

SIGHT REDUCTION TABLES FOR SMALL BOAT NAVIGATION

Original work by Hewitt Schlereth

Part 2 (Polar Latitudes Booklet)
by Jean Villemagne

LATITUDES 60° – 90° , Inclusive
0 to 90 degrees of declinations, 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.

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.

I contacted Hewitt about this project, and to my surprise received encouragement; this despite the fact that today sailors are relying mainly on GPS. I took a chance and asked him for a contribution, which he accepted by agreeing to write an introduction.

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.

Each 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. Once done, 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 Polar latitudes booklet 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.

Under no circumstance shall I have any liability to you for any loss or damage of any kind incurred as a result of the use of this information or reliance on any information provided in this work. Your use of the data provided in this set is solely at your own risk.

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° $Z_n = 180^\circ - Z$

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	29 58.8	+60.0	177.7	27 58.9	+60.0	177.7	25 59.0	+60.0	177.8	23 59.1	+60.0	177.8	21 59.2	+59.9	177.8	19 59.2	+60.0	177.9	17 59.3	+60.0	177.9	15 59.4	+60.0	177.9
1	30 58.8	+60.0	177.7	28 58.9	+60.0	177.7	26 59.0	+60.0	177.8	24 59.1	+60.0	177.8	22 59.1	+60.0	177.8	20 59.2	+60.0	177.9	18 59.3	+60.0	177.9	16 59.4	+60.0	177.9
2	31 58.8	+60.0	177.6	29 58.9	+60.0	177.7	27 59.0	+60.0	177.7	25 59.1	+59.9	177.8	23 59.1	+60.0	177.8	21 59.2	+60.0	177.8	19 59.3	+60.0	177.9	17 59.4	+60.0	177.9
3	32 58.8	+59.9	177.6	30 58.9	+59.9	177.7	28 59.0	+59.9	177.7	26 59.0	+60.0	177.8	24 59.1	+60.0	177.8	22 59.2	+60.0	177.8	20 59.3	+60.0	177.9	18 59.4	+60.0	177.9
4	33 58.7	+60.0	177.6	31 58.8	+60.0	177.6	29 58.9	+60.0	177.7	27 59.0	+60.0	177.7	25 59.1	+60.0	177.8	23 59.2	+60.0	177.8	21 59.3	+60.0	177.8	19 59.4	+60.0	177.9
5	34 58.7	+60.0	177.6	32 58.8	+60.0	177.6	30 58.9	+60.0	177.7	28 59.0	+60.0	177.7	26 59.1	+60.0	177.8	24 59.2	+60.0	177.8	22 59.3	+60.0	177.8	20 59.4	+60.0	177.9
6	35 58.7	+60.0	177.5	33 58.8	+60.0	177.6	31 58.9	+60.0	177.7	29 59.0	+60.0	177.7	27 59.1	+60.0	177.7	25 59.2	+60.0	177.8	23 59.3	+60.0	177.8	21 59.4	+60.0	177.9
7	36 58.7	+60.0	177.5	34 58.8	+60.0	177.6	32 58.9	+60.0	177.6	30 59.0	+60.0	177.7	28 59.1	+60.0	177.7	26 59.2	+60.0	177.8	24 59.3	+60.0	177.8	22 59.4	+60.0	177.8
8	37 58.7	+60.0	177.5	35 58.8	+60.0	177.6	33 58.9	+60.0	177.6	31 59.0	+60.0	177.7	29 59.1	+60.0	177.7	27 59.2	+60.0	177.8	25 59.3	+60.0	177.8	23 59.4	+60.0	177.8
9	38 58.7	+60.0	177.5	36 58.8	+60.0	177.5	34 58.9	+60.0	177.6	32 59.0	+60.0	177.6	30 59.1	+60.0	177.7	28 59.2	+60.0	177.7	26 59.3	+60.0	177.8	24 59.4	+60.0	177.8
10	39 58.7	+59.9	177.4	37 58.8	+60.0	177.5	35 58.9	+60.0	177.6	33 59.0	+60.0	177.6	31 59.1	+60.0	177.7	29 59.2	+60.0	177.7	27 59.3	+60.0	177.8	25 59.4	+60.0	177.8
11	40 58.6	+60.0	177.4	38 58.8	+59.9	177.5	36 58.9	+60.0	177.5	34 59.0	+60.0	177.6	32 59.1	+60.0	177.7	30 59.2	+60.0	177.7	28 59.3	+60.0	177.8	26 59.4	+60.0	177.8
12	41 58.6	+60.0	177.4	39 58.7	+60.0	177.4	37 58.9	+59.9	177.5	35 59.0	+60.0	177.6	33 59.1	+60.0	177.6	31 59.2	+60.0	177.7	29 59.3	+60.0	177.7	27 59.4	+60.0	177.8
13	42 58.6	+60.0	177.3	40 58.7	+60.0	177.4	38 58.8	+60.0	177.5	36 59.0	+60.0	177.6	34 59.1	+60.0	177.6	32 59.2	+60.0	177.7	30 59.3	+60.0	177.7	28 59.4	+60.0	177.8
14	43 58.6	+60.0	177.3	41 58.7	+60.0	177.4	39 58.8	+60.0	177.5	37 59.0	+59.9	177.5	35 59.1	+60.0	177.6	33 59.2	+60.0	177.7	31 59.3	+60.0	177.7	29 59.4	+59.9	177.8
15	44 58.6	+60.0	177.3	42 58.7	+60.0	177.4	40 58.8	+60.0	177.4	38 58.9	+60.0	177.5	36 59.1	+59.9	177.6	34 59.2	+59.9	177.6	32 59.3	+59.9	177.7	30 59.3	+60.0	177.7
16	45 58.6	+59.9	177.2	43 58.7	+60.0	177.3	41 58.8	+60.0	177.4	39 58.9	+60.0	177.5	37 59.0	+60.0	177.6	35 59.1	+60.0	177.6	33 59.2	+60.0	177.7	31 59.3	+60.0	177.7
17	46 58.5	+60.0	177.2	44 58.7	+60.0	177.3	42 58.8	+60.0	177.4	40 58.9	+60.0	177.5	38 59.0	+60.0	177.5	36 59.1	+60.0	177.6	34 59.2	+60.0	177.7	32 59.3	+60.0	177.7
18	47 58.5	+60.0	177.2	45 58.7	+59.9	177.3	43 58.8	+60.0	177.4	41 58.9	+60.0	177.4	39 59.0	+60.0	177.5	37 59.1	+60.0	177.6	35 59.2	+60.0	177.6	33 59.3	+60.0	177.7
19	48 58.5	+60.0	177.1	46 58.6	+60.0	177.2	44 58.8	+60.0	177.3	42 58.9	+60.0	177.4	40 59.0	+60.0	177.5	38 59.1	+60.0	177.6	36 59.2	+60.0	177.6	34 59.3	+60.0	177.7
20	49 58.5	+59.9	177.1	47 58.6	+60.0	177.2	45 58.8	+59.9	177.3	43 58.9	+60.0	177.4	41 59.0	+60.0	177.5	39 59.1	+60.0	177.5	37 59.2	+60.0	177.6	35 59.3	+60.0	177.7
21	50 58.4	+60.0	177.0	48 58.6	+60.0	177.2	46 58.7	+60.0	177.3	44 58.9	+60.0	177.4	42 59.0	+60.0	177.4	40 59.1	+60.0	177.5	38 59.2	+60.0	177.6	36 59.3	+60.0	177.7
22	51 58.4	+60.0	177.0	49 58.6	+60.0	177.1	47 58.7	+60.0	177.2	45 58.9	+60.0	177.3	43 59.0	+60.0	177.4	41 59.1	+60.0	177.5	39 59.2	+60.0	177.6	37 59.3	+60.0	177.6
23	52 58.4	+60.0	176.9	50 58.6	+59.9	177.1	48 58.7	+60.0	177.2	46 58.9	+59.9	177.3	44 59.0	+60.0	177.4	42 59.1	+60.0	177.5	40 59.2	+60.0	177.6	38 59.3	+60.0	177.6
24	53 58.4	+59.9	176.9	51 58.5	+60.0	177.0	49 58.7	+60.0	177.2	47 58.8	+60.0	177.3	45 59.0	+60.0	177.4	43 59.1	+60.0	177.5	41 59.2	+60.0	177.5	39 59.3	+60.0	177.6
25	54 58.3	+60.0	176.8	52 58.5	+60.0	177.0	50 58.7	+60.0	177.1	48 58.8	+60.0	177.2	46 59.0	+59.9	177.3	44 59.1	+60.0	177.4	42 59.2	+60.0	177.5	40 59.3	+60.0	177.6
26	55 58.3	+60.0	176.8	53 58.5	+60.0	176.9	51 58.7	+59.9	177.1	49 58.8	+60.0	177.2	47 58.9	+60.0	177.3	45 59.1	+60.0	177.4	43 59.2	+60.0	177.5	41 59.3	+60.0	177.6
27	56 58.3	+60.0	176.7	54 58.5	+59.9	176.9	52 58.6	+60.0	177.0	50 58.8	+60.0	177.2	48 58.9	+60.0	177.3	46 59.1	+60.0	177.4	44 59.2	+60.0	177.5	42 59.3	+60.0	177.6
28	57 58.3	+59.9	176.7	55 58.4	+60.0	176.8	53 58.6	+60.0	177.0	51 58.8	+60.0	177.1	49 58.9	+60.0	177.3	47 59.1	+59.9	177.4	45 59.2	+60.0	177.5	43 59.3	+60.0	177.6
29	58 58.2	+60.0	176.6	56 58.4	+60.0	176.8	54 58.6	+60.0	177.0	52 58.8	+59.9	177.1	50 58.9	+60.0	177.2	48 59.0	+60.0	177.3	46 59.2	+60.0	177.4	44 59.3	+60.0	177.5
30	59 58.2	+59.9	176.5	57 58.4	+60.0	176.7	55 58.6	+60.0	176.9	53 58.7	+60.0	177.1	51 58.9	+60.0	177.2	49 59.0	+60.0	177.3	47 59.2	+60.0	177.4	45 59.3	+60.0	177.5
31	60 58.1	+60.0	176.5	58 58.4	+59.9	176.7	56 58.6	+59.9	176.9	54 58.7	+60.0	177.0	52 58.9	+60.0	177.2	50 59.0	+60.0	177.3	48 59.2	+59.9	177.4	46 59.3	+60.0	177.5
32	61 58.1	+60.0	176.4	59 58.3	+60.0	176.6	57 58.5	+60.0	176.8	55 58.7	+60.0	177.0	53 58.9	+60.0	177.1	51 59.0	+60.0	177.2	49 59.1	+60.0	177.4	47 59.3	+60.0	177.5
33	62 58.1	+59.9	176.3	60 58.3	+60.0	176.5	58 58.5	+60.0	176.7	56 58.7	+60.0	176.9	54 58.9	+59.9	177.1	52 59.0	+60.0	177.2	50 59.1	+60.0	177.3	48 59.3	+60.0	177.4
34	63 58.0	+60.0	176.2	61 58.3	+59.9	176.5	59 58.5	+59.9	176.7	57 58.7	+59.9	176.9	55 58.8	+60.0	177.0	53 59.0	+60.0	177.2	51 59.1	+60.0	177.3	49 59.3	+59.9	177.4
35	64 58.0	+59.9	176.1	62 58.2	+60.0	176.4	60 58.4	+60.0	176.6	58 58.6	+60.0	176.8	56 58.8	+60.0	177.0	54 59.0	+60.0	177.1	52 59.1	+60.0	177.3	50 59.2	+60.0	177.4
36	65 57.9	+60.0	176.0	63 58.2	+59.9	176.3	61 58.4	+60.0	176.6	59 58.6	+60.0	176.8	57 58.8	+60.0	176.9	55 59.0	+59.9	177.1	53 59.1	+60.0	177.2	51 59.2	+60.0	177.4
37	66 57.9	+59.9	175.9	64 58.1	+60.0	176.2	62 58.4	+60.0	176.5	60 58.6	+60.0	176.7	58 58.8	+60.0	176.9	56 58.9	+60.0	177.1	54 59.1	+60.0	177.2	52 59.2	+60.0	177.3
38	67 57.8	+59.9	175.8	65 58.1	+59.9	176.1	63 58.4	+59.9	176.4	61 58.6	+59.9	176.6	59 58.8	+60.0	176.8	57 58.9	+60.0	177.1	55 59.1	+60.0	177.2	53 59.2	+60.0	177.3
39	68 57.7	+60.0	175.7	66 58.0	+60.0	176.0	64 58.3	+60.0	176.3	62 58.5	+60.0	176.6	60 58.7	+60.0	176.8	58 58.9	+60.0	177.0	56 59.1	+60.0	177.1	54 59.2	+60.0	177.3
40	69 57.7	+59.9	175.6	67 58.0	+59.9	175.9	65 58.3	+59.9	176.2	63 58.5	+60.0	176.5	61 58.7	+60.0	176.7	59 58.9	+60.0	176.9	57 59.1	+60.0	177.1	55 59.2	+60.0	177.3
41	70 57.6	+59.9	175.5	68 57.9	+60.0	175.8	66 58.2	+60.0	176.1	64 58.5	+59.9	176.4	62 58.7	+60.0	176.7	60 58.9	+60.0	176.9	58 59.1	+59.9	177.1	56 59.2	+60.0	177.2
42	71 57.5	+59.9	175.2	69 57.9	+59.9	175.7	67 58.2	+59.9	176.0	65 58.4	+60.0	176.3	63 58.7	+59.9	176.6	61 58.9	+59.9	176.8	59 59.0	+60.0	177.0	57 59.2	+60.0	177.2
43	72 57.4	+59.9	175.0	70 57.8	+59.9	175.5	68 58.1	+60.0	175.9	66 58.4	+60.0	176.3	64 58.6	+60.0	176.5	62 58.8	+60.0	176.8	60 59.0	+60.0	177.0	58 59.2	+60.0	177.2
44	73 57.3	+59.8	174.8	71 57.7	+59.9	175.3	69 58.1	+59.9	175.8	67 58.4	+59.9	176.2	65 58.6	+60.0	176.5	63 58.8	+60.0	176.7	61 59.0	+60.0	177.0	59 59.2	+60.0	177.1
45	74 57.1	+59.9	174.5	72 57.6	+59.9	175.2	70 58.0	+59.9	175.7	68 58.3	+60.0	176.1	66 58.6	+59.9	176.4	64 58.8	+60.0	176.7	62 59.0	+60.0	176.9	60 59.2	+59.9	177.1
46	75 57.0	+59.8	174.																					

LATITUDE CONTRARY NAME

L.H.A. 2°, 358°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 58.8 -60.0 177.7			27 58.9 -60.0 177.7			25 59.0 -60.0 177.8			23 59.1 -60.0 177.8			21 59.2 -60.0 177.8			19 59.2 -60.0 177.9			17 59.3 -60.0 177.9			15 59.4 -60.0 177.9			0
28 58.8 -60.0 177.7			26 58.9 -60.0 177.8			24 59.0 -60.0 177.8			22 59.1 -60.0 177.8			20 59.1 -60.0 177.8			18 59.2 -60.0 177.9			16 59.3 -60.0 177.9			14 59.4 -60.0 177.9			1
27 58.8 -60.0 177.7			25 58.9 -60.0 177.8			23 59.0 -60.0 177.8			21 59.1 -60.0 177.8			19 59.1 -60.0 177.8			17 59.2 -60.0 177.9			15 59.3 -60.0 177.9			13 59.4 -60.0 177.9			2
26 58.8 -60.0 177.8			24 58.9 -60.0 177.8			22 59.0 -60.0 177.8			20 59.1 -60.0 177.8			18 59.2 -60.0 177.9			16 59.3 -60.0 177.9			14 59.4 -60.0 177.9			12 59.4 -60.0 178.0			3
25 58.8 -60.0 177.8			23 58.9 -60.0 177.8			21 59.0 -60.0 177.8			19 59.1 -60.0 177.9			17 59.2 -60.0 177.9			15 59.3 -60.0 177.9			13 59.4 -60.0 177.9			11 59.4 -60.0 178.0			4
24 58.8 -59.9 177.8			22 58.9 -60.0 177.8			20 59.0 -60.0 177.9			18 59.1 -60.0 177.9			16 59.2 -60.0 177.9			14 59.3 -60.0 177.9			12 59.3 -60.0 178.0			10 59.4 -60.0 178.0			5
23 58.9 -60.0 177.8			21 58.9 -59.9 177.9			19 59.0 -60.0 177.9			17 59.1 -60.0 177.9			15 59.2 -60.0 177.9			13 59.3 -60.0 178.0			11 59.3 -60.0 178.0			9 59.4 -60.0 178.0			6
22 58.9 -60.0 177.8			20 59.0 -60.0 177.9			18 59.0 -60.0 177.9			16 59.1 -60.0 177.9			14 59.2 -60.0 177.9			12 59.3 -60.0 178.0			10 59.3 -60.0 178.0			8 59.4 -60.0 178.0			7
21 58.9 -60.0 177.9			19 59.0 -60.0 177.9			17 59.0 -59.9 177.9			15 59.1 -60.0 177.9			13 59.2 -60.0 178.0			11 59.3 -60.0 178.0			9 59.3 -59.9 178.0			7 59.4 -60.0 178.0			8
20 58.9 -60.0 177.9			18 59.0 -60.0 177.9			16 59.1 -60.0 177.9			14 59.1 -60.0 178.0			12 59.2 -60.0 178.0			10 59.3 -60.0 178.0			8 59.4 -60.0 178.0			6 59.4 -60.0 178.0			9
19 58.9 -60.0 177.9			17 59.0 -60.0 177.9			15 59.1 -60.0 178.0			13 59.1 -60.0 178.0			11 59.2 -60.0 178.0			9 59.3 -60.0 178.0			7 59.4 -60.0 178.0			5 59.4 -60.0 178.0			10
18 58.9 -60.0 177.9			16 59.0 -60.0 177.9			14 59.1 -60.0 178.0			12 59.1 -60.0 178.0			10 59.2 -60.0 178.0			8 59.3 -60.0 178.0			6 59.4 -60.0 178.0			4 59.4 -60.0 178.0			11
17 58.9 -60.0 177.9			15 59.0 -60.0 178.0			13 59.1 -60.0 178.0			11 59.1 -59.9 178.0			9 59.2 -60.0 178.0			7 59.3 -60.0 178.0			5 59.4 -60.0 178.0			3 59.4 -60.0 178.0			12
16 58.9 -60.0 178.0			14 59.0 -60.0 178.0			12 59.1 -60.0 178.0			10 59.2 -60.0 178.0			8 59.2 -60.0 178.0			6 59.3 -60.0 178.0			4 59.4 -60.0 178.0			2 59.4 -60.0 178.0			13
15 58.9 -59.9 178.0			13 59.0 -60.0 178.0			11 59.1 -60.0 178.0			9 59.2 -60.0 178.0			7 59.2 -60.0 178.0			5 59.3 -60.0 178.0			3 59.4 -60.0 178.1			1 59.4 -60.0 178.1			14
14 59.0 -60.0 178.0			12 59.0 -60.0 178.0			10 59.1 -60.0 178.0			8 59.2 -60.0 178.0			6 59.2 -60.0 178.1			4 59.3 -60.0 178.1			2 59.4 -60.0 178.1			0 59.4 -60.0 178.1			15
13 59.0 -60.0 178.0			11 59.0 -60.0 178.0			9 59.1 -60.0 178.0			7 59.2 -60.0 178.1			5 59.2 -60.0 178.1			3 59.3 -60.0 178.1			1 59.4 -60.0 178.1			0 0 0 6 +60.0 1.9			16
12 59.0 -60.0 178.0			10 59.0 -59.9 178.1			8 59.1 -60.0 178.1			6 59.2 -60.0 178.1			4 59.2 -60.0 178.1			2 59.3 -60.0 178.1			0 59.4 -60.0 178.1			1 0 0 6 +59.9 1.9			17
11 59.0 -60.0 178.1			9 59.1 -60.0 178.1			7 59.1 -60.0 178.1			5 59.2 -60.0 178.1			3 59.3 -60.0 178.1			1 59.3 -60.0 178.1			0 59.4 -60.0 178.1			2 0 0 5 +60.0 1.9			18
10 59.0 -60.0 178.1			8 59.1 -60.0 178.1			6 59.1 -60.0 178.1			4 59.2 -60.0 178.1			2 59.3 -60.0 178.1			0 59.3 -60.0 178.1			0 59.4 -60.0 178.1			3 0 0 5 +60.0 1.9			19
9 59.0 -60.0 178.1			7 59.1 -60.0 178.1			5 59.1 -60.0 178.1			3 59.2 -60.0 178.1			1 59.3 -60.0 178.1			0 0 0 7 +60.0 1.9			2 0 0 6 +60.0 1.9			4 0 0 5 +60.0 1.9			20
8 59.0 -60.0 178.1			6 59.1 -60.0 178.1			4 59.1 -60.0 178.1			2 59.2 -60.0 178.1			0 0 0 7 +60.0 1.9			1 0 0 7 +60.0 1.9			3 0 0 6 +60.0 1.9			5 0 0 5 +60.0 1.9			21
7 59.0 -60.0 178.1			5 59.1 -60.0 178.1			3 59.1 -59.9 178.1			1 59.2 -60.0 178.1			0 0 0 7 +60.0 1.9			2 0 0 7 +60.0 1.9			4 0 0 6 +60.0 1.9			6 0 0 5 +60.0 1.9			22
6 59.0 -60.0 178.1			4 59.1 -60.0 178.2			2 59.2 -60.0 178.2			0 59.2 -60.0 178.2			1 0 0 7 +60.0 1.8			3 0 0 7 +60.0 1.8			5 0 0 6 +60.0 1.8			7 0 0 5 +60.0 1.8			23
5 59.0 -60.0 178.2			3 59.1 -60.0 178.2			1 59.2 -60.0 178.2			0 59.2 -60.0 178.2			2 0 0 7 +60.0 1.8			4 0 0 7 +60.0 1.8			6 0 0 6 +60.0 1.8			8 0 0 5 +60.0 1.8			24
4 59.0 -59.9 178.2			2 59.1 -60.0 178.2			0 59.2 -60.0 178.2			0 0 0 8 +60.0 1.8			1 0 0 8 +60.0 1.8			3 0 0 7 +60.0 1.8			5 0 0 7 +59.9 1.8			7 0 0 6 +60.0 1.8			25
3 59.1 -60.0 178.2			1 59.1 -60.0 178.2			0 0 0 8 +60.0 1.8			2 0 0 8 +60.0 1.8			4 0 0 7 +60.0 1.8			5 0 0 7 +60.0 1.8			7 0 0 6 +60.0 1.8			9 0 0 5 +60.0 1.8			26
2 59.1 -60.0 178.2			0 59.1 -60.0 178.2			1 0 0 8 +60.0 1.8			3 0 0 8 +60.0 1.8			5 0 0 7 +60.0 1.8			6 0 0 6 +60.0 1.8			8 0 0 6 +60.0 1.8			10 0 0 5 +60.0 1.8			27
1 59.1 -60.0 178.2			0 0 0 9 +60.0 1.7			2 0 0 8 +60.0 1.8			4 0 0 8 +59.9 1.8			6 0 0 7 +60.0 1.8			8 0 0 6 +60.0 1.8			10 0 0 6 +60.0 1.8			12 0 0 5 +60.0 1.8			28
0 59.1 -60.0 178.3			1 0 0 9 +60.0 1.7			3 0 0 8 +60.0 1.8			5 0 0 7 +60.0 1.8			7 0 0 7 +60.0 1.8			9 0 0 6 +60.0 1.8			11 0 0 6 +60.0 1.8			13 0 0 5 +60.0 1.8			29
0 0 0 9 +60.0 1.7			2 0 0 9 +59.9 1.7			4 0 0 8 +60.0 1.7			6 0 0 7 +60.0 1.7			8 0 0 7 +60.0 1.7			10 0 0 6 +60.0 1.7			12 0 0 6 +60.0 1.7			14 0 0 5 +60.0 1.7			30
1 0 0 9 +60.0 1.7			3 0 0 8 +60.0 1.7			5 0 0 8 +60.0 1.7			7 0 0 7 +60.0 1.7			9 0 0 7 +60.0 1.7			11 0 0 6 +60.0 1.7			13 0 0 6 +60.0 1.7			15 0 0 5 +60.0 1.7			31
2 0 0 9 +60.0 1.7			4 0 0 8 +60.0 1.7			6 0 0 8 +60.0 1.7			8 0 0 7 +60.0 1.7			10 0 0 7 +60.0 1.7			12 0 0 6 +60.0 1.7			14 0 0 6 +60.0 1.7			16 0 0 5 +60.0 1.7			32
3 0 0 9 +60.0 1.7			5 0 0 8 +60.0 1.7			7 0 0 8 +60.0 1.7			9 0 0 7 +60.0 1.7			11 0 0 7 +60.0 1.7			13 0 0 6 +60.0 1.7			15 0 0 6 +60.0 1.7			17 0 0 5 +60.0 1.7			33
4 0 0 9 +60.0 1.7			6 0 0 8 +60.0 1.7			8 0 0 8 +60.0 1.7			10 0 0 7 +60.0 1.7			12 0 0 7 +60.0 1.7			14 0 0 6 +60.0 1.7			16 0 0 6 +60.0 1.7			18 0 0 5 +60.0 1.7			34
5 0 0 9 +60.0 1.6			7 0 0 8 +60.0 1.7			9 0 0 8 +60.0 1.7			11 0 0 7 +60.0 1.7			13 0 0 7 +60.0 1.7			15 0 0 6 +60.0 1.7			17 0 0 6 +60.0 1.7			19 0 0 5 +60.0 1.7			35
6 0 0 9 +59.9 1.6			8 0 0 8 +60.0 1.6			10 0 0 8 +59.9 1.6			12 0 0 7 +60.0 1.7			14 0 0 7 +59.9 1.7			16 0 0 6 +60.0 1.7			18 0 0 6 +59.9 1.7			20 0 0 5 +60.0 1.7			36
7 0 0 8 +60.0 1.6			9 0 0 8 +60.0 1.6			11 0 0 7 +60.0 1.6			13 0 0 7 +60.0 1.6			15 0 0 6 +60.0 1.7			17 0 0 6 +60.0 1.7			19 0 0 5 +60.0 1.7			21 0 0 5 +60.0 1.7			37
8 0 0 8 +60.0 1.6			10 0 0 8 +60.0 1.6			12 0 0 7 +60.0 1.6			14 0 0 7 +60.0 1.6			16 0 0 6 +60.0 1.6			18 0 0 6 +60.0 1.7			20 0 0 5 +60.0 1.7			22 0 0 5 +60.0 1.7			38
9 0 0 8 +60.0 1.6			11 0 0 8 +60.0 1.6			13 0 0 7 +60.0 1.6			15 0 0 7 +60.0 1.6			17 0 0 6 +60.0 1.6			19 0 0 6 +60.0 1.6			21 0 0 5 +60.0 1.7			23 0 0 5 +60.0 1.7			39
10 0 0 8 +60.0 1.6			12 0 0 8 +60.0 1.6			14 0 0 7 +60.0 1.6			16 0 0 7 +60.0 1.6			18 0 0 6 +60.0 1.6			20 0 0 6 +60.0 1.6			22 0 0 5 +60.0 1.6			24 0 0 5 +60.0 1.7			40
11 0 0 8 +60.0 1.5			13 0 0 8 +60.0 1.5			15 0 0 7 +60.0 1.6			17 0 0 7 +60.0 1.6			19 0 0 6 +60.0 1.6			21 0 0 6 +60.0 1.6			23 0 0 5 +60.0 1.6			25 0 0 5 +60.0 1.7			41
12 0 0 8 +60.0 1.5			14 0 0 8 +59.9 1.5			16 0 0 7 +60.0 1.5			18 0 0 7 +60.0 1.6			20 0 0 6 +60.0 1.6			22 0 0 6 +60.0 1.6			24 0 0 5 +60.0 1.6			26 0 0 5 +60.0 1.7			42
13 0 0 8 +60.0 1.5			15 0 0 7 +60.0 1.5			17 0 0 7 +60.0 1.5			19 0 0 7 +60.0 1.5			21 0 0 6 +60.0 1.5			23 0 0 6 +60.0 1.6			25 0 0 5 +60.0 1.6			27 0 0 5 +60.0 1.6			43
14 0 0 8 +60.0 1.5			16 0 0 7 +60.0 1.5			18 0 0 7 +60.0 1.5			20 0 0 7 +59.9 1.5			22 0 0 6 +60.0 1.6			24 0 0 6 +60.0 1.6			26 0 0 5 +60.0 1.6			28 0 0 5 +60.0 1.6			44
15 0 0 8 +60.0 1.5			17 0 0 7 +60.0 1.5			19 0 0 7 +60.0 1.5			21 0 0 6 +60.0 1.5			23 0 0 6 +60.0 1.5			25 0 0 6 +60.0 1.5			27 0 0 5 +60.0 1.6			29 0 0 5 +60.0 1.6			45
16 0 0 8 +59.9 1.5			18 0 0 7 +60.0 1.5			20 0 0 7 +60.0 1.5			22 0 0 6 +60.0 1.5			24 0 0 6 +60.0 1.5			26 0 0 6 +59.9 1.5			28 0 0 5 +60.0 1.6			30 0 0 5 +60.0 1.6			46
17 0 0 7 +60.0 1.4			19 0 0 7 +60.0 1.4			21 0 0 7 +60.0 1.5			23 0 0 6 +60.0 1.5															

