8	51.6	+35.5	51.0	10	07.0	+36.7	51.2	37
6	52.6	+32.6	49.7	8	10.0	+34.0	49.9	9	27.1	+35.3	50.2	10	43.7	+36.6	50.4	38
7	25.2	+32.6	48.9	8	44.0	+33.8	49.1	10	02.4	+35.1	49.3	11	20.3	+36.5	49.6	39
7	57.8	+32.4	48.0	9	17.8	+33.8	48.3	10	37.5	+35.1	48.5	11	56.8	+36.3	48.8	40
8	30.2	+32.4	47.2	9	51.6	+33.6	47.4	11	12.6	+34.9	47.7	12	33.1	+36.2	48.0	41
9	02.6	+32.2	46.3	10	25.2	+33.5	46.6	11	47.5	+34.8	46.9	13	09.3	+36.0	47.2	42
9	34.8	+32.1	45.5	10	58.7	+33.4	45.7	12	22.3	+34.6	46.0	13	45.3	+35.9	46.4	43
10	06.9	+31.9	44.6	11	32.1	+33.2	44.9	12	56.9	+34.4	45.2	14	21.2	+35.7	45.5	44
10	38.8	+31.8	43.8	12	05.3	+33.1	44.0	13	31.3	+34.3	44.4	14	56.9	+35.5	44.7	45
11	10.6	+31.7	42.9	12	38.4	+32.9	43.2	14	05.6	+34.1	43.5	15	32.4	+35.3	43.9	46
11	42.3	+31.5	42.0	13	11.3	+32.7	42.3	14	39.7	+34.0	42.7	16	07.2	+35.1	43.0	47
12	13.8	+31.4	41.2	13	44.0	+32.5	41.5	15	13.7	+33.7	41.8	16	42.8	+35.0	42.2	48
12	45.2	+31.2	40.3	14	16.5	+32.4	40.6	15	47.4	+33.5	40.9	17	17.8	+34.7	41.3	49
13	16.4	+30.9	39.4	14	48.9	+32.1	39.7	16	20.9	+33.3	40.1	17	52.4	+34.4	40.5	50
13	47.3	+30.9	38.5	15	21.0	+32.0	38.9	16	54.2	+33.1	39.2	18	26.9	+34.3	39.6	51
14	18.2	+30.6	37.6	15	53.0	+31.7	38.0	17	27.3	+32.9	38.3	19	01.2	+34.0	38.8	52
14	48.8	+30.4	36.8	16	24.7	+31.5	37.1	18	00.2	+32.6	37.5	19	35.2	+33.7	37.9	53
15	19.2	+30.2	35.9	16	56.2	+31.3	36.2	18	32.8	+32.4	36.6	20	08.9	+33.5	37.0	54
15	49.4	+29.9	35.0	17	27.5	+31.0	35.3	19	05.2	+32.1	35.7	20	42.4	+32.2	36.1	55
16	19.3	+29.8	34.1	17	58.5	+30.8	34.4	19	37.3	+31.9	34.8	21	15.6	+32.9	35.2	56
16	49.1	+29.4	33.2	18	29.3	+30.5	33.5	20	09.2	+31.5	33.9	21	48.5	+32.6	34.3	57
17	18.5	+29.3	32.2	18	59.8	+30.3	32.6	20	40.7	+31.3	33.0	22	21.1	+32.4	33.4	58
17	47.8	+29.0	31.3	19	30.1	+30.0	31.7	21	12.0	+31.0	32.1	22	53.5	+32.0	32.5	59
18	16.8	+28.7	30.4	20	00.1	+29.7	30.8	21	43.0	+30.7	31.2	23	25.5	+31.6	31.6	60
18	45.5	+28.5	29.5	20	29.8	+29.4	29.8	22	13.7	+30.4	30.2	23	57.1	+31.4	30.7	61
19	14.0	+28.1	28.6	20	59.2	+29.1	28.9	22	44.1	+30.0	29.3	24	28.5	+31.0	29.7	62
19	42.1	+27.9	27.6	21	28.3	+28.8	28.0	23	14.1	+29.7	28.4	24	59.5	+30.6	28.8	63
20	10.0	+27.6	26.7	21	57.1	+28.4	27.0	23	43.8	+29.3	27.4	25	30.1	+30.3	27.8	64
20	37.6	+27.2	25.7	22	25.5	+28.1	26.1	24	13.1	+29.0	26.5	26	00.4	+29.9	26.9	65
21	04.8	+27.0	24.8	22	53.6	+27.8	25.1	24	42.1	+28.7	25.5	26	30.3	+29.5	25.9	66
21	31.8	+26.6	23.8	23	21.4	+27.4	24.1	25	10.8	+28.2	24.5	26	59.8	+29.0	24.9	67
21	58.4	+26.2	22.8	23	48.8	+27.1	23.2	25	39.0	+27.8	23.5	27	28.8	+28.7	23.9	68
22	24.6	+26.0	21.9	24	15.9	+26.7	22.2	26	06.8	+27.5	22.6	27	57.5	+28.2	23.0	69
22	50.6	+25.5	20.9	24	42.6	+26.2	21.2	26	34.3	+27.0	21.6	28	25.7	+27.8	22.0	70
23	16.1	+25.2	19.9	25	08.8	+25.9	20.2	27	01.3	+26.6	20.6	28	53.5	+27.4	20.9	71
23	41.3	+24.8	18.9	25	34.7	+25.5	19.2	27	27.9	+26.2	19.6	29	20.9	+26.8	19.9	72
24	06.1	+24.4	17.9	26	00.2	+25.0	18.2	27	54.1	+25.7	18.5	29	47.7	+26.4	18.9	73
24	30.5	+24.0	16.9	26	25.2	+24.7	17.2	28	19.8	+25.2	17.5	30	14.1	+25.9	17.9	74
24	54.5	+23.7	15.9	26	49.9	+24.2	16.2	28	45.0	+24.8	16.5	30	40.0	+25.4	16.8	75
25	18.2	+23.1	14.9	27	14.1	+23.7	15.2	29	09.8	+24.3	15.4	31	05.4	+24.8	15.8	76
25	41.3	+22.8	13.9	27	37.8	+23.2	14.1	29	34.1	+23.8	14.4	31	30.2	+24.4	14.7	77
26	04.1	+22.3	12.9	28	01.0	+22.8	13.1	29	57.9	+23.2	13.3	31	54.6	+23.7	13.6	78
26	26.4	+21.9	11.8	28	23.8	+22.3	12.0	30	21.1	+22.8	12.3	32	18.3	+23.3	12.5	79
26	48.3	+21.4	10.8	28	46.1	+21.8	11.0	30	43.9	+22.2	11.2	32	41.6	+22.6	11.4	80
27	09.7	+20.9	9.7	29	07.9	+21.3	9.9	31	06.1	+21.7	10.1	33	04.2	+22.1	10.3	81
27	30.6	+20.5	8.7	29	29.2	+20.8	8.8	31	27.8	+21.1	9.0	33	26.3	+21.4	9.2	82
27	51.1	+20.0	7.6	29	50.0	+20.3	7.8	31	48.9	+20.5	7.9	33	47.7	+20.9	8.1	83
28	11.1	+19.4	6.5	30	10.3	+19.7	6.7	32	09.4	+20.0	6.8	34	08.6	+20.2	7.0	84
28	30.5	+19.0	5.5	30	30.0	+19.1	5.6	32	29.4	+19.3	5.7	34	28.8	+19.6	5.8	85
28	49.5	+18.4	4.4	30	49.1	+18.6	4.5	32	48.7	+18.8	4.6	34	48.4	+18.9	4.7	86
29	07.9	+17.9	3.3	31	07.7	+18.0	3.4	33	07.5	+18.1	3.4	35	07.3	+18.2	3.5	87
29	25.8	+17.4	2.2	31	25.7	+17.5	2.3	33	25.6	+17.5	2.3	35	25.5	+17.6	2.4	88
29	43.2	+16.8	1.1	31	43.2	+16.8	1.1	33	43.1	+16.9	1.2	35	43.1	+16.9	1.2	89
30	00.0	+16.3	0.0	32	00.0	+16.2	0.0	34	00.0	+16.2	0.0	36	00.0	+16.2	0.0	90
	30°			32°				34°				36°			38°	

LATITUDE SAME NAME

L.H.A. 106°, 254°

74°, 286° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	30 16.9	+31.1	74.6	30 47.7	+33.1	75.7	31 16.1	+35.0	76.9	31 42.1	+37.0	78.1	32 05.6	+38.9	79.3
31	30 48.0	+30.7	73.6	31 20.8	+32.6	74.7	31 51.1	+34.7	75.9	32 19.1	+36.5	77.2	32 44.5	+38.4	78.4
32	31 18.7	+30.2	72.6	31 53.4	+32.2	73.8	32 25.8	+34.2	75.0	32 55.6	+36.2	76.2	33 22.9	+38.1	77.5
33	31 48.9	+29.7	71.6	32 25.6	+31.7	72.8	33 00.0	+33.7	74.0	33 31.8	+35.7	75.3	34 01.0	+37.6	76.6
34	32 18.6	+29.2	70.5	32 57.3	+31.3	71.8	33 33.7	+33.2	73.0	34 07.5	+35.2	74.3	34 38.6	+37.2	75.6
35	32 47.8	+28.6	69.5	33 28.6	+30.7	70.7	34 06.9	+32.8	72.0	34 42.7	+34.7	73.3	35 15.8	+36.7	74.7
36	33 16.4	+28.2	68.5	33 59.3	+30.2	69.7	34 39.7	+32.2	71.0	35 17.4	+34.3	72.3	35 52.5	+36.3	73.7
37	33 44.6	+27.6	67.4	34 29.5	+29.6	68.7	35 11.9	+31.7	70.0	35 51.7	+33.7	71.3	36 28.8	+35.7	72.7
38	34 12.2	+27.0	66.3	34 59.1	+29.1	67.6	35 43.6	+31.2	68.9	36 25.4	+33.2	70.3	37 04.5	+35.3	71.7
39	34 39.2	+26.5	65.2	35 28.2	+28.6	66.5	36 14.8	+30.6	67.9	36 58.6	+32.7	69.2	37 39.8	+34.7	70.7
40	35 05.7	+25.8	64.2	35 56.8	+27.9	65.4	36 45.4	+30.0	66.8	37 31.3	+32.1	68.2	38 14.5	+34.1	69.6
41	35 31.5	+25.3	63.0	36 24.7	+27.3	64.4	37 15.4	+29.4	65.7	38 03.4	+31.5	67.1	38 48.6	+33.6	68.6
42	35 56.8	+24.6	61.9	36 52.0	+26.7	63.2	37 44.8	+28.8	64.6	38 34.9	+30.9	66.0	39 22.2	+33.0	67.5
43	36 21.4	+24.0	60.8	37 18.7	+26.1	62.1	38 13.6	+28.1	63.5	39 05.8	+30.2	64.9	39 55.2	+32.3	66.4
44	36 45.4	+23.3	59.7	37 44.8	+25.4	61.0	38 41.7	+27.5	62.4	39 36.0	+29.6	63.8	40 27.5	+31.8	65.3
45	37 08.7	+22.6	58.5	38 10.2	+24.7	59.8	39 09.2	+26.8	61.2	40 05.6	+29.0	62.7	40 59.3	+31.0	64.2
46	37 31.3	+21.9	57.3	38 34.9	+24.0	58.7	39 36.0	+26.1	60.1	40 34.6	+28.2	61.5	41 30.3	+30.4	63.1
47	37 53.2	+21.3	56.2	38 58.9	+23.3	57.5	40 02.1	+25.4	58.9	41 02.8	+27.5	60.4	42 00.7	+29.7	61.9
48	38 14.5	+20.5	55.0	39 22.2	+22.6	56.3	40 27.5	+24.7	57.7	41 30.3	+26.8	59.2	42 30.4	+29.0	60.8
49	38 35.0	+19.7	53.8	39 44.8	+21.8	55.1	40 52.2	+23.9	56.5	41 57.1	+26.1	58.0	42 59.4	+28.1	59.6
50	38 54.7	+19.0	52.6	40 06.6	+21.0	53.9	41 16.1	+23.1	55.3	42 23.2	+25.2	56.8	43 27.5	+27.5	58.3
51	39 13.7	+18.3	51.3	40 27.6	+20.3	52.7	41 39.2	+22.4	54.1	42 48.4	+24.5	55.5	43 55.0	+26.6	57.1
52	39 32.0	+17.4	50.1	40 47.9	+19.4	51.4	42 01.6	+21.5	52.8	43 12.9	+23.6	54.3	44 21.6	+25.7	55.9
53	39 49.4	+16.7	48.9	41 07.3	+18.7	50.2	42 23.1	+20.7	51.6	43 36.5	+22.8	53.0	44 47.3	+25.0	54.6
54	40 06.1	+15.8	47.6	41 26.0	+17.7	48.9	42 43.8	+19.8	50.3	43 59.3	+21.9	51.7	45 12.3	+24.0	53.3
55	40 21.9	+15.0	46.4	41 43.7	+17.0	47.6	43 03.6	+18.9	49.0	44 21.2	+21.0	50.5	45 36.3	+23.2	52.0
56	40 36.9	+14.1	45.1	42 00.7	+16.0	46.3	43 22.5	+18.1	47.7	44 42.2	+20.1	49.1	45 59.5	+22.2	50.7
57	40 51.0	+13.3	43.8	42 16.7	+15.2	45.0	43 40.6	+17.1	46.4	45 02.3	+19.1	47.8	46 21.7	+21.2	49.3
58	41 04.3	+12.4	42.5	42 31.9	+14.3	43.7	43 57.7	+16.2	45.0	45 21.4	+18.2	46.5	46 42.9	+20.3	48.0
59	41 16.7	+11.6	41.2	42 46.2	+13.4	42.4	44 13.9	+15.2	43.7	45 39.6	+17.3	45.1	47 03.2	+19.3	46.6
60	41 28.3	+10.6	39.9	42 59.6	+12.4	41.1	44 29.1	+14.3	42.4	45 56.9	+16.2	43.7	47 22.5	+18.2	45.2
61	41 38.9	+9.8	38.6	43 12.0	+11.5	39.7	44 43.4	+13.3	41.0	46 13.1	+15.2	42.3	47 40.7	+17.3	43.8
62	41 48.7	+8.8	37.3	43 23.5	+10.5	38.4	44 56.7	+12.3	39.6	46 28.3	+14.2	40.9	47 58.0	+16.1	42.4
63	41 57.5	+7.9	35.9	43 34.0	+9.5	37.0	45 09.0	+11.3	38.2	46 42.5	+13.1	39.5	48 14.1	+15.0	40.9
64	42 05.4	+7.0	34.6	43 43.5	+8.6	35.7	45 20.3	+10.3	36.8	46 55.6	+12.0	38.1	48 29.1	+13.9	39.5
65	42 12.4	+6.0	33.3	43 52.1	+7.6	34.3	45 30.6	+9.2	35.4	47 07.6	+11.0	36.7	48 43.0	+12.8	38.0
66	42 18.4	+5.1	31.9	43 59.7	+6.6	32.9	45 39.8	+8.2	34.0	47 18.6	+9.8	35.2	48 55.8	+11.7	36.5
67	42 23.5	+4.1	30.6	44 06.3	+5.6	31.5	45 48.0	+7.1	32.6	47 28.4	+8.8	33.8	49 07.5	+10.4	35.0
68	42 27.6	+3.2	29.2	44 11.9	+4.6	30.2	45 55.1	+6.1	31.2	47 37.2	+7.6	32.3	49 17.9	+9.3	33.5
69	42 30.8	+2.2	27.9	44 16.5	+3.5	28.8	46 01.2	+4.9	29.7	47 44.8	+6.5	30.8	49 27.2	+8.1	32.0
70	42 33.0	+1.3	26.5	44 20.0	+2.6	27.4	46 06.1	+3.9	28.3	47 51.3	+5.3	29.3	49 35.3	+6.9	30.5
71	42 34.3	+0.3	25.1	44 22.6	+1.5	26.0	46 10.0	+2.8	26.9	47 56.6	+4.2	27.9	49 42.2	+5.6	28.9
72	42 34.6	-0.7	23.8	44 24.1	+0.5	24.6	46 12.8	+1.8	25.4	48 00.8	+3.0	26.4	49 47.8	+4.5	27.4
73	42 33.9	-1.6	22.4	44 24.6	-0.6	23.2	46 14.6	+0.6	24.0	48 03.8	+1.9	24.9	49 52.3	+3.2	25.9
74	42 32.3	-2.6	21.1	44 24.0	-1.5	21.8	46 15.2	-0.5	22.5	48 05.7	+0.7	23.4	49 55.5	+1.9	24.3
75	42 29.7	-3.5	19.7	44 22.5	-2.6	20.4	46 14.7	-1.6	21.1	48 06.4	-0.5	21.9	49 57.4	+0.7	22.7
76	42 26.2	-4.5	18.4	44 19.9	-3.6	19.0	46 13.1	-2.6	19.6	48 05.9	-1.6	20.4	49 58.1	-0.5	21.2
77	42 21.7	-5.4	17.0	44 16.3	-4.6	17.6	46 10.5	-3.7	18.2	48 04.3	-2.8	18.9	49 57.6	-1.8	19.6
78	42 16.3	-6.4	15.7	44 11.7	-5.7	16.2	46 06.8	-4.9	16.8	48 01.5	-4.0	17.4	49 55.8	-3.1	18.1
79	42 09.9	-7.3	14.3	44 06.0	-6.6	14.8	46 01.9	-5.9	15.3	47 57.5	-5.1	15.9	49 52.7	-4.2	16.5
80	42 02.6	-8.3	13.0	43 59.4	-7.6	13.4	45 56.0	-7.0	13.9	47 52.4	-6.3	14.4	49 48.5	-5.5	15.0
81	41 54.3	-9.1	11.7	43 51.8	-8.6	12.0	45 49.0	-8.0	12.5	47 46.1	-7.4	12.9	49 43.0	-6.8	13.4
82	41 45.2	-10.1	10.3	43 43.2	-9.6	10.7	45 41.0	-9.1	11.0	47 38.7	-8.5	11.5	49 36.2	-7.9	11.9
83	41 35.1	-11.0	9.0	43 33.6	-10.6	9.3	45 31.9	-10.1	9.6	47 30.2	-9.7	10.0	49 28.3	-9.1	10.4
84	41 24.1	-11.8	7.7	43 23.0	-11.5	7.9	45 21.8	-11.1	8.2	47 20.5	-10.7	8.5	49 19.2	-10.4	8.9
85	41 12.3	-12.8	6.4	43 11.5	-12.5	6.6	45 10.7	-12.2	6.8	47 09.8	-11.9	7.1	49 08.8	-11.5	7.4
86	40 59.5	-13.6	5.1	42 59.0	-13.4	5.3	44 58.5	-13.2	5.4	46 57.9	-12.9	5.6	48 57.3	-12.6	5.9
87	40 45.9	-14.5	3.8	42 45.6	-14.3	3.9	44 45.3	-14.1	4.1	46 45.0	-14.0	4.2	48 44.7	-13.8	4.4
88	40 31.4	-15.3	2.5	42 31.3	-15.2	2.6	44 31.2	-15.1	2.7	46 31.0	-15.0	2.8	48 30.9	-14.9	2.9
89	40 16.1	-16.1	1.3	42 16.1	-16.1	1.3	44 16.1	-16.1	1.3	46 16.0	-16.0	1.4	48 16.0	-16.0	1.4
90	40 00.0	-16.9	0.0	42 00.0	-17.0	0.0	44 00.0	-17.0	0.0	46 00.0	-17.0	0.0	48 00.0	-17.1	0.0
	40°			42°			44°			46°			48°		

LATITUDE CONTRARY NAME

L.H.A. 74°, 286°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
7	57.8	+40.1	57.2	9	02.6	+41.3	57.5	10	06.9	+42.6	57.7	11	10.6	+44.0	58.1	30
8	37.9	+39.9	56.4	9	43.9	+41.3	56.7	10	49.5	+42.6	57.0	11	54.6	+43.8	57.4	31
9	17.8	+39.9	55.7	10	25.2	+41.2	56.0	11	32.1	+42.4	56.3	12	38.4	+43.7	56.7	32
9	57.7	+39.8	54.9	11	06.4	+41.1	55.2	12	14.5	+42.4	55.6	13	22.1	+43.5	56.0	33
10	37.5	+39.7	54.2	11	47.5	+41.0	54.5	12	56.9	+42.2	54.9	14	05.6	+43.5	55.3	34
11	17.2	+39.6	53.4	12	28.5	+40.8	53.8	13	39.1	+42.1	54.1	14	49.1	+43.3	54.5	35
11	56.8	+39.4	52.6	13	09.3	+40.7	53.0	14	21.2	+42.0	53.4	15	32.4	+43.2	53.8	36
12	36.2	+39.3	51.9	13	50.0	+40.6	52.2	15	03.2	+41.8	52.7	16	15.6	+43.0	53.1	37
13	15.5	+39.2	51.1	14	30.6	+40.4	51.5	15	45.0	+41.6	51.9	16	58.6	+42.9	52.4	38
13	54.7	+39.0	50.3	15	11.0	+40.3	50.7	16	26.6	+41.5	51.2	17	41.5	+42.7	51.6	39
14	33.7	+38.9	49.5	15	51.3	+40.1	50.0	17	08.1	+41.3	50.4	18	24.2	+42.5	50.9	40
15	12.6	+38.7	48.7	16	31.4	+39.9	49.2	17	49.4	+41.2	49.6	19	06.7	+42.4	50.2	41
15	51.3	+38.5	48.0	17	11.3	+39.7	48.4	18	30.6	+41.0	48.9	19	49.1	+42.2	49.4	42
16	29.8	+38.3	47.2	17	51.0	+39.6	47.6	19	11.6	+40.7	48.1	20	31.3	+41.9	48.6	43
17	08.1	+38.2	46.4	18	30.6	+39.4	46.8	19	52.3	+40.6	47.3	21	13.2	+41.8	47.9	44
17	46.3	+37.9	45.5	19	10.0	+39.1	46.0	20	32.9	+40.3	46.5	21	55.0	+41.5	47.1	45
18	24.2	+37.7	44.7	19	49.1	+38.9	45.2	21	13.2	+40.2	45.8	22	36.5	+41.4	46.3	46
19	01.9	+37.6	43.9	20	28.0	+38.7	44.4	21	53.4	+39.9	45.0	23	17.9	+41.0	45.5	47
19	39.5	+37.2	43.1	21	06.7	+38.5	43.6	22	33.3	+39.6	44.1	23	58.9	+40.9	44.7	48
20	16.7	+37.1	42.2	21	45.2	+38.2	42.8	23	12.9	+39.4	43.3	24	39.8	+40.5	43.9	49
20	53.8	+36.8	41.4	22	23.4	+38.0	41.9	23	52.3	+39.1	42.5	25	20.3	+40.3	43.1	50
21	30.6	+36.5	40.6	23	01.4	+37.7	41.1	24	31.4	+38.9	41.7	26	00.6	+40.0	42.3	51
22	07.1	+36.3	39.7	23	39.1	+37.4	40.2	25	10.3	+38.5	40.8	26	40.6	+39.8	41.5	52
22	43.4	+36.0	38.8	24	16.5	+37.1	39.4	25	48.8	+38.3	40.0	27	20.4	+39.4	40.6	53
23	19.4	+35.7	38.0	24	53.6	+36.8	38.5	26	27.1	+38.0	39.1	27	59.8	+39.1	39.8	54
23	55.1	+35.4	37.1	25	30.4	+36.6	37.7	27	05.1	+37.6	38.3	28	38.9	+38.7	38.9	55
24	30.5	+35.1	36.2	26	07.0	+36.1	36.8	27	42.7	+37.3	37.4	29	17.6	+38.5	38.0	56
25	05.6	+34.7	35.3	26	43.1	+35.9	35.9	28	20.0	+36.9	36.5	29	56.1	+38.0	37.2	57
25	40.3	+34.5	34.4	27	19.0	+35.5	35.0	28	56.9	+36.6	35.6	30	34.1	+37.7	36.3	58
26	14.8	+34.0	33.5	27	54.5	+35.1	34.1	29	33.5	+36.2	34.7	31	11.8	+37.3	35.4	59
26	48.8	+33.8	32.6	28	29.6	+34.8	33.2	30	09.7	+35.9	33.8	31	49.1	+36.9	33.4	60
27	22.6	+33.3	31.7	29	04.4	+34.4	32.2	30	45.6	+35.4	32.8	32	26.0	+36.5	33.5	61
27	55.9	+33.0	30.7	29	38.8	+33.9	31.3	31	21.0	+35.0	31.9	33	02.5	+36.0	32.6	62
28	28.9	+32.5	29.8	30	12.7	+33.6	30.3	31	56.0	+34.6	30.9	33	38.5	+35.7	31.6	63
29	01.4	+32.2	28.8	30	46.3	+33.1	29.4	32	30.6	+34.1	30.0	34	14.2	+35.1	30.6	64
29	33.6	+31.7	27.8	31	19.4	+32.7	28.4	33	04.7	+33.6	29.0	34	49.3	+34.7	29.7	65
30	05.3	+31.3	26.9	31	52.1	+32.2	27.4	33	38.3	+33.2	28.0	35	24.0	+34.1	28.7	66
30	36.6	+30.8	25.9	32	24.3	+31.7	26.4	34	11.5	+32.7	27.0	35	58.1	+33.7	27.7	67
31	07.4	+30.4	24.9	32	56.0	+31.3	25.4	34	44.2	+32.1	26.0	36	31.8	+33.1	26.6	68
31	37.8	+29.8	23.9	33	27.3	+30.7	24.4	35	16.3	+31.7	25.0	37	04.9	+32.5	25.6	69
32	07.6	+29.4	22.8	33	58.0	+30.2	23.4	35	48.0	+31.1	23.9	37	37.4	+32.0	24.5	70
32	37.0	+28.9	21.8	34	28.2	+29.7	22.3	36	19.1	+30.5	22.9	38	09.4	+31.4	23.5	71
33	05.9	+28.3	20.8	34	57.9	+29.1	21.3	36	49.6	+29.9	21.8	38	40.8	+30.7	22.4	72
33	34.2	+27.8	19.7	35	27.0	+28.6	20.2	37	19.5	+29.3	20.7	39	11.5	+30.2	21.3	73
34	02.0	+27.3	18.6	35	55.6	+28.0	19.1	37	48.8	+28.7	19.6	39	41.7	+29.5	20.1	74
34	29.3	+26.7	17.6	36	23.6	+27.3	18.0	38	17.5	+28.1	18.5	40	11.2	+28.8	19.0	75
34	56.0	+26.0	16.5	36	50.9	+26.7	16.9	38	45.6	+27.4	17.4	40	40.0	+28.1	17.9	76
35	22.0	+25.5	15.4	37	17.6	+26.1	15.8	39	13.0	+26.7	16.2	41	08.1	+27.4	16.7	77
35	47.5	+24.9	14.3	37	43.7	+25.4	14.6	39	39.7	+26.0	15.0	41	35.5	+26.6	15.5	78
36	12.4	+24.2	13.1	38	09.1	+24.8	13.5	40	05.7	+25.3	13.9	42	02.1	+25.9	14.3	79
36	36.6	+23.5	12.0	38	33.9	+24.0	12.3	40	31.0	+24.6	12.7	42	28.0	+25.1	13.1	80
37	00.1	+22.9	10.9	38	57.9	+23.3	11.2	40	55.6	+23.8	11.5	42	53.1	+24.3	11.8	81
37	23.0	+22.2	9.7	39	21.2	+22.6	10.0	41	19.4	+23.0	10.3	43	17.4	+23.5	10.6	82
37	45.2	+21.5	8.5	39	43.8	+21.9	8.8	41	42.4	+22.2	9.0	43	40.9	+22.6	9.3	83
38	06.7	+20.8	7.3	40	05.7	+21.1	7.5	42	04.6	+21.4	7.8	44	03.5	+21.7	8.0	84
38	27.5	+20.0	6.1	40	26.8	+20.3	6.3	42	26.0	+20.6	6.5	44	25.2	+20.8	6.7	85
38	47.5	+19.3	4.9	40	47.1	+19.4	5.1	42	46.6	+19.7	5.2	44	46.0	+20.0	5.4	86
39	06.8	+18.5	3.7	41	06.5	+18.7	3.8	43	06.3	+18.8	4.0	45	06.0	+18.9	4.1	87
39	25.3	+17.8	2.5	41	25.2	+17.8	2.6	43	25.1	+17.9	2.6	45	24.9	+18.1	2.7	88
39	43.1	+16.9	1.2	41	43.0	+17.0	1.3	43	43.0	+17.0	1.3	45	43.0	+17.0	1.4	89
40	00.0	+16.1	0.0	42	00.0	+16.1	0.0	44	00.0	+16.1	0.0	46	00.0	+16.0	0.0	90
40°			42°			44°			46°			48°				

LATITUDE SAME NAME

L.H.A. 106°, 254°

74°, 286° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	32 26.6	+40.7	80.6	32 45.0	+42.4	81.8	33 00.7	+44.2	83.1	33 13.8	+45.8	84.4	33 24.2	+47.4	85.7
31	33 07.3	+40.3	79.7	33 27.4	+42.2	81.0	33 44.9	+43.9	82.3	33 59.6	+45.6	83.6	34 11.6	+47.1	85.0
32	33 47.6	+39.9	78.8	34 09.6	+41.7	80.1	34 28.8	+43.5	81.5	34 45.2	+45.2	82.8	34 58.7	+46.9	84.2
33	34 27.5	+39.5	77.9	34 51.3	+41.4	79.2	35 12.3	+43.1	80.6	35 30.4	+44.9	82.0	35 45.6	+46.5	83.4
34	35 07.0	+39.1	77.0	35 32.7	+41.0	78.4	35 55.4	+42.8	79.8	36 15.3	+44.5	81.2	36 32.1	+46.3	82.7
35	35 46.1	+38.7	76.0	36 13.7	+40.5	77.5	36 38.2	+42.5	78.9	36 59.8	+44.2	80.4	37 18.4	+45.9	81.9
36	36 24.8	+38.2	75.1	36 54.2	+40.1	76.5	37 20.7	+42.0	78.0	37 44.0	+43.8	79.5	38 04.3	+45.5	81.1
37	37 03.0	+37.8	74.1	37 34.3	+39.7	75.6	38 02.7	+41.5	77.1	38 27.8	+43.5	78.7	38 49.8	+45.3	80.2
38	37 40.8	+37.2	73.2	38 14.0	+39.2	74.7	38 44.2	+41.2	76.2	39 11.3	+43.0	77.8	39 35.1	+44.8	79.4
39	38 18.0	+36.7	72.2	38 53.2	+38.8	73.7	39 25.4	+40.7	75.3	39 54.3	+42.6	76.9	40 19.9	+44.4	78.5
40	38 54.7	+36.2	71.1	39 32.0	+38.2	72.7	40 06.1	+40.2	74.3	40 36.9	+42.1	75.9	41 04.3	+44.0	77.6
41	39 30.9	+35.7	70.1	40 10.2	+37.7	71.7	40 46.3	+39.7	73.3	41 19.0	+41.7	75.0	41 48.3	+43.6	76.7
42	40 06.6	+35.0	69.1	40 47.9	+37.1	70.7	41 26.0	+39.1	72.3	42 00.7	+41.2	74.0	42 31.9	+43.1	75.8
43	40 41.6	+34.5	68.0	41 25.0	+36.6	69.6	42 05.1	+38.7	71.3	42 41.9	+40.6	73.1	43 15.0	+42.7	74.8
44	41 16.1	+33.9	66.9	42 01.6	+35.9	68.6	42 43.8	+38.0	70.3	43 22.5	+40.1	72.0	43 57.7	+42.1	73.9
45	41 50.0	+33.2	65.8	42 37.5	+35.4	67.5	43 21.8	+37.5	69.2	44 02.6	+39.6	71.0	44 39.8	+41.6	72.9
46	42 23.2	+32.5	64.7	43 12.9	+34.7	66.4	43 59.3	+36.8	68.1	44 42.2	+38.9	70.0	45 21.4	+41.1	71.9
47	42 55.7	+31.8	63.6	43 47.6	+34.0	65.3	44 36.1	+36.2	67.0	45 21.1	+38.4	68.9	46 02.5	+40.4	70.8
48	43 27.5	+31.2	62.4	44 21.6	+33.3	64.1	45 12.3	+35.5	65.9	45 59.5	+37.6	67.8	46 42.9	+39.9	69.7
49	43 58.7	+30.3	61.2	44 54.9	+32.6	62.9	45 47.8	+34.8	64.8	46 37.1	+37.1	66.7	47 22.8	+39.2	68.6
50	44 29.0	+29.6	60.0	45 27.5	+31.8	61.7	46 22.6	+34.0	63.6	47 14.2	+36.3	65.5	48 02.0	+38.5	67.5
51	44 58.6	+28.9	58.8	45 59.3	+31.0	60.5	46 56.6	+33.3	62.4	47 50.5	+35.5	64.3	48 40.5	+37.8	66.4
52	45 27.5	+27.9	57.5	46 30.3	+30.2	59.3	47 29.9	+32.5	61.2	48 26.0	+34.8	63.1	49 18.3	+37.1	65.2
53	45 55.4	+27.2	56.3	47 00.5	+29.4	58.0	48 02.4	+31.7	59.9	49 00.8	+34.0	61.9	49 55.4	+36.3	64.0
54	46 22.6	+26.2	55.0	47 29.9	+28.5	56.8	48 34.1	+30.8	58.6	49 34.8	+33.1	60.6	50 31.7	+35.5	62.7
55	46 48.8	+25.4	53.7	47 58.4	+27.6	55.4	49 04.9	+29.9	57.3	50 07.9	+32.2	59.3	51 07.2	+34.6	61.4
56	47 14.2	+24.4	52.3	48 26.0	+26.7	54.1	49 34.8	+28.9	56.0	50 40.1	+31.3	58.0	51 41.8	+33.7	60.1
57	47 38.6	+23.4	51.0	48 52.7	+25.6	52.8	50 03.7	+28.0	54.6	51 11.4	+30.4	56.7	52 15.5	+32.8	58.8
58	48 02.0	+22.4	49.6	49 18.3	+24.7	51.4	50 31.7	+27.0	53.3	51 41.8	+29.4	55.3	52 48.3	+31.8	57.4
59	48 24.4	+21.4	48.2	49 43.0	+23.7	50.0	50 58.7	+25.9	51.8	52 11.2	+28.3	53.9	53 20.1	+30.8	56.0
60	48 45.8	+20.4	46.8	50 06.7	+22.5	48.5	51 24.6	+24.9	50.4	52 39.5	+27.3	52.4	53 50.9	+29.8	54.6
61	49 06.2	+19.3	45.4	50 29.2	+21.5	47.1	51 49.5	+23.8	48.9	53 06.8	+26.1	50.9	54 20.7	+28.6	53.1
62	49 25.5	+18.2	43.9	50 50.7	+20.3	45.6	52 13.3	+22.6	47.4	53 32.9	+25.0	49.4	54 49.3	+27.4	51.6
63	49 43.7	+17.1	42.5	51 11.0	+19.2	44.1	52 35.9	+21.4	45.9	53 57.9	+23.7	47.9	55 16.7	+26.2	50.0
64	50 00.8	+15.9	41.0	51 30.2	+18.0	42.6	52 57.3	+20.2	44.4	54 21.6	+22.6	46.3	55 42.9	+25.0	48.4
65	50 16.7	+14.7	39.5	51 48.2	+16.8	41.1	53 17.5	+19.0	42.8	54 44.2	+21.2	44.7	56 07.9	+23.7	46.8
66	50 31.4	+13.5	38.0	52 05.0	+15.5	39.5	53 36.5	+17.6	41.2	55 05.4	+19.9	43.1	56 31.6	+22.3	45.1
67	50 44.9	+12.3	36.4	52 20.5	+14.3	37.9	53 54.1	+16.3	39.6	55 25.3	+18.6	41.4	56 53.9	+20.9	43.5
68	50 57.2	+11.1	34.9	52 34.8	+13.0	36.3	54 10.4	+15.0	38.0	55 43.9	+17.2	39.8	57 14.8	+19.5	41.7
69	51 08.3	+9.8	33.3	52 47.8	+11.6	34.7	54 25.4	+13.6	36.3	56 01.1	+15.7	38.0	57 34.3	+18.0	40.0
70	51 18.1	+8.5	31.7	52 59.4	+10.3	33.1	54 39.0	+12.2	34.6	56 16.8	+14.2	36.3	57 52.3	+16.5	38.2
71	51 26.6	+7.2	30.1	53 09.7	+8.9	31.5	54 51.2	+10.8	32.9	56 31.0	+12.8	34.6	58 08.8	+14.9	36.4
72	51 33.8	+6.0	28.5	53 18.6	+7.6	29.8	55 02.0	+9.3	31.2	56 43.8	+11.2	32.8	58 23.7	+13.3	34.5
73	51 39.8	+4.6	26.9	53 26.2	+6.1	28.1	55 11.3	+7.9	29.5	56 55.0	+9.7	31.0	58 37.0	+11.6	32.7
74	51 44.4	+3.3	25.3	53 32.3	+4.8	26.5	55 19.2	+6.3	27.8	57 04.7	+8.0	29.2	58 48.6	+10.0	30.8
75	51 47.7	+1.9	23.7	53 37.1	+3.3	24.8	55 25.5	+4.8	26.0	57 12.7	+6.5	27.4	58 58.6	+8.3	28.9
76	51 49.6	+0.7	22.1	53 40.4	+1.9	23.1	55 30.3	+3.4	24.2	57 19.2	+4.9	25.5	59 06.9	+6.5	26.9
77	51 50.3	-0.7	20.5	53 42.3	+0.5	21.4	55 33.7	+1.7	22.5	57 24.1	+3.2	23.7	59 13.4	+4.8	25.0
78	51 49.6	-2.0	18.9	53 42.8	-0.9	19.7	55 35.4	+0.3	20.7	57 27.3	+1.6	21.8	59 18.2	+3.1	23.0
79	51 47.6	-3.4	17.3	53 41.9	-2.3	18.0	55 35.7	-1.2	18.9	57 28.9	-0.1	19.9	59 21.3	+1.3	21.1
80	51 44.2	-4.7	15.6	53 39.6	-3.8	16.4	55 34.5	-2.8	17.2	57 28.8	-1.7	18.1	59 22.6	-0.5	19.1
81	51 39.5	-6.0	14.0	53 35.8	-5.2	14.7	55 31.7	-4.3	15.4	57 27.1	-3.3	16.2	59 22.1	-2.3	17.2
82	51 33.5	-7.3	12.4	53 30.6	-6.6	13.0	55 27.4	-5.9	13.6	57 23.8	-5.0	14.4	59 19.8	-4.0	15.2
83	51 26.2	-8.5	10.8	53 24.0	-8.0	11.3	55 21.5	-7.3	11.9	57 18.8	-6.5	12.5	59 15.8	-5.7	13.3
84	51 17.7	-9.9	9.2	53 16.0	-9.3	9.7	55 14.2	-8.8	10.1	57 12.3	-8.2	10.7	59 10.1	-7.5	11.3
85	51 07.8	-11.1	7.7	53 06.7	-10.7	8.0	55 05.4	-10.2	8.4	57 04.1	-9.8	8.9	59 02.6	-9.2	9.4
86	50 56.7	-12.4	6.1	52 56.0	-12.1	6.4	54 55.2	-11.7	6.7	56 54.3	-11.3	7.1	58 53.4	-10.9	7.5
87	50 44.3	-13.6	4.6	52 43.9	-13.3	4.8	54 43.5	-13.1	5.0	56 43.0	-12.8	5.3	58 42.5	-12.6	5.6
88	50 30.7	-14.7	3.0	52 30.6	-14.7	3.2	54 30.4	-14.5	3.3	56 30.2	-14.4	3.5	58 29.9	-14.1	3.7
89	50 16.0	-16.0	1.5	52 15.9	-15.9	1.6	54 15.9	-15.9	1.6	56 15.8	-15.8	1.7	58 15.8	-15.8	1.8
90	50 00.0	-17.1	0.0	52 00.0	-17.2	0.0	54 00.0	-17.2	0.0	56 00.0	-17.2	0.0	58 00.0	-17.3	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 74°, 286°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.					
13	16.4	+46.3	58.8	14	18.2	+47.4	59.2	15	19.2	+48.5	59.7	16	19.3	+49.7	60.2	17	18.5	+50.7	60.7	30
14	02.7	+46.2	58.1	15	05.6	+47.4	58.6	16	07.7	+48.5	59.1	17	09.0	+49.5	59.6	18	09.2	+50.6	60.1	31
14	48.9	+46.0	57.5	15	53.0	+47.2	57.9	16	56.2	+48.4	58.4	17	58.5	+49.5	59.0	18	59.8	+50.5	59.6	32
15	34.9	+46.0	56.8	16	40.2	+47.1	57.3	17	44.6	+48.2	57.8	18	48.0	+49.3	58.4	19	50.3	+50.4	59.0	33
16	20.9	+45.9	56.2	17	27.3	+47.0	56.7	18	32.8	+48.1	57.2	19	37.3	+49.2	57.8	20	40.7	+50.3	58.4	34
17	06.8	+45.7	55.5	18	14.3	+46.9	56.0	19	20.9	+48.0	56.6	20	26.5	+49.1	57.2	21	31.0	+50.1	57.8	35
17	52.5	+45.5	54.8	19	01.2	+46.7	55.3	20	08.9	+47.9	55.9	21	15.6	+48.9	56.6	22	21.1	+50.1	57.2	36
18	38.0	+45.4	54.1	19	47.9	+46.6	54.7	20	56.8	+47.7	55.3	22	04.5	+48.8	55.9	23	11.2	+49.8	56.6	37
19	23.4	+45.3	53.4	20	34.5	+46.4	54.0	21	44.5	+47.5	54.6	22	53.3	+48.7	55.3	24	01.0	+49.8	56.0	38
20	08.7	+45.1	52.7	21	20.9	+46.2	53.3	22	32.0	+47.4	54.0	23	42.0	+48.5	54.7	24	50.8	+49.5	55.4	39
20	53.8	+44.9	52.0	22	07.1	+46.1	52.6	23	19.4	+47.2	53.3	24	30.5	+48.3	54.0	25	40.3	+49.4	54.8	40
21	38.7	+44.7	51.3	22	53.2	+45.9	51.9	24	06.6	+47.0	52.6	25	18.8	+48.2	53.4	26	29.7	+49.3	54.2	41
22	23.4	+44.6	50.6	23	39.1	+45.7	51.2	24	53.6	+46.9	52.0	26	07.0	+47.9	52.7	27	19.0	+49.1	53.5	42
23	08.0	+44.3	49.9	24	24.8	+45.5	50.5	25	40.5	+46.6	51.3	26	54.9	+47.8	52.0	28	08.1	+48.8	52.9	43
23	52.3	+44.1	49.1	25	10.3	+45.3	49.8	26	27.1	+46.5	50.6	27	42.7	+47.6	51.4	28	56.9	+48.7	52.2	44
24	36.4	+43.9	48.4	25	55.6	+45.0	49.1	27	13.6	+46.2	49.9	28	30.3	+47.3	50.7	29	45.6	+48.5	51.5	45
25	20.3	+43.7	47.6	26	40.6	+44.9	48.4	27	59.8	+46.0	49.1	29	17.6	+47.2	50.0	30	34.1	+48.3	50.9	46
26	04.0	+43.4	46.9	27	25.5	+44.6	47.6	28	45.8	+45.7	48.4	30	04.8	+46.9	49.3	31	22.4	+48.0	50.2	47
26	47.4	+43.2	46.1	28	10.1	+44.3	46.9	29	31.5	+45.5	47.7	30	51.7	+46.6	48.5	32	10.4	+47.8	49.5	48
27	30.6	+42.9	45.3	28	54.4	+44.1	46.1	30	17.0	+45.3	46.9	31	38.3	+46.4	47.8	32	58.2	+47.6	48.7	49
28	13.5	+42.6	44.5	29	38.5	+43.8	45.3	31	02.3	+44.9	46.1	32	24.7	+46.1	47.0	33	45.8	+47.2	48.0	50
28	56.1	+42.4	43.7	30	22.3	+43.5	44.5	31	47.2	+44.7	45.4	33	10.8	+45.9	46.3	34	33.0	+47.0	47.3	51
29	38.5	+42.0	42.9	31	05.8	+43.2	43.7	32	31.9	+44.4	44.6	33	56.7	+45.5	45.5	35	20.0	+46.8	46.5	52
30	20.5	+41.8	42.1	31	49.0	+42.9	42.9	33	16.3	+44.1	43.8	34	42.2	+45.3	44.7	36	06.8	+46.4	45.7	53
31	02.3	+41.4	41.3	32	31.9	+42.6	42.1	34	00.4	+43.7	43.0	35	27.5	+44.9	43.9	36	53.2	+46.1	44.9	54
33	05.4	+40.4	38.7	33	14.5	+42.2	41.2	34	44.1	+43.4	42.1	36	12.4	+44.2	43.0	37	39.3	+45.7	44.1	55
33	45.8	+39.9	37.8	33	56.7	+41.9	40.4	35	27.5	+43.0	41.3	36	57.0	+44.2	42.3	38	25.0	+45.5	43.3	56
34	25.7	+39.5	36.9	34	38.6	+41.4	39.5	36	10.5	+42.7	40.4	37	41.2	+43.8	41.4	39	10.5	+45.0	42.5	57
35	05.2	+39.2	36.0	35	20.0	+41.1	38.6	36	53.2	+42.3	39.6	38	25.0	+43.5	40.6	39	55.5	+44.6	41.6	58
35	44.4	+38.7	35.0	36	01.1	+40.7	37.7	37	35.5	+41.8	38.7	39	08.5	+43.0	39.7	40	40.1	+44.3	40.7	59
36	23.1	+38.2	34.1	37	01.9	+39.4	35.0	38	17.3	+41.4	37.8	39	51.5	+42.7	38.8	41	24.4	+43.8	39.9	60
37	01.3	+37.7	33.1	37	22.1	+39.8	35.9	38	58.7	+41.0	36.8	40	34.2	+42.1	37.8	42	08.2	+43.4	38.9	61
37	39.0	+37.3	32.2	38	01.3	+38.9	34.0	39	39.7	+40.5	35.9	41	16.3	+41.7	36.9	42	51.6	+42.9	38.0	62
38	16.3	+36.8	31.2	38	41.3	+38.9	34.0	40	20.2	+40.1	34.9	41	58.0	+41.2	35.9	43	34.5	+42.4	37.0	63
38	53.1	+36.2	30.2	39	20.2	+38.3	33.0	41	00.3	+39.5	33.9	42	39.2	+40.7	35.0	44	16.9	+41.9	36.1	64
39	29.3	+35.7	29.1	39	58.5	+37.9	32.0	41	39.8	+39.0	32.9	43	19.9	+40.2	34.0	44	58.8	+41.4	35.1	65
40	05.0	+35.1	28.1	40	36.4	+37.3	31.0	42	18.8	+38.4	31.9	44	00.1	+39.5	32.9	45	40.2	+40.8	34.0	66
40	40.1	+34.5	27.0	41	13.7	+36.7	30.0	42	57.2	+37.8	30.9	44	39.6	+39.0	31.9	46	21.0	+40.1	33.0	67
41	14.6	+33.8	25.9	41	50.4	+36.2	28.9	43	35.0	+37.3	29.8	45	18.6	+38.4	30.8	47	01.1	+39.6	31.9	68
41	48.4	+33.3	24.8	42	26.6	+35.5	27.8	44	12.3	+36.6	28.7	45	57.0	+37.7	29.7	47	40.7	+38.9	30.8	69
42	21.7	+32.5	23.7	43	02.1	+34.9	26.7	44	48.9	+35.9	27.6	46	34.7	+37.1	28.6	48	19.6	+38.2	29.6	70
42	54.2	+31.9	22.6	43	37.0	+34.2	25.6	45	24.8	+35.3	26.5	47	11.8	+36.3	27.4	48	57.8	+37.5	28.5	71
43	26.1	+31.2	21.4	44	11.2	+33.6	24.5	46	00.1	+34.5	25.3	47	48.1	+35.6	26.2	49	35.3	+36.7	27.3	72
43	57.3	+30.4	20.2	44	44.8	+32.8	23.3	46	34.6	+33.8	24.1	48	23.7	+34.9	25.0	50	12.0	+35.9	26.0	73
44	27.7	+29.6	19.0	45	17.6	+32.0	22.1	47	08.4	+33.0	22.9	48	58.6	+34.0	23.8	50	47.9	+35.1	24.8	74
44	57.3	+28.9	17.8	45	49.6	+31.3	20.9	47	41.4	+32.2	21.7	49	32.6	+33.2	22.5	51	23.0	+34.3	23.5	75
45	26.2	+28.0	16.5	46	20.9	+30.5	19.7	48	13.6	+31.4	20.4	50	05.8	+32.3	21.3	51	57.3	+33.3	22.2	76
45	54.2	+27.2	15.3	46	51.4	+29.6	18.4	48	45.0	+30.5	19.1	50	38.1	+31.4	19.9	52	30.6	+32.3	20.8	77
46	21.4	+26.2	14.0	47	21.0	+28.8	17.2	49	15.5	+29.5	17.8	51	09.5	+30.4	18.6	53	02.9	+31.4	19.4	78
46	47.6	+25.4	12.7	47	49.8	+27.9	15.9	49	45.0	+28.7	16.5	51	39.9	+29.4	17.2	53	34.3	+30.3	18.0	79
47	13.0	+24.5	11.4	48	17.7	+26.9	14.5	50	13.7	+27.6	15.1	52	09.3	+28.4	15.8	54	04.6	+29.2	16.5	80
47	37.5	+23.4	10.0	48	44.6	+26.0	13.2	50	41.3	+26.6	13.7	52	37.7	+27.3	14.3	54	33.8	+28.1	15.0	81
48	00.9	+22.5	8.6	49	10.6	+25.0	11.8	51	07.9	+25.6	12.3	53	05.0	+26.3	12.9	55	01.9	+26.9	13.5	82
48	23.4	+21.5	7.2	49	35.6	+23.9	10.4	51	33.5	+24.5	10.9	53	31.3	+25.0	11.4	55	28.8	+25.7	11.9	83
48	44.9	+20.4	5.8	49	59.5	+22.9	9.0	51	58.0	+23.3	9.4	53	56.3	+23.9	9.8	55	54.5	+24.3	10.3	84
49	05.3	+19.4	4.4	50	22.4	+21.8	7.5	52	21.3	+22.2	7.9	54	20.2	+22.6	8.3	56	18.8	+23.1	8.7	85
49	24.7	+18.2	3.0	50	44.2	+20.7	6.1	52	43.5	+21.0	6.4	54	42.8	+21.3	6.7	56	41.9	+21.7	7.0	86
49	42.9	+17.1	1.5	51	04.9	+19.6	4.6	53	04.5	+19.8	4.8	55	04.1	+20.0	5.0	57	03.6	+20.3	5.3	87
50	00.0	+16.0	0.0	51	24.5	+18.3	3.1	53	24.3	+18.5	3.2	55	24.1	+18.7	3.4	57	23.9	+18.8	3.6	88
				51	42.8	+17.2	1.6	53	42.8	+17.2	1.6	55	42.8	+17.2	1.7	57	42.7	+17.3	1.8	89
				52	00.0	+15.9	0.0	54	00.0	+15.9	0.0	56	00.0	+15.8	0.0	58	00.0	+15.8	0.0	90
50°			52°			54°			56°			58°								

LATITUDE SAME NAME

L.H.A. 106°, 254°

76°, 284° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	25 33.5	+21.7	68.7	26 16.3	+23.7	69.6	26 57.3	+25.6	70.5	27 36.4	+27.6	71.5	28 13.5	+29.6	72.5
31	25 55.2	+21.1	67.6	26 40.0	+23.1	68.5	27 22.9	+25.2	69.5	28 04.0	+27.2	70.5	28 43.1	+29.1	71.5
32	26 16.3	+20.7	66.6	27 03.1	+22.8	67.5	27 48.1	+24.7	68.5	28 31.2	+26.7	69.5	29 12.2	+28.8	70.5
33	26 37.0	+20.3	65.5	27 25.9	+22.2	66.5	28 12.8	+24.3	67.4	28 57.9	+26.3	68.5	29 41.0	+28.2	69.5
34	26 57.3	+19.8	64.5	27 48.1	+21.8	65.4	28 37.1	+23.8	66.4	29 24.2	+25.7	67.4	30 09.2	+27.8	68.5
35	27 17.1	+19.3	63.4	28 09.9	+21.3	64.4	29 00.9	+23.3	65.4	29 49.9	+25.3	66.4	30 37.0	+27.3	67.5
36	27 36.4	+18.8	62.4	28 31.2	+20.8	63.3	29 24.2	+22.7	64.3	30 15.2	+24.8	65.3	31 04.3	+26.8	66.4
37	27 55.2	+18.3	61.3	28 52.0	+20.2	62.2	29 46.9	+22.3	63.2	30 40.0	+24.3	64.3	31 31.1	+26.2	65.4
38	28 13.5	+17.8	60.2	29 12.2	+19.8	61.2	30 09.2	+21.8	62.2	31 04.3	+23.7	63.2	31 57.3	+25.8	64.3
39	28 31.3	+17.2	59.1	29 32.0	+19.2	60.1	30 31.0	+21.2	61.1	31 28.0	+23.2	62.1	32 23.1	+25.2	63.2
40	28 48.5	+16.8	58.0	29 51.2	+18.7	59.0	30 52.2	+20.6	60.0	31 51.2	+22.7	61.1	32 48.3	+24.6	62.2
41	29 05.3	+16.2	56.9	30 09.9	+18.2	57.9	31 12.8	+20.1	58.9	32 13.9	+22.0	60.0	33 12.9	+24.1	61.1
42	29 21.5	+15.6	55.8	30 28.1	+17.5	56.8	31 32.9	+19.5	57.8	32 35.9	+21.5	58.9	33 37.0	+23.5	60.0
43	29 37.1	+15.1	54.7	30 45.6	+17.0	55.7	31 52.4	+19.0	56.7	32 57.4	+20.9	57.7	34 00.5	+22.8	58.9
44	29 52.2	+14.6	53.6	31 02.6	+16.5	54.6	31 02.6	+18.3	55.6	33 18.3	+20.3	56.6	34 23.3	+22.3	57.8
45	30 06.8	+13.9	52.5	31 19.1	+15.8	53.4	32 29.7	+17.7	54.4	33 38.6	+19.7	55.5	34 45.6	+21.6	56.6
46	30 20.7	+13.4	51.4	31 34.9	+15.2	52.3	32 47.4	+17.2	53.3	33 58.3	+19.0	54.4	35 07.2	+21.0	55.5
47	30 34.1	+12.8	50.2	31 50.1	+14.6	51.2	33 04.6	+16.4	52.2	34 17.3	+18.4	53.2	35 28.2	+20.3	54.3
48	30 46.9	+12.2	49.1	32 04.7	+14.0	50.0	33 21.0	+15.9	51.0	34 35.7	+17.7	52.1	35 48.5	+19.7	53.2
49	30 59.1	+11.6	47.9	32 18.7	+13.4	48.9	33 36.9	+15.2	49.9	34 53.4	+17.1	50.9	36 08.2	+19.0	52.0
50	31 10.7	+10.9	46.8	32 32.1	+12.7	47.7	33 52.1	+14.5	48.7	35 10.5	+16.4	49.7	36 27.2	+18.3	50.8
51	31 21.6	+10.4	45.7	32 44.8	+12.1	46.6	34 06.6	+13.9	47.5	35 26.9	+15.7	48.6	36 45.5	+17.5	49.7
52	31 32.0	+9.7	44.5	32 56.9	+11.5	45.4	34 20.5	+13.2	46.3	35 42.6	+15.0	47.4	37 03.0	+16.9	48.5
53	31 41.7	+9.1	43.3	33 08.4	+10.8	44.2	34 33.7	+12.5	45.2	35 57.6	+14.2	46.2	37 19.9	+16.1	47.3
54	31 50.8	+8.5	42.2	33 19.2	+10.1	43.0	34 46.2	+11.8	44.0	36 11.8	+13.6	45.0	37 36.0	+15.3	46.0
55	31 59.3	+7.8	41.0	33 29.3	+9.4	41.9	34 58.0	+11.1	42.8	36 25.4	+12.8	43.8	37 51.3	+14.6	44.8
56	32 07.1	+7.2	39.8	33 38.7	+8.8	40.7	35 09.1	+10.4	41.6	36 38.2	+12.1	42.5	38 05.9	+13.8	43.6
57	32 14.3	+6.5	38.7	33 47.5	+8.0	39.5	35 19.5	+9.7	40.4	36 50.3	+11.3	41.3	38 19.7	+13.0	42.3
58	32 20.8	+5.9	37.5	33 55.5	+7.4	38.3	35 29.2	+8.9	39.2	37 01.6	+10.5	40.1	38 32.7	+12.2	41.1
59	32 26.7	+5.2	36.3	34 02.9	+6.7	37.1	35 38.1	+8.2	37.9	37 12.1	+9.8	38.9	38 44.9	+11.5	39.8
60	32 31.9	+4.6	35.1	34 09.6	+6.0	35.9	35 46.3	+7.5	36.7	37 21.9	+9.0	37.6	38 56.4	+10.6	38.6
61	32 36.5	+3.8	33.9	34 15.6	+5.2	34.7	35 53.8	+6.7	35.5	37 30.9	+8.2	36.4	39 07.0	+9.7	37.3
62	32 40.3	+3.2	32.8	34 20.8	+4.6	33.5	36 00.5	+5.9	34.3	37 39.1	+7.5	35.1	39 16.7	+9.0	36.0
63	32 43.5	+2.6	31.6	34 25.4	+3.8	32.3	36 06.4	+5.2	33.0	37 46.6	+6.6	33.9	39 25.7	+8.1	34.8
64	32 46.1	+1.9	30.4	34 29.2	+3.2	31.1	36 11.6	+4.5	31.8	37 53.2	+5.8	32.6	39 33.8	+7.2	33.5
65	32 48.0	+1.1	29.2	34 32.4	+2.4	29.9	36 16.1	+3.7	30.6	37 59.0	+5.0	31.3	39 41.0	+6.4	32.2
66	32 49.1	+0.6	28.0	34 34.8	+1.7	28.6	36 19.8	+2.9	29.3	38 04.0	+4.2	30.1	39 47.4	+5.5	30.9
67	32 49.7	-0.2	26.8	34 36.5	+0.9	27.4	36 22.7	+2.1	28.1	38 08.2	+3.3	28.8	39 52.9	+4.7	29.6
68	32 49.5	-0.8	25.6	34 37.4	+0.3	26.2	36 24.8	+1.4	26.9	38 11.5	+2.6	27.5	39 57.6	+3.7	28.3
69	32 48.7	-1.5	24.4	34 37.7	-0.5	25.0	36 26.2	+0.6	25.6	38 14.1	+1.7	26.3	40 01.3	+3.0	27.0
70	32 47.2	-2.2	23.3	34 37.2	-1.2	23.8	36 26.8	-0.2	24.4	38 15.8	+0.9	25.0	40 04.3	+2.0	25.7
71	32 45.0	-2.9	22.1	34 36.0	-1.9	22.6	36 26.6	-1.0	23.1	38 16.7	+0.1	23.7	40 06.3	+1.1	24.4
72	32 42.1	-3.5	20.9	34 34.1	-2.7	21.4	36 25.6	-1.7	21.9	38 16.8	-0.8	22.5	40 07.4	+0.3	23.1
73	32 38.6	-4.2	19.7	34 31.4	-3.3	20.1	36 23.9	-2.5	20.6	38 16.0	-1.6	21.2	40 07.7	-0.6	21.8
74	32 34.4	-4.9	18.5	34 28.1	-4.1	18.9	36 21.4	-3.3	19.4	38 14.4	-2.4	19.9	40 07.1	-1.5	20.5
75	32 29.5	-5.5	17.3	34 24.0	-4.8	17.7	36 18.1	-4.0	18.2	38 12.0	-3.2	18.6	40 05.6	-2.4	19.2
76	32 24.0	-6.2	16.1	34 19.2	-5.5	16.5	36 14.1	-4.8	16.9	38 08.8	-4.1	17.4	40 03.2	-3.3	17.9
77	32 17.8	-6.8	15.0	34 13.7	-6.2	15.3	36 09.3	-5.5	15.7	38 04.7	-4.8	16.1	39 59.9	-4.1	16.6
78	32 11.0	-7.5	13.8	34 07.5	-6.9	14.1	36 03.8	-6.3	14.5	37 59.9	-5.7	14.8	39 55.8	-5.0	15.3
79	32 03.5	-8.1	12.6	34 00.6	-7.6	12.9	35 57.5	-7.1	13.2	37 54.2	-6.5	13.6	39 50.8	-5.9	14.0
80	31 55.4	-8.8	11.5	33 53.0	-8.3	11.7	35 50.4	-7.8	12.0	37 47.7	-7.3	12.3	39 44.9	-6.8	12.7
81	31 46.6	-9.4	10.3	33 44.7	-9.0	10.5	35 42.6	-8.5	10.8	37 40.4	-8.0	11.1	39 38.1	-7.6	11.4
82	31 37.2	-10.0	9.1	33 35.7	-9.7	9.3	35 34.1	-9.3	9.6	37 32.4	-8.9	9.8	39 30.5	-8.4	10.1
83	31 27.2	-10.6	8.0	33 26.0	-10.3	8.1	35 24.8	-10.0	8.3	37 23.5	-9.7	8.6	39 22.1	-9.3	8.8
84	31 16.6	-11.3	6.8	33 15.7	-11.0	7.0	35 14.8	-10.7	7.1	37 13.8	-10.4	7.3	39 12.8	-10.1	7.5
85	31 05.3	-11.9	5.7	33 04.7	-11.7	5.8	35 04.1	-11.5	5.9	37 03.4	-11.2	6.1	39 02.7	-10.9	6.3
86	30 53.4	-12.5	4.5	32 53.0	-12.3	4.6	34 52.6	-12.1	4.7	36 52.2	-11.9	4.9	38 51.8	-11.8	5.0
87	30 40.9	-13.0	3.4	32 40.7	-12.9	3.5	34 40.5	-12.8	3.5	36 40.3	-12.7	3.6	38 40.0	-12.5	3.7
88	30 27.9	-13.7	2.3	32 27.8	-13.6	2.3	34 27.7	-13.5	2.4	36 27.6	-13.4	2.4	38 27.5	-13.4	2.5
89	30 14.2	-14.2	1.1	32 14.2	-14.2	1.1	34 14.2	-14.2	1.2	36 14.2	-14.2	1.2	38 14.1	-14.1	1.2
90	30 00.0	-14.8	0.0	32 00.0	-14.8	0.0	34 00.0	-14.8	0.0	36 00.0	-14.9	0.0	38 00.0	-14.9	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 76°, 284°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.					
3	55.9	+32.3	57.4	5	00.4	+33.8	57.5	6	04.8	+35.2	57.7	7	08.7	+36.7	57.9	8	12.4	+38.0	58.1	30
4	28.2	+32.2	56.5	5	34.2	+33.7	56.7	6	40.0	+35.1	56.9	7	45.4	+36.6	57.1	8	50.4	+38.0	57.3	31
5	00.4	+32.2	55.7	6	07.9	+33.7	55.9	7	15.1	+35.1	56.0	8	22.0	+36.4	56.3	9	28.4	+37.8	56.5	32
5	32.6	+32.2	54.8	6	41.6	+33.5	55.0	7	50.2	+35.0	55.2	8	58.4	+36.4	55.5	10	06.2	+37.8	55.7	33
6	04.8	+32.0	54.0	7	15.1	+33.5	54.2	8	25.2	+34.8	54.4	9	34.8	+36.3	54.7	10	44.0	+37.6	55.0	34
6	36.8	+31.9	53.1	7	48.6	+33.4	53.3	9	00.0	+34.8	53.6	10	11.1	+34.5	53.9	11	21.6	+37.5	54.2	35
7	08.7	+31.9	52.3	8	22.0	+33.2	52.5	9	34.8	+34.6	52.8	10	47.2	+36.0	53.0	11	59.1	+37.3	53.4	36
7	40.6	+31.8	51.4	8	55.2	+33.2	51.7	10	09.4	+34.6	51.9	11	23.2	+35.9	52.2	12	36.4	+37.2	52.6	37
8	12.4	+31.6	50.6	9	28.4	+33.0	50.8	10	44.0	+34.3	51.1	11	59.1	+35.7	51.4	13	13.6	+37.1	51.8	38
8	44.0	+31.5	49.7	10	01.4	+32.9	50.0	11	18.3	+34.3	50.3	12	34.8	+35.6	50.6	13	50.7	+36.9	51.0	39
9	15.5	+31.5	48.9	10	34.3	+32.7	49.1	11	52.6	+34.1	49.4	12	10.4	+35.4	49.8	14	25.9	+36.7	50.1	40
9	47.0	+31.2	48.0	11	07.0	+32.7	48.3	12	26.7	+33.9	48.6	13	45.8	+35.2	48.9	15	04.3	+36.6	49.3	41
10	18.2	+31.2	47.1	11	39.7	+32.4	47.4	13	00.6	+33.8	47.7	14	21.0	+35.1	48.1	15	40.9	+36.3	48.5	42
10	49.4	+31.0	46.3	12	12.1	+32.3	46.6	13	34.4	+33.6	46.9	14	56.1	+34.9	47.3	16	17.2	+36.2	47.7	43
11	20.4	+30.8	45.4	12	44.4	+32.1	45.7	14	08.0	+33.4	46.0	15	31.0	+34.7	46.4	16	53.4	+36.0	46.8	44
11	51.2	+30.7	44.5	13	16.5	+32.0	44.8	14	41.4	+33.2	45.2	15	05.7	+34.5	45.6	17	29.4	+35.8	46.0	45
12	21.9	+30.5	43.6	13	48.5	+31.8	44.0	15	14.6	+33.1	44.3	16	40.2	+34.3	44.7	18	05.2	+35.5	45.2	46
12	52.4	+30.3	42.8	14	20.3	+31.5	43.1	15	47.7	+32.8	43.4	17	14.5	+34.1	43.9	18	40.7	+35.3	44.3	47
13	22.7	+30.2	41.9	14	51.8	+31.4	42.2	16	20.5	+32.6	42.6	17	48.6	+33.8	43.0	19	16.0	+35.1	43.5	48
13	52.9	+29.9	41.0	15	23.2	+31.2	41.3	16	53.1	+32.4	41.7	18	22.4	+33.6	42.1	19	51.1	+34.8	42.6	49
14	22.8	+29.7	40.1	15	54.4	+30.9	40.4	17	25.5	+32.1	40.8	18	56.0	+33.3	41.3	20	25.9	+34.5	41.7	50
14	52.5	+29.6	39.2	16	25.3	+30.7	39.5	17	57.6	+31.9	39.9	19	29.3	+33.1	40.4	21	00.4	+34.3	40.9	51
15	22.1	+29.3	38.3	16	56.0	+30.5	38.6	18	29.5	+31.7	39.0	20	02.4	+32.9	39.5	21	34.7	+34.0	40.0	52
15	51.4	+29.1	37.4	17	26.5	+30.3	37.7	19	01.2	+31.4	38.1	20	35.3	+32.5	38.6	22	08.7	+33.8	39.1	53
16	20.5	+28.8	36.5	17	56.8	+30.0	36.8	19	32.6	+31.1	37.2	21	07.8	+32.3	37.7	22	42.5	+33.4	38.2	54
16	49.3	+28.7	35.6	18	26.8	+29.7	35.9	20	03.7	+30.8	36.3	21	40.1	+31.9	36.8	23	15.9	+33.1	37.3	55
17	18.0	+28.3	34.6	18	56.5	+29.4	35.0	20	34.5	+30.6	35.4	22	12.0	+31.7	35.9	23	49.0	+32.8	36.4	56
17	46.3	+28.1	33.7	19	25.9	+29.2	34.1	21	05.1	+30.2	34.5	22	43.7	+31.3	35.0	24	21.8	+32.4	35.5	57
18	14.4	+27.8	32.8	19	55.1	+28.9	33.2	21	35.3	+30.0	33.6	23	15.0	+31.1	34.0	24	54.2	+32.1	34.5	58
18	42.2	+27.6	31.8	20	24.0	+28.5	32.2	22	05.3	+29.6	32.6	23	46.1	+30.6	33.1	25	26.3	+31.7	33.6	59
19	09.8	+27.2	30.9	20	52.5	+28.3	31.3	22	34.9	+29.3	31.7	24	16.7	+30.4	32.2	25	58.0	+31.4	32.7	60
19	37.0	+27.0	30.0	21	20.8	+28.0	30.3	23	04.2	+28.9	30.8	24	47.1	+29.9	31.2	26	29.4	+31.0	31.7	61
20	04.0	+26.7	29.0	21	48.8	+27.6	29.4	23	33.1	+28.6	29.8	25	17.0	+29.6	30.3	27	00.4	+30.6	30.7	62
20	30.7	+26.3	28.1	22	16.4	+27.3	28.4	24	01.7	+28.2	28.8	25	46.6	+29.2	29.3	27	31.0	+30.2	29.8	63
20	57.0	+26.0	27.1	22	43.7	+26.9	27.5	24	29.9	+27.9	27.9	26	15.8	+28.8	28.3	28	01.2	+29.8	28.8	64
21	23.0	+25.7	26.1	23	10.6	+26.6	26.5	24	57.8	+27.5	26.9	26	44.6	+28.4	27.3	28	31.0	+29.3	27.8	65
21	48.7	+25.3	25.2	23	37.2	+26.2	25.5	25	25.3	+27.1	25.9	27	13.0	+28.0	26.3	29	00.3	+28.9	26.8	66
22	14.0	+25.0	24.2	24	03.4	+25.8	24.5	25	52.4	+26.6	24.9	27	41.0	+27.6	25.3	29	29.2	+28.5	25.8	67
22	39.0	+24.7	23.2	24	29.2	+25.4	23.5	26	19.0	+26.3	23.9	28	08.6	+27.1	24.3	29	57.7	+28.0	24.8	68
23	03.7	+24.2	22.2	24	54.6	+25.1	22.5	26	45.3	+25.8	22.9	28	35.7	+26.6	23.3	30	25.7	+27.5	23.8	69
23	27.9	+23.9	21.2	25	19.7	+24.6	21.5	27	11.1	+25.4	21.9	29	02.3	+26.2	22.3	30	53.2	+27.0	22.7	70
23	51.8	+23.5	20.2	25	44.3	+24.2	20.5	27	36.5	+25.0	20.9	29	28.5	+25.7	21.3	31	20.2	+26.4	21.7	71
24	15.3	+23.0	19.2	26	08.5	+23.7	19.5	28	01.5	+24.4	19.9	29	54.2	+25.2	20.2	31	46.6	+26.0	20.7	72
24	38.3	+22.7	18.2	26	32.2	+23.4	18.5	28	25.9	+24.0	18.8	30	19.4	+24.7	19.2	32	12.6	+25.4	19.6	73
25	01.0	+22.2	17.2	26	55.6	+22.8	17.5	28	49.9	+23.6	17.8	30	44.1	+24.2	18.1	32	38.0	+24.9	18.5	74
25	23.2	+21.9	16.1	27	18.4	+22.4	16.4	29	13.5	+23.0	16.7	31	08.3	+23.6	17.1	33	02.9	+24.3	17.4	75
25	45.1	+21.3	15.1	27	40.8	+22.0	15.4	29	36.5	+22.5	15.7	31	31.9	+23.1	16.0	33	27.2	+23.7	16.3	76
26	06.4	+21.0	14.1	28	02.8	+21.4	14.3	29	59.0	+22.0	14.6	31	55.0	+22.6	14.9	33	50.9	+23.1	15.2	77
26	27.4	+20.4	13.0	28	24.2	+21.0	13.3	30	21.0	+21.4	13.5	32	17.6	+22.0	13.8	34	14.0	+22.5	14.1	78
26	47.8	+20.0	12.0	28	45.2	+20.4	12.2	30	42.4	+20.9	12.4	32	39.6	+21.3	12.7	34	36.5	+21.9	13.0	79
27	07.8	+19.6	10.9	29	05.6	+20.0	11.1	31	03.3	+20.4	11.3	33	00.9	+20.8	11.6	34	58.4	+21.3	11.9	80
27	27.4	+19.0	9.8	29	25.6	+19.4	10.0	31	23.7	+19.8	10.2	33	21.7	+20.2	10.5	35	19.7	+20.6	10.7	81
27	46.4	+18.5	8.8	29	45.0	+18.8	8.9	31	43.5	+19.2	9.1	33	41.9	+19.6	9.3	35	40.3	+19.9	9.6	82
28	04.9	+18.1	7.7	30	03.8	+18.4	7.9	32	02.7	+18.6	8.0	34	01.5	+18.9	8.2	36	00.2	+19.3	8.4	83
28	23.0	+17.5	6.6	30	22.2	+17.7	6.8	32	21.3	+18.0	6.9	34	20.4	+18.3	7.1	36	19.5	+18.6	7.2	84
28	40.5	+17.0	5.5	30	39.9	+17.2	5.6	32	39.3	+17.4	5.8	34	38.7	+17.6	5.9	36	38.1	+17.8	6.0	85
28	57.5	+16.4	4.4	30	57.1	+16.6	4.5	32	56.7	+16.8	4.6	34	56.3	+17.0	4.7	36	55.9	+17.1	4.9	86
29	13.9	+15.9	3.3	31	13.7	+16.0	3.4	33	13.5	+16.2	3.5	35	13.3	+16.3	3.6	37	13.0	+16.4	3.7	87
29	29.8	+15.4	2.2	31	29.7	+15.5	2.3	33	29.7	+15.5	2.3	35	29.6	+15.5	2.4	37	29.4	+15.7	2.4	88
29	45.2	+14.8	1.1	31	45.2	+14.8	1.1	33	45.2	+14.8	1.2	35	45.1	+14.9	1.2	37	45.1	+14.9	1.2	89
30	00.0	+14.2	0.0	32	00.0	+14.2	0.0	34	00.0	+14.2	0.0	36	00.0	+14.2	0.0	38	00.0	+14.1	0.0	90
	30°			32°			34°			36°			38°							