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 59.5	+60.0	177.9	11 59.6	+60.0	178.0	9 59.6	+60.0	178.0	7 59.7	+60.0	178.0	5 59.8	+60.0	178.0	3 59.9	+60.0	178.0	1 59.9	+60.0	178.0	0 00.0	+60.0	178.0
1	14 59.5	+60.0	177.9	12 59.6	+60.0	177.9	10 59.6	+60.0	178.0	8 59.7	+60.0	178.0	6 59.8	+60.0	178.0	4 59.9	+60.0	178.0	2 59.9	+60.0	178.0	1 00.0	+60.0	178.0
2	15 59.5	+60.0	177.9	13 59.6	+59.9	177.9	11 59.6	+60.0	178.0	9 59.7	+60.0	178.0	7 59.8	+60.0	178.0	5 59.9	+60.0	178.0	3 59.9	+60.0	178.0	2 00.0	+60.0	178.0
3	16 59.5	+60.0	177.9	14 59.5	+60.0	177.9	12 59.6	+60.0	178.0	10 59.7	+60.0	178.0	8 59.8	+60.0	178.0	6 59.9	+60.0	178.0	4 59.9	+60.0	178.0	3 00.0	+60.0	178.0
4	17 59.5	+60.0	177.9	15 59.5	+60.0	177.9	13 59.6	+60.0	177.9	11 59.7	+60.0	178.0	9 59.8	+60.0	178.0	7 59.9	+60.0	178.0	5 59.9	+60.0	178.0	4 00.0	+60.0	178.0
5	18 59.5	+60.0	177.9	16 59.5	+60.0	177.9	14 59.6	+60.0	177.9	12 59.7	+60.0	178.0	10 59.8	+60.0	178.0	8 59.9	+60.0	178.0	6 59.9	+60.0	178.0	5 00.0	+60.0	178.0
6	19 59.5	+60.0	177.9	17 59.5	+60.0	177.9	15 59.6	+60.0	177.9	13 59.7	+60.0	178.0	11 59.8	+60.0	178.0	9 59.9	+60.0	178.0	7 59.9	+60.0	178.0	6 00.0	+60.0	178.0
7	20 59.5	+60.0	177.9	18 59.5	+60.0	177.9	16 59.6	+60.0	177.9	14 59.7	+60.0	177.9	12 59.8	+60.0	178.0	10 59.9	+60.0	178.0	8 59.9	+60.0	178.0	7 00.0	+60.0	178.0
8	21 59.5	+60.0	177.9	19 59.5	+60.0	177.9	17 59.6	+60.0	177.9	15 59.7	+60.0	177.9	13 59.8	+60.0	178.0	11 59.9	+60.0	178.0	9 59.9	+60.0	178.0	8 00.0	+60.0	178.0
9	22 59.5	+60.0	177.9	20 59.5	+60.0	177.9	18 59.6	+60.0	177.9	16 59.7	+60.0	177.9	14 59.8	+60.0	178.0	12 59.9	+60.0	178.0	10 59.9	+60.0	178.0	9 00.0	+60.0	178.0
10	23 59.5	+60.0	177.8	21 59.5	+60.0	177.9	19 59.6	+60.0	177.9	17 59.7	+60.0	177.9	15 59.8	+60.0	178.0	13 59.9	+60.0	178.0	11 59.9	+60.0	178.0	10 00.0	+60.0	178.0
11	24 59.5	+59.9	177.8	22 59.5	+60.0	177.9	20 59.6	+60.0	177.9	18 59.7	+60.0	177.9	16 59.8	+60.0	177.9	14 59.9	+60.0	178.0	12 59.9	+60.0	178.0	11 00.0	+60.0	178.0
12	25 59.4	+60.0	177.8	23 59.5	+60.0	177.9	21 59.6	+60.0	177.9	19 59.7	+60.0	177.9	17 59.8	+60.0	177.9	15 59.9	+60.0	178.0	13 59.9	+60.0	178.0	12 00.0	+60.0	178.0
13	26 59.4	+60.0	177.8	24 59.5	+60.0	177.8	22 59.6	+60.0	177.9	20 59.7	+60.0	177.9	18 59.8	+60.0	177.9	16 59.9	+60.0	178.0	14 59.9	+60.0	178.0	13 00.0	+60.0	178.0
14	27 59.4	+60.0	177.8	25 59.5	+60.0	177.8	23 59.6	+60.0	177.9	21 59.7	+60.0	177.9	19 59.8	+60.0	177.9	17 59.9	+60.0	178.0	15 59.9	+60.0	178.0	14 00.0	+60.0	178.0
15	28 59.4	+60.0	177.8	26 59.5	+60.0	177.8	24 59.6	+60.0	177.9	22 59.7	+60.0	177.9	20 59.8	+60.0	177.9	18 59.9	+60.0	178.0	16 59.9	+60.0	178.0	15 00.0	+60.0	178.0
16	29 59.4	+60.0	177.8	27 59.5	+60.0	177.8	25 59.6	+60.0	177.9	23 59.7	+60.0	177.9	21 59.8	+60.0	177.9	19 59.9	+60.0	178.0	17 59.9	+60.0	178.0	16 00.0	+60.0	178.0
17	30 59.4	+60.0	177.8	28 59.5	+60.0	177.8	26 59.6	+60.0	177.9	24 59.7	+60.0	177.9	22 59.8	+60.0	177.9	20 59.9	+60.0	178.0	18 59.9	+60.0	178.0	17 00.0	+60.0	178.0
18	31 59.4	+60.0	177.8	29 59.5	+60.0	177.8	27 59.6	+60.0	177.8	25 59.7	+60.0	177.9	23 59.8	+60.0	177.9	21 59.9	+59.9	177.9	19 59.9	+60.0	178.0	18 00.0	+60.0	178.0
19	32 59.4	+60.0	177.7	30 59.5	+60.0	177.8	28 59.6	+60.0	177.8	26 59.7	+60.0	177.9	24 59.8	+60.0	177.9	22 59.8	+60.0	177.9	20 59.9	+60.0	178.0	19 00.0	+60.0	178.0
20	33 59.4	+60.0	177.7	31 59.5	+60.0	177.8	29 59.6	+60.0	177.8	27 59.7	+60.0	177.9	25 59.8	+60.0	177.9	23 59.8	+60.0	177.9	21 59.9	+60.0	178.0	20 00.0	+60.0	178.0
21	34 59.4	+60.0	177.7	32 59.5	+60.0	177.8	30 59.6	+60.0	177.8	28 59.7	+60.0	177.9	26 59.8	+60.0	177.9	24 59.8	+60.0	177.9	22 59.9	+60.0	178.0	21 00.0	+60.0	178.0
22	35 59.4	+60.0	177.7	33 59.5	+60.0	177.8	31 59.6	+60.0	177.8	29 59.7	+60.0	177.9	27 59.8	+60.0	177.9	25 59.8	+60.0	177.9	23 59.9	+60.0	178.0	22 00.0	+60.0	178.0
23	36 59.4	+60.0	177.7	34 59.5	+60.0	177.8	32 59.6	+60.0	177.8	30 59.7	+60.0	177.9	28 59.8	+60.0	177.9	26 59.8	+60.0	177.9	24 59.9	+60.0	178.0	23 00.0	+60.0	178.0
24	37 59.4	+60.0	177.7	35 59.5	+60.0	177.7	33 59.6	+60.0	177.8	31 59.7	+60.0	177.8	29 59.8	+60.0	177.9	27 59.8	+60.0	177.9	25 59.9	+60.0	178.0	24 00.0	+60.0	178.0
25	38 59.4	+60.0	177.7	36 59.5	+60.0	177.7	34 59.6	+60.0	177.8	32 59.7	+60.0	177.8	30 59.8	+60.0	177.9	28 59.8	+60.0	177.9	26 59.9	+60.0	178.0	25 00.0	+60.0	178.0
26	39 59.4	+60.0	177.7	37 59.5	+60.0	177.7	35 59.6	+60.0	177.8	33 59.7	+60.0	177.8	31 59.8	+60.0	177.9	29 59.8	+60.0	177.9	27 59.9	+60.0	178.0	26 00.0	+60.0	178.0
27	40 59.4	+60.0	177.6	38 59.5	+60.0	177.7	36 59.6	+60.0	177.8	34 59.7	+60.0	177.8	32 59.8	+60.0	177.9	30 59.8	+60.0	177.9	28 59.9	+60.0	178.0	27 00.0	+60.0	178.0
28	41 59.4	+60.0	177.6	39 59.5	+60.0	177.7	37 59.6	+60.0	177.8	35 59.7	+60.0	177.8	33 59.8	+60.0	177.9	31 59.8	+60.0	177.9	29 59.9	+60.0	178.0	28 00.0	+60.0	178.0
29	42 59.4	+60.0	177.6	40 59.5	+60.0	177.7	38 59.6	+60.0	177.7	36 59.7	+60.0	177.8	34 59.8	+60.0	177.9	32 59.8	+60.0	177.9	30 59.9	+60.0	178.0	29 00.0	+60.0	178.0
30	43 59.4	+60.0	177.6	41 59.5	+60.0	177.7	39 59.6	+60.0	177.7	37 59.7	+60.0	177.8	35 59.8	+60.0	177.9	33 59.8	+60.0	177.9	31 59.9	+60.0	178.0	30 00.0	+60.0	178.0
31	44 59.4	+60.0	177.6	42 59.5	+60.0	177.7	40 59.6	+60.0	177.7	38 59.7	+60.0	177.8	36 59.8	+60.0	177.9	34 59.8	+60.0	177.9	32 59.9	+60.0	178.0	31 00.0	+60.0	178.0
32	45 59.4	+60.0	177.6	43 59.5	+60.0	177.6	41 59.6	+60.0	177.7	39 59.7	+60.0	177.8	37 59.8	+60.0	177.8	35 59.8	+60.0	177.9	33 59.9	+60.0	178.0	32 00.0	+60.0	178.0
33	46 59.4	+60.0	177.5	44 59.5	+60.0	177.6	42 59.6	+60.0	177.7	40 59.7	+60.0	177.8	38 59.8	+60.0	177.8	36 59.8	+60.0	177.9	34 59.9	+60.0	178.0	33 00.0	+60.0	178.0
34	47 59.4	+60.0	177.5	45 59.5	+60.0	177.6	43 59.6	+60.0	177.7	41 59.7	+60.0	177.8	39 59.8	+60.0	177.8	37 59.8	+60.0	177.9	35 59.9	+60.0	178.0	34 00.0	+60.0	178.0
35	48 59.4	+60.0	177.5	46 59.5	+60.0	177.6	44 59.6	+60.0	177.7	42 59.7	+60.0	177.8	40 59.8	+60.0	177.8	38 59.8	+60.0	177.9	36 59.9	+60.0	177.9	35 00.0	+60.0	178.0
36	49 59.4	+60.0	177.5	47 59.5	+60.0	177.6	45 59.6	+60.0	177.7	43 59.7	+60.0	177.8	41 59.8	+60.0	177.8	39 59.8	+60.0	177.9	37 59.9	+60.0	177.9	36 00.0	+60.0	178.0
37	50 59.4	+60.0	177.5	48 59.5	+60.0	177.6	46 59.6	+60.0	177.6	44 59.7	+60.0	177.7	42 59.8	+60.0	177.8	40 59.8	+60.0	177.9	38 59.9	+60.0	177.9	37 00.0	+60.0	178.0
38	51 59.4	+59.9	177.4	49 59.5	+60.0	177.5	47 59.6	+60.0	177.5	45 59.7	+60.0	177.7	43 59.8	+60.0	177.8	41 59.8	+60.0	177.9	39 59.9	+60.0	177.9	38 00.0	+60.0	178.0
39	52 59.3	+60.0	177.4	50 59.5	+60.0	177.5	48 59.6	+60.0	177.6	46 59.7	+60.0	177.7	44 59.8	+60.0	177.8	42 59.8	+60.0	177.9	40 59.9	+60.0	177.9	39 00.0	+60.0	178.0
40	53 59.3	+60.0	177.4	51 59.5	+60.0	177.5	49 59.6	+60.0	177.6	47 59.7	+60.0	177.7	45 59.8	+60.0	177.8	43 59.8	+60.0	177.9	41 59.9	+60.0	177.9	40 00.0	+60.0	178.0
41	54 59.3	+60.0	177.4	52 59.5	+59.9	177.5	50 59.6	+60.0	177.6	48 59.7	+60.0	177.7	46 59.8	+60.0	177.8	44 59.8	+60.0	177.9	42 59.9	+60.0	177.9	41 00.0	+60.0	178.0
42	55 59.3	+60.0	177.3	53 59.4	+60.0	177.5	51 59.6	+60.0	177.6	49 59.7	+60.0	177.7	47 59.8	+60.0	177.8	45 59.8	+60.0	177.9	43 59.9	+60.0	177.9	42 00.0	+60.0	178.0
43	56 59.3	+60.0	177.3	54 59.4	+60.0	177.5	52 59.6	+60.0	177.6	50 59.7	+60.0	177.7	48 59.8	+60.0	177.8	46 59.8	+60.0	177.9	44 59.9	+60.0	177.9	43 00.0	+60.0	178.0
44	57 59.3	+60.0	177.3	55 59.4	+60.0	177.4	53 59.6	+60.0	177.6	51 59.7	+60.0	177.7	49 59.8	+60.0	177.8	47 59.8	+60.0	177.8	45 59.9	+60.0	177.9	44 00.0	+60.0	178.0
45	58 59.3	+60.0	177.3	56 59.4	+60.0	177.4	54 59.6	+59.9	177.5	52 59.7	+60.0	177.7	50 59.8	+60.0	177.8	48 59.8	+60.0	177.8	46 59.9	+60.0	177.9	45 00.0	+60.0	178.0
46	59 59.3	+60.0	177.2	57 59.4	+60.0	177.4																		

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	29 55.2	+59.9	175.4	27 55.5	+60.0	175.5	25 55.9	+60.0	175.6	23 56.3	+59.9	175.6	21 56.6	+60.0	175.7	19 57.0	+59.9	175.7	17 57.3	+60.0	175.8	15 57.6	+60.0	175.8
1	30 55.1	+60.0	175.3	28 55.5	+60.0	175.4	26 55.9	+59.9	175.5	24 56.2	+60.0	175.6	22 56.6	+60.0	175.7	20 56.9	+60.0	175.7	18 57.3	+59.9	175.8	16 57.6	+60.0	175.8
2	31 55.1	+59.9	175.3	29 55.5	+59.9	175.4	27 55.8	+60.0	175.5	25 56.2	+60.0	175.6	23 56.6	+59.9	175.6	21 56.9	+60.0	175.7	19 57.2	+60.0	175.7	17 57.6	+60.0	175.8
3	32 55.0	+60.0	175.2	30 55.4	+60.0	175.3	28 55.8	+60.0	175.4	26 56.2	+60.0	175.5	24 56.6	+60.0	175.6	22 56.9	+60.0	175.7	20 57.2	+60.0	175.7	18 57.6	+59.9	175.8
4	33 55.0	+59.9	175.2	31 55.4	+59.9	175.3	29 55.8	+59.9	175.4	27 56.2	+59.9	175.5	25 56.5	+60.0	175.6	23 56.9	+60.0	175.6	21 57.2	+60.0	175.7	19 57.5	+60.0	175.8
5	34 54.9	+60.0	175.1	32 55.3	+60.0	175.3	30 55.7	+60.0	175.4	28 56.1	+60.0	175.4	26 56.5	+60.0	175.5	24 56.9	+59.9	175.6	22 57.2	+60.0	175.7	20 57.5	+60.0	175.7
6	35 54.9	+59.9	175.1	33 55.3	+59.9	175.2	31 55.7	+60.0	175.3	29 56.1	+60.0	175.4	27 56.5	+59.9	175.5	25 56.8	+60.0	175.6	23 57.0	+60.0	175.6	21 57.5	+60.0	175.7
7	36 54.8	+59.9	175.0	34 55.2	+60.0	175.2	32 55.7	+59.9	175.3	30 56.1	+59.9	175.4	28 56.4	+60.0	175.5	26 56.8	+60.0	175.5	24 57.2	+59.9	175.6	22 57.5	+60.0	175.7
8	37 54.7	+60.0	175.0	35 55.2	+59.9	175.1	33 55.6	+60.0	175.2	31 56.0	+60.0	175.3	29 56.4	+60.0	175.4	27 56.8	+60.0	175.5	25 57.1	+60.0	175.6	23 57.5	+60.0	175.7
9	38 54.7	+59.9	174.9	36 55.1	+60.0	175.1	34 55.6	+59.9	175.2	32 56.0	+60.0	175.3	30 56.4	+60.0	175.4	28 56.8	+59.9	175.5	26 57.1	+60.0	175.6	24 57.5	+60.0	175.6
10	39 54.6	+60.0	174.9	37 55.1	+59.9	175.0	35 55.5	+60.0	175.1	33 56.0	+59.9	175.3	31 56.4	+59.9	175.4	29 56.7	+60.0	175.5	27 57.1	+60.0	175.5	25 57.5	+60.0	175.6
11	40 54.6	+59.9	174.8	38 55.0	+60.0	175.0	36 55.5	+59.9	175.1	34 55.9	+60.0	175.2	32 56.3	+60.0	175.3	30 56.7	+60.0	175.4	28 57.1	+60.0	175.5	26 57.5	+59.9	175.6
12	41 54.5	+59.9	174.7	39 55.0	+59.9	174.9	37 55.4	+60.0	175.0	35 55.9	+59.9	175.2	33 56.3	+60.0	175.3	31 56.7	+60.0	175.4	29 57.1	+60.0	175.5	27 57.4	+60.0	175.6
13	42 54.4	+60.0	174.7	40 54.9	+60.0	174.8	38 55.4	+60.0	175.0	36 55.8	+60.0	175.1	34 56.3	+59.9	175.2	32 56.7	+59.9	175.4	30 57.1	+59.9	175.5	28 57.4	+60.0	175.6
14	43 54.4	+59.9	174.6	41 54.9	+59.9	174.8	39 55.4	+59.9	174.9	37 55.8	+60.0	175.1	35 56.2	+60.0	175.2	33 56.6	+60.0	175.3	31 57.0	+60.0	175.4	29 57.4	+60.0	175.5
15	44 54.3	+59.9	174.5	42 54.8	+60.0	174.7	40 55.3	+60.0	174.9	38 55.8	+59.9	175.0	36 56.2	+60.0	175.2	34 56.6	+60.0	175.3	32 57.0	+60.0	175.4	30 57.4	+60.0	175.5
16	45 54.2	+59.9	174.5	43 54.8	+59.9	174.7	41 55.3	+59.9	174.8	39 55.7	+60.0	175.0	37 56.2	+59.9	175.1	35 56.6	+60.0	175.2	33 57.0	+60.0	175.4	31 57.4	+60.0	175.5
17	46 54.1	+60.0	174.4	44 54.7	+59.9	174.6	42 55.2	+59.9	174.8	40 55.7	+59.9	174.9	38 56.1	+60.0	175.0	36 56.6	+59.9	175.2	34 57.0	+60.0	175.3	32 57.4	+60.0	175.4
18	47 54.1	+59.9	174.3	45 54.6	+60.0	174.5	43 55.1	+60.0	174.7	41 55.6	+60.0	174.9	39 56.1	+60.0	175.1	37 56.5	+60.0	175.2	35 57.0	+59.9	175.3	33 57.4	+59.9	175.4
19	48 54.0	+59.9	174.2	46 54.6	+59.9	174.5	44 55.1	+59.9	174.7	42 55.6	+60.0	174.8	40 56.1	+59.9	175.0	38 56.5	+60.0	175.1	36 56.9	+60.0	175.3	34 57.3	+60.0	175.4
20	49 53.9	+59.9	174.2	47 54.5	+59.9	174.4	45 55.0	+60.0	174.6	43 55.6	+59.9	174.8	41 56.0	+60.0	174.9	39 56.5	+60.0	175.1	37 56.9	+60.0	175.2	35 57.3	+60.0	175.4
21	50 53.8	+59.9	174.1	48 54.4	+60.0	174.3	46 55.0	+59.9	174.5	44 55.5	+60.0	174.7	42 56.0	+60.0	174.9	40 56.5	+59.9	175.1	38 56.9	+60.0	175.2	36 57.3	+60.0	175.4
22	51 53.7	+59.9	174.0	49 54.3	+60.0	174.2	47 54.9	+60.0	174.4	45 55.5	+59.9	174.7	43 56.0	+59.9	174.8	41 56.4	+60.0	175.0	39 56.9	+59.9	175.2	37 57.3	+60.0	175.3
23	52 53.6	+59.9	173.9	50 54.3	+59.9	174.2	48 54.9	+59.9	174.5	46 55.4	+60.0	174.6	44 55.9	+60.0	174.8	42 56.4	+60.0	175.0	40 56.8	+60.0	175.1	38 57.3	+59.9	175.3
24	53 53.5	+59.9	173.8	51 54.2	+59.9	174.1	49 54.8	+59.9	174.3	47 55.4	+59.9	174.5	45 55.9	+59.9	174.7	43 56.4	+59.9	174.9	41 56.8	+60.0	175.1	39 57.2	+60.0	175.2
25	54 53.4	+59.9	173.7	52 54.1	+59.9	174.0	50 54.7	+59.9	174.2	48 55.3	+59.9	174.5	46 55.8	+60.0	174.7	44 56.3	+60.0	174.9	42 56.8	+60.0	175.0	40 57.2	+60.0	175.2
26	55 53.3	+59.9	173.6	53 54.0	+59.9	173.9	51 54.6	+60.0	174.2	49 55.2	+60.0	174.4	47 55.8	+59.9	174.6	45 56.3	+60.0	174.8	43 56.8	+59.9	175.0	41 57.2	+60.0	175.2
27	56 53.2	+59.8	173.5	54 53.9	+59.9	173.8	52 54.6	+59.9	174.1	50 55.2	+59.9	174.3	48 55.7	+60.0	174.6	46 56.3	+59.9	174.8	44 56.7	+60.0	175.0	42 57.2	+60.0	175.1
28	57 53.0	+59.9	173.3	55 53.8	+59.9	173.7	53 54.5	+59.9	174.0	51 55.1	+60.0	174.3	49 55.7	+59.9	174.5	47 56.2	+60.0	174.7	45 56.7	+60.0	174.9	43 57.2	+59.9	175.1
29	58 52.9	+59.9	173.2	56 53.7	+59.9	173.6	54 54.4	+59.9	173.9	52 55.1	+59.9	174.2	50 55.6	+60.0	174.4	48 56.2	+59.9	174.7	46 56.7	+60.0	174.9	44 57.1	+60.0	175.1
30	59 52.8	+59.8	173.1	57 53.6	+59.9	173.5	55 54.3	+59.9	173.8	53 55.0	+59.9	174.1	51 55.6	+59.9	174.3	49 56.1	+60.0	174.6	47 56.7	+59.9	174.8	45 57.1	+60.0	175.0
31	60 52.6	+59.9	172.9	58 53.5	+59.9	173.4	56 54.2	+59.9	173.7	54 54.9	+59.9	174.0	52 55.5	+60.0	174.5	50 56.1	+60.0	174.6	48 56.8	+60.0	174.8	46 57.1	+60.0	175.0
32	61 52.5	+59.8	172.8	59 53.3	+59.9	173.2	57 54.1	+59.9	173.6	55 54.8	+60.0	173.9	53 55.5	+59.9	174.2	51 56.1	+59.9	174.5	49 56.6	+60.0	174.7	47 57.1	+60.0	174.9
33	62 52.3	+59.8	172.6	60 53.2	+59.9	173.1	58 54.0	+59.9	173.5	56 54.8	+59.9	173.8	54 55.4	+60.0	174.2	52 56.0	+60.0	174.4	50 56.6	+59.9	174.7	48 57.1	+59.9	174.9
34	63 52.1	+59.8	172.5	61 53.1	+59.8	173.0	59 53.9	+59.9	173.4	57 54.7	+59.9	173.8	55 55.4	+59.9	174.1	53 56.0	+59.9	174.4	51 56.5	+60.0	174.6	49 57.0	+60.0	174.8
35	64 51.9	+59.8	172.3	62 52.9	+59.9	172.8	60 53.8	+59.9	173.3	58 54.6	+59.9	173.6	56 55.3	+59.9	174.0	54 55.9	+60.0	174.3	52 56.5	+59.9	174.6	50 57.0	+60.0	174.8
36	65 51.7	+59.8	172.1	63 52.8	+59.8	172.6	61 53.7	+59.9	173.1	59 54.5	+59.9	173.5	57 55.2	+59.9	173.9	55 55.9	+59.9	174.2	53 56.4	+60.0	174.5	51 57.0	+59.9	174.7
37	66 51.5	+59.7	171.9	64 52.6	+59.8	172.5	62 53.6	+59.8	172.8	60 54.4	+59.9	173.4	58 55.1	+60.0	173.8	56 55.8	+59.9	174.1	54 56.4	+60.0	174.4	52 56.9	+60.0	174.7
38	67 51.2	+59.8	171.6	65 52.4	+59.8	172.3	63 53.4	+59.9	172.6	61 54.3	+59.9	173.3	59 55.1	+59.9	173.7	57 55.7	+60.0	174.1	55 56.4	+59.9	174.4	53 56.9	+60.0	174.6
39	68 51.0	+59.7	171.4	66 52.2	+59.8	172.1	64 53.3	+59.8	172.2	62 54.2	+59.9	173.2	60 55.0	+59.9	173.6	58 55.7	+59.9	174.0	56 56.3	+60.0	174.3	54 56.9	+59.9	174.6
40	69 50.7	+59.6	171.1	67 52.0	+59.7	171.8	65 53.1	+59.8	172.5	63 54.1	+59.8	173.0	61 54.9	+59.9	173.5	59 55.6	+59.9	173.9	57 56.3	+59.9	174.2	55 56.8	+60.0	174.5
41	70 50.3	+59.7	170.8	68 51.7	+59.8	171.6	66 52.9	+59.8	172.3	64 53.9	+59.9	172.9	62 54.8	+59.9	173.4	60 55.5	+60.0	173.8	58 56.2	+60.0	174.1	56 56.8	+60.0	174.5
42	71 50.0	+59.6	170.4	69 51.5	+59.7	171.3	67 52.7	+59.8	172.1	65 53.8	+59.8	172.7	63 54.7	+59.9	173.2	61 55.5	+59.9	173.7	59 56.2	+59.9	174.1	57 56.8	+59.9	174.4
43	72 49.6	+59.5	170.1	70 51.2	+59.7	171.1	68 52.5	+59.8	171.9	66 53.6	+59.9	172.5	64 54.6	+59.9	173.1	62 55.4	+59.9	173.6	60 56.1	+59.9	174.0	58 56.7	+60.0	174.3
44	73 49.1	+59.5	169.6	71 50.9	+59.6	170.7	69 52.3	+59.8	171.6	67 53.5	+59.8	172.3	65 54.5	+59.8	172.9	63 55.3	+59.9	173.4	61 56.0	+60.0	173.9	59 56.7	+59.9	174.2
45	74 48.6	+59.5	169.1	72 50.5	+59.6	170.4	70 52.1	+59.7	171.3	68 53.3	+59.8	172.1	66 54.3	+59.9	172.6	64 55.2	+59.9	173.3	62 56.0	+59.9	173.8	60 56.6	+60.0	174.2
46	75 48.1	+59.3	168.6																					

LATITUDE CONTRARY NAME

L.H.A. 4°, 356°

60°			62°			64°			66°			68°			70°			72°			74°			Dec
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 55.2	-60.0	175.4	27 55.5	-59.9	175.5	25 55.9	-59.9	175.6	23 56.3	-60.0	175.6	21 56.6	-60.0	175.7	19 57.0	-60.0	175.7	17 57.3	-60.0	175.8	15 57.6	-60.0	175.8	
28 55.2	-59.9	175.4	26 55.6	-60.0	175.5	24 56.0	-60.0	175.6	22 56.3	-60.0	175.7	20 56.6	-59.9	175.7	18 57.0	-60.0	175.8	16 57.3	-60.0	175.8	14 57.6	-60.0	175.9	0
27 55.3	-60.0	175.5	25 55.6	-59.9	175.6	23 56.0	-60.0	175.6	21 56.3	-59.9	175.7	19 56.7	-60.0	175.7	17 57.0	-60.0	175.8	15 57.3	-60.0	175.8	13 57.6	-60.0	175.9	1
26 55.3	-59.9	175.5	24 55.7	-60.0	175.6	22 56.0	-60.0	175.7	20 56.4	-60.0	175.7	18 56.7	-60.0	175.8	16 57.0	-60.0	175.8	14 57.3	-60.0	175.9	12 57.6	-60.0	175.9	2
25 55.4	-60.0	175.6	23 55.7	-60.0	175.6	21 56.1	-60.0	175.7	19 56.4	-60.0	175.8	17 56.7	-60.0	175.8	15 57.0	-60.0	175.8	13 57.3	-59.9	175.9	11 57.6	-59.9	175.9	3
24 55.4	-60.0	175.6	22 55.7	-59.9	175.7	20 56.1	-60.0	175.7	18 56.4	-60.0	175.8	16 56.7	-59.9	175.8	14 57.0	-59.9	175.9	12 57.4	-60.0	175.9	10 57.7	-60.0	175.9	4
23 55.4	-59.9	175.6	21 55.8	-60.0	175.7	19 56.1	-60.0	175.8	17 56.4	-59.9	175.8	15 56.8	-60.0	175.9	13 57.0	-60.0	175.9	11 57.4	-60.0	175.9	9 57.7	-60.0	176.0	5
22 55.5	-60.0	175.7	20 55.8	-59.9	175.7	18 56.1	-59.9	175.8	16 56.5	-60.0	175.8	14 56.8	-60.0	175.9	12 57.1	-60.0	175.9	10 57.4	-60.0	176.0	8 57.7	-60.0	176.0	6
21 55.5	-59.9	175.7	19 55.9	-60.0	175.8	17 56.2	-60.0	175.8	15 56.5	-60.0	175.9	13 56.8	-60.0	175.9	11 57.1	-60.0	176.0	9 57.4	-60.0	176.0	7 57.7	-60.0	176.0	7
20 55.6	-60.0	175.8	18 55.9	-60.0	175.8	16 56.2	-60.0	175.9	14 56.5	-60.0	175.9	12 56.8	-60.0	175.9	10 57.1	-60.0	176.0	8 57.4	-60.0	176.0	6 57.7	-60.0	176.0	8
19 55.6	-59.9	175.8	17 55.9	-59.9	175.9	15 56.2	-59.9	175.9	13 56.5	-59.9	176.0	11 56.8	-59.9	176.0	9 57.1	-59.9	176.0	7 57.4	-60.0	176.0	5 57.7	-60.0	176.0	9
18 55.7	-60.0	175.8	16 56.0	-60.0	175.9	14 56.3	-60.0	175.9	12 56.6	-60.0	176.0	10 56.9	-60.0	176.0	8 57.2	-60.0	176.0	6 57.4	-59.9	176.0	4 57.7	-60.0	176.1	10
17 55.7	-60.0	175.9	15 56.0	-60.0	175.9	13 56.3	-60.0	176.0	11 56.6	-60.0	176.0	9 56.9	-60.0	176.0	7 57.2	-60.0	176.0	5 57.5	-60.0	176.1	3 57.7	-60.0	176.1	11
16 55.7	-59.9	175.9	14 56.0	-59.9	176.0	12 56.3	-59.9	176.0	10 56.6	-60.0	176.0	8 56.9	-60.0	176.1	6 57.2	-60.0	176.1	4 57.5	-60.0	176.1	2 57.7	-59.9	176.1	12
15 55.8	-60.0	176.0	13 56.1	-60.0	176.0	11 56.4	-60.0	176.0	9 56.6	-59.9	176.1	7 56.9	-60.0	176.1	5 57.2	-60.0	176.1	3 57.5	-60.0	176.1	1 57.8	-60.0	176.1	13
14 55.8	-59.9	176.0	12 56.1	-60.0	176.0	10 56.4	-60.0	176.1	8 56.7	-60.0	176.1	6 56.9	-59.9	176.1	4 57.2	-60.0	176.1	2 57.5	-60.0	176.1	0 57.8	-60.0	176.1	14
13 55.9	-60.0	176.0	11 56.1	-59.9	176.1	9 56.4	-60.0	176.1	7 56.7	-60.0	176.1	5 57.0	-60.0	176.1	3 57.2	-60.0	176.1	1 57.5	-60.0	176.1	0 57.8	+60.0	3.8	15
12 55.9	-60.0	176.1	10 56.2	-60.0	176.1	8 56.4	-59.9	176.1	6 56.7	-60.0	176.1	4 57.0	-60.0	176.2	2 57.3	-60.0	176.2	0 57.5	-60.0	176.2	0 57.5	+60.0	3.8	16
11 55.9	-59.9	176.1	9 56.2	-60.0	176.1	7 56.5	-60.0	176.2	5 56.7	-59.9	176.2	3 57.0	-60.0	176.2	1 57.3	-60.0	176.2	0 57.5	+60.0	3.8	0 02.5	+60.0	3.8	17
10 56.0	-60.0	176.1	8 56.2	-59.9	176.2	6 56.5	-60.0	176.2	4 56.8	-60.0	176.2	2 57.0	-59.9	176.2	0 57.3	-60.0	176.2	0 57.5	+60.0	3.8	1 02.4	+60.0	3.8	18
9 56.0	-60.0	176.2	7 56.3	-60.0	176.2	5 56.5	-59.9	176.2	3 56.8	-60.0	176.2	1 57.1	-60.0	176.2	0 02.7	+60.0	3.8	0 02.7	+60.0	3.8	2 02.4	+60.0	3.8	19
8 56.0	-59.9	176.2	6 56.3	-60.0	176.2	4 56.6	-60.0	176.3	2 56.8	-60.0	176.3	0 57.1	-60.0	176.3	0 02.7	+60.0	3.7	0 02.7	+60.0	3.7	3 02.4	+60.0	3.7	20
7 56.1	-60.0	176.3	5 56.3	-59.9	176.3	3 56.6	-60.0	176.3	1 56.8	-59.9	176.3	0 56.9	-60.0	176.3	0 02.9	+60.0	3.7	0 02.9	+60.0	3.7	4 02.4	+60.0	3.7	21
6 56.1	-59.9	176.3	4 56.4	-60.0	176.3	2 56.6	-60.0	176.3	0 56.9	-60.0	176.3	0 03.1	+60.0	3.7	0 02.9	+60.0	3.7	0 02.9	+60.0	3.7	5 02.4	+60.0	3.7	22
5 56.2	-60.0	176.3	3 56.4	-60.0	176.3	1 56.6	-59.9	176.3	0 56.7	-60.0	176.3	0 03.1	+60.0	3.7	0 02.9	+60.0	3.7	0 02.9	+60.0	3.7	6 02.4	+60.0	3.7	23
4 56.2	-60.0	176.4	2 56.4	-59.9	176.4	0 56.7	-60.0	176.4	0 03.3	+60.0	3.6	1 03.1	+60.0	3.6	3 02.8	+60.0	3.6	5 02.6	+60.0	3.6	7 02.4	+60.0	3.6	24
3 56.2	-59.9	176.4	1 56.5	-60.0	176.4	0 03.3	+60.0	3.6	2 03.1	+60.0	3.6	4 02.8	+60.0	3.6	6 02.8	+60.0	3.6	8 02.6	+60.0	3.6	9 02.3	+60.0	3.6	25
2 56.3	-60.0	176.4	0 56.5	-60.0	176.4	1 03.3	+59.9	3.6	3 03.0	+60.0	3.6	5 02.8	+60.0	3.6	7 02.6	+60.0	3.6	9 02.3	+60.0	3.6	10 02.3	+60.0	3.6	26
1 56.3	-60.0	176.5	0 56.3	-59.9	176.5	2 03.2	+60.0	3.5	4 03.0	+60.0	3.5	6 02.8	+60.0	3.6	8 02.6	+60.0	3.6	10 02.3	+60.0	3.6	12 02.1	+60.0	3.6	27
0 56.3	-59.9	176.5	0 03.4	+60.0	3.5	3 03.2	+60.0	3.5	5 03.0	+60.0	3.5	7 02.8	+59.9	3.5	9 02.5	+60.0	3.5	11 02.3	+60.0	3.5	13 02.1	+60.0	3.5	28
0 03.6	+60.0	3.5	2 03.4	+60.0	3.5	4 03.2	+60.0	3.5	6 03.0	+59.9	3.5	8 02.7	+60.0	3.5	10 02.5	+60.0	3.5	12 02.3	+60.0	3.5	14 02.1	+59.9	3.5	29
1 03.6	+60.0	3.4	3 03.4	+59.9	3.4	5 03.2	+59.9	3.4	7 02.9	+60.0	3.5	9 02.7	+60.0	3.5	11 02.5	+60.0	3.5	13 02.3	+60.0	3.5	15 02.0	+60.0	3.5	30
2 03.6	+59.9	3.4	4 03.3	+60.0	3.4	6 03.1	+60.0	3.4	8 02.9	+60.0	3.4	10 02.7	+60.0	3.4	12 02.5	+60.0	3.5	14 02.3	+59.9	3.5	16 02.0	+60.0	3.5	31
3 03.5	+60.0	3.4	5 03.3	+60.0	3.4	7 03.1	+60.0	3.4	9 02.9	+60.0	3.4	11 02.7	+60.0	3.4	13 02.5	+59.9	3.4	15 02.2	+60.0	3.5	17 02.0	+60.0	3.5	32
4 03.5	+59.9	3.3	6 03.3	+59.9	3.3	8 03.1	+59.9	3.3	10 02.9	+59.9	3.4	12 02.7	+59.9	3.4	14 02.4	+60.0	3.4	16 02.2	+60.0	3.4	18 02.0	+60.0	3.5	33
5 03.4	+60.0	3.3	7 03.2	+60.0	3.3	9 03.0	+60.0	3.3	11 02.8	+60.0	3.3	13 02.6	+60.0	3.4	15 02.4	+60.0	3.4	17 02.2	+60.0	3.4	19 02.0	+60.0	3.5	34
6 03.4	+60.0	3.3	8 03.2	+60.0	3.3	10 03.0	+60.0	3.3	12 02.8	+60.0	3.3	14 02.6	+60.0	3.3	16 02.4	+60.0	3.4	18 02.2	+60.0	3.4	20 02.0	+60.0	3.4	35
7 03.4	+59.9	3.2	9 03.2	+59.9	3.2	11 03.0	+60.0	3.3	13 02.8	+60.0	3.3	15 02.6	+60.0	3.3	17 02.4	+60.0	3.3	19 02.2	+60.0	3.4	21 02.0	+60.0	3.4	36
8 03.3	+60.0	3.2	10 03.1	+60.0	3.2	12 03.0	+59.9	3.2	14 02.8	+59.9	3.2	16 02.6	+59.9	3.3	18 02.4	+60.0	3.3	20 02.2	+60.0	3.4	22 02.0	+59.9	3.4	37
9 03.3	+60.0	3.1	11 03.1	+60.0	3.2	13 02.9	+60.0	3.2	15 02.7	+60.0	3.2	17 02.5	+60.0	3.3	19 02.4	+59.9	3.3	21 02.2	+59.9	3.3	23 01.9	+60.0	3.4	38
10 03.3	+59.9	3.1	12 03.1	+59.9	3.1	14 02.9	+60.0	3.2	16 02.7	+60.0	3.2	18 02.5	+60.0	3.2	20 02.3	+60.0	3.3	22 02.1	+60.0	3.3	24 01.9	+60.0	3.4	39
11 03.2	+60.0	3.1	13 03.0	+60.0	3.1	15 02.9	+59.9	3.1	17 02.7	+60.0	3.2	19 02.5	+60.0	3.2	21 02.3	+60.0	3.2	23 02.1	+60.0	3.3	25 01.9	+60.0	3.3	40
12 03.2	+59.9	3.0	14 03.0	+60.0	3.1	16 02.8	+60.0	3.1	18 02.7	+59.9	3.1	20 02.5	+60.0	3.2	22 02.3	+60.0	3.2	24 02.1	+60.0	3.3	26 01.9	+60.0	3.3	41
13 03.1	+60.0	3.0	15 03.0	+59.9	3.0	17 02.8	+60.0	3.1	19 02.6	+60.0	3.1	21 02.5	+59.9	3.1	23 02.3	+60.0	3.2	25 02.1	+60.0	3.2	27 01.9	+60.0	3.3	42
14 03.1	+60.0	3.0	16 02.9	+60.0	3.0	18 02.8	+59.9	3.0	20 02.6	+60.0	3.1	22 02.4	+60.0	3.1	24 02.3	+59.9	3.1	26 02.1	+60.0	3.2	28 01.9	+60.0	3.3	43
15 03.1	+59.9	2.9	17 02.9	+60.0	3.0	19 02.7	+60.0	3.0	21 02.6	+60.0	3.0	23 02.4	+60.0	3.1	25 02.2	+60.0	3.1	27 02.1	+59.9	3.2	29 01.9	+60.0	3.2	44
16 03.0	+60.0	2.9	18 02.9	+59.9	2.9	20 02.7	+60.0	3.0	22 02.6	+59.9	3.0	24 02.4	+60.0	3.0	26 02.2	+60.0	3.1	28 02.0	+60.0	3.1	30 01.9	+59.9	3.2	45
17 03.0	+59.9	2.9	19 02.8	+60.0	2.9	21 02.7	+59.9	2.9	23 02.5	+60.0	3.0	25 02.4	+59.9	3.0	27 02.2	+60.0	3.1	29 02.0	+60.0	3.1	31 01.8	+60.0	3.2	46
18 02.9	+60.0	2.8	20 02.8	+60.0	2.8	22 02.																		