LATITUDE SAME NAME

L.H.A. 104°, 256°

76°, 284° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	28 48.5	+31.6	73.5	29 21.5	+33.5	74.6	29 52.2	+35.4	75.7	30 20.7	+37.3	76.8	30 46.9	+39.1	78.0
31	29 20.1	+31.1	72.6	29 55.0	+33.1	73.7	30 27.6	+35.0	74.8	30 58.0	+36.9	75.9	31 26.0	+38.7	77.1
32	29 51.2	+30.7	71.6	30 28.1	+32.6	72.7	31 02.6	+34.6	73.8	31 34.9	+36.5	75.0	32 04.7	+38.4	76.2
33	30 21.9	+30.3	70.6	31 00.7	+32.2	71.7	31 37.2	+34.2	72.9	32 11.4	+36.0	74.1	32 43.1	+37.9	75.3
34	30 52.2	+29.7	69.6	31 32.9	+31.8	70.7	32 11.4	+33.7	71.9	32 47.4	+35.7	73.1	33 21.0	+37.6	74.4
35	31 21.9	+29.3	68.6	32 04.7	+31.2	69.7	32 45.1	+33.2	70.9	33 23.1	+35.2	72.2	33 58.6	+37.1	73.4
36	31 51.2	+28.8	67.5	32 35.9	+30.8	68.7	33 18.3	+32.8	69.9	33 58.3	+34.7	71.2	34 35.7	+36.7	72.5
37	32 20.0	+28.3	66.5	33 06.7	+30.3	67.7	33 51.1	+32.2	68.9	34 33.0	+34.2	70.2	35 12.4	+36.1	71.5
38	32 48.3	+27.7	65.5	33 37.0	+29.7	66.7	34 23.3	+31.8	67.9	35 07.2	+33.8	69.2	35 48.5	+35.8	70.5
39	33 16.0	+27.2	64.4	34 06.7	+29.2	65.6	34 55.1	+31.2	66.9	35 41.0	+33.2	68.2	36 24.3	+35.2	69.5
40	33 43.2	+26.7	63.3	34 35.9	+28.7	64.6	35 26.3	+30.7	65.8	36 14.2	+32.7	67.2	36 59.5	+34.6	68.5
41	34 09.9	+26.0	62.3	35 04.6	+28.1	63.5	35 57.0	+30.1	64.8	36 46.9	+32.1	66.1	37 34.1	+34.2	67.5
42	34 35.9	+25.5	61.2	35 32.7	+27.5	62.4	36 27.1	+29.5	63.7	37 19.0	+31.6	65.0	38 08.3	+33.6	66.5
43	35 01.4	+24.9	60.1	36 00.2	+26.9	61.3	36 56.6	+28.9	62.6	37 50.6	+30.9	64.0	38 41.9	+33.0	65.4
44	35 26.3	+24.3	58.9	36 27.1	+26.3	60.2	37 25.5	+28.4	61.5	38 21.5	+30.4	62.9	39 14.9	+32.4	64.3
45	35 50.6	+23.6	57.8	36 53.4	+25.6	59.1	37 53.9	+27.6	60.4	38 51.9	+29.7	61.8	39 47.3	+31.8	63.2
46	36 14.2	+23.0	56.7	37 19.0	+25.0	57.9	38 21.5	+27.0	59.3	39 21.6	+29.1	60.7	40 19.1	+31.1	62.1
47	36 37.2	+22.3	55.5	37 44.0	+24.3	56.8	38 48.5	+26.4	58.1	39 50.7	+28.4	59.5	40 50.2	+30.5	61.0
48	36 59.5	+21.6	54.4	38 08.3	+23.6	55.6	39 14.9	+25.6	57.0	40 19.1	+27.7	58.4	41 20.7	+29.7	59.9
49	37 21.1	+20.9	53.2	38 31.9	+22.9	54.5	39 40.5	+24.9	55.8	40 46.8	+26.9	57.2	41 50.4	+29.1	58.7
50	37 42.0	+20.2	52.0	38 54.8	+22.2	53.3	40 05.4	+24.2	54.6	41 13.7	+26.3	56.0	42 19.5	+28.3	57.5
51	38 02.2	+19.5	50.8	39 17.0	+21.4	52.1	40 29.6	+23.5	53.4	41 40.0	+25.5	54.8	42 47.8	+27.6	56.3
52	38 21.7	+18.7	49.6	39 38.4	+20.7	50.9	40 53.1	+22.6	52.2	42 05.5	+24.7	53.6	43 15.4	+26.8	55.1
53	38 40.4	+18.0	48.4	39 59.1	+19.9	49.7	41 15.7	+21.9	51.0	42 30.2	+23.9	52.4	43 42.2	+26.0	53.9
54	38 58.4	+17.2	47.2	40 19.0	+19.1	48.4	41 37.6	+21.1	49.7	42 54.1	+23.1	51.1	44 08.2	+25.1	52.6
55	39 15.6	+16.4	46.0	40 38.1	+18.3	47.2	41 58.7	+20.2	48.5	43 17.2	+22.2	49.9	44 33.3	+24.3	51.4
56	39 32.0	+15.6	44.7	40 56.4	+17.5	45.9	42 18.9	+19.4	47.2	43 39.4	+21.4	48.6	44 57.6	+23.4	50.1
57	39 47.6	+14.8	43.5	41 13.9	+16.6	44.6	42 38.3	+18.5	45.9	44 00.8	+20.4	47.3	45 21.0	+22.5	48.8
58	40 02.4	+14.0	42.2	41 30.5	+15.7	43.4	42 56.8	+17.7	44.6	44 21.2	+19.6	46.0	45 43.5	+21.6	47.4
59	40 16.4	+13.1	40.9	41 46.2	+14.9	42.1	43 14.5	+16.7	43.3	44 40.8	+18.6	44.7	46 05.1	+20.6	46.1
60	40 29.5	+12.2	39.6	42 01.1	+14.0	40.8	43 31.2	+15.8	42.0	44 59.4	+17.7	43.3	46 25.7	+19.7	44.7
61	40 41.7	+11.4	38.3	42 15.1	+13.1	39.5	43 47.0	+14.9	40.7	45 17.1	+16.8	42.0	46 45.4	+18.6	43.4
62	40 53.1	+10.6	37.1	42 28.2	+12.2	38.1	44 01.9	+13.9	39.3	45 33.9	+15.7	40.6	47 04.0	+17.7	42.0
63	41 03.7	+9.6	35.7	42 40.4	+11.3	36.8	44 15.8	+12.9	38.0	45 49.6	+14.7	39.2	47 21.7	+16.5	40.6
64	41 13.3	+8.7	34.4	42 51.7	+10.3	35.5	44 28.7	+12.0	36.6	46 04.3	+13.7	37.8	47 38.2	+15.6	39.1
65	41 22.0	+7.9	33.1	43 02.0	+9.3	34.1	44 40.7	+10.9	35.2	46 18.0	+12.6	36.4	47 53.8	+14.4	37.7
66	41 29.9	+6.9	31.8	43 11.3	+8.4	32.8	44 51.6	+10.0	33.8	46 30.6	+11.6	35.0	48 08.2	+13.3	36.3
67	41 36.8	+6.0	30.5	43 19.7	+7.5	31.4	45 01.6	+8.9	32.4	46 42.2	+10.6	33.6	48 21.5	+12.2	34.8
68	41 42.8	+5.1	29.1	43 27.2	+6.4	30.0	45 10.5	+7.9	31.0	46 52.8	+9.4	32.1	48 33.7	+11.1	33.3
69	41 47.9	+4.1	27.8	43 33.6	+5.5	28.7	45 18.4	+6.9	29.6	47 02.2	+8.3	30.7	48 44.8	+9.9	31.8
70	41 52.0	+3.2	26.5	43 39.1	+4.4	27.3	45 25.3	+5.8	28.2	47 10.5	+7.2	29.2	48 54.7	+8.7	30.3
71	41 55.2	+2.3	25.1	43 43.5	+3.5	25.9	45 31.1	+4.7	26.8	47 17.7	+6.1	27.8	49 03.4	+7.6	28.8
72	41 57.5	+1.4	23.8	43 47.0	+2.5	24.5	45 35.8	+3.7	25.4	47 23.8	+5.0	26.3	49 11.0	+6.3	27.3
73	41 58.9	+0.4	22.4	43 49.5	+1.5	23.2	45 39.5	+2.6	23.9	47 28.8	+3.8	24.8	49 17.3	+5.1	25.8
74	41 59.3	-0.6	21.1	43 51.0	+0.4	21.8	45 42.1	+1.6	22.5	47 32.6	+2.7	23.3	49 22.4	+4.0	24.3
75	41 58.7	-1.5	19.7	43 51.4	-0.5	20.4	45 43.7	+0.4	21.1	47 35.3	+1.6	21.9	49 26.4	+2.7	22.7
76	41 57.2	-2.4	18.4	43 50.9	-1.6	19.0	45 44.1	-0.6	19.7	47 36.9	+0.4	20.4	49 29.1	+1.5	21.2
77	41 54.8	-3.4	17.1	43 49.3	-2.5	17.6	45 43.5	-1.7	18.2	47 37.3	-0.8	18.9	49 30.6	+0.2	19.6
78	41 51.4	-4.3	15.7	43 46.8	-3.6	16.2	45 41.8	-2.7	16.8	47 36.5	-1.9	17.4	49 30.8	-0.9	18.1
79	41 47.1	-5.2	14.4	43 43.2	-4.5	14.8	45 39.1	-3.8	15.4	47 34.6	-3.0	15.9	49 29.9	-2.2	16.6
80	41 41.9	-6.2	13.0	43 38.7	-5.6	13.5	45 35.3	-4.9	13.9	47 31.6	-4.2	14.4	49 27.7	-3.4	15.0
81	41 35.7	-7.1	11.7	43 33.1	-6.5	12.1	45 30.4	-6.0	12.5	47 27.4	-5.3	13.0	49 24.3	-4.7	13.5
82	41 28.6	-7.9	10.4	43 26.6	-7.5	10.7	45 24.4	-6.9	11.1	47 22.1	-6.4	11.5	49 19.6	-5.8	12.0
83	41 20.7	-8.9	9.1	43 19.1	-8.5	9.4	45 17.5	-8.1	9.7	47 15.7	-7.6	10.0	49 13.8	-7.1	10.4
84	41 11.8	-9.8	7.7	43 10.6	-9.4	8.0	45 09.4	-9.0	8.3	47 08.1	-8.6	8.6	49 06.7	-8.2	8.9
85	41 02.0	-10.7	6.4	43 01.2	-10.4	6.6	45 00.4	-10.1	6.9	46 59.5	-9.8	7.1	48 58.5	-9.4	7.4
86	40 51.3	-11.5	5.1	42 50.8	-11.3	5.3	44 50.3	-11.1	5.5	46 49.7	-10.8	5.7	48 49.1	-10.6	5.9
87	40 39.8	-12.4	3.8	42 39.5	-12.3	4.0	44 39.2	-12.1	4.1	46 38.9	-11.9	4.2	48 38.5	-11.7	4.4
88	40 27.4	-13.3	2.6	42 27.2	-13.1	2.6	44 27.1	-13.1	2.7	46 27.0	-13.0	2.8	48 26.8	-12.8	2.9
89	40 14.1	-14.1	1.3	42 14.1	-14.1	1.3	44 14.0	-14.0	1.4	46 14.0	-14.0	1.4	48 14.0	-14.0	1.5
90	40 00.0	-14.9	0.0	42 00.0	-15.0	0.0	44 00.0	-15.0	0.0	46 00.0	-15.0	0.0	48 00.0	-15.1	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 76°, 284°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
9	15.5	+39.5	58.4	10	18.2	+40.8	58.7	11	20.4	+42.0	59.0	12	21.9	+43.3	59.3	30
9	55.0	+39.3	57.6	10	59.0	+40.7	57.9	12	02.4	+42.0	58.3	13	05.2	+43.3	58.6	31
10	34.3	+39.2	56.8	11	39.7	+40.5	57.2	12	44.4	+41.9	57.5	13	48.5	+43.1	57.9	32
11	13.5	+39.1	56.1	12	20.2	+40.4	56.4	13	26.3	+41.7	56.8	14	31.6	+43.0	57.2	33
11	52.6	+39.0	55.3	13	00.6	+40.3	55.6	14	08.0	+41.6	56.0	15	14.6	+42.9	56.5	34
12	31.6	+38.8	54.5	13	40.9	+40.1	54.9	14	49.6	+41.4	55.3	15	57.5	+42.7	55.8	35
13	10.4	+38.7	53.7	14	21.0	+40.0	54.1	15	31.0	+41.3	54.6	16	40.2	+42.6	55.0	36
13	49.1	+38.5	52.9	15	01.0	+39.9	53.4	16	12.3	+41.1	53.8	17	22.8	+42.4	54.3	37
14	27.6	+38.4	52.1	15	40.9	+39.7	52.6	16	53.4	+41.0	53.0	18	05.2	+42.2	53.5	38
15	06.0	+38.2	51.4	16	20.6	+39.5	51.8	17	34.4	+40.8	52.3	18	47.4	+42.0	52.8	39
15	44.2	+38.0	50.6	17	00.1	+39.3	51.0	18	15.2	+40.6	51.5	19	29.4	+41.9	52.0	40
16	22.2	+37.9	49.7	17	39.4	+39.1	50.2	18	55.8	+40.3	50.7	20	11.3	+41.6	51.3	41
17	00.1	+37.6	48.9	18	18.5	+38.9	49.4	19	36.1	+40.2	49.9	20	52.9	+41.5	50.5	42
17	37.7	+37.5	48.1	18	57.4	+38.7	48.6	20	16.3	+40.0	49.2	21	34.4	+41.2	49.7	43
18	15.2	+37.2	47.3	19	36.1	+38.5	47.8	20	56.3	+39.8	48.4	22	15.6	+41.0	49.0	44
18	52.4	+37.0	46.5	20	14.6	+38.3	47.0	21	36.1	+39.5	47.6	22	56.6	+40.8	48.2	45
19	29.4	+36.8	45.6	20	52.9	+38.1	46.2	22	15.6	+39.3	46.7	23	37.4	+40.5	47.4	46
20	06.2	+36.6	44.8	21	31.0	+37.7	45.3	22	54.9	+39.0	45.9	24	17.9	+40.2	46.6	47
20	42.8	+36.2	44.0	22	08.7	+37.6	44.5	23	33.9	+38.7	45.1	24	58.1	+40.0	45.7	48
21	19.0	+36.1	43.1	22	46.3	+37.2	43.7	24	12.6	+38.5	44.3	25	38.1	+39.7	44.9	49
21	55.1	+35.8	42.2	23	23.5	+37.0	42.8	24	51.1	+38.2	43.4	26	17.8	+39.8	44.1	50
22	30.9	+35.4	41.4	24	00.5	+36.7	41.9	25	29.3	+37.9	42.6	26	57.2	+39.1	43.2	51
23	06.3	+35.2	40.5	24	37.2	+36.4	41.1	26	07.2	+37.6	41.7	27	36.3	+38.8	42.4	52
23	41.5	+34.9	39.6	25	13.6	+36.1	40.2	26	44.8	+37.3	40.8	28	15.1	+38.5	41.5	53
24	16.4	+34.6	38.7	25	49.7	+35.7	39.3	27	22.1	+36.9	40.0	28	53.6	+38.1	40.6	54
24	51.0	+34.3	37.8	26	25.4	+35.4	38.4	27	59.0	+36.6	39.1	29	31.7	+37.8	39.8	55
25	25.3	+33.9	36.9	27	00.8	+35.1	37.5	28	35.6	+36.2	38.2	30	09.5	+37.4	38.9	56
25	59.2	+33.5	36.0	27	35.9	+34.7	36.6	29	11.8	+35.8	37.3	30	46.9	+37.0	38.0	57
26	32.7	+33.2	35.1	28	10.6	+34.3	35.7	29	47.6	+35.5	36.3	31	23.9	+36.6	37.0	58
27	05.9	+32.9	34.2	28	44.9	+33.9	34.7	30	23.1	+35.1	35.4	32	00.5	+36.2	36.1	59
27	38.8	+32.4	33.2	29	18.8	+33.6	33.8	30	58.2	+34.6	34.5	32	36.7	+35.8	35.2	60
28	11.2	+32.1	32.3	29	52.4	+33.1	32.9	31	32.8	+34.2	33.5	33	12.5	+35.3	34.2	61
28	43.3	+31.6	31.3	30	25.5	+32.7	31.9	32	07.0	+33.8	32.5	33	47.8	+34.8	33.2	62
29	14.9	+31.2	30.3	30	58.2	+32.2	30.9	32	40.8	+33.3	31.6	34	22.6	+34.4	32.3	63
29	46.1	+30.8	29.3	31	30.4	+31.8	29.9	33	14.1	+32.8	30.6	34	57.0	+33.9	31.3	64
30	16.9	+30.3	28.3	32	02.2	+31.3	28.9	33	46.9	+32.3	29.6	35	30.9	+33.4	30.3	65
30	47.2	+29.8	27.3	32	33.5	+30.8	27.9	34	19.2	+31.8	28.5	36	04.3	+32.8	29.2	66
31	17.0	+29.4	26.3	33	04.3	+30.3	26.9	34	51.0	+31.3	27.5	36	37.1	+32.3	28.2	67
31	46.4	+28.9	25.3	33	34.6	+29.8	25.9	35	22.3	+30.8	26.5	37	09.4	+31.8	27.1	68
32	15.3	+28.3	24.3	34	04.4	+29.3	24.8	35	53.1	+30.2	25.4	37	41.2	+31.1	26.1	69
32	43.6	+27.9	23.2	34	33.7	+28.7	23.8	36	23.3	+29.6	24.3	38	12.3	+30.6	25.0	70
33	11.5	+27.3	22.2	35	02.4	+28.1	22.7	36	52.9	+29.0	23.3	38	42.9	+29.9	23.9	71
33	38.8	+26.7	21.1	35	30.5	+27.6	21.6	37	21.9	+28.4	22.2	39	12.8	+29.2	22.8	72
34	05.5	+26.2	20.0	35	58.1	+26.9	20.5	37	50.3	+27.7	21.1	39	42.0	+28.6	21.6	73
34	31.7	+25.5	18.9	36	25.0	+26.3	19.4	38	18.0	+27.1	19.9	40	10.6	+27.9	20.5	74
34	57.2	+25.0	17.8	36	51.3	+25.7	18.3	38	45.1	+26.4	18.8	40	38.5	+27.2	19.3	75
35	22.2	+24.4	16.7	37	17.0	+25.0	17.2	39	11.5	+25.8	17.6	41	05.7	+26.5	18.1	76
35	46.6	+23.7	15.6	37	42.0	+24.4	16.0	39	37.3	+25.0	16.5	41	32.2	+25.7	17.0	77
36	10.3	+23.1	14.5	38	06.4	+23.7	14.9	40	02.3	+24.3	15.3	41	57.9	+25.0	15.7	78
36	33.4	+22.4	13.3	38	30.1	+22.9	13.7	40	26.6	+23.5	14.1	42	22.9	+24.1	14.5	79
36	55.8	+21.7	12.2	38	53.0	+22.3	12.5	40	50.1	+22.8	12.9	42	47.0	+23.3	13.3	80
37	17.5	+21.1	11.0	39	15.3	+21.5	11.3	41	12.9	+22.0	11.6	43	10.3	+22.5	12.0	81
37	38.6	+20.3	9.8	39	36.8	+20.7	10.1	41	34.9	+21.1	10.4	43	32.8	+21.7	10.7	82
37	58.9	+19.6	8.6	39	57.5	+20.0	8.9	41	56.0	+20.4	9.1	43	54.5	+20.7	9.4	83
38	18.5	+18.9	7.4	40	17.5	+19.1	7.6	42	16.4	+19.5	7.9	44	15.2	+19.8	8.1	84
38	37.4	+18.1	6.2	40	36.6	+18.4	6.4	42	35.9	+18.6	6.6	44	35.0	+19.0	6.8	85
38	55.5	+17.3	5.0	40	55.0	+17.5	5.1	42	54.5	+17.7	5.3	44	54.0	+17.9	5.5	86
39	12.8	+16.5	3.8	41	12.5	+16.7	3.9	43	12.2	+16.9	4.0	45	11.9	+17.1	4.1	87
39	29.3	+15.8	2.5	41	29.2	+15.8	2.6	43	29.1	+15.9	2.7	45	29.0	+16.0	2.8	88
39	45.1	+14.9	1.3	41	45.0	+15.0	1.3	43	45.0	+15.0	1.3	45	45.0	+15.0	1.4	89
40	00.0	+14.1	0.0	42	00.0	+14.1	0.0	44	00.0	+14.0	0.0	46	00.0	+14.0	0.0	90
40°			42°			44°			46°			48°				

LATITUDE SAME NAME

L.H.A. 104°, 256°

76°, 284° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	31 10.7	+40.9	79.2	31 32.0	+42.6	80.4	31 50.8	+44.3	81.6	32 07.1	+46.0	82.8	32 20.8	+47.5	84.1
31	31 51.6	+40.5	78.3	32 14.6	+42.3	79.5	32 35.1	+44.1	80.8	32 53.1	+45.6	82.1	33 08.3	+47.2	83.3
32	32 32.1	+40.2	77.4	32 56.9	+42.0	78.7	33 19.2	+43.6	80.0	33 38.7	+45.4	81.3	33 55.5	+47.0	82.6
33	33 12.3	+39.8	76.5	33 38.9	+41.6	77.8	34 02.8	+43.4	79.1	34 24.1	+45.0	80.5	34 42.5	+46.7	81.8
34	33 52.1	+39.4	75.6	34 20.5	+41.2	77.0	34 46.2	+43.0	78.3	35 09.1	+44.7	79.7	35 29.2	+46.3	81.1
35	34 31.5	+39.0	74.7	35 01.7	+40.9	76.1	35 29.2	+42.6	77.5	35 53.8	+44.4	78.9	36 15.5	+46.1	80.3
36	35 10.5	+38.6	73.8	35 42.6	+40.4	75.2	36 11.8	+42.3	76.6	36 38.2	+44.0	78.0	37 01.6	+45.7	79.5
37	35 49.1	+38.1	72.9	36 23.0	+40.0	74.3	36 54.1	+41.9	75.7	37 22.2	+43.7	77.2	37 47.3	+45.4	78.7
38	36 27.2	+37.6	71.9	37 03.0	+39.6	73.3	37 36.0	+41.4	74.8	38 05.9	+43.2	76.3	38 32.7	+45.0	77.9
39	37 04.8	+37.2	70.9	37 42.6	+39.1	72.4	38 17.4	+41.0	73.9	38 49.1	+42.9	75.4	39 17.7	+44.7	77.0
40	37 42.0	+36.7	70.0	38 21.7	+38.6	71.4	38 58.4	+40.5	73.0	39 32.0	+42.4	74.5	40 02.4	+44.2	76.1
41	38 18.7	+36.1	68.9	39 00.3	+38.1	70.5	39 38.9	+40.1	72.0	40 14.4	+42.0	73.6	40 46.6	+43.9	75.2
42	38 54.8	+35.6	67.9	39 38.4	+37.6	69.5	40 19.0	+39.6	71.0	40 56.4	+41.5	72.7	41 30.5	+43.4	74.3
43	39 30.4	+35.0	66.9	40 16.0	+37.1	68.4	40 58.6	+39.0	70.0	41 37.9	+41.0	71.7	42 13.9	+42.9	73.4
44	40 05.4	+34.5	65.8	40 53.1	+36.5	67.4	41 37.6	+38.5	69.0	42 18.9	+40.5	70.7	42 56.8	+42.5	72.5
45	40 39.9	+33.8	64.8	41 29.6	+35.9	66.3	42 16.1	+38.0	68.0	42 59.4	+40.0	69.7	43 39.3	+41.9	71.5
46	41 13.7	+33.2	63.7	42 05.5	+35.3	65.3	42 54.1	+37.3	66.9	43 39.4	+39.4	68.7	44 21.2	+41.5	70.5
47	41 46.9	+32.6	62.6	42 40.8	+34.6	64.2	43 31.4	+36.8	65.9	44 18.8	+38.8	67.6	45 02.7	+40.8	69.5
48	42 19.5	+31.9	61.4	43 15.4	+34.0	63.1	44 08.2	+36.1	64.8	44 57.6	+38.2	66.6	45 43.5	+40.3	68.4
49	42 51.4	+31.1	60.3	43 49.4	+33.3	61.9	44 44.3	+35.4	63.7	45 35.8	+37.6	65.5	46 23.8	+39.7	67.4
50	43 22.5	+30.5	59.1	44 22.7	+32.6	60.8	45 19.7	+34.7	62.5	46 13.4	+36.9	64.4	47 03.5	+39.0	66.3
51	43 53.0	+29.7	57.9	44 55.3	+31.8	59.6	45 54.4	+34.0	61.3	46 50.3	+36.1	63.2	47 42.5	+38.4	65.2
52	44 22.7	+28.9	56.7	45 27.1	+31.1	58.4	46 28.4	+33.3	60.2	47 26.4	+35.5	62.0	48 20.9	+37.7	64.0
53	44 51.6	+28.1	55.5	45 58.2	+30.2	57.2	47 01.7	+32.4	58.9	48 01.9	+34.7	60.8	48 58.6	+36.9	62.8
54	45 19.7	+27.3	54.2	46 28.4	+29.5	55.9	47 34.1	+31.7	57.7	48 36.6	+33.9	59.6	49 35.5	+36.1	61.6
55	45 47.0	+26.4	52.9	46 57.9	+28.5	54.6	48 05.8	+30.8	56.4	49 10.5	+33.0	58.4	50 11.6	+35.4	60.4
56	46 13.4	+25.5	51.7	47 26.4	+27.7	53.3	48 36.6	+29.9	55.1	49 43.5	+32.2	57.1	50 47.0	+34.4	59.1
57	46 38.9	+24.6	50.3	47 54.1	+26.8	52.0	49 06.5	+29.0	53.8	50 15.7	+31.3	55.8	51 21.4	+33.6	57.8
58	47 03.5	+23.7	49.0	48 20.9	+25.8	50.7	49 35.5	+28.0	52.5	50 47.0	+30.3	54.4	51 55.0	+32.7	56.5
59	47 27.2	+22.7	47.6	48 46.7	+24.8	49.3	50 03.5	+27.1	51.1	51 17.3	+29.3	53.0	52 27.7	+31.7	55.1
60	47 49.9	+21.6	46.3	49 11.5	+23.9	47.9	50 30.6	+26.0	49.7	51 46.6	+28.3	51.6	52 59.4	+30.7	53.7
61	48 11.5	+20.7	44.9	49 35.4	+22.7	46.5	50 56.6	+25.0	48.3	52 14.9	+27.3	50.2	53 30.1	+29.6	52.3
62	48 32.2	+19.6	43.5	49 58.1	+21.7	45.1	51 21.6	+23.8	46.8	52 42.2	+26.1	48.7	53 59.7	+28.5	50.8
63	48 51.8	+18.6	42.0	50 19.8	+20.6	43.6	51 45.4	+22.8	45.4	53 08.3	+25.1	47.3	54 28.2	+27.4	49.3
64	49 10.4	+17.4	40.6	50 40.4	+19.5	42.2	52 08.2	+21.6	43.9	53 33.4	+23.8	45.7	54 55.6	+26.2	47.8
65	49 27.8	+16.3	39.1	50 59.9	+18.3	40.7	52 29.8	+20.4	42.3	53 57.2	+22.6	44.2	55 21.8	+24.9	46.2
66	49 44.1	+15.2	37.6	51 18.2	+17.1	39.1	52 50.2	+19.1	40.8	54 19.8	+21.3	42.6	55 46.7	+23.7	44.6
67	49 59.3	+14.0	36.1	51 35.3	+15.9	37.6	53 09.3	+17.9	39.2	54 41.1	+20.1	41.0	56 10.4	+22.3	42.9
68	50 13.3	+12.7	34.6	51 51.2	+14.6	36.0	53 27.2	+16.6	37.6	55 01.2	+18.7	39.3	56 32.7	+21.0	41.2
69	50 26.0	+11.6	33.1	52 05.8	+13.4	34.5	53 43.8	+15.3	36.0	55 19.9	+17.3	37.7	56 53.7	+19.5	39.5
70	50 37.6	+10.4	31.5	52 19.2	+12.0	32.9	53 59.1	+13.9	34.4	55 37.2	+15.9	36.0	57 13.2	+18.0	37.8
71	50 48.0	+9.0	30.0	52 31.2	+10.8	31.3	54 13.0	+12.5	32.7	55 53.1	+14.5	34.3	57 31.2	+16.6	36.0
72	50 57.0	+7.9	28.4	52 42.0	+9.4	29.7	54 25.5	+11.2	31.0	56 07.6	+12.9	32.5	57 47.8	+15.0	34.2
73	51 04.9	+6.5	26.8	52 51.4	+8.0	28.0	54 36.7	+9.7	29.3	56 20.5	+11.5	30.8	58 02.8	+13.4	32.4
74	51 11.4	+5.3	25.3	52 59.4	+6.7	26.4	54 46.4	+8.2	27.6	56 32.0	+10.0	29.0	58 16.2	+11.8	30.6
75	51 16.7	+3.9	23.7	53 06.1	+5.4	24.7	54 54.6	+6.8	25.9	56 42.0	+8.4	27.2	58 28.0	+10.1	28.7
76	51 20.6	+2.7	22.1	53 11.5	+3.9	23.1	55 01.4	+5.3	24.2	56 50.4	+6.8	25.4	58 38.1	+8.5	26.8
77	51 23.3	+1.3	20.5	53 15.4	+2.5	21.4	55 06.7	+3.8	22.4	56 57.2	+5.2	23.6	58 46.6	+6.8	24.9
78	51 24.6	+0.1	18.9	53 17.9	+1.1	19.7	55 10.5	+2.3	20.7	57 02.4	+3.6	21.8	58 53.4	+5.0	23.0
79	51 24.7	-1.3	17.3	53 19.0	-0.3	18.1	55 12.8	+0.8	18.9	57 06.0	+2.0	19.9	58 58.4	+3.3	21.1
80	51 23.4	-2.6	15.7	53 18.7	-1.7	16.4	55 13.6	-0.7	17.2	57 08.0	+0.4	18.1	59 01.7	+1.6	19.1
81	51 20.8	-3.9	14.1	53 17.0	-3.1	14.7	55 12.9	-2.2	15.4	57 08.4	-1.3	16.2	59 03.3	-0.2	17.2
82	51 16.9	-5.2	12.5	53 13.9	-4.4	13.0	55 10.7	-3.7	13.7	57 07.1	-2.8	14.4	59 03.1	-1.9	15.2
83	51 11.7	-6.5	10.9	53 09.5	-5.9	11.4	55 07.0	-5.2	11.9	57 04.3	-4.5	12.6	59 01.2	-3.6	13.3
84	51 05.2	-7.7	9.3	53 03.6	-7.3	9.7	55 01.8	-6.7	10.2	56 59.8	-6.1	10.7	58 57.6	-5.4	11.3
85	50 57.5	-9.1	7.7	52 56.3	-8.6	8.1	54 55.1	-8.2	8.5	56 53.7	-7.6	8.9	58 52.2	-7.1	9.4
86	50 48.4	-10.2	6.1	52 47.7	-9.9	6.4	54 46.9	-9.6	6.7	56 46.1	-9.3	7.1	58 45.1	-8.8	7.5
87	50 38.2	-11.5	4.6	52 37.8	-11.3	4.8	54 37.3	-11.0	5.0	56 36.8	-10.7	5.3	58 36.3	-10.5	5.6
88	50 26.7	-12.8	3.0	52 26.5	-12.6	3.2	54 26.3	-12.5	3.3	56 26.1	-12.3	3.5	58 25.8	-12.1	3.7
89	50 13.9	-13.9	1.5	52 13.9	-13.9	1.6	54 13.8	-13.8	1.7	56 13.8	-13.8	1.7	58 13.7	-13.7	1.8
90	50 00.0	-15.1	0.0	52 00.0	-15.1	0.0	54 00.0	-15.2	0.0	56 00.0	-15.2	0.0	58 00.0	-15.3	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 76°, 284°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
14	22.8	+45.9	60.2	15	22.1	+47.0	60.6	16	20.5	+48.2	61.1	17	18.0	+49.3	61.7	30
15	08.7	+45.7	59.5	16	09.1	+46.9	60.0	17	08.7	+48.1	60.5	18	07.3	+49.2	61.1	31
15	54.4	+45.6	58.8	16	56.0	+46.8	59.3	17	56.8	+47.9	59.9	18	56.5	+49.1	60.5	32
16	40.0	+45.5	58.2	17	42.8	+46.7	58.7	18	44.7	+47.9	59.2	19	45.6	+48.9	59.8	33
17	25.5	+45.3	57.5	18	29.5	+46.5	58.0	19	32.6	+47.7	58.6	20	34.5	+48.8	59.2	34
18	10.8	+45.2	56.8	19	16.0	+46.4	57.3	20	20.3	+47.5	58.0	21	23.3	+48.7	58.6	35
18	56.0	+45.0	56.1	20	02.4	+46.3	56.7	21	07.8	+47.4	57.3	22	12.0	+48.6	58.0	36
19	41.0	+44.9	55.4	20	48.7	+46.0	56.0	21	55.2	+47.3	56.6	23	00.6	+48.4	57.3	37
20	25.9	+44.7	54.7	21	34.7	+45.9	55.3	22	42.5	+47.0	56.0	23	49.0	+48.2	56.7	38
21	10.6	+44.5	54.0	22	20.6	+45.7	54.6	23	29.5	+46.9	55.3	24	37.2	+48.1	56.0	39
21	55.1	+44.3	53.2	23	06.3	+45.6	53.9	24	16.4	+46.7	54.6	25	25.3	+47.8	55.4	40
22	39.4	+44.1	52.5	23	51.9	+45.3	53.2	25	03.1	+46.6	53.9	26	13.1	+47.7	54.7	41
23	23.5	+43.9	51.8	24	37.2	+45.1	52.5	25	49.7	+46.3	53.2	27	00.8	+47.5	54.0	42
24	07.4	+43.7	51.0	25	22.3	+44.9	51.8	26	36.0	+46.1	52.5	27	48.3	+47.3	53.3	43
24	51.1	+43.5	50.3	26	07.2	+44.7	51.0	27	22.1	+45.8	51.8	28	35.6	+47.0	52.6	44
25	34.6	+43.2	49.5	26	51.9	+44.4	50.3	28	07.9	+45.7	51.1	29	22.6	+46.9	51.9	45
26	17.8	+43.0	48.7	27	36.3	+44.2	49.5	28	53.6	+45.4	50.3	30	09.5	+46.6	51.2	46
27	00.8	+42.7	48.0	28	20.5	+44.0	48.8	29	39.0	+45.1	49.6	30	56.1	+46.3	50.5	47
27	43.5	+42.4	47.2	29	04.5	+43.6	48.0	30	24.1	+44.9	48.8	31	42.4	+46.1	49.7	48
28	25.9	+42.2	46.4	29	48.1	+43.4	47.2	31	09.0	+44.6	48.1	32	28.5	+45.8	49.0	49
29	08.1	+41.9	45.6	30	31.5	+43.1	46.4	31	53.6	+44.3	47.3	33	14.3	+45.5	48.2	50
29	50.0	+41.5	44.7	31	14.6	+42.7	45.6	32	37.9	+44.0	46.5	33	59.8	+45.2	47.4	51
30	31.5	+41.2	43.9	31	57.3	+42.5	44.8	33	21.9	+43.7	45.7	34	45.4	+44.9	46.6	52
31	12.7	+40.9	43.1	32	39.8	+42.1	43.9	34	05.6	+43.3	44.8	35	29.9	+44.6	45.8	53
31	53.6	+40.5	42.2	33	21.9	+41.7	43.1	34	48.9	+43.0	44.0	36	14.5	+44.2	45.0	54
32	34.1	+40.2	41.3	34	03.6	+41.4	42.2	35	31.9	+42.6	43.1	36	58.7	+43.9	44.2	55
33	14.3	+39.8	40.4	34	45.0	+41.0	41.3	36	14.5	+42.2	42.3	37	42.6	+43.4	43.3	56
33	54.1	+39.4	39.5	35	26.0	+40.6	40.4	36	56.7	+41.8	41.4	38	26.0	+43.1	42.4	57
34	33.5	+38.9	38.6	36	06.6	+40.2	39.5	37	38.5	+41.5	40.5	39	09.1	+42.7	41.5	58
35	12.4	+38.6	37.7	36	46.8	+39.8	38.6	38	20.0	+40.9	39.6	39	51.8	+42.2	40.6	59
35	51.0	+38.1	36.8	37	26.6	+39.2	37.7	39	00.9	+40.5	38.6	40	34.0	+41.7	39.7	60
36	29.1	+37.6	35.8	38	05.8	+38.9	36.7	39	41.4	+40.1	37.7	41	15.7	+41.3	38.7	61
37	06.7	+37.2	34.8	38	44.7	+38.3	35.7	40	21.5	+39.5	36.7	41	57.0	+40.8	37.8	62
37	43.9	+36.6	33.8	39	23.0	+37.8	34.7	41	01.0	+39.0	35.7	42	37.0	+40.3	36.8	63
38	20.5	+36.1	32.8	40	00.8	+37.3	33.7	41	40.0	+38.5	34.7	43	18.1	+39.7	35.8	64
38	56.6	+35.6	31.8	40	38.1	+36.7	32.7	42	18.5	+37.9	33.7	43	58.8	+39.1	34.7	65
39	32.2	+35.0	30.8	41	14.8	+36.1	31.7	42	56.4	+37.3	32.6	44	36.9	+38.5	33.7	66
40	07.2	+34.4	29.7	41	50.9	+35.6	30.6	43	33.7	+36.7	31.5	45	15.4	+37.9	32.6	67
40	41.6	+33.8	28.6	42	26.5	+34.9	29.5	44	10.4	+36.1	30.4	45	53.3	+37.3	31.5	68
41	15.4	+33.2	27.6	43	01.4	+34.3	28.4	44	46.5	+35.4	29.3	46	30.6	+36.6	30.3	69
41	48.6	+32.5	26.4	43	35.7	+33.5	27.3	45	21.9	+34.7	28.2	47	07.2	+35.8	29.2	70
42	21.1	+31.9	25.3	44	09.2	+32.9	26.1	45	56.6	+33.9	27.0	47	43.0	+35.1	28.0	71
42	53.0	+31.1	24.2	44	42.1	+32.2	25.0	46	30.5	+33.2	25.8	48	18.1	+34.3	26.8	72
43	24.1	+30.4	23.0	45	14.3	+31.3	23.8	47	03.7	+32.4	24.6	48	52.4	+33.5	25.6	73
43	54.5	+29.7	21.8	45	45.6	+30.6	22.5	47	36.1	+31.6	23.4	49	25.9	+32.7	24.3	74
44	24.2	+28.8	20.6	46	16.2	+29.8	21.3	48	07.7	+30.8	22.1	49	58.6	+31.7	23.0	75
44	53.0	+28.1	19.3	46	46.0	+28.9	20.0	48	38.5	+29.8	20.8	50	30.3	+30.9	21.7	76
45	21.1	+27.2	18.1	47	14.9	+28.1	18.8	49	08.3	+28.9	19.5	51	01.2	+29.8	20.3	77
45	48.3	+26.4	16.8	47	43.0	+27.1	17.4	49	37.2	+28.0	18.1	51	31.0	+28.9	18.9	78
46	14.7	+25.4	15.5	48	10.1	+26.2	16.1	50	05.2	+27.0	16.8	51	59.9	+27.8	17.5	79
46	40.1	+24.6	14.2	48	36.3	+25.3	14.8	50	32.2	+26.0	15.4	52	27.7	+26.8	16.1	80
47	04.7	+23.6	12.9	49	01.6	+24.2	13.4	50	58.2	+24.9	13.9	52	54.5	+25.6	14.6	81
47	28.3	+22.7	11.5	49	25.8	+23.2	12.0	51	23.1	+23.8	12.5	53	20.1	+24.5	13.1	82
47	51.0	+21.6	10.1	49	49.0	+22.2	10.6	51	46.9	+22.7	11.0	53	44.6	+23.2	11.5	83
48	12.6	+20.6	8.8	50	11.2	+21.0	9.1	52	09.6	+21.5	9.5	54	07.8	+22.1	10.0	84
48	33.2	+19.6	7.3	50	32.2	+19.9	7.6	52	31.1	+20.3	8.0	54	29.9	+20.7	8.4	85
48	52.8	+18.5	5.9	50	52.1	+18.8	6.2	52	51.4	+19.1	6.4	54	50.6	+19.4	6.8	86
49	11.3	+17.3	4.5	51	10.9	+17.6	4.6	53	10.5	+17.8	4.9	55	10.0	+18.1	5.1	87
49	28.6	+16.3	3.0	51	28.5	+16.4	3.1	53	28.3	+16.5	3.3	55	28.1	+16.7	3.4	88
49	44.9	+15.1	1.5	51	44.9	+15.1	1.6	53	44.8	+15.2	1.6	55	44.8	+15.2	1.7	89
50	00.0	+13.9	0.0	52	00.0	+13.9	0.0	54	00.0	+13.8	0.0	56	00.0	+13.8	0.0	90
50°			52°			54°			56°			58°				

LATITUDE SAME NAME

L.H.A. 104°, 256°

78°, 282° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	23 57.0	+22.3	68.0	24 41.2	+24.3	68.8	25 23.8	+26.2	69.7	26 04.6	+28.1	70.6	26 43.5	+30.1	71.5
31	24 19.3	+21.9	66.9	25 05.5	+23.9	67.8	25 50.0	+25.8	68.7	26 32.7	+27.8	69.6	27 13.6	+29.8	70.5
32	24 41.2	+21.5	65.9	25 29.4	+23.4	66.8	26 15.8	+25.4	67.7	27 00.5	+27.4	68.6	27 43.4	+29.3	69.6
33	25 02.7	+21.1	64.9	25 52.8	+23.0	65.8	26 41.2	+25.0	66.7	27 27.9	+26.9	67.6	28 12.7	+28.8	68.6
34	25 23.8	+20.6	63.9	26 15.8	+22.6	64.7	27 06.2	+24.5	65.6	27 54.8	+26.5	66.6	28 41.5	+28.4	67.6
35	25 44.4	+20.2	62.8	26 38.4	+22.1	63.7	27 30.7	+24.1	64.6	28 21.3	+26.0	65.6	29 09.9	+28.0	66.6
36	26 04.6	+19.7	61.8	27 00.5	+21.7	62.6	27 54.8	+23.6	63.6	28 47.3	+25.5	64.5	29 37.9	+27.5	65.6
37	26 24.3	+19.2	60.7	27 22.2	+21.2	61.6	28 18.4	+23.1	62.5	29 12.8	+25.1	63.5	30 05.4	+27.0	64.5
38	26 43.5	+18.8	59.7	27 43.4	+20.7	60.5	28 41.5	+22.7	61.5	29 37.9	+24.6	62.5	30 32.4	+26.5	63.5
39	27 02.3	+18.3	58.6	28 04.1	+20.2	59.5	29 04.2	+22.1	60.4	30 02.5	+24.0	61.4	30 58.9	+26.1	62.5
40	27 20.6	+17.8	57.5	28 24.3	+19.7	58.4	29 26.3	+21.6	59.4	30 26.5	+23.6	60.4	31 25.0	+25.4	61.4
41	27 38.4	+17.3	56.4	28 44.0	+19.2	57.3	29 47.9	+21.1	58.3	30 50.1	+23.0	59.3	31 50.4	+25.0	60.3
42	27 55.7	+16.8	55.4	29 03.2	+18.6	56.3	30 09.0	+20.6	57.2	31 13.1	+22.5	58.2	32 15.4	+24.4	59.3
43	28 12.5	+16.3	54.3	29 21.8	+18.2	55.2	30 29.6	+20.0	56.1	31 35.6	+21.9	57.1	32 39.8	+23.8	58.2
44	28 28.8	+15.7	53.2	29 40.0	+17.6	54.1	30 49.6	+19.4	55.0	31 57.5	+21.4	56.0	33 03.6	+23.3	57.1
45	28 44.5	+15.3	52.1	29 57.6	+17.0	53.0	31 09.0	+18.9	53.9	32 18.9	+20.7	54.9	33 26.9	+22.7	56.0
46	28 59.8	+14.6	51.0	30 14.6	+16.5	51.9	31 27.9	+18.3	52.8	32 39.6	+20.2	53.8	33 49.6	+22.1	54.9
47	29 14.4	+14.1	49.9	30 31.1	+15.9	50.7	31 46.2	+17.8	51.7	32 59.8	+19.6	52.7	34 11.7	+21.4	53.8
48	29 28.5	+13.6	48.7	30 47.0	+15.3	49.6	32 04.0	+17.1	50.6	33 19.4	+18.9	51.6	34 33.1	+20.8	52.6
49	29 42.1	+13.0	47.6	31 02.3	+14.7	48.5	32 21.1	+16.5	49.4	33 38.3	+18.4	50.4	34 53.9	+20.2	51.5
50	29 55.1	+12.4	46.5	31 17.0	+14.2	47.4	32 37.6	+15.9	48.3	33 56.7	+17.7	49.3	35 14.1	+19.5	50.3
51	30 07.5	+11.8	45.4	31 31.2	+13.5	46.2	32 53.5	+15.2	47.1	34 14.4	+17.0	48.1	35 33.6	+18.9	49.2
52	30 19.3	+11.3	44.2	31 44.7	+12.9	45.1	33 08.7	+14.7	46.0	34 31.4	+16.4	47.0	35 52.5	+18.1	48.0
53	30 30.6	+10.6	43.1	31 57.6	+12.3	43.9	33 23.4	+13.9	44.8	34 47.8	+15.6	45.8	36 10.6	+17.5	46.8
54	30 41.2	+10.0	42.0	32 09.9	+11.6	42.8	33 37.3	+13.3	43.7	35 03.4	+15.0	44.6	36 28.1	+16.8	45.6
55	30 51.2	+9.5	40.8	32 21.5	+11.0	41.6	33 50.6	+12.7	42.5	35 18.4	+14.4	43.4	36 44.9	+16.0	44.4
56	31 00.7	+8.8	39.7	32 32.5	+10.4	40.5	34 03.3	+11.9	41.3	35 32.8	+13.6	42.2	37 00.9	+15.3	43.2
57	31 09.5	+8.2	38.5	32 42.9	+9.7	39.3	34 15.2	+11.3	40.1	35 46.4	+12.8	41.0	37 16.2	+14.5	42.0
58	31 17.7	+7.5	37.3	32 52.6	+9.0	38.1	34 26.5	+10.6	38.9	35 59.2	+12.2	39.8	37 30.7	+13.8	40.8
59	31 25.2	+7.0	36.2	33 01.6	+8.4	36.9	34 37.1	+9.8	37.7	36 11.4	+11.4	38.6	37 44.5	+13.0	39.6
60	31 32.2	+6.3	35.0	33 10.0	+7.7	35.8	34 46.9	+9.2	36.5	36 22.8	+10.7	37.4	37 57.5	+12.3	38.3
61	31 38.5	+5.7	33.8	33 17.7	+7.1	34.6	34 56.1	+8.4	35.3	36 33.5	+9.9	36.2	38 09.8	+11.4	37.1
62	31 44.2	+5.0	32.7	33 24.8	+6.3	33.4	35 04.5	+7.8	34.1	36 43.4	+9.2	35.0	38 21.2	+10.7	35.8
63	31 49.2	+4.4	31.5	33 31.1	+5.7	32.2	35 12.3	+7.0	32.9	36 52.6	+8.3	33.7	38 31.9	+9.8	34.6
64	31 53.6	+3.7	30.3	33 36.8	+5.0	31.0	35 19.3	+6.2	31.7	37 00.9	+7.7	32.5	38 41.7	+9.0	33.3
65	31 57.3	+3.1	29.2	33 41.8	+4.2	29.8	35 25.5	+5.6	30.5	37 08.6	+6.8	31.2	38 50.7	+8.2	32.1
66	32 00.4	+2.4	28.0	33 46.0	+3.6	28.6	35 31.1	+4.8	29.3	37 15.4	+6.0	30.0	38 58.9	+7.4	30.8
67	32 02.8	+1.8	26.8	33 49.6	+2.9	27.4	35 35.9	+4.0	28.0	37 21.4	+5.3	28.7	39 06.3	+6.5	29.5
68	32 04.6	+1.1	25.6	33 52.5	+2.2	26.2	35 39.9	+3.3	26.8	37 26.7	+4.4	27.5	39 12.8	+5.7	28.2
69	32 05.7	+0.4	24.4	33 54.7	+1.5	25.0	35 43.2	+2.5	25.6	37 31.1	+3.7	26.2	39 18.5	+4.8	26.9
70	32 06.1	-0.2	23.3	33 56.2	+0.7	23.8	35 45.7	+1.8	24.3	37 34.8	+2.8	25.0	39 23.3	+3.9	25.6
71	32 05.9	-0.8	22.1	33 56.9	+0.1	22.6	35 47.5	+1.1	23.1	37 37.6	+2.1	23.7	39 27.2	+3.2	24.4
72	32 05.1	-1.5	20.9	33 57.0	-0.6	21.4	35 48.6	+0.2	21.9	37 39.7	+1.2	22.4	39 30.4	+2.2	23.1
73	32 03.6	-2.2	19.7	33 56.4	-1.4	20.2	35 48.8	-0.4	20.7	37 40.9	+0.5	21.2	39 32.6	+1.4	21.8
74	32 01.4	-2.8	18.5	33 55.0	-2.0	19.0	35 48.4	-1.3	19.4	37 41.4	-0.4	19.9	39 34.0	+0.5	20.5
75	31 58.6	-3.5	17.4	33 53.0	-2.8	17.8	35 47.1	-2.0	18.2	37 41.0	-1.2	18.7	39 34.5	-0.3	19.2
76	31 55.1	-4.1	16.2	33 50.2	-3.4	16.6	35 45.1	-2.7	17.0	37 39.8	-2.0	17.4	39 34.2	-1.3	17.9
77	31 51.0	-4.8	15.0	33 46.8	-4.2	15.4	35 42.4	-3.5	15.7	37 37.8	-2.8	16.1	39 32.9	-2.0	16.6
78	31 46.2	-5.4	13.8	33 42.6	-4.8	14.2	35 38.9	-4.2	14.5	37 35.0	-3.6	14.9	39 30.9	-3.0	15.3
79	31 40.8	-6.1	12.7	33 37.8	-5.5	13.0	35 34.7	-5.0	13.3	37 31.4	-4.4	13.6	39 27.9	-3.8	14.0
80	31 34.7	-6.7	11.5	33 32.3	-6.3	11.8	35 29.7	-5.7	12.0	37 27.0	-5.2	12.4	39 24.1	-4.6	12.7
81	31 28.0	-7.3	10.3	33 26.0	-6.9	10.6	35 24.0	-6.5	10.8	37 21.8	-6.0	11.1	39 19.5	-5.5	11.4
82	31 20.7	-7.9	9.2	33 19.1	-7.5	9.4	35 17.5	-7.2	9.6	37 15.8	-6.8	9.8	39 14.0	-6.4	10.1
83	31 12.8	-8.6	8.0	33 11.6	-8.3	8.2	35 10.3	-7.9	8.4	37 09.0	-7.6	8.6	39 07.6	-7.2	8.8
84	31 04.2	-9.2	6.9	33 03.3	-8.9	7.0	35 02.4	-8.6	7.2	37 01.4	-8.3	7.4	39 00.4	-8.0	7.6
85	30 55.0	-9.8	5.7	32 54.4	-9.6	5.8	34 53.8	-9.4	6.0	36 53.1	-9.1	6.1	38 52.4	-8.9	6.3
86	30 45.2	-10.4	4.6	32 44.8	-10.2	4.7	34 44.4	-10.1	4.8	36 44.0	-9.9	4.9	38 43.5	-9.6	5.0
87	30 34.8	-11.0	3.4	32 34.6	-10.9	3.5	34 34.3	-10.7	3.6	36 34.1	-10.6	3.7	38 33.9	-10.5	3.8
88	30 23.8	-11.6	2.3	32 23.7	-11.5	2.3	34 23.6	-11.5	2.4	36 23.5	-11.4	2.4	38 23.4	-11.3	2.5
89	30 12.2	-12.2	1.1	32 12.2	-12.2	1.2	34 12.1	-12.1	1.2	36 12.1	-12.1	1.2	38 12.1	-12.1	1.2
90	30 00.0	-12.8	0.0	32 00.0	-12.8	0.0	34 00.0	-12.8	0.0	36 00.0	-12.8	0.0	38 00.0	-12.9	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 78°, 282°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
5 23.9 +31.4 58.3	6 26.7 +33.0 58.5	7 29.3 +34.5 58.7	8 31.4 +36.0 58.9	9 33.1 +37.4 59.2	30										
5 55.3 +31.4 57.5	6 59.7 +32.9 57.6	8 03.8 +34.3 57.9	9 07.4 +35.8 58.1	10 10.5 +37.2 58.4	31										
6 26.7 +31.4 56.6	7 32.6 +32.8 56.8	8 38.1 +34.3 57.0	9 43.2 +35.7 57.3	10 47.7 +37.2 57.6	32										
6 58.1 +31.2 55.7	8 05.4 +32.7 56.0	9 12.4 +34.2 56.2	10 18.9 +35.6 56.5	11 24.9 +37.0 56.8	33										
7 29.3 +31.1 54.9	8 38.1 +32.6 55.1	9 46.6 +34.0 55.4	10 54.5 +35.5 55.7	12 01.9 +36.8 56.0	34										
8 00.4 +31.0 54.0	9 10.7 +32.5 54.3	10 20.6 +33.9 54.5	11 30.0 +35.3 54.9	12 38.7 +36.8 55.2	35										
8 31.4 +30.9 53.1	9 43.2 +32.3 53.4	10 54.5 +33.8 53.7	12 05.3 +35.1 54.0	13 15.5 +36.5 54.4	36										
9 02.3 +30.8 52.3	10 15.5 +32.2 52.5	11 28.3 +33.6 52.9	12 40.4 +35.1 53.2	13 52.0 +36.4 53.6	37										
9 33.1 +30.7 51.4	10 47.7 +32.1 51.7	12 01.9 +33.4 52.0	13 15.5 +34.8 52.4	14 28.4 +36.2 52.8	38										
10 03.8 +30.5 50.5	11 19.8 +31.9 50.8	12 35.3 +33.3 51.2	13 50.3 +34.7 51.5	15 04.6 +36.1 51.9	39										
10 34.3 +30.4 49.7	11 51.7 +31.8 50.0	13 08.6 +33.2 50.3	14 25.0 +34.5 50.7	15 40.7 +35.8 51.1	40										
11 04.7 +30.2 48.8	12 23.5 +31.6 49.1	13 41.8 +32.9 49.4	14 59.5 +34.3 49.8	16 16.5 +35.7 50.3	41										
11 34.9 +30.0 47.9	12 55.1 +31.4 48.2	14 14.7 +32.8 48.6	15 33.8 +34.1 49.0	16 52.2 +35.5 49.4	42										
12 04.9 +29.9 47.0	13 26.5 +31.2 47.4	14 47.5 +32.6 47.7	16 07.9 +33.9 48.1	17 27.7 +35.2 48.6	43										
12 34.8 +29.7 46.1	13 57.7 +31.1 46.5	15 20.1 +32.4 46.9	16 41.8 +33.7 47.3	18 02.9 +35.0 47.7	44										
13 04.5 +29.6 45.2	14 28.8 +30.8 45.6	15 52.5 +32.1 46.0	17 15.5 +33.5 46.4	18 37.9 +34.8 46.9	45										
13 34.1 +29.3 44.3	14 59.6 +30.7 44.7	16 24.6 +32.0 45.1	17 49.0 +33.2 45.5	19 12.7 +34.5 46.0	46										
14 03.4 +29.1 43.4	15 30.3 +30.4 43.8	16 56.6 +31.7 44.2	18 22.2 +33.0 44.7	19 47.2 +34.3 45.1	47										
14 32.5 +29.0 42.5	16 00.7 +30.2 42.9	17 28.3 +31.4 43.3	18 55.2 +32.8 43.8	20 21.5 +34.0 44.3	48										
15 01.5 +28.7 41.6	16 30.9 +29.9 42.0	17 59.7 +31.3 42.4	19 28.0 +32.5 42.9	20 55.5 +33.8 43.4	49										
15 30.2 +28.4 40.7	17 00.8 +29.8 41.1	18 31.0 +30.9 41.5	20 00.5 +32.2 42.0	21 29.3 +33.5 42.5	50										
15 58.6 +28.3 39.8	17 30.6 +29.4 40.2	19 01.9 +30.7 40.6	20 32.7 +31.9 41.1	22 02.8 +33.1 41.6	51										
16 26.9 +28.0 38.9	18 00.0 +29.3 39.3	19 32.6 +30.5 39.7	21 04.6 +31.7 40.2	22 35.9 +32.9 40.7	52										
16 54.9 +27.8 38.0	18 29.3 +28.9 38.4	20 03.1 +30.1 38.8	21 36.3 +31.3 39.3	23 08.8 +32.6 39.8	53										
17 22.7 +27.5 37.0	18 58.2 +28.7 37.4	20 33.2 +29.9 37.9	22 07.6 +31.1 38.4	23 41.4 +32.2 38.9	54										
17 50.2 +27.2 36.1	19 26.9 +28.4 36.5	21 03.1 +29.5 37.0	22 38.7 +30.7 37.4	24 13.6 +31.9 38.0	55										
18 17.4 +27.0 35.2	19 55.3 +28.1 35.6	21 32.6 +29.2 36.0	23 09.4 +30.3 36.5	24 45.5 +31.5 37.0	56										
18 44.4 +26.7 34.2	20 23.4 +27.7 34.6	22 01.8 +28.9 35.1	23 39.7 +30.1 35.6	25 17.0 +31.2 36.1	57										
19 11.1 +26.3 33.3	20 51.1 +27.5 33.7	22 30.7 +28.6 34.1	24 09.8 +29.7 34.6	25 48.2 +30.8 35.2	58										
19 37.4 +26.1 32.3	21 18.6 +27.2 32.7	22 59.3 +28.2 33.2	24 39.5 +29.3 33.7	26 19.0 +30.5 34.2	59										
20 03.5 +25.8 31.4	21 45.8 +26.8 31.8	23 27.5 +27.9 32.2	25 08.8 +28.9 32.2	26 49.5 +30.0 33.2	60										
20 29.3 +25.5 30.4	22 12.6 +26.4 30.8	23 55.4 +27.5 31.3	25 37.7 +28.6 31.7	27 19.5 +29.6 32.3	61										
20 54.8 +25.1 29.4	22 39.0 +26.2 29.8	24 22.9 +27.1 30.3	26 06.3 +28.2 30.8	27 49.1 +29.3 31.3	62										
21 19.9 +24.8 28.5	23 05.2 +25.7 28.9	24 50.0 +26.8 29.3	26 34.5 +27.7 29.8	28 18.4 +28.7 30.3	63										
21 44.7 +24.4 27.5	23 30.9 +25.4 27.9	25 16.8 +26.3 28.3	27 02.2 +27.3 28.8	28 47.1 +28.4 29.3	64										
22 09.1 +24.1 26.5	23 56.3 +25.0 26.9	25 43.1 +26.0 27.3	27 29.5 +26.9 28.2	29 15.5 +27.8 28.3	65										
22 33.2 +23.7 25.5	24 21.3 +24.6 25.9	26 09.1 +25.5 26.3	27 56.4 +26.5 26.8	29 43.3 +27.4 27.3	66										
22 56.9 +23.3 24.5	24 45.9 +24.2 24.9	26 34.6 +25.1 25.3	28 22.9 +26.0 25.7	30 10.7 +27.0 26.2	67										
23 20.2 +23.0 23.5	25 10.1 +23.8 23.9	26 59.7 +24.6 24.3	28 48.9 +25.5 24.7	30 37.7 +26.4 25.2	68										
23 43.2 +22.5 22.5	25 33.9 +23.4 22.9	27 24.3 +24.2 23.3	29 14.4 +25.0 23.7	31 04.1 +25.9 24.2	69										
24 05.7 +22.2 21.5	25 57.3 +22.9 21.8	27 48.5 +23.7 22.2	29 39.4 +24.6 22.6	31 30.0 +25.4 23.1	70										
24 27.9 +21.7 20.5	26 20.2 +22.5 20.8	28 12.2 +23.3 21.2	30 04.0 +24.0 21.6	31 55.4 +24.8 22.0	71										
24 49.6 +21.4 19.5	26 42.7 +22.0 19.8	28 35.5 +22.7 20.1	30 28.0 +23.5 20.5	32 20.2 +24.3 21.0	72										
25 11.0 +20.9 18.4	27 04.7 +21.6 18.7	28 58.2 +22.3 19.1	30 51.5 +23.0 19.5	32 44.5 +23.8 19.9	73										
25 31.9 +20.4 17.4	27 26.3 +21.1 17.7	29 20.5 +21.8 18.0	31 14.5 +22.5 18.4	33 08.3 +23.1 18.8	74										
25 52.3 +20.0 16.3	27 47.4 +20.6 16.6	29 42.3 +21.2 16.9	31 37.0 +21.8 17.3	33 31.4 +22.6 17.7	75										
26 12.3 +19.6 15.3	28 08.0 +20.1 15.6	30 03.5 +20.7 15.9	31 58.8 +21.4 16.2	33 54.0 +21.9 16.6	76										
26 31.9 +19.0 14.2	28 28.1 +19.6 14.5	30 24.2 +20.2 14.8	32 20.2 +20.7 15.1	34 15.9 +21.4 15.4	77										
26 50.9 +18.6 13.2	28 47.7 +19.1 13.4	30 44.4 +19.6 13.7	32 40.9 +20.1 14.0	34 37.3 +20.7 14.3	78										
27 09.5 +18.1 12.1	29 06.8 +18.6 12.3	31 04.0 +19.0 12.6	33 01.0 +19.6 12.9	34 58.0 +20.0 13.2	79										
27 27.6 +17.6 11.0	29 25.4 +18.0 11.2	31 23.0 +18.5 11.5	33 20.6 +18.9 11.7	35 18.0 +19.4 12.0	80										
27 45.2 +17.1 10.0	29 43.4 +17.5 10.1	31 41.5 +17.9 10.4	33 39.5 +18.3 10.6	35 37.4 +18.7 10.9	81										
28 02.3 +16.6 8.9	30 00.9 +16.9 9.0	31 59.4 +17.2 9.2	33 57.8 +17.6 9.4	35 56.1 +18.0 9.7	82										
28 18.9 +16.1 7.8	30 17.8 +16.4 7.9	32 16.6 +16.7 8.1	34 15.4 +17.0 8.3	36 14.1 +17.4 8.5	83										
28 35.0 +15.6 6.7	30 34.2 +15.8 6.8	32 33.3 +16.1 7.0	34 32.4 +16.3 7.1	36 31.5 +16.6 7.3	84										
28 50.6 +15.0 5.6	30 50.0 +15.2 5.7	32 49.4 +15.4 5.8	34 48.7 +15.7 6.0	36 48.1 +15.9 6.1	85										
29 05.6 +14.4 4.5	31 05.2 +14.6 4.6	33 04.8 +14.8 4.7	35 04.4 +14.9 4.8	37 04.0 +15.1 4.9	86										
29 20.0 +13.9 3.4	31 19.8 +14.0 3.4	33 19.6 +14.1 3.5	35 19.3 +14.3 3.6	37 19.1 +14.4 3.7	87										
29 33.9 +13.3 2.2	31 33.8 +13.4 2.3	33 33.7 +13.5 2.3	35 33.6 +13.6 2.4	37 33.5 +13.6 2.5	88										
29 47.2 +12.8 1.1	31 47.2 +12.8 1.2	33 47.2 +12.8 1.2	35 47.2 +12.8 1.2	37 47.1 +12.9 1.2	89										
30 00.0 +12.2 0.0	32 00.0 +12.2 0.0	34 00.0 +12.1 0.0	36 00.0 +12.1 0.0	38 00.0 +12.1 0.0	90										
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 102°, 258°

78°, 282° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	27 20.6	+32.0	72.5	27 55.7	+33.9	73.5	28 28.8	+35.8	74.5	28 59.8	+37.6	75.6	29 28.5	+39.4	76.7
31	27 52.6	+31.7	71.5	28 29.6	+33.6	72.6	29 04.6	+35.4	73.6	29 37.4	+37.2	74.7	30 07.9	+39.1	75.8
32	28 24.3	+31.2	70.6	29 03.2	+33.1	71.6	29 40.0	+35.0	72.7	30 14.6	+36.9	73.8	30 47.0	+38.7	74.9
33	28 55.5	+30.8	69.6	29 36.3	+32.7	70.7	30 15.0	+34.6	71.7	30 51.5	+36.4	72.9	31 25.7	+38.3	74.0
34	29 26.3	+30.3	68.6	30 09.0	+32.3	69.7	30 49.6	+34.2	70.8	31 27.9	+36.1	71.9	32 04.0	+37.9	73.1
35	29 56.6	+29.9	67.6	30 41.3	+31.8	68.7	31 23.8	+33.7	69.8	32 04.0	+35.6	71.0	32 41.9	+37.5	72.2
36	30 26.5	+29.5	66.6	31 13.1	+31.4	67.7	31 57.5	+33.3	68.9	32 39.6	+35.2	70.0	33 19.4	+37.1	71.3
37	30 56.0	+29.0	65.6	31 44.5	+30.9	66.7	32 30.8	+32.8	67.9	33 14.8	+34.8	69.1	33 56.5	+36.6	70.3
38	31 25.0	+28.4	64.6	32 15.4	+30.4	65.7	33 03.6	+32.4	66.9	33 49.6	+34.3	68.1	34 33.1	+36.2	69.4
39	31 53.4	+28.0	63.5	32 45.8	+29.9	64.7	33 36.0	+31.9	65.9	34 23.9	+33.8	67.1	35 09.3	+35.7	68.4
40	32 21.4	+27.4	62.5	33 15.7	+29.4	63.7	34 07.9	+31.3	64.9	34 57.7	+33.3	66.1	35 45.0	+35.3	67.4
41	32 48.8	+26.9	61.4	33 45.1	+28.9	62.6	34 39.2	+30.8	63.8	35 31.0	+32.7	65.1	36 20.3	+34.7	66.4
42	33 15.7	+26.4	60.4	34 14.0	+28.3	61.5	35 10.0	+30.3	62.8	36 03.7	+32.3	64.1	36 55.0	+34.2	65.4
43	33 42.1	+25.8	59.3	34 42.3	+27.7	60.5	35 40.3	+29.7	61.7	36 36.0	+31.6	63.0	37 29.2	+33.6	64.4
44	34 07.9	+25.2	58.2	35 10.0	+27.2	59.4	36 10.0	+29.1	60.6	37 07.6	+31.1	61.9	38 02.8	+33.1	63.3
45	34 33.1	+24.6	57.1	35 37.2	+26.5	58.3	36 39.1	+28.5	59.6	37 38.7	+30.5	60.9	38 35.9	+32.5	62.3
46	34 57.7	+24.0	56.0	36 03.7	+26.0	57.2	37 07.6	+27.9	58.5	38 09.2	+29.9	59.8	39 08.4	+31.9	61.2
47	35 21.7	+23.3	54.9	36 29.7	+25.3	56.1	37 35.5	+27.3	57.3	38 39.1	+29.3	58.7	39 40.3	+31.2	60.1
48	35 45.0	+22.8	53.8	36 55.0	+24.6	54.9	38 02.8	+26.6	56.2	39 08.4	+28.6	57.6	40 11.5	+30.6	59.0
49	36 07.8	+22.0	52.6	37 19.6	+24.0	53.8	38 29.4	+26.0	55.1	39 37.0	+27.9	56.4	40 42.1	+30.0	57.8
50	36 29.8	+21.4	51.5	37 43.6	+23.3	52.6	38 55.4	+25.2	53.9	40 04.9	+27.2	55.3	41 12.1	+29.2	56.7
51	36 51.2	+20.7	50.3	38 06.9	+22.6	51.5	39 20.6	+24.6	52.7	40 32.1	+26.6	54.1	41 41.3	+28.5	55.5
52	37 11.9	+20.0	49.1	38 29.5	+21.9	50.3	39 45.2	+23.8	51.6	40 58.7	+25.7	52.9	42 09.8	+27.8	54.3
53	37 31.9	+19.3	47.9	38 51.4	+21.2	49.1	40 09.0	+23.0	50.4	41 24.4	+25.1	51.7	42 37.6	+27.1	53.1
54	37 51.2	+18.6	46.7	39 12.6	+20.4	47.9	40 32.0	+22.3	49.2	41 49.5	+24.2	50.5	43 04.7	+26.2	51.9
55	38 09.8	+17.8	45.5	39 33.0	+19.6	46.7	40 54.3	+21.5	47.9	42 13.7	+23.5	49.3	43 30.9	+25.4	50.7
56	38 27.6	+17.0	44.3	39 52.6	+18.8	45.5	41 15.8	+20.7	46.7	42 37.2	+22.6	48.0	43 56.3	+24.6	49.4
57	38 44.6	+16.3	43.1	40 11.4	+18.1	44.2	41 36.5	+19.9	45.4	42 59.8	+21.8	46.8	44 20.9	+23.8	48.2
58	39 00.9	+15.4	41.8	40 29.5	+17.2	43.0	41 56.4	+19.1	44.2	43 21.6	+20.9	45.5	44 44.7	+22.8	46.9
59	39 16.3	+14.7	40.6	40 46.7	+16.4	41.7	42 15.5	+18.1	42.9	43 42.5	+20.0	44.2	45 07.5	+22.0	45.6
60	39 31.0	+13.9	39.3	41 03.1	+15.5	40.4	42 33.6	+17.3	41.6	44 02.5	+19.1	42.9	45 29.5	+21.0	44.2
61	39 44.9	+13.0	38.1	41 18.6	+14.7	39.1	42 50.9	+16.5	40.3	44 21.6	+18.2	41.6	45 50.5	+20.1	42.9
62	39 57.9	+12.2	36.8	41 33.3	+13.8	37.9	43 07.4	+15.4	39.0	44 39.8	+17.3	40.2	46 10.6	+19.1	41.5
63	40 10.1	+11.3	35.5	41 47.1	+13.0	36.6	43 22.8	+14.6	37.7	44 57.1	+16.3	38.9	46 29.7	+18.1	40.2
64	40 21.4	+10.5	34.2	42 00.1	+12.0	35.2	43 37.4	+13.6	36.3	45 13.4	+15.3	37.5	46 47.8	+17.0	38.8
65	40 31.9	+9.6	32.9	42 12.1	+11.1	33.9	43 51.0	+12.7	35.0	45 28.7	+14.3	36.1	47 04.8	+16.1	37.4
66	40 41.5	+8.8	31.6	42 23.2	+10.2	32.6	44 03.7	+11.7	33.6	45 43.0	+13.3	34.7	47 20.9	+15.0	36.0
67	40 50.3	+7.8	30.3	42 33.4	+9.2	31.3	44 15.4	+10.7	32.3	45 56.3	+12.2	33.3	47 35.9	+13.9	34.5
68	40 58.1	+7.0	29.0	42 42.6	+8.3	29.9	44 26.1	+9.7	30.9	46 08.5	+11.3	31.9	47 49.8	+12.8	33.1
69	41 05.1	+6.0	27.7	42 50.9	+7.3	28.6	44 35.8	+8.7	29.5	46 19.8	+10.1	30.5	48 02.6	+11.6	31.6
70	41 11.1	+5.2	26.4	42 58.2	+6.4	27.2	44 44.5	+7.7	28.1	46 29.9	+9.1	29.1	48 14.2	+10.6	30.2
71	41 16.3	+4.2	25.1	43 04.6	+5.4	25.8	44 52.2	+6.7	26.7	46 39.0	+8.0	27.6	48 24.8	+9.4	28.7
72	41 20.5	+3.3	23.7	43 10.0	+4.5	24.5	44 58.9	+5.6	25.3	46 47.0	+6.9	26.2	48 34.2	+8.2	27.2
73	41 23.8	+2.4	22.4	43 14.5	+3.4	23.1	45 04.5	+4.6	23.9	46 53.9	+5.7	24.7	48 42.4	+7.1	25.7
74	41 26.2	+1.4	21.1	43 17.9	+2.5	21.7	45 09.1	+3.5	22.5	46 59.6	+4.7	23.3	48 49.5	+5.9	24.2
75	41 27.6	+0.6	19.7	43 20.4	+1.5	20.4	45 12.6	+2.5	21.1	47 04.3	+3.6	21.8	48 55.4	+4.7	22.7
76	41 28.2	-0.4	18.4	43 21.9	+0.4	19.0	45 15.1	+1.4	19.6	47 07.9	+2.4	20.4	49 00.1	+3.5	21.1
77	41 27.8	-1.3	17.1	43 22.3	-0.5	17.6	45 16.5	+0.4	18.2	47 10.3	+1.3	18.9	49 03.6	+2.3	19.6
78	41 26.5	-2.2	15.7	43 21.8	-1.4	16.2	45 16.9	-0.7	16.8	47 11.6	+0.2	17.4	49 05.9	+1.1	18.1
79	41 24.3	-3.2	14.4	43 20.4	-2.5	14.9	45 16.2	-1.7	15.4	47 11.8	-1.0	15.9	49 07.0	-0.2	16.6
80	41 21.1	-4.1	13.1	43 17.9	-3.5	13.5	45 14.5	-2.8	14.0	47 10.8	-2.1	14.5	49 06.8	-1.3	15.0
81	41 17.0	-5.0	11.7	43 14.4	-4.4	12.1	45 11.7	-3.9	12.5	47 08.7	-3.2	13.0	49 05.5	-2.5	13.5
82	41 12.0	-5.9	10.4	43 10.0	-5.4	10.8	45 07.8	-4.9	11.1	47 05.5	-4.4	11.5	49 03.0	-3.8	12.0
83	41 06.1	-6.8	9.1	43 04.6	-6.4	9.4	45 02.9	-5.9	9.7	47 01.1	-5.4	10.1	48 59.2	-4.9	10.5
84	40 59.3	-7.7	7.8	42 58.2	-7.3	8.0	44 57.0	-7.0	8.3	46 55.7	-6.6	8.6	48 54.3	-6.2	8.9
85	40 51.6	-8.5	6.5	42 50.9	-8.3	6.7	44 50.0	-8.0	6.9	46 49.1	-7.7	7.2	48 48.1	-7.3	7.4
86	40 43.1	-9.5	5.2	42 42.6	-9.3	5.3	44 42.0	-9.0	5.5	46 41.4	-8.7	5.7	48 40.8	-8.5	5.9
87	40 33.6	-10.3	3.9	42 33.3	-10.2	4.0	44 33.0	-10.0	4.1	46 32.7	-9.8	4.3	48 32.3	-9.6	4.4
88	40 23.3	-11.2	2.6	42 23.1	-11.1	2.6	44 23.0	-11.0	2.7	46 22.9	-10.9	2.8	48 22.7	-10.8	2.9
89	40 12.1	-12.1	1.3	42 12.0	-12.0	1.3	44 12.0	-12.0	1.4	46 12.0	-12.0	1.4	48 11.9	-11.9	1.5
90	40 00.0	-12.9	0.0	42 00.0	-12.9	0.0	44 00.0	-13.0	0.0	46 00.0	-13.0	0.0	48 00.0	-13.0	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 78°, 282°

Hc			d			Z			Hc			d			Z			Hc			d			Z			Hc			d			Z			Dec.
°	'	°	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°	°	'	°	°
10	34.3	+38.8	59.5	11	34.9	+40.1	59.8	12	34.8	+41.5	60.2	13	34.1	+42.8	60.6	14	32.5	+44.2	61.1	30																
11	13.1	+38.6	58.7	12	15.0	+40.1	59.1	13	16.3	+41.4	59.5	14	16.9	+42.7	59.9	15	16.7	+44.0	60.4	31																
11	51.7	+38.6	58.0	12	55.1	+39.9	58.3	13	57.7	+41.3	58.7	14	59.6	+42.6	59.2	15	00.7	+43.8	59.7	32																
12	30.3	+38.3	57.2	13	35.0	+39.7	57.6	14	39.0	+41.1	58.0	15	42.2	+42.4	58.4	16	44.5	+43.8	58.9	33																
13	08.6	+38.3	56.4	14	14.7	+39.7	56.8	15	20.1	+40.9	57.2	16	24.6	+42.3	57.7	17	28.3	+43.5	58.2	34																
13	46.9	+38.1	55.6	14	54.4	+39.4	56.0	15	01.0	+40.8	56.5	16	06.9	+42.1	57.0	17	11.8	+43.4	57.5	35																
14	25.0	+37.9	54.8	15	33.8	+39.3	55.2	16	41.8	+40.7	55.7	17	49.0	+41.9	56.2	18	55.2	+43.3	56.8	36																
15	02.9	+37.8	54.0	16	13.1	+39.1	54.4	17	22.5	+40.4	54.9	18	30.9	+41.8	55.5	19	38.5	+43.0	56.0	37																
15	40.7	+37.6	53.2	16	52.2	+38.9	53.7	17	02.9	+40.3	54.2	18	12.7	+41.6	54.7	19	21.5	+42.9	55.3	38																
16	18.3	+37.4	52.4	17	31.1	+38.8	52.9	18	43.2	+40.0	53.4	19	54.3	+41.3	53.9	20	04.4	+42.7	54.6	39																
16	55.7	+37.2	51.6	18	09.9	+38.5	52.1	19	23.2	+39.9	52.6	20	35.6	+41.2	53.2	21	47.1	+42.4	53.8	40																
17	32.9	+37.0	50.7	18	48.4	+38.3	51.2	20	03.1	+39.6	51.8	21	16.8	+41.0	52.4	22	29.5	+42.2	53.0	41																
18	09.9	+36.8	49.9	19	26.7	+38.2	50.4	20	42.7	+39.4	51.0	21	57.8	+40.7	51.6	22	11.7	+42.1	52.3	42																
18	46.7	+36.5	49.1	20	04.9	+37.8	49.6	21	22.1	+39.2	50.2	22	38.5	+40.5	50.8	23	53.8	+41.7	51.5	43																
19	23.2	+36.4	48.2	20	42.7	+37.7	48.8	22	01.3	+39.0	49.4	23	19.0	+40.2	50.0	24	35.5	+41.6	50.7	44																
19	59.6	+36.0	47.4	21	20.4	+37.4	48.0	22	40.3	+38.7	48.6	23	59.2	+40.0	49.2	24	17.1	+41.2	49.9	45																
20	35.6	+35.9	46.5	21	57.8	+37.1	47.1	23	19.0	+38.4	47.7	24	39.2	+39.7	48.4	25	58.3	+41.0	49.1	46																
21	11.5	+35.6	45.7	22	34.9	+36.8	46.3	23	57.4	+38.1	46.9	24	18.9	+39.4	47.6	25	39.3	+40.7	48.3	47																
21	47.1	+35.3	44.8	23	11.7	+36.6	45.4	24	35.5	+37.9	46.0	25	58.3	+39.2	46.7	26	20.0	+40.5	47.5	48																
22	22.4	+35.0	43.9	23	48.3	+36.3	44.5	25	13.4	+37.6	45.2	26	37.5	+38.8	45.9	27	00.5	+40.1	46.6	49																
22	57.4	+34.7	43.1	24	24.6	+36.0	43.7	25	51.0	+37.2	44.3	26	16.3	+38.5	45.0	28	40.6	+39.8	45.8	50																
23	32.1	+34.4	42.2	25	00.6	+35.7	42.8	26	28.2	+36.9	43.4	27	54.8	+38.2	44.2	29	20.4	+39.4	44.9	51																
24	06.5	+34.1	41.3	25	36.3	+35.3	41.9	27	05.1	+36.6	42.6	28	33.0	+37.9	43.3	29	58.9	+39.1	44.1	52																
24	40.6	+33.8	40.4	26	11.6	+35.0	41.0	27	41.7	+36.3	41.7	28	10.9	+37.5	42.4	30	38.9	+38.8	43.2	53																
25	14.4	+33.4	39.5	26	46.6	+34.7	40.1	28	18.0	+35.9	40.8	29	48.4	+37.1	41.5	31	17.7	+38.4	42.3	54																
25	47.8	+33.1	38.5	27	21.3	+34.3	39.2	28	53.9	+35.5	39.9	30	25.5	+36.0	40.6	31	56.1	+38.0	41.4	55																
26	20.9	+32.7	37.6	27	55.6	+33.9	38.2	29	29.4	+35.1	38.9	31	02.2	+36.4	39.7	32	34.1	+37.6	40.5	56																
26	53.6	+32.4	36.7	28	29.5	+33.5	37.3	30	04.5	+34.7	38.0	31	38.6	+35.9	38.7	32	11.7	+37.1	39.5	57																
27	26.0	+32.0	35.7	29	03.0	+33.1	36.4	30	39.2	+34.3	37.1	32	14.5	+35.5	37.8	33	48.8	+36.8	38.6	58																
27	58.0	+31.5	34.8	29	36.1	+32.8	35.4	31	13.5	+33.9	36.1	32	50.0	+35.1	36.8	34	25.6	+36.3	37.6	59																
28	29.5	+31.2	33.8	30	08.9	+32.2	34.4	31	47.4	+33.5	35.1	32	25.1	+34.6	35.9	35	01.9	+35.8	36.7	60																
29	00.7	+30.7	32.8	30	41.1	+31.9	33.5	32	20.9	+32.9	34.1	33	59.7	+34.2	34.9	35	37.7	+35.3	35.7	61																
29	31.4	+30.3	31.9	31	13.0	+31.4	32.5	32	53.8	+32.5	33.2	34	33.9	+33.6	33.9	36	13.0	+34.8	34.7	62																
30	01.7	+29.8	30.9	31	44.4	+30.9	31.5	33	26.3	+32.0	32.2	35	07.5	+33.2	32.9	36	47.8	+34.3	33.7	63																
30	31.5	+29.4	29.9	32	15.3	+30.4	30.5	33	58.3	+31.5	31.1	35	40.7	+32.6	31.9	37	22.1	+33.8	32.7	64																
31	00.9	+28.8	28.8	32	45.7	+29.9	29.4	34	29.8	+31.0	30.1	36	13.3	+32.0	30.8	37	55.9	+33.2	31.6	65																
31	29.7	+28.4	27.8	33	15.6	+29.4	28.4	35	00.8	+30.5	29.1	36	45.3	+31.6	29.8	38	29.1	+32.6	30.5	66																
31	58.1	+27.9	26.8	33	45.0	+28.8	27.4	35	31.3	+29.8	28.0	37	16.9	+30.9	28.7	39	01.7	+32.0	29.5	67																
32	26.0	+27.4	25.7	34	13.8	+28.4	26.3	36	01.1	+29.3	26.9	37	47.8	+30.3	27.6	39	33.7	+31.4	28.4	68																
32	53.4	+26.8	24.7	34	42.2	+27.7	25.2	36	30.4	+28.7	25.9	38	18.1	+29.7	26.5	40	05.1	+30.8	27.3	69																
33	20.2	+26.2	23.6	35	09.9	+27.2	24.2	36	59.1	+28.1	24.8	38	47.8	+29.1	25.4	40	35.9	+30.0	26.1	70																
33	46.4	+25.7	22.5	35	37.1	+26.5	23.1	37	27.2	+27.5	23.7	39	16.9	+28.4	24.3	41	05.9	+29.4	25.0	71																
34	12.1	+25.1	21.4	36	03.6	+26.0	22.0	37	54.7	+26.8	22.5	39	45.3	+27.7	23.2	41	35.3	+28.7	23.8	72																
34	37.2	+24.5	20.3	36	29.6	+25.3	20.8	38	21.5	+26.1	21.4	40	13.0	+27.0	22.0	42	04.0	+28.0	22.7	73																
35	01.7	+23.9	19.2	36	54.9	+24.6	19.7	38	47.6	+25.5	20.2	40	40.0	+26.3	20.8	42	32.0	+27.1	21.5	74																
35	25.6	+23.3	18.1	37	19.5	+24.0	18.6	39	13.1	+24.8	19.1	41	06.3	+25.6	19.6	42	59.1	+26.4	20.2	75																
35	48.9	+22.6	17.0	37	43.5	+23.3	17.4	39	37.9	+24.0	17.9	41	31.9	+24.8	18.4	43	25.5	+25.6	19.0	76																
36	11.5	+21.9	15.8	38	06.8	+22.6	16.2	40	01.9	+23.3	16.7	41	56.7	+24.0	17.2	43	51.1	+24.8	17.8	77																
36	33.4	+21.3	14.7	38	29.4	+21.9	15.1	40	25.2	+22.5	15.5	42	20.7	+23.2	16.0	44	15.9	+23.9	16.5	78																
36	54.7	+20.6	13.5	38	51.3	+21.2	13.9	40	47.7	+21.8	14.3	42	43.9	+22.4	14.7	44	39.8	+23.1	15.2	79																
37	15.3	+19.9	12.3	39	12.5	+20.4	12.7	41	09.5	+20.9	13.0	43	06.3	+21.5	13.5	45	02.9	+22.1	13.9	80																
37	35.2	+19.2	11.1	39	32.9	+19.6	11.4	41	30.4	+20.1	11.8	43	27.8	+20.7	12.2	45	25.0	+21.2	12.6	81																
37	54.4	+18.4	9.9	39	52.5	+18.8	10.2	41	50.5	+19.3	10.5	43	48.5	+19.7	10.9	45	46.2	+20.3	11.3	82																
38	12.8	+17.7	8.7	40	11.3	+18.1	9.0	42	09.8	+18.5	9.3	44	08.2	+18.9	9.6	46	06.5	+19.3	9.9	83																
38	30.5	+16.9	7.5	40	29.4	+17.2	7.7	42	28.3	+17.5	8.0	44	27.1	+17.9	8.2	46	25.8	+18.3	8.5	84																
38	47.4	+16.1	6.3	40	46.6	+16.4	6.5	42	45.8	+16.7	6.7	44	45.0	+17.0	6.9	46	44.1	+17.3	7.1	85																
39	03.5	+15.3	5.0	41	03.0	+15.6	5.2	43	02.5	+15.8	5.4	45	02.0	+16.0	5.5	47	01.4	+16.2	5.7	86																
39	18.8	+14.6	3.8	41	18.6	+14.7	3.9	43	18.3	+14.8	4.0	45	18.0	+15.0	4.2	47	17.6	+15.2	4.3	87																
39	33.4	+13.7	2.5	41	33.3	+13.8	2.6	43	33.1	+13.9	2.7	45	33.0	+14.0	2.8	47	32.8	+14.2	2.9	88																
39	47.1	+12.9	1.3	41	47.1	+12.9	1.3	43	47.0	+13.0	1.4	45	47.0	+13.0	1.4	47	47.0	+13.0	1.5	89																
40	00.0	+12.1	0.0	42	00.0	+12.0	0.0	44	00.0	+12.0	0.0	46	00.0	+12.0	0.0	48	00.0	+11.9	0.0	90																
40°			42°			44°			46°			48°																								

LATITUDE SAME NAME

L.H.A. 102°, 258°

78°, 282° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	29 55.1	+41.1	77.8	30 19.3	-42.9	78.9	30 41.2	+44.5	80.1	31 00.7	+46.0	81.3	31 17.7	+47.6	82.5
31	30 36.2	+40.8	76.9	31 02.2	-42.5	78.1	31 25.7	+44.2	79.3	31 46.7	+45.8	80.5	32 05.3	+47.3	81.7
32	31 17.0	+40.5	76.1	31 44.7	-42.2	77.3	32 09.9	+43.9	78.5	32 32.5	+45.5	79.7	32 52.6	+47.1	81.0
33	31 57.5	+40.1	75.2	32 26.9	-41.8	76.4	32 53.8	+43.5	77.7	33 18.0	+45.3	79.0	33 39.7	+46.8	80.3
34	32 37.6	+39.7	74.3	33 08.7	-41.5	75.6	33 37.3	+43.3	76.9	34 03.3	+44.9	78.2	34 26.5	+46.5	79.5
35	33 17.3	+39.4	73.4	33 50.2	-41.2	74.7	34 20.6	+42.8	76.0	34 48.2	+44.6	77.4	35 13.0	+46.2	78.7
36	33 56.7	+38.9	72.5	34 31.4	-40.7	73.8	35 03.4	+42.6	75.2	35 32.8	+44.2	76.6	35 59.2	+45.9	78.0
37	34 35.6	+38.5	71.6	35 12.1	-40.4	72.9	35 46.0	+42.1	74.3	36 17.0	+43.9	75.7	36 45.1	+45.6	77.2
38	35 14.1	+38.1	70.7	35 52.5	-39.9	72.0	36 28.1	+41.8	73.4	37 00.9	+43.5	74.9	37 30.7	+45.3	76.3
39	35 52.2	+37.6	69.7	36 32.4	-39.5	71.1	37 09.9	+41.3	72.5	37 44.4	+43.2	74.0	38 16.0	+44.9	75.5
40	36 29.8	+37.2	68.8	37 11.9	-39.1	70.2	37 51.2	+40.9	71.6	38 27.6	+42.7	73.1	39 00.9	+44.5	74.7
41	37 07.0	+36.6	67.8	37 51.0	-38.5	69.2	38 32.1	+40.5	70.7	39 10.3	+42.3	72.2	39 45.4	+44.1	73.8
42	37 43.6	+36.2	66.8	38 29.5	-38.1	68.2	39 12.6	+39.9	69.7	39 52.6	+41.8	71.3	40 29.5	+43.7	72.9
43	38 19.8	+35.6	65.8	39 07.6	-37.6	67.2	39 52.5	+39.5	68.8	40 34.4	+41.4	70.4	41 13.2	+43.2	72.0
44	38 55.4	+35.0	64.7	39 45.2	-37.0	66.2	40 32.0	+39.0	67.8	41 15.8	+41.0	69.4	41 56.4	+42.8	71.1
45	39 30.4	+34.5	63.7	40 22.2	-36.5	65.2	41 11.0	+38.5	66.8	41 56.8	+40.4	68.4	42 39.2	+42.4	70.1
46	40 04.9	+33.9	62.6	40 58.7	-35.9	64.2	41 49.5	+37.9	65.8	42 37.2	+39.8	67.4	43 21.6	+41.8	69.2
47	40 38.8	+33.3	61.5	41 34.6	-35.2	63.1	42 27.4	+37.3	64.7	43 17.0	+39.3	66.4	44 03.4	+41.3	68.2
48	41 12.1	+32.6	60.4	42 09.8	-34.7	62.0	43 04.7	+36.7	63.6	43 56.3	+38.8	65.4	44 44.7	+40.7	67.1
49	41 44.7	+32.0	59.3	42 44.5	-34.0	60.9	43 41.4	+36.0	62.6	44 35.1	+38.1	64.3	45 25.4	+40.2	66.1
50	42 16.7	+31.3	58.2	43 18.5	-33.4	59.8	44 17.4	+35.4	61.4	45 13.2	+37.5	63.2	46 05.6	+39.5	65.0
51	42 48.0	+30.5	57.0	43 51.9	-32.6	58.6	44 52.8	+34.8	60.3	45 50.7	+36.8	62.1	46 45.1	+38.9	64.0
52	43 18.5	+29.9	55.9	44 24.5	-31.9	57.5	45 27.6	+34.0	59.2	46 27.5	+36.1	60.9	47 24.0	+38.3	62.8
53	43 48.4	+29.0	54.7	44 56.4	-31.2	56.3	46 01.6	+33.2	58.0	47 03.6	+35.4	59.8	48 02.3	+37.5	61.7
54	44 17.4	+28.3	53.4	45 27.6	-30.5	55.1	46 34.8	+32.5	56.8	47 39.0	+34.6	58.6	48 39.8	+36.8	60.5
55	44 45.7	+27.5	52.2	45 57.9	-29.6	53.8	47 07.3	+31.7	55.5	48 13.6	+33.9	57.4	49 16.6	+36.1	59.3
56	45 13.2	+26.6	50.9	46 27.5	-28.7	52.6	47 39.0	+30.8	54.3	48 47.5	+33.0	56.1	49 52.7	+35.2	58.1
57	45 39.8	+25.8	49.7	46 56.2	-27.8	51.3	48 09.8	+30.0	53.0	49 20.5	+32.2	54.9	50 27.9	+34.4	56.8
58	46 05.6	+24.8	48.4	47 24.0	-27.0	50.0	48 39.8	+29.1	51.7	49 52.7	+31.2	53.5	51 02.3	+33.5	55.5
59	46 30.4	+24.0	47.1	47 51.0	-26.0	48.7	49 08.9	+28.1	50.4	50 23.9	+30.4	52.2	51 35.8	+32.6	54.2
60	46 54.4	+23.0	45.7	48 17.0	-25.0	47.3	49 37.0	+27.2	49.0	50 54.3	+29.4	50.9	52 08.4	+31.7	52.8
61	47 17.4	+22.0	44.4	48 42.0	-24.1	45.9	50 04.2	+26.2	47.6	51 23.7	+28.3	49.5	52 40.1	+30.6	51.4
62	47 39.4	+21.0	43.0	49 06.1	-23.0	44.5	50 30.4	+25.1	46.2	51 52.0	+27.3	48.0	53 10.7	+29.6	50.0
63	48 00.4	+20.0	41.6	49 29.1	-22.0	43.1	50 55.5	+24.0	44.8	52 19.3	+26.3	46.6	53 40.3	+28.5	48.6
64	48 20.4	+18.9	40.2	49 51.1	-20.9	41.7	51 19.5	+23.0	43.3	52 45.6	+25.1	45.1	54 08.8	+27.4	47.1
65	48 39.3	+17.9	38.7	50 12.0	-19.7	40.2	51 42.5	+21.8	41.8	53 10.7	+23.9	43.6	54 36.2	+26.1	45.5
66	48 57.2	+16.8	37.3	50 31.7	-18.7	38.7	52 04.3	+20.6	40.3	53 34.6	+22.7	42.1	55 02.3	+25.0	44.0
67	49 14.0	+15.6	35.8	50 50.4	-17.5	37.2	52 24.9	+19.4	38.8	53 57.3	+21.5	40.5	55 27.3	+23.7	42.4
68	49 29.6	+14.5	34.3	51 07.9	-16.2	35.7	52 44.3	+18.2	37.2	54 18.8	+20.2	38.9	55 51.0	+22.4	40.7
69	49 44.1	+13.3	32.8	51 24.1	-15.1	34.2	53 02.5	+16.9	35.7	54 39.0	+18.9	37.3	56 13.4	+21.0	39.1
70	49 57.4	+12.1	31.3	51 39.2	-13.8	32.6	53 19.4	+15.6	34.1	54 57.9	+17.6	35.6	56 34.4	+19.6	37.4
71	50 09.5	+10.9	29.8	51 53.0	-12.5	31.1	53 35.0	+14.3	32.4	55 15.5	+16.1	34.0	56 54.0	+18.1	35.7
72	50 20.4	+9.7	28.3	52 05.5	-11.3	29.5	53 49.3	+12.9	30.8	55 31.6	+14.7	32.3	57 12.1	+16.7	33.9
73	50 30.1	+8.5	26.7	52 16.8	-9.9	27.9	54 02.2	+11.6	29.1	55 46.3	+13.3	30.6	57 28.8	+15.2	32.1
74	50 38.6	+7.2	25.2	52 26.7	-8.6	26.3	54 13.8	+10.1	27.5	55 59.6	+11.8	28.8	57 44.0	+13.5	30.3
75	50 45.8	+5.9	23.6	52 35.3	-7.2	24.6	54 23.9	+8.7	25.8	56 11.4	+10.2	27.1	57 57.5	+12.0	28.5
76	50 51.7	+4.6	22.0	52 42.5	-5.9	23.0	54 32.6	+7.2	24.1	56 21.6	+8.8	25.3	58 09.5	+10.4	26.6
77	50 56.3	+3.4	20.4	52 48.4	-4.6	21.3	54 39.8	+5.8	22.4	56 30.4	+7.1	23.5	58 19.9	+8.7	24.8
78	50 59.7	+2.1	18.9	52 53.0	+3.1	19.7	54 45.6	+4.3	20.6	56 37.5	+5.6	21.7	58 28.6	+7.0	22.9
79	51 01.8	+0.8	17.3	52 56.1	+1.8	18.0	54 49.9	+2.9	18.9	56 43.1	+4.1	19.9	58 35.6	+5.3	21.0
80	51 02.6	-0.6	15.7	52 57.9	+0.4	16.4	54 52.8	+1.3	17.2	56 47.2	+2.4	18.1	58 40.9	+3.6	19.1
81	51 02.0	-1.8	14.1	52 58.3	-1.0	14.7	54 54.1	-0.1	15.4	56 49.6	+0.8	16.2	58 44.5	+1.9	17.2
82	51 00.2	-3.1	12.5	52 57.3	-2.4	13.1	54 54.0	-1.6	13.7	56 50.4	-0.8	14.4	58 46.4	+0.2	15.2
83	50 57.1	-4.3	10.9	52 54.9	-3.8	11.4	54 52.4	-3.1	12.0	56 49.6	-2.3	12.6	58 46.6	-1.6	13.3
84	50 52.8	-5.7	9.3	52 51.1	-5.2	9.7	54 49.3	-4.6	10.2	56 47.3	-4.0	10.8	58 45.0	-3.2	11.4
85	50 47.1	-6.9	7.7	52 45.9	-6.5	8.1	54 44.7	-6.1	8.5	56 43.3	-5.5	8.9	58 41.8	-5.0	9.4
86	50 40.2	-8.2	6.2	52 39.4	-7.8	6.5	54 38.6	-7.5	6.8	56 37.8	-7.2	7.1	58 36.8	-6.7	7.5
87	50 32.0	-9.5	4.6	52 31.6	-9.2	4.8	54 31.1	-8.9	5.1	56 30.6	-8.7	5.3	58 30.1	-8.4	5.6
88	50 22.5	-10.6	3.1	52 22.4	-10.6	3.2	54 22.2	-10.4	3.4	56 21.9	-10.2	3.5	58 21.7	-10.0	3.7
89	50 11.9	-11.9	1.5	52 11.8	-11.8	1.6	54 11.8	-11.8	1.7	56 11.7	-11.7	1.8	58 11.7	-11.7	1.9
90	50 00.0	-13.1	0.0	52 00.0	-13.1	0.0	54 00.0	-13.2	0.0	56 00.0	-13.2	0.0	58 00.0	-13.3	0.0
	50°			52°			54°			56°			58°		

LATITUDE CONTRARY NAME

L.H.A. 78°, 282°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.					
15	30.2	+45.4	61.5	16	26.9	+46.6	62.0	17	22.7	+47.8	62.6	18	17.4	+49.0	63.1	19	11.1	+50.1	63.8	30
16	15.6	+45.2	60.9	17	13.5	+46.5	61.4	18	10.5	+47.7	61.9	19	06.4	+48.9	62.5	20	01.2	+49.9	63.2	31
17	00.8	+45.2	60.2	18	00.0	+46.4	60.7	19	58.2	+47.6	61.3	20	55.3	+48.7	61.9	21	51.1	+49.9	62.6	32
17	46.0	+45.0	59.5	18	46.4	+46.2	60.0	19	45.8	+47.4	60.7	20	44.0	+48.6	61.3	21	41.0	+49.7	62.0	33
18	31.0	+44.8	58.8	19	32.6	+46.1	59.4	20	33.2	+47.3	60.0	21	32.6	+48.5	60.7	22	30.7	+49.6	61.4	34
19	15.8	+44.7	58.1	20	18.7	+45.9	58.7	21	20.5	+47.1	59.3	22	21.1	+48.3	60.0	23	20.3	+49.5	60.8	35
20	00.5	+44.5	57.4	21	04.6	+45.8	58.0	22	07.6	+47.0	58.7	23	09.4	+48.1	59.4	24	09.8	+49.3	60.1	36
20	45.0	+44.3	56.7	21	50.4	+45.5	57.3	22	54.6	+46.8	58.0	23	57.5	+48.0	58.7	24	59.1	+49.1	59.5	37
21	29.3	+44.1	55.9	22	35.9	+45.4	56.6	23	41.4	+46.6	57.3	24	45.5	+47.8	58.1	25	48.2	+49.0	58.9	38
22	13.4	+44.0	55.2	23	21.3	+45.2	55.9	24	28.0	+46.4	56.6	25	33.3	+47.6	57.4	26	37.2	+48.8	58.2	39
22	57.4	+43.7	54.5	24	06.5	+45.0	55.2	25	14.4	+46.2	55.9	26	20.9	+47.4	56.7	27	26.0	+48.6	57.6	40
23	41.1	+43.5	53.7	24	51.5	+44.8	54.4	26	00.6	+46.0	55.2	27	08.3	+47.3	56.1	28	14.6	+48.4	56.9	41
24	24.6	+43.3	53.0	25	36.3	+44.5	53.7	26	46.6	+45.8	54.5	27	55.6	+47.0	55.4	29	03.0	+48.2	56.3	42
25	07.9	+43.1	52.2	26	20.8	+44.3	53.0	27	32.4	+45.6	53.8	28	42.6	+46.8	54.7	29	51.2	+48.0	55.6	43
25	51.0	+42.8	51.4	27	05.1	+44.1	52.2	28	18.0	+45.3	53.0	29	29.4	+46.5	53.9	30	39.2	+47.8	54.9	44
26	33.8	+42.5	50.6	27	49.2	+43.8	51.4	29	03.3	+45.1	52.3	30	15.9	+46.3	53.2	31	27.0	+47.5	54.2	45
27	16.3	+42.3	49.9	28	33.0	+43.6	50.7	29	48.4	+44.8	51.5	31	02.2	+46.1	52.5	32	14.5	+47.3	53.5	46
27	58.6	+42.0	49.1	29	16.6	+43.2	49.9	30	33.2	+44.5	50.8	31	48.3	+45.8	51.7	33	01.8	+47.0	52.7	47
28	40.6	+41.7	48.2	29	59.8	+43.0	49.1	31	17.7	+44.2	50.0	32	34.1	+45.5	51.0	33	48.8	+46.8	52.0	48
29	22.3	+41.4	47.4	30	42.8	+42.7	48.3	32	01.9	+44.0	49.2	33	19.6	+45.2	50.2	34	35.6	+46.5	51.2	49
30	03.7	+41.0	46.6	31	25.5	+42.3	47.5	32	45.9	+43.6	48.4	34	04.8	+44.9	49.4	35	22.1	+46.1	50.4	50
30	44.7	+40.8	45.7	32	07.8	+42.0	46.6	33	29.5	+43.3	47.6	34	49.7	+44.6	48.6	36	08.2	+45.9	49.7	51
31	25.5	+40.4	44.9	32	49.8	+41.7	45.8	34	12.8	+43.0	46.7	35	34.3	+44.2	47.8	36	54.1	+45.5	48.9	52
32	05.9	+40.0	44.0	33	31.5	+41.3	44.9	34	55.8	+42.5	45.9	36	18.5	+43.9	46.9	37	39.6	+45.2	48.0	53
32	45.9	+39.6	43.1	34	12.8	+40.9	44.0	35	38.3	+42.3	45.0	37	02.4	+43.5	46.1	38	24.8	+44.8	47.2	54
33	25.5	+39.3	42.2	34	53.7	+40.6	43.2	36	20.6	+41.8	44.1	37	45.9	+43.1	45.2	39	09.6	+44.4	46.3	55
34	04.8	+38.8	41.3	35	34.3	+40.1	42.3	37	02.4	+41.4	43.3	38	29.0	+42.7	44.3	39	54.0	+44.0	45.5	56
34	43.6	+38.5	40.4	36	14.4	+39.7	41.3	37	43.8	+41.0	42.3	39	11.7	+42.3	43.4	40	38.0	+43.7	44.6	57
35	22.1	+37.9	39.5	36	54.1	+39.2	40.4	38	24.8	+40.5	41.4	39	54.0	+41.9	42.5	41	21.7	+43.1	43.7	58
36	00.0	+37.6	38.5	37	33.3	+38.8	39.5	39	05.3	+40.1	40.5	40	35.9	+41.3	41.6	42	04.8	+42.7	42.7	59
36	37.6	+37.0	37.5	38	12.1	+38.3	38.5	39	45.4	+39.6	39.5	41	17.2	+40.9	40.6	42	47.5	+42.3	41.8	60
37	14.6	+36.6	36.6	38	50.4	+37.8	37.5	40	25.0	+39.0	38.5	41	58.1	+40.4	39.6	43	29.8	+41.7	40.8	61
37	51.2	+36.0	35.6	39	28.2	+37.3	36.5	41	04.0	+38.6	37.5	42	38.5	+39.9	38.6	44	11.5	+41.2	39.8	62
38	27.2	+35.5	34.5	40	05.5	+36.7	35.5	41	42.6	+38.0	36.5	43	18.4	+39.3	37.6	44	52.7	+40.6	38.8	63
39	02.7	+34.9	33.5	40	42.2	+36.2	34.4	42	20.6	+37.4	35.5	43	57.7	+38.7	36.6	45	33.3	+40.0	37.8	64
39	37.6	+34.4	32.5	41	18.4	+35.5	33.4	42	58.0	+36.8	34.4	44	36.4	+38.1	35.5	46	13.3	+39.5	36.7	65
40	12.0	+33.8	31.4	41	53.9	+35.0	32.3	43	34.8	+36.2	33.3	45	14.5	+37.4	34.4	46	52.8	+38.8	35.6	66
40	45.8	+33.1	30.3	42	28.9	+34.3	31.2	44	11.0	+35.5	32.2	45	51.9	+36.8	33.3	47	31.6	+38.1	34.5	67
41	18.9	+32.5	29.2	43	03.2	+33.7	30.1	44	46.5	+34.9	31.1	46	28.7	+36.1	32.1	48	09.7	+37.4	33.3	68
41	51.4	+31.8	28.1	43	36.9	+32.9	29.0	45	21.4	+34.1	29.9	47	04.8	+35.4	31.0	48	47.1	+36.6	32.1	69
42	23.2	+31.2	26.9	44	09.8	+32.2	27.8	45	55.5	+33.4	28.7	47	40.2	+34.6	29.8	49	23.7	+35.9	30.9	70
42	54.4	+30.4	25.8	44	42.0	+31.5	26.6	46	28.9	+32.6	27.5	48	14.8	+33.8	28.6	49	59.6	+35.1	29.7	71
43	24.8	+29.7	24.6	45	13.5	+30.8	25.4	47	01.5	+31.9	26.3	48	48.6	+33.0	27.3	50	34.7	+34.2	28.4	72
43	54.5	+28.9	23.4	45	44.3	+29.9	24.2	47	33.4	+31.0	25.1	49	21.6	+32.2	26.0	51	08.9	+33.4	27.1	73
44	23.4	+28.1	22.2	46	14.2	+29.1	22.9	48	04.4	+30.1	23.8	49	53.8	+31.2	24.7	51	42.3	+32.4	25.8	74
44	51.5	+27.3	20.9	46	43.3	+28.2	21.7	48	34.5	+29.2	22.5	50	25.0	+30.3	23.4	52	14.7	+31.4	24.4	75
45	18.8	+26.4	19.7	47	11.5	+27.4	20.4	49	03.7	+28.3	21.2	50	55.3	+29.3	22.0	52	46.1	+30.5	23.0	76
45	45.2	+25.6	18.4	47	38.9	+26.4	19.1	49	32.0	+27.4	19.8	51	24.6	+28.4	20.7	53	16.6	+29.4	21.6	77
46	10.8	+24.7	17.1	48	05.3	+25.5	17.7	49	59.4	+26.3	18.4	51	53.0	+27.2	19.2	53	46.0	+28.2	20.1	78
46	35.5	+23.7	15.8	48	30.8	+24.5	16.4	50	25.7	+25.4	17.0	52	20.2	+26.2	17.8	54	14.2	+27.2	18.6	79
46	59.2	+22.8	14.4	48	55.3	+23.5	15.0	50	51.1	+24.2	15.6	52	46.4	+25.1	16.3	54	41.4	+25.9	17.1	80
47	22.0	+21.8	13.1	49	18.8	+22.5	13.6	51	15.3	+23.1	14.2	53	11.5	+23.9	14.8	55	07.3	+24.7	15.5	81
47	43.8	+20.8	11.7	49	41.3	+21.3	12.1	51	38.4	+22.1	12.7	53	35.4	+22.7	13.3	55	32.0	+23.5	13.9	82
48	04.6	+19.8	10.3	50	02.6	+20.3	10.7	52	00.5	+20.8	11.2	53	58.1	+21.4	11.7	55	55.5	+22.1	12.3	83
48	24.4	+18.7	8.9	50	22.9	+19.2	9.2	52	21.3	+19.6	9.6	54	19.5	+20.2	10.1	56	17.6	+20.7	10.6	84
48	43.1	+17.7	7.4	50	42.1	+18.0	7.7	52	40.9	+18.4	8.1	54	39.7	+18.8	8.5	56	38.3	+19.3	8.9	85
49	00.8	+16.5	6.0	51	00.1	+16.8	6.2	52	59.3	+17.2	6.5	54	58.5	+17.5	6.8	56	57.6	+17.9	7.2	86
49	17.3	+15.4	4.5	51	16.9	+15.6	4.7	53	16.5	+15.8	4.9	55	16.0	+16.1	5.2	57	15.5	+16.4	5.4	87
49	32.7	+14.2	3.0	51	32.5	+14.4	3.1	53	32.3	+14.5	3.3	55	32.1	+14.7	3.5	57	31.9	+14.8	3.6	88
49	46.9	+13.1	1.5	51	46.9	+13.1	1.6	53	46.8	+13.2	1.7	55	46.8	+13.2	1.7	57	46.7	+13.3	1.8	89
50	00.0	+11.9	0.0	52	00.0	+11.8	0.0	54	00.0	+11.8	0.0	56	00.0	+11.7	0.0	58	00.0	+11.7	0.0	90
	50°			52°			54°			56°			58°							

LATITUDE SAME NAME

L.H.A. 102°, 258°

80°, 280° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	22 20.9	+23.0	67.2	23 06.6	+24.9	68.0	23 50.7	+26.9	68.8	24 33.3	+28.7	69.7	25 14.1	+30.7	70.5
31	22 43.9	+22.7	66.2	23 31.5	+24.6	67.0	24 17.6	+26.5	67.8	25 02.0	+28.4	68.7	25 44.8	+30.2	69.6
32	23 06.6	+22.2	65.2	23 56.1	+24.2	66.0	24 44.1	+26.1	66.9	25 30.4	+28.0	67.7	26 15.0	+29.9	68.6
33	23 28.8	+21.9	64.2	24 20.3	+23.8	65.0	25 10.2	+25.6	65.9	25 58.4	+27.6	66.7	26 44.9	+29.5	67.7
34	23 50.7	+21.5	63.2	24 44.1	+23.3	64.0	25 35.8	+25.3	64.9	26 26.0	+27.2	65.8	27 14.4	+29.1	66.7
35	24 12.2	+21.1	62.2	25 07.4	+23.0	63.0	26 01.1	+24.9	63.9	26 53.2	+26.7	64.8	27 43.5	+28.6	65.7
36	24 33.3	+20.6	61.2	25 30.4	+22.5	62.0	26 26.0	+24.4	62.8	27 19.9	+26.3	63.7	28 12.1	+28.2	64.7
37	24 53.9	+20.2	60.1	25 52.9	+22.1	60.9	26 50.4	+24.0	61.8	27 46.2	+25.9	62.7	28 40.3	+27.8	63.7
38	25 14.1	+19.8	59.1	26 15.0	+21.7	59.9	27 14.4	+23.5	60.8	28 12.1	+25.4	61.7	29 08.1	+27.3	62.7
39	25 33.9	+19.3	58.0	26 36.7	+21.2	58.9	27 37.9	+23.1	59.8	28 37.5	+25.0	60.7	29 35.4	+26.8	61.7
40	25 53.2	+18.9	57.0	26 57.9	+20.7	57.8	28 01.0	+22.6	58.7	29 02.5	+24.4	59.6	30 02.2	+26.4	60.6
41	26 12.1	+18.4	55.9	27 18.6	+20.2	56.8	28 23.6	+22.1	57.7	29 26.9	+24.0	58.6	30 28.6	+25.8	59.6
42	26 30.5	+17.9	54.9	27 38.8	+19.8	55.7	28 45.7	+21.6	56.6	29 50.9	+23.5	57.5	30 54.4	+25.4	58.5
43	26 48.4	+17.5	53.8	27 58.6	+19.2	54.6	29 07.3	+21.0	55.5	30 14.4	+22.9	56.5	31 19.8	+24.8	57.5
44	27 05.9	+16.9	52.7	28 17.8	+18.8	53.6	29 28.3	+20.6	54.5	30 37.3	+22.4	55.4	31 44.6	+24.2	56.4
45	27 22.8	+16.5	51.6	28 36.6	+18.2	52.5	29 48.9	+20.1	53.4	30 59.7	+21.9	54.3	32 08.8	+23.7	55.3
46	27 39.3	+15.9	50.6	28 54.8	+17.7	51.4	30 09.0	+19.4	52.3	31 21.6	+21.3	53.2	32 32.5	+23.2	54.2
47	27 55.2	+15.4	49.5	29 12.5	+17.2	50.3	30 28.4	+19.0	51.2	31 42.9	+20.7	52.1	32 55.7	+22.6	53.1
48	28 10.6	+14.9	48.4	29 29.7	+16.6	49.2	30 47.4	+18.4	50.1	32 03.6	+20.2	51.0	33 18.3	+21.9	52.0
49	28 25.5	+14.4	47.3	29 46.3	+16.1	48.1	31 05.8	+17.8	49.0	32 23.8	+19.6	49.9	33 40.2	+21.4	50.9
50	28 39.9	+13.8	46.2	30 02.4	+15.5	47.0	31 23.6	+17.2	47.9	32 43.4	+18.9	48.8	34 01.6	+20.8	49.8
51	28 53.7	+13.3	45.1	30 17.9	+14.9	45.9	31 40.8	+16.6	46.7	33 02.3	+18.4	47.7	34 22.4	+20.1	48.7
52	29 07.0	+12.7	43.9	30 32.8	+14.4	44.8	31 57.4	+16.0	45.6	33 20.7	+17.7	46.5	34 42.5	+19.4	47.5
53	29 19.7	+12.2	42.8	30 47.2	+13.7	43.6	32 13.4	+15.4	44.5	33 38.4	+17.1	45.4	35 01.9	+18.9	46.4
54	29 31.9	+11.6	41.7	31 00.9	+13.2	42.5	32 28.8	+14.8	43.3	33 55.5	+16.4	44.2	35 20.8	+18.1	45.2
55	29 43.5	+11.0	40.6	31 14.1	+12.6	41.3	32 43.6	+14.2	42.2	34 11.9	+15.8	43.1	35 38.9	+17.4	44.0
56	29 54.5	+10.4	39.4	31 26.7	+11.9	40.2	32 57.8	+13.5	41.0	34 27.7	+15.1	41.9	35 56.3	+16.8	42.9
57	30 04.9	+9.9	38.3	31 38.6	+11.3	39.1	33 11.3	+12.8	39.9	34 42.8	+14.4	40.7	36 13.1	+16.0	41.7
58	30 14.8	+9.2	37.2	31 49.9	+10.7	37.9	33 24.1	+12.2	38.7	34 57.2	+13.8	39.5	36 29.1	+15.4	40.5
59	30 24.0	+8.7	36.0	32 00.6	+10.1	36.7	33 36.3	+11.5	37.5	35 11.0	+13.0	38.4	36 44.5	+14.6	39.3
60	30 32.7	+8.0	34.9	32 10.7	+9.4	35.6	33 47.8	+10.9	36.3	35 24.0	+12.3	37.2	36 59.1	+13.8	38.1
61	30 40.7	+7.4	33.7	32 20.1	+8.8	34.4	33 58.7	+10.1	35.2	35 36.3	+11.6	36.0	37 12.9	+13.1	36.8
62	30 48.1	+6.8	32.6	32 28.9	+8.1	33.2	34 08.8	+9.5	34.0	35 47.9	+10.9	34.8	37 26.0	+12.3	35.6
63	30 54.9	+6.2	31.4	32 37.0	+7.5	32.1	34 18.3	+8.8	32.8	35 58.8	+10.1	33.5	37 38.3	+11.6	34.4
64	31 01.1	+5.6	30.2	32 44.5	+6.8	30.9	34 27.1	+8.1	31.6	36 08.9	+9.4	32.3	37 49.9	+10.7	33.1
65	31 06.7	+4.9	29.1	32 51.3	+6.1	29.7	34 35.2	+7.3	30.4	36 18.3	+8.6	31.1	38 00.6	+10.0	31.9
66	31 11.6	+4.4	27.9	32 57.4	+5.4	28.5	34 42.5	+6.7	29.2	36 26.9	+7.9	29.9	38 10.6	+9.2	30.6
67	31 16.0	+3.6	26.8	33 02.8	+4.8	27.3	34 49.2	+5.9	28.0	36 34.8	+7.1	28.6	38 19.8	+8.3	29.4
68	31 19.6	+3.1	25.6	33 07.6	+4.1	26.1	34 55.1	+5.2	26.7	36 41.9	+6.4	27.4	38 28.1	+7.6	28.1
69	31 22.7	+2.4	24.4	33 11.7	+3.4	24.9	35 00.3	+4.4	25.5	36 48.3	+5.6	26.2	38 35.7	+6.7	26.8
70	31 25.1	+1.8	23.2	33 15.1	+2.8	23.8	35 04.7	+3.8	24.3	36 53.9	+4.7	24.9	38 42.4	+5.9	25.6
71	31 26.9	+1.1	22.1	33 17.9	+2.0	22.6	35 08.5	+3.0	23.1	36 58.6	+4.0	23.7	38 48.3	+5.0	24.3
72	31 28.0	+0.5	20.9	33 19.9	+1.4	21.4	35 11.5	+2.3	21.9	37 02.6	+3.3	22.4	38 53.3	+4.3	23.0
73	31 28.5	-0.2	19.7	33 21.3	+0.6	20.2	35 13.8	+1.5	20.6	37 05.9	+2.4	21.2	38 57.6	+3.3	21.7
74	31 28.3	-0.8	18.6	33 21.9	0.0	19.0	35 15.3	+0.8	19.4	37 08.3	+1.6	19.9	39 00.9	+2.5	20.4
75	31 27.5	-1.4	17.4	33 21.9	-0.7	17.8	35 16.1	0.0	18.2	37 09.9	+0.9	18.7	39 03.4	+1.7	19.2
76	31 26.1	-2.1	16.2	33 21.2	-1.4	16.6	35 16.1	-0.7	17.0	37 10.8	0.0	17.4	39 05.1	+0.8	17.9
77	31 24.0	-2.7	15.0	33 19.8	-2.1	15.4	35 15.4	-1.4	15.7	37 10.8	-0.7	16.1	39 05.9	0.0	16.6
78	31 21.3	-3.3	13.9	33 17.7	-2.7	14.2	35 14.0	-2.2	14.5	37 10.1	-1.6	14.9	39 05.9	-0.9	15.3
79	31 18.0	-4.0	12.7	33 15.0	-3.5	13.0	35 11.8	-2.9	13.3	37 08.5	-2.3	13.6	39 05.0	-1.7	14.0
80	31 14.0	-4.6	11.5	33 11.5	-4.1	11.8	35 08.9	-3.6	12.1	37 06.2	-3.1	12.4	39 03.3	-2.6	12.7
81	31 09.4	-5.3	10.4	33 07.4	-4.9	10.6	35 05.3	-4.4	10.9	37 03.1	-4.0	11.1	39 00.7	-3.4	11.4
82	31 04.1	-5.9	9.2	33 02.5	-5.5	9.4	35 00.9	-5.1	9.6	36 59.1	-4.7	9.9	38 57.3	-4.2	10.2
83	30 58.2	-6.4	8.0	32 57.0	-6.1	8.2	34 55.8	-5.9	8.4	36 54.4	-5.4	8.6	38 53.1	-5.2	8.9
84	30 51.8	-7.2	6.9	32 50.9	-6.9	7.0	34 49.9	-6.5	7.2	36 49.0	-6.3	7.4	38 47.9	-5.9	7.6
85	30 44.6	-7.7	5.7	32 44.0	-7.5	5.9	34 43.4	-7.3	6.0	36 42.7	-7.0	6.1	38 42.0	-6.8	6.3
86	30 36.9	-8.3	4.6	32 36.5	-8.1	4.7	34 36.1	-8.0	4.8	36 35.7	-7.8	4.9	38 35.2	-7.6	5.0
87	30 28.6	-8.9	3.4	32 28.4	-8.8	3.5	34 28.1	-8.6	3.6	36 27.9	-8.5	3.7	38 27.6	-8.4	3.8
88	30 19.7	-9.6	2.3	32 19.6	-9.5	2.3	34 19.5	-9.4	2.4	36 19.4	-9.4	2.4	38 19.2	-9.2	2.5
89	30 10.1	-10.1	1.1	32 10.1	-10.1	1.2	34 10.1	-10.1	1.2	36 10.0	-10.0	1.2	38 10.0	-10.0	1.3
90	30 00.0	-10.7	0.0	32 00.0	-10.7	0.0	34 00.0	-10.8	0.0	36 00.0	-10.8	0.0	38 00.0	-10.8	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 80°, 280°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
6	52.7	+30.7	59.2	7	53.9	+32.2	59.4	8	54.7	+33.8	59.7	9	55.0	+35.3	60.0	30
7	23.4	+30.5	58.3	8	26.1	+32.1	58.6	9	28.5	+33.6	58.9	10	30.3	+35.1	59.2	31
7	53.9	+30.5	57.5	8	58.2	+32.0	57.7	10	02.1	+33.4	58.0	11	05.4	+34.9	58.3	32
8	24.4	+30.3	56.6	9	30.2	+31.9	56.9	10	35.5	+33.4	57.2	11	40.3	+34.8	57.5	33
8	54.7	+30.3	55.7	10	02.1	+31.7	56.0	11	08.9	+33.2	56.3	12	15.1	+34.7	56.7	34
9	25.0	+30.0	54.9	10	33.8	+31.6	55.1	11	42.1	+33.0	55.5	12	49.8	+34.5	55.8	35
9	55.0	+30.0	54.0	11	05.4	+31.4	54.3	12	15.1	+32.9	54.6	13	24.3	+34.4	55.0	36
10	25.0	+29.8	53.1	11	36.8	+31.3	53.4	12	48.0	+32.8	53.8	13	58.7	+34.1	54.1	37
10	54.8	+29.7	52.2	12	08.1	+31.1	52.5	13	20.8	+32.5	52.9	14	32.8	+34.0	53.3	38
11	24.5	+29.5	51.3	12	39.2	+30.9	51.7	13	53.3	+32.4	52.0	15	06.8	+33.8	52.4	39
11	54.0	+29.3	50.4	13	10.1	+30.8	50.8	14	25.7	+32.1	51.2	15	40.6	+33.6	51.6	40
12	23.3	+29.1	49.5	13	40.9	+30.5	49.9	14	57.8	+32.0	50.3	16	14.2	+33.3	50.7	41
12	52.4	+29.0	48.7	14	11.4	+30.4	49.0	15	29.8	+31.8	49.4	16	47.5	+33.2	49.9	42
13	21.4	+28.8	47.8	14	41.8	+30.2	48.1	16	01.6	+31.5	48.5	17	20.7	+32.9	49.0	43
13	50.2	+28.6	46.9	15	12.0	+29.9	47.2	16	33.1	+31.4	47.6	17	53.6	+32.7	48.1	44
14	18.8	+28.3	45.9	15	41.9	+29.8	46.3	17	04.5	+31.1	46.8	18	26.3	+32.5	47.2	45
14	47.1	+28.2	45.0	16	11.7	+29.5	45.4	17	35.6	+30.8	45.9	18	58.8	+32.2	46.3	46
15	15.3	+27.9	44.1	16	41.2	+29.2	44.5	18	06.4	+30.6	45.0	19	31.0	+31.9	45.4	47
15	43.2	+27.7	43.2	17	10.4	+29.0	43.6	18	37.0	+30.3	44.1	20	02.9	+31.6	44.5	48
16	10.9	+27.5	42.3	17	39.4	+28.8	42.7	19	07.3	+30.1	43.1	20	34.5	+31.4	43.6	49
16	38.4	+27.2	41.4	18	08.2	+28.5	41.8	19	37.4	+29.8	42.2	21	05.9	+31.1	42.7	50
17	05.6	+27.0	40.4	18	36.7	+28.2	40.8	20	07.2	+29.5	41.3	21	37.0	+30.7	41.8	51
17	32.6	+26.7	39.5	19	04.9	+27.9	39.9	20	36.7	+29.1	40.4	22	07.7	+30.5	40.9	52
17	59.3	+26.4	38.5	19	32.8	+27.7	39.0	21	05.8	+28.9	39.4	22	38.2	+30.1	40.0	53
18	25.7	+26.1	37.6	20	00.5	+27.3	38.0	21	34.7	+28.6	38.5	23	08.3	+29.8	39.0	54
18	51.8	+25.9	36.6	20	27.8	+27.1	37.1	22	03.3	+28.2	37.6	23	38.1	+29.4	38.1	55
19	17.7	+25.5	35.7	20	54.9	+26.7	36.1	22	31.5	+27.9	36.6	24	07.5	+29.1	37.1	56
19	43.2	+25.3	34.7	21	21.6	+26.4	35.2	22	59.4	+27.5	35.6	24	36.6	+28.7	36.2	57
20	08.5	+24.9	33.8	21	48.0	+26.0	34.2	23	26.9	+27.2	34.7	25	05.3	+28.4	35.2	58
20	33.4	+24.6	32.8	22	14.0	+25.7	33.2	23	54.1	+26.8	33.7	25	33.7	+27.9	34.2	59
20	58.0	+24.2	31.8	22	39.7	+25.4	32.2	24	20.9	+26.5	32.7	26	01.6	+27.6	33.2	60
21	22.2	+24.0	30.8	23	05.1	+24.9	31.3	24	47.4	+26.0	31.7	26	29.2	+27.1	32.2	61
21	46.2	+23.5	29.9	23	30.0	+24.6	30.3	25	13.4	+25.7	30.7	26	56.3	+26.7	31.2	62
22	09.7	+23.2	28.9	23	54.6	+24.2	29.3	25	39.1	+25.2	29.7	27	23.0	+26.3	30.2	63
22	32.9	+22.9	27.9	24	18.8	+23.8	28.3	26	04.3	+24.8	28.7	27	49.3	+25.8	29.2	64
22	55.8	+22.4	26.9	24	42.6	+23.4	27.3	26	29.1	+24.4	27.7	28	15.1	+25.4	28.2	65
23	18.2	+22.1	25.9	25	06.0	+23.0	26.3	26	53.5	+23.9	26.7	28	40.5	+24.8	27.2	66
23	40.3	+21.7	24.8	25	29.0	+22.6	25.2	27	17.4	+23.5	25.7	29	05.3	+24.4	26.1	67
24	02.0	+21.2	23.8	25	51.6	+22.1	24.2	27	40.9	+23.0	24.6	29	29.7	+24.0	25.1	68
24	23.2	+20.9	22.8	26	13.7	+21.7	23.2	28	03.9	+22.5	23.6	29	53.7	+23.3	24.0	69
24	44.1	+20.4	21.8	26	35.4	+21.2	22.1	28	26.4	+22.0	22.5	30	17.0	+22.9	23.0	70
25	04.5	+20.0	20.7	26	56.6	+20.7	21.1	28	48.4	+21.5	21.5	30	39.9	+22.4	21.9	71
25	24.5	+19.5	19.7	27	17.3	+20.3	20.0	29	09.9	+21.1	20.4	31	02.3	+21.8	20.8	72
25	44.0	+19.1	18.6	27	37.6	+19.8	19.0	29	31.0	+20.5	19.3	31	24.1	+21.2	19.7	73
26	03.1	+18.6	17.6	27	57.4	+19.3	17.9	29	51.5	+19.9	18.2	31	45.3	+20.7	18.6	74
26	21.7	+18.2	16.5	28	16.7	+18.8	16.8	30	11.4	+19.5	17.2	32	06.0	+20.1	17.5	75
26	39.9	+17.7	15.5	28	35.5	+18.2	15.7	30	30.9	+18.8	16.1	32	26.1	+19.5	16.4	76
26	57.6	+17.1	14.4	28	53.7	+17.8	14.7	30	49.7	+18.3	15.0	32	45.6	+18.9	15.3	77
27	14.7	+16.7	13.3	29	11.5	+17.2	13.6	31	08.0	+17.8	13.8	33	04.5	+18.3	14.1	78
27	31.4	+16.2	12.2	29	28.7	+16.6	12.5	31	25.8	+17.1	12.7	33	22.8	+17.6	13.0	79
27	47.6	+15.7	11.1	29	45.3	+16.1	11.4	31	42.9	+16.6	11.6	33	40.4	+17.0	11.9	80
28	03.3	+15.2	10.1	30	01.4	+15.6	10.2	31	59.5	+15.9	10.5	33	57.4	+16.4	10.7	81
28	18.5	+14.6	9.0	30	17.0	+14.9	9.1	32	15.4	+15.3	9.3	34	13.8	+15.7	9.5	82
28	33.1	+14.1	7.9	30	31.9	+14.4	8.0	32	30.7	+14.7	8.2	34	29.5	+15.0	8.4	83
28	47.2	+13.5	6.7	30	46.3	+13.8	6.9	32	45.4	+14.1	7.0	34	44.5	+14.4	7.2	84
29	00.7	+13.0	5.6	31	00.1	+13.2	5.7	32	59.5	+13.4	5.9	34	58.9	+13.6	6.0	85
29	13.7	+12.4	4.5	31	13.3	+12.6	4.6	33	12.9	+12.8	4.7	35	12.5	+13.0	4.8	86
29	26.1	+11.9	3.4	31	25.9	+12.0	3.5	33	25.7	+12.1	3.5	35	25.5	+12.2	3.6	87
29	38.0	+11.3	2.3	31	37.9	+11.4	2.3	33	37.8	+11.4	2.4	35	37.7	+11.5	2.4	88
29	49.3	+10.7	1.1	31	49.3	+10.7	1.2	33	49.2	+10.8	1.2	35	49.2	+10.8	1.2	89
30	00.0	+10.1	0.0	32	00.0	+10.1	0.0	34	00.0	+10.1	0.0	36	00.0	+10.0	0.0	90
	30°			32°				34°				36°			38°	

LATITUDE SAME NAME

L.H.A. 100°, 260°

80°, 280° L.H.A.