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 57.9	+60.0	175.9	11 58.2	+60.0	175.9	9 58.5	+60.0	175.9	7 58.8	+60.0	176.0	5 59.1	+60.0	176.0	3 59.4	+60.0	176.0	1 59.7	+60.0	176.0	0 00.0	+60.0	176.0
1	14 57.9	+60.0	175.9	12 58.2	+60.0	175.9	10 58.5	+60.0	175.9	8 58.8	+60.0	176.0	6 59.1	+60.0	176.0	4 59.4	+60.0	176.0	2 59.7	+60.0	176.0	1 00.0	+60.0	176.0
2	15 57.9	+60.0	175.8	13 58.2	+60.0	175.9	11 58.5	+60.0	175.9	9 58.8	+60.0	175.9	7 59.1	+60.0	176.0	5 59.4	+60.0	176.0	3 59.7	+60.0	176.0	2 00.0	+60.0	176.0
3	16 57.9	+60.0	175.8	14 58.2	+60.0	175.9	12 58.5	+60.0	175.9	10 58.8	+60.0	175.9	8 59.1	+60.0	176.0	6 59.4	+60.0	176.0	4 59.7	+60.0	176.0	3 00.0	+60.0	176.0
4	17 57.9	+60.0	175.8	15 58.2	+60.0	175.8	13 58.5	+60.0	175.9	11 58.8	+60.0	175.9	9 59.1	+60.0	175.9	7 59.4	+60.0	176.0	5 59.7	+60.0	176.0	4 00.0	+60.0	176.0
5	18 57.9	+60.0	175.8	16 58.2	+60.0	175.8	14 58.5	+60.0	175.9	12 58.8	+60.0	175.9	10 59.1	+60.0	175.9	8 59.4	+60.0	176.0	6 59.7	+60.0	176.0	5 00.0	+60.0	176.0
6	19 57.9	+59.9	175.8	17 58.2	+60.0	175.8	15 58.5	+60.0	175.9	13 58.8	+60.0	175.9	11 59.1	+60.0	175.9	9 59.4	+60.0	176.0	7 59.7	+60.0	176.0	6 00.0	+60.0	176.0
7	20 57.8	+60.0	175.7	18 58.2	+60.0	175.7	16 58.5	+60.0	175.8	14 58.8	+60.0	175.9	12 59.1	+60.0	175.9	10 59.4	+60.0	176.0	8 59.7	+60.0	176.0	7 00.0	+60.0	176.0
8	21 57.8	+60.0	175.7	19 58.2	+60.0	175.8	17 58.5	+60.0	175.8	15 58.8	+60.0	175.9	13 59.1	+60.0	175.9	11 59.4	+60.0	176.0	9 59.7	+60.0	176.0	8 00.0	+60.0	176.0
9	22 57.8	+60.0	175.7	20 58.2	+60.0	175.8	18 58.5	+60.0	175.8	16 58.8	+60.0	175.9	14 59.1	+60.0	175.9	12 59.4	+60.0	176.0	10 59.7	+60.0	176.0	9 00.0	+60.0	176.0
10	23 57.8	+60.0	175.7	21 58.2	+59.9	175.8	19 58.5	+60.0	175.8	17 58.8	+60.0	175.9	15 59.1	+60.0	175.9	13 59.4	+60.0	175.9	11 59.7	+60.0	176.0	10 00.0	+60.0	176.0
11	24 57.8	+60.0	175.7	22 58.1	+60.0	175.7	20 58.5	+60.0	175.8	18 58.8	+60.0	175.8	16 59.1	+60.0	175.9	14 59.4	+60.0	175.9	12 59.7	+60.0	176.0	11 00.0	+60.0	176.0
12	25 57.8	+60.0	175.6	23 58.1	+60.0	175.7	21 58.5	+60.0	175.8	19 58.8	+60.0	175.8	17 59.1	+60.0	175.9	15 59.4	+60.0	175.9	13 59.7	+60.0	176.0	12 00.0	+60.0	176.0
13	26 57.8	+60.0	175.6	24 58.1	+60.0	175.7	22 58.5	+60.0	175.8	20 58.8	+60.0	175.8	18 59.1	+60.0	175.9	16 59.4	+60.0	175.9	14 59.7	+60.0	176.0	13 00.0	+60.0	176.0
14	27 57.8	+60.0	175.6	25 58.1	+60.0	175.7	23 58.5	+60.0	175.8	21 58.8	+60.0	175.8	19 59.1	+60.0	175.9	17 59.4	+60.0	175.9	15 59.7	+60.0	176.0	14 00.0	+60.0	176.0
15	28 57.8	+60.0	175.6	26 58.1	+60.0	175.7	24 58.5	+59.9	175.7	22 58.8	+60.0	175.8	20 59.1	+60.0	175.9	18 59.4	+60.0	175.9	16 59.7	+60.0	176.0	15 00.0	+60.0	176.0
16	29 57.8	+59.9	175.6	27 58.1	+60.0	175.6	25 58.4	+60.0	175.7	23 58.8	+60.0	175.8	21 59.1	+60.0	175.9	19 59.4	+60.0	175.9	17 59.7	+60.0	176.0	16 00.0	+60.0	176.0
17	30 57.7	+60.0	175.5	28 58.1	+60.0	175.6	26 58.4	+60.0	175.7	24 58.8	+60.0	175.8	22 59.1	+60.0	175.8	20 59.4	+60.0	175.9	18 59.7	+60.0	176.0	17 00.0	+60.0	176.0
18	31 57.7	+60.0	175.5	29 58.1	+60.0	175.6	27 58.4	+60.0	175.7	25 58.8	+60.0	175.8	23 59.1	+60.0	175.8	21 59.4	+60.0	175.9	19 59.7	+60.0	176.0	18 00.0	+60.0	176.0
19	32 57.7	+60.0	175.5	30 58.1	+60.0	175.5	28 58.4	+60.0	175.7	26 58.8	+60.0	175.8	24 59.1	+60.0	175.8	22 59.4	+60.0	175.9	20 59.7	+60.0	175.9	19 00.0	+60.0	176.0
20	33 57.7	+60.0	175.5	31 58.1	+60.0	175.6	29 58.4	+60.0	175.7	27 58.8	+60.0	175.7	25 59.1	+60.0	175.8	23 59.4	+60.0	175.9	21 59.7	+60.0	175.9	20 00.0	+60.0	176.0
21	34 57.7	+60.0	175.4	32 58.1	+60.0	175.5	30 58.4	+60.0	175.6	28 58.8	+60.0	175.7	26 59.1	+60.0	175.8	24 59.4	+60.0	175.9	22 59.7	+60.0	175.9	21 00.0	+60.0	176.0
22	35 57.7	+60.0	175.4	33 58.1	+59.9	175.5	31 58.4	+60.0	175.6	29 58.8	+59.9	175.7	27 59.1	+60.0	175.8	25 59.4	+60.0	175.9	23 59.7	+60.0	175.9	22 00.0	+60.0	176.0
23	36 57.7	+60.0	175.4	34 58.0	+60.0	175.5	32 58.4	+60.0	175.6	30 58.7	+60.0	175.7	28 59.1	+60.0	175.8	26 59.4	+60.0	175.9	24 59.7	+60.0	175.9	23 00.0	+60.0	176.0
24	37 57.7	+59.9	175.4	35 58.0	+60.0	175.5	33 58.4	+60.0	175.6	31 58.7	+60.0	175.7	29 59.1	+60.0	175.8	27 59.4	+60.0	175.9	25 59.7	+60.0	175.9	24 00.0	+60.0	176.0
25	38 57.6	+60.0	175.3	36 58.0	+60.0	175.5	34 58.4	+60.0	175.6	32 58.7	+60.0	175.7	30 59.1	+60.0	175.8	28 59.4	+60.0	175.9	26 59.7	+60.0	175.9	25 00.0	+60.0	176.0
26	39 57.6	+60.0	175.3	37 58.0	+60.0	175.4	35 58.4	+60.0	175.6	33 58.7	+60.0	175.7	31 59.1	+60.0	175.8	29 59.4	+60.0	175.9	27 59.7	+60.0	175.9	26 00.0	+60.0	176.0
27	40 57.6	+60.0	175.3	38 58.0	+60.0	175.4	36 58.4	+60.0	175.5	34 58.7	+60.0	175.6	32 59.1	+60.0	175.8	30 59.4	+60.0	175.9	28 59.7	+60.0	175.9	27 00.0	+60.0	176.0
28	41 57.6	+60.0	175.2	39 58.0	+60.0	175.4	37 58.4	+60.0	175.5	35 58.7	+60.0	175.6	33 59.1	+60.0	175.7	31 59.4	+60.0	175.8	29 59.7	+60.0	175.9	28 00.0	+60.0	176.0
29	42 57.6	+60.0	175.2	40 58.0	+60.0	175.4	38 58.4	+60.0	175.5	36 58.7	+60.0	175.6	34 59.1	+60.0	175.7	32 59.4	+60.0	175.8	30 59.7	+60.0	175.9	29 00.0	+60.0	176.0
30	43 57.6	+59.9	175.2	41 58.0	+60.0	175.3	39 58.4	+59.9	175.5	37 58.7	+60.0	175.6	35 59.1	+60.0	175.7	33 59.4	+60.0	175.8	31 59.7	+60.0	175.9	30 00.0	+60.0	176.0
31	44 57.5	+60.0	175.1	42 58.0	+59.9	175.3	40 58.3	+60.0	175.5	38 58.7	+60.0	175.6	36 59.1	+60.0	175.7	34 59.4	+60.0	175.8	32 59.7	+60.0	175.9	31 00.0	+60.0	176.0
32	45 57.5	+60.0	175.2	43 57.9	+60.0	175.3	41 58.3	+60.0	175.4	39 58.7	+60.0	175.6	37 59.1	+60.0	175.7	35 59.4	+60.0	175.8	33 59.7	+60.0	175.9	32 00.0	+60.0	176.0
33	46 57.5	+60.0	175.1	44 57.9	+60.0	175.3	42 58.3	+60.0	175.4	40 58.7	+60.0	175.6	38 59.1	+60.0	175.7	36 59.4	+60.0	175.8	34 59.7	+60.0	175.9	33 00.0	+60.0	176.0
34	47 57.5	+60.0	175.0	45 57.9	+60.0	175.2	43 58.3	+60.0	175.4	41 58.7	+60.0	175.5	39 59.1	+60.0	175.7	37 59.4	+60.0	175.8	35 59.7	+60.0	175.9	34 00.0	+60.0	176.0
35	48 57.5	+60.0	175.0	46 57.9	+60.0	175.2	44 58.3	+60.0	175.4	42 58.7	+60.0	175.5	40 59.1	+59.9	175.7	38 59.4	+60.0	175.8	36 59.7	+60.0	175.9	35 00.0	+60.0	176.0
36	49 57.5	+59.9	175.0	47 57.9	+60.0	175.2	45 58.3	+60.0	175.3	43 58.7	+60.0	175.5	41 59.0	+60.0	175.6	39 59.4	+60.0	175.8	37 59.7	+60.0	175.9	36 00.0	+60.0	176.0
37	50 57.4	+60.0	174.9	48 57.9	+60.0	175.1	46 58.3	+60.0	175.3	44 58.7	+60.0	175.5	42 59.0	+60.0	175.6	40 59.4	+60.0	175.8	38 59.7	+60.0	175.9	37 00.0	+60.0	176.0
38	51 57.4	+60.0	174.9	49 57.9	+60.0	175.1	47 58.3	+60.0	175.3	45 58.7	+60.0	175.5	43 59.0	+60.0	175.6	41 59.4	+60.0	175.8	39 59.7	+60.0	175.9	38 00.0	+60.0	176.0
39	52 57.4	+60.0	174.8	50 57.9	+59.9	175.1	48 58.3	+60.0	175.3	46 58.7	+60.0	175.4	44 59.0	+60.0	175.6	42 59.4	+60.0	175.7	40 59.7	+60.0	175.9	39 00.0	+60.0	176.0
40	53 57.4	+59.9	174.8	51 57.9	+60.0	175.0	49 58.3	+60.0	175.2	47 58.7	+60.0	175.4	45 59.0	+60.0	175.6	43 59.4	+60.0	175.7	41 59.7	+60.0	175.9	40 00.0	+60.0	176.0
41	54 57.3	+60.0	174.7	52 57.8	+60.0	175.0	50 58.3	+59.9	175.2	48 58.7	+60.0	175.4	46 59.0	+60.0	175.6	44 59.4	+60.0	175.7	42 59.7	+60.0	175.9	41 00.0	+60.0	176.0
42	55 57.3	+60.0	174.7	53 57.8	+60.0	174.9	51 58.2	+60.0	175.2	49 58.7	+59.9	175.4	47 59.0	+60.0	175.6	45 59.4	+60.0	175.7	43 59.7	+60.0	175.9	42 00.0	+60.0	176.0
43	56 57.3	+60.0	174.6	54 57.8	+60.0	174.9	52 58.2	+60.0	175.1	50 58.6	+60.0	175.4	48 59.0	+60.0	175.5	46 59.4	+60.0	175.7	44 59.7	+60.0	175.9	43 00.0	+60.0	176.0
44	57 57.3	+59.9	174.6	55 57.8	+59.9	174.9	53 58.2	+60.0	175.1	51 58.6	+60.0	175.3	49 59.0	+60.0	175.5	47 59.4	+60.0	175.7	45 59.7	+60.0	175.9	44 00.0	+60.0	176.0
45	58 57.2	+60.0	174.5	56 57.7	+60.0	174.8	54 58.2	+60.0	175.1	52 58.6	+60.0	175.3	50 59.0	+60.0	175.5	48 59.4	+60.0	175.7	46 59.7	+60.0	175.9	45 00.0	+60.0	176.0
46	59 57.2	+60.0	174.4	57 57.7	+60.0	174.8																		

LATITUDE CONTRARY NAME

L.H.A. 4°, 356°

Table with columns for latitude (76° to 90°) and corresponding values for Hc, d, Z, and Dec. Each latitude column contains three sub-columns for Hc, d, and Z. The Dec. column is on the far right.

LATITUDE SAME NAME

L.H.A. 176°, 184°

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	29 49.1	+59.9	173.1	27 50.0	+59.9	173.2	25 50.8	+59.9	173.3	23 51.6	+60.0	173.4	21 52.4	+59.9	173.5	19 53.1	+60.0	173.6	17 53.9	+59.9	173.7	15 54.6	+60.0	173.8
1	30 49.0	+59.9	173.0	28 49.9	+59.9	173.1	26 50.7	+60.0	173.3	24 51.6	+59.9	173.4	22 52.3	+60.0	173.5	20 53.1	+60.0	173.6	18 53.8	+60.0	173.7	16 54.6	+59.9	173.7
2	31 48.9	+59.9	172.9	29 49.8	+59.9	173.1	27 50.7	+59.9	173.2	25 51.5	+59.9	173.3	23 52.3	+59.9	173.4	21 53.1	+59.9	173.5	19 53.8	+60.0	173.6	17 54.5	+60.0	173.7
3	32 48.8	+59.9	172.9	30 49.7	+59.9	173.0	28 50.6	+59.9	173.2	26 51.4	+60.0	173.3	24 52.2	+60.0	173.4	22 53.0	+60.0	173.5	20 53.8	+59.9	173.6	18 54.5	+60.0	173.7
4	33 48.7	+59.9	172.8	31 49.6	+59.9	173.0	29 50.5	+59.9	173.1	27 51.4	+59.9	173.2	25 52.2	+59.9	173.3	23 53.0	+59.9	173.5	21 53.7	+60.0	173.5	19 54.5	+60.0	173.6
5	34 48.6	+59.8	172.7	32 49.5	+59.9	172.9	30 50.4	+59.9	173.0	28 51.3	+59.9	173.2	26 52.1	+60.0	173.3	24 52.9	+60.0	173.4	22 53.7	+60.0	173.5	20 54.5	+59.9	173.6
6	35 48.4	+59.9	172.6	33 49.4	+59.9	172.8	31 50.3	+59.9	173.0	29 51.2	+59.9	173.1	27 52.1	+59.9	173.2	25 52.9	+59.9	173.4	23 53.7	+59.9	173.5	21 54.4	+60.0	173.6
7	36 48.3	+59.9	172.6	34 49.3	+59.9	172.7	32 50.2	+59.9	172.9	30 51.1	+60.0	173.1	28 52.0	+59.9	173.2	26 52.8	+60.0	173.3	24 53.6	+60.0	173.4	22 54.4	+60.0	173.5
8	37 48.2	+59.8	172.5	35 49.2	+59.9	172.7	33 50.1	+60.0	172.8	31 51.1	+59.9	173.0	29 51.9	+60.0	173.1	27 52.8	+59.9	173.3	25 53.6	+60.0	173.4	23 54.4	+59.9	173.5
9	38 48.0	+59.9	172.4	36 49.1	+59.9	172.6	34 50.1	+59.9	172.8	32 51.0	+59.9	172.9	30 51.9	+59.9	173.1	28 52.7	+60.0	173.2	26 53.6	+59.9	173.4	24 54.3	+60.0	173.5
10	39 47.9	+59.9	172.3	37 49.0	+59.8	172.5	35 50.0	+59.9	172.7	33 50.9	+59.9	172.9	31 51.8	+59.9	173.0	29 52.7	+59.9	173.2	27 53.5	+60.0	173.3	25 54.3	+60.0	173.4
11	40 47.8	+59.8	172.2	38 48.8	+59.9	172.4	36 49.9	+59.9	172.6	34 50.8	+59.9	172.8	32 51.7	+60.0	173.0	30 52.6	+60.0	173.1	28 53.5	+59.9	173.3	26 54.3	+60.0	173.4
12	41 47.6	+59.9	172.1	39 48.7	+59.9	172.3	37 49.8	+59.9	172.5	35 50.7	+60.0	172.8	33 51.7	+59.9	172.9	31 52.6	+59.9	173.1	29 53.4	+60.0	173.2	27 54.3	+59.9	173.4
13	42 47.5	+59.8	172.0	40 48.6	+59.9	172.3	38 49.7	+59.9	172.5	36 50.7	+59.9	172.7	34 51.6	+59.9	172.9	32 52.5	+60.0	173.0	30 53.4	+59.9	173.2	28 54.2	+60.0	173.3
14	43 47.3	+59.9	171.9	41 48.5	+59.8	172.2	39 49.6	+59.8	172.4	37 50.6	+59.9	172.6	35 51.5	+60.0	172.8	33 52.5	+59.9	173.0	31 53.3	+60.0	173.1	29 54.2	+60.0	173.3
15	44 47.2	+59.8	171.8	42 48.3	+59.9	172.1	40 49.4	+59.9	172.3	38 50.5	+59.9	172.6	36 51.5	+59.9	172.8	34 52.4	+60.0	172.9	32 53.3	+60.0	173.1	30 54.2	+59.9	173.2
16	45 47.0	+59.8	171.7	43 48.2	+59.9	172.0	41 49.3	+59.9	172.3	39 50.4	+59.9	172.5	37 51.4	+59.9	172.7	35 52.4	+59.9	172.9	33 53.3	+59.9	173.0	31 54.1	+60.0	173.2
17	46 46.8	+59.8	171.6	44 48.1	+59.8	171.9	42 49.2	+59.9	172.2	40 50.3	+59.9	172.4	38 51.3	+60.0	172.6	36 52.3	+59.9	172.8	34 53.2	+60.0	173.0	32 54.1	+59.9	173.2
18	47 46.6	+59.9	171.5	45 47.9	+59.9	171.8	43 49.1	+59.9	172.1	41 50.2	+59.9	172.3	39 51.3	+59.9	172.6	37 52.2	+60.0	172.8	35 53.2	+59.9	173.0	33 54.0	+60.0	173.1
19	48 46.5	+59.8	171.4	46 47.8	+59.8	171.7	44 49.0	+59.9	172.0	42 50.1	+59.9	172.3	40 51.2	+59.9	172.5	38 52.2	+59.9	172.7	36 53.1	+60.0	172.9	34 54.0	+60.0	173.1
20	49 46.3	+59.8	171.3	47 47.6	+59.8	171.6	45 48.9	+59.8	171.9	43 50.0	+59.9	172.2	41 51.1	+59.9	172.4	39 52.1	+59.9	172.6	37 53.1	+59.9	172.9	35 54.0	+59.9	173.0
21	50 46.1	+59.8	171.1	48 47.4	+59.8	171.5	46 48.7	+59.8	171.8	44 49.9	+59.9	172.1	42 51.0	+59.9	172.4	40 52.0	+60.0	172.6	38 53.0	+60.0	172.8	36 53.9	+60.0	173.0
22	51 45.9	+59.7	171.0	49 47.3	+59.8	171.4	47 48.6	+59.8	171.7	45 49.8	+59.9	172.0	43 50.9	+59.9	172.3	41 52.0	+59.9	172.5	39 53.0	+59.9	172.7	37 53.9	+60.0	172.9
23	52 45.6	+59.8	170.9	50 47.1	+59.8	171.2	48 48.4	+59.9	171.6	46 49.7	+59.9	171.9	44 50.8	+59.9	172.2	42 51.9	+59.9	172.5	40 52.9	+60.0	172.7	38 53.9	+59.9	172.9
24	53 45.4	+59.8	170.7	51 46.9	+59.8	171.1	49 48.3	+59.8	171.5	47 49.6	+59.8	171.8	45 50.7	+59.9	172.1	43 51.8	+60.0	172.4	41 52.9	+59.9	172.6	39 53.8	+60.0	172.8
25	54 45.2	+59.7	170.6	52 46.7	+59.8	171.0	50 48.1	+59.9	171.4	48 49.4	+59.9	171.7	46 50.6	+59.9	172.0	44 51.8	+59.9	172.3	42 52.8	+59.9	172.6	40 53.8	+59.9	172.8
26	55 44.9	+59.7	170.4	53 46.5	+59.8	170.9	51 48.0	+59.8	171.3	49 49.3	+59.9	171.6	47 50.5	+59.9	172.0	45 51.7	+59.9	172.2	43 52.7	+60.0	172.5	41 53.7	+60.0	172.7
27	56 44.6	+59.8	170.2	54 46.3	+59.8	170.7	52 47.8	+59.8	171.1	50 49.2	+59.8	171.5	48 50.4	+59.9	171.9	46 51.6	+59.9	172.2	44 52.7	+59.9	172.4	42 53.7	+59.9	172.7
28	57 44.4	+59.7	170.0	55 46.1	+59.7	170.6	53 47.6	+59.8	171.0	51 49.0	+59.9	171.4	49 50.3	+59.9	171.8	47 51.5	+59.9	172.1	45 52.6	+59.9	172.4	43 53.6	+60.0	172.6
29	58 44.1	+59.7	169.9	56 45.8	+59.8	170.4	54 47.4	+59.8	170.9	52 48.9	+59.8	171.3	50 50.2	+59.9	171.7	48 51.4	+59.9	172.0	46 52.5	+60.0	172.3	44 53.6	+59.9	172.6
30	59 43.8	+59.6	169.7	57 45.6	+59.7	170.2	55 47.2	+59.8	170.7	53 48.7	+59.9	171.2	51 50.1	+59.9	171.6	49 51.3	+59.9	171.9	47 52.5	+59.9	172.2	45 53.6	+60.0	172.5
31	60 43.4	+59.7	169.4	58 45.3	+59.8	170.1	56 47.0	+59.8	170.6	54 48.6	+59.8	171.1	52 50.0	+59.8	171.5	50 51.2	+59.9	171.8	48 52.4	+59.9	172.2	46 53.5	+59.9	172.5
32	61 43.1	+59.6	169.2	59 45.1	+59.7	169.9	57 46.8	+59.8	170.4	55 48.4	+59.8	170.9	53 49.8	+59.9	171.4	51 51.1	+59.9	171.7	49 52.3	+60.0	172.1	47 53.4	+60.0	172.4
33	62 42.7	+59.6	169.0	60 44.8	+59.7	169.7	58 46.6	+59.8	170.3	56 48.2	+59.8	170.8	54 49.7	+59.9	171.2	52 51.0	+59.9	171.7	50 52.3	+59.9	172.0	48 53.4	+59.9	172.3
34	63 42.3	+59.6	168.7	61 44.5	+59.6	169.5	59 46.4	+59.7	170.1	57 48.0	+59.8	170.6	55 49.6	+59.8	171.1	53 50.9	+59.9	171.6	51 52.2	+59.9	171.9	49 53.3	+60.0	172.2
35	64 41.9	+59.5	168.4	62 44.1	+59.7	169.2	60 46.1	+59.7	169.9	58 47.9	+59.7	170.5	56 49.4	+59.9	171.0	54 50.8	+59.9	171.4	52 52.1	+59.9	171.8	50 53.3	+59.9	172.3
36	65 41.4	+59.5	168.1	63 43.8	+59.6	169.0	61 45.8	+59.7	169.7	59 47.6	+59.8	170.3	57 49.3	+59.8	170.9	55 50.7	+59.9	171.3	53 52.0	+59.9	171.8	51 53.2	+59.9	172.1
37	66 40.9	+59.4	167.8	64 43.4	+59.6	168.7	62 45.5	+59.7	169.5	60 47.4	+59.8	170.2	58 49.1	+59.8	170.7	56 50.6	+59.8	171.2	54 51.9	+59.9	171.7	52 53.1	+60.0	172.0
38	67 40.3	+59.4	167.5	65 43.0	+59.5	168.4	63 45.2	+59.7	169.3	61 47.2	+59.7	170.0	59 48.9	+59.8	170.6	57 50.4	+59.9	171.1	55 51.8	+59.9	171.6	53 53.1	+59.9	172.0
39	68 39.7	+59.4	167.1	66 42.5	+59.5	168.1	64 44.9	+59.6	169.0	62 46.9	+59.8	169.8	60 48.7	+59.8	170.4	58 50.3	+59.9	171.0	56 51.7	+59.9	171.5	54 53.0	+59.9	171.9
40	69 39.1	+59.3	166.7	67 42.0	+59.5	167.8	65 44.5	+59.6	168.8	63 46.7	+59.7	169.6	61 48.5	+59.8	170.2	59 50.2	+59.8	170.8	57 51.6	+59.9	171.3	55 52.9	+59.9	171.8
41	70 38.4	+59.2	166.2	68 41.5	+59.4	167.5	66 44.1	+59.6	168.5	64 46.4	+59.7	169.3	62 48.3	+59.8	170.1	60 50.0	+59.8	170.7	58 51.5	+59.9	171.2	56 52.8	+59.9	171.7
42	71 37.6	+59.1	165.7	69 40.9	+59.4	167.1	67 43.7	+59.6	168.2	65 46.1	+59.6	169.1	63 48.1	+59.7	169.9	61 49.8	+59.9	170.5	59 51.4	+59.9	171.1	57 52.7	+59.9	171.6
43	72 36.7	+59.0	165.2	70 40.3	+59.3	166.6	68 43.3	+59.5	167.8	66 45.7	+59.7	168.8	64 47.8	+59.8	169.7	62 49.7	+59.8	170.4	60 51.2	+59.9	171.0	58 52.6	+59.9	171.5
44	73 35.7	+58.9	164.6	71 39.6	+59.2	166.2	69 42.8	+59.4	167.5	67 45.4	+59.6	168.5	65 47.6	+59.7	169.4	63 49.5	+59.8	170.2	61 51.1	+59.9	170.8	59 52.5	+59.9	171.4
45	74 34.6	+58.8	163.9	72 38.8	+59.2	165.7	70 42.2	+59.4	167.1	68 45.0	+59.5	168.2	66 47.3	+59.7	169.2	64 49.3	+59.7	170.0	62 51.0	+59.8	170.7	60 52.4	+59.9	171.3
46	75 33.4	+58.5	163.1</																					