LATITUDE SAME NAME

Dec. °	40°			42°			44°			46°			48°		
	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "	Hc °	d '	Z "
30	25 53.2	+32.5	71.4	26 30.5	+34.3	72.4	27 05.9	+36.1	73.3	27 39.3	+37.9	74.3	28 10.6	+39.7	75.4
31	26 25.7	+32.2	70.5	27 04.8	+34.0	71.5	27 42.0	+35.8	72.4	28 17.2	+37.6	73.5	28 50.3	+39.4	74.5
32	26 57.9	+31.7	69.6	27 38.8	+33.6	70.5	28 17.8	+35.5	71.5	28 54.8	+37.3	72.6	29 29.7	+39.0	73.6
33	27 29.6	+31.4	68.6	28 12.4	+33.3	69.6	28 53.3	+35.0	70.6	29 32.1	+36.9	71.7	30 08.7	+38.7	72.8
34	28 01.0	+30.9	67.6	28 45.7	+32.8	68.6	29 28.3	+34.7	69.7	30 09.0	+36.5	70.8	30 47.4	+38.3	71.9
35	28 31.9	+30.6	66.7	29 18.5	+32.4	67.7	30 03.0	+34.3	68.7	30 45.5	+36.1	69.8	31 25.7	+37.9	71.0
36	29 02.5	+30.1	65.7	29 50.9	+32.0	66.7	30 37.3	+33.8	67.8	31 21.6	+35.7	68.9	32 03.6	+37.5	70.1
37	29 32.6	+29.6	64.7	30 22.9	+31.5	65.7	31 11.1	+33.5	66.8	31 57.3	+35.2	68.0	32 41.1	+37.2	69.1
38	30 02.2	+29.2	63.7	30 54.4	+31.1	64.8	31 44.6	+32.9	65.9	32 32.5	+34.9	67.0	33 18.3	+36.7	68.2
39	30 31.4	+28.8	62.7	31 25.5	+30.6	63.8	32 17.5	+32.5	64.9	33 07.4	+34.4	66.0	33 55.0	+36.2	67.3
40	31 00.2	+28.2	61.7	31 56.1	+30.2	62.7	32 50.0	+32.1	63.9	33 41.8	+33.9	65.1	34 31.2	+35.8	66.3
41	31 28.4	+27.7	60.6	32 26.3	+29.6	61.7	33 22.1	+31.5	62.9	34 15.7	+33.4	64.1	35 07.0	+35.3	65.3
42	31 56.1	+27.2	59.6	32 55.9	+29.1	60.7	33 53.6	+31.0	61.8	34 49.1	+32.9	63.1	35 42.3	+34.8	64.3
43	32 23.3	+26.7	58.5	33 25.0	+28.6	59.6	34 24.6	+30.5	60.8	35 22.0	+32.4	62.0	36 17.1	+34.3	63.3
44	32 50.0	+26.2	57.5	33 53.6	+28.0	58.6	34 55.1	+29.9	59.8	35 54.4	+31.9	61.0	36 51.4	+33.8	62.3
45	33 16.2	+25.6	56.4	34 21.6	+27.5	57.5	35 25.0	+29.4	58.7	36 26.3	+31.2	59.9	37 25.2	+33.2	61.3
46	33 41.8	+25.0	55.3	34 49.1	+26.9	56.4	35 54.4	+28.8	57.6	36 57.5	+30.8	58.9	37 58.4	+32.6	60.2
47	34 06.8	+24.4	54.2	35 16.0	+26.3	55.3	36 23.2	+28.2	56.5	37 28.3	+30.1	57.8	38 31.0	+32.1	59.1
48	34 31.2	+23.8	53.1	35 42.3	+25.7	54.2	36 51.4	+27.6	55.4	37 58.4	+29.5	56.7	39 03.1	+31.4	58.1
49	34 55.0	+23.2	52.0	36 08.0	+25.0	53.1	37 19.0	+26.9	54.3	38 27.9	+28.8	55.6	39 34.5	+30.8	57.0
50	35 18.2	+22.6	50.9	36 33.0	+24.5	52.0	37 45.9	+26.3	53.2	38 56.7	+28.3	54.5	40 05.3	+30.2	55.8
51	35 40.8	+21.9	49.7	36 57.5	+23.7	50.9	38 12.2	+25.7	52.1	39 25.0	+27.5	53.3	40 35.5	+29.4	54.7
52	36 02.7	+21.3	48.6	37 21.2	+23.1	49.7	38 37.9	+24.9	50.9	39 52.5	+26.8	52.2	41 04.9	+28.8	53.5
53	36 24.0	+20.5	47.4	37 44.3	+22.4	48.5	39 02.8	+24.2	49.7	40 19.3	+26.2	51.0	41 33.7	+28.1	52.4
54	36 44.5	+19.9	46.2	38 06.7	+21.6	47.4	39 27.0	+23.5	48.6	40 45.5	+25.3	49.8	42 01.8	+27.3	51.2
55	37 04.4	+19.2	45.1	38 28.3	+21.0	46.2	39 50.5	+22.8	47.4	41 10.8	+24.7	48.6	42 29.1	+26.5	50.0
56	37 23.6	+18.4	43.9	38 49.3	+20.2	45.0	40 13.3	+22.0	46.2	41 35.5	+23.8	47.4	42 55.6	+25.8	48.8
57	37 42.0	+17.8	42.7	39 09.5	+19.4	43.8	40 35.3	+21.2	44.9	41 59.3	+23.1	46.2	43 21.4	+24.9	47.5
58	37 59.8	+16.9	41.5	39 28.9	+18.7	42.5	40 56.5	+20.5	43.7	42 22.4	+22.2	44.9	43 46.3	+24.2	46.3
59	38 16.7	+16.2	40.3	39 47.6	+17.9	41.3	41 17.0	+19.6	42.5	42 44.6	+21.4	43.7	44 10.5	+23.2	45.0
60	38 32.9	+15.5	39.0	40 05.5	+17.0	40.1	41 36.6	+18.7	41.2	43 06.0	+20.6	42.4	44 33.7	+22.4	43.7
61	38 48.4	+14.6	37.8	40 22.5	+16.3	38.8	41 55.3	+17.9	39.9	43 26.6	+19.6	41.1	44 56.1	+21.5	42.4
62	39 03.0	+13.8	36.5	40 38.8	+15.4	37.5	42 13.2	+17.1	38.6	43 46.2	+18.8	39.8	45 17.6	+20.5	41.1
63	39 16.8	+13.1	35.3	40 54.2	+14.6	36.3	42 30.3	+16.2	37.3	44 05.0	+17.8	38.5	45 38.1	+19.6	39.7
64	39 29.9	+12.2	34.0	41 08.8	+13.7	35.0	42 46.5	+15.2	36.0	44 22.8	+16.9	37.2	45 57.7	+18.6	38.4
65	39 42.1	+11.3	32.7	41 22.5	+12.8	33.7	43 01.7	+14.4	34.7	44 39.7	+16.0	35.8	46 16.3	+17.6	37.0
66	39 53.4	+10.5	31.5	41 35.3	+11.9	32.4	43 16.1	+13.4	33.4	44 55.7	+14.9	34.5	46 33.9	+16.6	35.6
67	40 03.9	+9.7	30.2	41 47.2	+11.0	31.1	43 29.5	+12.4	32.0	45 10.6	+14.0	33.1	46 50.5	+15.6	34.2
68	40 13.6	+8.8	28.9	41 58.2	+10.1	29.7	43 41.9	+11.5	30.7	45 24.6	+13.0	31.7	47 06.1	+14.5	32.8
69	40 22.4	+7.9	27.6	42 08.3	+9.2	28.4	43 53.4	+10.6	29.3	45 37.6	+11.9	30.3	47 20.6	+13.4	31.4
70	40 30.3	+7.1	26.3	42 17.5	+8.3	27.1	44 04.0	+9.5	28.0	45 49.5	+10.9	28.9	47 34.0	+12.4	29.9
71	40 37.4	+6.1	25.0	42 25.8	+7.3	25.7	44 13.5	+8.6	26.6	46 00.4	+9.9	27.5	47 46.4	+11.2	28.5
72	40 43.5	+5.3	23.7	42 33.1	+6.4	24.4	44 22.1	+7.5	25.2	46 10.3	+8.7	26.1	47 57.6	+10.1	27.0
73	40 48.8	+4.3	22.4	42 39.5	+5.4	23.0	44 29.6	+6.5	23.8	46 19.0	+7.7	24.6	48 07.7	+9.0	25.6
74	40 53.1	+3.5	21.0	42 44.9	+4.5	21.7	44 36.1	+5.5	22.4	46 26.7	+6.7	23.2	48 16.7	+7.8	24.1
75	40 56.6	+2.6	19.7	42 49.4	+3.4	20.3	44 41.6	+4.5	21.0	46 33.4	+5.5	21.8	48 24.5	+6.7	22.6
76	40 59.2	+1.6	18.4	42 52.8	+2.6	19.0	44 46.1	+3.4	19.6	46 38.9	+4.4	20.3	48 31.2	+5.4	21.1
77	41 00.8	+0.7	17.1	42 55.4	+1.5	17.6	44 49.5	+2.5	18.2	46 43.3	+3.4	18.9	48 36.6	+4.4	19.6
78	41 01.5	-0.1	15.7	42 56.9	+0.6	16.2	44 52.0	+1.3	16.8	46 46.7	+2.2	17.4	48 41.0	+3.1	18.1
79	41 01.4	-1.1	14.4	42 57.5	-0.4	14.9	44 53.3	+0.3	15.4	46 48.9	+1.1	15.9	48 44.1	+1.9	16.6
80	41 00.3	-2.0	13.1	42 57.1	-1.4	13.5	44 53.6	-0.7	14.0	46 50.0	-0.1	14.5	48 46.0	+0.7	15.0
81	40 58.3	-2.9	11.8	42 55.7	-2.4	12.1	44 52.9	-1.8	12.6	46 49.9	-1.1	13.0	48 46.7	-0.4	13.5
82	40 55.4	-3.8	10.5	42 53.3	-3.3	10.8	44 51.1	-2.8	11.1	46 48.8	-2.3	11.6	48 46.3	-1.7	12.0
83	40 51.6	-4.7	9.1	42 50.0	-4.3	9.4	44 48.3	-3.8	9.7	46 46.5	-3.3	10.1	48 44.6	-2.8	10.5
84	40 46.9	-5.6	7.8	42 45.7	-5.2	8.1	44 44.5	-4.9	8.3	46 43.2	-4.5	8.6	48 41.8	-4.1	9.0
85	40 41.3	-6.5	6.5	42 40.5	-6.2	6.7	44 39.6	-5.9	6.9	46 38.7	-5.6	7.2	48 37.7	-5.2	7.5
86	40 34.8	-7.4	5.2	42 34.3	-7.2	5.4	44 33.7	-6.9	5.5	46 33.1	-6.6	5.7	48 32.5	-6.4	6.0
87	40 27.4	-8.3	3.9	42 27.1	-8.1	4.0	44 26.8	-7.9	4.1	46 26.5	-7.8	4.3	48 26.1	-7.5	4.5
88	40 19.1	-9.1	2.6	42 19.0	-9.0	2.7	44 18.9	-9.0	2.8	46 18.7	-8.8	2.9	48 18.6	-8.7	3.0
89	40 10.0	-10.0	1.3	42 10.0	-10.0	1.3	44 09.9	-9.9	1.4	46 09.9	-9.9	1.4	48 09.9	-9.9	1.5
90	40 00.0	-10.8	0.0	42 00.0	-10.9	0.0	44 00.0	-10.9	0.0	46 00.0	-10.9	0.0	48 00.0	-11.0	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 80°, 280°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
11	54.0	+38.1	60.6	12	52.4	+39.6	61.0	13	50.2	+41.0	61.4	14	47.1	+42.4	61.9	30
12	32.1	+38.0	59.9	13	32.0	+39.4	60.3	14	31.2	+40.8	60.7	15	29.5	+42.2	61.2	31
13	10.1	+37.9	59.1	14	11.4	+39.3	59.5	15	12.0	+40.6	59.9	16	11.7	+42.0	60.4	32
13	48.0	+37.7	58.3	14	50.7	+39.1	58.7	15	52.6	+40.5	59.2	16	53.7	+41.9	59.7	33
14	25.7	+37.5	57.5	15	29.8	+39.0	57.9	16	33.1	+40.4	58.4	17	35.6	+41.6	58.9	34
15	03.2	+37.4	56.7	16	08.8	+38.7	57.1	17	13.5	+40.1	57.6	18	17.2	+41.6	58.2	35
15	40.6	+37.2	55.8	16	47.5	+38.6	56.3	17	53.6	+40.0	56.8	18	58.8	+41.3	57.4	36
16	17.8	+37.0	55.0	17	26.1	+38.4	55.5	18	33.6	+39.8	56.1	19	40.1	+41.1	56.6	37
16	54.8	+36.8	54.2	18	04.5	+38.2	54.7	19	13.4	+39.5	55.3	20	21.2	+40.9	55.9	38
17	31.6	+36.6	53.4	18	42.7	+38.0	53.9	19	52.9	+39.4	54.5	21	02.1	+40.8	55.1	39
18	08.2	+36.3	52.5	19	20.7	+37.8	53.1	20	32.3	+39.1	53.7	21	42.9	+40.4	54.3	40
18	44.5	+36.2	51.7	19	58.5	+37.5	52.3	21	11.4	+38.9	52.9	22	23.3	+40.3	53.5	41
19	20.7	+35.9	50.9	20	36.0	+37.3	51.4	21	50.3	+38.6	52.0	23	03.6	+40.0	52.7	42
19	56.6	+35.7	50.0	21	13.3	+37.0	50.6	22	28.9	+38.4	51.2	23	43.6	+39.7	51.9	43
20	32.3	+35.4	49.2	21	50.3	+36.8	49.7	23	07.3	+38.2	50.4	24	23.3	+39.5	51.1	44
21	07.7	+35.2	48.3	22	27.1	+36.5	48.9	23	45.5	+37.8	49.5	25	02.8	+39.2	50.2	45
21	42.9	+34.8	47.4	23	03.6	+36.2	48.0	24	23.3	+37.6	48.7	25	42.0	+38.9	49.4	46
22	17.7	+34.6	46.5	23	39.8	+35.9	47.2	25	00.9	+37.2	47.8	26	20.9	+38.6	48.5	47
22	52.3	+34.3	45.7	24	15.7	+35.7	46.3	25	38.1	+37.0	47.0	26	59.5	+38.3	47.7	48
23	26.6	+34.0	44.8	24	51.4	+35.3	45.4	26	15.1	+36.6	46.1	27	37.8	+37.9	46.8	49
24	00.6	+33.7	43.9	25	26.7	+34.9	44.5	26	51.7	+36.3	45.2	28	15.7	+37.7	45.9	50
24	34.3	+33.3	43.0	26	01.6	+34.7	43.6	27	28.0	+36.0	44.3	28	53.4	+37.2	45.1	51
25	07.6	+33.0	42.0	26	36.3	+34.3	42.7	28	04.0	+35.6	43.4	29	30.6	+36.9	44.2	52
25	40.6	+32.7	41.1	27	10.6	+33.9	41.8	28	39.6	+35.2	42.5	30	07.5	+36.6	43.3	53
26	13.3	+32.3	40.2	27	44.5	+33.6	40.8	29	14.8	+34.8	41.6	30	44.1	+36.1	42.3	54
26	45.6	+31.9	39.3	28	18.1	+33.1	39.9	29	49.6	+34.5	40.6	31	20.2	+35.7	41.4	55
27	17.5	+31.5	38.3	28	51.2	+32.8	39.0	30	24.1	+34.0	39.7	31	55.9	+35.3	40.5	56
27	49.0	+31.1	37.3	29	24.0	+32.3	38.0	30	58.1	+33.6	38.7	32	31.2	+34.8	39.5	57
28	20.1	+30.7	36.4	29	56.3	+31.9	37.0	31	31.7	+33.1	37.8	33	06.0	+34.4	38.5	58
28	50.8	+30.3	35.4	30	28.2	+31.5	36.0	32	04.8	+32.7	36.8	33	40.4	+34.0	37.6	59
29	21.1	+29.8	34.4	30	59.7	+31.0	35.1	32	37.5	+32.2	35.8	34	14.4	+33.4	36.6	60
29	50.9	+29.4	33.4	31	30.7	+30.5	34.1	33	09.7	+31.7	34.8	34	47.8	+32.9	35.5	61
30	20.3	+28.9	32.4	32	01.2	+30.1	33.0	33	41.4	+31.2	33.8	35	20.7	+32.5	34.5	62
30	49.2	+28.4	31.4	32	31.3	+29.5	32.0	34	12.6	+30.7	32.7	35	53.2	+31.8	33.5	63
31	17.6	+27.9	30.3	33	00.8	+29.1	31.0	34	43.3	+30.2	31.7	36	25.0	+31.3	32.4	64
31	45.5	+27.5	29.3	33	29.9	+28.4	29.9	35	13.5	+29.6	30.6	36	56.3	+30.8	31.4	65
32	13.0	+26.8	28.3	33	58.3	+28.0	28.9	35	43.1	+29.0	29.6	37	27.1	+30.1	30.3	66
32	39.8	+26.4	27.2	34	26.3	+27.4	27.8	36	12.1	+28.4	28.5	37	57.2	+29.5	29.2	67
33	06.2	+25.8	26.1	34	53.7	+26.8	26.7	36	40.5	+27.9	27.4	38	26.7	+28.9	28.1	68
33	32.0	+25.2	25.0	35	20.5	+26.2	25.6	37	08.4	+27.2	26.3	38	55.6	+28.3	27.0	69
33	57.2	+24.7	24.0	35	46.7	+25.5	24.5	37	35.6	+26.5	25.2	39	23.9	+27.5	25.8	70
34	21.9	+24.0	22.9	36	12.2	+25.0	23.4	38	02.1	+25.9	24.0	39	51.4	+26.9	24.7	71
34	45.9	+23.5	21.7	36	37.2	+24.3	22.3	38	28.0	+25.2	22.9	40	18.3	+26.2	23.5	72
35	09.4	+22.8	20.6	37	01.5	+23.6	21.1	38	53.2	+24.5	21.7	40	44.5	+25.4	22.3	73
35	32.2	+22.2	19.5	37	25.1	+23.0	20.0	39	17.7	+23.8	20.5	41	09.9	+24.6	21.1	74
35	54.4	+21.5	18.3	37	48.1	+22.3	18.8	39	41.5	+23.1	19.3	41	34.5	+23.9	19.9	75
36	15.9	+20.8	17.2	38	10.4	+21.5	17.6	40	04.6	+22.3	18.1	41	58.4	+23.1	18.7	76
36	36.7	+20.2	16.0	38	31.9	+20.8	16.5	40	26.9	+21.5	16.9	42	21.5	+22.3	17.4	77
36	56.9	+19.4	14.8	38	52.7	+20.1	15.2	40	48.4	+20.7	15.7	42	43.8	+21.4	16.2	78
37	16.3	+18.7	13.7	39	12.8	+19.3	14.0	41	09.1	+20.0	14.5	43	05.2	+20.6	14.9	79
37	35.0	+18.0	12.5	39	32.1	+18.6	12.8	41	29.1	+19.1	13.2	43	25.8	+19.7	13.6	80
37	53.0	+17.3	11.3	39	50.7	+17.7	11.6	41	48.2	+18.2	11.9	43	45.5	+18.8	12.3	81
38	10.3	+16.5	10.0	40	08.4	+16.9	10.3	42	06.4	+17.4	10.6	44	04.3	+17.8	11.0	82
38	26.8	+15.7	8.8	40	25.3	+16.1	9.1	42	23.8	+16.5	9.4	44	22.1	+17.0	9.7	83
38	42.5	+15.0	7.6	40	41.4	+15.3	7.8	42	40.3	+15.6	8.0	44	39.1	+16.0	8.3	84
38	57.5	+14.1	6.3	40	56.7	+14.4	6.5	42	55.9	+14.7	6.7	44	55.1	+15.0	7.0	85
39	11.6	+13.4	5.1	41	11.1	+13.6	5.2	43	10.6	+13.8	5.4	45	10.1	+14.0	5.6	86
39	25.0	+12.5	3.8	41	24.7	+12.6	3.9	43	24.4	+12.8	4.1	45	24.1	+13.0	4.2	87
39	37.5	+11.7	2.6	41	37.3	+11.8	2.6	43	37.2	+11.9	2.7	45	37.1	+12.0	2.8	88
39	49.2	+10.8	1.3	41	49.1	+10.9	1.3	43	49.1	+10.9	1.4	45	49.1	+10.9	1.4	89
40	00.0	+10.0	0.0	42	00.0	+10.0	0.0	44	00.0	+9.9	0.0	46	00.0	+9.9	0.0	90
	40°			42°				44°				46°				

LATITUDE SAME NAME

L.H.A. 100°, 260°

80°, 280° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	28 39.9	+41.4	76.4	29 07.0	-43.1	77.5	29 31.9	+44.7	78.6	29 54.5	+46.2	79.7	30 14.8	+47.7	80.8
31	29 21.3	+41.1	75.6	29 50.1	-42.7	76.7	30 16.6	+44.3	77.8	30 40.7	+46.0	79.0	31 02.5	+47.4	80.1
32	30 02.4	+40.7	74.7	30 32.8	-42.5	75.9	31 00.9	+44.1	77.0	31 26.7	+45.7	78.2	31 49.9	+47.3	79.4
33	30 43.1	+40.5	73.9	31 15.3	-42.1	75.0	31 45.0	+43.8	76.2	32 12.4	+45.4	77.5	32 37.2	+46.9	78.7
34	31 23.6	+40.0	73.0	31 57.4	-41.8	74.2	32 28.8	+43.5	75.4	32 57.8	+45.1	76.7	33 24.1	+46.7	78.0
35	32 03.6	+39.8	72.2	32 39.2	-41.5	73.4	33 12.3	+43.2	74.6	33 42.9	+44.8	75.9	34 10.8	+46.4	77.2
36	32 43.4	+39.3	71.3	33 20.7	-41.1	72.5	33 55.5	+42.8	73.8	34 27.7	+44.5	75.1	34 57.2	+46.1	76.4
37	33 22.7	+38.9	70.4	34 01.8	-40.7	71.6	34 38.3	+42.5	72.9	35 12.2	+44.1	74.3	35 43.3	+45.8	75.6
38	34 01.6	+38.5	69.5	34 42.5	-40.3	70.7	35 20.8	+42.0	72.1	35 56.3	+43.8	73.4	36 29.1	+45.5	74.8
39	34 40.1	+38.1	68.5	35 22.8	-39.9	69.8	36 02.8	+41.7	71.2	36 40.1	+43.5	72.6	37 14.6	+45.2	74.0
40	35 18.2	+37.7	67.6	36 02.7	-39.5	68.9	36 44.5	+41.3	70.3	37 23.6	+43.0	71.7	37 59.8	+44.7	73.2
41	35 55.9	+37.1	66.6	36 42.2	-39.0	68.0	37 25.8	+40.9	69.4	38 06.6	+42.7	70.8	38 44.5	+44.4	72.3
42	36 33.0	+36.7	65.6	37 21.2	-38.6	67.0	38 06.7	+40.4	68.5	38 49.3	+42.2	69.9	39 28.9	+44.0	71.5
43	37 09.7	+36.2	64.7	37 59.8	-38.1	66.1	38 47.1	+39.9	67.5	39 31.5	+41.8	69.0	40 12.9	+43.6	70.6
44	37 45.9	+35.7	63.7	38 37.3	-37.5	65.1	39 27.0	+39.5	66.6	40 13.3	+41.3	68.1	40 56.5	+43.2	69.7
45	38 21.6	+35.1	62.6	39 15.4	-37.1	64.1	40 06.5	+39.0	65.6	40 54.6	+40.9	67.1	41 39.7	+42.7	68.8
46	38 56.7	+34.6	61.6	39 52.5	-36.5	63.1	40 45.5	+38.4	64.6	41 35.5	+40.3	66.2	42 22.4	+42.2	67.8
47	39 31.3	+34.0	60.5	40 29.0	-35.9	62.0	41 23.9	+37.9	63.6	42 15.8	+39.8	65.2	43 04.6	+41.7	66.9
48	40 05.3	+33.4	59.5	41 04.9	-35.4	61.0	42 01.8	+37.3	62.5	42 55.6	+39.3	64.2	43 46.3	+41.2	65.9
49	40 38.7	+32.8	58.4	41 40.3	-34.7	59.9	42 39.1	+36.7	61.5	43 34.9	+38.7	63.1	44 27.5	+40.7	64.9
50	41 11.5	+32.1	57.3	42 15.0	-34.1	58.8	43 15.8	+36.1	60.4	44 13.6	+38.1	62.1	45 08.2	+40.1	63.8
51	41 43.6	+31.4	56.1	42 49.1	-33.4	57.7	43 51.9	+35.4	59.3	44 51.7	+37.4	61.0	45 48.3	+39.5	62.8
52	42 15.0	+30.8	55.0	43 22.5	-32.8	56.5	44 27.3	+34.8	58.1	45 29.1	+36.8	59.9	46 27.8	+38.8	61.7
53	42 45.8	+30.0	53.8	43 55.3	-32.0	55.4	45 02.1	+34.0	57.0	46 05.9	+36.1	58.7	47 06.6	+38.2	60.6
54	43 15.8	+29.3	52.6	44 27.3	-31.3	54.2	45 36.1	+33.4	55.8	46 42.0	+35.4	57.6	47 44.8	+37.5	59.4
55	43 45.1	+28.5	51.4	44 58.6	-30.5	53.0	46 09.5	+32.5	54.6	47 17.4	+34.7	56.4	48 22.3	+36.7	58.2
56	44 13.6	+27.7	50.2	45 29.1	-29.8	51.8	46 42.0	+31.8	53.4	47 52.1	+33.9	55.2	48 59.0	+36.0	57.0
57	44 41.3	+26.9	49.0	45 58.9	-28.9	50.5	47 13.8	+31.0	52.2	48 26.0	+33.0	53.9	49 35.0	+35.2	55.8
58	45 08.2	+26.0	47.7	46 27.8	-28.0	49.3	47 44.8	+30.1	50.9	48 59.0	+32.2	52.7	50 10.2	+34.4	54.6
59	45 34.2	+25.2	46.4	46 55.8	-27.2	48.0	48 14.9	+29.2	49.6	49 31.2	+31.3	51.4	50 44.6	+33.5	53.3
60	45 59.4	+24.3	45.1	47 23.0	-26.2	46.7	48 44.1	+28.3	48.3	50 02.5	+30.4	50.1	51 18.1	+32.5	52.0
61	46 23.7	+23.3	43.8	47 49.2	-25.3	45.3	49 12.4	+27.3	47.0	50 32.9	+29.5	48.7	51 50.6	+31.7	50.6
62	46 47.0	+22.4	42.5	48 14.5	-24.3	44.0	49 39.7	+26.4	45.6	51 02.4	+28.4	47.3	52 22.3	+30.6	49.2
63	47 09.4	+21.5	41.1	48 38.8	-23.4	42.6	50 06.1	+25.3	44.2	51 30.8	+27.5	45.9	52 52.9	+29.6	47.8
64	47 30.9	+20.4	39.7	49 02.2	-22.3	41.2	50 31.4	+24.3	42.8	51 58.3	+26.3	44.5	53 22.5	+28.5	46.4
65	47 51.3	+19.4	38.3	49 24.5	-21.2	39.8	50 55.7	+23.2	41.3	52 24.6	+25.3	43.0	53 51.0	+27.4	44.9
66	48 10.7	+18.3	36.9	49 45.7	-20.2	38.3	51 18.9	+22.0	39.9	52 49.9	+24.1	41.5	54 18.4	+26.3	43.4
67	48 29.0	+17.2	35.5	50 05.9	-19.0	36.9	51 40.9	+21.0	38.4	53 14.0	+22.9	40.0	54 44.7	+25.0	41.8
68	48 46.2	+16.2	34.0	50 24.9	-17.9	35.4	52 01.9	+19.7	36.8	53 36.9	+21.7	38.5	55 09.7	+23.8	40.2
69	49 02.4	+15.0	32.6	50 42.8	-16.7	33.9	52 21.6	+18.5	35.3	53 58.6	+20.4	36.9	55 33.5	+22.4	38.6
70	49 17.4	+13.9	31.1	50 59.5	-15.5	32.4	52 40.1	+17.2	33.7	54 19.0	+19.1	35.3	55 55.9	+21.2	37.0
71	49 31.3	+12.7	29.6	51 15.0	-14.3	30.8	52 57.3	+16.0	32.2	54 38.1	+17.8	33.6	56 17.1	+19.7	35.3
72	49 44.0	+11.5	28.1	51 29.3	-13.0	29.3	53 13.3	+14.7	30.6	54 55.9	+16.4	32.0	56 36.8	+18.3	33.6
73	49 55.5	+10.3	26.6	51 42.3	-11.8	27.7	53 28.0	+13.3	28.9	55 12.3	+15.0	30.3	56 55.1	+16.9	31.8
74	50 05.8	+9.1	25.0	51 54.1	-10.5	26.1	53 41.3	+12.0	27.3	55 27.3	+13.6	28.6	57 12.0	+15.3	30.1
75	50 14.9	+7.9	23.5	52 04.6	-9.2	24.5	53 53.3	+10.6	25.6	55 40.9	+12.1	26.9	57 27.3	+13.8	28.3
76	50 22.8	+6.6	21.9	52 13.8	+7.8	22.9	54 03.9	+9.1	24.0	55 53.0	+10.7	25.1	57 41.1	+12.2	26.5
77	50 29.4	+5.4	20.4	52 21.6	+6.5	21.3	54 13.0	+7.8	22.3	56 03.7	+9.1	23.4	57 53.3	+10.6	24.6
78	50 34.8	+4.1	18.8	52 28.1	+5.2	19.6	54 20.8	+6.3	20.6	56 12.8	+7.6	21.6	58 03.9	+9.0	22.8
79	50 38.9	+2.8	17.2	52 33.3	+3.8	18.0	54 27.1	+4.9	18.9	56 20.4	+6.0	19.8	58 12.9	+7.3	20.9
80	50 41.7	+1.6	15.7	52 37.1	+2.4	16.4	54 32.0	+3.4	17.1	56 26.4	+4.4	18.0	58 20.2	+5.6	19.0
81	50 43.3	+0.2	14.1	52 39.5	+1.1	14.7	54 35.4	+1.9	15.4	56 30.8	+2.9	16.2	58 25.8	+3.9	17.1
82	50 43.5	-1.0	12.5	52 40.6	-0.3	13.1	54 37.3	+0.5	13.7	56 33.7	+1.3	14.4	58 29.7	+2.3	15.2
83	50 42.5	-2.3	10.9	52 40.3	-1.7	11.4	54 37.8	-1.1	12.0	56 35.0	-0.3	12.6	58 32.0	+0.5	13.3
84	50 40.2	-3.5	9.3	52 38.6	-3.1	9.8	54 36.7	-2.4	10.2	56 34.7	-1.8	10.8	58 32.5	-1.2	11.4
85	50 36.7	-4.9	7.8	52 35.5	-4.4	8.1	54 34.3	-4.0	8.5	56 32.9	-3.5	9.0	58 31.3	-2.9	9.5
86	50 31.8	-6.1	6.2	52 31.1	-5.8	6.5	54 30.3	-5.4	6.8	56 29.4	-5.0	7.1	58 28.4	-4.6	7.5
87	50 25.7	-7.3	4.6	52 25.3	-7.1	4.8	54 24.9	-6.9	5.1	56 24.4	-6.6	5.3	58 23.8	-6.2	5.6
88	50 18.4	-8.6	3.1	52 18.2	-8.4	3.2	54 18.0	-8.3	3.4	56 17.8	-8.1	3.6	58 17.6	-8.0	3.7
89	50 09.8	-9.8	1.5	52 09.8	-9.8	1.6	54 09.7	-9.7	1.7	56 09.7	-9.7	1.8	58 09.6	-9.6	1.9
90	50 00.0	-11.0	0.0	52 00.0	-11.1	0.0	54 00.0	-11.1	0.0	56 00.0	-11.2	0.0	58 00.0	-11.2	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 80°, 280°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
16	38.4	+45.0	62.9	17	32.6	+46.2	63.4	18	25.7	+47.5	64.0	19	17.7	+48.6	64.6	30
17	23.4	+44.8	62.2	18	18.8	+46.1	62.8	19	13.2	+47.3	63.4	20	06.3	+48.6	64.0	31
18	08.2	+44.7	61.5	19	04.9	+46.0	62.1	20	00.5	+47.2	62.7	20	54.9	+48.4	63.4	32
18	52.9	+44.5	60.8	19	50.9	+45.8	61.4	20	47.7	+47.0	62.1	21	43.3	+48.2	62.8	33
19	37.4	+44.3	60.1	20	36.7	+45.6	60.7	21	34.7	+46.9	61.4	22	31.5	+48.1	62.1	34
20	21.7	+44.2	59.4	21	22.3	+45.4	60.0	22	21.6	+46.7	60.7	23	19.6	+47.9	61.5	35
21	05.9	+44.0	58.6	22	07.7	+45.3	59.3	23	08.3	+46.5	60.0	24	07.5	+47.8	60.8	36
21	49.9	+43.8	57.9	22	53.0	+45.1	58.6	23	54.8	+46.4	59.4	24	55.3	+47.6	60.1	37
22	33.7	+43.5	57.2	23	38.1	+44.9	57.9	24	41.2	+46.1	58.7	25	42.9	+47.4	59.5	38
23	17.2	+43.4	56.4	24	23.0	+44.6	57.2	25	27.3	+46.0	58.0	26	30.3	+47.2	58.8	39
24	00.6	+43.2	55.7	25	07.6	+44.5	56.4	26	13.3	+45.7	57.2	27	17.5	+46.9	58.1	40
24	43.8	+42.9	54.9	25	52.1	+44.2	55.7	26	59.0	+45.5	56.5	28	04.4	+46.8	57.4	41
25	26.7	+42.6	54.1	26	36.3	+44.0	54.9	27	44.5	+45.3	55.8	28	51.2	+46.6	56.7	42
26	09.3	+42.4	53.4	27	20.3	+43.7	54.2	28	29.8	+45.0	55.0	29	37.8	+46.3	56.0	43
26	51.7	+42.2	52.6	28	04.0	+43.4	53.4	29	14.8	+44.8	54.3	30	24.1	+46.0	55.2	44
27	33.9	+41.8	51.8	28	47.4	+43.2	52.6	29	59.6	+44.5	53.5	31	10.1	+45.8	54.5	45
28	15.7	+41.6	51.0	29	30.6	+42.9	51.8	30	44.1	+44.2	52.7	31	55.9	+45.5	53.7	46
28	57.3	+41.3	50.1	30	13.5	+42.6	51.0	31	28.3	+43.9	51.9	32	41.4	+45.2	52.9	47
29	38.6	+40.9	49.3	30	56.1	+42.3	50.2	32	12.2	+43.6	51.1	33	26.6	+45.0	52.2	48
30	19.5	+40.7	48.5	31	38.4	+42.0	49.4	32	55.8	+43.3	50.3	34	11.6	+44.6	51.4	49
31	00.2	+40.2	47.6	32	20.4	+41.6	48.5	33	39.1	+42.9	49.5	34	56.2	+44.2	50.5	50
31	40.4	+40.0	46.7	33	02.0	+41.2	47.7	34	22.0	+42.6	48.7	35	40.4	+44.0	49.7	51
32	20.4	+39.5	45.9	33	43.2	+40.9	46.8	35	04.6	+42.2	47.8	36	24.4	+43.6	48.9	52
32	59.9	+39.2	45.0	34	24.1	+40.5	45.9	35	46.8	+41.9	46.9	37	08.0	+43.1	48.0	53
33	39.1	+38.7	44.1	35	04.6	+40.1	45.0	36	28.7	+41.4	46.0	37	51.1	+42.8	47.1	54
34	17.8	+38.4	43.1	35	44.7	+39.7	44.1	37	10.1	+41.0	45.1	38	33.9	+42.4	46.3	55
34	56.2	+37.9	42.2	36	24.4	+39.2	43.2	37	51.1	+40.6	44.2	39	16.3	+42.0	45.3	56
35	34.1	+37.4	41.3	37	03.6	+38.8	42.2	38	31.7	+40.2	43.3	39	58.3	+41.5	44.4	57
36	11.5	+37.0	40.3	37	42.4	+38.3	41.3	39	11.9	+39.6	42.3	40	39.8	+41.0	43.5	58
36	48.5	+36.5	39.3	38	20.7	+37.8	40.3	39	51.5	+39.2	41.4	41	20.8	+40.5	42.5	59
37	25.0	+36.0	38.3	38	58.5	+37.3	39.3	40	30.7	+38.6	40.4	42	01.3	+40.0	41.5	60
38	01.0	+35.4	37.3	39	35.8	+36.8	38.3	41	09.3	+38.1	39.4	42	41.3	+39.5	40.5	61
38	36.4	+34.9	36.3	40	12.6	+36.2	37.3	41	47.4	+37.5	38.3	43	20.8	+38.9	39.5	62
39	11.3	+34.4	35.2	40	48.8	+35.6	36.2	42	24.9	+37.0	37.3	43	59.7	+38.3	38.4	63
39	45.7	+33.7	34.2	41	24.4	+35.0	35.1	43	01.9	+36.3	36.2	44	38.0	+37.7	37.3	64
40	19.4	+33.1	33.1	41	59.4	+34.4	34.1	43	38.2	+35.7	35.1	45	15.7	+37.0	36.2	65
40	52.5	+32.5	32.0	42	33.8	+33.7	32.9	44	13.9	+35.0	34.0	45	52.7	+36.4	35.1	66
41	25.0	+31.9	30.9	43	07.5	+33.1	31.8	44	48.9	+34.3	32.8	46	29.1	+35.6	34.0	67
41	56.9	+31.1	29.7	43	40.6	+32.3	30.7	45	23.2	+33.7	31.7	47	04.7	+35.0	32.8	68
42	28.0	+30.5	28.6	44	12.9	+31.7	29.5	45	56.9	+32.8	30.5	47	39.7	+34.1	31.6	69
42	58.5	+29.7	27.4	44	44.6	+30.8	28.3	46	29.7	+32.1	29.3	48	13.8	+33.4	30.4	70
43	28.2	+28.9	26.2	45	15.4	+30.1	27.1	47	01.8	+31.3	28.1	48	47.2	+32.5	29.1	71
43	57.1	+28.2	25.0	45	45.5	+29.3	25.9	47	33.1	+30.4	26.8	49	19.7	+31.6	27.8	72
44	25.3	+27.4	23.8	46	14.8	+28.4	24.6	48	03.5	+29.6	25.5	49	51.3	+30.8	26.5	73
44	52.7	+26.5	22.5	46	43.2	+27.6	23.3	48	33.1	+28.6	24.2	50	22.1	+29.8	25.2	74
45	19.2	+25.7	21.3	47	10.8	+26.7	22.0	49	01.7	+27.7	22.9	50	51.9	+28.8	23.8	75
45	44.9	+24.8	20.0	47	37.5	+25.7	20.7	49	29.4	+26.7	21.5	51	20.7	+27.8	22.4	76
46	09.7	+23.9	18.7	48	03.2	+24.8	19.4	49	56.1	+25.8	20.1	51	48.5	+26.7	21.0	77
46	33.6	+23.0	17.3	48	28.0	+23.8	18.0	50	21.9	+24.6	18.7	52	15.2	+25.7	19.5	78
46	56.6	+22.0	16.0	48	51.8	+22.7	16.6	50	46.5	+23.7	17.3	52	40.9	+24.5	18.1	79
47	18.6	+21.0	14.6	49	14.5	+21.7	15.2	51	10.2	+22.5	15.8	53	05.4	+23.3	16.5	80
47	39.6	+19.9	13.2	49	36.2	+20.7	13.8	51	32.7	+21.3	14.3	53	28.7	+22.2	15.0	81
47	59.5	+19.0	11.8	49	56.9	+19.5	12.3	51	54.0	+20.2	12.8	53	50.9	+20.9	13.4	82
48	18.5	+17.9	10.4	50	16.4	+18.4	10.8	52	14.2	+19.0	11.3	54	11.8	+19.6	11.8	83
48	36.4	+16.8	9.0	50	34.8	+17.3	9.3	52	33.2	+17.7	9.7	54	31.4	+18.2	10.2	84
48	53.2	+15.6	7.5	50	52.1	+16.0	7.8	52	50.9	+16.5	8.2	54	49.6	+17.0	8.6	85
49	08.8	+14.6	6.0	51	08.1	+14.9	6.3	53	07.4	+15.2	6.6	55	06.6	+15.5	6.9	86
49	23.4	+13.4	4.5	51	23.0	+13.6	4.7	53	22.6	+13.8	5.0	55	22.1	+14.1	5.2	87
49	36.8	+12.2	3.0	51	36.6	+12.3	3.2	53	36.4	+12.5	3.3	55	36.2	+12.6	3.5	88
49	49.0	+11.0	1.5	51	48.9	+11.1	1.6	53	48.9	+11.1	1.7	55	48.8	+11.2	1.8	89
50	00.0	+9.8	0.0	52	00.0	+9.8	0.0	54	00.0	+9.7	0.0	56	00.0	+9.7	0.0	90
50°			52°			54°			56°			58°				

LATITUDE SAME NAME

L.H.A. 100°, 260°

82°, 278° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	20 45.3	+23.8	66.5	21 32.5	+25.6	67.2	22 18.2	+27.5	68.0	23 02.5	+29.4	68.7	23 45.2	+31.2	69.5
31	21 09.1	+23.4	65.5	21 58.1	+25.3	66.2	22 45.7	+27.2	67.0	23 31.9	+29.0	67.8	24 16.4	+30.9	68.6
32	21 32.5	+23.0	64.5	22 23.4	+24.9	65.3	23 12.9	+26.8	66.0	24 00.9	+28.6	66.8	24 47.3	+30.4	67.7
33	21 55.5	+22.7	63.5	22 48.3	+24.6	64.3	23 39.7	+26.4	65.1	24 29.5	+28.3	65.9	25 17.7	+30.2	66.7
34	22 18.2	+22.4	62.5	23 12.9	+24.2	63.3	24 06.1	+26.0	64.1	24 57.8	+27.9	64.9	25 47.9	+29.7	65.8
35	22 40.6	+21.9	61.5	23 37.1	+23.8	62.3	24 32.1	+25.7	63.1	25 25.7	+27.5	63.9	26 17.6	+29.3	64.8
36	23 02.5	+21.6	60.5	24 00.9	+23.4	61.3	24 57.8	+25.2	62.1	25 53.2	+27.1	62.9	26 46.9	+29.0	63.8
37	23 24.1	+21.1	59.5	24 24.3	+23.0	60.3	25 23.0	+24.9	61.1	26 20.3	+26.6	61.9	27 15.9	+28.5	62.8
38	23 45.2	+20.8	58.5	24 47.3	+22.5	59.3	25 47.9	+24.4	60.1	26 46.9	+26.3	60.9	27 44.4	+28.1	61.8
39	24 06.0	+20.3	57.5	25 09.8	+22.2	58.2	26 12.3	+24.0	59.1	27 13.2	+25.8	59.9	28 12.5	+27.7	60.8
40	24 26.3	+20.0	56.4	25 32.0	+21.7	57.2	26 36.3	+23.5	58.0	27 39.0	+25.4	58.9	28 40.2	+27.2	59.8
41	24 46.3	+19.5	55.4	25 53.7	+21.3	56.2	26 59.8	+23.1	57.0	28 04.4	+24.9	57.9	29 07.4	+26.7	58.8
42	25 05.8	+19.0	54.4	26 15.0	+20.9	55.1	27 22.9	+22.6	56.0	28 29.3	+24.4	56.9	29 34.1	+26.2	57.8
43	25 24.8	+18.6	53.3	26 35.9	+20.3	54.1	27 45.5	+22.2	54.9	28 53.7	+24.0	55.8	30 00.3	+25.8	56.8
44	25 43.4	+18.2	52.3	26 56.2	+19.9	53.0	28 07.7	+21.7	53.9	29 17.7	+23.4	54.8	30 26.1	+25.3	55.7
45	26 01.6	+17.6	51.2	27 16.1	+19.4	52.0	28 29.4	+21.1	52.8	29 41.1	+23.0	53.7	30 51.4	+24.7	54.7
46	26 19.2	+17.3	50.1	27 35.5	+19.0	50.9	28 50.5	+20.7	51.7	30 04.1	+22.4	52.6	31 16.1	+24.2	53.6
47	26 36.5	+16.7	49.1	27 54.5	+18.4	49.8	29 11.2	+20.2	50.7	30 26.5	+21.9	51.6	31 40.3	+23.7	52.5
48	26 53.2	+16.2	48.0	28 12.9	+17.9	48.8	29 31.4	+19.6	49.6	30 48.4	+21.4	50.5	32 04.0	+23.1	51.4
49	27 09.4	+15.7	46.9	28 30.8	+17.4	47.7	29 51.0	+19.1	48.5	31 09.8	+20.8	49.4	32 27.1	+22.6	50.3
50	27 25.1	+15.3	45.8	28 48.2	+16.9	46.6	30 10.1	+18.5	47.4	31 30.6	+20.2	48.3	32 49.7	+21.9	49.2
51	27 40.4	+14.7	44.7	29 05.1	+16.3	45.5	30 28.6	+18.0	46.3	31 50.8	+19.7	47.2	33 11.6	+21.4	48.1
52	27 55.1	+14.2	43.6	29 21.4	+15.8	44.4	30 46.6	+17.4	45.2	32 10.5	+19.0	46.1	33 33.0	+20.8	47.0
53	28 09.3	+13.6	42.5	29 37.2	+15.2	43.3	31 04.0	+16.8	44.1	32 29.5	+18.5	45.0	33 53.8	+20.1	45.9
54	28 22.9	+13.2	41.4	29 52.4	+14.7	42.2	31 20.8	+16.2	43.0	32 48.0	+17.9	43.8	34 13.9	+19.5	44.8
55	28 36.1	+12.5	40.3	30 07.1	+14.1	41.0	31 37.0	+15.7	41.8	33 05.9	+17.2	42.7	34 33.4	+18.9	43.6
56	28 48.6	+12.1	39.2	30 21.2	+13.5	39.9	31 52.7	+15.0	40.7	33 23.1	+16.6	41.5	34 52.3	+18.2	42.4
57	29 00.7	+11.4	38.1	30 34.7	+12.9	38.8	32 07.7	+14.4	39.6	33 39.7	+15.9	40.4	35 10.5	+17.5	41.3
58	29 12.1	+10.9	37.0	30 47.6	+12.3	37.7	32 22.1	+13.8	38.4	33 55.6	+15.3	39.2	35 28.0	+16.8	40.1
59	29 23.0	+10.4	35.8	30 59.9	+11.7	36.5	32 35.9	+13.2	37.3	34 10.9	+14.6	38.1	35 44.8	+16.2	38.9
60	29 33.4	+9.7	34.7	31 11.6	+11.1	35.4	32 49.1	+12.5	36.1	34 25.5	+14.0	36.9	36 01.0	+15.4	37.7
61	29 43.1	+9.2	33.6	31 22.7	+10.5	34.2	33 01.6	+11.8	34.9	34 39.5	+13.2	35.7	36 16.4	+14.7	36.5
62	29 52.3	+8.6	32.4	31 33.2	+9.9	33.1	33 13.4	+11.2	33.8	34 52.7	+12.6	34.5	36 31.1	+14.0	35.3
63	30 00.9	+8.0	31.3	31 43.1	+9.2	31.9	33 24.6	+10.5	32.6	35 05.3	+11.8	33.3	36 45.1	+13.2	34.1
64	30 08.9	+7.4	30.1	31 52.3	+8.6	30.7	33 35.1	+9.9	31.4	35 17.1	+11.2	32.1	36 58.3	+12.5	32.9
65	30 16.3	+6.8	29.0	32 00.9	+8.0	29.6	33 45.0	+9.1	30.2	35 28.3	+10.4	30.9	37 10.8	+11.8	31.7
66	30 23.1	+6.1	27.8	32 08.9	+7.3	28.4	33 54.1	+8.5	29.0	35 38.7	+9.7	29.7	37 22.6	+10.9	30.5
67	30 29.2	+5.6	26.7	32 16.2	+6.7	27.2	34 02.6	+7.8	27.8	35 48.4	+9.0	28.5	37 33.5	+10.2	29.2
68	30 34.8	+5.0	25.5	32 22.9	+6.0	26.1	34 10.4	+7.1	26.6	35 57.4	+8.2	27.3	37 43.7	+9.4	28.0
69	30 39.8	+4.3	24.4	32 28.9	+5.3	24.9	34 17.5	+6.4	25.4	36 05.6	+7.4	26.1	37 53.1	+8.6	26.7
70	30 44.1	+3.7	23.2	32 34.2	+4.7	23.7	34 23.9	+5.6	24.2	36 13.0	+6.7	24.8	38 01.7	+7.7	25.5
71	30 47.8	+3.1	22.0	32 38.9	+4.0	22.5	34 29.5	+5.0	23.0	36 19.7	+6.0	23.6	38 09.4	+7.0	24.2
72	30 50.9	+2.5	20.9	32 42.9	+3.3	21.3	34 34.5	+4.2	21.8	36 25.7	+5.1	22.4	38 16.4	+6.2	22.9
73	30 53.4	+1.8	19.7	32 46.2	+2.7	20.1	34 38.7	+3.5	20.6	36 30.8	+4.5	21.1	38 22.6	+5.3	21.7
74	30 55.2	+1.3	18.6	32 48.9	+2.0	19.0	34 42.2	+2.8	19.4	36 35.3	+3.6	19.9	38 27.9	+4.5	20.4
75	30 56.5	+0.6	17.4	32 50.9	+1.3	17.8	34 45.0	+2.1	18.2	36 38.9	+2.8	18.6	38 32.4	+3.7	19.1
76	30 57.1	-0.1	16.2	32 52.2	+0.6	16.6	34 47.1	+1.3	17.0	36 41.7	+2.1	17.4	38 36.1	+2.9	17.9
77	30 57.0	-0.6	15.1	32 52.8	0.0	15.4	34 48.4	+0.6	15.7	36 43.8	+1.3	16.1	38 39.0	+2.0	16.6
78	30 56.4	-1.3	13.9	32 52.8	-0.7	14.2	34 49.0	-0.1	14.5	36 45.1	+0.5	14.9	38 41.0	+1.1	15.3
79	30 55.1	-1.9	12.7	32 52.1	-1.4	13.0	34 48.9	-0.8	13.3	36 45.6	-0.2	13.6	38 42.1	+0.4	14.0
80	30 53.2	-2.6	11.6	32 50.7	-2.1	11.8	34 48.1	-1.6	12.1	36 45.4	-1.1	12.4	38 42.5	-0.5	12.7
81	30 50.6	-3.1	10.4	32 48.6	-2.7	10.6	34 46.5	-2.3	10.9	36 44.3	-1.8	11.1	38 42.0	-1.4	11.4
82	30 47.5	-3.8	9.2	32 45.9	-3.4	9.4	34 44.2	-3.0	9.7	36 42.5	-2.6	9.9	38 40.6	-2.1	10.2
83	30 43.7	-4.4	8.1	32 42.5	-4.1	8.2	34 41.2	-3.8	8.4	36 39.9	-3.4	8.7	38 38.5	-3.1	8.9
84	30 39.3	-5.1	6.9	32 38.4	-4.8	7.1	34 37.4	-4.4	7.2	36 36.5	-4.2	7.4	38 35.4	-3.8	7.6
85	30 34.2	-5.6	5.8	32 33.6	-5.4	5.9	34 33.0	-5.2	6.0	36 32.3	-4.9	6.2	38 31.6	-4.7	6.3
86	30 28.6	-6.2	4.6	32 28.2	-6.1	4.7	34 27.8	-5.9	4.8	36 27.4	-5.7	4.9	38 26.9	-5.5	5.1
87	30 22.4	-6.9	3.4	32 22.1	-6.7	3.5	34 21.9	-6.6	3.6	36 21.7	-6.5	3.7	38 21.4	-6.3	3.8
88	30 15.5	-7.4	2.3	32 15.4	-7.4	2.3	34 15.3	-7.3	2.4	36 15.2	-7.2	2.5	38 15.1	-7.2	2.5
89	30 08.1	-8.1	1.1	32 08.0	-8.0	1.2	34 08.0	-8.0	1.2	36 08.0	-8.0	1.2	38 07.9	-7.9	1.3
90	30 00.0	-8.6	0.0	32 00.0	-8.7	0.0	34 00.0	-8.7	0.0	36 00.0	-8.7	0.0	38 00.0	-8.8	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 82°, 278°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
8 22.4 +29.8	60.1		9 22.0 +31.4	60.4		10 21.0 +33.0	60.7		11 19.5 +34.6	61.0		12 17.4 +36.0	61.4		30
8 52.2 +29.8	59.2		9 53.4 +31.3	59.5		10 54.0 +32.9	59.8		11 54.1 +34.3	60.2		12 53.4 +35.9	60.5		31
9 22.0 +29.6	58.3		10 24.7 +31.2	58.6		11 26.9 +32.7	59.0		12 28.4 +34.2	59.3		13 29.3 +35.7	59.7		32
9 51.6 +29.4	57.5		10 55.9 +31.0	57.8		11 59.6 +32.5	58.1		13 02.6 +34.1	58.5		14 05.0 +35.6	58.9		33
10 21.0 +29.4	56.6		11 26.9 +30.8	56.9		12 32.1 +32.4	57.2		13 36.7 +33.9	57.6		14 40.6 +35.3	58.1		34
10 50.4 +29.1	55.7		11 57.7 +30.7	56.0		13 04.5 +32.2	56.4		14 10.6 +33.7	56.8		15 15.9 +35.2	57.2		35
11 19.5 +29.0	54.8		12 28.4 +30.6	55.1		13 36.7 +32.0	55.5		14 44.3 +33.5	55.9		15 51.1 +35.0	56.4		36
11 48.5 +28.9	53.9		12 59.0 +30.3	54.3		14 08.7 +31.9	54.6		15 17.8 +33.3	55.1		16 26.1 +34.8	55.5		37
12 17.4 +28.6	53.0		13 29.3 +30.1	53.4		14 40.6 +31.6	53.8		15 51.1 +33.1	54.2		17 00.9 +34.6	54.7		38
12 46.0 +28.5	52.1		13 59.4 +30.0	52.5		15 12.2 +31.4	52.9		16 24.2 +32.9	53.3		17 35.5 +34.3	53.8		39
13 14.5 +28.3	51.2		14 29.4 +29.8	51.6		15 43.6 +31.2	52.0		16 57.1 +32.7	52.5		18 09.8 +34.1	53.0		40
13 42.8 +28.1	50.3		14 59.2 +29.5	50.7		16 14.8 +31.0	51.1		17 29.8 +32.4	51.6		18 43.9 +33.9	52.1		41
14 10.9 +27.9	49.4		15 28.7 +29.3	49.8		16 45.8 +30.8	50.2		18 02.2 +32.2	50.7		19 17.8 +33.6	51.2		42
14 38.8 +27.6	48.5		15 58.0 +29.1	48.9		17 16.6 +30.5	49.3		18 34.4 +32.0	49.8		19 51.4 +33.4	50.4		43
15 06.4 +27.5	47.5		16 27.1 +28.9	48.0		17 47.1 +30.3	48.4		19 06.4 +31.6	48.9		20 24.8 +33.1	49.5		44
15 33.9 +27.2	46.6		16 56.0 +28.6	47.1		18 17.4 +30.0	47.5		19 38.0 +31.5	48.0		20 57.9 +32.8	48.6		45
16 01.1 +27.0	45.7		17 24.6 +28.3	46.1		18 47.4 +29.7	46.6		20 09.5 +31.1	47.1		21 30.7 +32.5	47.7		46
16 28.1 +26.7	44.8		17 52.9 +28.1	45.2		19 17.1 +29.5	45.7		20 40.6 +30.8	46.2		22 03.2 +32.2	46.8		47
16 54.8 +26.5	43.8		18 21.0 +27.9	44.3		19 46.6 +29.2	44.8		21 11.4 +30.6	45.3		22 35.4 +31.9	45.9		48
17 21.3 +26.2	42.9		18 48.9 +27.5	43.3		20 15.8 +28.9	43.8		21 42.0 +30.2	44.4		23 07.3 +31.6	44.9		49
17 47.5 +25.9	42.0		19 16.4 +27.3	42.4		20 44.7 +28.6	42.9		22 12.2 +29.9	43.4		23 38.9 +31.3	44.0		50
18 13.4 +25.7	41.0		19 43.7 +26.9	41.5		21 13.3 +28.2	42.0		22 42.1 +29.6	42.5		24 10.2 +30.9	43.1		51
18 39.1 +25.3	40.1		20 10.6 +26.7	40.5		21 41.5 +28.0	41.0		23 11.7 +29.2	41.6		24 41.1 +30.6	42.1		52
19 04.4 +25.1	39.1		20 37.3 +26.3	39.6		22 09.5 +27.6	40.1		23 40.9 +28.9	40.6		25 11.7 +30.1	41.2		53
19 29.5 +24.7	38.1		21 03.6 +26.0	38.6		22 37.1 +27.2	39.1		24 09.8 +28.6	39.6		25 41.8 +29.9	40.2		54
19 54.2 +24.5	37.2		21 29.6 +25.6	37.6		23 04.3 +26.9	38.1		24 38.4 +28.1	38.7		26 11.7 +29.4	39.3		55
20 18.7 +24.1	36.2		21 55.2 +25.4	36.6		23 31.2 +26.5	37.2		25 06.5 +27.8	37.7		26 41.1 +29.0	38.3		56
20 42.8 +23.8	35.2		22 20.6 +24.9	35.7		23 57.7 +26.2	36.2		25 34.3 +27.4	36.7		27 10.1 +28.6	37.3		57
21 06.6 +23.4	34.2		22 45.5 +24.6	34.7		24 23.9 +25.8	35.2		26 01.7 +26.9	35.7		27 38.7 +28.2	36.3		58
21 30.0 +23.1	33.2		23 10.1 +24.3	33.7		24 49.7 +25.4	34.2		26 28.6 +26.6	34.7		28 06.9 +27.7	35.3		59
21 53.1 +22.7	32.2		23 34.4 +23.8	32.7		25 15.1 +24.9	33.2		26 55.2 +26.1	33.7		28 34.6 +27.3	34.3		60
22 15.8 +22.4	31.2		23 58.2 +23.4	31.7		25 40.0 +24.6	32.2		27 21.3 +25.7	32.7		29 01.9 +26.9	33.3		61
22 38.2 +22.0	30.2		24 21.6 +23.1	30.7		26 04.6 +24.1	31.2		27 47.0 +25.2	31.7		29 28.8 +26.3	32.3		62
23 00.2 +21.6	29.2		24 44.7 +22.6	29.7		26 28.7 +23.7	30.1		28 12.2 +24.8	30.7		29 55.1 +25.9	31.2		63
23 21.8 +21.2	28.2		25 07.3 +22.2	28.7		26 52.4 +23.2	29.1		28 37.0 +24.3	29.6		30 21.0 +25.3	30.2		64
23 43.0 +20.8	27.2		25 29.5 +21.8	27.6		27 15.6 +22.8	28.1		29 01.3 +23.8	28.6		30 46.3 +24.9	29.1		65
24 03.8 +20.4	26.2		25 51.3 +21.4	26.6		27 38.4 +22.3	27.0		29 25.1 +23.3	27.5		31 11.2 +24.3	28.1		66
24 24.2 +20.0	25.1		26 12.7 +20.8	25.5		28 00.7 +21.8	26.0		29 48.4 +22.8	26.5		31 35.5 +23.8	27.0		67
24 44.2 +19.5	24.1		26 33.5 +20.5	24.5		28 22.5 +21.4	24.9		30 11.2 +22.2	25.4		31 59.3 +23.2	25.9		68
25 03.7 +19.1	23.1		26 54.0 +19.9	23.4		28 43.9 +20.8	23.9		30 33.4 +21.7	24.3		32 22.5 +22.7	24.8		69
25 22.8 +18.7	22.0		27 13.9 +19.5	22.4		29 04.7 +20.3	22.8		30 55.1 +21.2	23.3		32 45.2 +22.1	23.7		70
25 41.5 +18.2	21.0		27 33.4 +19.0	21.3		29 25.0 +19.8	21.7		31 16.3 +20.7	22.2		33 07.3 +21.5	22.6		71
25 59.7 +17.7	19.9		27 52.4 +18.5	20.3		29 44.8 +19.3	20.6		31 37.0 +20.0	21.1		33 28.8 +20.9	21.5		72
26 17.4 +17.3	18.8		28 10.9 +17.9	19.2		30 04.1 +18.7	19.5		31 57.0 +19.5	20.0		33 49.7 +20.2	20.4		73
26 34.7 +16.7	17.8		28 28.8 +17.5	18.1		30 22.8 +18.1	18.4		32 16.5 +18.9	18.8		34 09.9 +19.7	19.3		74
26 51.4 +16.3	16.7		28 46.3 +16.9	17.0		30 40.9 +17.6	17.3		32 35.4 +18.2	17.7		34 29.6 +18.9	18.1		75
27 07.7 +15.8	15.6		29 03.2 +16.4	15.9		30 58.5 +17.0	16.2		32 53.6 +17.7	16.6		34 48.5 +18.4	17.0		76
27 23.5 +15.3	14.5		29 19.6 +15.8	14.8		31 15.5 +16.5	15.1		33 11.3 +17.0	15.4		35 06.9 +17.6	15.8		77
27 38.8 +14.8	13.4		29 35.4 +15.3	13.7		31 32.0 +15.8	14.0		33 28.3 +16.4	14.3		35 24.5 +17.0	14.6		78
27 53.6 +14.2	12.3		29 50.7 +14.8	12.6		31 47.8 +15.2	12.8		33 44.7 +15.8	13.1		35 41.5 +16.3	13.5		79
28 07.8 +13.7	11.2		30 05.5 +14.1	11.5		32 03.0 +14.6	11.7		34 00.5 +15.0	12.0		35 57.8 +15.6	12.3		80
28 21.5 +13.2	10.1		30 19.6 +13.6	10.3		32 17.6 +14.0	10.6		34 15.5 +14.5	10.8		36 13.4 +14.8	11.1		81
28 34.7 +12.6	9.0		30 33.2 +13.0	9.2		32 31.6 +13.4	9.4		34 30.0 +13.7	9.6		36 28.2 +14.2	9.9		82
28 47.3 +12.1	7.9		30 46.2 +12.4	8.1		32 45.0 +12.7	8.2		34 43.7 +13.0	8.4		36 42.4 +13.3	8.7		83
28 59.4 +11.5	6.8		30 58.6 +11.7	6.9		32 57.7 +12.0	7.1		34 56.7 +12.4	7.3		36 55.7 +12.7	7.4		84
29 10.9 +11.0	5.7		31 10.3 +11.2	5.8		33 09.7 +11.4	5.9		35 09.1 +11.6	6.1		37 08.4 +11.9	6.2		85
29 21.9 +10.4	4.5		31 21.5 +10.6	4.6		33 21.1 +10.8	4.7		35 20.7 +10.9	4.9		37 20.3 +11.1	5.0		86
29 32.3 +9.8	3.4		31 32.1 +9.9	3.5		33 31.9 +10.0	3.6		35 31.6 +10.2	3.7		37 31.4 +10.3	3.7		87
29 42.1 +9.3	2.3		31 42.0 +9.3	2.3		33 41.9 +9.4	2.4		35 41.8 +9.5	2.4		37 41.7 +9.5	2.5		88
29 51.4 +8.6	1.1		31 51.3 +8.7	1.2		33 51.3 +8.7	1.2		35 51.3 +8.7	1.2		37 51.2 +8.8	1.3		89
30 00.0 +8.1	0.0		32 00.0 +8.0	0.0		34 00.0 +8.0	0.0		36 00.0 +8.0	0.0		38 00.0 +7.9	0.0		90
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 98°, 262°

82°, 278° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	24 26.3	+33.0	70.4	25 05.8	+34.8	71.3	25 43.4	+36.6	72.2	26 19.2	+38.4	73.1	26 53.2	+40.0	74.1
31	24 59.3	+32.7	69.5	25 40.6	+34.4	70.4	26 20.0	+36.2	71.3	26 57.6	+37.9	72.2	27 33.2	+39.7	73.2
32	25 32.0	+32.3	68.5	26 15.0	+34.1	69.4	26 56.2	+35.9	70.4	27 35.5	+37.7	71.4	28 12.9	+39.4	72.4
33	26 04.3	+32.0	67.6	26 49.1	+33.8	68.5	27 32.1	+35.6	69.5	28 13.2	+37.3	70.5	28 52.3	+39.1	71.5
34	26 36.3	+31.5	66.7	27 22.9	+33.4	67.6	28 07.7	+35.2	68.6	28 50.5	+37.0	69.6	29 31.4	+38.7	70.6
35	27 07.8	+31.2	65.7	27 56.3	+33.0	66.7	28 42.9	+34.8	67.7	29 27.5	+36.6	68.7	30 10.1	+38.3	69.8
36	27 39.0	+30.8	64.7	28 29.3	+32.6	65.7	29 17.7	+34.4	66.7	30 04.1	+36.2	67.8	30 48.4	+38.0	68.9
37	28 09.8	+30.4	63.8	29 01.9	+32.2	64.8	29 52.1	+34.0	65.8	30 40.3	+35.8	66.9	31 26.4	+37.6	68.0
38	28 40.2	+29.9	62.8	29 34.1	+31.8	63.8	30 26.1	+33.6	64.8	31 16.1	+35.4	65.9	32 04.0	+37.2	67.0
39	29 10.1	+29.5	61.8	30 05.9	+31.3	62.8	30 59.7	+33.2	63.9	31 51.5	+35.0	65.0	32 41.2	+36.8	66.1
40	29 39.6	+29.0	60.8	30 37.2	+30.9	61.8	31 32.9	+32.7	62.9	32 26.5	+34.5	64.0	33 18.0	+36.3	65.2
41	30 08.6	+28.6	59.8	31 08.1	+30.4	60.8	32 05.6	+32.2	61.9	33 01.0	+34.1	63.0	33 54.3	+36.0	64.2
42	30 37.2	+28.1	58.8	31 38.5	+29.9	59.8	32 37.8	+31.8	60.9	33 35.1	+33.6	62.1	34 30.3	+35.4	63.3
43	31 05.3	+27.6	57.7	32 08.4	+29.4	58.8	33 09.6	+31.2	59.9	34 08.7	+33.1	61.1	35 05.7	+34.9	62.3
44	31 32.9	+27.0	56.7	32 37.8	+28.9	57.8	33 40.8	+30.8	58.9	34 41.8	+32.6	60.0	35 40.6	+34.5	61.3
45	31 59.9	+26.6	55.7	33 06.7	+28.4	56.7	34 11.6	+30.2	57.8	35 14.4	+32.1	59.0	36 15.1	+33.9	60.3
46	32 26.5	+26.0	54.6	33 35.1	+27.9	55.7	34 41.8	+29.7	56.8	35 46.5	+31.6	58.0	36 49.0	+33.4	59.2
47	32 52.5	+25.5	53.5	34 03.0	+27.3	54.6	35 11.5	+29.1	55.7	36 18.1	+30.9	56.9	37 22.4	+32.9	58.2
48	33 18.0	+24.9	52.4	34 30.3	+26.7	53.5	35 40.6	+28.6	54.7	36 49.0	+30.4	55.9	37 55.3	+32.2	57.1
49	33 42.9	+24.3	51.4	34 57.0	+26.1	52.4	36 09.2	+27.9	53.6	37 19.4	+29.8	54.8	38 27.5	+31.7	56.1
50	34 07.2	+23.7	50.3	35 23.1	+25.5	51.3	36 37.1	+27.4	52.5	37 49.2	+29.2	53.7	38 59.2	+31.1	55.0
51	34 30.9	+23.2	49.1	35 48.6	+24.9	50.2	37 04.5	+26.7	51.4	38 18.4	+28.6	52.6	39 30.3	+30.4	53.9
52	34 54.1	+22.5	48.0	36 13.5	+24.3	49.1	37 31.2	+26.0	50.2	38 47.0	+27.9	51.5	40 00.7	+29.7	52.7
53	35 16.6	+21.8	46.9	36 37.8	+23.6	48.0	37 57.2	+25.4	49.1	39 14.9	+27.2	50.3	40 30.4	+29.1	51.6
54	35 38.4	+21.2	45.7	37 01.4	+22.9	46.8	38 22.6	+24.7	47.9	39 42.1	+26.5	49.2	40 59.5	+28.4	50.5
55	35 59.6	+20.5	44.6	37 24.3	+22.2	45.6	38 47.3	+24.0	46.8	40 08.6	+25.8	48.0	41 27.9	+27.7	49.3
56	36 20.1	+19.9	43.4	37 46.5	+21.6	44.5	39 11.3	+23.3	45.6	40 34.4	+25.1	46.8	41 55.6	+26.9	48.1
57	36 40.0	+19.1	42.3	38 08.1	+20.8	43.3	39 34.6	+22.6	44.4	40 59.5	+24.3	45.6	42 22.5	+26.1	46.9
58	36 59.1	+18.5	41.1	38 28.9	+20.1	42.1	39 57.2	+21.7	43.2	41 23.8	+23.5	44.4	42 48.6	+25.4	45.7
59	37 17.6	+17.7	39.9	38 49.0	+19.3	40.9	40 18.9	+21.1	42.0	41 47.3	+22.8	43.2	43 14.0	+24.5	44.4
60	37 35.3	+16.9	38.7	39 08.3	+18.6	39.7	40 40.0	+20.2	40.8	42 10.1	+21.9	41.9	43 38.5	+23.7	43.2
61	37 52.2	+16.3	37.5	39 26.9	+17.8	38.4	41 00.2	+19.4	39.5	42 32.0	+21.1	40.7	44 02.2	+22.8	41.9
62	38 08.5	+15.4	36.2	39 44.7	+16.9	37.2	41 19.6	+18.6	38.2	42 53.1	+20.2	39.4	44 25.0	+22.0	40.6
63	38 23.9	+14.7	35.0	40 01.6	+16.2	36.0	41 38.2	+17.7	37.0	43 13.3	+19.4	38.1	44 47.0	+21.0	39.3
64	38 38.6	+13.9	33.8	40 17.8	+15.4	34.7	41 55.9	+16.9	35.7	43 32.7	+18.4	36.8	45 08.0	+20.2	38.0
65	38 52.5	+13.1	32.5	40 33.2	+14.5	33.4	42 12.8	+15.9	34.4	43 51.1	+17.6	35.5	45 28.2	+19.1	36.6
66	39 05.6	+12.2	31.3	40 47.7	+13.6	32.1	42 28.7	+15.1	33.1	44 08.7	+16.6	34.1	45 47.3	+18.2	35.3
67	39 17.8	+11.5	30.0	41 01.3	+12.8	30.9	42 43.8	+14.2	31.8	44 25.3	+15.6	32.8	46 05.5	+17.2	33.9
68	39 29.3	+10.6	28.7	41 14.1	+11.9	29.6	42 58.0	+13.3	30.5	44 40.9	+14.7	31.4	46 22.7	+16.2	32.5
69	39 39.9	+9.8	27.5	41 26.0	+11.0	28.3	43 11.3	+12.3	29.1	44 55.6	+13.7	30.1	46 38.9	+15.2	31.1
70	39 49.7	+8.9	26.2	41 37.0	+10.1	26.9	43 23.6	+11.4	27.8	45 09.3	+12.7	28.7	46 54.1	+14.1	29.7
71	39 58.6	+8.1	24.9	41 47.1	+9.3	25.6	43 35.0	+10.4	26.4	45 22.0	+11.7	27.3	47 08.2	+13.0	28.3
72	40 06.7	+7.2	23.6	41 56.4	+8.2	24.3	43 45.4	+9.4	25.1	45 33.7	+10.7	25.9	47 21.2	+12.0	26.9
73	40 13.9	+6.3	22.3	42 04.6	+7.4	23.0	43 54.8	+8.5	23.7	45 44.4	+9.6	24.5	47 33.2	+10.8	25.4
74	40 20.2	+5.4	21.0	42 12.0	+6.4	21.6	44 03.3	+7.4	22.3	45 54.0	+8.5	23.1	47 44.0	+9.7	23.9
75	40 25.6	+4.6	19.7	42 18.4	+5.5	20.3	44 10.7	+6.5	20.9	46 02.5	+7.5	21.7	47 53.7	+8.6	22.5
76	40 30.2	+3.6	18.4	42 23.9	+4.5	18.9	44 17.2	+5.4	19.6	46 10.0	+6.4	20.2	48 02.3	+7.5	21.0
77	40 33.8	+2.8	17.1	42 28.4	+3.6	17.6	44 22.6	+4.4	18.2	46 16.4	+5.4	18.8	48 09.8	+6.3	19.5
78	40 36.6	+1.9	15.7	42 32.0	+2.6	16.2	44 27.0	+3.4	16.8	46 21.8	+4.2	17.4	48 16.1	+5.1	18.0
79	40 38.5	+0.9	14.4	42 34.6	+1.6	14.9	44 30.4	+2.4	15.4	46 26.0	+3.1	15.9	48 21.2	+4.0	16.5
80	40 39.4	+0.1	13.1	42 36.2	+0.7	13.5	44 32.8	+1.3	14.0	46 29.1	+2.1	14.5	48 25.2	+2.8	15.0
81	40 39.5	-0.8	11.8	42 36.9	-0.3	12.2	44 34.1	+0.3	12.6	46 31.2	+0.9	13.0	48 28.0	+1.6	13.5
82	40 38.7	-1.7	10.5	42 36.6	-1.2	10.8	44 34.4	-0.7	11.2	46 32.1	-0.2	11.6	48 29.6	+0.4	12.0
83	40 37.0	-2.6	9.1	42 35.4	-2.2	9.4	44 33.7	-1.7	9.8	46 31.9	-1.2	10.1	48 30.0	-0.8	10.5
84	40 34.4	-3.6	7.8	42 33.2	-3.2	8.1	44 32.0	-2.8	8.3	46 30.7	-2.4	8.7	48 29.2	-1.9	9.0
85	40 30.8	-4.4	6.5	42 30.0	-4.1	6.7	44 29.2	-3.8	6.9	46 28.3	-3.5	7.2	48 27.3	-3.1	7.5
86	40 26.4	-5.3	5.2	42 25.9	-5.0	5.4	44 25.4	-4.9	5.6	46 24.8	-4.6	5.8	48 24.2	-4.3	6.0
87	40 21.1	-6.1	3.9	42 20.9	-6.1	4.0	44 20.5	-5.8	4.2	46 20.2	-5.6	4.3	48 19.9	-5.5	4.5
88	40 15.0	-7.1	2.6	42 14.8	-6.9	2.7	44 14.7	-6.8	2.8	46 14.6	-6.8	2.9	48 14.4	-6.6	3.0
89	40 07.9	-7.9	1.3	42 07.9	-7.9	1.3	44 07.9	-7.9	1.4	46 07.8	-7.8	1.4	48 07.8	-7.8	1.5
90	40 00.0	-8.8	0.0	42 00.0	-8.8	0.0	44 00.0	-8.8	0.0	46 00.0	-8.9	0.0	48 00.0	-8.9	0.0