LATITUDE CONTRARY NAME

L.H.A. 6°, 354°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 49.1	-59.9	173.1	27 50.0	-59.9	173.2	25 50.8	-59.9	173.3	23 51.6	-59.9	173.4	21 52.4	-60.0	173.5	19 53.1	-59.9	173.6	17 53.9	-60.0	173.7	15 54.6	-60.0	173.8	0
28 49.2	-59.8	173.1	26 50.1	-59.9	173.3	24 50.9	-59.9	173.4	22 51.7	-60.0	173.5	20 52.4	-59.9	173.6	18 53.2	-60.0	173.7	16 53.9	-59.9	173.8	14 54.6	-59.9	173.8	1
27 49.4	-59.9	173.2	25 50.2	-59.9	173.3	23 51.0	-60.0	173.4	21 51.7	-59.9	173.5	19 52.5	-59.9	173.6	17 53.2	-59.9	173.7	15 54.0	-60.0	173.8	13 54.7	-60.0	173.8	2
26 49.5	-59.9	173.3	24 50.3	-59.9	173.4	22 51.0	-59.9	173.5	20 51.8	-59.9	173.6	18 52.6	-60.0	173.7	16 53.3	-60.0	173.8	14 54.0	-60.0	173.8	12 54.7	-60.0	173.9	3
25 49.6	-59.9	173.3	23 50.4	-60.0	173.5	21 51.1	-59.9	173.5	19 51.9	-60.0	173.6	17 52.6	-59.9	173.7	15 53.3	-59.9	173.8	13 54.0	-59.9	173.8	11 54.7	-60.0	173.9	4
24 49.7	-59.9	173.4	22 50.4	-59.9	173.5	20 51.2	-59.9	173.6	18 51.9	-59.9	173.7	16 52.7	-60.0	173.8	14 53.4	-60.0	173.8	12 54.1	-60.0	173.9	10 54.7	-59.9	173.9	5
23 49.8	-59.9	173.5	21 50.5	-59.9	173.6	19 51.3	-60.0	173.7	17 52.0	-59.9	173.7	15 52.7	-59.9	173.8	13 53.4	-60.0	173.9	11 54.1	-60.0	173.9	9 54.8	-60.0	173.9	6
22 49.9	-60.0	173.5	20 50.6	-59.9	173.6	18 51.3	-59.9	173.7	16 52.1	-60.0	173.8	14 52.8	-60.0	173.8	12 53.4	-59.9	173.9	10 54.1	-60.0	173.9	8 54.8	-60.0	174.0	7
21 49.9	-59.9	173.6	19 50.7	-59.9	173.7	17 51.4	-59.9	173.8	15 52.1	-59.9	173.8	13 52.8	-59.9	173.9	11 53.5	-60.0	173.9	9 54.1	-59.9	174.0	7 54.8	-60.0	174.0	8
20 50.0	-59.9	173.7	18 50.8	-60.0	173.7	16 51.5	-60.0	173.8	14 52.2	-60.0	173.9	12 52.9	-60.0	173.9	10 53.5	-59.9	174.0	8 54.2	-60.0	174.0	6 54.8	-59.9	174.0	9
19 50.1	-59.9	173.7	17 50.8	-59.9	173.8	15 51.5	-59.9	173.9	13 52.2	-59.9	173.9	11 52.9	-60.0	174.0	9 53.6	-60.0	174.0	7 54.2	-60.0	174.0	5 54.9	-60.0	174.1	10
18 50.2	-59.9	173.8	16 50.9	-59.9	173.8	14 51.6	-59.9	173.9	12 52.3	-60.0	174.0	10 52.9	-59.9	174.0	8 53.6	-60.0	174.0	6 54.2	-59.9	174.1	4 54.9	-60.0	174.1	11
17 50.3	-59.9	173.8	15 51.0	-59.9	173.9	13 51.7	-60.0	174.0	11 52.3	-59.9	174.0	9 53.0	-60.0	174.0	7 53.6	-59.9	174.1	5 54.3	-60.0	174.1	3 54.9	-60.0	174.1	12
16 50.4	-59.9	173.9	14 51.1	-59.9	174.0	12 51.7	-59.9	174.0	10 52.3	-59.9	174.0	8 53.0	-59.9	174.1	6 53.7	-60.0	174.1	4 54.3	-60.0	174.1	2 54.9	-59.9	174.1	13
15 50.5	-59.9	173.9	13 51.2	-60.0	174.0	11 51.8	-59.9	174.1	9 52.4	-60.0	174.1	7 53.1	-60.0	174.1	5 53.7	-59.9	174.1	3 54.3	-59.9	174.2	1 55.0	-60.0	174.2	14
14 50.6	-59.9	174.0	12 51.2	-59.9	174.1	10 51.9	-60.0	174.1	8 52.5	-59.9	174.1	6 53.1	-59.9	174.2	4 53.8	-60.0	174.2	2 54.4	-60.0	174.2	0 55.0	-60.0	174.2	15
13 50.7	-59.9	174.1	11 51.3	-59.9	174.1	9 51.9	-59.9	174.1	7 52.6	-60.0	174.2	5 53.2	-60.0	174.2	3 53.8	-60.0	174.2	1 54.4	-60.0	174.2	0 05.0	+60.0	5.8	16
12 50.8	-60.0	174.1	10 51.4	-59.9	174.2	8 52.0	-59.9	174.2	6 52.6	-59.9	174.2	4 53.2	-59.9	174.2	2 53.8	-59.9	174.3	0 54.4	-59.9	174.3	1 05.0	+59.9	5.7	17
11 50.8	-59.9	174.2	9 51.5	-60.0	174.2	7 52.1	-60.0	174.2	5 52.7	-60.0	174.3	3 53.3	-60.0	174.3	1 53.9	-60.0	174.3	0 05.5	+60.0	5.7	2 04.9	+60.0	5.7	18
10 50.9	-59.9	174.2	8 51.5	-59.9	174.3	6 52.1	-59.9	174.3	4 52.7	-59.9	174.3	2 53.3	-59.9	174.3	0 53.9	-60.0	174.3	0 05.9	+60.0	5.7	3 04.9	+60.0	5.7	19
9 51.0	-59.9	174.3	7 51.6	-59.9	174.3	5 52.2	-59.9	174.3	3 52.8	-60.0	174.4	1 53.4	-60.0	174.4	0 06.1	+59.9	5.6	2 05.5	+59.9	5.6	4 04.9	+60.0	5.7	20
8 51.1	-59.9	174.3	6 51.7	-59.9	174.4	4 52.3	-59.9	174.4	2 52.8	-59.9	174.4	0 53.4	-59.9	174.4	0 06.0	+60.0	5.6	3 05.4	+60.0	5.6	5 04.9	+59.9	5.6	21
7 51.2	-59.9	174.4	5 51.8	-60.0	174.4	3 52.3	-59.9	174.4	1 52.9	-60.0	174.4	0 06.5	+60.0	5.6	2 06.0	+59.9	5.6	4 05.4	+60.0	5.6	6 04.8	+60.0	5.6	22
6 51.3	-59.9	174.4	4 51.8	-59.9	174.5	2 52.4	-59.9	174.5	0 52.4	-59.9	174.5	0 06.5	+59.9	5.5	3 05.9	+60.0	5.5	5 05.4	+59.9	5.5	7 04.8	+60.0	5.6	23
5 51.4	-60.0	174.5	3 51.9	-59.9	174.5	1 52.5	-60.0	174.5	0 07.0	+59.9	5.5	2 06.4	+60.0	5.5	4 05.9	+60.0	5.5	6 05.3	+60.0	5.5	8 04.8	+60.0	5.5	24
4 51.4	-59.9	174.5	2 52.0	-60.0	174.6	0 52.5	-59.9	174.6	1 06.9	+60.0	5.4	3 06.4	+60.0	5.4	5 05.9	+59.9	5.5	7 05.3	+60.0	5.5	9 04.8	+59.9	5.5	25
3 51.5	-59.9	174.6	1 52.0	-59.9	174.6	0 07.4	+60.0	5.4	2 06.9	+59.9	5.4	4 06.4	+59.9	5.4	6 05.9	+60.0	5.4	8 05.3	+60.0	5.4	10 04.7	+60.0	5.5	26
2 51.6	-59.9	174.6	0 52.1	-59.9	174.7	1 07.4	+59.9	5.3	3 06.8	+60.0	5.4	5 06.3	+60.0	5.4	7 05.8	+59.9	5.4	9 05.3	+59.9	5.4	11 04.7	+60.0	5.4	27
1 51.7	-59.9	174.7	0 07.8	+59.9	5.2	2 07.3	+59.9	5.3	4 06.8	+59.9	5.3	6 06.3	+59.9	5.3	8 05.7	+60.0	5.3	10 05.2	+60.0	5.3	12 04.7	+60.0	5.4	28
0 51.8	-60.0	174.8	1 07.7	+60.0	5.3	3 07.2	+60.0	5.3	5 06.7	+59.9	5.3	7 06.2	+60.0	5.3	9 05.7	+60.0	5.3	11 05.2	+60.0	5.3	13 04.7	+59.9	5.4	29
0 08.2	+59.9	5.2	2 07.7	+59.9	5.2	4 07.2	+59.9	5.2	6 06.7	+59.9	5.2	8 06.2	+59.9	5.2	10 05.7	+59.9	5.2	12 05.2	+59.9	5.2	14 04.6	+60.0	5.4	30
1 08.1	+59.9	5.1	3 07.6	+59.9	5.1	5 07.1	+59.9	5.2	7 06.6	+60.0	5.2	9 06.1	+60.0	5.2	11 05.6	+60.0	5.2	13 05.1	+60.0	5.2	15 04.6	+60.0	5.3	31
2 08.0	+59.9	5.1	4 07.5	+59.9	5.1	6 07.0	+60.0	5.1	8 06.5	+59.9	5.1	10 06.1	+59.9	5.2	12 05.6	+59.9	5.2	14 05.1	+60.0	5.2	16 04.6	+60.0	5.3	32
3 07.9	+59.9	5.0	5 07.4	+60.0	5.0	7 07.0	+59.9	5.1	9 06.5	+59.9	5.1	11 06.0	+60.0	5.1	13 05.5	+60.0	5.2	15 05.1	+59.9	5.2	17 04.6	+59.9	5.3	33
4 07.8	+59.9	5.0	6 07.4	+59.9	5.0	8 06.9	+59.9	5.0	10 06.4	+60.0	5.0	12 06.0	+59.9	5.1	14 05.5	+60.0	5.1	16 05.0	+60.0	5.2	18 04.5	+60.0	5.2	34
5 07.7	+60.0	4.9	7 07.3	+59.9	5.0	9 06.8	+60.0	5.0	11 06.4	+59.9	5.0	13 05.9	+60.0	5.0	15 05.5	+59.9	5.1	17 05.0	+60.0	5.1	19 04.5	+60.0	5.2	35
6 07.7	+59.9	4.9	8 07.2	+60.0	4.9	10 06.8	+59.9	4.9	12 06.3	+60.0	5.0	14 05.9	+59.9	5.0	16 05.4	+60.0	5.0	18 05.0	+59.9	5.1	20 04.5	+59.9	5.2	36
7 07.6	+59.9	4.8	9 07.2	+59.9	4.9	11 06.7	+60.0	4.9	13 06.3	+59.9	4.9	15 05.8	+60.0	5.0	17 05.4	+59.9	5.0	19 04.9	+60.0	5.1	21 04.4	+60.0	5.1	37
8 07.5	+59.9	4.8	10 07.1	+59.9	4.8	12 06.7	+59.9	4.8	14 06.2	+60.0	4.9	16 05.8	+59.9	4.9	18 05.3	+60.0	5.0	20 04.9	+59.9	5.0	22 04.4	+60.0	5.1	38
9 07.4	+59.9	4.7	11 07.0	+59.9	4.7	13 06.6	+59.9	4.8	15 06.2	+59.9	4.8	17 05.7	+60.0	4.9	19 05.3	+60.0	4.9	21 04.8	+60.0	5.0	23 04.4	+60.0	5.1	39
10 07.3	+59.9	4.7	12 06.9	+59.9	4.7	14 06.5	+60.0	4.7	16 06.1	+59.9	4.8	18 05.7	+59.9	4.8	20 05.3	+59.9	4.9	22 04.8	+60.0	5.0	24 04.4	+59.9	5.0	40
11 07.2	+60.0	4.6	13 06.8	+60.0	4.6	15 06.5	+59.9	4.7	17 06.0	+60.0	4.7	19 05.6	+60.0	4.8	21 05.2	+60.0	4.9	23 04.8	+59.9	4.9	25 04.3	+60.0	5.0	41
12 07.2	+59.9	4.6	14 06.8	+59.9	4.6	16 06.4	+59.9	4.6	18 06.0	+59.9	4.7	20 05.6	+59.9	4.7	22 05.2	+59.9	4.8	24 04.7	+60.0	4.9	26 04.3	+60.0	5.0	42
13 07.1	+59.9	4.5	15 06.7	+59.9	4.5	17 06.3	+59.9	4.6	19 05.9	+60.0	4.6	21 05.5	+60.0	4.7	23 05.1	+60.0	4.8	25 04.7	+60.0	4.8	27 04.3	+59.9	4.9	43
14 07.0	+59.9	4.4	16 06.6	+59.9	4.5	18 06.2	+60.0	4.5	20 05.9	+59.9	4.6	22 05.5	+59.9	4.7	24 05.1	+59.9	4.7	26 04.7	+59.9	4.8	28 04.2	+60.0	4.9	44
15 06.9	+59.9	4.4	17 06.5	+60.0	4.4	19 06.2	+59.9	4.5	21 05.8	+59.9	4.5	23 05.4	+60.0	4.6	25 05.0	+60.0	4.7	27 04.6	+60.0	4.8	29 04.2	+60.0	4.9	45
16 06.8	+59.9	4.3	18 06.5	+59.9	4.4	20 06.1	+59.9	4.4	22 05.7	+60.0	4.5	24 05.4	+59.9	4.6	26 05.0	+59.9	4.6	28 04.6	+59.9	4.7	30 04.2	+59.9	4.8	46
17 06.7	+59.9	4.3	19 06.4	+59.9	4.3	21 06.0	+60.0	4.4	23 05.7	+59.9	4.4	25 05.3	+60.0	4.5	27 04.9	+60.0	4.6	29 04.5	+60.0	4.7	31 04.1	+60.0	4.8	47
18 06.6	+59.9	4.2	20 06.3	+59.9	4.3	22 06.0																		

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 55.3	+60.0	173.8	11 56.0	+60.0	173.9	9 56.7	+60.0	173.9	7 57.4	+59.9	173.9	5 58.0	+60.0	174.0	3 58.7	+60.0	174.0	1 59.3	+60.0	174.0	0 00.0	+60.0	174.0
1	14 55.3	+60.0	173.8	12 56.0	+60.0	173.8	10 56.7	+60.0	173.9	8 57.3	+60.0	173.9	6 58.0	+60.0	174.0	4 58.7	+60.0	174.0	2 59.3	+60.0	174.0	1 00.0	+60.0	174.0
2	15 55.3	+59.9	173.8	13 56.0	+60.0	173.8	11 56.7	+59.9	173.9	9 57.3	+60.0	173.9	7 58.0	+60.0	173.9	5 58.7	+60.0	174.0	3 59.3	+60.0	174.0	2 00.0	+60.0	174.0
3	16 55.2	+60.0	173.7	14 56.0	+59.9	173.8	12 56.6	+60.0	173.9	10 57.3	+60.0	173.9	8 58.0	+60.0	173.9	6 58.7	+60.0	174.0	4 59.3	+60.0	174.0	3 00.0	+60.0	174.0
4	17 55.2	+60.0	173.7	15 55.9	+60.0	173.8	13 56.6	+60.0	173.8	11 57.3	+60.0	173.9	9 58.0	+60.0	173.9	7 58.7	+60.0	174.0	5 59.3	+60.0	174.0	4 00.0	+60.0	174.0
5	18 55.2	+60.0	173.7	16 55.9	+60.0	173.8	14 56.6	+60.0	173.8	12 57.3	+60.0	173.9	10 58.0	+60.0	173.9	8 58.7	+60.0	173.9	6 59.3	+60.0	174.0	5 00.0	+60.0	174.0
6	19 55.2	+60.0	173.7	17 55.9	+60.0	173.7	15 56.6	+60.0	173.8	13 57.3	+60.0	173.9	11 58.0	+60.0	173.9	9 58.7	+60.0	173.9	7 59.3	+60.0	174.0	6 00.0	+60.0	174.0
7	20 55.2	+59.9	173.6	18 55.9	+60.0	173.7	16 56.6	+60.0	173.8	14 57.3	+60.0	173.8	12 58.0	+60.0	173.9	10 58.7	+60.0	173.9	8 59.3	+60.0	174.0	7 00.0	+60.0	174.0
8	21 55.1	+60.0	173.6	19 55.9	+60.0	173.7	17 56.6	+60.0	173.8	15 57.3	+60.0	173.8	13 58.0	+60.0	173.9	11 58.7	+60.0	173.9	9 59.3	+60.0	174.0	8 00.0	+60.0	174.0
9	22 55.1	+60.0	173.6	20 55.9	+59.9	173.7	18 56.6	+60.0	173.7	16 57.3	+60.0	173.8	14 58.0	+60.0	173.9	12 58.7	+60.0	173.9	10 59.3	+60.0	174.0	9 00.0	+60.0	174.0
10	23 55.1	+60.0	173.5	21 55.8	+60.0	173.6	19 56.6	+60.0	173.7	17 57.3	+60.0	173.8	15 58.0	+60.0	173.9	13 58.7	+60.0	173.9	11 59.3	+60.0	174.0	10 00.0	+60.0	174.0
11	24 55.1	+59.9	173.5	22 55.8	+60.0	173.6	20 56.6	+60.0	173.8	18 57.3	+60.0	173.8	16 58.0	+60.0	173.8	14 58.7	+60.0	173.9	12 59.3	+60.0	174.0	11 00.0	+60.0	174.0
12	25 55.0	+60.0	173.5	23 55.8	+60.0	173.6	21 56.6	+59.9	173.7	19 57.3	+60.0	173.8	17 58.0	+60.0	173.8	15 58.7	+60.0	173.9	13 59.3	+60.0	174.0	12 00.0	+60.0	174.0
13	26 55.0	+60.0	173.4	24 55.8	+60.0	173.6	22 56.5	+60.0	173.7	20 57.3	+60.0	173.7	18 58.0	+60.0	173.8	16 58.7	+60.0	173.9	14 59.3	+60.0	173.9	13 00.0	+60.0	174.0
14	27 55.0	+60.0	173.4	25 55.8	+60.0	173.5	23 56.5	+60.0	173.6	21 57.3	+60.0	173.7	19 58.0	+60.0	173.8	17 58.7	+60.0	173.9	15 59.3	+60.0	173.9	14 00.0	+60.0	174.0
15	28 55.0	+59.9	173.4	26 55.8	+59.9	173.5	24 56.5	+60.0	173.6	22 57.3	+59.9	173.7	20 58.0	+60.0	173.8	18 58.7	+60.0	173.9	16 59.3	+60.0	173.9	15 00.0	+60.0	174.0
16	29 54.9	+60.0	173.3	27 55.7	+60.0	173.5	25 56.5	+60.0	173.6	23 57.2	+60.0	173.7	21 58.0	+60.0	173.8	19 58.7	+60.0	173.9	17 59.3	+60.0	173.9	16 00.0	+60.0	174.0
17	30 54.9	+60.0	173.3	28 55.7	+60.0	173.4	26 56.5	+60.0	173.6	24 57.2	+60.0	173.7	22 58.0	+60.0	173.8	20 58.7	+60.0	173.9	18 59.3	+60.0	173.9	17 00.0	+60.0	174.0
18	31 54.9	+59.9	173.3	29 55.7	+60.0	173.4	27 56.5	+60.0	173.5	25 57.2	+60.0	173.7	23 58.0	+59.9	173.8	21 58.7	+60.0	173.8	19 59.3	+60.0	173.9	18 00.0	+60.0	174.0
19	32 54.9	+59.9	173.2	30 55.7	+60.0	173.4	28 56.5	+60.0	173.5	26 57.2	+60.0	173.6	24 57.9	+60.0	173.7	22 58.7	+59.9	173.8	20 59.3	+60.0	173.9	19 00.0	+60.0	174.0
20	33 54.8	+60.0	173.2	31 55.7	+59.9	173.4	29 56.5	+59.9	173.5	27 57.2	+60.0	173.6	25 57.9	+60.0	173.7	23 58.6	+60.0	173.8	21 59.3	+60.0	173.9	20 00.0	+60.0	174.0
21	34 54.8	+60.0	173.2	32 55.6	+60.0	173.3	30 56.4	+60.0	173.5	28 57.2	+60.0	173.6	26 57.9	+60.0	173.7	24 58.6	+60.0	173.8	22 59.3	+60.0	173.9	21 00.0	+60.0	174.0
22	35 54.8	+60.0	173.1	33 55.6	+60.0	173.3	31 56.4	+60.0	173.4	29 57.2	+60.0	173.6	27 57.9	+60.0	173.7	25 58.6	+60.0	173.8	23 59.3	+60.0	173.9	22 00.0	+60.0	174.0
23	36 54.8	+59.9	173.1	34 55.6	+60.0	173.3	32 56.4	+60.0	173.4	30 57.2	+60.0	173.6	28 57.9	+60.0	173.7	26 58.6	+60.0	173.8	24 59.3	+60.0	173.9	23 00.0	+60.0	174.0
24	37 54.7	+60.0	173.0	35 55.6	+60.0	173.2	33 56.4	+60.0	173.4	31 57.2	+60.0	173.5	29 57.9	+60.0	173.7	27 58.6	+60.0	173.8	25 59.3	+60.0	173.9	24 00.0	+60.0	174.0
25	38 54.7	+60.0	173.0	36 55.6	+59.9	173.2	34 56.4	+60.0	173.4	32 57.2	+60.0	173.5	30 57.9	+60.0	173.7	28 58.6	+60.0	173.8	26 59.3	+60.0	173.9	25 00.0	+60.0	174.0
26	39 54.7	+59.9	173.0	37 55.5	+60.0	173.2	35 56.4	+60.0	173.3	33 57.2	+59.9	173.5	31 57.9	+60.0	173.6	29 58.6	+60.0	173.8	27 59.3	+60.0	173.9	26 00.0	+60.0	174.0
27	40 54.6	+60.0	172.9	38 55.5	+60.0	173.1	36 56.4	+59.9	173.3	34 57.1	+60.0	173.5	32 57.9	+60.0	173.6	30 58.6	+60.0	173.8	28 59.3	+60.0	173.9	27 00.0	+60.0	174.0
28	41 54.6	+60.0	172.9	39 55.5	+60.0	173.1	37 56.3	+60.0	173.3	35 57.1	+60.0	173.5	33 57.9	+60.0	173.6	31 58.6	+60.0	173.8	29 59.3	+60.0	173.9	28 00.0	+60.0	174.0
29	42 54.6	+59.9	172.8	40 55.5	+59.9	173.1	38 56.3	+60.0	173.3	36 57.1	+60.0	173.4	34 57.9	+60.0	173.6	32 58.6	+60.0	173.7	30 59.3	+60.0	173.9	29 00.0	+60.0	174.0
30	43 54.5	+60.0	172.8	41 55.4	+60.0	173.0	39 56.3	+60.0	173.2	37 57.1	+60.0	173.4	35 57.9	+60.0	173.6	33 58.6	+60.0	173.7	31 59.3	+60.0	173.9	30 00.0	+60.0	174.0
31	44 54.5	+59.9	172.7	42 55.4	+60.0	173.0	40 56.3	+60.0	173.2	38 57.1	+60.0	173.4	36 57.9	+60.0	173.6	34 58.6	+60.0	173.7	32 59.3	+60.0	173.9	31 00.0	+60.0	174.0
32	45 54.4	+60.0	172.7	43 55.4	+60.0	172.9	41 56.3	+60.0	173.2	39 57.1	+60.0	173.4	37 57.9	+60.0	173.5	35 58.6	+60.0	173.7	33 59.3	+60.0	173.9	32 00.0	+60.0	174.0
33	46 54.4	+60.0	172.6	44 55.4	+59.9	172.9	42 56.3	+59.9	173.1	40 57.1	+60.0	173.3	38 57.9	+60.0	173.5	36 58.6	+60.0	173.7	34 59.3	+60.0	173.9	33 00.0	+60.0	174.0
34	47 54.4	+59.9	172.6	45 55.3	+60.0	172.8	43 56.2	+60.0	173.1	41 57.1	+60.0	173.3	39 57.9	+60.0	173.5	37 58.6	+60.0	173.7	35 59.3	+60.0	173.9	34 00.0	+60.0	174.0
35	48 54.3	+60.0	172.5	46 55.3	+60.0	172.8	44 56.2	+60.0	173.1	42 57.1	+60.0	173.3	40 57.9	+60.0	173.5	38 58.6	+60.0	173.7	36 59.3	+60.0	173.8	35 00.0	+60.0	174.0
36	49 54.3	+59.9	172.5	47 55.3	+59.9	172.8	45 56.2	+60.0	173.0	43 57.1	+59.9	173.3	41 57.9	+60.0	173.5	39 58.6	+60.0	173.7	37 59.3	+60.0	173.8	36 00.0	+60.0	174.0
37	50 54.2	+60.0	172.4	48 55.2	+60.0	172.7	46 56.2	+60.0	173.0	44 57.0	+60.0	173.2	42 57.9	+59.9	173.4	40 58.6	+60.0	173.7	38 59.3	+60.0	173.8	37 00.0	+60.0	174.0
38	51 54.2	+59.9	172.3	49 55.2	+60.0	172.6	47 56.2	+59.9	172.9	45 57.0	+60.0	173.2	43 57.9	+60.0	173.4	41 58.6	+60.0	173.6	39 59.3	+60.0	173.8	38 00.0	+60.0	174.0
39	52 54.1	+60.0	172.3	50 55.2	+59.9	172.6	48 56.1	+60.0	172.9	46 57.0	+60.0	173.2	44 57.9	+60.0	173.4	42 58.6	+60.0	173.6	40 59.3	+60.0	173.8	39 00.0	+60.0	174.0
40	53 54.1	+59.9	172.2	51 55.1	+60.0	172.5	49 56.1	+60.0	172.9	47 57.0	+60.0	173.1	45 57.9	+60.0	173.4	43 58.6	+60.0	173.6	41 59.3	+60.0	173.8	40 00.0	+60.0	174.0
41	54 54.0	+60.0	172.1	52 55.1	+60.0	172.5	50 56.1	+60.0	172.8	48 57.0	+60.0	173.1	46 57.8	+60.0	173.4	44 58.6	+60.0	173.6	42 59.3	+60.0	173.8	41 00.0	+60.0	174.0
42	55 54.0	+59.9	172.0	53 55.1	+59.9	172.4	51 56.1	+59.9	172.8	49 57.0	+60.0	173.1	47 57.8	+60.0	173.3	45 58.6	+60.0	173.6	43 59.3	+60.0	173.8	42 00.0	+60.0	174.0
43	56 53.9	+59.9	172.0	54 55.0	+60.0	172.4	52 56.0	+60.0	172.7	50 57.0	+59.9	173.0	48 57.8	+60.0	173.3	46 58.6	+60.0	173.6	44 59.3	+60.0	173.8	43 00.0	+60.0	174.0
44	57 53.8	+60.0	171.9	55 55.0	+59.9	172.3	53 56.0	+60.0	172.7	51 56.9	+60.0	173.0	49 57.8	+60.0	173.3	47 58.6	+60.0	173.6	45 59.3	+60.0	173.8	44 00.0	+60.0	174.0
45	58 53.8	+59.9	171.8	56 54.9	+60.0	172.2	54 56.0	+59.9	172.6	52 56.9	+60.0	172.9	50 57.8	+60.0	173.3	48 58.6	+60.0	173.5	46 59.3	+60.0	173.8	45 00.0	+60.0	174.0
46	59 53.7	+59.9	171.7	57 54.9	+59.9	172.1																		