40°

42°

44°

46°

48°

LATITUDE CONTRARY NAME

L.H.A. 82°, 278°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
13 14.5	+37.5	61.8	14 10.9	+39.0	62.2	15 06.4	+40.5	62.7	16 01.1	+41.8	63.2	16 54.8	+43.2	63.7	30
13 52.0	+37.4	61.0	14 49.9	+38.8	61.4	15 46.9	+40.2	61.9	16 42.9	+41.7	62.4	17 38.0	+43.0	63.0	31
14 29.4	+37.2	60.2	15 28.7	+38.7	60.6	16 27.1	+40.1	61.1	17 24.6	+41.5	61.7	18 21.0	+42.9	62.2	32
15 06.6	+37.0	59.3	16 07.4	+38.4	59.8	17 07.2	+39.9	60.3	18 06.1	+41.3	60.9	19 03.9	+42.7	61.5	33
15 43.6	+36.9	58.5	16 45.8	+38.3	59.0	17 47.1	+39.7	59.6	18 47.4	+41.1	60.1	19 46.6	+42.5	60.7	34
16 20.5	+36.6	57.7	17 24.1	+38.1	58.2	18 26.8	+39.6	58.8	19 28.5	+41.0	59.4	20 29.1	+42.3	60.0	35
16 57.1	+36.5	56.9	18 02.2	+37.9	57.4	19 06.4	+39.3	58.0	20 09.5	+40.7	58.6	21 11.4	+42.1	59.2	36
17 33.6	+36.2	56.0	18 40.1	+37.7	56.6	19 45.7	+39.1	57.2	20 50.2	+40.5	57.8	21 53.5	+41.9	58.5	37
18 09.8	+36.0	55.2	19 17.8	+37.4	55.8	20 24.8	+38.9	56.4	21 30.7	+40.3	57.0	22 35.4	+41.7	57.7	38
18 45.8	+35.8	54.4	19 55.2	+37.3	54.9	21 03.7	+38.6	55.6	22 11.0	+40.0	56.2	23 17.1	+41.4	56.9	39
19 21.6	+35.6	53.5	20 32.5	+36.9	54.1	21 42.3	+38.4	54.7	22 51.0	+39.8	55.4	23 58.5	+41.2	56.1	40
19 57.2	+35.3	52.7	21 09.4	+36.8	53.3	22 20.7	+38.1	53.9	23 30.8	+39.6	54.6	24 39.7	+41.0	55.3	41
20 32.5	+35.0	51.8	21 46.2	+36.4	52.4	22 58.8	+37.9	53.1	24 10.4	+39.2	53.8	25 20.7	+40.6	54.5	42
21 07.5	+34.8	50.9	22 22.6	+36.2	51.6	23 36.7	+37.6	52.2	24 49.6	+39.0	52.9	26 01.3	+40.4	53.7	43
21 42.3	+34.5	50.1	22 58.8	+35.9	50.7	24 14.3	+37.3	51.4	25 28.6	+38.7	52.1	26 41.7	+40.1	52.9	44
22 16.8	+34.2	49.2	23 34.7	+35.7	49.8	24 51.6	+37.0	50.5	26 07.3	+38.4	51.3	27 21.8	+39.8	52.0	45
22 51.0	+33.9	48.3	24 10.4	+35.3	48.9	25 28.6	+36.7	49.6	26 45.7	+38.1	50.4	28 01.6	+39.5	51.2	46
23 24.9	+33.6	47.4	24 45.7	+35.0	48.1	26 05.3	+36.4	48.8	27 23.8	+37.8	49.5	28 41.1	+39.1	50.3	47
23 58.5	+33.3	46.5	25 20.7	+34.6	47.2	26 41.7	+36.1	47.9	28 01.6	+37.4	48.6	29 20.2	+38.9	49.5	48
24 31.8	+33.0	45.6	25 55.3	+34.3	46.2	27 17.8	+35.6	47.0	28 39.0	+37.1	47.8	29 59.1	+38.4	48.6	49
25 04.8	+32.6	44.7	26 29.6	+34.0	45.3	27 53.4	+35.4	46.1	29 16.1	+36.8	46.9	30 39.4	+38.1	47.7	50
25 37.4	+32.2	43.7	27 03.6	+33.6	44.4	28 28.8	+34.9	45.2	29 52.8	+36.4	46.0	31 15.6	+37.7	46.8	51
26 09.6	+31.9	42.8	27 37.2	+33.2	43.5	29 03.7	+34.6	44.2	30 29.2	+35.9	45.0	31 53.3	+37.3	45.9	52
26 41.5	+31.5	41.8	28 10.4	+32.9	42.5	29 38.3	+34.2	43.3	31 05.1	+35.5	44.1	32 30.6	+36.9	45.0	53
27 13.0	+31.1	40.9	28 43.3	+32.4	41.6	30 12.5	+33.8	42.3	31 40.6	+35.1	43.2	33 07.5	+36.5	44.0	54
27 44.1	+30.7	39.9	29 15.7	+32.0	40.6	30 46.3	+33.3	41.4	32 15.7	+34.7	42.2	33 44.0	+36.2	43.1	55
28 14.8	+30.3	38.9	29 47.7	+31.6	39.7	31 19.6	+32.9	40.4	32 50.4	+34.2	41.2	34 20.1	+35.5	42.1	56
28 45.1	+29.9	38.0	30 19.3	+31.1	38.7	31 52.5	+32.4	39.4	33 24.6	+33.8	40.2	34 55.6	+35.1	41.1	57
29 15.0	+29.4	37.0	30 50.4	+30.7	37.7	32 24.9	+32.0	38.4	33 58.4	+33.3	39.3	35 30.7	+34.6	40.1	58
29 44.4	+29.0	36.0	31 21.1	+30.2	36.7	32 56.9	+31.4	37.4	34 31.7	+32.7	38.2	36 05.3	+34.1	39.1	59
30 13.4	+28.5	35.0	31 51.3	+29.7	35.7	33 28.3	+31.0	36.4	35 04.4	+32.3	37.2	36 39.4	+33.6	38.1	60
30 41.9	+28.0	33.9	32 21.0	+29.2	34.6	33 59.3	+30.5	35.4	35 36.7	+31.7	36.2	37 13.0	+33.0	37.1	61
31 09.9	+27.5	32.9	32 50.2	+28.7	33.6	34 29.8	+29.9	34.3	36 08.4	+31.1	35.1	37 46.0	+32.4	36.0	62
31 37.4	+27.0	31.9	33 18.9	+28.2	32.5	34 59.7	+29.3	33.3	36 39.5	+30.6	34.1	38 18.4	+31.8	35.0	63
32 04.4	+26.4	30.8	33 47.1	+27.6	31.5	35 29.0	+28.8	32.2	37 10.1	+30.0	33.0	38 50.2	+31.3	33.9	64
32 30.8	+26.0	29.8	34 14.7	+27.0	30.4	35 57.8	+28.2	31.1	37 40.1	+29.4	31.9	39 21.5	+30.6	32.8	65
32 56.8	+25.4	28.7	34 41.7	+26.5	29.3	36 26.0	+27.6	30.0	38 09.5	+28.7	30.8	39 52.1	+29.9	31.7	66
33 22.2	+24.8	27.6	35 08.2	+25.9	28.2	36 53.6	+26.9	28.9	38 38.2	+28.1	29.7	40 22.0	+29.3	30.5	67
33 47.0	+24.2	26.5	35 34.1	+25.2	27.1	37 20.5	+26.3	27.8	39 06.3	+27.4	28.6	40 51.3	+28.6	29.4	68
34 11.2	+23.6	25.4	35 59.3	+24.6	26.0	37 46.8	+25.7	26.7	39 33.7	+26.8	27.4	41 19.9	+27.8	28.2	69
34 34.8	+23.0	24.3	36 23.9	+24.0	24.9	38 12.5	+25.0	25.5	40 00.5	+26.0	26.2	41 47.7	+27.2	27.0	70
34 57.8	+22.4	23.2	36 47.9	+23.3	23.7	38 37.5	+24.3	24.4	40 26.5	+25.3	25.1	42 14.9	+26.3	25.8	71
35 20.2	+21.8	22.0	37 11.2	+22.7	22.6	39 01.8	+23.6	23.2	40 51.8	+24.6	23.9	42 41.2	+25.6	24.6	72
35 42.0	+21.0	20.9	37 33.9	+21.9	21.4	39 25.4	+22.8	22.0	41 16.4	+23.7	22.7	43 06.8	+24.8	23.4	73
36 03.0	+20.5	19.7	37 55.8	+21.2	20.2	39 48.2	+22.1	20.8	41 40.1	+23.0	21.4	43 31.6	+23.9	22.1	74
36 23.5	+19.7	18.6	38 17.0	+20.6	19.1	40 10.3	+21.3	19.6	42 03.1	+22.2	20.2	43 55.5	+23.1	20.8	75
36 43.2	+19.0	17.4	38 37.6	+19.7	17.9	40 31.6	+20.5	18.4	42 25.3	+21.4	18.9	44 18.6	+22.2	19.6	76
37 02.2	+18.3	16.2	38 57.3	+19.0	16.6	40 52.1	+19.8	17.1	42 46.7	+20.5	17.7	44 40.8	+21.3	18.3	77
37 20.5	+17.6	15.0	39 16.3	+18.3	15.4	41 11.9	+18.9	15.9	43 07.2	+19.6	16.4	45 02.1	+20.4	16.9	78
37 38.1	+16.9	13.8	39 34.6	+17.4	14.2	41 30.8	+18.1	14.6	43 26.8	+18.7	15.1	45 22.5	+19.5	15.6	79
37 55.0	+16.1	12.6	39 52.0	+16.7	12.9	41 48.9	+17.2	13.3	43 45.5	+17.9	13.8	45 42.0	+18.4	14.3	80
38 11.1	+15.3	11.4	40 08.7	+15.8	11.7	42 06.1	+16.3	12.1	44 03.4	+16.9	12.4	46 00.4	+17.5	12.9	81
38 26.4	+14.5	10.1	40 24.5	+15.0	10.4	42 22.4	+15.5	10.8	44 20.3	+15.9	11.1	46 17.9	+16.5	11.5	82
38 40.9	+13.8	8.9	40 39.5	+14.1	9.2	42 37.9	+14.5	9.4	44 36.2	+15.0	9.8	46 34.4	+15.5	10.1	83
38 54.7	+13.0	7.6	40 53.6	+13.3	7.9	42 52.4	+13.7	8.1	44 51.2	+14.0	8.4	46 49.9	+14.4	8.7	84
39 07.7	+12.1	6.4	41 06.9	+12.4	6.6	43 06.1	+12.7	6.8	45 05.2	+13.0	7.0	47 04.3	+13.3	7.3	85
39 19.8	+11.3	5.1	41 19.3	+11.5	5.3	43 18.8	+11.7	5.4	45 18.2	+12.0	5.6	47 17.6	+12.3	5.8	86
39 31.1	+10.5	3.9	41 30.8	+10.7	4.0	43 30.5	+10.8	4.1	45 30.2	+11.0	4.2	47 29.9	+11.1	4.4	87
39 41.6	+9.6	2.6	41 41.5	+9.7	2.7	43 41.3	+9.9	2.7	45 41.2	+9.9	2.8	47 41.0	+10.1	2.9	88
39 51.2	+8.8	1.3	41 51.2	+8.8	1.3	43 51.2	+8.8	1.4	45 51.1	+8.9	1.4	47 51.1	+8.9	1.5	89
40 00.0	+7.9	0.0	42 00.0	+7.9	0.0	44 00.0	+7.9	0.0	46 00.0	+7.8	0.0	48 00.0	+7.8	0.0	90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 98°, 262°

82°, 278° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	27 25.1	+41.7	75.0	27 55.1	-43.3	76.1	28 22.9	+44.9	77.1	28 48.6	+46.4	78.2	29 12.1	+47.9	79.3
31	28 06.8	+41.4	74.2	28 38.4	-43.0	75.3	29 07.8	+44.6	76.3	29 35.0	+46.2	77.4	30 00.0	+47.6	78.6
32	28 48.2	+41.1	73.4	29 21.4	-42.7	74.5	29 52.4	+44.3	75.6	30 21.2	+45.9	76.7	30 47.6	+47.4	77.9
33	29 29.3	+40.8	72.6	30 04.1	-42.5	73.7	30 36.7	+44.1	74.8	31 07.1	+45.6	76.0	31 35.0	+47.1	77.1
34	30 10.1	+40.4	71.7	30 46.6	-42.1	72.8	31 20.8	+43.8	74.0	31 52.7	+45.3	75.2	32 22.1	+46.9	76.4
35	30 50.5	+40.1	70.9	31 28.7	-41.8	72.0	32 04.6	+43.4	73.2	32 38.0	+45.1	74.4	33 09.0	+46.6	75.7
36	31 30.6	+39.7	70.0	32 10.5	-41.4	71.2	32 48.0	+43.1	72.4	33 23.1	+44.7	73.6	33 55.6	+46.4	74.9
37	32 10.3	+39.4	69.1	32 51.9	-41.1	70.3	33 31.1	+42.8	71.6	34 07.8	+44.5	72.8	34 42.0	+46.0	74.1
38	32 49.7	+39.0	68.2	33 33.0	-40.7	69.4	34 13.9	+42.4	70.7	34 52.3	+44.1	72.0	35 28.0	+45.7	73.4
39	33 28.7	+38.5	67.3	34 13.7	-40.4	68.6	34 56.3	+42.1	69.8	35 36.4	+43.7	71.2	36 13.7	+45.4	72.6
40	34 07.2	+38.2	66.4	34 54.1	-39.9	67.7	35 38.4	+41.7	69.0	36 20.1	+43.4	70.3	36 59.1	+45.1	71.7
41	34 45.4	+37.7	65.5	35 34.0	-39.5	66.7	36 20.1	+41.3	68.1	37 03.5	+43.0	69.5	37 44.2	+44.7	70.9
42	35 23.1	+37.2	64.5	36 13.5	-39.1	65.8	37 01.4	+40.8	67.2	37 46.5	+42.6	68.6	38 28.9	+44.3	70.1
43	36 00.3	+36.8	63.5	36 52.6	-38.6	64.9	37 42.2	+40.4	66.3	38 29.1	+42.2	67.7	39 13.2	+44.0	69.2
44	36 37.1	+36.3	62.6	37 31.2	-38.1	63.9	38 22.6	+40.0	65.3	39 11.3	+41.8	66.8	39 57.2	+43.5	68.3
45	37 13.4	+35.8	61.6	38 09.3	-37.7	62.9	39 02.6	+39.5	64.4	39 53.1	+41.3	65.9	40 40.7	+43.1	67.4
46	37 49.2	+35.3	60.6	38 47.0	-37.1	61.9	39 42.1	+39.0	63.4	40 34.4	+40.8	64.9	41 23.8	+42.6	66.5
47	38 24.5	+34.7	59.5	39 24.1	-36.6	60.9	40 21.1	+38.4	62.4	41 15.2	+40.4	63.9	42 06.4	+42.2	65.6
48	38 59.2	+34.2	58.5	40 00.7	-36.0	59.9	40 59.5	+37.9	61.4	41 55.6	+39.8	62.9	42 48.6	+41.7	64.6
49	39 33.4	+33.5	57.4	40 36.7	-35.5	58.8	41 37.4	+37.4	60.4	42 35.4	+39.2	61.9	43 30.3	+41.1	63.6
50	40 06.9	+33.0	56.3	41 12.2	-34.8	57.8	42 14.8	+36.8	59.3	43 14.6	+38.7	60.9	44 11.4	+40.7	62.6
51	40 39.9	+32.3	55.2	41 47.0	-34.3	56.7	42 51.6	+36.1	58.2	43 53.3	+38.1	59.9	44 52.1	+40.0	61.6
52	41 12.2	+31.6	54.1	42 21.3	-33.5	55.6	43 27.7	+35.6	57.1	44 31.4	+37.5	58.8	45 32.1	+39.4	60.5
53	41 43.8	+31.0	53.0	42 54.8	-32.9	54.5	44 03.3	+34.8	56.0	45 08.9	+36.8	57.7	46 11.5	+38.8	59.4
54	42 14.8	+30.3	51.8	43 27.7	-32.2	53.3	44 38.1	+34.2	54.9	45 45.7	+36.2	56.5	46 50.3	+38.2	58.3
55	42 45.1	+29.5	50.7	43 59.9	-31.5	52.1	45 12.3	+33.4	53.7	46 21.9	+35.4	55.4	47 28.5	+37.5	57.2
56	43 14.6	+28.8	49.5	44 31.4	-30.7	51.0	45 45.7	+32.7	52.5	46 57.3	+34.7	54.2	48 06.0	+36.7	56.0
57	43 43.4	+28.0	48.3	45 02.1	-30.0	49.7	46 18.4	+31.9	51.3	47 32.0	+34.0	53.0	48 42.7	+36.0	54.8
58	44 11.4	+27.3	47.0	45 32.1	-29.1	48.5	46 50.3	+31.2	50.1	48 06.0	+33.1	51.8	49 18.7	+35.2	53.6
59	44 38.7	+26.3	45.8	46 01.2	-28.3	47.3	47 21.5	+30.2	48.8	48 39.1	+32.3	50.5	49 53.9	+34.4	52.4
60	45 05.0	+25.6	44.5	46 29.5	-27.5	46.0	47 51.7	+29.4	47.6	49 11.4	+31.4	49.3	50 28.3	+33.5	51.1
61	45 30.6	+24.6	43.2	46 57.0	-26.5	44.7	48 21.1	+28.5	46.3	49 42.8	+30.5	47.9	51 01.8	+32.6	49.8
62	45 55.2	+23.8	41.9	47 23.5	-25.6	43.4	48 49.6	+27.6	44.9	50 13.3	+29.6	46.6	51 34.4	+31.7	48.4
63	46 19.0	+22.8	40.6	47 49.1	-24.7	42.0	49 17.2	+26.6	43.6	50 42.9	+28.6	45.2	52 06.1	+30.7	47.0
64	46 41.8	+21.9	39.3	48 13.8	-23.7	40.7	49 43.8	+25.6	42.2	51 11.5	+27.6	43.8	52 36.8	+29.6	45.6
65	47 03.7	+20.8	37.9	48 37.5	-22.6	39.3	50 09.4	+24.5	40.8	51 39.1	+26.5	42.4	53 06.4	+28.6	44.2
66	47 24.5	+19.9	36.5	49 00.1	-21.7	37.9	50 33.9	+23.5	39.4	52 05.6	+25.5	41.0	53 35.0	+27.5	42.7
67	47 44.4	+18.8	35.1	49 21.8	-20.5	36.4	50 57.4	+22.4	37.9	52 31.1	+24.3	39.5	54 02.5	+26.4	41.2
68	48 03.2	+17.8	33.7	49 42.3	-19.5	35.0	51 19.8	+21.2	36.4	52 55.4	+23.1	38.0	54 28.9	+25.1	39.7
69	48 21.0	+16.7	32.3	50 01.8	-18.3	33.5	51 41.0	+20.1	34.9	53 18.5	+21.9	36.4	54 54.0	+23.9	38.1
70	48 37.7	+15.6	30.8	50 20.1	-17.2	32.0	52 01.1	+18.9	33.4	53 40.4	+20.7	34.9	55 17.9	+22.6	36.5
71	48 53.3	+14.5	29.4	50 37.3	-16.0	30.5	52 20.0	+17.6	31.8	54 01.1	+19.4	33.3	55 40.5	+21.3	34.9
72	49 07.8	+13.3	27.9	50 53.3	-14.8	29.0	52 37.6	+16.4	30.3	54 20.5	+18.1	31.7	56 01.8	+19.9	33.2
73	49 21.1	+12.2	26.4	51 08.1	-13.6	27.5	52 54.0	+15.1	28.7	54 38.6	+16.7	30.0	56 21.7	+18.5	31.5
74	49 33.3	+11.0	24.9	51 21.7	-12.3	25.9	53 09.1	+13.8	27.1	54 55.3	+15.4	28.4	56 40.2	+17.1	29.8
75	49 44.3	+9.8	23.4	51 34.0	-11.1	24.4	53 22.9	+12.4	25.4	55 10.7	+13.9	26.7	56 57.3	+15.5	28.0
76	49 54.1	+8.5	21.8	51 45.1	+9.8	22.8	53 35.3	+11.1	23.8	55 24.6	+12.5	25.0	57 12.8	+14.1	26.3
77	50 02.6	+7.4	20.3	51 54.9	+8.4	21.2	53 46.4	+9.7	22.1	55 37.1	+11.0	23.2	57 26.9	+12.5	24.5
78	50 10.0	+6.1	18.7	52 03.3	+7.2	19.6	53 56.1	+8.3	20.5	55 48.1	+9.6	21.5	57 39.4	+10.8	22.6
79	50 16.1	+4.8	17.2	52 10.5	+5.8	17.9	54 04.4	+6.8	18.8	55 57.7	+8.0	19.7	57 50.2	+9.3	20.8
80	50 20.9	+3.6	15.6	52 16.3	+4.5	16.3	54 11.2	+5.4	17.1	56 05.7	+6.4	18.0	57 59.5	+7.6	18.9
81	50 24.5	+2.3	14.1	52 20.8	+3.1	14.7	54 16.6	+4.0	15.4	56 12.1	+4.9	16.2	58 07.1	+6.0	17.1
82	50 26.8	+1.1	12.5	52 23.9	+1.7	13.1	54 20.6	+2.5	13.7	56 17.0	+3.4	14.4	58 13.1	+4.3	15.2
83	50 27.9	-0.2	10.9	52 25.6	+0.4	11.4	54 23.1	+1.1	12.0	56 20.4	+1.8	12.6	58 17.4	+2.6	13.3
84	50 27.7	-1.5	9.4	52 26.0	-0.9	9.8	54 24.2	-0.4	10.2	56 22.2	+0.2	10.8	58 20.0	+0.9	11.4
85	50 26.2	-2.7	7.8	52 25.1	-2.3	8.1	54 23.8	-1.9	8.5	56 22.4	-1.3	9.0	58 20.9	-0.8	9.5
86	50 23.5	-4.0	6.2	52 22.8	-3.7	6.5	54 21.9	-3.3	6.8	56 21.1	-3.0	7.2	58 20.1	-2.5	7.6
87	50 19.5	-5.3	4.7	52 19.1	-5.0	4.9	54 18.6	-4.7	5.1	56 18.1	-4.5	5.4	58 17.6	-4.2	5.7
88	50 14.2	-6.5	3.1	52 14.1	-6.4	3.2	54 13.9	-6.3	3.4	56 13.6	-6.0	3.6	58 13.4	-5.9	3.8
89	50 07.7	-7.7	1.5	52 07.7	-7.7	1.6	54 07.6	-7.6	1.7	56 07.6	-7.6	1.8	58 07.5	-7.5	1.9
90	50 00.0	-9.0	0.0	52 00.0	-9.0	0.0	54 00.0	-9.1	0.0	56 00.0	-9.1	0.0	58 00.0	-9.2	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 82°, 278°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.							
17	47.5	+44.5	64.2	18	39.1	+45.8	64.8	19	29.5	+47.1	65.5	20	18.7	+48.3	66.1	30						
18	32.0	+44.4	63.5	19	24.9	+45.7	64.2	20	16.6	+47.0	64.8	21	07.0	+48.2	65.5	31						
19	16.4	+44.2	62.8	20	10.6	+45.5	63.5	21	03.6	+46.8	64.1	21	55.2	+48.1	64.9	32						
20	00.6	+44.1	62.1	20	56.1	+45.4	62.8	21	50.4	+46.7	63.5	22	43.3	+47.9	64.2	33						
20	44.7	+43.8	61.4	21	41.5	+45.2	62.1	22	37.1	+46.4	62.8	23	31.2	+47.8	63.6	34						
21	28.5	+43.7	60.7	22	26.7	+45.0	61.4	23	23.5	+46.3	62.1	24	19.0	+47.5	62.9	35						
22	12.2	+43.5	59.9	23	11.7	+44.8	60.6	24	09.8	+46.1	61.4	25	06.5	+47.4	62.2	36						
22	55.7	+43.2	59.2	23	56.5	+44.6	59.9	24	55.9	+45.9	60.7	25	53.9	+47.2	61.5	37						
23	38.9	+43.1	58.4	24	41.1	+44.4	59.2	25	41.8	+45.7	60.0	26	41.1	+47.0	60.9	38						
24	22.0	+42.8	57.7	25	25.5	+44.1	58.4	26	27.5	+45.5	59.3	27	28.1	+46.7	60.2	39						
25	04.8	+42.5	56.9	26	09.6	+43.9	57.7	27	13.0	+45.3	58.5	28	14.8	+46.6	59.4	40						
25	47.3	+42.3	56.1	26	53.5	+43.7	56.9	27	58.3	+45.0	57.8	29	01.4	+46.3	58.7	41						
26	29.6	+42.1	55.3	27	37.2	+43.4	56.2	28	43.3	+44.7	57.1	29	47.7	+46.1	58.0	42						
27	11.7	+41.7	54.5	28	20.6	+43.1	55.4	29	28.0	+44.5	56.3	30	33.8	+45.8	57.3	43						
27	53.4	+41.5	53.7	29	03.7	+42.9	54.6	30	12.5	+44.2	55.5	31	19.6	+45.5	56.5	44						
28	34.9	+41.2	52.9	29	46.6	+42.6	53.8	30	56.7	+43.9	54.7	32	05.1	+45.3	55.7	45						
29	16.1	+40.9	52.1	30	29.2	+42.2	53.0	31	40.6	+43.6	53.9	32	50.4	+45.0	55.0	46						
29	57.0	+40.5	51.2	31	11.4	+41.9	52.1	32	24.2	+43.3	53.1	33	35.4	+44.7	54.2	47						
30	37.5	+40.2	50.4	31	53.3	+41.6	51.3	33	07.5	+43.0	52.3	34	20.1	+44.3	53.4	48						
31	17.7	+39.9	49.5	32	34.9	+41.3	50.4	33	50.5	+42.6	51.5	35	04.4	+44.0	52.5	49						
31	57.6	+39.5	48.6	33	16.2	+40.8	49.6	34	33.1	+42.3	50.6	35	48.4	+43.7	51.7	50						
32	37.1	+39.1	47.7	33	57.0	+40.5	48.7	35	15.4	+41.9	49.7	36	32.1	+43.3	50.9	51						
33	16.2	+38.7	46.8	34	37.5	+40.1	47.8	35	57.3	+41.5	48.9	37	15.4	+42.9	50.0	52						
33	54.9	+38.2	45.9	35	17.6	+39.7	46.9	36	38.8	+41.1	48.0	37	58.3	+42.5	49.1	53						
34	33.1	+37.9	45.0	35	57.3	+39.3	46.0	37	19.9	+40.6	47.1	38	40.8	+42.0	48.2	54						
35	11.0	+37.4	44.0	36	36.6	+38.8	45.0	38	00.5	+40.3	46.1	39	25.8	+41.7	47.3	55						
35	48.4	+37.0	43.1	37	15.4	+38.3	44.1	38	40.8	+39.7	45.2	40	04.5	+41.2	46.4	56						
36	25.4	+36.4	42.1	37	53.7	+37.8	43.1	39	20.5	+39.3	44.2	40	45.7	+40.6	45.4	57						
37	01.8	+36.0	41.1	38	31.5	+37.4	42.1	39	59.8	+38.7	43.2	41	26.3	+40.2	44.4	58						
37	37.8	+35.4	40.1	39	08.9	+36.8	41.1	40	38.5	+38.2	42.2	42	06.5	+39.7	43.4	59						
38	13.2	+34.9	39.1	39	45.7	+36.3	40.1	41	16.7	+37.7	41.2	42	46.2	+39.3	42.4	60						
38	48.1	+34.3	38.0	40	22.0	+35.7	39.1	41	54.4	+37.1	40.2	43	25.3	+38.5	41.4	61						
39	22.4	+33.8	37.0	40	57.7	+35.1	38.0	42	31.5	+36.5	39.1	44	03.8	+38.0	40.3	62						
39	56.2	+33.1	35.9	41	32.8	+34.5	36.9	43	08.0	+35.9	38.0	44	41.8	+37.3	39.2	63						
40	29.3	+32.6	34.8	42	07.3	+33.8	35.8	43	43.9	+35.2	36.9	45	19.1	+36.6	38.1	64						
41	01.9	+31.8	33.7	42	41.1	+33.2	34.7	44	19.1	+34.6	35.8	45	55.7	+36.0	37.0	65						
41	33.7	+31.2	32.6	43	14.3	+32.5	33.6	44	53.7	+33.8	34.7	46	31.7	+35.2	35.8	66						
42	04.9	+30.5	31.4	43	46.8	+31.8	32.4	45	27.5	+33.1	33.5	47	06.9	+34.5	34.7	67						
42	35.4	+29.8	30.3	44	18.6	+31.0	31.2	46	00.6	+32.4	32.3	47	41.4	+33.7	33.4	68						
43	05.2	+29.0	29.1	44	49.6	+30.3	30.0	46	33.0	+31.5	31.1	48	15.1	+32.9	32.2	69						
43	34.2	+28.3	27.9	45	19.9	+29.4	28.8	47	04.5	+30.7	29.8	48	48.0	+32.1	30.9	70						
44	02.5	+27.5	26.6	45	49.3	+28.7	27.6	47	35.2	+29.9	28.6	49	20.1	+31.2	29.7	71						
44	30.0	+26.6	25.4	46	18.0	+27.8	26.3	48	05.1	+29.0	27.3	49	51.3	+30.3	28.3	72						
44	56.6	+25.9	24.1	46	45.8	+26.9	25.0	48	34.1	+28.1	25.9	50	21.6	+29.3	27.0	73						
45	22.5	+24.9	22.9	47	12.7	+26.0	23.7	49	02.2	+27.1	24.6	50	50.9	+28.3	25.6	74						
45	47.4	+24.0	21.6	47	38.7	+25.1	22.4	49	29.3	+26.2	23.2	51	19.2	+27.3	24.2	75						
46	11.4	+23.2	20.2	48	03.8	+24.0	21.0	49	55.5	+25.1	21.8	51	46.5	+26.2	22.8	76						
46	34.6	+22.1	18.9	48	27.8	+23.1	19.6	50	20.6	+24.1	20.4	52	12.7	+25.1	21.3	77						
46	56.7	+21.2	17.6	48	50.9	+22.1	18.2	50	44.7	+22.9	19.0	52	37.8	+24.0	19.8	78						
47	17.9	+20.2	16.2	49	13.0	+21.0	16.8	51	07.6	+21.9	17.5	53	01.8	+22.8	18.3	79						
47	38.1	+19.2	14.8	49	34.0	+19.9	15.4	51	29.5	+20.7	16.0	53	24.6	+21.6	16.8	80						
47	57.3	+18.1	13.4	49	53.9	+18.8	13.9	51	50.2	+19.6	14.5	53	46.2	+20.4	15.2	81						
48	15.4	+17.1	11.9	50	12.7	+17.7	12.4	52	09.8	+18.3	13.0	54	06.6	+19.0	13.6	82						
48	32.5	+15.9	10.5	50	30.4	+16.5	10.9	52	28.1	+17.1	11.4	54	25.6	+17.7	12.0	83						
48	48.4	+14.9	9.0	50	46.9	+15.3	9.4	52	45.2	+15.8	9.8	54	43.3	+16.4	10.3	84						
49	03.3	+13.7	7.6	51	02.2	+14.1	7.9	53	01.0	+14.5	8.2	54	59.7	+15.0	8.7	85						
49	17.0	+12.5	6.1	51	16.3	+12.8	6.3	53	15.5	+13.2	6.6	55	14.7	+13.5	7.0	86						
49	29.5	+11.4	4.6	51	29.1	+11.6	4.8	53	28.7	+11.8	5.0	55	28.2	+12.1	5.2	87						
49	40.9	+10.1	3.1	51	40.7	+10.3	3.2	53	40.5	+10.4	3.3	55	40.3	+10.6	3.5	88						
49	51.0	+9.0	1.5	51	51.0	+9.0	1.6	53	50.9	+9.1	1.7	55	50.9	+9.1	1.8	89						
50	00.0	+7.7	0.0	52	00.0	+7.7	0.0	54	00.0	+7.6	0.0	56	00.0	+7.6	0.0	90						
		50°				52°					54°				56°						58°	

LATITUDE SAME NAME

L.H.A. 98°, 262°

84°, 276° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	19 10.3	+24.5	65.8	19 58.9	+26.3	66.4	20 46.3	+28.1	67.1	21 32.3	+30.0	67.8	22 16.9	+31.8	68.6
31	19 34.8	+24.1	64.8	20 25.2	+26.0	65.5	21 14.4	+27.9	66.1	22 02.3	+29.6	66.9	22 48.7	+31.4	67.6
32	19 58.9	+23.9	63.8	20 51.2	+25.7	64.5	21 42.3	+27.5	65.2	22 31.9	+29.3	65.9	23 20.1	+31.1	66.7
33	20 22.8	+23.5	62.8	21 16.9	+25.4	63.5	22 09.8	+27.1	64.2	23 01.2	+29.0	65.0	23 51.2	+30.7	65.8
34	20 46.3	+23.2	61.9	21 42.3	+25.0	62.5	22 36.9	+26.8	63.3	23 30.2	+28.6	64.0	24 21.9	+30.5	64.8
35	21 09.5	+22.8	60.9	22 07.3	+24.6	61.6	23 03.7	+26.5	62.3	23 58.8	+28.2	63.1	24 52.4	+30.0	63.9
36	21 32.3	+22.5	59.9	22 31.9	+24.3	60.6	23 30.2	+26.0	61.3	24 27.0	+27.9	62.1	25 22.4	+29.7	62.9
37	21 54.8	+22.1	58.9	22 56.2	+23.9	59.6	23 56.2	+25.7	60.3	24 54.9	+27.5	61.1	25 52.1	+29.3	62.0
38	22 16.9	+21.8	57.9	23 20.1	+23.5	58.6	24 21.9	+25.4	59.4	25 22.4	+27.1	60.2	26 21.4	+28.8	61.0
39	22 38.7	+21.3	56.9	23 43.6	+23.2	57.6	24 47.3	+24.9	58.4	25 49.5	+26.7	59.2	26 50.2	+28.5	60.0
40	23 00.0	+21.0	55.9	24 06.8	+22.7	56.6	25 12.2	+24.5	57.4	26 16.2	+26.3	58.2	27 18.7	+28.1	59.0
41	23 21.0	+20.6	54.8	24 29.5	+22.3	55.6	25 36.7	+24.1	56.3	26 42.5	+25.8	57.2	27 46.8	+27.6	58.0
42	23 41.6	+20.2	53.8	24 51.8	+21.9	54.5	26 00.8	+23.6	55.3	27 08.3	+25.4	56.2	28 14.4	+27.2	57.0
43	24 01.8	+19.7	52.8	25 13.7	+21.5	53.5	26 24.4	+23.2	54.3	27 33.7	+25.0	55.1	28 41.6	+26.7	56.0
44	24 21.5	+19.4	51.7	25 35.2	+21.1	52.5	26 47.6	+22.8	53.3	27 58.7	+24.5	54.1	29 08.3	+26.3	55.0
45	24 40.9	+18.9	50.7	25 56.3	+20.5	51.4	27 10.4	+22.3	52.2	28 23.2	+24.0	53.1	29 34.6	+25.8	54.0
46	24 59.8	+18.4	49.7	26 16.8	+20.2	50.4	27 32.7	+21.8	51.2	28 47.2	+23.6	52.0	30 00.4	+25.2	52.9
47	25 18.2	+18.0	48.6	26 37.0	+19.6	49.3	27 54.5	+21.4	50.1	29 10.8	+23.0	51.0	30 25.6	+24.8	51.9
48	25 36.2	+17.6	47.6	26 56.6	+19.2	48.3	28 15.9	+20.8	49.1	29 33.8	+22.6	49.9	30 50.4	+24.2	50.8
49	25 53.8	+17.1	46.5	27 15.8	+18.7	47.2	28 36.7	+20.4	48.0	29 56.4	+22.0	48.8	31 14.6	+23.8	49.7
50	26 10.9	+16.6	45.4	27 34.5	+18.3	46.2	28 57.1	+19.8	46.9	30 18.4	+21.5	47.8	31 38.4	+23.1	48.7
51	26 27.5	+16.1	44.4	27 52.8	+17.7	45.1	29 16.9	+19.3	45.9	30 39.9	+20.9	46.7	32 01.5	+22.6	47.6
52	26 43.6	+15.7	43.3	28 10.5	+17.2	44.0	29 36.2	+18.8	44.8	31 00.8	+20.4	45.6	32 24.1	+22.1	46.5
53	26 59.3	+15.1	42.2	28 27.7	+16.6	42.9	29 55.0	+18.2	43.7	31 21.2	+19.8	44.5	32 46.2	+21.4	45.4
54	27 14.4	+14.6	41.1	28 44.3	+16.2	41.8	30 13.2	+17.7	42.6	31 41.0	+19.3	43.4	33 07.6	+20.9	44.3
55	27 29.0	+14.2	40.0	29 00.5	+15.6	40.7	30 30.9	+17.1	41.5	32 00.3	+18.6	42.3	33 28.5	+20.2	43.1
56	27 43.2	+13.6	38.9	29 16.1	+15.0	39.6	30 48.0	+16.6	40.3	32 18.9	+18.1	41.2	33 48.7	+19.6	42.0
57	27 56.8	+13.0	37.8	29 31.1	+14.5	38.5	31 04.6	+15.9	39.2	32 37.0	+17.4	40.0	34 08.3	+19.0	40.9
58	28 09.8	+12.6	36.7	29 45.6	+13.9	37.4	31 20.5	+15.4	38.1	32 54.4	+16.9	38.9	34 27.3	+18.3	39.7
59	28 22.4	+12.0	35.6	29 59.5	+13.4	36.3	31 35.9	+14.7	37.0	33 11.3	+16.2	37.7	34 45.6	+17.7	38.6
60	28 34.4	+11.4	34.5	30 12.9	+12.8	35.1	31 50.6	+14.2	35.8	33 27.5	+15.5	36.6	35 03.3	+17.0	37.4
61	28 45.8	+10.9	33.4	30 25.7	+12.2	34.0	32 04.8	+13.5	34.7	33 43.0	+14.9	35.4	35 20.3	+16.3	36.2
62	28 56.7	+10.3	32.2	30 37.9	+11.6	32.9	32 18.3	+12.9	33.5	33 57.9	+14.2	34.3	35 36.6	+15.6	35.1
63	29 07.0	+9.8	31.1	30 49.5	+10.9	31.7	32 31.2	+12.2	32.4	34 12.1	+13.6	33.1	35 52.2	+14.9	33.9
64	29 16.8	+9.2	30.0	31 00.4	+10.4	30.6	32 43.4	+11.6	31.2	34 25.7	+12.8	31.9	36 07.1	+14.2	32.7
65	29 26.0	+8.6	28.9	31 10.8	+9.8	29.4	32 55.0	+11.0	30.0	34 38.5	+12.2	30.7	36 21.3	+13.5	31.5
66	29 34.6	+8.1	27.7	31 20.6	+9.1	28.3	33 06.0	+10.3	28.9	34 50.7	+11.5	29.5	36 34.8	+12.7	30.2
67	29 42.7	+7.4	26.6	31 29.7	+8.5	27.1	33 16.3	+9.6	27.7	35 02.2	+10.8	28.3	36 47.5	+12.0	29.0
68	29 50.1	+6.8	25.4	31 38.2	+7.9	25.9	33 25.9	+8.9	26.5	35 13.0	+10.0	27.1	36 59.5	+11.2	27.8
69	29 56.9	+6.3	24.3	31 46.1	+7.3	24.8	33 34.8	+8.3	25.3	35 23.0	+9.4	25.9	37 10.7	+10.4	26.6
70	30 03.2	+5.7	23.1	31 53.4	+6.6	23.6	33 43.1	+7.6	24.1	35 32.4	+8.6	24.7	37 21.1	+9.7	25.3
71	30 08.9	+5.0	22.0	32 00.0	+5.9	22.4	33 50.7	+6.9	22.9	35 41.0	+7.8	23.5	37 30.8	+8.8	24.1
72	30 13.9	+4.5	20.8	32 05.9	+5.3	21.3	33 57.6	+6.1	21.7	35 48.8	+7.1	22.3	37 39.6	+8.1	22.8
73	30 18.4	+3.8	19.7	32 11.2	+4.7	20.1	34 03.7	+5.5	20.5	35 55.9	+6.4	21.0	37 47.7	+7.3	21.6
74	30 22.2	+3.2	18.5	32 15.9	+3.9	18.9	34 09.2	+4.8	19.3	36 02.3	+5.6	19.8	37 55.0	+6.5	20.3
75	30 25.4	+2.6	17.4	32 19.8	+3.4	17.7	34 14.0	+4.1	18.1	36 07.9	+4.9	18.6	38 01.5	+5.7	19.1
76	30 28.0	+2.0	16.2	32 23.2	+2.6	16.6	34 18.1	+3.3	16.9	36 12.8	+4.0	17.3	38 07.2	+4.8	17.8
77	30 30.0	+1.4	15.0	32 25.8	+2.0	15.4	34 21.4	+2.7	15.7	36 16.8	+3.4	16.1	38 12.0	+4.0	16.5
78	30 31.4	+0.8	13.9	32 27.8	+1.4	14.2	34 24.1	+1.9	14.5	36 20.2	+2.5	14.9	38 16.0	+3.3	15.3
79	30 32.2	+0.1	12.7	32 29.2	+0.6	13.0	34 26.0	+1.2	13.3	36 22.7	+1.8	13.6	38 19.3	+2.3	14.0
80	30 32.3	-0.4	11.6	32 29.8	0.0	11.8	34 27.2	+0.5	12.1	36 24.5	+1.0	12.4	38 21.6	+1.6	12.7
81	30 31.9	-1.1	10.4	32 29.8	-0.6	10.6	34 27.7	-0.2	10.9	36 25.5	+0.3	11.1	38 23.2	+0.7	11.4
82	30 30.8	-1.7	9.2	32 29.2	-1.3	9.4	34 27.5	-0.9	9.7	36 25.8	-0.6	9.9	38 23.9	-0.1	10.2
83	30 29.1	-2.4	8.1	32 27.9	-2.0	8.3	34 26.6	-1.7	8.5	36 25.2	-1.3	8.7	38 23.8	-0.9	8.9
84	30 26.7	-2.9	6.9	32 25.9	-2.7	7.1	34 24.9	-2.4	7.2	36 23.9	-2.0	7.4	38 22.9	-1.8	7.6
85	30 23.8	-3.5	5.8	32 23.2	-3.3	5.9	34 22.5	-3.0	6.0	36 21.9	-2.9	6.2	38 21.1	-2.5	6.3
86	30 20.3	-4.2	4.6	32 19.9	-4.0	4.7	34 19.5	-3.8	4.8	36 19.0	-3.6	4.9	38 18.6	-3.4	5.1
87	30 16.1	-4.8	3.5	32 15.9	-4.7	3.5	34 15.7	-4.6	3.6	36 15.4	-4.4	3.7	38 15.2	-4.3	3.8
88	30 11.3	-5.3	2.3	32 11.2	-5.3	2.4	34 11.1	-5.2	2.4	36 11.0	-5.1	2.5	38 10.9	-5.0	2.5
89	30 06.0	-6.0	1.1	32 05.9	-5.9	1.2	34 05.9	-5.9	1.2	36 05.9	-5.9	1.2	38 05.9	-5.9	1.3
90	30 00.0	-6.6	0.0	32 00.0	-6.6	0.0	34 00.0	-6.6	0.0	36 00.0	-6.6	0.0	38 00.0	-6.7	0.0
	30°			32°			34°			36°			38°		

LATITUDE CONTRARY NAME

L.H.A. 84°, 276°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
9	52.9	+29.0	61.0	10	50.8	+30.7	61.3	11	48.2	+32.2	61.6	12	44.9	+33.8	62.0	30
10	21.9	+28.9	60.1	11	21.5	+30.5	60.4	12	20.4	+32.1	60.8	13	18.7	+33.7	61.2	31
10	50.8	+28.8	59.2	11	52.0	+30.4	59.5	12	52.5	+32.0	59.9	13	52.4	+33.4	60.3	32
11	19.6	+28.6	58.3	12	22.4	+30.1	58.6	13	24.5	+31.7	59.0	14	25.8	+33.3	59.5	33
11	48.2	+28.4	57.4	12	52.5	+30.0	57.8	13	56.2	+31.6	58.2	14	59.1	+33.1	58.6	34
12	16.6	+28.3	56.5	13	22.5	+29.9	56.9	14	27.8	+31.3	57.3	15	32.2	+32.9	57.7	35
12	44.9	+28.0	55.6	13	52.4	+29.6	56.0	14	59.1	+31.2	56.4	16	05.1	+32.7	56.9	36
13	12.9	+27.9	54.7	14	22.0	+29.4	55.1	15	30.3	+30.9	55.5	16	37.8	+32.5	56.0	37
13	40.8	+27.7	53.8	14	51.4	+29.2	54.2	16	01.2	+30.8	54.6	17	10.3	+32.3	55.1	38
14	08.5	+27.4	52.8	15	20.6	+29.0	53.3	16	32.0	+30.5	53.7	17	42.6	+32.0	54.2	39
14	35.9	+27.3	51.9	15	49.6	+28.7	52.4	17	02.5	+30.2	52.8	18	14.6	+31.7	53.3	40
15	03.2	+27.0	51.0	16	18.3	+28.5	51.4	17	32.7	+30.0	51.9	18	46.3	+31.5	52.4	41
15	30.2	+26.8	50.1	16	46.8	+28.3	50.5	18	02.7	+29.8	51.0	19	17.8	+31.2	51.5	42
15	57.0	+26.5	49.2	17	15.1	+28.0	49.6	18	32.5	+29.5	50.1	19	49.0	+31.0	50.6	43
16	23.5	+26.3	48.2	17	43.1	+27.8	48.7	19	02.0	+29.2	49.2	20	20.0	+30.7	49.7	44
16	49.8	+26.1	47.3	18	10.9	+27.5	47.7	19	31.2	+28.9	48.3	20	50.4	+30.3	48.8	45
17	15.9	+25.8	46.3	18	38.4	+27.2	46.8	20	00.1	+28.7	47.3	21	21.0	+30.1	47.9	46
17	41.7	+25.5	45.4	19	05.6	+26.9	45.9	20	28.8	+28.3	46.4	21	51.1	+29.8	47.0	47
18	07.2	+25.2	44.4	19	32.5	+26.6	44.9	20	57.1	+28.0	45.4	22	20.9	+29.4	46.0	48
18	32.4	+24.9	43.5	19	59.1	+26.3	44.0	21	25.1	+27.7	44.5	22	50.3	+29.1	45.1	49
18	57.3	+24.7	42.5	20	25.4	+26.0	43.0	21	52.8	+27.4	43.5	23	19.4	+28.7	44.2	50
19	22.0	+24.3	41.6	20	51.4	+25.7	42.0	22	20.2	+27.0	42.6	23	48.1	+28.4	43.2	51
19	46.3	+24.0	40.6	21	17.1	+25.3	41.1	22	47.2	+26.7	41.6	24	16.5	+28.0	42.2	52
20	10.3	+23.7	39.6	21	42.4	+25.0	40.1	23	13.9	+26.3	40.6	24	44.5	+27.7	41.2	53
20	34.0	+23.4	38.6	22	07.4	+24.7	39.1	23	40.2	+25.9	39.7	25	12.2	+27.2	40.2	54
20	57.4	+23.0	37.7	22	32.1	+24.2	38.1	24	06.1	+25.6	38.7	25	39.4	+26.9	39.3	55
21	20.4	+22.7	36.7	22	56.3	+24.0	37.1	24	31.7	+25.1	37.7	26	06.3	+26.4	38.3	56
21	43.1	+22.3	35.7	23	20.3	+23.5	36.2	24	56.8	+24.8	36.7	26	32.7	+26.0	37.3	57
22	05.4	+21.9	34.7	23	43.8	+23.1	35.1	25	21.6	+24.3	35.7	26	58.7	+25.6	36.3	58
22	27.3	+21.6	33.7	24	06.9	+22.8	34.1	25	45.9	+24.0	34.7	27	24.3	+25.1	35.2	59
22	48.9	+21.2	32.6	24	29.7	+22.3	33.1	26	09.9	+23.4	33.6	27	49.4	+24.7	34.2	60
23	10.1	+20.7	31.6	24	52.0	+21.9	32.1	26	33.3	+23.1	32.6	28	14.1	+24.2	33.2	61
23	30.8	+20.4	30.6	25	13.9	+21.5	31.1	26	56.4	+22.6	31.6	28	38.3	+23.7	32.1	62
23	51.2	+20.0	29.6	25	35.4	+21.0	30.0	27	19.0	+22.1	30.5	29	02.0	+23.3	31.1	63
24	11.2	+19.6	28.5	25	56.4	+20.6	29.0	27	41.1	+21.6	29.5	29	25.3	+22.7	30.0	64
24	30.8	+19.1	27.5	26	17.0	+20.1	28.0	28	02.7	+21.2	28.4	29	48.0	+22.2	29.0	65
24	49.9	+18.7	26.5	26	37.1	+19.7	26.9	28	23.9	+20.7	27.4	30	10.2	+21.7	27.9	66
25	08.6	+18.2	25.4	26	56.8	+19.2	25.8	28	44.6	+20.1	26.3	30	31.9	+21.2	26.8	67
25	26.8	+17.8	24.4	27	16.0	+18.7	24.8	29	04.7	+19.7	25.2	30	53.1	+20.6	25.7	68
25	44.6	+17.4	23.3	27	34.7	+18.2	23.7	29	24.4	+19.1	24.1	31	13.7	+20.0	24.6	69
26	02.0	+16.8	22.2	27	52.9	+17.7	22.6	29	43.5	+18.5	23.1	31	33.7	+19.5	23.5	70
26	18.8	+16.4	21.2	28	10.6	+17.2	21.5	30	02.0	+18.1	22.0	31	53.2	+18.8	22.4	71
26	35.2	+15.9	20.1	28	27.8	+16.6	20.5	30	20.1	+17.4	20.9	32	12.0	+18.3	21.3	72
26	51.1	+15.4	19.0	28	44.4	+16.2	19.4	30	37.5	+16.9	19.7	32	30.3	+17.7	20.2	73
27	06.5	+14.9	17.9	29	00.6	+15.6	18.3	30	54.4	+16.3	18.6	32	48.0	+17.0	19.0	74
27	21.4	+14.4	16.8	29	16.2	+15.0	17.2	31	10.7	+15.8	17.5	33	05.0	+16.5	17.9	75
27	35.8	+13.9	15.8	29	31.2	+14.5	16.1	31	26.5	+15.1	16.4	33	21.5	+15.8	16.7	76
27	49.7	+13.3	14.7	29	45.7	+13.9	14.9	31	41.6	+14.5	15.2	33	37.3	+15.1	15.6	77
28	03.0	+12.9	13.6	29	59.6	+13.4	13.8	31	56.1	+13.9	14.1	33	52.4	+14.5	14.4	78
28	15.9	+12.2	12.4	30	13.0	+12.8	12.7	32	10.0	+13.3	13.0	34	06.9	+13.8	13.3	79
28	28.1	+11.8	11.3	30	25.8	+12.1	11.6	32	23.3	+12.6	11.8	34	20.7	+13.1	12.1	80
28	39.9	+11.2	10.2	30	37.9	+11.6	10.4	32	35.9	+12.0	10.6	34	33.8	+12.5	10.9	81
28	51.1	+10.6	9.1	30	49.5	+11.0	9.3	32	47.9	+11.4	9.5	34	46.3	+11.7	9.7	82
29	01.7	+10.1	8.0	31	00.5	+10.4	8.1	32	59.3	+10.7	8.3	34	58.0	+11.0	8.5	83
29	11.8	+9.5	6.8	31	10.9	+9.7	7.0	33	10.0	+10.0	7.1	35	09.0	+10.4	7.3	84
29	21.3	+8.9	5.7	31	20.6	+9.2	5.8	33	20.0	+9.4	6.0	35	19.4	+9.6	6.1	85
29	30.2	+8.3	4.6	31	29.8	+8.5	4.7	33	29.4	+8.7	4.8	35	29.0	+8.8	4.9	86
29	38.5	+7.8	3.4	31	38.3	+7.9	3.5	33	38.1	+8.0	3.6	35	37.8	+8.2	3.7	87
29	46.3	+7.1	2.3	31	46.2	+7.2	2.3	33	46.1	+7.3	2.4	35	46.0	+7.4	2.5	88
29	53.4	+6.6	1.1	31	53.4	+6.6	1.2	33	53.4	+6.6	1.2	35	53.4	+6.6	1.2	89
30	00.0	+6.0	0.0	32	00.0	+5.9	0.0	34	00.0	+5.9	0.0	36	00.0	+5.9	0.0	90
30°			32°			34°			36°			38°				

LATITUDE SAME NAME

L.H.A. 96°, 264°

84°, 276° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	23 00.0	+33.6	69.3	23 41.6	+35.3	70.1	24 21.5	+37.0	71.0	24 59.8	+38.6	71.9	25 36.2	+40.4	72.8
31	23 33.6	+33.2	68.4	24 16.9	+34.9	69.3	24 58.5	+36.7	70.1	25 38.4	+38.4	71.0	26 16.6	+40.0	71.9
32	24 06.8	+32.8	67.5	24 51.8	+34.7	68.4	25 35.2	+36.4	69.2	26 16.8	+38.1	70.2	26 56.6	+39.8	71.1
33	24 39.6	+32.6	66.6	25 26.5	+34.3	67.5	26 11.6	+36.0	68.4	26 54.9	+37.8	69.3	27 36.4	+39.5	70.3
34	25 12.2	+32.2	65.7	26 00.8	+33.9	66.6	26 47.6	+35.8	67.5	27 32.7	+37.4	68.4	28 15.9	+39.1	69.4
35	25 44.4	+31.8	64.7	26 34.7	+33.6	65.6	27 23.4	+35.3	66.6	28 10.1	+37.1	67.5	28 55.0	+38.8	68.5
36	26 16.2	+31.5	63.8	27 08.3	+33.3	64.7	27 58.7	+35.0	65.7	28 47.2	+36.8	66.6	29 33.8	+38.5	67.7
37	26 47.7	+31.0	62.8	27 41.6	+32.8	63.8	28 33.7	+34.6	64.7	29 24.0	+36.4	65.7	30 12.3	+38.1	66.8
38	27 18.7	+30.7	61.9	28 14.4	+32.5	62.8	29 08.3	+34.2	63.8	30 00.4	+35.9	64.8	30 50.4	+37.7	65.9
39	27 49.4	+30.3	60.9	28 46.9	+32.0	61.9	29 42.5	+33.9	62.9	30 36.3	+35.6	63.9	31 28.1	+37.4	65.0
40	28 19.7	+29.8	59.9	29 18.9	+31.6	60.9	30 16.4	+33.4	61.9	31 11.9	+35.2	63.0	32 05.5	+36.9	64.1
41	28 49.5	+29.4	59.0	29 50.5	+31.2	59.9	30 49.8	+32.9	60.9	31 47.1	+34.7	62.0	32 42.4	+36.5	63.1
42	29 18.9	+29.0	58.0	30 21.7	+30.8	58.9	31 22.7	+32.6	60.0	32 21.8	+34.3	61.0	33 18.9	+36.1	62.2
43	29 47.9	+28.5	56.9	30 52.5	+30.2	57.9	31 55.3	+32.0	59.0	32 56.1	+33.9	60.1	33 55.0	+35.6	61.2
44	30 16.4	+28.0	55.9	31 22.7	+29.8	56.9	32 27.3	+31.6	58.0	33 30.0	+33.3	59.1	34 30.6	+35.1	60.2
45	30 44.4	+27.5	54.9	31 52.5	+29.3	55.9	32 58.9	+31.1	57.0	34 03.3	+32.9	58.1	35 05.7	+34.7	59.3
46	31 11.9	+27.0	53.9	32 21.8	+28.8	54.9	33 30.0	+30.5	55.9	34 36.2	+32.4	57.1	35 40.4	+34.1	58.3
47	31 38.9	+26.6	52.8	32 50.6	+28.3	53.8	34 00.5	+30.1	54.9	35 08.6	+31.8	56.0	36 14.3	+33.7	57.2
48	32 05.5	+25.9	51.8	33 18.9	+27.7	52.8	34 30.6	+29.5	53.9	35 40.4	+31.3	55.0	36 48.2	+33.1	56.2
49	32 31.4	+25.5	50.7	33 46.6	+27.2	51.7	35 00.1	+28.9	52.8	36 11.7	+30.7	53.9	37 21.3	+32.5	55.2
50	32 56.9	+24.8	49.6	34 13.8	+26.6	50.6	35 29.0	+28.4	51.7	36 42.4	+30.2	52.9	37 53.8	+32.0	54.1
51	33 21.7	+24.3	48.5	34 40.4	+26.0	49.6	35 57.4	+27.8	50.6	37 12.6	+29.5	51.8	38 25.8	+31.3	53.0
52	33 46.0	+23.8	47.4	35 06.4	+25.4	48.5	36 25.2	+27.1	49.5	37 42.1	+28.9	50.7	38 57.1	+30.7	51.9
53	34 09.8	+23.1	46.3	35 31.8	+24.9	47.3	36 52.3	+26.6	48.4	38 11.0	+28.3	49.6	39 27.8	+30.1	50.8
54	34 32.9	+22.5	45.2	35 56.7	+24.1	46.2	37 18.9	+25.8	47.3	38 39.3	+27.7	48.5	39 57.9	+29.5	49.7
55	34 55.4	+21.8	44.1	36 20.8	+23.5	45.1	37 44.7	+25.3	46.2	39 07.0	+26.9	47.3	40 27.4	+28.7	48.6
56	35 17.2	+21.2	42.9	36 44.3	+22.9	43.9	38 10.0	+24.5	45.0	39 33.9	+26.3	46.2	40 56.1	+28.1	47.4
57	35 38.4	+20.6	41.8	37 07.2	+22.2	42.8	38 34.5	+23.9	43.9	40 00.2	+25.6	45.0	41 24.2	+27.3	46.2
58	35 59.0	+19.9	40.6	37 29.4	+21.5	41.6	38 58.4	+23.1	42.7	40 25.8	+24.8	43.8	41 51.5	+26.5	45.0
59	36 18.9	+19.2	39.5	37 50.9	+20.7	40.4	39 21.5	+22.4	41.5	40 50.6	+24.1	42.6	42 18.0	+25.8	43.8
60	36 38.1	+18.5	38.3	38 11.6	+20.1	39.3	39 43.9	+21.6	40.3	41 14.7	+23.3	41.4	42 43.8	+25.0	42.6
61	36 56.6	+17.7	37.1	38 31.7	+19.3	38.0	40 05.5	+20.9	39.1	41 38.0	+22.5	40.2	43 08.8	+24.2	41.4
62	37 14.3	+17.1	35.9	38 51.0	+18.5	36.8	40 26.4	+20.1	37.8	42 00.5	+21.6	38.9	43 33.0	+23.4	40.1
63	37 31.4	+16.3	34.7	39 09.5	+17.8	35.6	40 46.5	+19.2	36.6	42 22.1	+20.9	37.7	43 56.4	+22.5	38.8
64	37 47.7	+15.5	33.5	39 27.3	+16.9	34.4	41 05.7	+18.5	35.3	42 43.0	+20.0	36.4	44 18.9	+21.6	37.5
65	38 03.2	+14.8	32.3	39 44.2	+16.2	33.1	41 24.2	+17.6	34.1	43 03.0	+19.1	35.1	44 40.5	+20.7	36.2
66	38 18.0	+14.0	31.0	40 00.4	+15.3	31.9	41 41.8	+16.7	32.8	43 22.1	+18.2	33.8	45 01.2	+19.7	34.9
67	38 32.0	+13.2	29.8	40 15.7	+14.6	30.6	41 58.5	+15.9	31.5	43 40.3	+17.3	32.5	45 20.9	+18.8	33.6
68	38 45.2	+12.5	28.5	40 30.3	+13.6	29.3	42 14.4	+15.0	30.2	43 57.6	+16.4	31.2	45 39.7	+17.9	32.2
69	38 57.7	+11.6	27.3	40 43.9	+12.8	28.1	42 29.4	+14.1	28.9	44 14.0	+15.4	29.8	45 57.6	+16.8	30.8
70	39 09.3	+10.7	26.0	40 56.7	+12.0	26.8	42 43.5	+13.2	27.6	44 29.4	+14.5	28.5	46 14.4	+15.9	29.5
71	39 20.0	+10.0	24.7	41 08.7	+11.1	25.5	42 56.7	+12.2	26.3	44 43.9	+13.5	27.1	46 30.3	+14.8	28.1
72	39 30.0	+9.1	23.5	41 19.8	+10.1	24.2	43 08.9	+11.3	24.9	44 57.4	+12.5	25.7	46 45.1	+13.7	26.7
73	39 39.1	+8.2	22.2	41 29.9	+9.3	22.8	43 20.2	+10.4	23.6	45 09.9	+11.5	24.4	46 58.8	+12.7	25.2
74	39 47.3	+7.4	20.9	41 39.2	+8.4	21.5	43 30.6	+9.3	22.2	45 21.4	+10.4	23.0	47 11.5	+11.6	23.8
75	39 54.7	+6.5	19.6	41 47.6	+7.4	20.2	43 39.9	+8.4	20.8	45 31.8	+9.4	21.6	47 23.1	+10.5	22.3
76	40 01.2	+5.7	18.3	41 55.0	+6.5	18.9	43 48.3	+7.5	19.5	45 41.2	+8.4	20.1	47 33.6	+9.4	20.9
77	40 06.9	+4.8	17.0	42 01.5	+5.6	17.5	43 55.8	+6.4	18.1	45 49.6	+7.3	18.7	47 43.0	+8.3	19.4
78	40 11.7	+3.9	15.7	42 07.1	+4.6	16.2	44 02.2	+5.4	16.7	45 56.9	+6.3	17.3	47 51.3	+7.1	17.9
79	40 15.6	+3.0	14.4	42 11.7	+3.7	14.8	44 07.6	+4.4	15.3	46 03.2	+5.1	15.9	47 58.4	+6.0	16.5
80	40 18.6	+2.2	13.1	42 15.4	+2.7	13.5	44 12.0	+3.4	13.9	46 08.3	+4.1	14.4	48 04.4	+4.8	15.0
81	40 20.8	+1.2	11.8	42 18.1	+1.8	12.1	44 15.4	+2.3	12.5	46 12.4	+3.0	13.0	48 09.2	+3.7	13.5
82	40 22.0	+0.4	10.5	42 19.9	+0.9	10.8	44 17.7	+1.4	11.2	46 15.4	+1.9	11.5	48 12.9	+2.5	12.0
83	40 22.4	-0.6	9.2	42 20.8	-0.1	9.4	44 19.1	+0.3	9.8	46 17.3	+0.8	10.1	48 15.4	+1.3	10.5
84	40 21.8	-1.4	7.8	42 20.7	-1.1	8.1	44 19.4	-0.7	8.4	46 18.1	-0.3	8.7	48 16.7	+0.1	9.0
85	40 20.4	-2.3	6.5	42 19.6	-2.0	6.7	44 18.7	-1.7	7.0	46 17.8	-1.4	7.2	48 16.8	-1.0	7.5
86	40 18.1	-3.2	5.2	42 17.6	-3.0	5.4	44 17.0	-2.7	5.6	46 16.4	-2.4	5.8	48 15.8	-2.2	6.0
87	40 14.9	-4.1	3.9	42 14.6	-3.9	4.0	44 14.3	-3.8	4.2	46 14.0	-3.6	4.3	48 13.6	-3.4	4.5
88	40 10.8	-5.0	2.6	42 10.7	-4.9	2.7	44 10.5	-4.7	2.8	46 10.4	-4.7	2.9	48 10.2	-4.5	3.0
89	40 05.8	-5.8	1.3	42 05.8	-5.8	1.3	44 05.8	-5.8	1.4	46 05.7	-5.7	1.4	48 05.7	-5.7	1.5
90	40 00.0	-6.7	0.0	42 00.0	-6.7	0.0	44 00.0	-6.8	0.0	46 00.0	-6.8	0.0	48 00.0	-6.8	0.0
	40°			42°			44°			46°			48°		

LATITUDE CONTRARY NAME

L.H.A. 84°, 276°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.	
14	35.9	+36.9	62.9	15	30.2	+38.4	63.4	16	23.5	+39.9	63.9	17	15.9	+41.3	64.4	30
15	12.8	+36.8	62.1	16	08.6	+38.2	62.6	17	03.4	+39.7	63.1	17	57.2	+41.2	63.7	31
15	49.6	+36.5	61.2	16	46.8	+38.1	61.8	17	43.1	+39.6	62.3	18	38.4	+40.9	62.9	32
16	26.1	+36.4	60.4	17	24.9	+37.8	60.9	18	22.7	+39.3	61.5	19	19.3	+40.8	62.1	33
17	02.5	+36.1	59.6	18	02.7	+37.7	60.1	19	02.0	+39.1	60.7	20	00.1	+40.6	61.3	34
17	38.6	+36.0	58.7	18	40.4	+37.4	59.3	19	41.1	+38.9	59.9	20	40.7	+40.3	60.5	35
18	14.6	+35.7	57.9	19	17.8	+37.2	58.5	20	20.0	+38.7	59.1	21	21.0	+40.2	59.8	36
18	50.3	+35.4	57.1	19	55.0	+37.0	57.6	20	58.7	+38.4	58.3	22	01.2	+39.9	59.0	37
19	25.7	+35.3	56.2	20	32.0	+36.7	56.8	21	37.1	+38.2	57.5	22	41.1	+39.6	58.1	38
20	01.0	+35.0	55.3	21	08.7	+36.5	56.0	22	15.3	+37.9	56.6	23	20.7	+39.4	57.3	39
20	36.0	+34.7	54.5	21	45.2	+36.2	55.1	22	53.2	+37.7	55.8	24	00.1	+39.1	56.5	40
21	10.7	+34.5	53.6	22	21.4	+35.9	54.3	23	30.9	+37.4	54.9	24	39.2	+38.9	55.7	41
21	45.2	+34.1	52.7	22	57.3	+35.6	53.4	24	08.3	+37.1	54.1	25	18.1	+38.5	54.8	42
22	19.3	+33.9	51.8	23	32.9	+35.4	52.5	24	45.4	+36.8	53.2	25	56.6	+38.3	54.0	43
22	53.2	+33.6	50.9	24	08.3	+35.0	51.6	25	22.2	+36.5	52.3	26	34.9	+37.9	53.1	44
23	26.8	+33.3	50.0	24	43.3	+34.8	50.7	25	58.7	+36.2	51.5	27	12.8	+37.6	52.3	45
24	00.1	+32.9	49.1	25	18.1	+34.3	49.8	26	34.9	+35.8	50.6	27	50.4	+37.3	51.4	46
24	33.0	+32.6	48.2	25	52.4	+34.1	48.9	27	10.7	+35.5	49.7	28	27.7	+36.9	50.5	47
25	05.6	+32.3	47.3	26	26.5	+33.7	48.0	27	46.2	+35.1	48.8	29	04.6	+36.6	49.6	48
25	37.9	+31.9	46.4	27	00.2	+33.3	47.1	28	21.3	+34.8	47.9	29	41.2	+36.2	48.7	49
26	09.8	+31.5	45.4	27	33.5	+32.9	46.1	28	56.1	+34.3	46.9	30	17.4	+35.8	47.8	50
26	41.3	+31.2	44.5	28	06.4	+32.6	45.2	29	30.4	+34.0	46.0	30	53.2	+35.4	46.8	51
27	12.5	+30.7	43.5	28	39.0	+32.1	44.2	30	04.4	+33.5	45.0	31	28.6	+34.9	45.9	52
27	43.2	+30.4	42.5	29	11.1	+31.8	43.3	30	37.9	+33.2	44.1	32	03.5	+34.6	44.9	53
28	13.6	+29.9	41.6	29	42.9	+31.3	42.3	31	11.1	+32.6	43.1	32	38.1	+34.1	44.0	54
28	43.5	+29.5	40.6	30	14.2	+30.8	41.3	31	43.7	+32.3	42.1	33	12.2	+33.6	43.0	55
29	13.0	+29.1	39.6	30	45.0	+30.4	40.3	32	16.0	+31.7	41.1	33	45.8	+33.1	42.0	56
29	42.1	+28.6	38.6	31	15.4	+29.9	39.3	32	47.7	+31.3	40.1	34	18.9	+32.6	41.0	57
30	10.7	+28.1	37.6	31	45.3	+29.4	38.3	33	19.0	+30.7	39.1	34	51.5	+32.1	40.0	58
30	38.8	+27.6	36.5	32	14.7	+29.0	37.3	33	49.7	+30.3	38.1	35	23.6	+31.6	38.9	59
31	06.4	+27.1	35.5	32	43.7	+28.3	36.2	34	20.0	+29.7	37.0	35	55.2	+31.1	37.9	60
31	33.5	+26.6	34.5	33	12.0	+27.9	35.2	34	49.7	+29.1	36.0	36	26.3	+30.4	36.8	61
32	00.1	+26.1	33.4	33	39.9	+27.3	34.1	35	18.8	+28.6	34.9	36	56.7	+29.9	35.7	62
32	26.2	+25.6	32.3	34	07.2	+26.8	33.1	35	47.4	+28.0	33.8	37	26.6	+29.2	34.7	63
32	51.8	+25.0	31.3	34	34.0	+26.1	32.0	36	15.4	+27.3	32.7	37	55.8	+28.7	33.6	64
33	16.8	+24.4	30.2	35	00.1	+25.6	30.9	36	42.7	+26.8	31.6	38	24.5	+28.0	32.4	65
33	41.2	+23.8	29.1	35	25.7	+25.0	29.8	37	09.5	+26.1	30.5	38	52.5	+27.3	31.3	66
34	05.0	+23.2	28.0	35	50.7	+24.3	28.6	37	35.6	+25.5	29.4	39	19.8	+26.6	30.2	67
34	28.2	+22.7	26.9	36	15.0	+23.7	27.5	38	01.1	+24.8	28.2	39	46.4	+26.0	29.0	68
34	50.9	+22.0	25.7	36	38.7	+23.0	26.4	38	25.9	+24.1	27.1	40	12.4	+25.2	27.8	69
35	12.9	+21.3	24.6	37	01.7	+22.3	25.2	38	50.0	+23.3	25.9	40	37.6	+24.5	26.6	70
35	34.2	+20.7	23.5	37	24.0	+21.7	24.1	39	13.3	+22.7	24.7	41	02.1	+23.7	25.4	71
35	54.9	+20.0	22.3	37	45.7	+20.9	22.9	39	36.0	+21.9	23.5	41	25.8	+22.9	24.2	72
36	14.9	+19.3	21.1	38	06.6	+20.3	21.7	39	57.9	+21.2	22.3	41	48.7	+22.1	23.0	73
36	34.2	+18.7	20.0	38	26.9	+19.4	20.5	40	19.1	+20.3	21.1	42	10.8	+21.3	21.7	74
36	52.9	+17.9	18.8	38	46.3	+18.8	19.3	40	39.4	+19.6	19.8	42	32.1	+20.4	20.4	75
37	10.8	+17.2	17.6	39	05.1	+17.9	18.1	40	59.0	+18.7	18.6	42	52.5	+19.6	19.2	76
37	28.0	+16.5	16.4	39	23.0	+17.2	16.8	41	17.7	+17.9	17.3	43	12.1	+18.7	17.9	77
37	44.5	+15.7	15.2	39	40.2	+16.3	15.6	41	35.6	+17.1	16.1	43	30.8	+17.8	16.6	78
38	00.2	+14.9	13.9	39	56.5	+15.6	14.3	41	52.7	+16.2	14.8	43	48.6	+16.9	15.2	79
38	15.1	+14.2	12.7	40	12.1	+14.7	13.1	42	08.9	+15.3	13.5	44	05.5	+15.9	13.9	80
38	29.3	+13.3	11.5	40	26.8	+13.9	11.8	42	24.2	+14.4	12.2	44	21.4	+15.0	12.6	81
38	42.6	+12.6	10.2	40	40.7	+13.0	10.5	42	38.6	+13.5	10.8	44	36.4	+14.0	11.2	82
38	55.2	+11.8	9.0	40	53.7	+12.2	9.2	42	52.1	+12.6	9.5	44	50.4	+13.0	9.8	83
39	07.0	+10.9	7.7	41	05.9	+11.2	7.9	43	04.7	+11.6	8.2	45	03.4	+12.0	8.5	84
39	17.9	+10.1	6.4	41	17.1	+10.4	6.6	43	16.3	+10.7	6.8	45	15.4	+11.0	7.1	85
39	28.0	+9.3	5.2	41	27.5	+9.5	5.3	43	27.0	+9.7	5.5	45	26.4	+10.0	5.7	86
39	37.3	+8.4	3.9	41	37.0	+8.6	4.0	43	36.7	+8.8	4.1	45	36.4	+8.9	4.3	87
39	45.7	+7.6	2.6	41	45.6	+7.7	2.7	43	45.5	+7.7	2.8	45	45.3	+7.9	2.9	88
39	53.3	+6.7	1.3	41	53.3	+6.7	1.3	43	53.2	+6.8	1.4	45	53.2	+6.8	1.4	89
40	00.0	+5.8	0.0	42	00.0	+5.8	0.0	44	00.0	+5.8	0.0	46	00.0	+5.7	0.0	90
40°			42°			44°			46°			48°				