LATITUDE CONTRARY NAME

L.H.A. 6°, 354°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
13 55.3 -60.0 173.8			11 56.0 -60.0 173.9			9 56.7 -60.0 173.9			7 57.4 -60.0 173.9			5 58.0 -60.0 174.0			3 58.7 -60.0 174.0			1 59.3 -60.0 174.0			0 00.0 +60.0 6.0			0
12 55.3 -60.0 173.8			10 56.0 -60.0 173.9			8 56.7 -60.0 173.9			6 57.4 -60.0 174.0			4 58.0 -60.0 174.0			2 58.7 -60.0 174.0			0 59.3 -60.0 174.0			1 00.0 +60.0 6.0			1
11 55.3 -59.9 173.9			9 56.0 -60.0 173.9			7 56.7 -60.0 173.9			5 57.4 -60.0 174.0			3 58.0 -60.0 174.0			1 58.7 -60.0 174.0			0 00.7 +60.0 6.0			2 00.0 +60.0 6.0			2
10 55.4 -60.0 173.9			8 56.0 -59.9 173.9			6 56.7 -60.0 174.0			4 57.4 -60.0 174.0			2 58.0 -60.0 174.0			0 58.7 -60.0 174.0			0 00.7 +60.0 6.0			3 00.0 +60.0 6.0			3
9 55.4 -60.0 173.9			7 56.1 -60.0 174.0			5 56.7 -60.0 174.0			3 57.4 -60.0 174.0			1 58.0 -60.0 174.0			0 01.3 +60.0 6.0			2 00.7 +60.0 6.0			4 00.0 +60.0 6.0			4
8 55.4 -60.0 173.9			6 56.1 -60.0 174.0			4 56.7 -60.0 174.0			2 57.4 -60.0 174.0			0 58.0 -60.0 174.0			1 01.3 +60.0 6.0			3 00.7 +60.0 6.0			5 00.0 +60.0 6.0			5
7 55.4 -60.0 174.0			5 56.1 -60.0 174.0			3 56.7 -60.0 174.0			1 57.4 -60.0 174.0			0 02.0 +60.0 6.0			0 02.0 +60.0 6.0			4 00.7 +60.0 6.0			6 00.0 +60.0 6.0			6
6 55.4 -59.9 174.0			4 56.1 -60.0 174.0			2 56.7 -59.9 174.0			0 57.4 -60.0 174.0			1 02.0 +60.0 6.0			3 01.3 +60.0 6.0			5 00.7 +60.0 6.0			7 00.0 +60.0 6.0			7
5 55.5 -60.0 174.0			3 56.1 -60.0 174.0			1 56.8 -60.0 174.1			0 02.6 +60.0 5.9			2 02.0 +59.9 5.9			4 01.3 +60.0 6.0			6 00.7 +60.0 6.0			8 00.0 +60.0 6.0			8
4 55.5 -60.0 174.1			2 56.1 -60.0 174.1			0 56.8 -60.0 174.1			1 02.6 +60.0 5.9			3 01.9 +60.0 5.9			5 01.3 +60.0 5.9			7 00.7 +60.0 6.0			9 00.0 +60.0 6.0			9
3 55.5 -60.0 174.1			1 56.1 -59.9 174.1			0 03.2 +60.0 5.9			2 02.6 +60.0 5.9			4 01.9 +60.0 5.9			6 01.3 +60.0 5.9			8 00.7 +60.0 6.0			10 00.0 +60.0 6.0			10
2 55.5 -60.0 174.1			0 56.2 -60.0 174.1			1 03.2 +60.0 5.9			3 02.6 +60.0 5.9			5 01.9 +60.0 5.9			7 01.3 +60.0 5.9			9 00.7 +60.0 6.0			11 00.0 +60.0 6.0			11
1 55.5 -59.9 174.1			0 03.8 +60.0 5.9			2 03.2 +60.0 5.9			4 02.6 +60.0 5.9			6 01.9 +60.0 5.9			8 01.3 +60.0 5.9			10 00.7 +60.0 6.0			12 00.0 +60.0 6.0			12
0 55.6 -60.0 174.2			1 03.8 +60.0 5.8			3 03.2 +60.0 5.9			5 02.6 +60.0 5.9			7 01.9 +60.0 5.9			9 01.3 +60.0 5.9			11 00.7 +60.0 6.0			13 00.0 +60.0 6.0			13
0 04.4 +60.0 5.8			2 03.8 +60.0 5.8			4 03.2 +60.0 5.8			6 02.6 +60.0 5.9			8 01.9 +60.0 5.9			10 01.3 +60.0 5.9			12 00.7 +60.0 6.0			14 00.0 +60.0 6.0			14
1 04.4 +60.0 5.8			3 03.8 +60.0 5.8			5 03.2 +60.0 5.8			7 02.6 +59.9 5.8			9 01.9 +60.0 5.9			11 01.3 +60.0 5.9			13 00.7 +60.0 5.9			15 00.0 +60.0 6.0			15
2 04.4 +60.0 5.8			4 03.8 +60.0 5.8			6 03.2 +60.0 5.8			8 02.5 +60.0 5.8			10 01.9 +60.0 5.9			12 01.3 +60.0 5.9			14 00.7 +60.0 5.9			16 00.0 +60.0 6.0			16
3 04.4 +59.9 5.7			5 03.8 +59.9 5.8			7 03.2 +59.9 5.8			9 02.5 +60.0 5.8			11 01.9 +60.0 5.8			13 01.3 +60.0 5.9			15 00.7 +60.0 5.9			17 00.0 +60.0 6.0			17
4 04.3 +60.0 5.7			6 03.7 +60.0 5.7			8 03.1 +60.0 5.8			10 02.5 +60.0 5.8			12 01.9 +60.0 5.8			14 01.3 +60.0 5.9			16 00.7 +59.9 5.9			18 00.0 +60.0 6.0			18
5 04.3 +60.0 5.7			7 03.7 +60.0 5.7			9 03.1 +60.0 5.7			11 02.5 +60.0 5.8			13 01.9 +60.0 5.8			15 01.3 +60.0 5.9			17 00.6 +60.0 5.9			19 00.0 +60.0 6.0			19
6 04.3 +60.0 5.7			8 03.7 +60.0 5.7			10 03.1 +60.0 5.7			12 02.5 +60.0 5.8			14 01.9 +60.0 5.8			16 01.3 +60.0 5.9			18 00.6 +60.0 5.9			20 00.0 +60.0 6.0			20
7 04.3 +60.0 5.6			9 03.7 +60.0 5.6			11 03.1 +60.0 5.7			13 02.5 +60.0 5.7			15 01.9 +60.0 5.8			17 01.3 +60.0 5.9			19 00.6 +60.0 5.9			21 00.0 +60.0 6.0			21
8 04.3 +59.9 5.6			10 03.7 +60.0 5.6			12 03.1 +60.0 5.7			14 02.5 +60.0 5.7			16 01.9 +60.0 5.8			18 01.3 +60.0 5.8			20 00.6 +60.0 5.9			22 00.0 +60.0 6.0			22
9 04.2 +60.0 5.6			11 03.7 +60.0 5.6			13 03.1 +60.0 5.7			15 02.5 +60.0 5.7			17 01.9 +60.0 5.8			19 01.3 +60.0 5.8			21 00.6 +60.0 5.9			23 00.0 +60.0 6.0			23
10 04.2 +60.0 5.6			12 03.7 +59.9 5.6			14 03.1 +60.0 5.6			16 02.5 +60.0 5.7			18 01.9 +60.0 5.8			20 01.3 +60.0 5.8			22 00.6 +60.0 5.9			24 00.0 +60.0 6.0			24
11 04.2 +60.0 5.5			13 03.6 +60.0 5.6			15 03.1 +60.0 5.6			17 02.5 +60.0 5.7			19 01.9 +60.0 5.8			21 01.3 +60.0 5.8			23 00.6 +60.0 5.9			25 00.0 +60.0 6.0			25
12 04.2 +60.0 5.5			14 03.6 +60.0 5.6			16 03.1 +59.9 5.6			18 02.5 +60.0 5.7			20 01.9 +60.0 5.7			22 01.3 +60.0 5.8			24 00.6 +60.0 5.9			26 00.0 +60.0 6.0			26
13 04.2 +59.9 5.5			15 03.6 +60.0 5.5			17 03.0 +60.0 5.6			19 02.5 +60.0 5.7			21 01.9 +60.0 5.7			23 01.3 +60.0 5.8			25 00.6 +60.0 5.9			27 00.0 +60.0 6.0			27
14 04.1 +60.0 5.5			16 03.6 +60.0 5.5			18 03.0 +60.0 5.6			20 02.5 +60.0 5.6			22 01.9 +60.0 5.7			24 01.3 +60.0 5.8			26 00.6 +60.0 5.9			28 00.0 +60.0 6.0			28
15 04.1 +60.0 5.4			17 03.6 +60.0 5.5			19 03.0 +60.0 5.6			21 02.5 +59.9 5.6			23 01.9 +60.0 5.7			25 01.3 +60.0 5.8			27 00.6 +60.0 5.9			29 00.0 +60.0 6.0			29
16 04.1 +60.0 5.4			18 03.6 +60.0 5.5			20 03.0 +60.0 5.5			22 02.4 +60.0 5.6			24 01.9 +60.0 5.7			26 01.3 +60.0 5.8			28 00.6 +60.0 5.9			30 00.0 +60.0 6.0			30
17 04.1 +60.0 5.4			19 03.6 +59.9 5.4			21 03.0 +60.0 5.5			23 02.4 +60.0 5.6			25 01.9 +60.0 5.7			27 01.3 +60.0 5.8			29 00.6 +60.0 5.9			31 00.0 +60.0 6.0			31
18 04.1 +59.9 5.4			20 03.5 +60.0 5.4			22 03.0 +60.0 5.5			24 02.4 +60.0 5.6			26 01.9 +60.0 5.7			28 01.3 +60.0 5.8			30 00.6 +60.0 5.9			32 00.0 +60.0 6.0			32
19 04.0 +60.0 5.3			21 03.5 +60.0 5.4			23 03.0 +60.0 5.5			25 02.4 +60.0 5.6			27 01.9 +59.9 5.6			29 01.3 +60.0 5.8			31 00.6 +60.0 5.9			33 00.0 +60.0 6.0			33
20 04.0 +60.0 5.3			22 03.5 +60.0 5.4			24 03.0 +60.0 5.5			26 02.4 +60.0 5.6			28 01.8 +60.0 5.6			30 01.3 +60.0 5.7			32 00.6 +60.0 5.9			34 00.0 +60.0 6.0			34
21 04.0 +60.0 5.3			23 03.5 +60.0 5.3			25 03.0 +59.9 5.4			27 02.4 +60.0 5.5			29 01.8 +60.0 5.6			31 01.3 +60.0 5.7			33 00.6 +60.0 5.9			35 00.0 +60.0 6.0			35
22 04.0 +60.0 5.2			24 03.5 +60.0 5.3			26 02.9 +60.0 5.4			28 02.4 +60.0 5.5			30 01.8 +60.0 5.6			32 01.3 +60.0 5.7			34 00.6 +60.0 5.9			36 00.0 +60.0 6.0			36
23 04.0 +59.9 5.2			25 03.5 +59.9 5.3			27 02.9 +60.0 5.4			29 02.4 +60.0 5.5			31 01.8 +60.0 5.6			33 01.3 +59.9 5.7			35 00.6 +60.0 5.8			37 00.0 +60.0 6.0			37
24 03.9 +60.0 5.2			26 03.4 +60.0 5.3			28 02.9 +60.0 5.4			30 02.4 +60.0 5.5			32 01.8 +60.0 5.6			34 01.2 +60.0 5.7			36 00.6 +60.0 5.8			38 00.0 +60.0 6.0			38
25 03.9 +60.0 5.1			27 03.4 +60.0 5.2			29 02.9 +60.0 5.3			31 02.4 +60.0 5.4			33 01.8 +60.0 5.6			35 01.2 +60.0 5.7			37 00.6 +60.0 5.8			39 00.0 +60.0 6.0			39
26 03.9 +60.0 5.1			28 03.4 +60.0 5.2			30 02.9 +60.0 5.3			32 02.4 +60.0 5.4			34 01.8 +60.0 5.5			36 01.2 +60.0 5.7			38 00.6 +60.0 5.8			40 00.0 +60.0 6.0			40
27 03.9 +59.9 5.1			29 03.4 +60.0 5.2			31 02.9 +60.0 5.3			33 02.4 +59.9 5.4			35 01.8 +60.0 5.5			37 01.2 +60.0 5.7			39 00.6 +60.0 5.8			41 00.0 +60.0 6.0			41
28 03.8 +60.0 5.1			30 03.4 +59.9 5.1			32 02.9 +60.0 5.3			34 02.3 +60.0 5.4			36 01.8 +60.0 5.5			38 01.2 +60.0 5.7			40 00.6 +60.0 5.8			42 00.0 +60.0 6.0			42
29 03.8 +60.0 5.0			31 03.3 +60.0 5.1			33 02.9 +59.9 5.2			35 02.3 +60.0 5.4			37 01.8 +60.0 5.5			39 01.2 +60.0 5.6			41 00.6 +60.0 5.8			43 00.0 +60.0 6.0			43
30 03.8 +60.0 5.0			32 03.3 +60.0 5.1			34 02.8 +60.0 5.2			36 02.3 +60.0 5.3			38 01.8 +60.0 5.5			40 01.2 +60.0 5.6			42 00.6 +60.0 5.8			44 00.0 +60.0 6.0			44
31 03.8 +59.9 4.9			33 03.3 +60.0 5.1			35 02.8 +60.0 5.2			37 02.3 +60.0 5.3			39 01.8 +60.0 5.5			41 01.2 +60.0 5.6			43 00.6 +60.0 5.8			45 00.0 +60.0 6.0			45
32 03.7 +60.0 4.9			34 03.3 +60.0 5.0			36 02.8 +60.0 5.2			38 02.3 +60.0 5.3			40 01.8 +60.0 5.4			42 01.2 +60.0 5.6			44 00.6 +60.0 5.8			46 00.0 +60.0 6.0			46
33 03.7 +60.0 4.9			35 03.3 +59.9 5.0			37 02.8 +60.0 5.1			39 02.3 +60.0 5.3			41 01.8 +60.0 5.4			43 01.2 +60.0 5.6			45 00.6 +60.0 5.8			47 00.0 +60.0 6.0			47
34 03.7 +60.0 4.8			36 03.2 +60.0 5.0			38 02.8 +60.0 5.1			40 02.3 +60.0 5.2			42 01.8 +60.0 5.4			44 01.2 +60.0 5.6			46 00.6 +60.0 5.8			48 00.0 +60.0 6.0			48
35 03.7 +59.9 4.8			37 03.2 +60.0 4.9																					

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	29 40.7	+59.8	170.8	27 42.2	+59.9	171.0	25 43.7	+59.9	171.1	23 45.1	+59.9	171.3	21 46.5	+59.9	171.4	19 47.8	+60.0	171.5	17 49.1	+60.0	171.6	15 50.4	+60.0	171.7
1	30 40.5	+59.8	170.7	28 42.1	+59.8	170.9	26 43.6	+59.8	171.0	24 45.0	+59.9	171.2	22 46.4	+59.9	171.3	20 47.8	+59.9	171.4	18 49.1	+59.9	171.5	16 50.4	+59.9	171.6
2	31 40.3	+59.8	170.6	29 41.9	+59.8	170.8	27 43.4	+59.9	171.0	25 44.9	+59.9	171.1	23 46.3	+59.9	171.3	21 47.7	+59.9	171.4	19 49.0	+59.9	171.5	17 50.3	+60.0	171.6
3	32 40.1	+59.8	170.5	30 41.7	+59.9	170.7	28 43.3	+59.8	170.9	26 44.8	+59.8	171.0	24 46.2	+59.9	171.2	22 47.6	+59.9	171.3	20 48.9	+60.0	171.4	18 50.3	+59.9	171.5
4	33 39.9	+59.8	170.4	31 41.6	+59.8	170.6	29 43.1	+59.9	170.8	27 44.6	+59.9	171.0	25 46.1	+59.9	171.1	23 47.5	+59.9	171.3	21 48.9	+59.9	171.4	19 50.2	+60.0	171.5
5	34 39.7	+59.8	170.3	32 41.4	+59.8	170.5	30 43.0	+59.8	170.7	28 44.5	+59.9	170.9	26 46.0	+59.9	171.1	24 47.4	+60.0	171.2	22 48.8	+60.0	171.3	20 50.2	+59.9	171.5
6	35 39.5	+59.8	170.2	33 41.2	+59.8	170.4	31 42.8	+59.9	170.6	29 44.4	+59.9	170.8	27 45.9	+59.9	171.0	25 47.4	+59.9	171.2	23 48.8	+59.9	171.3	21 50.1	+60.0	171.4
7	36 39.3	+59.7	170.1	34 41.0	+59.8	170.3	32 42.7	+59.8	170.6	30 44.3	+59.8	170.8	28 45.8	+59.9	170.9	26 47.3	+59.9	171.1	24 48.7	+59.9	171.2	22 50.1	+59.9	171.4
8	37 39.0	+59.8	170.0	35 40.8	+59.8	170.2	33 42.5	+59.8	170.5	31 44.1	+59.9	170.7	29 45.7	+59.9	170.9	27 47.2	+59.9	171.0	25 48.6	+59.9	171.1	23 50.0	+60.0	171.3
9	38 38.8	+59.8	169.9	36 40.6	+59.8	170.1	34 42.3	+59.9	170.4	32 44.0	+59.9	170.6	30 45.6	+59.9	170.8	28 47.1	+59.9	171.0	26 48.5	+60.0	171.1	24 50.0	+59.9	171.3
10	39 38.6	+59.7	169.7	37 40.4	+59.8	170.0	35 42.2	+59.8	170.3	33 43.9	+59.8	170.5	31 45.5	+59.9	170.7	29 47.0	+59.9	170.9	27 48.5	+59.9	171.1	25 49.9	+59.9	171.2
11	40 38.3	+59.7	169.6	38 40.2	+59.7	169.9	36 42.0	+59.8	170.2	34 43.7	+59.9	170.4	32 45.4	+59.8	170.7	30 46.9	+59.9	170.9	28 48.4	+59.9	171.0	26 49.8	+60.0	171.2
12	41 38.0	+59.8	169.5	39 40.0	+59.8	169.8	37 41.8	+59.9	170.1	35 43.6	+59.8	170.3	33 45.2	+59.9	170.6	31 46.8	+59.9	170.8	29 48.3	+60.0	171.0	27 49.8	+59.9	171.1
13	42 37.8	+59.7	169.4	40 39.8	+59.7	169.7	38 41.7	+59.8	170.0	36 43.4	+59.8	170.3	34 45.1	+59.9	170.5	32 46.7	+59.9	170.7	30 48.3	+59.9	170.9	28 49.7	+60.0	171.1
14	43 37.5	+59.7	169.2	41 39.5	+59.8	169.6	39 41.5	+59.8	169.9	37 43.3	+59.8	170.2	35 45.0	+59.9	170.4	33 46.6	+59.9	170.7	31 48.2	+59.9	170.9	29 49.7	+59.9	171.0
15	44 37.2	+59.7	169.1	42 39.3	+59.8	169.5	40 41.3	+59.8	169.8	38 43.1	+59.9	170.1	36 44.9	+59.8	170.3	34 46.5	+59.9	170.6	32 48.1	+59.9	170.8	30 49.6	+60.0	171.0
16	45 36.9	+59.7	169.0	43 39.1	+59.7	169.3	41 41.1	+59.8	169.7	39 43.0	+59.8	170.0	37 44.7	+59.9	170.3	35 46.4	+59.9	170.5	33 48.0	+59.9	170.7	31 49.6	+59.9	170.9
17	46 36.6	+59.7	168.8	44 38.8	+59.8	169.2	42 40.9	+59.8	169.6	40 42.8	+59.8	169.9	38 44.6	+59.9	170.2	36 46.3	+59.9	170.4	34 47.9	+60.0	170.7	32 49.5	+59.9	170.9
18	47 36.3	+59.7	168.7	45 38.6	+59.7	169.1	43 40.7	+59.7	169.5	41 42.6	+59.8	169.8	39 44.5	+59.8	170.1	37 46.2	+59.9	170.4	35 47.9	+59.9	170.6	33 49.4	+60.0	170.8
19	48 36.0	+59.6	168.5	46 38.3	+59.7	169.0	44 40.4	+59.8	169.3	42 42.4	+59.9	169.7	40 44.3	+59.9	170.0	38 46.1	+59.9	170.3	36 47.8	+59.9	170.5	34 49.4	+59.9	170.8
20	49 35.6	+59.7	168.4	47 38.0	+59.7	168.8	45 40.2	+59.8	169.2	43 42.3	+59.8	169.6	41 44.2	+59.8	169.9	39 46.0	+59.9	170.2	37 47.7	+59.9	170.5	35 49.3	+59.9	170.7
21	50 35.3	+59.6	168.2	48 37.7	+59.7	168.7	46 40.0	+59.7	169.1	44 42.1	+59.8	169.5	42 44.0	+59.8	169.8	40 45.9	+59.9	170.1	38 47.6	+59.9	170.4	36 49.2	+60.0	170.7
22	51 34.9	+59.6	168.0	49 37.4	+59.7	168.5	47 39.7	+59.8	168.9	45 41.9	+59.8	169.4	43 43.9	+59.8	169.7	41 45.8	+59.8	170.0	39 47.5	+59.9	170.3	37 49.2	+59.9	170.6
23	52 34.5	+59.6	167.8	50 37.1	+59.7	168.4	48 39.5	+59.7	168.8	46 41.7	+59.8	169.2	44 43.7	+59.9	169.6	42 45.6	+59.9	170.0	40 47.4	+59.9	170.3	38 49.1	+59.9	170.5
24	53 34.1	+59.6	167.6	51 36.8	+59.7	168.2	49 39.2	+59.8	168.7	47 41.5	+59.8	169.1	45 43.6	+59.8	169.5	43 45.5	+59.9	169.9	41 47.3	+59.9	170.2	39 49.0	+59.9	170.5
25	54 33.7	+59.6	167.4	52 36.5	+59.6	168.0	50 39.0	+59.7	168.5	48 41.3	+59.7	168.9	46 43.4	+59.8	169.4	44 45.4	+59.8	169.8	42 47.2	+59.9	170.1	40 48.9	+60.0	170.4
26	55 33.3	+59.5	167.2	53 36.1	+59.6	167.8	51 38.7	+59.7	168.4	49 41.0	+59.8	169.0	47 43.2	+59.8	169.3	45 45.2	+59.9	169.7	43 47.1	+59.9	170.0	41 48.9	+59.9	170.3
27	56 32.8	+59.5	167.0	54 35.7	+59.6	167.6	52 38.4	+59.7	168.2	50 40.8	+59.8	168.7	48 43.0	+59.8	169.2	46 45.1	+59.8	169.6	44 47.0	+59.9	169.9	42 48.8	+59.9	170.3
28	57 32.3	+59.5	166.8	55 35.3	+59.6	167.4	53 38.1	+59.6	168.0	51 40.6	+59.7	168.6	49 42.8	+59.8	169.0	47 44.9	+59.9	169.5	45 46.9	+59.9	169.9	43 48.7	+59.9	170.2
29	58 31.8	+59.4	166.5	56 34.9	+59.6	167.2	54 37.7	+59.7	167.9	52 40.3	+59.7	168.4	50 42.6	+59.8	168.9	48 44.8	+59.8	169.4	46 46.8	+59.8	169.8	44 48.6	+59.9	170.1
30	59 31.2	+59.4	166.3	57 34.5	+59.5	167.0	55 37.4	+59.6	167.7	53 40.0	+59.7	168.3	51 42.4	+59.8	168.8	49 44.6	+59.9	169.3	47 46.6	+59.9	169.7	45 48.5	+59.9	170.0
31	60 30.6	+59.4	166.0	58 34.0	+59.5	166.8	56 37.0	+59.7	167.5	54 39.7	+59.8	168.1	52 42.2	+59.8	168.6	50 44.5	+59.8	169.1	48 46.5	+59.9	169.6	46 48.4	+59.9	170.0
32	61 30.0	+59.4	165.7	59 33.5	+59.5	166.5	57 36.7	+59.6	167.3	55 39.5	+59.6	167.9	53 42.0	+59.7	168.5	51 44.3	+59.8	169.0	49 46.4	+59.9	169.5	47 48.3	+59.9	169.9
33	62 29.4	+59.3	165.4	60 33.0	+59.5	166.3	58 36.3	+59.5	167.1	56 39.1	+59.7	167.7	54 41.7	+59.8	168.3	52 44.1	+59.8	168.9	50 46.3	+59.8	169.4	48 48.2	+59.9	169.8
34	63 28.7	+59.2	165.0	61 32.5	+59.4	166.0	59 35.8	+59.6	166.8	57 38.8	+59.7	167.5	55 41.5	+59.7	168.2	53 43.9	+59.8	168.8	51 46.1	+59.9	169.3	49 48.1	+59.9	169.7
35	64 27.9	+59.2	164.7	62 31.9	+59.4	165.7	60 35.4	+59.5	166.6	58 38.5	+59.6	167.3	56 41.2	+59.8	168.0	54 43.7	+59.8	168.6	52 46.0	+59.8	169.0	50 48.0	+59.9	169.6
36	65 27.1	+59.1	164.3	63 31.3	+59.3	165.4	61 34.9	+59.5	166.3	59 38.1	+59.6	167.1	57 41.0	+59.7	167.8	55 43.5	+59.8	168.5	53 45.8	+59.8	168.9	51 47.9	+59.9	169.5
37	66 26.2	+59.0	163.9	64 30.6	+59.3	165.0	62 34.4	+59.4	166.0	60 37.7	+59.6	166.9	58 40.7	+59.6	167.7	56 43.3	+59.8	168.3	54 45.6	+59.9	168.9	52 47.8	+59.9	169.4
38	67 25.2	+58.9	163.4	65 29.9	+59.2	164.7	63 33.8	+59.5	165.7	61 37.3	+59.6	166.7	59 40.3	+59.7	167.5	57 43.1	+59.7	168.2	55 45.5	+59.8	168.8	53 47.7	+59.9	169.3
39	68 24.2	+58.8	162.9	66 29.1	+59.1	164.3	64 33.3	+59.5	165.4	62 36.9	+59.5	166.4	60 40.0	+59.7	167.2	58 42.8	+59.7	168.0	56 45.3	+59.8	168.6	54 47.5	+59.9	169.2
40	69 23.1	+58.7	162.4	67 28.2	+59.1	163.8	65 32.6	+59.3	165.1	63 36.4	+59.5	166.1	61 39.7	+59.6	167.0	59 42.5	+59.8	167.8	57 45.1	+59.8	168.5	55 47.4	+59.9	169.1
41	70 21.8	+58.7	161.8	68 27.3	+59.0	163.4	66 31.9	+59.3	164.7	64 35.9	+59.4	165.8	62 39.3	+59.6	166.8	60 42.3	+59.7	167.6	58 44.9	+59.8	168.3	56 47.3	+59.9	168.9
42	71 20.5	+58.5	161.1	69 26.3	+58.9	162.9	67 31.2	+59.2	164.3	65 35.3	+59.4	165.5	63 38.9	+59.6	166.5	61 42.0	+59.7	167.4	59 44.7	+59.8	168.2	57 47.1	+59.8	168.8
43	72 19.0	+58.3	160.4	70 25.2	+58.8	162.3	68 30.4	+59.1	163.9	66 34.7	+59.4	165.2	64 38.5	+59.5	166.3	62 41.7	+59.6	167.2	60 44.5	+59.7	168.0	58 46.9	+59.9	168.7
44	73 17.3	+58.1	159.6	71 24.0	+58.7	161.7	69 29.5	+59.1	163.4	67 34.1	+59.3	164.8	65 38.0	+59.5	166.0	63 41.3	+59.7	166.9	61 44.2	+59.8	167.8	59 46.8	+59.9	168.5
45	74 15.4	+57.8	158.7	72 22.7	+58.5	161.0	70 28.6	+58.9	162.9	68 33.4	+59.3	164.4	66 37.5	+59.5	165.6	64 41.0	+59.6	166.7	62 44.0	+59.7	167.6	60 46.6	+59.8	168.4
46	75 13.2	+57.6	157.7</																					