LATITUDE SAME NAME

L.H.A. 96°, 264°

84°, 276° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	26 10.9	+41.9	73.7	26 43.6	+43.6	74.6	27 14.4	+45.1	75.6	27 43.2	+46.5	76.6	28 09.8	+48.0	77.7
31	26 52.8	+41.7	72.9	27 27.2	+43.3	73.9	27 59.5	+44.8	74.9	28 29.7	+46.4	75.9	28 57.8	+47.8	77.0
32	27 34.5	+41.5	72.1	28 10.5	+43.0	73.1	28 44.3	+44.6	74.1	29 16.1	+46.1	75.2	29 45.6	+47.6	76.3
33	28 16.0	+41.1	71.3	28 53.5	+42.7	72.3	29 28.9	+44.3	73.4	30 02.2	+45.8	74.5	30 33.2	+47.3	75.6
34	28 57.1	+40.8	70.4	29 36.2	+42.5	71.5	30 13.2	+44.1	72.6	30 48.0	+45.6	73.7	31 20.5	+47.1	74.9
35	29 37.9	+40.5	69.6	30 18.7	+42.1	70.7	30 57.3	+43.7	71.8	31 33.6	+45.3	73.0	32 07.6	+46.8	74.1
36	30 18.4	+40.2	68.7	31 00.8	+41.8	69.8	31 41.0	+43.5	71.0	32 18.9	+45.1	72.2	32 54.4	+46.6	73.4
37	30 58.6	+39.8	67.9	31 42.6	+41.5	69.0	32 24.5	+43.1	70.2	33 04.0	+44.7	71.4	33 41.0	+46.3	72.7
38	31 38.4	+39.4	67.0	32 24.1	+41.2	68.2	33 07.6	+42.8	69.4	33 48.7	+44.4	70.6	34 27.3	+46.0	71.9
39	32 17.8	+39.1	66.1	33 05.3	+40.7	67.3	33 50.4	+42.5	68.5	34 33.1	+44.1	69.8	35 13.3	+45.7	71.1
40	32 56.9	+38.6	65.2	33 46.0	+40.4	66.4	34 32.9	+42.0	67.7	35 17.2	+43.8	69.0	35 59.0	+45.4	70.3
41	33 35.5	+38.3	64.3	34 26.4	+40.0	65.5	35 14.9	+41.8	66.8	36 01.0	+43.3	68.1	36 44.4	+45.0	69.5
42	34 13.8	+37.8	63.4	35 06.4	+39.6	64.6	35 56.7	+41.3	65.9	36 44.3	+43.1	67.3	37 29.4	+44.7	68.7
43	34 51.6	+37.4	62.4	35 46.0	+39.2	63.7	36 38.0	+40.9	65.0	37 27.4	+42.6	66.4	38 14.1	+44.3	67.8
44	35 29.0	+37.0	61.5	36 25.2	+38.7	62.8	37 18.9	+40.4	64.1	38 10.0	+42.2	65.5	38 58.4	+43.9	67.0
45	36 06.0	+36.4	60.5	37 03.9	+38.2	61.8	37 59.3	+40.0	63.2	38 52.2	+41.7	64.6	39 42.3	+43.5	66.1
46	36 42.4	+36.0	59.5	37 42.1	+37.8	60.8	38 39.3	+39.6	62.2	39 33.9	+41.4	63.7	40 25.8	+43.1	65.2
47	37 18.4	+35.4	58.5	38 19.9	+37.2	59.8	39 18.9	+39.0	61.2	40 15.3	+40.8	62.7	41 08.9	+42.6	64.3
48	37 53.8	+34.9	57.5	38 57.1	+36.7	58.8	39 57.9	+38.6	60.3	40 56.1	+40.4	61.7	41 51.5	+42.1	63.3
49	38 28.7	+34.4	56.5	39 33.8	+36.2	57.8	40 36.5	+38.0	59.3	41 36.5	+39.8	60.8	42 33.6	+41.7	62.4
50	39 03.1	+33.7	55.4	40 10.0	+35.6	56.8	41 14.5	+37.5	58.2	42 16.3	+39.3	59.8	43 15.3	+41.2	61.4
51	39 36.8	+33.2	54.3	40 45.6	+35.1	55.7	41 52.0	+36.8	57.2	42 55.6	+38.8	58.7	43 56.5	+40.6	60.4
52	40 10.0	+32.6	53.2	41 20.7	+34.4	54.6	42 28.8	+36.3	56.1	43 34.4	+38.1	57.7	44 37.1	+40.0	59.3
53	40 42.6	+31.9	52.1	41 55.1	+33.7	53.5	43 05.1	+35.7	55.0	44 12.5	+37.6	56.6	45 17.1	+39.5	58.3
54	41 14.5	+31.3	51.0	42 28.8	+33.1	52.4	43 40.8	+35.0	53.9	44 50.1	+36.9	55.5	45 56.6	+38.8	57.2
55	41 45.8	+30.5	49.9	43 01.9	+32.5	51.3	44 15.8	+34.3	52.8	45 27.0	+36.2	54.4	46 35.4	+38.2	56.1
56	42 16.3	+29.9	48.7	43 34.4	+31.7	50.1	44 50.1	+33.6	51.6	46 03.2	+35.6	53.3	47 13.6	+37.5	55.0
57	42 46.2	+29.1	47.5	44 06.1	+31.0	49.0	45 23.7	+32.9	50.5	46 38.8	+34.8	52.1	47 51.1	+36.7	53.8
58	43 15.3	+28.4	46.4	44 37.1	+30.2	47.8	45 56.6	+32.1	49.3	47 13.6	+34.0	50.9	48 27.8	+36.1	52.6
59	43 43.7	+27.6	45.1	45 07.3	+29.4	46.5	46 28.7	+31.3	48.1	47 47.6	+33.3	49.7	49 03.9	+35.2	51.4
60	44 11.3	+26.7	43.9	45 36.7	+28.6	45.3	47 00.0	+30.5	46.8	48 20.9	+32.4	48.4	49 39.1	+34.5	50.2
61	44 38.0	+26.0	42.7	46 05.3	+27.7	44.0	47 30.5	+29.6	45.5	48 53.3	+31.6	47.2	50 13.6	+33.5	48.9
62	45 04.0	+25.0	41.4	46 33.0	+26.9	42.8	48 00.1	+28.7	44.3	49 24.9	+30.7	45.9	50 47.1	+32.7	47.6
63	45 29.0	+24.2	40.1	46 59.9	+26.0	41.5	48 28.8	+27.9	42.9	49 55.6	+29.7	44.5	51 19.8	+31.8	46.3
64	45 53.2	+23.3	38.8	47 25.9	+25.0	40.1	48 56.7	+26.8	41.6	50 25.3	+28.8	43.2	51 51.6	+30.8	44.9
65	46 16.5	+22.4	37.5	47 50.9	+24.1	38.8	49 23.5	+25.9	40.2	50 54.1	+27.8	41.8	52 22.4	+29.8	43.5
66	46 38.9	+21.3	36.1	48 15.0	+23.1	37.4	49 49.4	+24.9	38.8	51 21.9	+26.7	40.4	52 52.2	+28.7	42.1
67	47 00.2	+20.4	34.7	48 38.1	+22.1	36.0	50 14.3	+23.8	37.4	51 48.6	+25.7	38.9	53 20.9	+27.6	40.6
68	47 20.6	+19.4	33.4	49 00.2	+21.0	34.6	50 38.1	+22.7	36.0	52 14.3	+24.6	37.5	53 48.5	+26.5	39.1
69	47 40.0	+18.4	32.0	49 21.2	+19.9	33.2	51 00.8	+21.7	34.5	52 38.9	+23.4	36.0	54 15.0	+25.3	37.6
70	47 58.4	+17.3	30.5	49 41.1	+18.8	31.7	51 22.5	+20.4	33.0	53 02.3	+22.2	34.5	54 40.3	+24.1	36.0
71	48 15.7	+16.2	29.1	49 59.9	+17.7	30.2	51 42.9	+19.3	31.5	53 24.5	+21.0	32.9	55 04.4	+22.8	34.4
72	48 31.9	+15.1	27.7	50 17.6	+16.6	28.8	52 02.2	+18.1	30.0	53 45.5	+19.7	31.3	55 27.2	+21.5	32.8
73	48 47.0	+13.9	26.2	50 34.2	+15.3	27.2	52 20.3	+16.8	28.4	54 05.2	+18.4	29.7	55 48.7	+20.1	31.2
74	49 00.9	+12.9	24.7	50 49.5	+14.2	25.7	52 37.1	+15.6	26.8	54 23.6	+17.1	28.1	56 08.8	+18.7	29.5
75	49 13.8	+11.6	23.2	51 03.7	+12.9	24.2	52 52.7	+14.2	25.2	54 40.7	+15.7	26.4	56 27.5	+17.3	27.8
76	49 25.4	+10.5	21.7	51 16.6	+11.6	22.6	53 06.9	+13.0	23.6	54 56.4	+14.3	24.8	56 44.8	+15.8	26.0
77	49 35.9	+9.3	20.2	51 28.2	+10.4	21.0	53 19.9	+11.6	22.0	55 10.7	+12.9	23.1	57 00.6	+14.4	24.3
78	49 45.2	+8.1	18.7	51 38.6	+9.2	19.5	53 31.5	+10.2	20.4	55 23.6	+11.5	21.4	57 15.0	+12.7	22.5
79	49 53.3	+6.9	17.1	51 47.8	+7.8	17.9	53 41.7	+8.8	18.7	55 35.1	+9.9	19.6	57 27.7	+11.2	20.7
80	50 00.2	+5.6	15.6	51 55.6	+6.4	16.3	53 50.5	+7.5	17.0	55 45.0	+8.5	17.9	57 38.9	+9.6	18.8
81	50 05.8	+4.4	14.0	52 02.0	+5.2	14.6	53 58.0	+6.0	15.3	55 53.5	+6.9	16.1	57 48.5	+8.0	17.0
82	50 10.2	+3.1	12.5	52 07.2	+3.8	13.0	54 04.0	+4.5	13.6	56 00.4	+5.4	14.3	57 56.5	+6.3	15.1
83	50 13.3	+1.9	10.9	52 11.0	+2.5	11.4	54 08.5	+3.2	11.9	56 05.8	+3.9	12.5	58 02.8	+4.6	13.2
84	50 15.2	+0.6	9.4	52 13.5	+1.1	9.8	54 11.7	+1.6	10.2	56 09.7	+2.3	10.8	58 07.4	+3.0	11.4
85	50 15.8	-0.7	7.8	52 14.6	-0.2	8.1	54 13.3	+0.3	8.5	56 12.0	+0.7	9.0	58 10.4	+1.3	9.5
86	50 15.1	-1.9	6.2	52 14.4	-1.6	6.5	54 13.6	-1.2	6.8	56 12.7	-0.8	7.2	58 11.7	-0.4	7.6
87	50 13.2	-3.1	4.7	52 12.8	-2.9	4.9	54 12.4	-2.7	5.1	56 11.9	-2.4	5.4	58 11.3	-2.1	5.7
88	50 10.1	-4.4	3.1	52 09.9	-4.3	3.2	54 09.7	-4.1	3.4	56 09.5	-4.0	3.6	58 09.2	-3.8	3.8
89	50 05.7	-5.7	1.6	52 05.6	-5.6	1.6	54 05.6	-5.6	1.7	56 05.5	-5.5	1.8	58 05.4	-5.4	1.9
90	50 00.0	-6.9	0.0	52 00.0	-6.9	0.0	54 00.0	-7.0	0.0	56 00.0	-7.0	0.0	58 00.0	-7.1	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 84°, 276°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
18 57.3	+44.2	65.6	19 46.3	+45.5	66.2	20 34.0	+46.8	66.9	21 20.4	+48.0	67.6	22 05.4	+49.2	68.4	30
19 41.5	+43.9	64.9	20 31.8	+45.3	65.5	21 20.8	+46.6	66.2	22 08.4	+47.9	67.0	22 54.6	+49.2	67.7	31
20 25.4	+43.8	64.2	21 17.1	+45.1	64.8	22 07.4	+46.5	65.6	22 56.3	+47.8	66.3	23 43.8	+49.0	67.1	32
21 09.2	+43.6	63.4	22 02.2	+45.0	64.1	22 53.9	+46.3	64.9	23 44.1	+47.6	65.7	24 32.8	+48.8	66.5	33
21 52.8	+43.4	62.7	22 47.2	+44.7	63.4	23 40.2	+46.1	64.2	24 31.7	+47.4	65.0	25 21.6	+48.6	65.8	34
22 36.2	+43.2	61.9	23 31.9	+44.6	62.7	24 26.3	+45.9	63.5	25 19.1	+47.2	64.3	26 10.2	+48.5	65.2	35
23 19.4	+42.9	61.2	24 16.5	+44.3	62.0	25 12.2	+45.7	62.8	26 06.3	+47.0	63.6	26 58.7	+48.3	64.5	36
24 02.3	+42.8	60.4	25 00.8	+44.2	61.2	25 57.9	+45.4	62.1	26 53.3	+46.8	62.9	27 47.0	+48.1	63.9	37
24 45.1	+42.5	59.7	25 45.0	+43.9	60.5	26 43.3	+45.3	61.3	27 40.1	+46.6	62.2	28 35.1	+47.9	63.2	38
25 27.6	+42.2	58.9	26 28.9	+43.6	59.7	27 28.6	+45.0	60.6	28 26.7	+46.3	61.5	29 23.0	+47.7	62.5	39
26 09.8	+42.0	58.1	27 12.5	+43.4	58.9	28 13.6	+44.8	59.8	29 13.0	+46.0	60.8	30 10.7	+47.4	61.8	40
26 51.8	+41.7	57.3	27 55.9	+43.1	58.2	28 58.4	+44.5	59.1	29 59.1	+45.9	60.1	30 58.1	+47.2	61.1	41
27 33.5	+41.4	56.5	28 39.0	+42.8	57.4	29 42.9	+44.2	58.3	30 45.0	+45.6	59.3	31 45.3	+47.0	60.4	42
28 14.9	+41.2	55.7	29 21.8	+42.6	56.6	30 27.1	+44.0	57.5	31 30.6	+45.4	58.6	32 32.3	+46.7	59.6	43
28 56.1	+40.8	54.8	30 04.4	+42.2	55.8	31 11.1	+43.6	56.7	32 16.0	+45.0	57.8	33 19.0	+46.4	58.9	44
29 36.9	+40.5	54.0	30 46.6	+42.0	54.9	31 54.7	+43.4	55.9	33 01.0	+44.8	57.0	34 05.4	+46.1	58.1	45
30 17.4	+40.1	53.1	31 28.6	+41.6	54.1	32 38.1	+43.0	55.1	33 45.8	+44.4	56.2	34 51.5	+45.9	57.3	46
30 57.5	+39.9	52.3	32 10.2	+41.2	53.3	33 21.1	+42.7	54.3	34 30.2	+44.1	55.4	35 37.4	+45.5	56.6	47
31 37.4	+39.4	51.4	32 51.4	+40.9	52.4	34 03.8	+42.3	53.4	35 14.3	+43.8	54.6	36 22.9	+45.2	55.7	48
32 16.8	+39.1	50.5	33 32.3	+40.5	51.5	34 46.1	+42.0	52.6	35 58.1	+43.4	53.7	37 08.1	+44.8	54.9	49
32 55.9	+38.7	49.6	34 12.8	+40.2	50.6	35 28.1	+41.6	51.7	36 41.5	+43.0	52.9	37 52.9	+44.5	54.1	50
33 34.6	+38.2	48.7	34 53.0	+39.7	49.7	36 09.7	+41.2	50.8	37 24.5	+42.7	52.0	38 37.4	+44.1	53.2	51
34 12.8	+37.9	47.8	35 32.7	+39.3	48.8	36 50.9	+40.7	49.9	38 07.2	+42.2	51.1	39 21.5	+43.7	52.4	52
34 50.7	+37.4	46.8	36 12.0	+38.9	47.9	37 31.6	+40.3	49.0	38 49.4	+41.8	50.2	40 05.2	+43.3	51.5	53
35 28.1	+36.9	45.9	36 50.9	+38.4	46.9	38 11.9	+39.9	48.1	39 31.2	+41.4	49.3	40 48.5	+42.8	50.6	54
36 05.0	+36.5	44.9	37 29.3	+37.9	46.0	38 51.8	+39.4	47.1	40 12.6	+40.8	48.3	41 31.3	+42.4	49.6	55
36 41.5	+36.0	43.9	38 07.2	+37.4	45.0	39 31.2	+38.9	46.1	40 53.4	+40.4	47.4	42 13.7	+41.9	48.7	56
37 17.5	+35.4	42.9	38 44.6	+36.9	44.0	40 10.1	+38.4	45.1	41 33.8	+39.9	46.4	42 55.6	+41.4	47.7	57
37 52.9	+34.9	41.9	39 21.5	+36.4	43.0	40 48.5	+37.8	44.1	42 13.7	+39.4	45.4	43 37.0	+40.9	46.7	58
38 27.8	+34.4	40.9	39 57.9	+35.8	41.9	41 26.3	+37.3	43.1	42 53.1	+38.7	44.4	44 17.9	+40.3	45.7	59
39 02.2	+33.8	39.8	40 33.7	+35.2	40.9	42 03.6	+36.7	42.0	43 31.8	+38.2	43.3	44 58.2	+39.7	44.7	60
39 36.0	+33.2	38.7	41 08.9	+34.6	39.8	42 40.3	+36.1	41.0	44 10.0	+37.6	42.2	45 37.9	+39.2	43.6	61
40 09.2	+32.6	37.7	41 43.5	+34.0	38.7	43 16.4	+35.4	39.9	44 47.6	+37.0	41.1	46 17.1	+38.4	42.5	62
40 41.8	+31.9	36.5	42 17.5	+33.3	37.6	43 51.8	+34.8	38.8	45 24.6	+36.2	40.0	46 55.5	+37.9	41.4	63
41 13.7	+31.3	35.4	42 50.8	+32.7	36.5	44 26.6	+34.1	37.6	46 00.8	+35.6	38.9	47 33.4	+37.1	40.2	64
41 45.0	+30.6	34.3	43 23.5	+32.0	35.3	45 00.7	+33.4	36.5	46 36.4	+34.9	37.7	48 10.5	+36.4	39.1	65
42 15.6	+29.8	33.1	43 55.5	+31.2	34.2	45 34.1	+32.6	35.3	47 11.3	+34.1	36.5	48 46.9	+35.6	37.9	66
42 45.4	+29.2	32.0	44 26.7	+30.5	33.0	46 06.7	+31.9	34.1	47 45.4	+33.3	35.3	49 22.5	+34.8	36.6	67
43 14.6	+28.4	30.8	44 57.2	+29.7	31.8	46 38.6	+31.0	32.9	48 18.7	+32.5	34.1	49 57.3	+34.0	35.4	68
43 43.0	+27.6	29.5	45 26.9	+28.8	30.5	47 09.6	+30.3	31.6	48 51.2	+31.6	32.8	50 31.3	+33.1	34.1	69
44 10.6	+26.8	28.3	45 55.7	+28.1	29.3	47 39.9	+29.3	30.3	49 22.8	+30.8	31.5	51 04.4	+32.3	32.8	70
44 37.4	+25.9	27.1	46 23.8	+27.2	28.0	48 09.2	+28.5	29.0	49 53.6	+29.8	30.2	51 36.7	+31.2	31.4	71
45 03.3	+25.1	25.8	46 51.0	+26.2	26.7	48 37.7	+27.5	27.7	50 23.4	+28.8	28.8	52 07.9	+30.3	30.0	72
45 28.4	+24.2	24.5	47 17.2	+25.4	25.4	49 05.2	+26.6	26.4	50 52.2	+27.9	27.4	52 38.2	+29.2	28.6	73
45 52.6	+23.3	23.2	47 42.6	+24.4	24.0	49 31.8	+25.5	25.0	51 20.1	+26.8	26.0	53 07.4	+28.1	27.2	74
46 15.9	+22.4	21.9	48 07.0	+23.4	22.7	49 57.3	+24.6	23.6	51 46.9	+25.8	24.6	53 35.5	+27.1	25.7	75
46 38.3	+21.4	20.5	48 30.4	+22.4	21.3	50 21.9	+23.5	22.2	52 12.7	+24.6	23.1	54 02.6	+25.8	24.2	76
46 59.7	+20.4	19.1	48 52.8	+21.4	19.9	50 45.4	+22.4	20.7	52 37.3	+23.5	21.6	54 28.4	+24.7	22.6	77
47 20.1	+19.4	17.8	49 14.2	+20.3	18.5	51 07.8	+21.2	19.2	53 00.8	+22.3	20.1	54 53.1	+23.4	21.1	78
47 39.5	+18.4	16.4	49 34.5	+19.2	17.0	51 29.0	+20.1	17.7	53 23.1	+21.0	18.6	55 16.5	+22.1	19.5	79
47 57.9	+17.3	14.9	49 53.7	+18.1	15.6	51 49.1	+18.9	16.2	53 44.1	+19.8	17.0	55 38.6	+20.8	17.8	80
48 15.2	+16.3	13.5	50 11.8	+16.9	14.1	52 08.0	+17.7	14.7	54 03.9	+18.5	15.4	55 59.4	+19.4	16.1	81
48 31.5	+15.1	12.1	50 28.7	+15.8	12.6	52 25.7	+16.4	13.1	54 22.4	+17.2	13.7	56 18.8	+18.0	14.5	82
48 46.6	+14.0	10.6	50 44.5	+14.5	11.0	52 42.1	+15.2	11.5	54 39.6	+15.8	12.1	56 36.8	+16.5	12.7	83
49 00.6	+12.9	9.1	50 59.0	+13.4	9.5	52 57.3	+13.9	9.9	54 55.4	+14.4	10.4	56 53.3	+15.1	11.0	84
49 13.5	+11.7	7.6	51 12.4	+12.0	8.0	53 11.2	+12.5	8.3	55 09.8	+13.0	8.7	57 08.4	+13.5	9.2	85
49 25.2	+10.5	6.1	51 24.4	+10.9	6.4	53 23.7	+11.1	6.7	55 22.8	+11.6	7.0	57 21.9	+11.9	7.4	86
49 35.7	+9.3	4.6	51 35.3	+9.5	4.8	53 34.8	+9.8	5.0	55 34.4	+10.0	5.3	57 33.8	+10.4	5.6	87
49 45.0	+8.1	3.1	51 44.8	+8.3	3.2	53 44.6	+8.4	3.4	55 44.4	+8.6	3.5	57 44.2	+8.7	3.7	88
49 53.1	+6.9	1.5	51 53.1	+6.9	1.6	53 53.0	+7.0	1.7	55 53.0	+7.0	1.8	57 52.9	+7.1	1.9	89
50 00.0	+5.7	0.0	52 00.0	+5.6	0.0	54 00.0	+5.6	0.0	56 00.0	+5.5	0.0	58 00.0	+5.4	0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 96°, 264°

86°, 274° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	17 35.8	+25.2	65.0	18 26.0	+27.0	65.6	19 15.0	+28.8	66.2	20 02.7	+30.6	66.9	20 49.2	+32.3	67.6
31	18 01.0	+25.0	64.0	18 53.0	+26.7	64.7	19 43.8	+28.5	65.3	20 33.3	+30.3	66.0	21 21.5	+32.1	66.7
32	18 26.0	+24.6	63.1	19 19.7	+26.4	63.7	20 12.3	+28.2	64.3	21 03.6	+29.9	65.0	21 53.6	+31.7	65.7
33	18 50.6	+24.4	62.1	19 46.1	+26.2	62.8	20 40.5	+27.9	63.4	21 33.5	+29.7	64.1	22 25.3	+31.4	64.8
34	19 15.0	+24.0	61.2	20 12.3	+25.8	61.8	21 08.4	+27.6	62.5	22 03.2	+29.3	63.2	22 56.7	+31.1	63.9
35	19 39.0	+23.7	60.2	20 38.1	+25.5	60.8	21 36.0	+27.2	61.5	22 32.5	+29.1	62.2	23 27.8	+30.7	63.0
36	20 02.7	+23.4	59.2	21 03.6	+25.1	59.9	22 03.2	+26.9	60.5	23 01.6	+28.6	61.3	23 58.5	+30.4	62.0
37	20 26.1	+23.1	58.2	21 28.7	+24.9	58.9	22 30.1	+26.6	59.6	23 30.2	+28.3	60.3	24 28.9	+30.1	61.1
38	20 49.2	+22.7	57.2	21 53.6	+24.4	57.9	22 56.7	+26.2	58.6	23 58.5	+28.0	59.4	24 59.0	+29.7	60.1
39	21 11.9	+22.4	56.3	22 18.0	+24.1	56.9	23 22.9	+25.8	57.6	24 26.5	+27.6	58.4	25 28.7	+29.3	59.2
40	21 34.3	+22.1	55.3	22 42.1	+23.8	55.9	23 48.7	+25.5	56.6	24 54.1	+27.2	57.4	25 58.0	+28.9	58.2
41	21 56.4	+21.6	54.3	23 05.9	+23.3	54.9	24 14.2	+25.1	55.7	25 21.3	+26.7	56.4	26 26.9	+28.5	57.2
42	22 18.0	+21.3	53.3	23 28.0	+23.0	53.9	24 39.3	+24.7	54.7	25 48.0	+26.4	55.4	26 55.4	+28.1	56.2
43	22 39.3	+20.9	52.2	23 52.2	+22.6	52.9	25 04.0	+24.2	53.7	26 14.4	+26.0	54.4	27 23.5	+27.7	55.3
44	23 00.3	+20.5	51.2	24 14.8	+22.2	51.9	25 28.2	+23.9	52.6	26 40.4	+25.6	53.4	27 51.2	+27.3	54.3
45	23 20.7	+20.1	50.2	24 37.0	+21.7	50.9	25 52.1	+23.4	51.6	27 05.9	+25.2	52.4	28 18.5	+26.8	53.2
46	23 40.8	+19.7	49.2	24 58.7	+21.4	49.9	26 15.5	+23.0	50.6	27 31.1	+24.6	51.4	28 45.3	+26.3	52.2
47	24 00.5	+19.3	48.1	25 20.1	+20.9	48.8	26 38.5	+22.5	49.6	27 55.7	+24.2	50.4	29 11.6	+25.8	51.2
48	24 19.8	+18.9	47.1	25 41.0	+20.4	47.8	27 01.0	+22.1	48.5	28 19.9	+23.7	49.3	29 37.4	+25.4	50.2
49	24 38.7	+18.4	46.1	26 01.4	+20.0	46.7	27 23.1	+21.6	47.5	28 43.6	+23.2	48.3	30 02.8	+24.9	49.1
50	24 57.1	+18.0	45.0	26 21.4	+19.6	45.7	27 44.7	+21.1	46.4	29 06.8	+22.8	47.2	30 27.7	+24.3	48.1
51	25 15.1	+17.5	44.0	26 41.0	+19.0	44.6	28 05.8	+20.7	45.4	29 29.6	+22.2	46.2	30 52.0	+23.9	47.0
52	25 32.6	+17.1	42.9	27 00.0	+18.6	43.6	28 26.5	+20.1	44.3	29 51.8	+21.7	45.1	31 15.9	+23.3	45.9
53	25 49.7	+16.6	41.8	27 18.6	+18.1	42.5	28 46.6	+19.6	43.2	30 13.5	+21.1	44.0	31 39.2	+22.7	44.9
54	26 06.3	+16.1	40.8	27 36.7	+17.6	41.4	29 06.2	+19.1	42.2	30 34.6	+20.7	42.9	32 01.9	+22.2	43.8
55	26 22.4	+15.7	39.7	27 54.3	+17.1	40.4	29 25.3	+18.6	41.1	30 55.3	+20.0	41.8	32 24.1	+21.6	42.7
56	26 38.1	+15.1	38.6	28 11.4	+16.6	39.3	29 43.9	+18.0	40.0	31 15.3	+19.5	40.7	32 45.7	+21.0	41.6
57	26 53.2	+14.7	37.5	28 28.0	+16.0	38.2	30 01.9	+17.5	38.9	31 34.8	+18.9	39.6	33 06.7	+20.4	40.4
58	27 07.9	+14.2	36.4	28 44.0	+15.6	37.1	30 19.4	+16.9	37.8	31 53.7	+18.4	38.5	33 27.1	+19.8	39.3
59	27 22.1	+13.6	35.3	28 59.6	+14.9	36.0	30 36.3	+16.3	36.7	32 12.1	+17.7	37.4	33 46.9	+19.2	38.2
60	27 35.7	+13.1	34.2	29 14.5	+14.4	34.9	30 52.6	+15.7	35.5	32 29.8	+17.1	36.3	34 06.1	+18.5	37.0
61	27 48.8	+12.6	33.1	29 28.9	+13.9	33.8	31 08.3	+15.2	34.4	32 46.9	+16.5	35.1	34 24.6	+17.9	35.9
62	28 01.4	+12.1	32.0	29 42.8	+13.3	32.6	31 23.5	+14.6	33.3	33 03.4	+15.9	34.0	34 42.5	+17.2	34.7
63	28 13.5	+11.5	30.9	29 56.1	+12.7	31.5	31 38.1	+13.9	32.1	33 19.3	+15.2	32.8	34 59.7	+16.6	33.6
64	28 25.0	+11.0	29.8	30 08.8	+12.2	30.4	31 52.0	+13.4	31.0	33 34.5	+14.6	31.7	35 16.3	+15.8	32.4
65	28 36.0	+10.4	28.7	30 21.0	+11.5	29.2	32 05.4	+12.7	29.8	33 49.1	+13.9	30.5	35 32.1	+15.2	31.2
66	28 46.4	+9.9	27.6	30 32.5	+11.0	28.1	32 18.1	+12.0	28.7	34 03.0	+13.3	29.3	35 47.3	+14.5	30.0
67	28 56.3	+9.3	26.4	30 43.5	+10.3	27.0	32 30.1	+11.5	27.5	34 16.3	+12.5	28.1	36 01.8	+13.7	28.8
68	29 05.6	+8.7	25.3	30 53.8	+9.7	25.8	32 41.6	+10.8	26.4	34 28.8	+11.9	27.0	36 15.5	+13.0	27.6
69	29 14.3	+8.1	24.2	31 03.5	+9.2	24.7	32 52.4	+10.1	25.2	34 40.7	+11.2	25.8	36 28.5	+12.2	26.4
70	29 22.4	+7.6	23.0	31 12.7	+8.5	23.5	33 02.5	+9.5	24.0	34 51.9	+10.4	24.6	36 40.7	+11.6	25.2
71	29 30.0	+7.0	21.9	31 21.2	+7.9	22.4	33 12.0	+8.8	22.8	35 02.3	+9.8	23.4	36 52.3	+10.7	24.0
72	29 37.0	+6.4	20.8	31 29.1	+7.2	21.2	33 20.8	+8.1	21.7	35 12.1	+9.0	22.2	37 03.0	+10.0	22.7
73	29 43.4	+5.8	19.6	31 36.3	+6.6	20.0	33 28.9	+7.4	20.5	35 21.1	+8.3	21.0	37 13.0	+9.2	21.5
74	29 49.2	+5.2	18.5	31 42.9	+6.0	18.9	33 36.3	+6.8	19.3	35 29.4	+7.6	19.7	37 22.2	+8.4	20.2
75	29 54.4	+4.7	17.3	31 48.9	+5.3	17.7	33 43.1	+6.0	18.1	35 37.0	+6.9	18.5	37 30.6	+7.7	19.0
76	29 59.1	+4.0	16.2	31 54.2	+4.7	16.5	33 49.1	+5.4	16.9	35 43.9	+6.0	17.3	37 38.3	+6.8	17.7
77	30 03.1	+3.4	15.0	31 58.9	+4.0	15.3	33 54.5	+4.7	15.7	35 49.9	+5.4	16.1	37 45.1	+6.1	16.5
78	30 06.5	+2.8	13.9	32 02.9	+3.4	14.2	33 59.2	+4.0	14.5	35 55.3	+4.6	14.8	37 51.2	+5.2	15.2
79	30 09.3	+2.2	12.7	32 06.3	+2.7	13.0	34 03.2	+3.2	13.3	35 59.9	+3.8	13.6	37 56.4	+4.4	14.0
80	30 11.5	+1.6	11.6	32 09.0	+2.1	11.8	34 06.4	+2.6	12.1	36 03.7	+3.1	12.4	38 00.8	+3.6	12.7
81	30 13.1	+1.0	10.4	32 11.1	+1.4	10.6	34 09.0	+1.8	10.9	36 06.8	+2.3	11.1	38 04.4	+2.8	11.4
82	30 14.1	+0.3	9.2	32 12.5	+0.7	9.4	34 10.8	+1.2	9.7	36 09.1	+1.5	9.9	38 07.2	+2.0	10.2
83	30 14.4	-0.2	8.1	32 13.2	+0.1	8.3	34 12.0	+0.4	8.5	36 10.6	+0.8	8.7	38 09.2	+1.2	8.9
84	30 14.2	-0.8	6.9	32 13.3	-0.6	7.1	34 12.4	-0.3	7.2	36 11.4	0.0	7.4	38 10.4	+0.3	7.6
85	30 13.4	-1.5	5.8	32 12.7	-1.2	5.9	34 12.1	-1.0	6.0	36 11.4	-0.7	6.2	38 10.7	-0.5	6.4
86	30 11.9	-2.1	4.6	32 11.5	-1.9	4.7	34 11.1	-1.7	4.8	36 10.7	-1.6	4.9	38 10.2	-1.3	5.1
87	30 09.8	-2.6	3.5	32 09.6	-2.5	3.5	34 09.4	-2.4	3.6	36 09.1	-2.2	3.7	38 08.9	-2.2	3.8
88	30 07.2	-3.3	2.3	32 07.1	-3.2	2.4	34 07.0	-3.2	2.4	36 06.9	-3.1	2.5	38 06.7	-2.9	2.5
89	30 03.9	-3.9	1.2	32 03.9	-3.9	1.2	34 03.8	-3.8	1.2	36 03.8	-3.8	1.2	38 03.8	-3.8	1.3
90	30 00.0	-4.5	0.0	32 00.0	-4.5	0.0	34 00.0	-4.5	0.0	36 00.0	-4.6	0.0	38 00.0	-4.6	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 86°, 274°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
11 24.1 +28.3 61.8	12 20.5 +29.9 62.2	13 16.1 +31.6 62.6	14 11.0 +33.1 63.0	15 05.0 +34.8 63.5	30										
11 52.4 +28.1 60.9	12 50.4 +29.7 61.3	13 47.7 +31.3 61.7	14 44.1 +33.0 62.1	15 39.8 +34.5 62.6	31										
12 20.5 +27.9 60.0	13 20.1 +29.6 60.4	14 19.0 +31.2 60.8	15 17.1 +32.8 61.3	16 14.3 +34.3 61.8	32										
12 48.4 +27.7 59.1	13 49.7 +29.3 59.5	14 50.2 +30.9 59.9	15 49.9 +32.5 60.4	16 48.6 +34.2 60.9	33										
13 16.1 +27.5 58.2	14 19.0 +29.2 58.6	15 21.1 +30.8 59.1	16 22.4 +32.4 59.5	17 22.8 +33.9 60.1	34										
13 43.6 +27.4 57.3	14 48.2 +28.9 57.7	15 51.9 +30.5 58.2	16 54.8 +32.1 58.7	17 56.7 +33.7 59.2	35										
14 11.0 +27.1 56.3	15 17.1 +28.7 56.8	16 22.4 +30.3 57.3	17 26.9 +31.8 57.8	18 30.4 +33.4 58.3	36										
14 38.1 +26.9 55.4	15 45.8 +28.5 55.9	16 52.7 +30.1 56.4	17 58.7 +31.7 56.9	19 03.8 +33.2 57.4	37										
15 05.0 +26.7 54.5	16 14.3 +28.3 55.0	17 22.8 +29.8 55.5	18 30.4 +31.3 56.0	19 37.0 +32.9 56.6	38										
15 31.7 +26.4 53.6	16 42.6 +28.0 54.0	17 52.6 +29.6 54.5	19 01.7 +31.2 55.1	20 09.9 +32.7 55.7	39										
15 58.1 +26.2 52.6	17 10.6 +27.7 53.1	18 22.2 +29.3 53.6	19 32.9 +30.8 54.2	20 42.6 +32.4 54.8	40										
16 24.3 +26.0 51.7	17 38.3 +27.5 52.2	18 51.5 +29.0 52.7	20 03.7 +30.6 53.3	21 15.0 +32.0 53.9	41										
16 50.3 +25.7 50.8	18 05.8 +27.2 51.3	19 20.5 +28.7 51.8	20 34.3 +30.2 52.4	21 47.0 +31.8 53.0	42										
17 16.0 +25.4 49.8	18 33.0 +27.0 50.3	19 49.2 +28.5 50.9	21 04.5 +30.0 51.4	22 18.8 +31.5 52.1	43										
17 41.4 +25.2 48.9	19 00.0 +26.6 49.4	20 17.7 +28.1 49.9	21 34.5 +29.6 50.5	22 50.3 +31.2 51.1	44										
18 06.6 +24.9 47.9	19 26.6 +26.4 48.4	20 45.8 +27.9 49.0	22 04.1 +29.4 49.6	23 21.5 +30.8 50.2	45										
18 31.5 +24.5 47.0	19 53.0 +26.0 47.5	21 13.7 +27.5 48.0	22 33.5 +29.0 48.6	23 52.3 +30.5 49.3	46										
18 56.0 +24.3 46.0	20 19.0 +25.8 46.5	21 41.2 +27.2 47.1	23 02.5 +28.6 47.7	24 22.8 +30.1 48.3	47										
19 20.3 +24.0 45.0	20 44.8 +25.4 45.5	22 08.4 +26.8 46.1	23 31.1 +28.3 46.7	24 52.9 +29.8 47.4	48										
19 44.3 +23.6 44.1	21 10.2 +25.0 44.6	22 35.2 +26.5 45.1	23 59.4 +28.0 45.8	25 22.7 +29.3 46.4	49										
20 07.9 +23.4 43.1	21 35.2 +24.8 43.6	23 01.7 +26.2 44.2	24 27.4 +27.5 44.8	25 52.0 +29.0 45.4	50										
20 31.3 +23.0 42.1	22 00.0 +24.3 42.6	23 27.9 +25.7 43.2	24 54.9 +27.2 43.8	26 21.0 +28.6 44.5	51										
20 54.3 +22.6 41.1	22 24.3 +24.1 41.6	23 53.6 +25.4 42.2	25 22.1 +26.8 42.8	26 49.6 +28.2 43.5	52										
21 16.9 +22.3 40.1	22 48.4 +23.6 40.6	24 19.0 +25.0 41.2	25 48.9 +26.4 41.8	27 17.8 +27.8 42.5	53										
21 39.2 +22.0 39.1	23 12.0 +23.3 39.6	24 44.0 +24.6 40.2	26 15.3 +25.9 40.8	27 45.6 +27.3 41.5	54										
22 01.2 +21.6 38.1	23 35.3 +22.8 38.6	25 08.6 +24.2 39.2	26 41.2 +25.5 39.8	28 12.9 +26.9 40.5	55										
22 22.8 +21.2 37.1	23 58.1 +22.5 37.6	25 32.8 +23.8 38.2	27 06.7 +25.1 38.8	28 39.8 +26.5 39.5	56										
22 44.0 +20.8 36.1	24 20.6 +22.1 36.6	25 56.6 +23.3 37.2	27 31.8 +24.7 37.8	29 06.3 +25.9 38.4	57										
23 04.8 +20.4 35.1	24 42.7 +21.6 35.6	26 19.9 +22.9 36.1	27 56.5 +24.1 36.8	29 32.2 +25.5 37.4	58										
23 25.2 +20.0 34.0	25 04.3 +21.3 34.6	26 42.8 +22.5 35.1	28 20.6 +23.7 35.7	29 57.7 +24.9 36.4	59										
23 45.2 +19.6 33.0	25 25.6 +20.7 33.5	27 05.3 +22.0 34.1	28 44.2 +23.2 34.7	30 22.6 +24.5 35.3	60										
24 04.8 +19.2 32.0	25 46.3 +20.4 32.5	27 27.3 +21.5 33.0	29 07.5 +22.8 33.6	30 47.1 +23.9 34.3	61										
24 24.0 +18.8 30.9	26 06.7 +19.9 31.4	27 48.8 +21.0 32.0	29 30.3 +22.2 32.6	31 11.0 +23.5 33.2	62										
24 42.8 +18.3 29.9	26 26.6 +19.4 30.4	28 09.8 +20.5 30.9	29 52.5 +21.6 31.5	31 34.5 +22.8 32.1	63										
25 01.1 +17.9 28.9	26 46.0 +18.9 29.3	28 30.3 +20.1 29.8	30 14.1 +21.2 30.4	31 57.3 +22.3 31.0	64										
25 19.0 +17.4 27.8	27 04.9 +18.5 28.3	28 50.4 +19.5 28.8	30 35.3 +20.6 29.3	32 19.6 +21.7 29.9	65										
25 36.4 +17.0 26.7	27 23.4 +18.0 27.2	29 09.9 +19.0 27.7	30 55.9 +20.0 28.2	32 41.3 +21.2 28.8	66										
25 53.4 +16.5 25.7	27 41.4 +17.4 26.1	29 28.9 +18.5 26.6	31 15.9 +19.5 27.1	33 02.5 +20.5 27.7	67										
26 09.9 +16.0 24.6	27 58.8 +17.0 25.0	29 47.4 +17.9 25.5	31 35.4 +18.9 26.0	33 23.0 +19.9 26.6	68										
26 25.9 +15.6 23.5	28 15.8 +16.4 23.9	30 05.3 +17.3 24.4	31 54.3 +18.3 24.9	33 42.9 +19.3 25.5	69										
26 41.5 +15.0 22.5	28 32.2 +15.9 22.9	30 22.6 +16.8 23.3	32 12.6 +17.8 23.8	34 02.2 +18.7 24.3	70										
26 56.5 +14.6 21.4	28 48.1 +15.4 21.8	30 39.4 +16.3 22.2	32 30.4 +17.1 22.7	34 20.9 +18.0 23.2	71										
27 11.1 +14.0 20.3	29 03.5 +14.8 20.6	30 55.7 +15.6 21.1	32 47.5 +16.4 21.5	34 38.9 +17.4 22.0	72										
27 25.1 +13.6 19.2	29 18.3 +14.3 19.5	31 11.3 +15.0 19.9	33 03.9 +15.9 20.4	34 56.3 +16.7 20.8	73										
27 38.7 +13.0 18.1	29 32.6 +13.7 18.4	31 26.3 +14.5 18.8	33 19.8 +15.2 19.2	35 13.0 +16.0 19.7	74										
27 51.7 +12.4 17.0	29 46.3 +13.2 17.3	31 40.8 +13.8 17.7	33 35.0 +14.6 18.1	35 29.0 +15.3 18.5	75										
28 04.1 +12.0 15.9	29 59.5 +12.5 16.2	31 54.6 +13.2 16.5	33 49.6 +13.9 16.9	35 44.3 +14.6 17.3	76										
28 16.1 +11.4 14.8	30 12.0 +12.0 15.0	32 07.8 +12.6 15.4	34 03.5 +13.2 15.7	35 58.9 +13.8 16.1	77										
28 27.5 +10.8 13.6	30 24.0 +11.4 13.9	32 20.4 +12.0 14.2	34 16.7 +12.5 14.5	36 12.7 +13.2 14.9	78										
28 38.3 +10.3 12.5	30 35.4 +10.8 12.8	32 32.4 +11.3 13.0	34 29.2 +11.9 13.4	36 25.9 +12.4 13.7	79										
28 48.6 +9.8 11.4	30 46.2 +10.2 11.6	32 43.7 +10.7 11.9	34 41.1 +11.1 12.2	36 38.3 +11.7 12.5	80										
28 58.4 +9.1 10.3	30 56.4 +9.6 10.5	32 54.4 +10.0 10.7	34 52.2 +10.5 11.0	36 50.0 +10.9 11.2	81										
29 07.5 +8.6 9.1	31 06.0 +8.9 9.3	33 04.4 +9.3 9.5	35 02.7 +9.7 9.8	37 00.9 +10.1 10.0	82										
29 16.1 +8.1 8.0	31 14.9 +8.4 8.2	33 13.7 +8.7 8.4	35 12.4 +9.0 8.6	37 11.0 +9.4 8.8	83										
29 24.2 +7.4 6.9	31 23.3 +7.7 7.0	33 22.4 +8.0 7.2	35 21.4 +8.3 7.3	37 20.4 +8.6 7.5	84										
29 31.6 +6.9 5.7	31 31.0 +7.1 5.9	33 30.4 +7.3 6.0	35 29.7 +7.5 6.1	37 29.0 +7.8 6.3	85										
29 38.5 +6.2 4.6	31 38.1 +6.4 4.7	33 37.7 +6.6 4.8	35 37.2 +6.9 4.9	37 36.8 +7.0 5.0	86										
29 44.7 +5.7 3.4	31 44.5 +5.8 3.5	33 44.3 +5.9 3.6	35 44.1 +6.0 3.7	37 43.8 +6.2 3.8	87										
29 50.4 +5.1 2.3	31 50.3 +5.2 2.3	33 50.2 +5.3 2.4	35 50.1 +5.3 2.5	37 50.0 +5.4 2.5	88										
29 55.5 +4.5 1.2	31 55.5 +4.5 1.2	33 55.5 +4.5 1.2	35 55.4 +4.6 1.2	37 55.4 +4.6 1.3	89										
30 00.0 +3.9 0.0	32 00.0 +3.9 0.0	34 00.0 +3.8 0.0	36 00.0 +3.8 0.0	38 00.0 +3.8 0.0	90										
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 94°, 266°

86°, 274° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	21 34.3	+34.1	68.3	22 18.0	+35.8	69.0	23 00.2	+37.4	69.8	23 40.8	+39.1	70.6	24 19.8	+40.7	71.5
31	22 08.4	+33.7	67.4	22 53.8	+35.4	68.2	23 37.6	+37.2	69.0	24 19.9	+38.8	69.8	25 00.5	+40.5	70.7
32	22 42.1	+33.5	66.5	23 29.2	+35.2	67.3	24 14.8	+36.9	68.1	24 58.7	+38.6	69.0	25 41.0	+40.1	69.8
33	23 15.6	+33.1	65.6	24 04.4	+34.9	66.4	24 51.7	+36.5	67.2	25 37.3	+38.2	68.1	26 21.1	+39.9	69.0
34	23 48.7	+32.9	64.7	24 39.3	+34.5	65.5	25 28.2	+36.3	66.4	26 15.5	+37.9	67.2	27 01.0	+39.6	68.2
35	24 21.6	+32.5	63.8	25 13.8	+34.2	64.6	26 04.5	+35.9	65.5	26 53.4	+37.7	66.4	27 40.6	+39.3	67.3
36	24 54.1	+32.1	62.8	25 48.0	+33.9	63.7	26 40.4	+35.6	64.6	27 31.1	+37.2	65.5	28 19.9	+38.9	66.5
37	25 26.2	+31.8	61.9	26 21.9	+33.5	62.8	27 16.0	+35.2	63.7	28 08.3	+37.0	64.6	28 58.8	+38.6	65.6
38	25 58.0	+31.4	61.0	26 55.4	+33.2	61.8	27 51.2	+34.9	62.8	28 45.3	+36.5	63.7	29 37.4	+38.3	64.7
39	26 29.4	+31.1	60.0	27 28.6	+32.8	60.9	28 26.1	+34.5	61.8	29 21.8	+36.2	62.8	30 15.7	+37.9	63.8
40	27 00.5	+30.6	59.1	28 01.4	+32.3	60.0	29 00.6	+34.1	60.9	29 58.0	+35.8	61.9	30 53.6	+37.5	62.9
41	27 31.1	+30.3	58.1	28 33.7	+32.0	59.0	29 34.7	+33.7	60.0	30 33.8	+35.5	61.0	31 31.1	+37.1	62.0
42	28 01.4	+29.8	57.1	29 05.7	+31.6	58.0	30 08.4	+33.2	59.0	31 09.3	+34.9	60.0	32 08.2	+36.7	61.1
43	28 31.2	+29.4	56.1	29 37.3	+31.1	57.1	30 41.6	+32.9	58.0	31 44.2	+34.6	59.1	32 44.9	+36.3	60.2
44	29 00.6	+28.9	55.1	30 08.4	+30.6	56.1	31 14.5	+32.4	57.1	32 18.8	+34.1	58.1	33 21.2	+35.9	59.2
45	29 29.5	+28.5	54.1	30 39.0	+30.3	55.1	31 46.9	+31.9	56.1	32 52.9	+33.7	57.1	33 57.1	+35.4	58.3
46	29 58.0	+28.1	53.1	31 09.3	+29.7	54.1	32 18.8	+31.5	55.1	33 26.6	+33.2	56.1	34 32.5	+34.9	57.3
47	30 26.1	+27.5	52.1	31 39.0	+29.2	53.1	32 50.3	+30.9	54.1	33 59.8	+32.7	55.1	35 07.4	+34.4	56.3
48	30 53.6	+27.0	51.1	32 08.2	+28.8	52.0	33 21.2	+30.5	53.0	34 32.5	+32.1	54.1	35 41.8	+33.9	55.3
49	31 20.6	+26.6	50.0	32 37.0	+28.2	51.0	33 51.7	+29.9	52.0	35 04.6	+31.7	53.1	36 15.7	+33.4	54.3
50	31 47.2	+26.0	49.0	33 05.2	+27.7	49.9	34 21.6	+29.4	51.0	35 36.3	+31.1	52.1	36 49.1	+32.9	53.2
51	32 13.2	+25.5	47.9	33 32.9	+27.1	48.9	34 51.0	+28.8	49.9	36 07.4	+30.6	51.0	37 22.0	+32.3	52.2
52	32 38.7	+24.9	46.8	34 00.0	+26.6	47.8	35 19.8	+28.3	48.8	36 38.0	+29.9	49.9	37 54.3	+31.7	51.1
53	33 03.6	+24.3	45.8	34 26.6	+26.0	46.7	35 48.1	+27.6	47.7	37 07.9	+29.4	48.9	38 26.0	+31.0	50.0
54	33 27.9	+23.8	44.7	34 52.6	+25.4	45.6	36 15.7	+27.1	46.7	37 37.3	+28.7	47.8	38 57.0	+30.5	48.9
55	33 51.7	+23.2	43.6	35 18.0	+24.8	44.5	36 42.8	+26.4	45.5	38 06.0	+28.1	46.6	39 27.5	+29.8	47.8
56	34 14.9	+22.5	42.4	35 42.8	+24.1	43.4	37 09.2	+25.8	44.4	38 34.1	+27.5	45.5	39 57.3	+29.2	46.7
57	34 37.4	+22.0	41.3	36 06.9	+23.5	42.3	37 35.0	+25.1	43.3	39 01.6	+26.8	44.4	40 26.5	+28.5	45.6
58	34 59.4	+21.3	40.2	36 30.4	+22.9	41.1	38 00.1	+24.5	42.1	39 28.4	+26.1	43.2	40 55.0	+27.8	44.4
59	35 20.7	+20.7	39.0	36 53.3	+22.2	40.0	38 24.6	+23.7	41.0	39 54.5	+25.3	42.1	41 22.8	+27.0	43.2
60	35 41.4	+19.9	37.9	37 15.5	+21.5	38.8	38 48.3	+23.1	39.8	40 19.8	+24.7	40.9	41 49.8	+26.3	42.0
61	36 01.3	+19.4	36.7	37 37.0	+20.7	37.6	39 11.4	+22.3	38.6	40 44.5	+23.8	39.7	42 16.1	+25.5	40.8
62	36 20.7	+18.6	35.6	37 57.7	+20.1	36.4	39 33.7	+21.5	37.4	41 08.3	+23.1	38.5	42 41.6	+24.7	39.6
63	36 39.3	+17.9	34.4	38 17.8	+19.3	35.2	39 55.2	+20.8	36.2	41 31.4	+22.4	37.2	43 06.3	+23.9	38.3
64	36 57.2	+17.2	33.2	38 37.1	+18.6	34.0	40 16.0	+20.0	35.0	41 53.8	+21.5	36.0	43 30.2	+23.0	37.1
65	37 14.4	+16.4	32.0	38 55.7	+17.8	32.8	40 36.0	+19.2	33.7	42 15.3	+20.6	34.7	43 53.2	+22.2	35.8
66	37 30.8	+15.7	30.8	39 13.5	+17.0	31.6	40 55.2	+18.4	32.5	42 35.9	+19.8	33.4	44 15.4	+21.3	34.5
67	37 46.5	+15.0	29.5	39 30.5	+16.2	30.3	41 13.6	+17.6	31.2	42 55.7	+19.0	32.2	44 36.7	+20.4	33.2
68	38 01.5	+14.2	28.3	39 46.7	+15.4	29.1	41 31.2	+16.7	29.9	43 14.7	+18.0	30.9	44 57.1	+19.5	31.9
69	38 15.7	+13.4	27.1	40 02.1	+14.6	27.8	41 47.9	+15.8	28.7	43 32.7	+17.2	29.6	45 16.6	+18.5	30.5
70	38 29.1	+12.6	25.8	40 16.7	+13.8	26.6	42 03.7	+14.9	27.4	43 49.9	+16.2	28.2	45 35.1	+17.6	29.2
71	38 41.7	+11.8	24.6	40 30.5	+12.9	25.3	42 18.6	+14.1	26.1	44 06.1	+15.2	26.9	45 52.7	+16.5	27.8
72	38 53.5	+10.9	23.3	40 43.4	+12.0	24.0	42 32.7	+13.1	24.7	44 21.3	+14.3	25.5	46 09.2	+15.5	26.4
73	39 04.4	+10.2	22.1	40 55.4	+11.2	22.7	42 45.8	+12.2	23.4	44 35.6	+13.4	24.2	46 24.7	+14.5	25.0
74	39 14.6	+9.3	20.8	41 06.6	+10.2	21.4	42 58.0	+11.3	22.1	44 49.0	+12.3	22.8	46 39.2	+13.5	23.6
75	39 23.9	+8.5	19.5	41 16.8	+9.4	20.1	43 09.3	+10.3	20.7	45 01.3	+11.3	21.4	46 52.7	+12.4	22.2
76	39 32.4	+7.7	18.2	41 26.2	+8.5	18.8	43 19.6	+9.4	19.4	45 12.6	+10.3	20.0	47 05.1	+11.3	20.8
77	39 40.1	+6.7	16.9	41 34.7	+7.6	17.5	43 29.0	+8.4	18.0	45 22.9	+9.3	18.6	47 16.4	+10.2	19.3
78	39 46.8	+6.0	15.7	41 42.3	+6.6	16.1	43 37.4	+7.4	16.6	45 32.2	+8.2	17.2	47 26.6	+9.1	17.9
79	39 52.8	+5.0	14.4	41 48.9	+5.7	14.8	43 44.8	+6.4	15.3	45 40.4	+7.2	15.8	47 35.7	+8.0	16.4
80	39 57.8	+4.2	13.1	41 54.6	+4.8	13.5	43 51.2	+5.4	13.9	45 47.6	+6.1	14.4	47 43.7	+6.8	14.9
81	40 02.0	+3.3	11.8	41 59.4	+3.9	12.1	43 56.6	+4.5	12.5	45 53.7	+5.0	13.0	47 50.5	+5.7	13.4
82	40 05.3	+2.4	10.5	42 03.3	+2.9	10.8	44 01.1	+3.4	11.1	45 58.7	+4.0	11.5	47 56.2	+4.6	12.0
83	40 07.7	+1.6	9.1	42 06.2	+1.9	9.4	44 04.5	+2.4	9.7	46 02.7	+2.9	10.1	48 00.8	+3.4	10.5
84	40 09.3	+0.6	7.8	42 08.1	+1.0	8.1	44 06.9	+1.4	8.4	46 05.6	+1.8	8.6	48 04.2	+2.2	9.0
85	40 09.9	-0.2	6.5	42 09.1	+0.1	6.7	44 08.3	+0.4	7.0	46 07.4	+0.7	7.2	48 06.4	+1.0	7.5
86	40 09.7	-1.1	5.2	42 09.2	-0.9	5.4	44 08.7	-0.7	5.6	46 08.1	-0.4	5.8	48 07.4	-0.1	6.0
87	40 08.6	-2.0	3.9	42 08.3	-1.8	4.0	44 08.0	-1.6	4.2	46 07.7	-1.5	4.3	48 07.3	-1.3	4.5
88	40 06.6	-2.9	2.6	42 06.5	-2.8	2.7	44 06.4	-2.7	2.8	46 06.2	-2.6	2.9	48 06.0	-2.4	3.0
89	40 03.7	-3.7	1.3	42 03.7	-3.7	1.3	44 03.7	-3.7	1.4	46 03.6	-3.6	1.4	48 03.6	-3.6	1.5
90	40 00.0	-4.6	0.0	42 00.0	-4.7	0.0	44 00.0	-4.7	0.0	46 00.0	-4.7	0.0	48 00.0	-4.8	0.0
	40°			42°			44°			46°			48°		

LATITUDE CONTRARY NAME

L.H.A. 86°, 274°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.					
15	58.1	+36.3	64.0	16	50.3	+37.9	64.5	17	41.4	+39.4	65.1	18	31.5	+40.8	65.7	19	20.3	+42.3	66.3	30
16	34.4	+36.2	63.1	17	28.2	+37.6	63.7	18	20.8	+39.2	64.3	19	12.3	+40.7	64.9	20	02.6	+42.2	65.5	31
17	10.6	+35.9	62.3	18	05.8	+37.5	62.9	19	00.0	+38.9	63.5	20	53.0	+40.4	64.1	21	44.8	+41.9	64.8	32
17	46.5	+35.7	61.5	18	43.3	+37.2	62.1	19	38.9	+38.8	62.7	20	33.4	+40.3	63.3	21	26.7	+41.7	64.0	33
18	22.2	+35.4	60.6	19	20.5	+37.0	61.2	20	17.7	+38.5	61.9	21	13.7	+40.0	62.5	22	08.4	+41.5	63.2	34
18	57.6	+35.3	59.8	19	57.5	+36.8	60.4	20	56.2	+38.3	61.0	21	53.7	+39.8	61.7	22	49.9	+41.2	62.5	35
19	32.9	+34.9	58.9	20	34.3	+36.5	59.5	21	34.5	+38.0	60.2	22	33.5	+39.5	60.9	23	31.1	+41.0	61.7	36
20	07.8	+34.8	58.1	21	10.8	+36.2	58.7	22	12.5	+37.8	59.4	23	13.0	+39.3	60.1	24	12.1	+40.8	60.9	37
20	42.6	+34.4	57.2	21	47.0	+36.0	57.8	22	50.3	+37.5	58.5	23	52.3	+39.0	59.3	24	52.9	+40.5	60.1	38
21	17.0	+34.2	56.3	22	23.0	+35.8	57.0	23	27.8	+37.3	57.7	24	31.3	+38.7	58.4	25	33.4	+40.2	59.2	39
21	51.2	+33.9	55.4	22	58.8	+35.4	56.1	24	05.1	+36.9	56.8	25	10.0	+38.5	57.6	26	13.6	+40.0	58.4	40
22	25.1	+33.7	54.5	23	34.2	+35.1	55.2	24	42.0	+36.6	56.0	25	48.5	+38.1	56.7	26	53.6	+39.6	57.6	41
22	58.8	+33.3	53.6	24	09.3	+34.8	54.3	25	18.6	+36.4	55.1	26	26.6	+37.9	55.9	27	33.2	+39.3	56.7	42
23	32.1	+33.0	52.7	24	44.1	+34.5	53.4	25	55.0	+36.0	54.2	27	04.5	+37.5	55.0	28	12.5	+39.0	55.9	43
24	05.1	+32.6	51.8	25	18.6	+34.2	52.5	26	31.0	+35.7	53.3	27	42.0	+37.2	54.1	28	51.5	+38.7	55.0	44
24	37.7	+32.3	50.9	25	52.8	+33.8	51.6	27	06.7	+35.3	52.4	28	19.2	+36.8	53.3	29	30.2	+38.3	54.1	45
25	10.0	+32.0	50.0	26	26.6	+33.5	50.7	27	42.0	+34.9	51.5	28	56.0	+36.5	52.4	30	08.5	+38.0	53.3	46
25	42.0	+31.6	49.0	27	00.1	+33.1	49.8	28	16.9	+34.6	50.6	29	32.5	+36.0	51.4	30	46.5	+37.6	52.4	47
26	13.6	+31.3	48.1	27	33.2	+32.7	48.8	28	51.5	+34.2	49.7	30	08.5	+35.7	50.5	31	24.1	+37.2	51.4	48
26	44.9	+30.8	47.1	28	05.9	+32.3	47.9	29	25.7	+33.8	48.7	30	44.2	+35.3	49.6	32	01.3	+36.8	50.5	49
27	15.7	+30.5	46.2	28	38.2	+31.9	46.9	29	59.5	+33.4	47.8	31	19.5	+34.8	48.6	32	38.1	+36.3	49.6	50
27	46.2	+30.0	45.2	29	10.1	+31.5	46.0	30	32.9	+33.0	46.8	31	54.4	+34.4	47.7	33	14.4	+36.0	48.6	51
28	16.2	+29.6	44.2	29	41.6	+31.1	45.0	31	05.9	+32.5	45.8	32	28.8	+34.0	46.7	33	50.4	+35.5	47.7	52
28	45.8	+29.2	43.2	30	12.7	+30.6	44.0	31	38.4	+32.1	44.8	33	02.8	+33.5	45.7	34	25.9	+35.0	46.7	53
29	15.0	+28.7	42.2	30	43.3	+30.1	43.0	32	10.5	+31.5	43.8	33	36.3	+33.1	44.8	35	00.9	+34.5	45.7	54
29	43.7	+28.3	41.2	31	13.4	+29.7	42.0	32	42.0	+31.1	42.8	34	09.4	+32.5	43.7	35	35.4	+34.0	44.7	55
30	12.0	+27.8	40.2	31	43.1	+29.2	41.0	33	13.1	+30.6	41.8	34	41.9	+32.1	42.7	36	09.4	+33.5	43.7	56
30	39.8	+27.3	39.2	32	12.3	+28.7	39.9	33	43.7	+30.1	40.8	35	14.0	+31.5	41.7	36	42.9	+32.9	42.7	57
31	07.1	+26.8	38.1	32	41.0	+28.1	38.9	34	13.8	+29.5	39.7	35	45.5	+30.9	40.6	37	15.8	+32.4	41.6	58
31	33.9	+26.2	37.1	33	09.1	+27.6	37.9	34	43.3	+29.0	38.7	36	16.4	+30.4	39.6	37	48.2	+31.8	40.6	59
32	00.1	+25.8	36.0	33	36.7	+27.1	36.8	35	12.3	+28.4	37.6	36	46.8	+29.8	38.5	38	20.0	+31.2	39.5	60
32	25.9	+25.2	35.0	34	03.8	+26.5	35.7	35	40.7	+27.8	36.5	37	16.6	+29.2	37.4	38	51.2	+30.6	38.4	61
32	51.1	+24.6	33.9	34	30.3	+25.9	34.6	36	08.5	+27.2	35.4	38	14.3	+28.5	36.3	39	21.8	+30.0	37.3	62
33	15.7	+24.1	32.8	34	56.2	+25.3	33.5	36	35.7	+26.6	34.3	38	14.3	+27.9	35.2	39	51.8	+29.3	36.2	63
33	39.8	+23.5	31.7	35	21.5	+24.7	32.4	37	02.3	+26.0	33.2	38	42.2	+27.3	34.1	40	21.1	+28.6	35.0	64
34	03.3	+22.8	30.6	35	46.2	+24.1	31.3	37	28.3	+25.3	32.1	39	09.5	+26.6	32.9	40	49.7	+27.9	33.9	65
34	26.1	+22.3	29.5	36	10.3	+23.4	30.2	37	53.6	+24.6	30.9	39	36.1	+25.9	31.8	41	17.6	+27.2	32.7	66
34	48.4	+21.6	28.3	36	33.7	+22.7	29.0	38	18.2	+24.0	29.8	40	02.0	+25.1	30.6	41	44.8	+26.4	31.5	67
35	10.0	+21.0	27.2	36	56.4	+22.1	27.9	38	42.2	+23.2	28.6	40	27.1	+24.4	29.4	42	11.2	+25.7	30.3	68
35	31.0	+20.3	26.1	37	18.5	+21.4	26.7	39	05.4	+22.5	27.4	40	51.5	+23.7	28.2	42	36.9	+24.8	29.1	69
35	51.3	+19.7	24.9	37	39.9	+20.7	25.5	39	27.9	+21.7	26.2	41	15.2	+22.9	27.0	43	01.7	+24.1	27.8	70
36	11.0	+19.0	23.7	38	00.6	+20.0	24.3	39	49.6	+21.0	25.0	41	38.1	+22.0	25.8	43	25.8	+23.2	26.6	71
36	30.0	+18.2	22.5	38	20.6	+19.2	23.1	40	10.6	+20.2	23.8	42	00.1	+21.3	24.5	43	49.0	+22.3	25.3	72
36	48.2	+17.6	21.4	38	39.8	+18.4	21.9	40	30.8	+19.5	22.6	42	21.4	+20.4	23.2	44	11.3	+21.5	24.0	73
37	05.8	+16.8	20.2	38	58.2	+17.7	20.7	40	50.3	+18.6	21.3	42	41.8	+19.6	22.0	44	32.8	+20.6	22.7	74
37	22.6	+16.1	19.0	39	15.9	+16.9	19.5	41	08.9	+17.7	20.1	43	01.4	+18.6	20.7	44	53.4	+19.6	21.4	75
37	38.7	+15.3	17.7	39	32.8	+16.1	18.2	41	26.6	+16.9	18.8	43	20.0	+17.8	19.4	45	13.0	+18.7	20.0	76
37	54.0	+14.6	16.5	39	48.9	+15.3	17.0	41	43.5	+16.1	17.5	43	37.8	+16.9	18.1	45	31.7	+17.7	18.7	77
38	08.6	+13.8	15.3	40	04.2	+14.5	15.7	41	59.6	+15.2	16.2	43	54.7	+15.9	16.7	45	49.4	+16.8	17.3	78
38	22.4	+13.0	14.1	40	18.7	+13.6	14.5	42	14.8	+14.3	14.9	44	10.6	+15.0	15.4	46	06.2	+15.7	15.9	79
38	35.4	+12.2	12.8	40	32.3	+12.8	13.2	42	29.1	+13.4	13.6	44	25.6	+14.0	14.0	46	21.9	+14.7	14.5	80
38	47.6	+11.4	11.5	40	45.1	+11.9	11.9	42	42.5	+12.4	12.3	44	39.6	+13.1	12.7	46	36.6	+13.6	13.1	81
38	59.0	+10.6	10.3	40	57.0	+11.1	10.6	42	54.9	+11.5	10.9	44	52.7	+12.0	11.3	46	50.2	+12.6	11.7	82
39	09.6	+9.7	9.0	41	08.1	+10.1	9.3	43	06.4	+10.6	9.6	45	04.7	+11.0	9.9	47	02.8	+11.6	10.3	83
39	19.3	+8.9	7.7	41	18.2	+9.3	8.0	43	17.0	+9.6	8.2	45	15.7	+10.0	8.5	47	14.4	+10.4	8.8	84
39	28.2	+8.1	6.5	41	27.5	+8.3	6.7	43	26.6	+8.7	6.9	45	25.7	+9.0	7.1	47	24.8	+9.3	7.4	85
39	36.3	+7.2	5.2	41	35.8	+7.4	5.3	43	35.3	+7.6	5.5	45	34.7	+7.9	5.7	47	34.1	+8.2	5.9	86
39	43.5	+6.4	3.9	41	43.2	+6.6	4.0	43	42.9	+6.7	4.1	45	42.6	+6.9	4.3	47	42.3	+7.0	4.4	87
39	49.9	+5.5	2.6	41	49.8	+5.5	2.7	43	49.6	+5.7	2.8	45	49.5	+5.8	2.9	47	49.3	+5.9	3.0	88
39	55.4	+4.6	1.3	41	55.3	+4.7	1.3	43	55.3	+4.7	1.4	45	55.3	+4.7	1.4	47	55.2	+4.8	1.5	89
40	00.0	+3.7	0.0	42	00.0	+3.7	0.0	44	00.0	+3.7	0.0	46	00.0	+3.6	0.0	48	00.0	+3.6	0.0	90
	40°			42°				44°				46°				48°				

LATITUDE SAME NAME

L.H.A. 94°, 266°

86°, 274° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	24 57.1	+42.3	72.3	25 32.6	+43.9	73.2	26 06.3	+45.3	74.2	26 38.1	+46.8	75.1	27 07.9	+48.2	76.1
31	25 39.4	+42.0	71.6	26 16.5	+43.5	72.5	26 51.6	+45.1	73.4	27 24.9	+46.5	74.4	27 56.1	+47.9	75.4
32	26 21.4	+41.8	70.8	27 00.0	+43.4	71.7	27 36.7	+44.9	72.7	28 11.4	+46.4	73.7	28 44.0	+47.8	74.7
33	27 03.2	+41.5	70.0	27 43.4	+43.1	70.9	28 21.6	+44.6	71.9	28 57.8	+46.1	73.0	29 31.8	+47.6	74.1
34	27 44.7	+41.2	69.1	28 26.5	+42.8	70.1	29 06.2	+44.4	71.2	29 43.9	+45.8	72.2	30 19.4	+47.3	73.4
35	28 25.9	+40.9	68.3	29 09.3	+42.5	69.3	29 50.6	+44.0	70.4	30 29.7	+45.6	71.5	31 06.7	+47.0	72.6
36	29 06.8	+40.6	67.5	29 51.8	+42.2	68.5	30 34.6	+43.8	69.6	31 15.3	+45.4	70.7	31 53.7	+46.9	71.9
37	29 47.4	+40.3	66.6	30 34.0	+41.9	67.7	31 18.4	+43.5	68.8	32 00.7	+45.0	70.0	32 40.6	+46.5	71.2
38	30 27.7	+39.9	65.8	31 15.9	+41.5	66.9	32 01.9	+43.2	68.0	32 45.7	+44.7	69.2	33 27.1	+46.3	70.4
39	31 07.6	+39.6	64.9	31 57.4	+41.3	66.0	32 45.1	+42.8	67.2	33 30.4	+44.5	68.4	34 13.4	+46.0	69.7
40	31 47.2	+39.2	64.0	32 38.7	+40.8	65.2	33 27.9	+42.5	66.4	34 14.9	+44.1	67.6	34 59.4	+45.7	68.9
41	32 26.4	+38.8	63.1	33 19.5	+40.5	64.3	34 10.4	+42.2	65.5	34 59.0	+43.8	66.8	35 45.1	+45.3	68.1
42	33 05.2	+38.4	62.2	34 00.0	+40.1	63.4	34 52.6	+41.8	64.6	35 42.8	+43.4	65.9	36 30.4	+45.1	67.3
43	33 43.6	+38.0	61.3	34 40.1	+39.7	62.5	35 34.4	+41.3	63.8	36 26.2	+43.0	65.1	37 15.5	+44.6	66.4
44	34 21.6	+37.6	60.4	35 19.8	+39.3	61.6	36 15.7	+41.0	62.9	37 09.2	+42.7	64.2	38 00.1	+44.4	65.6
45	34 59.2	+37.1	59.4	35 59.1	+38.9	60.7	36 56.7	+40.6	62.0	37 51.9	+42.2	63.3	38 44.5	+43.9	64.7
46	35 36.3	+36.7	58.5	36 38.0	+38.3	59.7	37 37.3	+40.1	61.0	38 34.1	+41.9	62.4	39 28.4	+43.5	63.9
47	36 13.0	+36.1	57.5	37 16.3	+38.0	58.8	38 17.4	+39.6	60.1	39 16.0	+41.3	61.5	40 11.9	+43.1	63.0
48	36 49.1	+35.7	56.5	37 54.3	+37.4	57.8	38 57.0	+39.2	59.1	39 57.3	+41.0	60.6	40 55.0	+42.6	62.0
49	37 24.8	+35.1	55.5	38 31.7	+36.9	56.8	39 36.2	+38.7	58.1	40 38.3	+40.4	59.6	41 37.6	+42.2	61.1
50	37 59.9	+34.6	54.5	39 08.6	+36.3	55.8	40 14.9	+38.1	57.2	41 18.7	+39.9	58.6	42 19.8	+41.7	60.2
51	38 34.5	+34.1	53.4	39 44.9	+35.9	54.7	40 53.0	+37.6	56.1	41 58.6	+39.4	57.6	43 01.5	+41.2	59.2
52	39 08.6	+33.4	52.4	40 20.8	+35.2	53.7	41 30.6	+37.1	55.1	42 38.0	+38.8	56.6	43 42.7	+40.6	58.2
53	39 42.0	+32.9	51.3	40 56.0	+34.6	52.6	42 07.7	+36.4	54.0	43 16.8	+38.3	55.6	44 23.3	+40.1	57.2
54	40 14.9	+32.2	50.2	41 30.6	+34.0	51.5	42 44.1	+35.8	53.0	43 55.1	+37.7	54.5	45 03.4	+39.5	56.1
55	40 47.1	+31.6	49.1	42 04.6	+33.4	50.4	43 19.9	+35.2	51.9	44 32.8	+37.0	53.4	45 42.9	+38.9	55.0
56	41 18.7	+30.9	48.0	42 38.0	+32.7	49.3	43 55.1	+34.5	50.8	45 09.8	+36.3	52.3	46 21.8	+38.3	53.9
57	41 49.6	+30.2	46.8	43 10.7	+32.0	48.2	44 29.6	+33.8	49.6	45 46.1	+35.7	51.2	47 00.1	+37.5	52.8
58	42 19.8	+29.5	45.6	43 42.7	+31.3	47.0	45 03.4	+33.1	48.4	46 21.8	+35.0	50.0	47 37.6	+36.9	51.7
59	42 49.3	+28.8	44.5	44 14.0	+30.5	45.8	45 36.5	+32.4	47.3	46 56.8	+34.2	48.8	48 14.5	+36.1	50.5
60	43 18.1	+28.0	43.3	44 44.5	+29.7	44.6	46 08.9	+31.5	46.1	47 31.0	+33.4	47.6	48 50.6	+35.4	49.3
61	43 46.1	+27.2	42.0	45 14.2	+29.0	43.4	46 40.4	+30.8	44.8	48 04.4	+32.6	46.4	49 26.0	+34.5	48.0
62	44 13.3	+26.3	40.8	45 43.2	+28.1	42.1	47 11.2	+29.9	43.6	48 37.0	+31.8	45.1	50 00.5	+33.7	46.8
63	44 39.6	+25.6	39.5	46 11.3	+27.3	40.9	47 41.1	+29.0	42.3	49 08.8	+30.9	43.8	50 34.2	+32.8	45.5
64	45 05.2	+24.7	38.3	46 38.6	+26.3	39.6	48 10.1	+28.2	41.0	49 39.7	+30.0	42.5	51 07.0	+31.9	44.2
65	45 29.9	+23.7	37.0	47 04.9	+25.5	38.3	48 38.3	+27.2	39.6	50 09.7	+29.0	41.2	51 38.9	+30.9	42.8
66	45 53.6	+22.9	35.7	47 30.4	+24.5	36.9	49 05.5	+26.2	38.3	50 38.7	+28.0	39.8	52 09.8	+29.9	41.4
67	46 16.5	+21.9	34.3	47 54.9	+23.5	35.6	49 31.7	+25.2	36.9	51 06.7	+27.0	38.4	52 39.7	+28.9	40.0
68	46 38.4	+21.0	33.0	48 18.4	+22.5	34.2	49 56.9	+24.2	35.5	51 33.7	+26.0	36.9	53 08.6	+27.8	38.5
69	46 59.4	+20.0	31.6	48 40.9	+21.5	32.8	50 21.1	+23.1	34.1	51 59.7	+24.8	35.5	53 36.4	+26.7	37.1
70	47 19.4	+18.9	30.2	49 02.4	+20.5	31.4	50 44.2	+22.1	32.6	52 24.5	+23.7	34.0	54 03.1	+25.5	35.5
71	47 38.3	+17.9	28.8	49 22.9	+19.3	29.9	51 06.3	+20.8	31.1	52 48.2	+22.6	32.5	54 28.6	+24.3	34.0
72	47 56.2	+16.9	27.4	49 42.2	+18.3	28.5	51 27.1	+19.8	29.6	53 10.8	+21.3	31.0	54 52.9	+23.0	32.4
73	48 13.1	+15.7	26.0	50 00.5	+17.1	27.0	51 46.9	+18.5	28.1	53 32.1	+20.1	29.4	55 15.9	+21.8	30.8
74	48 28.8	+14.7	24.5	50 17.6	+15.9	25.5	52 05.4	+17.3	26.6	53 52.2	+18.7	27.8	55 37.7	+20.3	29.1
75	48 43.5	+13.5	23.0	50 33.5	+14.8	24.0	52 22.7	+16.1	25.0	54 10.9	+17.5	26.2	55 58.0	+19.0	27.5
76	48 57.0	+12.4	21.6	50 48.3	+13.5	22.4	52 38.8	+14.8	23.4	54 28.4	+16.1	24.5	56 17.0	+17.6	25.8
77	49 09.4	+11.2	20.1	51 01.8	+12.3	20.9	52 53.6	+13.4	21.8	54 44.5	+14.8	22.9	56 34.6	+16.1	24.0
78	49 20.6	+10.0	18.6	51 14.1	+11.0	19.3	53 07.0	+12.2	20.2	54 59.3	+13.3	21.2	56 50.7	+14.7	22.3
79	49 30.6	+8.9	17.0	51 25.1	+9.8	17.8	53 19.2	+10.7	18.6	55 12.6	+11.9	19.5	57 05.4	+13.1	20.5
80	49 39.5	+7.6	15.5	51 34.9	+8.5	16.2	53 29.9	+9.4	16.9	55 24.5	+10.4	17.8	57 18.5	+11.5	18.7
81	49 47.1	+6.4	14.0	51 43.4	+7.2	14.6	53 39.3	+8.1	15.3	55 34.9	+8.9	16.0	57 30.0	+9.9	16.9
82	49 53.5	+5.2	12.4	51 50.6	+5.8	13.0	53 47.4	+6.6	13.6	55 43.8	+7.5	14.3	57 39.9	+8.3	15.0
83	49 58.7	+3.9	10.9	51 56.4	+4.6	11.4	53 54.0	+5.1	11.9	55 51.3	+5.8	12.5	57 48.2	+6.7	13.2
84	50 02.6	+2.7	9.3	52 01.0	+3.2	9.8	53 59.1	+3.8	10.2	55 57.1	+4.4	10.7	57 54.9	+5.1	11.3
85	50 05.3	+1.5	7.8	52 04.2	+1.8	8.1	54 02.9	+2.3	8.5	56 01.5	+2.8	9.0	58 00.0	+3.3	9.4
86	50 06.8	+0.1	6.2	52 06.0	+0.5	6.5	54 05.2	+0.9	6.8	56 04.3	+1.3	7.2	58 03.3	+1.7	7.6
87	50 06.9	-1.0	4.7	52 06.5	-0.8	4.9	54 06.1	-0.6	5.1	56 05.6	-0.3	5.4	58 05.0	0.0	5.7
88	50 05.9	-2.3	3.1	52 05.7	-2.2	3.2	54 05.5	-2.0	3.4	56 05.3	-1.9	3.6	58 05.0	-1.7	3.8
89	50 03.6	-3.6	1.6	52 03.5	-3.5	1.6	54 03.5	-3.5	1.7	56 03.4	-3.4	1.8	58 03.3	-3.3	1.9
90	50 00.0	-4.8	0.0	52 00.0	-4.9	0.0	54 00.0	-4.9	0.0	56 00.0	-5.0	0.0	58 00.0	-5.0	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 86°, 274°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
20 07.9	+43.8	66.9	20 54.3	+45.1	67.6	21 39.2	+46.5	68.4	22 22.8	+47.7	69.1	23 04.8	+49.0	69.9	30
20 51.7	+43.5	66.2	21 39.4	+44.9	66.9	22 25.7	+46.3	67.7	23 10.5	+47.6	68.5	23 53.8	+48.9	69.3	31
21 35.2	+43.4	65.5	22 24.3	+44.8	66.2	23 12.0	+46.1	67.0	23 58.1	+47.5	67.8	24 42.7	+48.7	68.6	32
22 18.6	+43.1	64.7	23 09.1	+44.5	65.5	23 58.1	+45.9	66.3	24 45.6	+47.2	67.1	25 31.4	+48.5	68.0	33
23 01.7	+43.0	64.0	23 53.6	+44.4	64.8	24 44.0	+45.8	65.6	25 32.8	+47.1	66.4	26 19.9	+48.4	67.3	34
23 44.7	+42.7	63.2	24 38.0	+44.1	64.0	25 29.8	+45.5	64.9	26 19.9	+46.8	65.7	27 08.3	+48.2	66.7	35
24 27.4	+42.4	62.4	25 22.1	+43.9	63.3	26 15.3	+45.3	64.1	27 06.7	+46.7	65.1	27 56.5	+47.9	66.0	36
25 09.8	+42.2	61.7	26 06.0	+43.6	62.5	27 00.6	+45.0	63.4	27 53.4	+46.4	64.3	28 44.4	+47.8	65.3	37
25 52.0	+42.0	60.9	26 49.6	+43.5	61.8	27 45.6	+44.8	62.7	28 39.8	+46.2	63.6	29 32.2	+47.5	64.6	38
26 34.0	+41.7	60.1	27 33.1	+43.1	61.0	28 30.4	+44.6	61.9	29 26.0	+46.0	62.9	30 19.7	+47.4	63.9	39
27 15.7	+41.4	59.3	28 16.2	+42.9	60.2	29 15.0	+44.3	61.1	30 12.0	+45.7	62.2	31 07.1	+47.0	63.2	40
27 57.1	+41.1	58.5	28 59.1	+42.5	59.4	29 59.3	+44.0	60.4	30 57.7	+45.4	61.4	31 54.1	+46.9	62.5	41
28 38.2	+40.8	57.6	29 41.6	+42.3	58.6	30 43.3	+43.7	59.6	31 43.1	+45.2	60.6	32 41.0	+46.5	61.7	42
29 19.0	+40.5	56.8	30 23.9	+42.0	57.8	31 27.0	+43.5	58.8	32 28.3	+44.8	59.9	33 27.5	+46.3	61.0	43
29 59.5	+40.2	55.9	31 05.9	+41.6	56.9	32 10.5	+43.1	58.0	33 13.1	+44.6	59.1	34 13.8	+46.0	60.2	44
30 39.7	+39.8	55.1	31 47.5	+41.3	56.1	32 53.6	+42.7	57.1	33 57.7	+44.2	58.3	34 59.8	+45.7	59.4	45
31 19.5	+39.5	54.2	32 28.8	+41.0	55.2	33 36.3	+42.5	56.3	34 41.9	+43.9	57.4	35 45.5	+45.3	58.6	46
31 59.0	+39.1	53.3	33 09.8	+40.6	54.4	34 18.8	+42.1	55.5	35 25.8	+43.6	56.6	36 30.4	+45.0	57.8	47
32 38.1	+38.7	52.4	33 50.4	+40.2	53.5	35 00.9	+41.7	54.6	36 09.4	+43.2	55.8	37 15.8	+44.7	57.0	48
33 16.8	+38.3	51.5	34 30.6	+39.8	52.6	35 42.6	+41.3	53.7	36 52.6	+42.8	54.9	38 00.5	+44.3	56.2	49
33 55.1	+37.8	50.6	35 10.4	+39.4	51.7	36 23.9	+40.9	52.8	37 35.4	+42.4	54.0	38 44.8	+43.9	55.3	50
34 32.9	+37.5	49.7	35 49.8	+38.9	50.7	37 04.8	+40.4	51.9	38 17.8	+42.0	53.1	39 28.7	+43.5	54.4	51
35 10.4	+37.0	48.7	36 28.7	+38.5	49.8	37 45.2	+40.1	51.0	38 59.8	+41.6	52.2	40 12.2	+43.1	53.5	52
35 47.4	+36.5	47.8	37 07.2	+38.0	48.8	38 25.3	+39.5	50.0	39 41.4	+41.1	51.3	40 55.3	+42.7	52.6	53
36 23.9	+36.0	46.8	37 45.2	+37.6	47.9	39 04.8	+39.1	49.1	40 22.5	+40.6	50.3	41 38.0	+42.2	51.7	54
36 59.9	+35.5	45.8	38 22.8	+37.0	46.9	39 43.9	+38.6	48.1	41 03.1	+40.1	49.4	42 20.2	+41.7	50.7	55
37 35.4	+35.0	44.7	38 59.8	+36.5	45.9	40 22.5	+38.0	47.1	41 43.2	+39.6	48.4	43 01.9	+41.1	49.7	56
38 10.4	+34.4	43.7	39 36.3	+35.9	44.8	41 00.5	+37.5	46.1	42 22.8	+39.1	47.4	43 43.0	+40.7	48.7	57
38 44.8	+33.9	42.7	40 12.2	+35.4	43.8	41 38.0	+36.9	45.0	43 01.9	+38.4	46.3	44 23.7	+40.1	47.7	58
39 18.7	+33.3	41.6	40 47.6	+34.8	42.7	42 14.9	+36.3	44.0	43 40.3	+37.9	45.3	45 03.8	+39.5	46.7	59
39 52.0	+32.6	40.5	41 22.4	+34.2	41.7	42 51.2	+35.7	42.9	44 18.2	+37.3	44.2	45 43.3	+38.8	45.6	60
40 24.6	+32.1	39.4	41 56.6	+33.5	40.6	43 26.9	+35.1	41.8	44 55.5	+36.6	43.1	46 22.1	+38.3	44.5	61
40 56.7	+31.3	38.3	42 30.1	+32.8	39.4	44 02.0	+34.3	40.6	45 32.1	+36.0	42.0	47 00.4	+37.5	43.4	62
41 28.0	+30.7	37.2	43 02.9	+32.2	38.3	44 36.3	+33.7	39.5	46 08.1	+35.2	40.8	47 37.9	+36.9	42.2	63
41 58.7	+30.1	36.0	43 35.1	+31.5	37.1	45 10.0	+33.0	38.3	46 43.3	+34.5	39.6	48 14.8	+36.1	41.0	64
42 28.8	+29.2	34.9	44 06.6	+30.7	36.0	45 43.0	+32.2	37.1	47 17.8	+33.7	38.4	48 50.9	+35.3	39.8	65
42 58.0	+28.6	33.7	44 37.3	+29.9	34.8	46 15.2	+31.4	35.9	47 51.5	+33.0	37.2	49 26.2	+34.6	38.6	66
43 26.6	+27.7	32.5	45 07.2	+29.1	33.5	46 46.6	+30.6	34.7	48 24.5	+32.1	36.0	50 00.8	+33.7	37.3	67
43 54.3	+27.0	31.2	45 36.3	+28.4	32.3	47 17.2	+29.7	33.4	48 56.6	+31.2	34.7	50 34.5	+32.8	36.0	68
44 21.3	+26.1	30.0	46 04.7	+27.4	31.0	47 46.9	+28.9	32.1	49 27.8	+30.4	33.4	51 07.3	+31.8	34.7	69
44 47.4	+25.3	28.7	46 32.1	+26.6	29.7	48 15.8	+27.9	30.8	49 58.2	+29.3	32.0	51 39.1	+31.0	33.4	70
45 12.7	+24.4	27.5	46 58.7	+25.7	28.4	48 43.7	+27.0	29.5	50 27.5	+28.5	30.7	52 10.1	+29.9	32.0	71
45 37.1	+23.5	26.2	47 24.4	+24.7	27.1	49 10.7	+26.0	28.1	50 56.0	+27.4	29.3	52 40.0	+28.9	30.6	72
46 00.6	+22.6	24.8	47 49.1	+23.8	25.7	49 36.7	+25.1	26.8	51 23.4	+26.3	27.9	53 08.9	+27.8	29.1	73
46 23.2	+21.6	23.5	48 12.9	+22.8	24.4	50 01.8	+24.0	25.3	51 49.7	+25.3	26.4	53 36.7	+26.6	27.6	74
46 44.8	+20.7	22.1	48 35.7	+21.7	23.0	50 25.8	+22.9	23.9	52 15.0	+24.2	24.9	54 03.3	+25.5	26.1	75
47 05.5	+19.7	20.8	48 57.4	+20.7	21.6	50 48.7	+21.8	22.5	52 39.2	+23.0	23.4	54 28.8	+24.3	24.5	76
47 25.2	+18.6	19.4	49 18.1	+19.6	20.1	51 10.5	+20.6	21.0	53 02.2	+21.8	21.9	54 53.1	+23.0	23.0	77
47 43.8	+17.6	18.0	49 37.7	+18.5	18.7	51 31.1	+19.5	19.5	53 24.0	+20.5	20.4	55 16.1	+21.7	21.3	78
48 01.4	+16.5	16.5	49 56.2	+17.4	17.2	51 50.6	+18.3	17.9	53 44.5	+19.3	18.8	55 37.8	+20.4	19.7	79
48 17.9	+15.4	15.1	50 13.6	+16.2	15.7	52 08.9	+17.1	16.4	54 03.8	+18.0	17.2	55 58.2	+19.0	18.0	80
48 33.3	+14.4	13.6	50 29.8	+15.0	14.2	52 26.0	+15.8	14.8	54 21.8	+16.7	15.5	56 17.2	+17.6	16.3	81
48 47.7	+13.1	12.2	50 44.8	+13.9	12.7	52 41.8	+14.5	13.2	54 38.5	+15.2	13.9	56 34.8	+16.1	14.6	82
49 00.8	+12.1	10.7	50 58.7	+12.6	11.1	52 56.3	+13.2	11.6	54 53.7	+13.9	12.2	56 50.9	+14.6	12.8	83
49 12.9	+10.8	9.2	51 11.3	+11.3	9.6	53 09.5	+11.9	10.0	55 07.6	+12.4	10.5	57 05.5	+13.1	11.1	84
49 23.7	+9.7	7.7	51 22.6	+10.1	8.0	53 21.4	+10.5	8.4	55 20.0	+11.0	8.8	57 18.6	+11.5	9.3	85
49 33.4	+8.5	6.2	51 32.7	+8.8	6.4	53 31.9	+9.1	6.7	55 31.0	+9.5	7.1	57 30.1	+9.9	7.4	86
49 41.9	+7.3	4.6	51 41.5	+7.5	4.8	53 41.0	+7.8	5.1	55 40.5	+8.1	5.3	57 40.0	+8.3	5.6	87
49 49.2	+6.0	3.1	51 49.0	+6.1	3.2	53 48.8	+6.3	3.4	55 48.6	+6.4	3.6	57 48.3	+6.7	3.7	88
49 55.2	+4.8	1.5	51 55.1	+4.9	1.6	53 55.1	+4.9	1.7	55 55.0	+5.0	1.8	57 55.0	+5.0	1.9	89
50 00.0	+3.6	0.0	52 00.0	+3.5	0.0	54 00.0	+3.5	0.0	56 00.0	+3.4	0.0	58 00.0	+3.3	0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 94°, 266°

88°, 272° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	16 01.9	+26.0	64.2	16 53.6	+27.7	64.8	17 44.2	+29.5	65.3	18 33.8	+31.2	65.9	19 22.1	+32.9	66.6
31	16 27.9	+25.7	63.3	17 21.3	+27.5	63.8	18 13.7	+29.2	64.4	19 05.0	+30.9	65.0	19 55.0	+32.7	65.7
32	16 53.6	+25.5	62.3	17 48.8	+27.2	62.9	18 42.9	+28.9	63.5	19 35.9	+30.7	64.1	20 27.7	+32.3	64.8
33	17 19.1	+25.1	61.4	18 16.0	+26.9	62.0	19 11.8	+28.7	62.6	20 06.6	+30.3	63.2	21 00.0	+32.1	63.9
34	17 44.2	+24.9	60.4	18 42.9	+26.6	61.0	19 40.5	+28.4	61.6	20 36.9	+30.1	62.3	21 32.1	+31.8	63.0
35	18 09.1	+24.7	59.5	19 09.5	+26.4	60.1	20 08.9	+28.0	60.7	21 07.0	+29.8	61.4	22 03.9	+31.5	62.0
36	18 33.8	+24.3	58.5	19 35.9	+26.0	59.1	20 36.9	+27.8	59.8	21 36.8	+29.4	60.4	22 35.4	+31.1	61.1
37	18 58.1	+24.0	57.6	20 01.9	+25.8	58.2	21 04.7	+27.4	58.8	22 06.2	+29.2	59.5	23 06.5	+30.9	60.2
38	19 22.1	+23.7	56.6	20 27.7	+25.4	57.2	21 32.1	+27.1	57.8	22 35.4	+28.8	58.5	23 37.4	+30.4	59.3
39	19 45.8	+23.4	55.6	20 53.1	+25.1	56.2	21 59.2	+26.8	56.9	23 04.2	+28.4	57.6	24 07.8	+30.2	58.3
40	20 09.2	+23.1	54.6	21 18.2	+24.7	55.3	22 26.0	+26.4	55.9	23 32.6	+28.1	56.6	24 38.0	+29.8	57.4
41	20 32.3	+22.8	53.7	21 42.9	+24.4	54.3	22 52.4	+26.1	54.9	24 00.7	+27.8	55.7	25 07.8	+29.4	56.4
42	20 55.1	+22.4	52.7	22 07.3	+24.1	53.3	23 18.5	+25.7	54.0	24 28.5	+27.3	54.7	25 37.2	+29.0	55.5
43	21 17.5	+22.0	51.7	22 31.4	+23.6	52.3	23 44.2	+25.3	53.0	24 55.8	+27.0	53.7	26 06.2	+28.6	54.5
44	21 39.5	+21.7	50.7	22 55.0	+23.3	51.3	24 09.5	+24.9	52.0	25 22.8	+26.6	52.7	26 34.8	+28.3	53.5
45	22 01.2	+21.3	49.7	23 18.3	+23.0	50.3	24 34.4	+24.6	51.0	25 49.4	+26.1	51.7	27 03.1	+27.8	52.5
46	22 22.5	+20.9	48.7	23 41.3	+22.5	49.3	24 59.0	+24.1	50.0	26 15.5	+25.8	50.7	27 30.9	+27.4	51.5
47	22 43.4	+20.6	47.6	24 03.8	+22.1	48.3	25 23.1	+23.7	49.0	26 41.3	+25.3	49.7	27 58.3	+26.9	50.5
48	23 04.0	+20.1	46.6	24 25.9	+21.7	47.3	25 46.8	+23.3	48.0	27 06.6	+24.9	48.7	28 25.2	+26.5	49.5
49	23 24.1	+19.8	45.6	24 47.6	+21.3	46.2	26 10.1	+22.8	46.9	27 31.5	+24.4	47.7	28 51.7	+26.0	48.5
50	23 43.9	+19.3	44.6	25 08.9	+20.9	45.2	26 32.9	+22.4	45.9	27 55.9	+24.0	46.6	29 17.7	+25.5	47.4
51	24 03.2	+18.9	43.5	25 29.8	+20.4	44.2	26 55.3	+22.0	44.9	28 19.9	+23.4	45.6	29 43.2	+25.1	46.4
52	24 22.1	+18.5	42.5	25 50.2	+20.0	43.1	27 17.3	+21.4	43.8	28 43.3	+23.0	44.6	30 08.3	+24.5	45.4
53	24 40.6	+18.1	41.4	26 10.2	+19.5	42.1	27 38.7	+21.0	42.8	29 06.3	+22.5	43.5	30 32.8	+24.0	44.3
54	24 58.7	+17.6	40.4	26 29.7	+19.0	41.0	27 59.7	+20.5	41.7	29 28.8	+22.0	42.4	30 56.8	+23.5	43.2
55	25 16.3	+17.2	39.3	26 48.7	+18.6	40.0	28 20.2	+20.0	40.6	29 50.8	+21.5	41.4	31 20.3	+23.0	42.2
56	25 33.5	+16.7	38.3	27 07.3	+18.0	38.9	28 40.2	+19.5	39.6	30 12.3	+20.9	40.3	31 43.3	+22.4	41.1
57	25 50.2	+16.2	37.2	27 25.3	+17.6	37.8	28 59.7	+19.0	38.5	30 33.2	+20.4	39.2	32 05.7	+21.8	40.0
58	26 06.4	+15.7	36.1	27 42.9	+17.1	36.7	29 18.7	+18.4	37.4	30 53.6	+19.8	38.1	32 27.5	+21.2	38.9
59	26 22.1	+15.3	35.1	28 00.0	+16.6	35.7	29 37.1	+17.9	36.3	31 13.4	+19.2	37.0	32 48.7	+20.7	37.8
60	26 37.4	+14.8	34.0	28 16.6	+16.0	34.6	29 55.0	+17.4	35.2	31 32.6	+18.7	35.9	33 09.4	+20.0	36.6
61	26 52.2	+14.3	32.9	28 32.6	+15.5	33.5	30 12.4	+16.7	34.1	31 51.3	+18.1	34.8	33 29.4	+19.5	35.5
62	27 06.5	+13.7	31.8	28 48.1	+15.0	32.4	30 29.1	+16.2	33.0	32 09.4	+17.5	33.7	33 48.9	+18.8	34.4
63	27 20.2	+13.3	30.7	29 03.1	+14.4	31.3	30 45.3	+15.7	31.9	32 26.9	+16.9	32.5	34 07.7	+18.1	33.2
64	27 33.5	+12.7	29.6	29 17.5	+13.9	30.2	31 01.0	+15.0	30.7	32 43.8	+16.2	31.4	34 25.8	+17.5	32.1
65	27 46.2	+12.2	28.5	29 31.4	+13.3	29.0	31 16.0	+14.5	29.6	33 00.0	+15.7	30.2	34 43.3	+16.9	30.9
66	27 58.4	+11.7	27.4	29 44.7	+12.8	27.9	31 30.5	+13.8	28.5	33 15.7	+14.9	29.1	35 00.2	+16.1	29.8
67	28 10.1	+11.1	26.3	29 57.5	+12.1	26.8	31 44.3	+13.2	27.3	33 30.6	+14.4	27.9	35 16.3	+15.5	28.6
68	28 21.2	+10.6	25.2	30 09.6	+11.6	25.7	31 57.5	+12.6	26.2	33 45.0	+13.6	26.8	35 31.8	+14.8	27.4
69	28 31.8	+10.0	24.1	30 21.2	+11.0	24.5	32 10.1	+12.0	25.0	33 58.6	+13.0	25.6	35 46.6	+14.1	26.2
70	28 41.8	+9.5	22.9	30 32.2	+10.4	23.4	32 22.1	+11.4	23.9	34 11.6	+12.3	24.4	36 00.7	+13.3	25.0
71	28 51.3	+8.9	21.8	30 42.6	+9.7	22.2	32 33.5	+10.6	22.7	34 23.9	+11.7	23.2	36 14.0	+12.6	23.8
72	29 00.2	+8.4	20.7	30 52.3	+9.2	21.1	32 44.1	+10.1	21.5	34 35.6	+10.9	22.0	36 26.6	+11.9	22.6
73	29 08.6	+7.7	19.5	31 01.5	+8.6	19.9	32 54.2	+9.4	20.4	34 46.5	+10.2	20.8	36 38.5	+11.1	21.4
74	29 16.3	+7.2	18.4	31 10.1	+7.9	18.8	33 03.6	+8.7	19.2	34 56.7	+9.5	19.6	36 49.6	+10.3	20.1
75	29 23.5	+6.6	17.3	31 18.0	+7.3	17.6	33 12.3	+8.0	18.0	35 06.2	+8.8	18.4	36 59.9	+9.6	18.9
76	29 30.1	+6.1	16.1	31 25.3	+6.7	16.5	33 20.3	+7.4	16.8	35 15.0	+8.1	17.2	37 09.5	+8.8	17.7
77	29 36.2	+5.4	15.0	31 32.0	+6.0	15.3	33 27.7	+6.6	15.6	35 23.1	+7.4	16.0	37 18.3	+8.1	16.4
78	29 41.6	+4.8	13.8	31 38.0	+5.4	14.1	33 34.3	+6.0	14.4	35 30.5	+6.6	14.8	37 26.4	+7.2	15.2
79	29 46.4	+4.3	12.7	31 43.4	+4.8	13.0	33 40.3	+5.3	13.2	35 37.1	+5.8	13.6	37 33.6	+6.5	13.9
80	29 50.7	+3.6	11.5	31 48.2	+4.1	11.8	33 45.6	+4.6	12.0	35 42.9	+5.1	12.3	37 40.1	+5.6	12.7
81	29 54.3	+3.1	10.4	31 52.3	+3.5	10.6	33 50.2	+3.9	10.8	35 48.0	+4.4	11.1	37 45.7	+4.9	11.4
82	29 57.4	+2.4	9.2	31 55.8	+2.8	9.4	33 54.1	+3.2	9.6	35 52.4	+3.6	9.9	37 50.6	+4.0	10.1
83	29 59.8	+1.9	8.1	31 58.6	+2.2	8.3	33 57.3	+2.5	8.4	35 56.0	+2.9	8.7	37 54.6	+3.2	8.9
84	30 01.7	+1.2	6.9	32 00.8	+1.5	7.1	33 59.8	+1.8	7.2	35 58.9	+2.1	7.4	37 57.8	+2.4	7.6
85	30 02.9	+0.6	5.8	32 02.3	+0.8	5.9	34 01.6	+1.1	6.0	36 01.0	+1.3	6.2	38 00.2	+1.6	6.3
86	30 03.5	+0.1	4.6	32 03.1	+0.2	4.7	34 02.7	+0.4	4.8	36 02.3	+0.6	4.9	38 01.8	+0.8	5.1
87	30 03.6	-0.6	3.5	32 03.3	-0.4	3.5	34 03.1	-0.3	3.6	36 02.9	-0.2	3.7	38 02.6	0.0	3.8
88	30 03.0	-1.2	2.3	32 02.9	-1.1	2.4	34 02.8	-1.1	2.4	36 02.7	-1.0	2.5	38 02.6	-0.9	2.5
89	30 01.8	-1.8	1.2	32 01.8	-1.8	1.2	34 01.7	-1.7	1.2	36 01.7	-1.7	1.2	38 01.7	-1.7	1.3
90	30 00.0	-2.4	0.0	32 00.0	-2.4	0.0	34 00.0	-2.4	0.0	36 00.0	-2.5	0.0	38 00.0	-2.5	0.0

30°

32°

34°

36°

38°

LATITUDE CONTRARY NAME

L.H.A. 88°, 272°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
12 56.0 +27.5 62.6	13 50.8 +29.2 63.1	14 44.8 +30.8 63.5	15 37.9 +32.5 64.0	16 30.0 +34.1 64.5	30										
13 23.5 +27.3 61.7	14 20.0 +29.0 62.1	15 15.6 +30.7 62.6	16 10.4 +32.2 63.1	17 04.1 +33.9 63.7	31										
13 50.8 +27.1 60.8	14 49.0 +28.7 61.2	15 46.3 +30.4 61.7	16 42.6 +32.1 62.2	17 38.0 +33.7 62.8	32										
14 17.9 +26.9 59.9	15 17.7 +28.6 60.3	16 16.7 +30.1 60.8	17 14.7 +31.8 61.4	18 11.7 +33.4 61.9	33										
14 44.8 +26.6 59.0	15 46.3 +28.3 59.4	16 46.8 +30.0 59.9	17 46.5 +31.6 60.5	18 45.1 +33.2 61.0	34										
15 11.4 +26.5 58.0	16 14.6 +28.0 58.5	17 16.8 +29.7 59.0	18 18.1 +31.3 59.6	19 18.3 +33.0 60.2	35										
15 37.9 +26.2 57.1	16 42.6 +27.8 57.6	17 46.5 +29.4 58.1	18 49.4 +31.1 58.7	19 51.3 +32.6 59.3	36										
16 04.1 +25.9 56.2	17 10.4 +27.6 56.7	18 15.9 +29.2 57.2	19 20.5 +30.8 57.8	20 23.9 +32.4 58.4	37										
16 30.0 +25.7 55.2	17 38.0 +27.3 55.7	18 45.1 +28.9 56.3	19 51.3 +30.5 56.9	20 56.3 +32.1 57.5	38										
16 55.7 +25.4 54.3	18 05.3 +27.1 54.8	19 14.0 +28.7 55.3	20 21.8 +30.2 55.9	21 28.4 +31.8 56.6	39										
17 21.1 +25.2 53.3	18 32.4 +26.7 53.9	19 42.7 +28.3 54.4	20 52.0 +29.9 55.0	22 00.2 +31.6 55.7	40										
17 46.3 +24.9 52.4	18 59.1 +26.5 52.9	20 11.0 +28.0 53.5	21 21.9 +29.6 54.1	22 31.8 +31.1 54.7	41										
18 11.2 +24.6 51.4	19 25.6 +26.1 52.0	20 39.0 +27.8 52.5	21 51.5 +29.3 53.2	23 02.9 +30.9 53.8	42										
18 35.8 +24.3 50.5	19 51.7 +25.9 51.0	21 06.8 +27.4 51.6	22 20.8 +29.0 52.2	23 33.8 +30.5 52.9	43										
19 00.1 +24.0 49.5	20 17.6 +25.5 50.0	21 34.2 +27.1 50.6	22 49.8 +28.6 51.3	24 04.3 +30.2 51.9	44										
19 24.1 +23.7 48.5	20 43.1 +25.2 49.1	22 01.3 +26.7 49.7	23 18.4 +28.3 50.3	24 34.5 +29.9 51.0	45										
19 47.8 +23.3 47.5	21 08.3 +24.9 48.1	22 28.0 +26.4 48.7	23 46.7 +27.9 49.3	25 04.4 +29.4 50.0	46										
20 11.1 +23.1 46.6	21 33.2 +24.6 47.1	22 54.4 +26.1 47.7	24 14.6 +27.6 48.4	25 33.8 +29.1 49.1	47										
20 34.2 +22.7 45.6	21 57.8 +24.1 46.1	23 20.5 +25.6 46.7	24 42.2 +27.2 47.4	26 02.9 +28.7 48.1	48										
20 56.9 +22.4 44.6	22 21.9 +23.9 45.2	23 46.1 +25.3 45.8	25 09.4 +26.7 46.4	26 31.6 +28.2 47.1	49										
21 19.3 +22.0 43.6	22 45.8 +23.4 44.2	24 11.4 +24.9 44.8	25 39.9 +26.4 45.4	26 59.8 +27.9 46.1	50										
21 41.3 +21.6 42.6	23 09.2 +23.1 43.2	24 36.3 +24.5 43.8	26 02.5 +26.0 44.4	27 27.7 +27.4 45.1	51										
22 02.9 +21.3 41.6	23 32.3 +22.7 42.2	25 00.8 +24.1 42.8	26 28.5 +25.5 44.2	27 55.1 +27.0 44.1	52										
22 24.2 +20.9 40.6	23 55.0 +22.3 41.1	25 24.9 +23.7 41.8	26 54.0 +25.1 42.4	28 22.1 +26.5 43.1	53										
22 45.1 +20.5 39.6	24 17.3 +21.8 40.1	25 48.6 +23.3 40.7	27 19.1 +24.6 41.4	28 48.6 +26.1 42.1	54										
23 05.6 +20.2 38.5	24 39.1 +21.5 39.1	26 11.9 +22.8 39.7	27 43.7 +24.2 40.4	29 14.7 +25.6 41.1	55										
23 25.8 +19.7 37.5	25 00.6 +21.0 38.1	26 34.7 +22.3 38.7	28 07.9 +23.8 39.3	29 40.3 +25.1 40.0	56										
23 45.5 +19.3 36.5	25 21.6 +20.6 37.0	26 57.0 +21.9 37.6	28 31.7 +23.2 38.3	30 05.4 +24.6 39.0	57										
24 04.8 +18.9 35.5	25 42.2 +20.2 36.0	27 18.9 +21.5 36.6	28 54.9 +22.7 37.2	30 30.0 +24.1 37.9	58										
24 23.7 +18.4 34.4	26 02.4 +19.6 35.0	27 40.4 +20.9 35.5	29 17.6 +22.3 36.2	30 54.1 +23.5 36.9	59										
24 42.1 +18.0 33.4	26 22.0 +19.3 33.9	28 01.3 +20.5 34.5	29 39.9 +21.7 35.1	31 17.6 +23.0 35.8	60										
25 00.1 +17.6 32.3	26 41.3 +18.7 32.8	28 21.8 +19.9 33.4	30 01.6 +21.2 34.0	31 40.6 +22.5 34.7	61										
25 17.7 +17.1 31.3	27 00.0 +18.3 31.8	28 41.7 +19.5 32.3	30 22.8 +20.6 32.9	32 03.1 +21.9 33.6	62										
25 34.8 +16.7 30.2	27 18.3 +17.8 30.7	29 01.2 +18.9 31.3	30 43.4 +20.1 31.9	32 25.0 +21.3 32.5	63										
25 51.5 +16.2 29.1	27 36.1 +17.2 29.6	29 20.1 +18.4 30.2	31 03.5 +19.6 30.8	32 46.3 +20.7 31.4	64										
26 07.7 +15.7 28.1	27 53.3 +16.8 28.5	29 38.5 +17.8 29.1	31 23.1 +19.0 29.7	33 07.0 +20.2 30.3	65										
26 23.4 +15.2 27.0	28 10.1 +16.3 27.5	29 56.3 +17.4 28.0	31 42.1 +18.3 28.5	33 27.2 +19.5 29.2	66										
26 38.6 +14.8 25.9	28 26.4 +15.7 26.4	30 13.7 +16.7 26.9	32 00.4 +17.8 27.4	33 46.7 +18.8 28.0	67										
26 53.4 +14.2 24.8	28 42.1 +15.2 25.3	30 30.4 +16.2 25.8	32 18.2 +17.2 26.3	34 05.5 +18.3 26.9	68										
27 07.6 +13.7 23.7	28 57.3 +14.6 24.2	30 46.6 +15.5 24.6	32 35.4 +16.6 25.2	34 23.8 +17.6 25.7	69										
27 21.3 +13.2 22.6	29 11.9 +14.1 23.1	31 02.1 +15.0 23.5	32 52.0 +15.9 24.0	34 41.4 +16.9 24.6	70										
27 34.5 +12.7 21.5	29 26.0 +13.5 21.9	31 17.1 +14.5 22.4	33 07.9 +15.3 22.9	34 58.3 +16.2 23.4	71										
27 47.2 +12.2 20.4	29 39.5 +13.0 20.8	31 31.6 +13.7 21.2	33 23.2 +14.7 21.7	35 14.5 +15.6 22.2	72										
27 59.4 +11.6 19.3	29 52.5 +12.4 19.7	31 45.3 +13.2 20.1	33 37.9 +14.0 20.5	35 30.1 +14.8 21.0	73										
28 11.0 +11.1 18.2	30 04.9 +11.8 18.6	31 58.5 +12.6 18.9	33 51.9 +13.3 19.4	35 44.9 +14.2 19.8	74										
28 22.1 +10.5 17.1	30 16.7 +11.2 17.4	32 11.1 +11.9 17.8	34 05.2 +12.7 18.2	35 59.1 +13.4 18.6	75										
28 32.6 +10.0 16.0	30 27.9 +10.6 16.3	32 23.0 +11.3 16.6	34 17.9 +11.9 17.0	36 12.5 +12.7 17.4	76										
28 42.6 +9.5 14.9	30 38.5 +10.1 15.1	32 34.3 +10.6 15.5	34 29.8 +11.3 15.8	36 25.2 +11.9 16.2	77										
28 52.1 +8.8 13.7	30 48.6 +9.4 14.0	32 44.9 +10.0 14.3	34 41.1 +10.6 14.6	36 37.1 +11.2 15.0	78										
29 00.9 +8.3 12.6	30 58.0 +8.8 12.8	32 54.9 +9.3 13.1	34 51.7 +9.9 13.4	36 48.3 +10.5 13.8	79										
29 09.2 +7.8 11.5	31 06.8 +8.2 11.7	33 04.2 +8.7 12.0	35 01.6 +9.1 12.2	36 58.8 +9.7 12.5	80										
29 17.0 +7.1 10.3	31 15.0 +7.5 10.5	33 12.9 +8.0 10.8	35 10.7 +8.5 11.0	37 08.5 +8.9 11.3	81										
29 24.1 +6.6 9.2	31 22.5 +7.0 9.4	33 20.9 +7.3 9.6	35 19.2 +7.7 9.8	37 17.4 +8.1 10.1	82										
29 30.7 +5.9 8.0	31 29.5 +6.2 8.2	33 28.2 +6.6 8.4	35 26.9 +6.9 8.6	37 25.5 +7.3 8.8	83										
29 36.6 +5.4 6.9	31 35.7 +5.7 7.0	33 34.8 +6.0 7.2	35 33.8 +6.3 7.4	37 32.8 +6.6 7.6	84										
29 42.0 +4.8 5.8	31 41.4 +5.0 5.9	33 40.8 +5.2 6.0	35 40.1 +5.5 6.2	37 39.4 +5.7 6.3	85										
29 46.8 +4.2 4.6	31 46.4 +4.4 4.7	33 46.0 +4.6 4.8	35 45.6 +4.7 4.9	37 45.1 +5.0 5.1	86										
29 51.0 +3.6 3.5	31 50.8 +3.7 3.5	33 50.6 +3.8 3.6	35 50.3 +4.0 3.7	37 50.1 +4.1 3.8	87										
29 54.6 +3.0 2.3	31 54.5 +3.1 2.4	33 54.4 +3.2 2.4	35 54.3 +3.2 2.5	37 54.2 +3.3 2.5	88										
29 57.6 +2.4 1.2	31 57.6 +2.4 1.2	33 57.6 +2.4 1.2	35 57.5 +2.5 1.2	37 57.5 +2.5 1.3	89										
30 00.0 +1.8 0.0	32 00.0 +1.8 0.0	34 00.0 +1.7 0.0	36 00.0 +1.7 0.0	38 00.0 +1.7 0.0	90										
30°			32°			34°			36°			38°			

LATITUDE SAME NAME

L.H.A. 92°, 268°

88°, 272° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	20 09.2	+34.6	67.2	20 55.1	+36.2	67.9	21 39.5	+37.9	68.6	22 22.5	+39.5	69.4	23 04.0	+41.1	70.2
31	20 43.8	+34.4	66.3	21 31.3	+36.0	67.1	22 17.4	+37.6	67.8	23 02.0	+39.3	68.6	23 45.1	+40.8	69.4
32	21 18.2	+34.0	65.5	22 07.3	+35.7	66.2	22 55.0	+37.4	66.9	23 41.3	+39.0	67.7	24 25.9	+40.6	68.6
33	21 52.2	+33.8	64.6	22 43.0	+35.5	65.3	23 32.4	+37.1	66.1	24 20.3	+38.7	66.9	25 06.5	+40.3	67.8
34	22 26.0	+33.5	63.7	23 18.5	+35.1	64.4	24 09.5	+36.8	65.2	24 59.0	+38.4	66.1	25 46.8	+40.1	66.9
35	22 59.5	+33.1	62.8	23 53.6	+34.9	63.6	24 46.3	+36.5	64.4	25 37.4	+38.1	65.2	26 26.9	+39.7	66.1
36	23 32.6	+32.9	61.9	24 28.5	+34.5	62.7	25 22.8	+36.2	63.5	26 15.5	+37.9	64.4	27 06.6	+39.5	65.3
37	24 05.5	+32.5	61.0	25 03.0	+34.2	61.8	25 59.0	+35.8	62.6	26 53.4	+37.5	63.5	27 46.1	+39.1	64.4
38	24 38.0	+32.2	60.0	25 37.2	+33.8	60.9	26 34.8	+35.6	61.7	27 30.9	+37.1	62.6	28 25.2	+38.8	63.6
39	25 10.2	+31.8	59.1	26 11.0	+33.5	59.9	27 10.4	+35.1	60.8	28 08.0	+36.9	61.7	29 04.0	+38.5	62.7
40	25 42.0	+31.4	58.2	26 44.5	+33.2	59.0	27 45.5	+34.8	59.9	28 44.9	+36.4	60.8	29 42.5	+38.1	61.8
41	26 13.4	+31.1	57.2	27 17.7	+32.7	58.1	28 20.3	+34.5	59.0	29 21.3	+36.1	59.9	30 20.6	+37.7	60.9
42	26 44.5	+30.7	56.3	27 50.4	+32.4	57.1	28 54.8	+34.0	58.0	29 57.4	+35.7	59.0	30 58.3	+37.4	60.0
43	27 15.2	+30.3	55.3	28 22.8	+32.0	56.2	29 28.8	+33.6	57.1	30 33.1	+35.3	58.1	31 35.7	+36.9	59.1
44	27 45.5	+29.9	54.3	28 54.8	+31.5	55.2	30 02.4	+33.2	56.1	31 08.4	+34.9	57.1	32 12.6	+36.6	58.2
45	28 15.4	+29.5	53.3	29 26.3	+31.1	54.2	30 35.6	+32.8	55.2	31 43.3	+34.4	56.2	32 49.2	+36.1	57.2
46	28 44.9	+29.0	52.4	29 57.4	+30.7	53.3	31 08.4	+32.4	54.2	32 17.7	+34.1	55.2	33 25.3	+35.7	56.3
47	29 13.9	+28.6	51.4	30 29.1	+30.2	52.3	31 40.8	+31.8	53.2	32 51.8	+33.5	54.2	34 01.0	+35.2	55.3
48	29 42.5	+28.1	50.3	30 58.3	+29.7	51.3	32 12.6	+31.4	52.2	33 25.3	+33.1	53.2	34 36.2	+34.7	54.3
49	30 10.6	+27.6	49.3	31 28.0	+29.3	50.2	32 44.0	+30.9	51.2	33 58.4	+32.5	52.2	35 10.9	+34.3	53.3
50	30 38.2	+27.1	48.3	31 57.3	+28.8	49.2	33 14.9	+30.4	50.2	34 30.9	+32.1	51.2	35 45.2	+33.7	52.3
51	31 05.3	+26.7	47.3	32 26.1	+28.2	48.2	33 45.3	+29.9	49.2	35 03.0	+31.5	50.2	36 18.9	+33.2	51.3
52	31 32.0	+26.1	46.2	32 54.3	+27.7	47.1	34 15.2	+29.3	48.1	35 34.5	+31.0	49.2	36 52.3	+32.7	50.3
53	31 58.1	+25.5	45.2	33 22.0	+27.2	46.1	34 44.5	+28.8	47.0	36 05.5	+30.4	48.1	37 24.8	+32.1	49.2
54	32 23.6	+25.1	44.1	33 49.2	+26.6	45.0	35 13.3	+28.2	46.0	36 35.9	+29.9	47.0	37 56.9	+31.5	48.2
55	32 48.7	+24.5	43.0	34 15.8	+26.0	43.9	35 41.5	+27.6	44.9	37 05.8	+29.2	45.9	38 28.4	+30.9	47.1
56	33 13.2	+23.9	41.9	34 41.8	+25.5	42.8	36 09.1	+27.1	43.8	37 35.0	+28.6	44.8	38 59.3	+30.2	46.0
57	33 37.1	+23.3	40.8	35 07.3	+24.8	41.7	36 36.2	+26.3	42.7	38 03.6	+28.0	43.7	39 29.5	+29.6	44.9
58	34 00.4	+22.7	39.7	35 32.1	+24.2	40.6	37 02.5	+25.8	41.6	38 31.6	+27.3	42.6	39 59.1	+29.0	43.7
59	34 23.1	+22.1	38.6	35 56.3	+23.6	39.5	37 28.3	+25.1	40.4	38 58.9	+26.7	41.5	40 28.1	+28.3	42.6
60	34 45.2	+21.4	37.5	36 19.9	+22.9	38.3	37 53.4	+24.4	39.3	39 25.6	+25.9	40.3	40 56.4	+27.5	41.4
61	35 06.6	+20.8	36.3	36 42.8	+22.2	37.2	38 17.8	+23.7	38.1	39 51.5	+25.3	39.1	41 23.9	+26.8	40.2
62	35 27.4	+20.2	35.2	37 05.0	+21.6	36.0	38 41.5	+23.0	37.0	40 16.8	+24.5	38.0	41 50.7	+26.1	39.0
63	35 47.6	+19.5	34.0	37 26.6	+20.8	34.9	39 04.5	+22.3	35.8	40 41.3	+23.7	36.8	42 16.8	+25.3	37.8
64	36 07.1	+18.8	32.8	37 47.4	+20.2	33.7	39 26.8	+21.5	34.6	41 05.0	+23.0	35.5	42 42.1	+24.4	36.6
65	36 25.9	+18.1	31.7	38 07.6	+19.4	32.5	39 48.3	+20.8	33.4	41 28.0	+22.2	34.3	43 06.5	+23.7	35.3
66	36 44.0	+17.4	30.5	38 27.0	+18.7	31.3	40 09.1	+20.0	32.1	41 50.2	+21.4	33.1	43 30.2	+22.8	34.1
67	37 01.4	+16.6	29.3	38 45.7	+17.9	30.1	40 29.1	+19.2	30.9	42 11.6	+20.5	31.8	43 53.0	+21.9	32.8
68	37 18.0	+16.0	28.1	39 03.6	+17.1	28.8	40 48.3	+18.3	29.6	42 32.1	+19.7	30.5	44 14.9	+21.1	31.5
69	37 34.0	+15.1	26.9	39 20.7	+16.3	27.6	41 06.6	+17.6	28.4	42 51.8	+18.8	29.2	44 36.0	+20.2	30.2
70	37 49.1	+14.4	25.6	39 37.0	+15.5	26.3	41 24.2	+16.7	27.1	43 10.6	+17.9	28.0	44 56.2	+19.2	28.9
71	38 03.5	+13.7	24.4	39 52.5	+14.7	25.1	41 40.9	+15.8	25.8	43 28.5	+17.0	26.6	45 15.4	+18.2	27.5
72	38 17.2	+12.8	23.2	40 07.2	+13.9	23.8	41 56.7	+14.9	24.5	43 45.5	+16.1	25.3	45 33.6	+17.3	26.2
73	38 30.0	+12.1	21.9	40 21.1	+13.0	22.5	42 11.6	+14.1	23.2	44 01.6	+15.2	24.0	45 50.9	+16.3	24.8
74	38 42.1	+11.2	20.7	40 34.1	+12.2	21.3	42 25.7	+13.2	21.9	44 16.8	+14.1	22.6	46 07.2	+15.3	23.4
75	38 53.3	+10.4	19.4	40 46.3	+11.3	20.0	42 38.9	+12.2	20.6	44 30.9	+13.2	21.3	46 22.5	+14.2	22.0
76	39 03.7	+9.6	18.1	40 57.6	+10.4	18.7	42 51.1	+11.3	19.3	44 44.1	+12.3	19.9	46 36.7	+13.2	20.6
77	39 13.3	+8.8	16.9	41 08.0	+9.5	17.4	43 02.4	+10.3	17.9	44 56.4	+11.2	18.5	46 49.9	+12.2	19.2
78	39 22.1	+7.9	15.6	41 17.5	+8.7	16.1	43 12.7	+9.4	16.6	45 07.6	+10.2	17.1	47 02.1	+11.0	17.8
79	39 30.0	+7.1	14.3	41 26.2	+7.7	14.7	43 22.1	+8.4	15.2	45 17.8	+9.1	15.7	47 13.1	+9.9	16.3
80	39 37.1	+6.2	13.0	41 33.9	+6.8	13.4	43 30.5	+7.5	13.8	45 26.9	+8.1	14.3	47 23.0	+8.9	14.9
81	39 43.3	+5.3	11.7	41 40.7	+5.9	12.1	43 38.0	+6.4	12.5	45 35.0	+7.1	12.9	47 31.9	+7.7	13.4
82	39 48.6	+4.5	10.4	41 46.6	+5.0	10.7	43 44.4	+5.5	11.1	45 42.1	+6.0	11.5	47 39.6	+6.6	11.9
83	39 53.1	+3.6	9.1	41 51.6	+4.0	9.4	43 49.9	+4.5	9.7	45 48.1	+4.9	10.1	47 46.2	+5.4	10.4
84	39 56.7	+2.8	7.8	41 55.6	+3.1	8.1	43 54.4	+3.4	8.3	45 53.0	+3.9	8.6	47 51.6	+4.3	9.0
85	39 59.5	+1.8	6.5	41 58.7	+2.1	6.7	43 57.8	+2.5	7.0	45 56.9	+2.8	7.2	47 55.9	+3.2	7.5
86	40 01.3	+1.0	5.2	42 00.8	+1.2	5.4	44 00.3	+1.4	5.6	45 59.7	+1.7	5.8	47 59.1	+1.9	6.0
87	40 02.3	+0.1	3.9	42 02.0	+0.3	4.0	44 01.7	+0.5	4.2	46 01.4	+0.6	4.3	48 01.0	+0.9	4.5
88	40 02.4	-0.7	2.6	42 02.3	-0.7	2.7	44 02.2	-0.6	2.8	46 02.0	-0.4	2.9	48 01.9	-0.4	3.0
89	40 01.7	-1.7	1.3	42 01.6	-1.6	1.3	44 01.6	-1.6	1.4	46 01.6	-1.6	1.4	48 01.5	-1.5	1.5
90	40 00.0	-2.5	0.0	42 00.0	-2.6	0.0	44 00.0	-2.6	0.0	46 00.0	-2.6	0.0	48 00.0	-2.7	0.0
	40°			42°			44°			46°			48°		

LATITUDE CONTRARY NAME

L.H.A. 88°, 272°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
17 21.1	+35.7	65.1	18 11.2	+37.3	65.6	19 00.1	+38.8	66.3	19 47.8	+40.4	66.9	20 34.2	+41.9	67.6	30
17 56.8	+35.6	64.2	18 48.5	+37.1	64.8	19 38.9	+38.7	65.5	20 28.2	+40.1	66.1	21 16.1	+41.7	66.8	31
18 32.4	+35.2	63.4	19 25.6	+36.8	64.0	20 17.6	+38.4	64.6	21 08.3	+40.0	65.3	21 57.8	+41.4	66.0	32
19 07.6	+35.1	62.5	20 02.4	+36.6	63.1	20 56.0	+38.2	63.8	21 48.3	+39.7	64.5	22 39.2	+41.3	65.3	33
19 42.7	+34.8	61.7	20 39.0	+36.4	62.3	21 34.2	+37.9	63.0	22 28.0	+39.5	63.7	23 20.5	+40.9	64.5	34
20 17.5	+34.5	60.8	21 15.4	+36.1	61.5	22 12.1	+37.7	62.2	23 07.5	+39.2	62.9	24 01.4	+40.8	63.7	35
20 52.0	+34.3	59.9	21 51.5	+35.9	60.6	22 49.8	+37.4	61.3	23 46.7	+39.0	62.1	24 42.2	+40.5	62.9	36
21 26.3	+33.9	59.0	22 27.4	+35.5	59.7	23 27.2	+37.1	60.5	24 25.7	+38.7	61.2	25 22.7	+40.2	62.1	37
22 00.2	+33.7	58.1	23 02.9	+35.3	58.9	24 04.3	+36.9	59.6	25 04.4	+38.3	60.4	26 02.9	+39.9	61.2	38
22 33.9	+33.4	57.3	23 38.2	+35.0	58.0	24 41.2	+36.5	58.7	25 42.7	+38.1	59.5	26 42.8	+39.6	60.4	39
23 07.3	+33.1	56.4	24 13.2	+34.7	57.1	25 17.7	+36.3	57.9	26 20.8	+37.8	58.7	27 22.4	+39.4	59.6	40
23 40.4	+32.8	55.4	24 47.9	+34.3	56.2	25 54.0	+35.9	57.0	26 58.6	+37.5	57.8	28 01.8	+39.0	58.7	41
24 13.2	+32.4	54.5	25 22.2	+34.0	55.3	26 29.9	+35.5	56.1	27 36.1	+37.1	56.9	28 40.8	+38.6	57.8	42
24 45.6	+32.1	53.6	25 56.2	+33.7	54.4	27 05.4	+35.2	55.2	28 13.2	+36.8	56.0	29 19.4	+38.4	57.0	43
25 17.7	+31.8	52.7	26 29.9	+33.3	53.4	27 40.6	+34.9	54.3	28 50.0	+36.4	55.1	29 57.8	+37.9	56.1	44
25 49.5	+31.3	51.7	27 03.2	+32.9	52.5	28 15.5	+34.5	53.3	29 26.4	+36.0	54.2	30 35.7	+37.6	55.2	45
26 20.8	+31.0	50.8	27 36.1	+32.5	51.6	28 50.0	+34.1	52.4	30 02.4	+35.7	53.3	31 13.3	+37.2	54.3	46
26 51.8	+30.6	49.8	28 08.6	+32.2	50.6	29 24.1	+33.7	51.5	30 38.1	+35.2	52.4	31 50.5	+36.8	53.4	47
27 22.4	+30.2	48.9	28 40.8	+31.7	49.7	29 57.8	+33.2	50.5	31 13.3	+34.8	51.4	32 27.3	+36.4	52.4	48
27 52.6	+29.8	47.9	29 12.5	+31.3	48.7	30 31.0	+32.9	49.6	31 48.1	+34.4	50.5	33 03.7	+35.9	51.5	49
28 22.4	+29.4	46.9	29 43.8	+30.9	47.7	31 03.9	+32.4	48.6	32 22.5	+34.0	49.5	33 39.6	+35.5	50.5	50
28 51.8	+28.9	45.9	30 14.7	+30.4	46.7	31 36.3	+31.9	47.6	32 56.5	+33.4	48.5	34 15.1	+35.1	49.5	51
29 20.7	+28.4	44.9	30 45.1	+29.9	45.7	32 08.2	+31.5	46.6	33 29.9	+33.0	47.5	34 50.2	+34.5	48.6	52
29 49.1	+28.0	43.9	31 15.0	+29.5	44.7	32 39.7	+30.9	45.6	34 02.9	+32.5	46.5	35 24.7	+34.0	47.6	53
30 17.1	+27.6	42.9	31 44.5	+29.0	43.7	33 10.6	+30.5	44.6	34 35.4	+32.0	45.5	35 58.7	+33.6	46.5	54
30 44.7	+27.0	41.8	32 13.5	+28.5	42.7	33 41.1	+30.0	43.5	35 07.4	+31.5	44.5	36 32.3	+33.0	45.5	55
31 11.7	+26.5	40.8	32 42.0	+27.9	41.6	34 11.1	+29.4	42.5	35 38.9	+30.9	43.5	37 05.3	+32.4	44.5	56
31 38.2	+26.0	39.7	33 09.9	+27.4	40.6	34 40.5	+28.8	41.4	36 09.8	+30.3	42.4	37 37.7	+31.8	43.4	57
32 04.2	+25.4	38.7	33 37.3	+26.9	39.5	35 09.3	+28.3	40.4	36 40.1	+29.8	41.3	38 09.5	+31.3	42.3	58
32 29.6	+24.9	37.6	34 04.2	+26.3	38.4	35 37.6	+27.7	39.3	37 09.9	+29.1	40.2	38 40.8	+30.7	41.3	59
32 54.5	+24.4	36.5	34 30.5	+25.7	37.3	36 05.3	+27.1	38.2	37 39.0	+28.6	39.1	39 11.5	+30.0	40.1	60
33 18.9	+23.7	35.4	34 56.2	+25.1	36.2	36 32.4	+26.5	37.1	38 07.6	+27.9	38.0	39 41.5	+29.3	39.0	61
33 42.6	+23.2	34.3	35 21.3	+24.4	35.1	36 58.9	+25.8	36.0	38 35.5	+27.2	36.9	40 10.8	+28.7	37.9	62
34 05.8	+22.6	33.2	35 45.7	+23.9	34.0	37 24.7	+25.2	34.8	39 02.7	+26.6	35.7	40 39.5	+28.0	36.7	63
34 28.4	+21.9	32.1	36 09.6	+23.2	32.9	37 49.9	+24.5	33.7	39 29.3	+25.8	34.6	41 07.5	+27.2	35.6	64
34 50.3	+21.3	31.0	36 32.8	+22.5	31.7	38 14.4	+23.9	32.5	39 55.1	+25.2	33.4	41 34.7	+26.5	34.4	65
35 11.6	+20.7	29.8	36 55.3	+21.9	30.6	38 38.3	+23.1	31.4	40 20.3	+24.4	32.2	42 01.2	+25.8	33.2	66
35 32.3	+20.0	28.7	37 17.2	+21.2	29.4	39 01.4	+22.3	30.2	40 44.7	+23.6	31.0	42 27.0	+25.0	32.0	67
35 52.3	+19.3	27.5	37 38.4	+20.4	28.2	39 23.7	+21.7	29.0	41 08.3	+22.9	29.8	42 52.0	+24.1	30.7	68
36 11.6	+18.6	26.3	37 58.8	+19.8	27.0	39 45.4	+20.8	27.8	41 31.2	+22.0	28.6	43 16.1	+23.3	29.5	69
36 30.2	+18.0	25.2	38 18.6	+18.9	25.8	40 06.2	+20.1	26.5	41 53.2	+21.3	27.3	43 39.4	+22.5	28.2	70
36 48.2	+17.2	24.0	38 37.5	+18.3	24.6	40 26.3	+19.3	25.3	42 14.5	+20.4	26.1	44 01.9	+21.6	26.9	71
37 05.4	+16.5	22.8	38 55.8	+17.4	23.4	40 45.6	+18.5	24.1	42 34.9	+19.6	24.8	44 23.5	+20.7	25.6	72
37 21.9	+15.7	21.6	39 13.2	+16.7	22.2	41 04.1	+17.7	22.8	42 54.5	+18.7	23.5	44 44.2	+19.8	24.3	73
37 37.6	+15.0	20.4	39 29.9	+15.9	20.9	41 21.8	+16.8	21.5	43 13.2	+17.7	22.2	45 04.0	+18.8	23.0	74
37 52.6	+14.2	19.1	39 45.8	+15.1	19.7	41 38.6	+15.9	20.3	43 30.9	+16.9	20.9	45 22.8	+17.9	21.6	75
38 06.8	+13.5	17.9	40 00.9	+14.2	18.4	41 54.5	+15.1	19.0	43 47.8	+16.0	19.6	45 40.7	+16.9	20.2	76
38 20.3	+12.6	16.7	40 15.1	+13.4	17.1	42 09.6	+14.2	17.7	44 03.8	+15.0	18.2	45 57.6	+15.8	18.9	77
38 32.9	+11.9	15.4	40 28.5	+12.5	15.9	42 23.8	+13.3	16.3	44 18.8	+14.0	16.9	46 13.4	+14.9	17.5	78
38 44.8	+11.0	14.2	40 41.0	+11.7	14.6	42 37.1	+12.3	15.0	44 32.8	+13.1	15.5	46 28.3	+13.8	16.1	79
38 55.8	+10.3	12.9	40 52.7	+10.8	13.3	42 49.4	+11.4	13.7	44 45.9	+12.1	14.1	46 42.1	+12.8	14.7	80
39 06.1	+9.4	11.6	41 03.5	+10.0	12.0	43 00.8	+10.5	12.3	44 58.0	+11.0	12.8	46 54.9	+11.7	13.2	81
39 15.5	+8.5	10.3	41 13.5	+9.0	10.7	43 11.3	+9.5	11.0	45 09.0	+10.1	11.4	47 06.6	+10.6	11.8	82
39 24.0	+7.8	9.1	41 22.5	+8.1	9.3	43 20.8	+8.6	9.6	45 19.1	+9.0	10.0	47 17.2	+9.5	10.3	83
39 31.8	+6.8	7.8	41 30.6	+7.2	8.0	43 29.4	+7.6	8.3	45 28.1	+8.0	8.6	47 26.7	+8.4	8.9	84
39 38.6	+6.0	6.5	41 37.8	+6.3	6.7	43 37.0	+6.6	6.9	45 36.1	+6.9	7.2	47 35.1	+7.3	7.4	85
39 44.6	+5.2	5.2	41 44.1	+5.4	5.4	43 43.6	+5.6	5.5	45 43.0	+5.9	5.7	47 42.4	+6.1	5.9	86
39 49.8	+4.3	3.9	41 49.5	+4.4	4.0	43 49.2	+4.6	4.2	45 48.9	+4.8	4.3	47 48.5	+5.0	4.5	87
39 54.1	+3.4	2.6	41 53.9	+3.5	2.7	43 53.8	+3.6	2.8	45 53.7	+3.7	2.9	47 53.5	+3.8	3.0	88
39 57.5	+2.5	1.3	41 57.4	+2.6	1.3	43 57.4	+2.6	1.4	45 57.4	+2.6	1.4	47 57.3	+2.7	1.5	89
40 00.0	+1.7	0.0	42 00.0	+1.6	0.0	44 00.0	+1.6	0.0	46 00.0	+1.6	0.0	48 00.0	+1.5	0.0	90
40°			42°			44°			46°			48°			

LATITUDE SAME NAME

L.H.A. 92°, 268°

88°, 272° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	23 43.9	+42.6	71.0	24 22.1	+44.2	71.8	24 58.7	+45.6	72.7	25 33.5	+47.0	73.6	26 06.4	+48.4	74.5
31	24 26.5	+42.4	70.2	25 06.3	+43.9	71.1	25 44.3	+45.4	72.0	26 20.5	+46.8	72.9	26 54.8	+48.1	73.9
32	25 08.9	+42.2	69.4	25 50.2	+43.7	70.3	26 29.7	+45.1	71.3	27 07.3	+46.6	72.2	27 42.9	+48.0	73.2
33	25 51.1	+41.8	68.6	26 33.9	+43.4	69.6	27 14.8	+44.9	70.5	27 53.9	+46.3	71.5	28 30.9	+47.8	72.5
34	26 32.9	+41.7	67.8	27 17.3	+43.1	68.8	27 59.7	+44.7	69.8	28 40.2	+46.2	70.8	29 18.7	+47.5	71.8
35	27 14.6	+41.3	67.0	28 00.4	+42.9	68.0	28 44.4	+44.4	69.0	29 26.4	+45.9	70.1	30 06.2	+47.4	71.1
36	27 55.9	+41.0	66.2	28 43.3	+42.6	67.2	29 28.8	+44.2	68.2	30 12.3	+45.6	69.3	30 53.6	+47.1	70.4
37	28 36.9	+40.8	65.4	29 25.9	+42.4	66.4	30 13.0	+43.8	67.5	30 57.9	+45.4	68.6	31 40.7	+46.8	69.7
38	29 17.7	+40.4	64.6	30 08.3	+42.0	65.6	30 56.8	+43.6	66.7	31 43.3	+45.1	67.8	32 27.5	+46.6	69.0
39	29 58.1	+40.1	63.7	30 50.3	+41.7	64.8	31 40.4	+43.2	65.9	32 28.4	+44.8	67.0	33 14.1	+46.3	68.2
40	30 38.2	+39.7	62.8	31 32.0	+41.3	63.9	32 23.6	+43.0	65.0	33 13.2	+44.5	66.2	34 00.4	+46.0	67.4
41	31 17.9	+39.4	62.0	32 13.3	+41.0	63.1	33 06.6	+42.6	64.2	33 57.7	+44.1	65.4	34 46.4	+45.7	66.7
42	31 57.3	+39.0	61.1	32 54.3	+40.6	62.2	33 49.2	+42.2	63.4	34 41.8	+43.9	64.6	35 32.1	+45.4	65.9
43	32 36.3	+38.6	60.2	33 34.9	+40.3	61.3	34 31.4	+41.9	62.5	35 25.7	+43.4	63.8	36 17.5	+45.0	65.1
44	33 14.9	+38.2	59.3	34 15.2	+39.9	60.4	35 13.3	+41.5	61.6	36 09.1	+43.2	62.9	37 02.5	+44.8	64.2
45	33 53.1	+37.8	58.3	34 55.1	+39.4	59.5	35 54.8	+41.1	60.8	36 52.3	+42.7	62.1	37 47.3	+44.3	63.4
46	34 30.9	+37.4	57.4	35 34.5	+39.0	58.6	36 35.9	+40.7	59.9	37 35.0	+42.3	61.2	38 31.6	+44.0	62.5
47	35 08.3	+36.9	56.5	36 13.5	+38.6	57.7	37 16.6	+40.3	58.9	38 17.3	+42.0	60.3	39 15.6	+43.5	61.7
48	35 45.2	+36.4	55.5	36 52.1	+38.1	56.7	37 56.9	+39.8	58.0	38 59.3	+41.4	59.4	39 59.1	+43.2	60.8
49	36 21.6	+35.9	54.5	37 30.2	+37.7	55.7	38 36.7	+39.3	57.0	39 40.7	+41.1	58.4	40 42.3	+42.7	59.9
50	36 57.5	+35.5	53.5	38 07.9	+37.1	54.8	39 16.0	+38.8	56.1	40 21.8	+40.5	57.5	41 25.0	+42.2	58.9
51	37 33.0	+34.9	52.5	38 45.0	+36.6	53.8	39 54.8	+38.3	55.1	41 02.3	+40.0	56.5	42 07.2	+41.8	58.0
52	38 07.9	+34.3	51.5	39 21.6	+36.1	52.7	40 33.1	+37.8	54.1	41 42.3	+39.6	55.5	42 49.0	+41.3	57.0
53	38 42.2	+33.8	50.4	39 57.7	+35.4	51.7	41 10.9	+37.3	53.0	42 21.9	+38.9	54.5	43 30.3	+40.7	56.0
54	39 16.0	+33.2	49.4	40 33.1	+35.0	50.6	41 48.2	+36.6	52.0	43 00.8	+38.4	53.5	44 11.0	+40.2	55.0
55	39 49.2	+32.6	48.3	41 08.1	+34.2	49.6	42 24.8	+36.0	50.9	43 39.2	+37.8	52.4	44 51.2	+39.6	54.0
56	40 21.8	+31.9	47.2	41 42.3	+33.7	48.5	43 00.8	+35.4	49.8	44 17.0	+37.2	51.3	45 30.8	+38.9	52.9
57	40 53.7	+31.3	46.1	42 16.0	+33.0	47.4	43 36.2	+34.8	48.7	44 54.2	+36.6	50.2	46 09.7	+38.4	51.8
58	41 25.0	+30.6	44.9	42 49.0	+32.3	46.2	44 11.0	+34.1	47.6	45 30.8	+35.8	49.1	46 48.1	+37.7	50.7
59	41 55.6	+29.9	43.8	43 21.3	+31.6	45.1	44 45.1	+33.3	46.5	46 06.6	+35.2	47.9	47 25.8	+36.9	49.5
60	42 25.5	+29.2	42.6	43 52.9	+30.9	43.9	45 18.4	+32.6	45.3	46 41.8	+34.4	46.8	48 02.7	+36.3	48.4
61	42 54.7	+28.5	41.4	44 23.8	+30.1	42.7	45 51.0	+31.9	44.1	47 16.2	+33.6	45.6	48 39.0	+35.5	47.2
62	43 23.2	+27.6	40.2	44 53.9	+29.4	41.5	46 22.9	+31.0	42.9	47 49.8	+32.9	44.3	49 14.5	+34.7	45.9
63	43 50.8	+26.9	39.0	45 23.3	+28.5	40.2	46 53.9	+30.3	41.6	48 22.7	+32.0	43.1	49 49.2	+33.8	44.7
64	44 17.7	+26.0	37.7	45 51.8	+27.7	39.0	47 24.2	+29.3	40.3	48 54.7	+31.1	41.8	50 23.0	+33.0	43.4
65	44 43.7	+25.2	36.5	46 19.5	+26.8	37.7	47 53.5	+28.5	39.0	49 25.8	+30.2	40.5	50 56.0	+32.0	42.1
66	45 08.9	+24.4	35.2	46 46.3	+25.9	36.4	48 22.0	+27.6	37.7	49 56.0	+29.3	39.2	51 28.0	+31.2	40.7
67	45 33.3	+23.4	33.9	47 12.2	+24.9	35.1	48 49.6	+26.6	36.4	50 25.3	+28.3	37.8	51 59.2	+30.1	39.4
68	45 56.7	+22.5	32.6	47 37.1	+24.1	33.7	49 16.2	+25.6	35.0	50 53.6	+27.4	36.4	52 29.3	+29.1	37.9
69	46 19.2	+21.5	31.2	48 01.2	+23.3	32.4	49 41.8	+24.6	33.6	51 21.0	+26.2	35.0	52 58.4	+28.0	36.5
70	46 40.7	+20.6	29.9	48 24.2	+22.0	31.0	50 06.4	+23.6	32.2	51 47.2	+25.2	33.5	53 26.4	+26.9	35.0
71	47 01.3	+19.6	28.5	48 46.2	+21.0	29.6	50 30.0	+22.4	30.8	52 12.4	+24.0	32.1	53 53.3	+25.7	33.5
72	47 20.9	+18.5	27.1	49 07.2	+19.9	28.2	50 52.4	+21.4	29.3	52 36.4	+22.9	30.6	54 19.0	+24.6	32.0
73	47 39.4	+17.6	25.7	49 27.1	+18.8	26.7	51 13.8	+20.2	27.8	52 59.3	+21.7	29.0	54 43.6	+23.3	30.4
74	47 57.0	+16.4	24.3	49 45.9	+17.7	25.2	51 34.0	+19.0	26.3	53 21.0	+20.5	27.5	55 06.9	+22.0	28.8
75	48 13.4	+15.4	22.8	50 03.6	+16.6	23.8	51 53.0	+17.8	24.8	53 41.5	+19.2	25.9	55 28.9	+20.6	27.2
76	48 28.8	+14.2	21.4	50 20.2	+15.3	22.3	52 10.8	+16.6	23.2	54 00.7	+17.9	24.3	55 49.5	+19.3	25.5
77	48 43.0	+13.1	19.9	50 35.5	+14.2	20.7	52 27.4	+15.3	21.7	54 18.6	+16.5	22.7	56 08.8	+17.9	23.8
78	48 56.1	+12.0	18.4	50 49.7	+13.0	19.2	52 42.7	+14.1	20.1	54 35.1	+15.2	21.0	56 26.7	+16.5	22.1
79	49 08.1	+10.8	16.9	51 02.7	+11.7	17.7	52 56.8	+12.7	18.4	54 50.3	+13.8	19.3	56 43.2	+14.9	20.3
80	49 18.9	+9.6	15.4	51 14.4	+10.4	16.1	53 09.5	+11.3	16.8	55 04.1	+12.3	17.6	56 58.1	+13.5	18.6
81	49 28.5	+8.4	13.9	51 24.8	+9.2	14.5	53 20.8	+10.0	15.2	55 16.4	+10.9	15.9	57 11.6	+11.9	16.8
82	49 36.9	+7.2	12.4	51 34.0	+7.9	12.9	53 30.8	+8.6	13.5	55 27.3	+9.4	14.2	57 23.5	+10.3	15.0
83	49 44.1	+6.0	10.9	51 41.9	+6.6	11.3	53 39.4	+7.3	11.9	55 36.7	+8.0	12.5	57 33.8	+8.7	13.1
84	49 50.1	+4.8	9.3	51 48.5	+5.2	9.7	53 46.7	+5.8	10.2	55 44.7	+6.4	10.7	57 42.5	+7.0	11.3
85	49 54.9	+3.5	7.8	51 53.7	+4.0	8.1	53 52.5	+4.3	8.5	55 51.1	+4.9	8.9	57 49.5	+5.5	9.4
86	49 58.4	+2.3	6.2	51 57.7	+2.5	6.5	53 56.8	+3.0	6.8	55 56.0	+3.3	7.1	57 55.0	+3.7	7.5
87	50 00.7	+1.0	4.7	52 00.2	+1.3	4.9	53 59.8	+1.5	5.1	55 59.3	+1.8	5.4	57 58.7	+2.1	5.7
88	50 01.7	-0.2	3.1	52 01.5	-0.1	3.2	54 01.3	+0.1	3.4	56 01.1	+0.2	3.6	58 00.8	+0.5	3.8
89	50 01.5	-1.5	1.6	52 01.4	-1.4	1.6	54 01.4	-1.4	1.7	56 01.3	-1.3	1.8	58 01.3	-1.3	1.9
90	50 00.0	-2.7	0.0	52 00.0	-2.8	0.0	54 00.0	-2.8	0.0	56 00.0	-2.9	0.0	58 00.0	-2.9	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 88°, 272°

Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Dec.
21 19.3	+43.3	68.3	22 02.9	+44.8	69.0	22 45.1	+46.2	69.8	23 25.8	+47.5	70.6	24 04.8	+48.8	71.4	30
22 02.6	+43.2	67.5	22 47.7	+44.6	68.3	23 31.3	+46.0	69.1	24 13.3	+47.3	69.9	24 53.6	+48.6	70.8	31
22 45.8	+42.9	66.8	23 32.3	+44.4	67.6	24 17.3	+45.7	68.4	25 00.6	+47.1	69.3	25 42.2	+48.5	70.2	32
23 28.7	+42.7	66.0	24 16.7	+44.1	66.8	25 03.0	+45.6	67.7	25 47.7	+47.0	68.6	26 30.7	+48.2	69.5	33
24 11.4	+42.5	65.3	25 00.8	+44.0	66.1	25 48.6	+45.4	67.0	26 34.7	+46.7	67.9	27 18.9	+48.1	68.8	34
24 53.9	+42.2	64.5	25 44.8	+43.7	65.4	26 34.0	+45.1	66.2	27 21.4	+46.5	67.2	28 07.0	+47.9	68.2	35
25 36.1	+42.0	63.7	26 28.5	+43.4	64.6	27 19.1	+44.9	65.5	28 07.9	+46.3	66.5	28 54.9	+47.7	67.5	36
26 18.1	+41.7	62.9	27 11.9	+43.2	63.8	28 04.0	+44.6	64.8	28 54.2	+46.1	65.7	29 42.6	+47.4	66.8	37
26 59.8	+41.5	62.1	27 55.1	+42.9	63.0	28 48.6	+44.4	64.0	29 40.3	+45.8	65.0	30 30.0	+47.2	66.1	38
27 41.3	+41.1	61.3	28 38.0	+42.7	62.2	29 33.0	+44.1	63.2	30 26.1	+45.6	64.3	31 17.2	+47.0	65.3	39
28 22.4	+40.9	60.5	29 20.7	+42.3	61.4	30 17.1	+43.9	62.4	31 11.7	+45.3	63.5	32 04.2	+46.7	64.6	40
29 03.3	+40.5	59.6	30 03.0	+42.1	60.6	31 01.0	+43.5	61.7	31 57.0	+45.0	62.7	32 50.9	+46.4	63.9	41
29 43.8	+40.2	58.8	30 45.1	+41.7	59.8	31 44.5	+43.2	60.8	32 42.0	+44.7	62.0	33 37.3	+46.2	63.1	42
30 24.0	+39.9	57.9	31 26.8	+41.4	59.0	32 27.7	+42.9	60.0	33 26.7	+44.4	61.2	34 23.5	+45.8	62.3	43
31 03.9	+39.5	57.1	32 08.2	+41.1	58.1	33 10.6	+42.6	59.2	34 11.1	+44.0	60.3	35 09.3	+45.6	61.6	44
31 43.4	+39.1	56.2	32 49.3	+40.6	57.2	33 53.2	+42.2	58.4	34 55.1	+43.8	59.5	35 54.9	+45.2	60.8	45
32 22.5	+38.8	55.3	33 29.9	+40.3	56.4	34 35.4	+41.9	57.5	35 38.9	+43.4	58.7	36 40.1	+44.9	59.9	46
33 01.3	+38.3	54.4	34 10.2	+40.0	55.5	35 17.3	+41.4	56.6	36 23.2	+43.0	57.8	37 25.0	+44.5	59.1	47
33 39.6	+38.0	53.5	34 50.2	+39.5	54.6	35 58.7	+41.1	55.7	37 05.3	+42.6	57.0	38 09.5	+44.2	58.3	48
34 17.6	+37.5	52.5	35 29.7	+39.0	53.6	36 39.8	+40.7	54.8	37 47.9	+42.2	56.1	38 53.7	+43.8	57.4	49
34 55.1	+37.0	51.6	36 08.7	+38.7	52.7	37 20.5	+40.2	53.9	38 30.1	+41.8	55.2	39 37.5	+43.3	56.5	50
35 32.1	+36.6	50.6	36 47.4	+38.1	51.8	38 00.7	+39.7	53.0	39 11.9	+41.3	54.2	40 20.8	+43.0	55.6	51
36 08.7	+36.2	49.6	37 25.5	+37.7	50.8	38 40.4	+39.3	52.0	39 53.2	+40.9	53.3	41 03.8	+42.4	54.7	52
36 44.9	+35.6	48.6	38 03.2	+37.2	49.8	39 19.7	+38.8	51.0	40 34.1	+40.4	52.4	41 46.2	+42.1	53.7	53
37 20.5	+35.0	47.6	38 40.4	+36.7	48.8	39 58.5	+38.3	50.0	41 14.5	+39.9	51.4	42 28.3	+41.5	52.8	54
37 55.5	+34.6	46.6	39 17.1	+36.1	47.8	40 36.8	+37.7	49.0	41 54.4	+39.3	50.4	43 09.8	+41.0	51.8	55
38 30.1	+34.0	45.6	39 53.2	+35.6	46.7	41 14.5	+37.2	48.0	42 33.7	+38.8	49.4	43 50.8	+40.4	50.8	56
39 04.1	+33.4	44.5	40 28.8	+35.0	45.7	41 51.7	+36.6	47.0	43 12.5	+38.3	48.3	44 31.2	+39.9	49.8	57
39 37.5	+32.8	43.4	41 03.8	+34.3	44.6	42 28.3	+35.9	45.9	43 50.8	+37.6	47.2	45 11.1	+39.3	48.7	58
40 10.3	+32.1	42.3	41 38.1	+33.8	43.5	43 04.2	+35.4	44.8	44 28.4	+37.0	46.2	45 50.4	+38.7	47.6	59
40 42.4	+31.6	41.2	42 11.9	+33.1	42.4	43 39.6	+34.7	43.7	45 05.4	+36.3	45.1	46 29.1	+38.0	46.5	60
41 14.0	+30.8	40.1	42 45.0	+32.4	41.3	44 14.3	+34.0	42.6	45 41.7	+35.6	43.9	47 07.1	+37.3	45.4	61
41 44.8	+30.2	39.0	43 17.4	+31.7	40.1	44 48.3	+33.3	41.4	46 17.3	+35.0	42.8	47 44.4	+36.6	44.2	62
42 15.0	+29.4	37.8	43 49.1	+30.9	39.0	45 21.6	+32.5	40.2	46 52.3	+34.1	41.6	48 21.0	+35.9	43.1	63
42 44.4	+28.8	36.6	44 20.0	+30.3	37.8	45 54.1	+31.8	39.0	47 26.4	+33.4	40.4	48 56.9	+35.1	41.8	64
43 13.2	+27.9	35.4	44 50.3	+29.4	36.6	46 25.9	+31.0	37.8	47 59.8	+32.6	39.1	49 32.0	+34.2	40.6	65
43 41.1	+27.1	34.2	45 19.7	+28.6	35.3	46 56.9	+30.1	36.5	48 32.4	+31.8	37.9	50 06.2	+33.4	39.3	66
44 08.2	+26.4	33.0	45 48.3	+27.8	34.1	47 27.0	+29.3	35.3	49 04.2	+30.9	36.6	50 39.6	+32.6	38.0	67
44 34.6	+25.5	31.7	46 16.1	+26.9	32.8	47 56.3	+28.4	34.0	49 35.1	+29.9	35.3	51 12.2	+31.6	36.7	68
45 00.1	+24.6	30.4	46 43.0	+26.0	31.5	48 24.7	+27.5	32.7	50 05.0	+29.0	33.9	51 43.8	+30.6	35.3	69
45 24.7	+23.8	29.1	47 09.0	+25.1	30.2	48 52.2	+26.5	31.3	50 34.0	+28.0	32.6	52 14.4	+29.6	33.9	70
45 48.5	+22.8	27.8	47 34.1	+24.1	28.8	49 18.7	+25.5	29.9	51 02.0	+27.0	31.2	52 44.0	+28.5	32.5	71
46 11.3	+21.9	26.5	47 58.2	+23.2	27.5	49 44.2	+24.5	28.5	51 29.0	+26.0	29.7	53 12.5	+27.5	31.0	72
46 33.2	+20.9	25.1	48 21.4	+22.2	26.1	50 08.7	+23.5	27.1	51 55.0	+24.8	28.3	53 40.0	+26.3	29.5	73
46 54.1	+20.0	23.8	48 43.6	+21.1	24.7	50 32.2	+22.3	25.7	52 19.8	+23.7	26.8	54 06.3	+25.2	28.0	74
47 14.1	+18.9	22.4	49 04.7	+20.0	23.3	50 54.5	+21.3	24.2	52 43.5	+22.5	25.3	54 31.5	+23.9	26.5	75
47 33.0	+17.9	21.0	49 24.7	+19.0	21.8	51 15.8	+20.1	22.7	53 06.0	+21.4	23.7	54 55.4	+22.7	24.9	76
47 50.9	+16.8	19.6	49 43.7	+17.8	20.4	51 35.9	+18.9	21.2	53 27.4	+20.0	22.2	55 18.1	+21.3	23.3	77
48 07.7	+15.7	18.1	50 01.5	+16.7	18.9	51 54.8	+17.7	19.7	53 47.4	+18.8	20.6	55 39.4	+20.0	21.6	78
48 23.4	+14.7	16.7	50 18.2	+15.5	17.4	52 12.5	+16.4	18.1	54 06.2	+17.5	19.0	55 59.4	+18.6	19.9	79
48 38.1	+13.5	15.2	50 33.7	+14.3	15.9	52 28.9	+15.2	16.6	54 23.7	+16.2	17.3	56 18.0	+17.2	18.2	80
48 51.6	+12.4	13.7	50 48.0	+13.1	14.3	52 44.1	+13.9	15.0	54 39.9	+14.7	15.7	56 35.2	+15.7	16.5	81
49 04.0	+11.2	12.3	51 01.1	+11.9	12.8	52 58.0	+12.6	13.4	54 54.6	+13.4	14.0	56 50.9	+14.2	14.7	82
49 15.2	+10.0	10.8	51 13.0	+10.6	11.2	53 10.6	+11.2	11.7	55 08.0	+11.9	12.3	57 05.1	+12.6	13.0	83
49 25.2	+8.9	9.2	51 23.6	+9.3	9.6	53 21.8	+9.9	10.1	55 19.9	+10.4	10.6	57 17.7	+11.1	11.1	84
49 34.1	+7.6	7.7	51 32.9	+8.1	8.1	53 31.7	+8.5	8.4	55 30.3	+9.0	8.8	57 28.8	+9.5	9.3	85
49 41.7	+6.4	6.2	51 41.0	+6.7	6.5	53 40.2	+7.1	6.8	55 39.3	+7.5	7.1	57 38.3	+7.9	7.5	86
49 48.1	+5.2	4.6	51 47.7	+5.4	4.9	53 47.3	+5.6	5.1	55 46.8	+5.9	5.3	57 46.2	+6.3	5.6	87
49 53.3	+4.0	3.1	51 53.1	+4.1	3.2	53 52.9	+4.3	3.4	55 52.7	+4.4	3.6	57 52.5	+4.6	3.8	88
49 57.3	+2.7	1.6	51 57.2	+2.8	1.6	53 57.2	+2.8	1.7	55 57.1	+2.9	1.8	57 57.1	+2.9	1.9	89
50 00.0	+1.5	0.0	52 00.0	+1.4	0.0	54 00.0	+1.4	0.0	56 00.0	+1.3	0.0	58 00.0	+1.3	0.0	90
50°			52°			54°			56°			58°			

LATITUDE SAME NAME

L.H.A. 92°, 268°

90°, 270° L.H.A.

LATITUDE SAME NAME

Dec.	30°			32°			34°			36°			38°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	14 28.7	+26.7	63.4	15 21.9	+28.4	63.9	16 14.2	+30.1	64.4	17 05.5	+31.8	65.0	17 55.7	+33.5	65.5
31	14 55.4	+26.5	62.5	15 50.3	+28.2	63.0	16 44.3	+29.9	63.5	17 37.3	+31.6	64.1	18 29.2	+33.3	64.7
32	15 21.9	+26.2	61.6	16 18.5	+28.0	62.1	17 14.2	+29.7	62.6	18 08.9	+31.4	63.2	19 02.5	+33.0	63.8
33	15 48.1	+26.1	60.6	16 46.5	+27.7	61.2	17 43.9	+29.4	61.7	18 40.3	+31.0	62.3	19 35.5	+32.7	62.9
34	16 14.2	+25.7	59.7	17 14.2	+27.5	60.2	18 13.3	+29.2	60.8	19 11.3	+30.9	61.4	20 08.2	+32.5	62.0
35	16 39.9	+25.6	58.8	17 41.7	+27.2	59.3	18 42.5	+28.8	59.9	19 42.2	+30.5	60.5	20 40.7	+32.2	61.1
36	17 05.5	+25.2	57.8	18 08.9	+26.9	58.4	19 11.3	+28.6	58.9	20 12.7	+30.3	59.6	21 12.9	+31.9	60.2
37	17 30.7	+25.0	56.9	18 35.8	+26.7	57.4	19 39.9	+28.3	58.0	20 43.0	+29.9	58.6	21 44.8	+31.7	59.3
38	17 55.7	+24.7	55.9	19 02.5	+26.3	56.5	20 08.2	+28.1	57.1	21 12.9	+29.7	57.7	22 16.5	+31.2	58.4
39	18 20.4	+24.4	55.0	19 28.8	+26.1	55.5	20 36.3	+27.7	56.1	21 42.6	+29.3	56.8	22 47.7	+31.0	57.5
40	18 44.8	+24.2	54.0	19 54.9	+25.7	54.6	21 04.0	+27.3	55.2	22 11.9	+29.0	55.8	23 18.7	+30.7	56.5
41	19 09.0	+23.8	53.0	20 20.6	+25.5	53.6	21 31.3	+27.1	54.2	22 40.9	+28.7	54.9	23 49.4	+30.3	55.6
42	19 32.8	+23.5	52.1	20 46.1	+25.1	52.6	21 58.4	+26.7	53.3	23 09.6	+28.3	53.9	24 19.7	+29.9	54.6
43	19 56.3	+23.1	51.1	21 11.2	+24.8	51.7	22 25.1	+26.4	52.3	23 37.9	+28.0	53.0	24 49.6	+29.6	53.7
44	20 19.4	+22.9	50.1	21 36.0	+24.4	50.7	22 51.5	+26.0	51.3	24 05.9	+27.6	52.0	25 19.2	+29.2	52.7
45	20 42.3	+22.5	49.1	22 00.4	+24.1	49.7	23 17.5	+25.6	50.3	24 33.5	+27.3	51.0	25 48.4	+28.8	51.8
46	21 04.8	+22.2	48.1	22 24.5	+23.7	48.7	23 43.1	+25.3	49.4	25 00.8	+26.8	50.0	26 17.2	+28.4	50.8
47	21 27.0	+21.8	47.1	22 48.2	+23.3	47.7	24 08.4	+24.9	48.4	25 27.6	+26.4	49.1	26 45.6	+28.1	49.8
48	21 48.8	+21.4	46.1	23 11.5	+22.9	46.7	24 33.3	+24.5	47.4	25 54.0	+26.1	48.1	27 13.7	+27.5	48.8
49	22 10.2	+21.1	45.1	23 34.4	+22.6	45.7	24 57.8	+24.0	46.4	26 20.1	+25.6	47.1	27 41.2	+27.2	47.8
50	22 31.3	+20.6	44.1	23 57.0	+22.2	44.7	25 21.8	+23.7	45.3	26 45.7	+25.1	46.0	28 08.4	+26.7	46.8
51	22 51.9	+20.3	43.1	24 19.2	+21.7	43.7	25 45.5	+23.2	44.3	27 10.8	+24.8	45.0	28 35.1	+26.2	45.8
52	23 12.2	+19.9	42.1	24 40.9	+21.4	42.7	26 08.7	+22.8	43.3	27 35.6	+24.2	44.0	29 01.3	+25.8	44.8
53	23 32.1	+19.5	41.0	25 02.3	+20.9	41.6	26 31.5	+22.4	42.3	27 59.8	+23.8	43.0	29 27.1	+25.3	43.7
54	23 51.6	+19.1	40.0	25 23.2	+20.4	40.6	26 53.9	+21.8	41.2	28 23.6	+23.3	41.9	29 52.4	+24.8	42.7
55	24 10.7	+18.6	39.0	25 43.6	+20.0	39.5	27 15.7	+21.4	40.2	28 46.9	+22.9	40.9	30 17.2	+24.3	41.6
56	24 29.3	+18.3	37.9	26 03.6	+19.6	38.5	27 37.1	+21.0	39.1	29 09.8	+22.3	39.8	30 41.5	+23.7	40.6
57	24 47.6	+17.7	36.9	26 23.2	+19.1	37.4	27 58.1	+20.4	38.1	29 32.1	+21.8	38.8	31 05.2	+23.2	39.5
58	25 05.3	+17.4	35.8	26 42.3	+18.6	36.4	28 18.5	+20.0	37.0	29 53.9	+21.3	37.7	31 28.4	+22.7	38.4
59	25 22.7	+16.8	34.8	27 00.9	+18.2	35.3	28 38.5	+19.4	35.9	30 15.2	+20.8	36.6	31 51.1	+22.1	37.3
60	25 39.5	+16.4	33.7	27 19.1	+17.6	34.2	28 57.9	+18.9	34.9	30 36.0	+20.2	35.5	32 13.2	+21.6	36.2
61	25 55.9	+16.0	32.6	27 36.7	+17.1	33.2	29 16.8	+18.4	33.8	30 56.2	+19.6	34.4	32 34.8	+20.9	35.1
62	26 11.9	+15.4	31.5	27 53.8	+16.7	32.1	29 35.2	+17.8	32.7	31 15.8	+19.1	33.3	32 55.7	+20.4	34.0
63	26 27.3	+15.0	30.5	28 10.5	+16.1	31.0	29 53.0	+17.3	31.6	31 34.9	+18.5	32.2	33 16.1	+19.7	32.9
64	26 42.3	+14.5	29.4	28 26.6	+15.6	29.9	30 10.3	+16.8	30.5	31 53.4	+17.9	31.1	33 35.8	+19.2	31.8
65	26 56.8	+13.9	28.3	28 42.2	+15.0	28.8	30 27.1	+16.1	29.4	32 11.3	+17.4	30.0	33 55.0	+18.5	30.6
66	27 10.7	+13.5	27.2	28 57.2	+14.5	27.7	30 43.2	+15.6	28.2	32 28.7	+16.6	28.8	34 13.5	+17.8	29.5
67	27 24.2	+12.9	26.1	29 11.7	+14.0	26.6	30 58.8	+15.0	27.1	32 45.3	+16.1	27.7	34 31.3	+17.2	28.3
68	27 37.1	+12.5	25.0	29 25.7	+13.4	25.5	31 13.8	+14.4	26.0	33 01.4	+15.5	26.5	34 48.5	+16.5	27.1
69	27 49.6	+11.9	23.9	29 39.1	+12.8	24.4	31 28.2	+13.8	24.8	33 16.9	+14.8	25.4	35 05.0	+15.8	26.0
70	28 01.5	+11.3	22.8	29 51.9	+12.3	23.2	31 42.0	+13.2	23.7	33 31.7	+14.1	24.2	35 20.8	+15.2	24.8
71	28 12.8	+10.8	21.7	30 04.2	+11.6	22.1	31 55.2	+12.5	22.6	33 45.8	+13.5	23.1	35 36.0	+14.4	23.6
72	28 23.6	+10.3	20.6	30 15.8	+11.1	21.0	32 07.7	+12.0	21.4	33 59.3	+12.8	21.9	35 50.4	+13.7	22.4
73	28 33.9	+9.7	19.4	30 26.9	+10.5	19.8	32 19.7	+11.2	20.2	34 12.1	+12.1	20.7	36 04.1	+13.0	21.2
74	28 43.6	+9.1	18.3	30 37.4	+9.9	18.7	32 30.9	+10.7	19.1	34 24.2	+11.4	19.5	36 17.1	+12.3	20.0
75	28 52.7	+8.6	17.2	30 47.3	+9.3	17.5	32 41.6	+10.0	17.9	34 35.6	+10.8	18.3	36 29.4	+11.5	18.8
76	29 01.3	+8.0	16.1	30 56.6	+8.6	16.4	32 51.6	+9.3	16.7	34 46.4	+10.0	17.1	36 40.9	+10.8	17.6
77	29 09.3	+7.5	14.9	31 05.2	+8.1	15.2	33 00.9	+8.7	15.6	34 56.4	+9.3	15.9	36 51.7	+10.0	16.3
78	29 16.8	+6.8	13.8	31 13.3	+7.4	14.1	33 09.6	+8.0	14.4	35 05.7	+8.6	14.7	37 01.7	+9.2	15.1
79	29 23.6	+6.3	12.7	31 20.7	+6.8	12.9	33 17.6	+7.3	13.2	35 14.3	+7.9	13.5	37 10.9	+8.5	13.9
80	29 29.9	+5.7	11.5	31 27.5	+6.1	11.7	33 24.9	+6.6	12.0	35 22.2	+7.1	12.3	37 19.4	+7.7	12.6
81	29 35.6	+5.1	10.4	31 33.6	+5.5	10.6	33 31.5	+6.0	10.8	35 29.3	+6.5	11.1	37 27.1	+6.8	11.4
82	29 40.7	+4.5	9.2	31 39.1	+4.9	9.4	33 37.5	+5.2	9.6	35 35.8	+5.6	9.9	37 33.9	+6.1	10.1
83	29 45.2	+3.9	8.1	31 44.0	+4.2	8.2	33 42.7	+4.6	8.4	35 41.4	+4.9	8.6	37 40.0	+5.3	8.9
84	29 49.1	+3.4	6.9	31 48.2	+3.6	7.1	33 47.3	+3.9	7.2	35 46.3	+4.2	7.4	37 45.3	+4.5	7.6
85	29 52.5	+2.7	5.8	31 51.8	+3.0	5.9	33 51.2	+3.2	6.0	35 50.5	+3.4	6.2	37 49.8	+3.7	6.3
86	29 55.2	+2.1	4.6	31 54.8	+2.3	4.7	33 54.4	+2.4	4.8	35 53.9	+2.7	4.9	37 53.5	+2.8	5.1
87	29 57.3	+1.5	3.5	31 57.1	+1.6	3.5	33 56.8	+1.8	3.6	35 56.6	+1.9	3.7	37 56.3	+2.1	3.8
88	29 58.8	+0.9	2.3	31 58.7	+1.0	2.4	33 58.6	+1.0	2.4	35 58.5	+1.1	2.5	37 58.4	+1.2	2.5
89	29 59.7	+0.3	1.2	31 59.7	+0.3	1.2	33 59.6	+0.4	1.2	35 59.6	+0.4	1.2	37 59.6	+0.4	1.3
90	30 00.0	-0.3	0.0	32 00.0	-0.3	0.0	34 00.0	-0.4	0.0	36 00.0	-0.4	0.0	38 00.0	-0.4	0.0
	30°			32°			34°			36°			38°		

90°, 270° L.H.A.

LATITUDE SAME NAME

Dec.	40°			42°			44°			46°			48°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	18 44.8	+35.2	66.1	19 32.8	+36.7	66.8	20 19.4	+38.4	67.4	21 04.8	+39.9	68.1	21 48.8	+41.4	68.9
31	19 20.0	+34.9	65.3	20 09.5	+36.6	65.9	20 57.8	+38.2	66.6	21 44.7	+39.8	67.3	22 30.2	+41.3	68.1
32	19 54.9	+34.7	64.4	20 46.1	+36.3	65.1	21 36.0	+37.8	65.8	22 24.5	+39.4	66.5	23 11.5	+41.0	67.3
33	20 29.6	+34.4	63.6	21 22.4	+36.0	64.2	22 13.8	+37.7	65.0	23 03.9	+39.2	65.7	23 52.5	+40.8	66.5
34	21 04.0	+34.1	62.7	21 58.4	+35.7	63.4	22 51.5	+37.3	64.1	23 43.1	+39.0	64.9	24 33.3	+40.5	65.7
35	21 38.1	+33.8	61.8	22 34.1	+35.5	62.5	23 28.8	+37.1	63.3	24 22.1	+38.7	64.1	25 13.8	+40.2	64.9
36	22 11.9	+33.6	60.9	23 09.6	+35.2	61.6	24 05.9	+36.8	62.4	25 00.8	+38.3	63.2	25 54.0	+40.0	64.1
37	22 45.5	+33.2	60.0	23 44.8	+34.9	60.8	24 42.7	+36.5	61.5	25 39.1	+38.1	62.4	26 34.0	+39.7	63.2
38	23 18.7	+33.0	59.1	24 19.7	+34.5	59.9	25 19.2	+36.2	60.7	26 17.2	+37.8	61.5	27 13.7	+39.3	62.4
39	23 51.7	+32.6	58.2	24 54.2	+34.3	59.0	25 55.4	+35.8	59.8	26 55.0	+37.5	60.6	27 53.0	+39.1	61.5
40	24 24.3	+32.2	57.3	25 28.5	+33.9	58.1	26 31.2	+35.5	58.9	27 32.5	+37.1	59.8	28 32.1	+38.7	60.7
41	24 56.5	+32.0	56.3	26 02.4	+33.5	57.1	27 06.7	+35.2	58.0	28 09.6	+36.7	58.9	29 10.8	+38.3	59.8
42	25 28.5	+31.5	55.4	26 35.9	+33.2	56.2	27 41.9	+34.8	57.1	28 46.3	+36.5	58.0	29 49.1	+38.0	58.9
43	26 00.0	+31.2	54.5	27 09.1	+32.8	55.3	28 16.7	+34.4	56.1	29 22.8	+36.0	57.1	30 27.1	+37.7	58.0
44	26 31.2	+30.8	53.5	27 41.9	+32.4	54.3	28 51.1	+34.1	55.2	29 58.8	+35.6	56.1	31 04.8	+37.2	57.1
45	27 02.0	+30.5	52.5	28 14.3	+32.0	53.4	29 25.2	+33.6	54.3	30 34.4	+35.3	55.2	31 42.0	+36.9	56.2
46	27 32.5	+30.0	51.6	28 46.3	+31.7	52.4	29 58.8	+33.2	53.3	31 09.7	+34.8	54.3	32 18.9	+36.4	55.3
47	28 02.5	+29.6	50.6	29 18.0	+31.1	51.4	30 32.0	+32.8	52.4	31 44.5	+34.4	53.3	32 55.3	+36.0	54.3
48	28 32.1	+29.1	49.6	29 49.1	+30.8	50.5	31 04.8	+32.3	51.4	32 18.9	+33.9	52.3	33 31.3	+35.6	53.4
49	29 01.2	+28.7	48.6	30 19.9	+30.3	49.5	31 37.1	+31.9	50.4	32 52.8	+33.5	51.4	34 06.9	+35.1	52.4
50	29 29.9	+28.3	47.6	30 50.2	+29.8	48.5	32 09.0	+31.4	49.4	33 26.3	+33.0	50.4	34 42.0	+34.6	51.4
51	29 58.2	+27.8	46.6	31 20.0	+29.3	47.5	32 40.4	+30.9	48.4	33 59.3	+32.5	49.4	35 16.6	+34.1	50.4
52	30 26.0	+27.2	45.6	31 49.3	+28.9	46.4	33 11.3	+30.4	47.4	34 31.8	+32.0	48.4	35 50.7	+33.7	49.4
53	30 53.2	+26.8	44.5	32 18.2	+28.3	45.4	33 41.7	+29.9	46.3	35 03.8	+31.5	47.3	36 24.4	+33.0	48.4
54	31 20.0	+26.3	43.5	32 46.5	+27.8	44.4	34 11.6	+29.4	45.3	35 35.3	+30.9	46.3	36 57.4	+32.5	47.4
55	31 46.3	+25.8	42.4	33 14.3	+27.2	43.3	34 41.0	+28.8	44.2	36 06.2	+30.4	45.2	37 29.9	+32.0	46.3
56	32 12.1	+25.2	41.4	33 41.5	+26.7	42.2	35 09.8	+28.2	43.2	36 36.6	+29.7	44.2	38 01.9	+31.3	45.2
57	32 37.3	+24.7	40.3	34 08.2	+26.2	41.1	35 38.0	+27.6	42.1	37 06.3	+29.2	43.1	38 33.2	+30.8	44.1
58	33 02.0	+24.0	39.2	34 34.4	+25.5	40.1	36 05.6	+27.0	41.0	37 35.5	+28.6	42.0	39 04.0	+30.1	43.0
59	33 26.0	+23.6	38.1	34 59.9	+25.0	39.0	36 32.6	+26.4	39.9	38 04.1	+27.9	40.9	39 34.1	+29.5	41.9
60	33 49.6	+22.9	37.0	35 24.9	+24.3	37.8	36 59.0	+25.8	38.8	38 32.0	+27.2	39.7	40 03.6	+28.8	40.8
61	34 12.5	+22.3	35.9	35 49.2	+23.7	36.7	37 24.8	+25.1	37.6	38 59.2	+26.6	38.6	40 32.4	+28.1	39.6
62	34 34.8	+21.6	34.8	36 12.9	+23.0	35.6	37 49.9	+24.4	36.5	39 25.8	+25.9	37.4	41 00.5	+27.3	38.5
63	34 56.4	+21.1	33.6	36 35.9	+22.4	34.4	38 14.3	+23.8	35.3	39 51.7	+25.2	36.3	41 27.8	+26.7	37.3
64	35 17.5	+20.4	32.5	36 58.3	+21.6	33.3	38 38.1	+23.0	34.1	40 16.9	+24.4	35.1	41 54.5	+25.8	36.1
65	35 37.9	+19.7	31.3	37 19.9	+21.0	32.1	39 01.1	+22.3	33.0	40 41.3	+23.7	33.9	42 20.3	+25.1	34.9
66	35 57.6	+19.0	30.2	37 40.9	+20.3	30.9	39 23.4	+21.6	31.8	41 05.0	+22.9	32.7	42 45.4	+24.3	33.6
67	36 16.6	+18.4	29.0	38 01.2	+19.6	29.7	39 45.0	+20.8	30.5	41 27.9	+22.1	31.4	43 09.7	+23.5	32.4
68	36 35.0	+17.6	27.8	38 20.8	+18.8	28.5	40 05.8	+20.0	29.3	41 50.0	+21.3	30.2	43 33.2	+22.6	31.1
69	36 52.6	+16.9	26.6	38 39.6	+18.0	27.3	40 25.8	+19.2	28.1	42 11.3	+20.4	28.9	43 55.8	+21.8	29.8
70	37 09.5	+16.2	25.4	38 57.6	+17.3	26.1	40 45.0	+18.4	26.8	42 31.7	+19.6	27.7	44 17.6	+20.8	28.5
71	37 25.7	+15.4	24.2	39 14.9	+16.4	24.9	41 03.4	+17.6	25.6	42 51.3	+18.7	26.4	44 38.4	+20.0	27.2
72	37 41.1	+14.7	23.0	39 31.3	+15.7	23.6	41 21.0	+16.7	24.3	43 10.0	+17.9	25.1	44 58.4	+19.0	25.9
73	37 55.8	+13.9	21.8	39 47.0	+14.9	22.4	41 37.7	+15.9	23.0	43 27.9	+16.9	23.8	45 17.4	+18.0	24.6
74	38 09.7	+13.1	20.5	40 01.9	+14.0	21.1	41 53.6	+15.0	21.7	43 44.8	+16.0	22.4	45 35.4	+17.1	23.2
75	38 22.8	+12.4	19.3	40 15.9	+13.2	19.8	42 08.6	+14.1	20.4	44 00.8	+15.1	21.1	45 52.5	+16.1	21.8
76	38 35.2	+11.5	18.0	40 29.1	+12.4	18.5	42 22.7	+13.2	19.1	44 15.9	+14.1	19.7	46 08.6	+15.0	20.4
77	38 46.7	+10.7	16.8	40 41.5	+11.4	17.3	42 35.9	+12.3	17.8	44 30.0	+13.1	18.4	46 23.6	+14.1	19.0
78	38 57.4	+9.9	15.5	40 52.9	+10.6	16.0	42 48.2	+11.3	16.5	44 43.1	+12.1	17.0	46 37.7	+12.9	17.6
79	39 07.3	+9.1	14.2	41 03.5	+9.8	14.7	42 59.5	+10.4	15.1	44 55.2	+11.1	15.6	46 50.6	+11.9	16.2
80	39 16.4	+8.2	13.0	41 13.3	+8.8	13.3	43 09.9	+9.5	13.8	45 06.3	+10.2	14.2	47 02.5	+10.8	14.8
81	39 24.6	+7.4	11.7	41 22.1	+7.9	12.0	43 19.4	+8.4	12.4	45 16.5	+9.0	12.8	47 13.3	+9.8	13.3
82	39 32.0	+6.6	10.4	41 30.0	+7.0	10.7	43 27.8	+7.5	11.1	45 25.5	+8.1	11.4	47 23.1	+8.6	11.9
83	39 38.6	+5.6	9.1	41 37.0	+6.1	9.4	43 35.3	+6.6	9.7	45 33.6	+7.0	10.0	47 31.7	+7.5	10.4
84	39 44.2	+4.8	7.8	41 43.1	+5.1	8.1	43 41.9	+5.5	8.3	45 40.6	+5.9	8.6	47 39.2	+6.3	8.9
85	39 49.0	+4.0	6.5	41 48.2	+4.3	6.7	43 47.4	+4.5	6.9	45 46.5	+4.8	7.2	47 45.5	+5.2	7.4
86	39 53.0	+3.0	5.2	41 52.5	+3.3	5.4	43 51.9	+3.6	5.6	45 51.3	+3.8	5.7	47 50.7	+4.1	6.0
87	39 56.0	+2.2	3.9	41 55.8	+2.3	4.0	43 55.5	+2.5	4.2	45 55.1	+2.7	4.3	47 54.8	+2.9	4.5
88	39 58.2	+1.4	2.6	41 58.1	+1.4	2.7	43 58.0	+1.5	2.8	45 57.8	+1.7	2.9	47 57.7	+1.7	3.0
89	39 59.6	+0.4	1.3	41 59.5	+0.5	1.3	43 59.5	+0.5	1.4	45 59.5	+0.5	1.4	47 59.4	+0.6	1.5
90	40 00.0	-0.4	0.0	42 00.0	-0.5	0.0	44 00.0	-0.5	0.0	46 00.0	-0.5	0.0	48 00.0	-0.6	0.0
	40°			42°			44°			46°			48°		

LATITUDE CONTRARY NAME

L.H.A. 90°, 270°

40°			42°			44°			46°			48°			Dec.
l	c	d	l	c	d	l	c	d	l	c	d	l	c	d	
18	44.8	+35.2	19	32.8	+36.7	20	19.4	+38.4	21	04.8	+39.9	22	48.8	+41.4	30
19	20.0	+34.9	20	09.5	+36.6	20	57.8	+38.2	21	44.7	+39.8	22	30.2	+41.3	31
19	54.9	+34.7	20	46.1	+36.3	21	36.0	+37.8	22	24.5	+39.4	23	11.5	+41.0	32
20	29.6	+34.4	21	22.4	+36.0	22	13.8	+37.7	23	03.9	+39.2	23	52.5	+40.8	33
21	04.0	+34.1	21	58.4	+35.7	22	51.5	+37.3	23	43.1	+39.0	24	33.3	+40.5	34
21	38.1	+33.8	22	34.1	+35.5	23	28.8	+37.1	24	22.1	+38.7	25	13.8	+40.2	35
22	11.9	+33.6	23	09.6	+35.2	24	05.9	+36.8	25	00.8	+38.3	25	54.0	+40.0	36
22	45.5	+33.2	23	44.8	+34.9	24	42.7	+36.5	25	39.1	+38.1	26	34.0	+39.7	37
23	18.7	+33.0	24	19.7	+34.5	25	19.2	+36.2	26	17.2	+37.8	27	13.7	+39.3	38
23	51.7	+32.6	24	54.2	+34.3	25	55.4	+35.8	26	55.0	+37.5	27	53.0	+39.1	39
24	24.3	+32.2	25	28.5	+33.9	26	31.2	+35.5	27	32.5	+37.1	28	32.1	+38.7	40
24	56.5	+32.0	26	02.4	+33.5	27	06.7	+35.2	28	09.6	+36.7	29	10.8	+38.3	41
25	28.5	+31.5	26	35.9	+33.2	27	41.9	+34.8	28	46.3	+36.5	29	49.1	+38.0	42
26	00.0	+31.2	27	09.1	+32.8	28	16.7	+34.4	29	22.8	+36.0	30	27.1	+37.7	43
26	31.2	+30.8	27	41.9	+32.4	28	51.1	+34.1	29	58.8	+35.6	31	04.8	+37.2	44
27	02.0	+30.5	28	14.3	+32.0	29	25.2	+33.6	30	34.4	+36.3	31	42.8	+36.9	45
27	32.5	+30.0	28	46.3	+31.7	29	58.8	+33.2	31	09.7	+34.8	32	18.9	+36.4	46
28	02.5	+29.6	29	18.0	+31.1	30	32.0	+32.8	31	44.3	+34.4	32	55.3	+36.0	47
28	32.1	+29.1	29	49.1	+30.8	31	04.8	+32.3	32	18.9	+33.9	33	31.3	+35.6	48
29	01.2	+28.7	30	19.9	+30.3	31	37.1	+31.9	32	52.8	+33.5	34	06.9	+35.1	49
29	29.9	+28.3	30	50.2	+29.8	32	09.0	+31.4	33	32.0	+33.0	34	42.0	+34.6	50
29	58.2	+27.8	31	20.0	+29.3	32	40.4	+30.9	33	59.3	+32.5	35	16.6	+34.1	51
30	26.0	+27.2	31	49.3	+28.9	33	11.3	+30.4	34	46.3	+32.0	35	50.7	+33.7	52
30	53.2	+26.8	32	18.2	+28.3	33	41.7	+29.9	35	03.8	+31.5	36	24.4	+33.0	53
31	20.0	+26.3	32	46.5	+27.8	34	11.6	+29.4	35	35.3	+30.9	36	57.4	+32.5	54
31	46.3	+25.8	33	14.3	+27.2	34	41.0	+28.8	36	06.2	+30.4	37	29.9	+32.0	55
32	12.1	+25.2	33	41.5	+26.7	35	09.8	+28.2	37	36.6	+29.7	38	01.9	+31.3	56
32	37.3	+24.7	34	08.2	+26.2	35	38.0	+27.6	38	30.3	+29.2	39	33.2	+30.8	57
33	02.0	+24.0	34	34.4	+25.5	36	05.6	+27.0	39	35.5	+28.6	40	04.0	+30.1	58
33	26.0	+23.6	34	59.9	+25.0	36	32.6	+26.4	40	04.1	+27.9	41	34.1	+29.5	59
33	49.6	+22.9	35	24.9	+24.3	37	59.0	+25.8	41	32.0	+27.2	42	03.6	+28.8	60
34	12.5	+22.3	35	49.2	+23.7	37	24.8	+25.1	42	59.2	+26.6	43	32.4	+28.1	61
34	34.8	+21.6	36	12.9	+23.0	38	49.9	+24.4	43	25.8	+25.9	44	00.5	+27.3	62
34	56.4	+21.1	36	35.9	+22.4	38	14.3	+23.8	44	51.7	+25.2	45	27.8	+26.7	63
35	17.5	+20.4	36	58.3	+21.6	38	38.1	+23.0	45	16.9	+24.4	46	54.5	+25.8	64
35	37.9	+19.7	37	19.9	+21.0	39	01.1	+22.3	46	41.3	+23.7	47	20.3	+25.1	65
35	57.6	+19.0	37	40.9	+20.3	39	23.4	+21.6	47	05.0	+22.9	48	45.4	+24.3	66
36	16.6	+18.4	38	01.2	+19.6	39	45.0	+20.8	48	27.9	+22.1	49	09.7	+23.5	67
36	35.0	+17.6	38	20.8	+18.8	40	05.8	+20.0	49	50.0	+21.3	50	33.2	+22.6	68
36	52.6	+16.9	38	39.6	+18.0	40	25.8	+19.2	50	11.3	+20.4	51	55.8	+21.8	69
37	09.5	+16.2	38	57.6	+17.3	40	45.0	+18.4	51	31.7	+19.6	52	17.6	+20.8	70
37	25.7	+15.4	39	14.9	+16.4	41	03.4	+17.6	52	51.3	+18.7	53	38.4	+20.0	71
37	41.1	+14.7	39	31.3	+15.7	41	21.0	+16.7	53	10.0	+17.9	54	58.4	+19.0	72
37	55.8	+13.9	39	47.0	+14.9	41	37.7	+15.9	54	27.9	+16.9	55	17.4	+18.0	73
38	09.7	+13.1	40	01.9	+14.0	41	53.6	+15.0	55	44.8	+16.0	56	35.4	+17.1	74
38	22.8	+12.4	40	15.9	+13.2	42	08.6	+14.1	56	00.8	+15.1	57	52.5	+16.1	75
38	35.2	+11.5	40	29.1	+12.4	42	22.7	+13.2	57	15.9	+14.1	58	08.6	+15.0	76
38	46.7	+10.7	40	41.5	+11.4	42	35.9	+12.3	58	30.0	+13.1	59	23.6	+14.1	77
38	57.4	+9.9	40	52.9	+10.6	42	48.2	+11.3	59	43.1	+12.1	60	37.7	+12.9	78
39	07.3	+9.1	41	03.5	+9.8	42	59.5	+10.4	60	55.2	+11.1	61	50.6	+11.9	79
39	16.4	+8.2	41	13.3	+8.8	43	09.9	+9.5	61	06.3	+10.2	62	02.5	+10.8	80
39	24.6	+7.4	41	22.1	+7.9	43	19.4	+8.4	62	16.5	+9.0	63	13.3	+9.8	81
39	32.0	+6.6	41	30.0	+7.0	43	27.8	+7.5	63	25.5	+8.1	64	23.1	+8.6	82
39	38.6	+5.6	41	37.0	+6.1	43	35.3	+6.6	64	33.6	+7.0	65	31.7	+7.5	83
39	44.2	+4.8	41	43.1	+5.1	43	41.9	+5.5	65	40.6	+5.9	66	39.2	+6.3	84
39	49.0	+4.0	41	48.2	+4.3	43	47.4	+4.5	66	46.5	+4.8	67	45.5	+5.2	85
39	53.0	+3.0	41	52.5	+3.3	43	51.9	+3.6	67	51.3	+3.8	68	50.7	+4.1	86
39	56.0	+2.2	41	55.8	+2.3	43	55.5	+2.5	68	55.1	+2.7	69	54.8	+2.9	87
39	58.2	+1.4	41	58.1	+1.4	43	58.0	+1.5	69	57.8	+1.7	70	57.7	+1.7	88
39	59.6	+0.4	41	59.5	+0.5	43	59.5	+0.5	70	59.5	+0.5	71	59.4	+0.6	89
40	00.0	-0.4	42	00.0	-0.5	44	00.0	-0.5	71	00.0	-0.5	72	00.0	-0.6	90

LATITUDE SAME NAME

L.H.A. 90°, 270°

90°, 270° L.H.A.

LATITUDE SAME NAME

Dec.	50°			52°			54°			56°			58°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
30	22 31.3	+ 42.9	69.6	23 12.2	+ 44.5	70.4	23 51.6	+ 45.9	71.3	24 29.3	+ 47.3	72.1	25 05.3	+ 48.6	73.0
31	23 14.2	+ 42.8	68.9	23 56.7	+ 44.2	69.7	24 37.5	+ 45.7	70.5	25 16.6	+ 47.0	71.4	25 53.9	+ 48.4	72.3
32	23 57.0	+ 42.5	68.1	24 40.9	+ 44.0	69.0	25 23.2	+ 45.4	69.8	26 03.6	+ 46.9	70.7	26 42.3	+ 48.2	71.7
33	24 39.5	+ 42.3	67.3	25 24.9	+ 43.8	68.2	26 08.6	+ 45.3	69.1	26 50.5	+ 46.6	70.0	27 30.5	+ 48.0	71.0
34	25 21.8	+ 42.1	66.6	26 08.7	+ 43.6	67.4	26 53.9	+ 45.0	68.4	27 37.1	+ 46.5	69.3	28 18.5	+ 47.8	70.3
35	26 03.9	+ 41.8	65.8	26 52.3	+ 43.3	66.7	27 38.9	+ 44.7	67.6	28 23.6	+ 46.2	68.6	29 06.3	+ 47.6	69.6
36	26 45.7	+ 41.5	65.0	27 35.6	+ 43.0	65.9	28 23.6	+ 44.5	66.9	29 09.8	+ 45.9	67.9	29 53.9	+ 47.4	68.9
37	27 27.2	+ 41.2	64.2	28 18.6	+ 42.7	65.1	29 08.1	+ 44.3	66.1	29 55.7	+ 45.8	67.2	30 41.3	+ 47.1	68.2
38	28 08.4	+ 40.9	63.3	29 01.3	+ 42.5	64.3	29 52.4	+ 44.0	65.3	30 41.5	+ 45.4	66.4	31 28.4	+ 46.9	67.5
39	28 49.3	+ 40.6	62.5	29 43.8	+ 42.2	63.5	30 36.4	+ 43.6	64.5	31 26.9	+ 45.2	65.6	32 15.3	+ 46.7	66.8
40	29 29.9	+ 40.3	61.7	30 26.0	+ 41.8	62.7	31 20.0	+ 43.4	63.7	32 12.1	+ 44.9	64.9	33 02.0	+ 46.3	66.0
41	30 10.2	+ 40.0	60.8	31 07.8	+ 41.5	61.8	32 03.4	+ 43.1	62.9	32 57.0	+ 44.5	64.1	33 48.3	+ 46.1	65.3
42	30 50.2	+ 39.6	59.9	31 49.3	+ 41.2	61.0	32 46.5	+ 42.7	62.1	33 41.5	+ 44.3	63.3	34 34.4	+ 45.7	64.5
43	31 29.8	+ 39.2	59.1	32 30.5	+ 40.8	60.1	33 29.2	+ 42.4	61.3	34 25.8	+ 44.0	62.5	35 20.1	+ 45.5	63.7
44	32 09.0	+ 38.9	58.2	33 11.3	+ 40.5	59.3	34 11.6	+ 42.0	60.4	35 09.8	+ 43.5	61.6	36 05.6	+ 45.1	62.9
45	32 47.9	+ 38.4	57.3	33 51.8	+ 40.0	58.4	34 53.6	+ 41.7	59.6	35 53.3	+ 43.3	60.8	36 50.7	+ 44.8	62.1
46	33 26.3	+ 38.1	56.4	34 31.8	+ 39.7	57.5	35 35.3	+ 41.3	58.7	36 36.6	+ 42.8	59.9	37 35.5	+ 44.4	61.2
47	34 04.4	+ 37.6	55.4	35 11.5	+ 39.2	56.6	36 16.6	+ 40.8	57.8	37 19.4	+ 42.5	59.1	38 19.9	+ 44.1	60.4
48	34 42.0	+ 37.2	54.5	35 50.7	+ 38.9	55.6	36 57.4	+ 40.5	56.9	38 01.9	+ 42.0	58.2	39 04.0	+ 43.6	59.5
49	35 19.2	+ 36.7	53.5	36 29.6	+ 38.3	54.7	37 37.9	+ 39.9	55.9	38 43.9	+ 41.7	57.2	39 47.6	+ 43.3	58.6
50	35 55.9	+ 36.3	52.5	37 07.9	+ 37.9	53.7	38 17.8	+ 39.6	55.0	39 25.6	+ 41.1	56.3	40 30.9	+ 42.8	57.7
51	36 32.2	+ 35.7	51.6	37 45.8	+ 37.4	52.8	38 57.4	+ 39.0	54.0	40 06.7	+ 40.7	55.4	41 13.7	+ 42.3	56.8
52	37 07.9	+ 35.2	50.6	38 23.2	+ 36.9	51.8	39 36.4	+ 38.5	53.0	40 47.4	+ 40.2	54.4	41 56.0	+ 41.9	55.9
53	37 43.1	+ 34.7	49.5	39 00.1	+ 36.3	50.8	40 14.9	+ 38.0	52.0	41 27.6	+ 39.7	53.4	42 37.9	+ 41.4	54.9
54	38 17.8	+ 34.2	48.5	39 36.4	+ 35.8	49.7	40 52.9	+ 37.5	51.0	42 07.3	+ 39.1	52.4	43 19.3	+ 40.8	53.9
55	38 52.0	+ 33.6	47.4	40 12.2	+ 35.2	48.7	41 30.4	+ 36.9	50.0	42 46.4	+ 38.6	51.4	44 00.1	+ 40.3	52.9
56	39 25.6	+ 32.9	46.4	40 47.4	+ 34.6	47.6	42 07.3	+ 36.3	48.9	43 25.0	+ 38.0	50.3	44 40.4	+ 39.7	51.8
57	39 58.5	+ 32.4	45.3	41 22.0	+ 34.0	46.5	42 43.6	+ 35.7	47.9	44 03.0	+ 37.4	49.3	45 20.1	+ 39.1	50.8
58	40 30.9	+ 31.7	44.2	41 56.0	+ 33.4	45.4	43 19.3	+ 35.0	46.8	44 40.4	+ 36.7	48.2	45 59.2	+ 38.5	49.7
59	41 02.6	+ 31.0	43.1	42 29.4	+ 32.7	44.3	43 54.3	+ 34.4	45.6	45 17.1	+ 36.1	47.1	46 37.7	+ 37.9	48.6
60	41 33.6	+ 30.4	41.9	43 02.1	+ 32.0	43.2	44 28.7	+ 33.6	44.5	45 53.2	+ 35.4	45.9	47 15.6	+ 37.1	47.5
61	42 04.0	+ 29.7	40.8	43 34.1	+ 31.2	42.0	45 02.3	+ 32.9	43.3	46 28.6	+ 34.6	44.7	47 52.7	+ 36.4	46.3
62	42 33.7	+ 28.9	39.6	44 05.3	+ 30.6	40.8	45 35.2	+ 32.2	42.1	47 03.2	+ 33.9	43.6	48 29.1	+ 35.7	45.1
63	43 02.6	+ 28.2	38.4	44 35.9	+ 29.7	39.6	46 07.4	+ 31.4	40.9	47 37.1	+ 33.1	42.3	49 04.8	+ 34.8	43.9
64	43 30.8	+ 27.4	37.2	45 05.6	+ 29.0	38.4	46 38.8	+ 30.6	39.7	48 10.2	+ 32.3	41.1	49 39.6	+ 34.1	42.6
65	43 58.2	+ 26.5	36.0	45 34.6	+ 28.1	37.1	47 09.4	+ 29.8	38.4	48 42.5	+ 31.4	39.8	50 13.7	+ 33.1	41.3
66	44 24.7	+ 25.8	34.7	46 02.7	+ 27.3	35.9	47 39.2	+ 28.8	37.1	49 13.9	+ 30.6	38.5	50 46.8	+ 32.3	40.0
67	44 50.5	+ 24.9	33.4	46 30.0	+ 26.4	34.6	48 08.0	+ 28.0	35.8	49 44.5	+ 29.6	37.2	51 19.1	+ 31.3	38.7
68	45 15.4	+ 24.0	32.2	46 56.4	+ 25.4	33.3	48 36.0	+ 27.0	34.5	50 14.1	+ 28.6	35.8	51 50.4	+ 30.4	37.3
69	45 39.4	+ 23.1	30.8	47 21.8	+ 24.6	31.9	49 03.0	+ 26.1	33.1	50 42.7	+ 27.7	34.5	52 20.8	+ 29.3	35.9
70	46 02.5	+ 22.2	29.5	47 46.4	+ 23.6	30.6	49 29.1	+ 25.0	31.8	51 10.4	+ 26.6	33.1	52 50.1	+ 28.3	34.5
71	46 24.7	+ 21.2	28.2	48 10.0	+ 22.5	29.2	49 54.1	+ 24.0	30.4	51 37.0	+ 25.5	31.6	53 18.4	+ 27.2	33.0
72	46 45.9	+ 20.2	26.8	48 32.5	+ 21.6	27.8	50 18.1	+ 23.0	28.9	52 02.5	+ 24.4	30.2	53 45.6	+ 26.0	31.5
73	47 06.1	+ 19.3	25.4	48 54.1	+ 20.5	26.4	50 41.1	+ 21.8	27.5	52 26.9	+ 23.3	28.7	54 11.6	+ 24.8	30.0
74	47 25.4	+ 18.2	24.0	49 14.6	+ 19.4	25.0	51 02.9	+ 20.7	26.0	52 50.2	+ 22.1	27.1	54 36.4	+ 23.6	28.4
75	47 43.6	+ 17.1	22.6	49 34.0	+ 18.3	23.5	51 23.6	+ 19.6	24.5	53 12.3	+ 20.9	25.6	55 00.0	+ 22.3	26.8
76	48 00.7	+ 16.1	21.2	49 52.3	+ 17.2	22.0	51 43.2	+ 18.3	23.0	53 33.2	+ 19.6	24.0	55 22.3	+ 21.0	25.2
77	48 16.8	+ 15.0	19.8	50 09.5	+ 16.0	20.6	52 01.5	+ 17.1	21.4	53 52.8	+ 18.4	22.4	55 43.3	+ 19.6	23.5
78	48 31.8	+ 13.9	18.3	50 25.5	+ 14.8	19.0	52 18.6	+ 15.9	19.9	54 11.2	+ 17.0	20.8	56 02.9	+ 18.3	21.9
79	48 45.7	+ 12.7	16.8	50 40.3	+ 13.7	17.5	52 34.5	+ 14.6	18.3	54 28.2	+ 15.6	19.2	56 21.2	+ 16.8	20.1
80	48 58.4	+ 11.6	15.3	50 54.0	+ 12.4	16.0	52 49.1	+ 13.3	16.7	54 43.8	+ 14.3	17.5	56 38.0	+ 15.3	18.4
81	49 10.0	+ 10.4	13.8	51 06.4	+ 11.1	14.4	53 02.4	+ 12.0	15.1	54 58.1	+ 12.8	15.8	56 53.3	+ 13.8	16.6
82	49 20.4	+ 9.2	12.3	51 17.5	+ 9.9	12.9	53 14.4	+ 10.6	13.4	55 10.9	+ 11.4	14.1	57 07.1	+ 12.3	14.9
83	49 29.6	+ 8.0	10.8	51 27.4	+ 8.6	11.3	53 25.0	+ 9.2	11.8	55 22.3	+ 9.9	12.4	57 19.4	+ 10.7	13.0
84	49 37.6	+ 6.9	9.3	51 36.0	+ 7.3	9.7	53 34.2	+ 7.9	10.1	55 32.2	+ 8.5	10.6	57 30.1	+ 9.1	11.2
85	49 44.5	+ 5.5	7.8	51 43.3	+ 6.0	8.1	53 42.1	+ 6.4	8.5	55 40.7	+ 6.9	8.9	57 39.2	+ 7.4	9.4
86	49 50.0	+ 4.4	6.2	51 49.3	+ 4.7	6.5	53 48.5	+ 5.0	6.8	55 47.6	+ 5.4	7.1	57 46.6	+ 5.9	7.5
87	49 54.4	+ 3.1	4.7	51 54.0	+ 3.3	4.9	53 53.5	+ 3.6	5.1	55 53.0	+ 3.9	5.4	57 52.5	+ 4.2	5.6
88	49 57.5	+ 1.9	3.1	51 57.3	+ 2.0	3.2	53 57.1	+ 2.2	3.4	55 56.9	+ 2.3	3.6	57 56.7	+ 2.5	3.8
89	49 59.4	+ 0.6	1.6	51 59.3	+ 0.7	1.6	53 59.3	+ 0.7	1.7	55 59.2	+ 0.8	1.8	57 59.2	+ 0.8	1.9
90	50 00.0	- 0.6	0.0	52 00.0	- 0.7	0.0	54 00.0	- 0.7	0.0	56 00.0	- 0.8	0.0	58 00.0	- 0.8	0.0

50°

52°

54°

56°

58°

LATITUDE CONTRARY NAME

L.H.A. 90°, 270°

50°			52°			54°			56°			58°			Dec. °					
l	c	Z	l	c	Z	l	c	Z	l	c	Z	l	c	Z						
22	31.3	+42.9	69.6	23	12.2	+44.5	70.4	23	51.6	+45.9	71.3	24	29.3	+47.3	72.1	25	05.3	+48.6	73.0	30
23	14.2	+42.8	68.9	23	56.7	+44.2	69.7	24	37.5	+45.7	70.5	25	16.6	+47.0	71.4	25	53.9	+48.4	72.3	31
23	57.0	+42.5	68.1	24	40.9	+44.0	69.0	25	23.2	+45.4	69.8	26	03.6	+46.9	70.7	26	42.3	+48.2	71.7	32
24	39.5	+42.3	67.3	25	24.9	+43.8	68.2	26	08.6	+45.3	69.1	26	50.5	+46.6	70.0	27	30.5	+48.0	71.0	33
25	21.8	+42.1	66.6	26	08.7	+43.6	67.4	26	53.9	+45.0	68.4	27	37.1	+46.5	69.3	28	18.5	+47.8	70.3	34
26	03.9	+41.8	65.8	26	52.3	+43.3	66.7	27	38.9	+44.7	67.6	28	23.6	+46.2	68.6	29	06.3	+47.6	69.6	35
26	45.7	+41.5	65.0	27	35.6	+43.0	65.9	28	23.6	+44.5	66.9	29	09.8	+45.9	67.9	29	53.9	+47.4	68.9	36
27	27.2	+41.2	64.2	28	18.6	+42.7	65.1	29	08.1	+44.3	66.1	29	55.7	+45.8	67.2	30	41.3	+47.1	68.2	37
28	08.4	+40.9	63.3	29	01.3	+42.5	64.3	29	52.4	+44.0	65.3	30	41.5	+45.4	66.4	31	28.4	+46.9	67.5	38
28	49.3	+40.6	62.5	29	43.8	+42.2	63.5	30	36.4	+43.6	64.5	31	26.9	+45.2	65.6	32	15.3	+46.7	66.8	39
29	29.9	+40.3	61.7	30	26.0	+41.8	62.7	31	20.0	+43.4	63.7	32	12.1	+44.9	64.9	33	02.0	+46.3	66.0	40
30	10.2	+40.0	60.8	31	07.8	+41.5	61.8	32	03.4	+43.1	62.9	32	57.0	+44.5	64.1	33	48.3	+46.1	65.3	41
30	50.2	+39.6	59.9	31	49.3	+41.2	61.0	32	46.5	+42.7	62.1	33	41.5	+44.3	63.3	34	34.4	+45.7	64.5	42
31	29.8	+39.2	59.1	32	30.5	+40.8	60.1	33	29.2	+42.4	61.3	34	25.8	+44.0	62.5	35	20.1	+45.5	63.7	43
32	09.0	+38.9	58.2	33	11.3	+40.5	59.3	34	11.6	+42.0	60.4	35	09.8	+43.5	61.6	36	05.6	+45.1	62.9	44
32	47.9	+38.4	57.3	33	51.8	+40.0	58.4	34	53.6	+41.7	59.6	35	53.3	+43.3	60.8	36	50.7	+44.8	62.1	45
33	26.3	+38.1	56.4	34	31.8	+39.7	57.5	35	35.3	+41.3	58.7	36	36.6	+42.8	59.9	37	35.5	+44.4	61.2	46
34	04.4	+37.6	55.4	35	11.5	+39.2	56.6	36	16.6	+40.8	57.8	37	19.4	+42.5	59.1	38	19.9	+44.1	60.4	47
34	42.0	+37.2	54.5	35	50.7	+38.9	55.6	36	57.4	+40.5	56.9	38	01.9	+42.0	58.2	39	04.0	+43.6	59.5	48
35	19.2	+36.7	53.5	36	29.6	+38.3	54.7	37	37.9	+39.9	55.9	38	43.9	+41.7	57.2	39	47.6	+43.3	58.6	49
35	55.9	+36.3	52.5	37	07.9	+37.9	53.7	38	17.8	+39.6	55.0	39	25.6	+41.1	56.3	40	30.9	+42.8	57.7	50
36	32.2	+35.7	51.6	37	45.8	+37.4	52.8	38	57.4	+39.0	54.0	40	06.7	+40.7	55.4	41	13.7	+42.3	56.8	51
37	07.9	+35.2	50.6	38	23.2	+36.9	51.8	39	36.4	+38.5	53.0	40	47.4	+40.2	54.4	41	56.0	+41.9	55.9	52
37	43.1	+34.7	49.5	39	00.1	+36.3	50.8	40	14.9	+38.0	52.0	41	27.6	+39.7	53.4	42	37.9	+41.4	54.9	53
38	17.8	+34.2	48.5	39	36.4	+35.8	49.7	40	52.9	+37.5	51.0	42	07.3	+39.1	52.4	43	19.3	+40.8	53.9	54
38	52.0	+33.6	47.4	40	12.2	+35.2	48.7	41	30.4	+36.9	50.0	42	46.4	+38.6	51.4	44	00.1	+40.3	52.9	55
39	25.6	+32.9	46.4	40	47.4	+34.6	47.6	42	07.3	+36.3	48.9	43	25.0	+38.0	50.3	44	40.4	+39.7	51.8	56
39	58.5	+32.4	45.3	41	22.0	+34.0	46.5	42	43.6	+35.7	47.9	44	03.0	+37.4	49.3	45	20.1	+39.1	50.8	57
40	30.9	+31.7	44.2	41	56.0	+33.4	45.4	43	19.3	+35.0	46.8	44	40.4	+36.7	48.2	45	59.2	+38.5	49.7	58
41	02.6	+31.0	43.1	42	29.4	+32.7	44.3	43	54.3	+34.4	45.6	45	17.1	+36.1	47.1	46	37.7	+37.9	48.6	59
41	33.6	+30.4	41.9	43	02.1	+32.0	43.2	44	28.7	+33.6	44.5	46	53.2	+35.4	45.9	47	15.6	+37.1	47.5	60
42	04.0	+29.7	40.8	43	34.1	+31.2	42.0	45	02.3	+32.9	43.3	46	28.6	+34.6	44.7	47	52.7	+36.4	46.3	61
42	33.7	+28.9	39.6	44	05.3	+30.6	40.8	45	35.2	+32.2	42.1	47	03.2	+33.9	43.6	48	29.1	+35.7	45.1	62
43	02.6	+28.2	38.4	44	35.9	+29.7	39.6	46	07.4	+31.4	40.9	47	37.1	+33.1	42.3	49	04.8	+34.8	43.9	63
43	30.8	+27.4	37.2	45	05.6	+29.0	38.4	46	38.8	+30.6	39.7	48	10.2	+32.3	41.1	49	39.6	+34.1	42.6	64
43	58.2	+26.5	36.0	45	34.6	+28.1	37.1	47	09.4	+29.8	38.4	48	42.5	+31.4	39.8	50	13.7	+33.1	41.3	65
44	24.7	+25.8	34.7	46	02.7	+27.3	35.9	47	39.2	+28.8	37.1	49	13.9	+30.6	38.5	50	46.8	+32.3	40.0	66
44	50.5	+24.9	33.4	46	30.0	+26.4	34.6	48	08.0	+28.0	35.8	49	44.5	+29.6	37.2	51	19.1	+31.3	38.7	67
45	15.4	+24.0	32.2	46	56.4	+25.4	33.3	48	36.0	+27.0	34.5	50	14.1	+28.6	35.8	51	50.4	+30.4	37.3	68
45	39.4	+23.1	30.8	47	21.8	+24.6	31.9	49	03.0	+26.1	33.1	50	42.7	+27.7	34.5	52	20.8	+29.3	35.9	69
46	02.5	+22.2	29.5	47	46.4	+23.6	30.6	49	29.1	+25.0	31.8	51	10.4	+26.6	33.1	52	50.1	+28.3	34.5	70
46	24.7	+21.2	28.2	48	10.0	+22.5	29.2	49	54.1	+24.0	30.4	51	37.0	+25.5	31.6	53	18.4	+27.2	33.0	71
46	45.9	+20.2	26.8	48	32.5	+21.6	27.8	50	18.1	+23.0	28.9	52	02.5	+24.4	30.2	53	45.6	+26.0	31.5	72
47	06.1	+19.3	25.4	48	54.1	+20.5	26.4	50	41.1	+21.8	27.5	52	26.9	+23.3	28.7	54	11.6	+24.8	30.0	73
47	25.4	+18.2	24.0	49	14.6	+19.4	25.0	51	02.9	+20.7	26.0	52	50.2	+22.1	27.1	54	36.4	+23.6	28.4	74
47	43.6	+17.1	22.6	49	34.0	+18.3	23.5	51	23.6	+19.6	24.5	53	12.3	+20.9	25.6	55	00.0	+22.3	26.8	75
48	00.7	+16.1	21.2	49	52.3	+17.2	22.0	51	43.2	+18.3	23.0	53	33.2	+19.6	24.0	55	22.3	+21.0	25.2	76
48	16.8	+15.0	19.8	50	09.5	+16.0	20.6	52	01.5	+17.1	21.4	53	52.8	+18.4	22.4	55	43.3	+19.6	23.5	77
48	31.8	+13.9	18.3	50	25.5	+14.8	19.0	52	18.6	+15.9	19.9	54	11.2	+17.0	20.8	56	02.9	+18.3	21.9	78
48	45.7	+12.7	16.8	50	40.3	+13.7	17.5	52	34.5	+14.6	18.3	54	28.2	+15.6	19.2	56	21.2	+16.8	20.1	79
48	58.4	+11.6	15.3	50	54.0	+12.4	16.0	52	49.1	+13.3	16.7	54	43.8	+14.3	17.5	56	38.0	+15.3	18.4	80
49	10.0	+10.4	13.8	51	06.4	+11.1	14.4	53	02.4	+12.0	15.1	54	58.1	+12.8	15.8	56	53.3	+13.8	16.6	81
49	20.4	+9.2	12.3	51	17.5	+9.9	12.9	53	14.4	+10.6	13.4	55	10.9	+11.4	14.1	57	07.1	+12.3	14.9	82
49	29.6	+8.0	10.8	51	27.4	+8.6	11.3	53	25.0	+9.2	11.8	55	22.3	+9.9	12.4	57	19.4	+10.7	13.0	83
49	37.6	+6.9	9.3	51	36.0	+7.3	9.7	53	34.2	+7.9	10.1	55	32.2	+8.5	10.6	57	30.1	+9.1	11.2	84
49	44.5	+5.5	7.8	51	43.3	+6.0	8.1	53	42.1	+6.4	8.5	55	40.7	+6.9	8.9	57	39.2	+7.4	9.4	85
49	50.0	+4.4	6.2	51	49.3	+4.7	6.5	53	48.5	+5.0	6.8	55	47.6	+5.4	7.1	57	46.6	+5.9	7.5	86
49	54.4	+3.1	4.7	51	54.0	+3.3	4.9	53	53.5	+3.6	5.1	55	53.0	+3.9	5.4	57	52.5	+4.2	5.6	87
49	57.5	+1.9	3.1	51	57.3	+2.0	3.2	53	57.1	+2.2	3.4	55	56.9	+2.3	3.6	57	56.7	+2.5	3.8	88
49	59.4	+0.6	1.6	51	59.3	+0.7	1.6	53	59.3	+0.7	1.7	55	59.2	+0.8	1.8	57	59.2	+0.8	1.9	89
50	00.0	-0.6	0.0	52	00.0	-0.7	0.0	54	00.0	-0.7	0.0	56	00.0	-0.8	0.0	58	00.0	-0.8	0.0	90

LATITUDE SAME NAME

L.H.A. 90°, 270°