LATITUDE CONTRARY NAME

L.H.A. 8°, 352°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
29 40.7	-59.8	170.8	27 42.2	-59.8	171.0	25 43.7	-59.9	171.1	23 45.1	-59.9	171.3	21 46.5	-59.9	171.4	19 47.8	-59.9	171.5	17 49.1	-59.9	171.6	15 50.4	-59.9	171.7	0		
28 40.9	-59.8	170.9	26 42.4	-59.8	171.0	24 43.8	-59.8	171.2	22 45.2	-59.9	171.3	20 46.6	-59.9	171.4	18 47.9	-59.9	171.5	16 49.2	-59.9	171.6	14 50.5	-60.0	171.7	1		
27 41.1	-59.8	171.0	25 42.6	-59.9	171.1	23 44.0	-59.9	171.3	21 45.3	-59.8	171.4	19 46.7	-59.9	171.5	17 48.0	-59.9	171.6	15 49.3	-60.0	171.7	13 50.5	-59.9	171.8	2		
26 41.3	-59.8	171.1	24 42.7	-59.8	171.2	22 44.1	-59.9	171.3	20 45.5	-59.9	171.5	18 46.8	-59.9	171.6	16 48.1	-60.0	171.7	14 49.3	-59.9	171.7	12 50.6	-60.0	171.8	3		
25 41.5	-59.9	171.1	23 42.9	-59.9	171.3	21 44.2	-59.8	171.4	19 45.6	-59.9	171.5	17 46.9	-59.9	171.6	15 48.1	-59.9	171.7	13 49.4	-60.0	171.8	11 50.6	-60.0	171.8	4		
24 41.6	-59.8	171.2	22 43.0	-59.8	171.4	20 44.4	-59.9	171.5	18 45.7	-59.9	171.6	16 47.0	-60.0	171.7	14 48.2	-59.9	171.8	12 49.4	-59.9	171.8	10 50.6	-59.9	171.9	5		
23 41.8	-59.8	171.3	21 43.2	-59.9	171.4	19 44.5	-59.9	171.5	17 45.8	-59.9	171.6	15 47.0	-59.9	171.7	13 48.3	-60.0	171.8	11 49.5	-60.0	171.9	9 50.7	-60.0	171.9	6		
22 42.0	-59.8	171.4	20 43.3	-59.8	171.5	18 44.6	-59.9	171.6	16 45.9	-59.9	171.7	14 47.1	-59.9	171.8	12 48.3	-59.9	171.9	10 49.5	-59.9	171.9	8 50.7	-59.9	172.0	7		
21 42.2	-59.9	171.5	19 43.5	-59.9	171.6	17 44.7	-59.8	171.7	15 46.0	-59.9	171.8	13 47.2	-59.9	171.8	11 48.4	-59.9	171.9	9 49.6	-59.9	172.0	7 50.8	-60.0	172.0	8		
20 42.3	-59.8	171.5	18 43.6	-59.9	171.7	16 44.9	-59.9	171.7	14 46.1	-59.9	171.8	12 47.3	-59.9	171.9	10 48.5	-59.9	172.0	8 49.7	-60.0	172.0	6 50.8	-59.9	172.0	9		
19 42.5	-59.9	171.6	17 43.7	-59.8	171.7	15 45.0	-59.9	171.8	13 46.2	-59.9	171.9	11 47.4	-59.9	172.0	9 48.6	-60.0	172.0	7 49.7	-59.9	172.0	5 50.9	-60.0	172.1	10		
18 42.6	-59.8	171.7	16 43.7	-59.9	171.8	14 45.1	-59.9	171.9	12 46.3	-59.9	171.9	10 47.5	-59.9	172.0	8 48.6	-60.0	172.1	6 49.8	-60.0	172.1	4 50.9	-59.9	172.1	11		
17 42.8	-59.8	171.8	15 44.0	-59.8	171.9	13 45.2	-59.9	171.9	11 46.4	-59.9	172.0	9 47.6	-60.0	172.1	7 48.7	-59.9	172.1	5 49.8	-59.9	172.1	3 51.0	-60.0	172.2	12		
16 43.0	-59.9	171.9	14 44.2	-59.9	171.9	12 45.3	-59.8	172.0	10 46.5	-59.9	172.0	8 47.6	-59.9	172.1	6 48.8	-60.0	172.2	4 49.9	-60.0	172.2	2 51.0	-60.0	172.2	13		
15 43.1	-59.9	171.9	13 44.3	-59.9	172.0	11 45.5	-59.9	172.1	9 46.6	-59.9	172.1	7 47.7	-59.9	172.2	5 48.8	-59.9	172.2	3 49.9	-59.9	172.2	1 51.0	-59.9	172.2	14		
14 43.3	-59.9	172.0	12 44.4	-59.8	172.1	10 45.6	-59.9	172.1	8 46.7	-59.9	172.2	6 47.8	-59.9	172.2	4 48.9	-59.9	172.2	2 50.0	-59.9	172.3	0 51.1	-60.0	172.3	15		
13 43.4	-59.8	172.1	11 44.6	-59.9	172.1	9 45.7	-59.9	172.2	7 46.8	-59.8	172.2	5 47.9	-59.9	172.3	3 49.0	-60.0	172.3	1 50.1	-60.0	172.3	0 50.9	+59.9	7.7	16		
12 43.6	-59.9	172.2	10 44.7	-59.9	172.2	8 45.8	-59.9	172.3	6 46.9	-59.9	172.3	4 48.0	-59.9	172.3	2 49.0	-59.9	172.3	0 50.1	-59.9	172.4	1 08.8	+60.0	7.6	17		
11 43.7	-59.8	172.2	9 44.8	-59.8	172.3	7 45.9	-59.9	172.3	5 47.0	-59.9	172.4	3 48.1	-60.0	172.4	1 49.1	-59.9	172.4	0 09.8	+60.0	7.6	2 08.8	+59.9	7.6	18		
10 43.9	-59.9	172.3	8 45.0	-59.9	172.3	6 46.0	-59.9	172.4	4 47.1	-59.9	172.4	2 48.1	-59.9	172.4	0 49.2	-60.0	172.4	1 09.8	+59.9	7.6	3 08.7	+60.0	7.6	19		
9 44.0	-59.8	172.4	7 45.1	-59.9	172.4	5 46.1	-59.8	172.4	3 47.2	-59.9	172.5	1 48.2	-59.9	172.5	0 10.8	+59.9	7.5	2 09.7	+60.0	7.5	4 08.7	+59.9	7.5	20		
8 44.2	-59.9	172.4	6 45.2	-59.8	172.5	4 46.3	-59.9	172.5	2 47.3	-59.9	172.5	0 48.3	-59.9	172.5	1 11.5	+60.0	7.4	3 10.5	+60.0	7.4	5 09.6	+59.9	7.4	21		
7 44.3	-59.8	172.5	5 45.4	-59.9	172.5	3 46.4	-59.9	172.6	1 47.4	-59.9	172.6	0 11.6	+59.9	7.4	2 10.6	+59.9	7.4	4 09.6	+60.0	7.4	6 08.6	+60.0	7.4	22		
6 44.5	-59.9	172.6	4 45.5	-59.9	172.6	2 46.5	-59.9	172.6	0 12.5	-59.9	172.6	1 11.5	+60.0	7.3	3 10.5	+60.0	7.3	5 09.6	+59.9	7.3	7 08.6	+59.9	7.4	23		
5 44.6	-59.8	172.7	3 45.6	-59.9	172.7	1 46.6	-59.9	172.7	0 12.4	+59.9	7.3	2 11.5	+60.0	7.3	4 10.5	+59.9	7.3	6 09.5	+59.9	7.3	8 08.5	+60.0	7.4	24		
4 44.8	-59.9	172.7	2 45.7	-59.8	172.7	0 46.7	-59.9	172.8	1 12.3	+59.9	7.2	3 11.4	+59.9	7.3	5 10.4	+59.9	7.3	7 09.4	+60.0	7.3	9 08.5	+59.9	7.3	25		
3 44.9	-59.8	172.8	1 45.9	-59.9	172.8	0 13.2	+59.9	7.2	2 12.2	+59.9	7.2	4 11.3	+59.9	7.2	6 10.3	+60.0	7.2	8 09.4	+59.9	7.3	10 08.4	+60.0	7.3	26		
2 45.1	-59.9	172.9	0 46.0	-59.9	172.9	1 13.1	+59.9	7.1	3 12.1	+59.9	7.1	5 11.2	+59.9	7.2	7 10.3	+59.9	7.2	9 09.3	+60.0	7.2	11 08.4	+59.9	7.3	27		
1 45.2	-59.8	172.9	0 13.9	+59.8	7.1	2 13.0	+59.8	7.1	4 12.0	+59.9	7.1	6 11.1	+59.9	7.1	8 10.2	+59.9	7.1	10 09.3	+59.9	7.2	12 08.3	+60.0	7.2	28		
0 45.4	-59.9	173.0	0 13.7	+59.9	7.0	3 12.8	+59.9	7.0	5 11.9	+60.0	7.0	7 11.0	+60.0	7.0	9 10.1	+60.0	7.0	11 09.2	+60.0	7.1	13 08.3	+59.9	7.2	29		
0 14.5	+59.8	6.9	2 13.6	+59.9	6.9	4 12.7	+59.9	6.9	6 11.9	+59.9	7.0	8 11.0	+59.9	7.0	10 10.1	+59.9	7.0	12 09.2	+59.9	7.1	14 08.2	+60.0	7.1	30		
1 14.3	+59.9	6.9	3 13.5	+59.9	6.9	5 12.6	+59.9	6.9	7 11.8	+59.9	6.9	9 10.9	+59.9	6.9	11 10.0	+59.9	7.0	13 09.1	+59.9	7.0	15 08.2	+59.9	7.1	31		
2 14.2	+59.9	6.8	4 13.4	+59.8	6.8	6 12.5	+59.9	6.8	8 11.7	+59.9	6.8	10 10.8	+59.9	6.9	12 09.9	+60.0	6.9	14 09.0	+60.0	7.0	16 08.1	+60.0	7.1	32		
3 14.1	+59.8	6.7	5 13.2	+59.9	6.7	7 12.4	+59.9	6.8	9 11.6	+59.9	6.8	11 10.7	+59.9	6.8	13 09.9	+59.9	6.9	15 09.0	+59.9	6.9	17 08.1	+59.9	7.0	33		
4 13.9	+59.9	6.6	6 13.1	+59.9	6.7	8 12.3	+59.9	6.7	10 11.5	+59.9	6.7	12 10.6	+59.9	6.8	14 09.8	+59.9	6.8	16 08.9	+60.0	6.9	18 08.0	+60.0	7.0	34		
5 13.8	+59.8	6.6	7 13.0	+59.8	6.6	9 12.2	+59.9	6.6	11 11.4	+59.9	6.7	13 10.5	+60.0	6.7	15 09.7	+59.9	6.8	17 08.9	+59.9	6.9	19 08.0	+59.9	6.9	35		
6 13.6	+59.9	6.5	8 12.8	+59.9	6.5	10 12.1	+59.8	6.6	12 11.3	+59.9	6.6	14 10.5	+59.9	6.7	16 09.6	+60.0	6.7	18 08.8	+59.9	6.8	20 07.9	+60.0	6.9	36		
7 13.5	+59.8	6.4	9 12.7	+59.9	6.5	11 11.9	+59.9	6.5	13 11.2	+59.9	6.6	15 10.4	+59.9	6.6	17 09.6	+59.9	6.7	19 08.7	+60.0	6.8	21 07.9	+59.9	6.8	37		
8 13.3	+59.9	6.4	10 12.6	+59.8	6.4	12 11.8	+59.9	6.4	14 11.1	+59.9	6.5	16 10.3	+59.9	6.6	18 09.5	+59.9	6.6	20 08.7	+59.9	6.7	22 07.8	+60.0	6.8	38		
9 13.2	+59.9	6.3	11 12.4	+59.9	6.3	13 11.7	+59.9	6.4	15 11.0	+59.8	6.4	17 10.2	+59.9	6.5	19 09.4	+59.9	6.6	21 08.6	+59.9	6.7	23 07.8	+59.9	6.8	39		
10 13.0	+59.9	6.2	12 12.3	+59.9	6.3	14 11.6	+59.9	6.3	16 10.8	+59.9	6.4	18 10.1	+59.9	6.4	20 09.3	+60.0	6.5	22 08.5	+60.0	6.6	24 07.7	+60.0	6.7	40		
11 12.9	+59.8	6.1	13 12.2	+59.8	6.2	15 11.5	+59.8	6.2	17 10.7	+59.9	6.3	19 10.0	+59.9	6.4	21 09.3	+59.9	6.5	23 08.5	+59.9	6.6	25 07.7	+59.9	6.7	41		
12 12.7	+59.9	6.1	14 12.0	+59.9	6.1	16 11.3	+59.9	6.2	18 10.6	+59.9	6.2	20 09.9	+59.9	6.3	22 09.2	+59.9	6.4	24 08.4	+59.9	6.5	26 07.6	+60.0	6.6	42		
13 12.6	+59.8	6.0	15 11.9	+59.9	6.1	17 11.2	+59.9	6.1	19 10.5	+59.9	6.2	21 09.8	+59.9	6.3	23 09.1	+59.9	6.4	25 08.3	+60.0	6.5	27 07.6	+59.9	6.6	43		
14 12.4	+59.9	5.9	16 11.8	+59.8	6.0	18 11.1	+59.9	6.0	20 10.4	+59.9	6.1	22 09.7	+59.9	6.2	24 09.0	+59.9	6.3	26 08.3	+59.9	6.4	28 07.5	+60.0	6.5	44		
15 12.3	+59.8	5.9	17 11.6	+59.9	5.9	19 11.0	+59.8	6.0	21 10.3	+59.9	6.1	23 09.6	+59.9	6.1	25 08.9	+59.9	6.2	27 08.2	+59.9	6.3	29 07.5	+59.9	6.5	45		
16 12.1	+59.8	5.8	18 11.5	+59.8	5.8	20 10.8	+59.9	5.9	22 10.2	+59.9	6.0	24 09.5	+59.9	6.1	26 08.8	+60.0	6.2	28 08.1	+60.0	6.3	30 07.4	+59.9	6.4	46		
17 11.9	+59.9	5.7	19 11.3	+59.9	5.8	21 10.7	+59.9	5.8	23 10.1	+59.9	5.9	25 09.4	+59.9	6.0	27 08.8	+59.9	6.1	29 08.1	+59.9	6.2	31 07.3	+60.0	6.4	47		
18 11.8	+59.8	5.6	20																							

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 51.7	+59.9	171.8	11 52.9	+60.0	171.8	9 54.1	+60.0	171.9	7 55.3	+60.0	171.9	5 56.5	+60.0	172.0	3 57.7	+60.0	172.0	1 58.8	+60.0	172.0	0 00.0	+60.0	172.0
1	14 51.6	+60.0	171.7	12 52.9	+59.9	171.8	10 54.1	+60.0	171.9	8 55.3	+60.0	171.9	6 56.5	+60.0	171.9	4 57.7	+60.0	172.0	2 58.8	+60.0	172.0	1 00.0	+60.0	172.0
2	15 51.6	+60.0	171.7	13 52.8	+60.0	171.8	11 54.1	+59.9	171.8	9 55.3	+60.0	171.9	7 56.5	+60.0	171.9	5 57.7	+60.0	172.0	3 58.8	+60.0	172.0	2 00.0	+60.0	172.0
3	16 51.6	+59.9	171.6	14 52.8	+60.0	171.7	12 54.0	+60.0	171.8	10 55.3	+60.0	171.9	8 56.5	+60.0	171.9	6 57.7	+59.9	172.0	4 58.8	+60.0	172.0	3 00.0	+60.0	172.0
4	17 51.5	+60.0	171.6	15 52.8	+60.0	171.7	13 54.0	+60.0	171.8	11 55.3	+59.9	171.8	9 56.5	+60.0	171.9	7 57.6	+60.0	171.9	5 58.8	+60.0	172.0	4 00.0	+60.0	172.0
5	18 51.5	+59.9	171.6	16 52.8	+59.9	171.7	14 54.0	+60.0	171.8	12 55.2	+60.0	171.8	10 56.5	+59.9	171.9	8 57.6	+60.0	171.9	6 58.8	+60.0	172.0	5 00.0	+60.0	172.0
6	19 51.4	+60.0	171.5	17 52.7	+60.0	171.6	15 54.0	+60.0	171.7	11 56.4	+60.0	171.8	9 57.6	+60.0	171.9	7 58.6	+60.0	171.9	7 58.8	+60.0	172.0	6 00.0	+60.0	172.0
7	20 51.4	+60.0	171.5	18 52.7	+60.0	171.6	16 54.0	+60.0	171.7	14 55.2	+60.0	171.8	12 56.4	+60.0	171.9	10 57.6	+60.0	171.9	8 58.8	+60.0	172.0	7 00.0	+60.0	172.0
8	21 51.4	+59.9	171.5	19 52.7	+59.9	171.6	17 54.0	+59.9	171.7	15 55.2	+60.0	171.8	13 56.4	+60.0	171.8	11 57.6	+60.0	171.9	9 58.8	+60.0	172.0	8 00.0	+60.0	172.0
9	22 51.3	+60.0	171.4	20 52.6	+60.0	171.5	18 53.9	+60.0	171.6	16 55.2	+60.0	171.7	14 56.4	+60.0	171.8	12 57.6	+60.0	171.9	10 58.8	+60.0	172.0	9 00.0	+60.0	172.0
10	23 51.3	+59.9	171.4	21 52.6	+60.0	171.5	19 53.9	+60.0	171.6	17 55.2	+60.0	171.7	15 56.4	+60.0	171.8	13 57.6	+60.0	171.9	11 58.8	+60.0	171.9	10 00.0	+60.0	172.0
11	24 51.2	+60.0	171.3	22 52.6	+60.0	171.5	20 53.9	+60.0	171.6	18 55.2	+60.0	171.7	16 56.4	+60.0	171.8	14 57.6	+60.0	171.9	12 58.8	+60.0	171.9	11 00.0	+60.0	172.0
12	25 51.2	+60.0	171.3	23 52.6	+59.9	171.4	21 53.9	+60.0	171.6	19 55.2	+59.9	171.7	17 56.4	+60.0	171.8	15 57.6	+60.0	171.9	13 58.8	+60.0	171.9	12 00.0	+60.0	172.0
13	26 51.2	+59.9	171.3	24 52.5	+60.0	171.4	22 53.9	+59.9	171.5	20 55.1	+60.0	171.7	18 56.4	+60.0	171.8	16 57.6	+60.0	171.8	14 58.8	+60.0	171.9	13 00.0	+60.0	172.0
14	27 51.1	+60.0	171.2	25 52.5	+60.0	171.4	23 53.8	+60.0	171.5	21 55.1	+60.0	171.6	19 56.4	+60.0	171.7	17 57.6	+60.0	171.8	15 58.8	+60.0	171.9	14 00.0	+60.0	172.0
15	28 51.1	+59.9	171.2	26 52.5	+59.9	171.3	24 53.8	+60.0	171.5	22 55.1	+60.0	171.6	20 56.4	+60.0	171.7	18 57.6	+60.0	171.8	16 58.8	+60.0	171.9	15 00.0	+60.0	172.0
16	29 51.0	+60.0	171.1	27 52.4	+60.0	171.3	25 53.8	+60.0	171.4	23 55.1	+60.0	171.6	21 56.4	+60.0	171.7	19 57.6	+60.0	171.8	17 58.8	+60.0	171.9	16 00.0	+60.0	172.0
17	30 51.0	+59.9	171.1	28 52.4	+60.0	171.3	26 53.8	+59.9	171.4	24 55.1	+60.0	171.6	22 56.4	+60.0	171.7	20 57.6	+60.0	171.8	18 58.8	+60.0	171.9	17 00.0	+60.0	172.0
18	31 50.9	+60.0	171.0	29 52.4	+59.9	171.2	27 53.7	+60.0	171.4	25 55.1	+60.0	171.5	23 56.4	+60.0	171.7	21 57.6	+60.0	171.8	19 58.8	+60.0	171.9	18 00.0	+60.0	172.0
19	32 50.9	+59.9	171.0	30 52.3	+60.0	171.2	28 53.7	+60.0	171.4	26 55.1	+59.9	171.5	24 56.4	+59.9	171.7	22 57.6	+60.0	171.8	20 58.8	+60.0	171.9	19 00.0	+60.0	172.0
20	33 50.8	+60.0	170.9	31 52.3	+60.0	171.1	29 53.7	+60.0	171.3	27 55.0	+60.0	171.5	25 56.3	+60.0	171.6	23 57.6	+60.0	171.8	21 58.8	+60.0	171.9	20 00.0	+60.0	172.0
21	34 50.8	+59.9	170.9	32 52.3	+59.9	171.1	30 53.7	+60.0	171.3	28 55.0	+60.0	171.5	26 56.3	+60.0	171.6	24 57.6	+60.0	171.8	22 58.8	+60.0	171.9	21 00.0	+60.0	172.0
22	35 50.7	+60.0	170.8	33 52.2	+60.0	171.1	31 53.7	+59.9	171.3	29 55.0	+60.0	171.4	27 56.3	+60.0	171.6	25 57.6	+60.0	171.7	23 58.8	+60.0	171.9	22 00.0	+60.0	172.0
23	36 50.7	+59.9	170.8	34 52.2	+60.0	171.0	32 53.6	+60.0	171.2	30 55.0	+60.0	171.4	28 56.3	+60.0	171.6	26 57.6	+60.0	171.7	24 58.8	+60.0	171.9	23 00.0	+60.0	172.0
24	37 50.6	+60.0	170.7	35 52.2	+59.9	171.0	33 53.6	+60.0	171.2	31 55.0	+60.0	171.4	29 56.3	+60.0	171.6	27 57.6	+60.0	171.7	25 58.8	+60.0	171.9	24 00.0	+60.0	172.0
25	38 50.6	+59.9	170.7	36 52.1	+60.0	170.9	34 53.6	+60.0	171.2	32 55.0	+60.0	171.4	30 56.3	+60.0	171.5	28 57.6	+60.0	171.7	26 58.8	+60.0	171.9	25 00.0	+60.0	172.0
26	39 50.5	+60.0	170.6	37 52.1	+59.9	170.9	35 53.6	+59.9	171.1	33 55.0	+59.9	171.3	31 56.3	+60.0	171.5	29 57.6	+60.0	171.7	27 58.8	+60.0	171.9	26 00.0	+60.0	172.0
27	40 50.5	+59.9	170.6	38 52.0	+60.0	170.8	36 53.5	+60.0	171.1	34 54.9	+60.0	171.3	32 56.3	+60.0	171.5	30 57.6	+60.0	171.7	28 58.8	+60.0	171.9	27 00.0	+60.0	172.0
28	41 50.4	+59.9	170.5	39 52.0	+59.9	170.8	37 53.5	+60.0	171.0	35 54.9	+60.0	171.3	33 56.3	+60.0	171.5	31 57.6	+60.0	171.7	29 58.8	+60.0	171.8	28 00.0	+60.0	172.0
29	42 50.3	+60.0	170.4	40 51.9	+60.0	170.7	38 53.5	+59.9	171.0	36 54.9	+60.0	171.2	34 56.3	+60.0	171.5	32 57.6	+60.0	171.7	30 58.8	+60.0	171.8	29 00.0	+60.0	172.0
30	43 50.3	+59.9	170.4	41 51.9	+60.0	170.7	39 53.4	+60.0	171.0	37 54.9	+60.0	171.2	35 56.3	+59.9	171.4	33 57.6	+60.0	171.6	31 58.8	+60.0	171.8	30 00.0	+60.0	172.0
31	44 50.2	+59.9	170.3	42 51.9	+59.9	170.6	40 53.4	+60.0	170.9	38 54.9	+59.9	171.2	36 56.2	+60.0	171.4	34 57.6	+60.0	171.6	32 58.8	+60.0	171.8	31 00.0	+60.0	172.0
32	45 50.1	+60.0	170.2	43 51.8	+60.0	170.6	41 53.4	+59.9	170.9	39 54.8	+60.0	171.1	37 56.2	+60.0	171.4	35 57.6	+59.9	171.6	33 58.8	+60.0	171.8	32 00.0	+60.0	172.0
33	46 50.1	+59.9	170.2	44 51.8	+59.9	170.5	42 53.3	+60.0	170.8	40 54.8	+60.0	171.1	38 56.2	+60.0	171.4	36 57.5	+60.0	171.6	34 58.8	+60.0	171.8	33 00.0	+60.0	172.0
34	47 50.0	+59.9	170.1	45 51.7	+60.0	170.5	43 53.3	+60.0	170.8	41 54.8	+60.0	171.1	39 56.2	+60.0	171.3	37 57.5	+60.0	171.6	35 58.8	+60.0	171.8	34 00.0	+60.0	172.0
35	48 49.9	+59.9	170.0	46 51.7	+59.9	170.4	44 53.3	+59.9	170.7	42 54.8	+60.0	171.0	40 56.2	+60.0	171.3	38 57.5	+60.0	171.6	36 58.8	+60.0	171.8	35 00.0	+60.0	172.0
36	49 49.8	+59.9	169.9	47 51.6	+59.9	170.3	45 53.2	+60.0	170.7	43 54.8	+59.9	171.0	41 56.2	+60.0	171.3	39 57.5	+60.0	171.6	37 58.8	+60.0	171.8	36 00.0	+60.0	172.0
37	50 49.7	+60.0	169.9	48 51.5	+60.0	170.3	46 53.2	+60.0	170.6	44 54.7	+60.0	171.0	42 56.2	+60.0	171.3	40 57.5	+60.0	171.5	38 58.8	+60.0	171.8	37 00.0	+60.0	172.0
38	51 49.7	+59.9	169.8	49 51.5	+59.9	170.2	47 53.2	+59.9	170.6	45 54.7	+60.0	170.9	43 56.2	+60.0	171.2	41 57.5	+60.0	171.5	39 58.8	+60.0	171.8	38 00.0	+60.0	172.0
39	52 49.6	+59.9	169.7	50 51.4	+60.0	170.1	48 53.1	+60.0	170.5	46 54.7	+60.0	170.9	44 56.2	+59.9	171.2	42 57.5	+60.0	171.5	40 58.8	+60.0	171.8	39 00.0	+60.0	172.0
40	53 49.5	+59.9	169.6	51 51.4	+59.9	170.1	49 53.1	+59.9	170.5	47 54.7	+59.9	170.8	45 56.1	+60.0	171.2	43 57.5	+60.0	171.5	41 58.8	+60.0	171.8	40 00.0	+60.0	172.0
41	54 49.4	+59.9	169.5	52 51.3	+59.9	170.0	50 53.0	+60.0	170.4	48 54.6	+60.0	170.8	46 56.1	+60.0	171.2	44 57.5	+60.0	171.5	42 58.8	+60.0	171.7	41 00.0	+60.0	172.0
42	55 49.3	+59.9	169.4	53 51.2	+59.9	169.9	51 53.0	+59.9	170.4	49 54.6	+60.0	170.8	47 56.1	+60.0	171.1	45 57.5	+60.0	171.4	43 58.8	+60.0	171.7	42 00.0	+60.0	172.0
43	56 49.2	+59.8	169.3	54 51.1	+60.0	169.8	52 52.9	+60.0	170.3	50 54.6	+60.0	170.7	48 56.1	+60.0	171.1	46 57.5	+60.0	171.4	44 58.8	+60.0	171.7	43 00.0	+60.0	172.0
44	57 49.0	+59.9	169.2	55 51.1	+59.9	169.7	53 52.9	+59.9	170.2	51 54.6	+59.9	170.7	49 56.1	+60.0	171.1	47 57.5	+60.0	171.4	45 58.8	+60.0	171.7	44 00.0	+60.0	172.0
45	58 48.9	+59.9	169.0	56 51.0	+59.9	169.6	54 52.8	+60.0	170.2	52 54.5	+60.0	170.6	50 56.1	+60.0	171.0	48 57.5	+60.0	171.4	46 58.8	+60.0	171.7	45 00.0	+60.0	172.0
46	59 48.8	+59.8	168.9	57 50.9	+59.9	169.5																		

LATITUDE CONTRARY NAME

L.H.A. 8°, 352°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.			
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z				
13 51.7	-60.0	171.8	11 52.9	-60.0	171.8	9 54.1	-60.0	171.9	7 55.3	-60.0	171.9	5 56.5	-60.0	172.0	3 57.7	-60.0	172.0	1 58.8	-60.0	172.0	0 00.0	+60.0	8.0				0
12 51.7	-60.0	171.8	10 52.9	-60.0	171.9	8 54.1	-60.0	171.9	6 55.3	-60.0	171.9	4 56.5	-60.0	172.0	2 57.7	-60.0	172.0	0 58.8	-60.0	172.0	1 00.0	+60.0	8.0				1
11 51.7	-59.9	171.8	9 52.9	-59.9	171.9	7 54.1	-59.9	171.9	5 55.3	-60.0	172.0	3 56.5	-60.0	172.0	1 57.7	-60.0	172.0	0 01.2	+60.0	8.0	2 00.0	+60.0	8.0				2
10 51.8	-60.0	171.9	8 53.0	-60.0	171.9	6 54.2	-60.0	172.0	4 55.3	-60.0	172.0	2 56.5	-60.0	172.0	0 57.7	-60.0	172.0	1 01.2	+60.0	8.0	3 00.0	+60.0	8.0				3
9 51.8	-60.0	171.9	7 53.0	-60.0	171.9	5 54.2	-60.0	172.0	3 55.3	-59.9	172.0	1 56.5	-60.0	172.0	0 02.3	+60.0	8.0	2 01.2	+60.0	8.0	4 00.0	+60.0	8.0				4
8 51.8	-59.9	171.9	6 53.0	-60.0	172.0	4 54.2	-60.0	172.0	2 55.4	-60.0	172.0	0 56.5	-60.0	172.0	1 02.3	+60.0	8.0	3 01.2	+60.0	8.0	5 00.0	+60.0	8.0				5
7 51.9	-60.0	172.0	5 53.0	-59.9	172.0	3 54.2	-60.0	172.0	1 55.4	-60.0	172.0	0 03.5	+60.0	8.0	2 02.3	+60.0	8.0	4 01.2	+60.0	8.0	6 00.0	+60.0	8.0				6
6 51.9	-60.0	172.0	4 53.1	-60.0	172.0	2 54.2	-60.0	172.0	0 55.4	-60.0	172.1	1 03.5	+60.0	7.9	3 02.3	+60.0	8.0	5 01.2	+60.0	8.0	7 00.0	+60.0	8.0				7
5 51.9	-59.9	172.0	3 53.1	-60.0	172.1	1 54.2	-59.9	172.1	0 04.6	+60.0	7.9	2 03.5	+60.0	7.9	4 02.3	+60.0	7.9	6 01.2	+60.0	8.0	8 00.0	+60.0	8.0				8
4 52.0	-60.0	172.1	2 53.1	-60.0	172.1	0 54.3	-60.0	172.1	1 04.6	+60.0	7.9	3 03.5	+60.0	7.9	5 02.3	+60.0	7.9	7 01.2	+60.0	8.0	9 00.0	+60.0	8.0				9
3 52.0	-60.0	172.1	1 53.1	-59.9	172.1	0 05.7	+60.0	7.9	2 04.6	+60.0	7.9	4 03.5	+59.9	7.9	6 02.3	+60.0	7.9	8 01.2	+60.0	8.0	10 00.0	+60.0	8.0				10
2 52.0	-59.9	172.1	0 53.2	-60.0	172.1	1 05.7	+60.0	7.9	3 04.6	+60.0	7.9	5 03.4	+60.0	7.9	7 02.3	+60.0	7.9	9 01.2	+60.0	8.0	11 00.0	+60.0	8.0				11
1 52.1	-60.0	172.2	0 06.8	+60.0	7.8	2 05.7	+60.0	7.8	4 04.6	+60.0	7.8	6 03.4	+60.0	7.9	8 02.3	+60.0	7.9	10 01.2	+60.0	7.9	12 00.0	+60.0	8.0				12
0 52.1	-60.0	172.2	1 06.8	+60.0	7.8	3 05.7	+60.0	7.8	5 04.6	+59.9	7.8	7 03.4	+60.0	7.9	9 02.3	+60.0	7.9	11 01.2	+60.0	7.9	13 00.0	+60.0	8.0				13
0 07.9	+59.9	7.8	2 06.8	+59.9	7.8	4 05.7	+59.9	7.8	6 04.5	+60.0	7.8	8 03.4	+60.0	7.8	10 02.3	+60.0	7.9	12 01.2	+60.0	7.9	14 00.0	+60.0	8.0				14
1 07.8	+60.0	7.7	3 06.7	+60.0	7.7	5 05.6	+60.0	7.8	7 04.5	+60.0	7.8	9 03.4	+60.0	7.8	11 02.3	+60.0	7.9	13 01.2	+60.0	7.9	15 00.0	+60.0	8.0				15
2 07.8	+60.0	7.7	4 06.7	+60.0	7.7	6 05.6	+60.0	7.7	8 04.5	+60.0	7.8	10 03.4	+60.0	7.8	12 02.3	+60.0	7.9	14 01.2	+60.0	7.9	16 00.0	+60.0	8.0				16
3 07.8	+59.9	7.7	5 06.7	+60.0	7.7	7 05.6	+60.0	7.7	9 04.5	+60.0	7.7	11 03.4	+60.0	7.8	13 02.3	+60.0	7.9	15 01.2	+60.0	7.9	17 00.0	+60.0	8.0				17
4 07.7	+60.0	7.6	6 06.7	+59.9	7.6	8 05.6	+60.0	7.7	10 04.5	+60.0	7.7	12 03.4	+60.0	7.8	14 02.3	+60.0	7.8	16 01.2	+60.0	7.9	18 00.0	+60.0	8.0				18
5 07.7	+59.9	7.6	7 06.6	+60.0	7.6	9 05.6	+59.9	7.7	11 04.5	+60.0	7.7	13 03.4	+60.0	7.8	15 02.3	+60.0	7.8	17 01.2	+60.0	7.9	19 00.0	+60.0	8.0				19
6 07.6	+60.0	7.6	8 06.6	+60.0	7.6	10 05.6	+60.0	7.6	12 04.5	+60.0	7.7	14 03.4	+60.0	7.7	16 02.3	+60.0	7.8	18 01.2	+60.0	7.9	20 00.0	+60.0	8.0				20
7 07.6	+60.0	7.5	9 06.6	+59.9	7.6	11 05.5	+60.0	7.6	13 04.5	+59.9	7.7	15 03.4	+60.0	7.7	17 02.3	+60.0	7.8	19 01.2	+60.0	7.9	21 00.0	+60.0	8.0				21
8 07.6	+59.9	7.5	10 06.5	+60.0	7.5	12 05.5	+60.0	7.6	14 04.4	+60.0	7.6	16 03.4	+60.0	7.7	18 02.3	+60.0	7.8	20 01.2	+60.0	7.9	22 00.0	+60.0	8.0				22
9 07.5	+60.0	7.5	11 06.5	+60.0	7.5	13 05.5	+60.0	7.6	15 04.4	+60.0	7.6	17 03.4	+60.0	7.7	19 02.3	+60.0	7.8	21 01.2	+60.0	7.9	23 00.0	+60.0	8.0				23
10 07.5	+60.0	7.4	12 06.5	+60.0	7.5	14 05.5	+60.0	7.5	16 04.4	+60.0	7.6	18 03.4	+60.0	7.7	20 02.3	+60.0	7.8	22 01.2	+59.9	7.9	24 00.0	+60.0	8.0				24
11 07.5	+59.9	7.4	13 06.5	+59.9	7.4	15 05.5	+59.9	7.5	17 04.4	+60.0	7.6	19 03.4	+59.9	7.7	21 02.3	+60.0	7.8	23 01.1	+60.0	7.9	25 00.0	+60.0	8.0				25
12 07.4	+60.0	7.4	14 06.4	+60.0	7.4	16 05.4	+60.0	7.5	18 04.4	+60.0	7.6	20 03.3	+60.0	7.7	22 02.3	+60.0	7.8	24 01.1	+60.0	7.9	26 00.0	+60.0	8.0				26
13 07.4	+60.0	7.3	15 06.4	+60.0	7.4	17 05.4	+60.0	7.5	19 04.4	+60.0	7.5	21 03.3	+60.0	7.6	23 02.3	+60.0	7.7	25 01.1	+60.0	7.9	27 00.0	+60.0	8.0				27
14 07.4	+59.9	7.3	16 06.4	+60.0	7.3	18 05.4	+60.0	7.4	20 04.4	+60.0	7.5	22 03.3	+60.0	7.6	24 02.3	+60.0	7.7	26 01.1	+60.0	7.9	28 00.0	+60.0	8.0				28
15 07.3	+60.0	7.2	17 06.4	+59.9	7.3	19 05.4	+60.0	7.4	21 04.4	+60.0	7.5	23 03.3	+60.0	7.6	25 02.3	+59.9	7.7	27 01.1	+60.0	7.9	29 00.0	+60.0	8.0				29
16 07.3	+60.0	7.2	18 06.3	+60.0	7.3	20 05.4	+59.9	7.4	22 04.4	+59.9	7.5	24 03.3	+60.0	7.6	26 02.2	+60.0	7.7	28 01.1	+60.0	7.8	30 00.0	+60.0	8.0				30
17 07.3	+59.9	7.2	19 06.3	+60.0	7.3	21 05.3	+60.0	7.3	23 04.3	+60.0	7.5	25 03.3	+60.0	7.6	27 02.2	+60.0	7.7	29 01.1	+60.0	7.8	31 00.0	+60.0	8.0				31
18 07.2	+60.0	7.1	20 06.3	+60.0	7.2	22 05.3	+60.0	7.3	24 04.3	+60.0	7.4	26 03.3	+60.0	7.5	28 02.2	+60.0	7.7	30 01.1	+60.0	7.8	32 00.0	+60.0	8.0				32
19 07.2	+59.9	7.1	21 06.3	+59.9	7.2	23 05.3	+60.0	7.3	25 04.3	+60.0	7.4	27 03.3	+60.0	7.5	29 02.2	+60.0	7.7	31 01.1	+60.0	7.8	33 00.0	+60.0	8.0				33
20 07.1	+60.0	7.1	22 06.2	+60.0	7.2	24 05.3	+60.0	7.3	26 04.3	+60.0	7.4	28 03.3	+60.0	7.5	30 02.2	+60.0	7.7	32 01.1	+60.0	7.8	34 00.0	+60.0	8.0				34
21 07.1	+60.0	7.0	23 06.2	+60.0	7.1	25 05.3	+59.9	7.2	27 04.3	+60.0	7.4	29 03.3	+60.0	7.5	31 02.2	+60.0	7.6	33 01.1	+60.0	7.8	35 00.0	+60.0	8.0				35
22 07.1	+59.9	7.0	24 06.2	+59.9	7.1	26 05.2	+60.0	7.2	28 04.3	+60.0	7.3	30 03.3	+60.0	7.5	32 02.2	+60.0	7.6	34 01.1	+60.0	7.8	36 00.0	+60.0	8.0				36
23 07.0	+60.0	6.9	25 06.1	+60.0	7.1	27 05.2	+60.0	7.2	29 04.3	+59.9	7.3	31 03.3	+60.0	7.5	33 02.2	+60.0	7.6	35 01.1	+60.0	7.8	37 00.0	+60.0	8.0				37
24 07.0	+59.9	6.9	26 06.1	+60.0	7.0	28 05.2	+60.0	7.1	30 04.2	+60.0	7.3	32 03.3	+59.9	7.4	34 02.2	+60.0	7.6	36 01.1	+60.0	7.8	38 00.0	+60.0	8.0				38
25 06.9	+60.0	6.9	27 06.1	+59.9	7.0	29 05.2	+59.9	7.1	31 04.2	+60.0	7.3	33 03.2	+60.0	7.4	35 02.2	+60.0	7.6	37 01.1	+60.0	7.8	39 00.0	+60.0	8.0				39
26 06.9	+60.0	6.8	28 06.0	+60.0	6.9	30 05.1	+60.0	7.1	32 04.2	+60.0	7.2	34 03.2	+60.0	7.4	36 02.2	+60.0	7.6	38 01.1	+60.0	7.8	40 00.0	+60.0	8.0				40
27 06.9	+59.9	6.8	29 06.0	+60.0	6.9	31 05.1	+60.0	7.0	33 04.2	+60.0	7.2	35 03.2	+60.0	7.4	37 02.2	+60.0	7.6	39 01.1	+60.0	7.8	41 00.0	+60.0	8.0				41
28 06.8	+60.0	6.7	30 06.0	+59.9	6.9	32 05.1	+60.0	7.0	34 04.2	+60.0	7.2	36 03.2	+60.0	7.3	38 02.2	+60.0	7.5	40 01.1	+60.0	7.8	42 00.0	+60.0	8.0				42
29 06.8	+59.9	6.7	31 05.9	+60.0	6.8	33 05.1	+59.9	7.0	35 04.2	+59.9	7.1	37 03.2	+60.0	7.3	39 02.2	+60.0	7.5	41 01.1	+60.0	7.8	43 00.0	+60.0	8.0				43
30 06.7	+60.0	6.6	32 05.9	+60.0	6.8	34 05.0	+60.0	6.9	36 04.1	+60.0	7.1	38 03.2	+60.0	7.3	40 02.2	+60.0	7.5	42 01.1	+60.0	7.7	4						

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	29 29.9	+59.7	168.5	27 32.3	+59.7	168.7	25 34.6	+59.8	168.9	23 36.8	+59.8	169.1	21 38.9	+59.9	169.2	19 41.0	+59.9	169.4	17 43.0	+59.9	169.5	15 45.0	+60.0	169.6
1	30 29.6	+59.7	168.4	28 32.0	+59.8	168.6	26 34.4	+59.7	168.8	24 36.6	+59.8	169.0	22 38.8	+59.8	169.2	20 40.9	+59.9	169.3	18 42.9	+60.0	169.4	16 45.0	+59.9	169.6
2	31 29.3	+59.7	168.3	29 31.8	+59.7	168.5	27 34.1	+59.8	168.7	25 36.6	+59.8	168.9	23 38.6	+59.9	169.1	21 40.8	+59.8	169.2	19 42.9	+59.9	169.4	17 44.9	+59.9	169.5
3	32 29.0	+59.7	168.1	30 31.5	+59.7	168.4	28 33.9	+59.8	168.6	26 36.2	+59.8	168.8	24 38.5	+59.8	169.0	22 40.6	+59.9	169.2	20 42.8	+59.9	169.3	18 44.9	+59.9	169.4
4	33 28.7	+59.6	168.0	31 31.2	+59.8	168.3	29 33.7	+59.8	168.5	27 36.0	+59.9	168.7	25 38.3	+59.9	168.9	23 40.5	+59.9	169.1	21 42.7	+59.9	169.3	19 44.7	+60.0	169.4
5	34 28.3	+59.7	167.9	32 31.0	+59.7	168.2	30 33.5	+59.7	168.4	28 35.9	+59.8	168.6	26 38.2	+59.8	168.8	24 40.4	+59.9	169.0	22 42.6	+59.9	169.2	20 44.7	+59.9	169.3
6	35 28.0	+59.7	167.8	33 30.7	+59.7	168.0	31 33.2	+59.8	168.3	29 35.7	+59.8	168.5	27 38.0	+59.8	168.8	25 40.3	+59.8	169.0	23 42.5	+59.8	169.1	21 44.6	+59.9	169.3
7	36 27.7	+59.6	167.6	34 30.4	+59.7	167.9	32 33.0	+59.7	168.2	30 35.5	+59.8	168.5	28 37.8	+59.9	168.7	26 40.1	+59.9	168.9	24 42.3	+59.9	169.1	22 44.5	+59.9	169.2
8	37 27.3	+59.6	167.5	35 30.1	+59.7	167.8	33 32.7	+59.8	168.1	31 35.3	+59.7	168.4	29 37.7	+59.8	168.6	27 40.0	+59.9	168.8	25 42.2	+59.9	169.0	23 44.4	+59.9	169.2
9	38 26.9	+59.7	167.3	36 29.8	+59.7	167.7	34 32.5	+59.7	168.0	32 35.0	+59.8	168.3	30 37.5	+59.8	168.5	28 39.9	+59.8	168.7	26 42.1	+59.9	168.9	24 44.3	+59.9	169.1
10	39 26.6	+59.6	167.2	37 29.5	+59.6	167.6	35 32.2	+59.7	167.9	33 34.8	+59.8	168.2	31 37.3	+59.8	168.4	29 39.7	+59.9	168.7	27 42.0	+59.9	168.9	25 44.2	+60.0	169.1
11	40 26.2	+59.6	167.1	38 29.1	+59.7	167.4	36 31.9	+59.8	168.1	34 34.6	+59.8	168.4	32 37.1	+59.8	168.3	30 39.6	+59.8	168.6	28 41.9	+59.8	168.8	26 44.2	+59.9	169.0
12	41 25.8	+59.6	166.9	39 28.8	+59.7	167.3	37 31.7	+59.7	167.6	35 34.4	+59.8	168.1	33 37.0	+59.8	168.2	31 39.4	+59.8	168.5	29 41.8	+59.9	168.7	27 44.1	+59.9	168.9
13	42 25.4	+59.5	166.7	40 28.5	+59.6	167.1	38 31.4	+59.7	167.5	36 34.2	+59.7	167.8	34 36.8	+59.8	168.1	32 39.3	+59.8	168.4	30 41.7	+59.9	168.7	28 44.0	+59.9	168.9
14	43 24.9	+59.6	166.6	41 28.1	+59.7	167.0	39 31.1	+59.7	167.4	37 33.9	+59.8	167.7	35 36.6	+59.8	168.0	33 39.1	+59.9	168.3	31 41.6	+59.8	168.6	29 43.9	+59.9	168.8
15	44 24.5	+59.5	166.4	42 27.8	+59.6	166.9	40 30.8	+59.7	167.3	38 33.7	+59.7	167.6	36 36.4	+59.8	167.9	34 39.0	+59.8	168.2	32 41.4	+59.9	168.5	30 43.8	+59.9	168.7
16	45 24.1	+59.5	166.2	43 27.4	+59.6	166.7	41 30.5	+59.7	167.1	39 33.4	+59.8	167.5	37 36.2	+59.8	167.8	35 38.8	+59.9	168.1	33 41.3	+59.9	168.4	31 43.7	+59.9	168.7
17	46 23.6	+59.5	166.1	44 27.0	+59.6	166.5	42 30.2	+59.7	167.0	40 33.2	+59.7	167.4	38 36.0	+59.8	167.7	36 38.7	+59.8	168.1	34 41.2	+59.9	168.3	32 43.6	+59.9	168.6
18	47 23.1	+59.5	165.9	45 26.6	+59.6	166.4	43 29.9	+59.6	166.8	41 32.9	+59.7	167.3	39 35.8	+59.8	167.6	37 38.5	+59.8	168.0	35 41.1	+59.8	168.2	33 43.5	+59.9	168.5
19	48 22.6	+59.5	165.7	46 26.2	+59.6	166.2	44 29.5	+59.7	166.7	42 32.6	+59.8	167.1	40 35.6	+59.7	167.5	38 38.3	+59.8	167.9	36 40.9	+59.9	168.2	34 43.4	+59.9	168.5
20	49 22.1	+59.4	165.5	47 25.8	+59.5	166.0	45 29.2	+59.6	166.5	43 32.4	+59.7	167.0	41 35.3	+59.8	167.4	39 38.1	+59.9	167.8	37 40.8	+59.8	168.1	35 43.3	+59.9	168.4
21	50 21.5	+59.5	165.3	48 25.3	+59.5	165.9	46 28.8	+59.6	166.4	44 32.1	+59.7	166.9	42 35.1	+59.8	167.3	40 38.0	+59.8	167.7	38 40.7	+59.8	168.0	36 43.2	+59.9	168.3
22	51 21.0	+59.4	165.1	49 24.8	+59.6	165.7	47 28.4	+59.6	166.2	45 31.8	+59.7	166.7	43 34.9	+59.7	167.2	41 37.8	+59.8	167.6	39 40.5	+59.9	167.9	37 43.1	+59.9	168.3
23	52 20.4	+59.3	164.8	50 24.4	+59.5	165.5	48 28.0	+59.6	166.0	46 31.5	+59.6	166.6	44 34.6	+59.8	167.0	42 37.6	+59.8	167.5	40 40.4	+59.9	167.8	38 43.0	+59.9	168.2
24	53 19.7	+59.4	164.6	51 23.9	+59.4	165.3	49 27.6	+59.6	165.9	47 31.1	+59.7	166.4	45 34.4	+59.7	166.9	43 37.4	+59.8	167.3	41 40.2	+59.9	167.7	39 42.9	+59.9	168.1
25	54 19.1	+59.3	164.3	52 23.3	+59.5	165.1	50 27.2	+59.6	165.7	48 30.8	+59.6	166.3	46 34.1	+59.7	166.8	44 37.2	+59.8	167.2	42 40.1	+59.8	167.6	40 42.8	+59.8	168.0
26	55 18.4	+59.3	164.1	53 22.8	+59.4	164.8	51 26.8	+59.5	165.5	49 30.4	+59.7	166.1	47 33.8	+59.7	166.6	45 37.0	+59.7	167.1	43 39.9	+59.8	167.5	41 42.6	+59.9	167.9
27	56 17.7	+59.2	163.8	54 22.2	+59.4	164.6	52 26.3	+59.5	165.3	50 30.1	+59.6	165.9	48 33.5	+59.7	166.5	46 36.7	+59.8	167.0	44 39.7	+59.8	167.4	42 42.5	+59.9	167.8
28	57 16.9	+59.2	163.5	55 21.6	+59.4	164.4	53 25.8	+59.5	165.1	51 29.7	+59.6	165.7	49 33.2	+59.7	166.3	47 36.5	+59.8	166.9	45 39.5	+59.8	167.3	43 42.4	+59.8	167.8
29	58 16.1	+59.2	163.2	56 21.0	+59.3	164.1	54 25.3	+59.5	164.9	52 29.3	+59.6	165.6	50 32.9	+59.7	166.2	48 36.3	+59.7	166.7	46 39.4	+59.8	167.2	44 42.2	+59.9	167.7
30	59 15.3	+59.1	162.9	57 20.3	+59.3	163.8	55 24.8	+59.4	164.6	53 28.9	+59.6	165.4	51 32.6	+59.7	166.0	49 36.0	+59.8	166.6	47 39.2	+59.8	167.1	45 42.1	+59.9	167.6
31	60 14.4	+59.0	162.6	58 19.6	+59.2	163.5	56 24.3	+59.4	164.4	54 28.5	+59.5	165.2	52 32.3	+59.6	165.8	50 35.8	+59.7	166.4	48 39.0	+59.8	167.0	46 42.0	+59.8	167.5
32	61 13.4	+59.0	162.2	59 18.8	+59.2	163.2	57 23.7	+59.3	164.1	55 28.0	+59.5	164.9	53 31.9	+59.7	165.7	51 35.5	+59.7	166.3	49 38.8	+59.8	166.9	47 41.8	+59.9	167.4
33	62 12.4	+58.9	161.8	60 18.0	+59.2	162.9	58 23.0	+59.4	163.9	56 27.5	+59.5	164.7	54 31.6	+59.6	165.5	52 35.2	+59.7	166.1	50 38.6	+59.8	166.7	48 41.7	+59.8	167.3
34	63 11.3	+58.9	161.4	61 17.2	+59.1	162.6	59 22.4	+59.3	163.6	57 27.0	+59.5	164.5	55 31.2	+59.6	165.3	53 34.9	+59.7	166.0	51 38.4	+59.7	166.6	49 41.5	+59.8	167.1
35	64 10.2	+58.7	160.9	62 16.3	+59.0	162.2	60 21.7	+59.3	163.3	58 26.5	+59.4	164.2	56 30.8	+59.5	165.1	54 34.6	+59.7	165.8	52 38.1	+59.8	166.4	50 41.3	+59.8	167.0
36	65 08.9	+58.7	160.5	63 15.3	+59.0	161.8	61 21.0	+59.2	163.0	59 25.9	+59.4	164.0	57 30.3	+59.6	164.8	55 34.3	+59.7	165.6	53 37.9	+59.7	166.3	51 41.1	+59.9	166.9
37	66 07.6	+58.5	160.0	64 14.3	+58.9	161.4	62 20.2	+59.1	162.6	60 25.3	+59.4	163.7	58 29.9	+59.5	164.6	56 34.0	+59.6	165.4	54 37.6	+59.8	166.1	52 41.0	+59.8	166.8
38	67 06.1	+58.4	159.4	65 13.2	+58.8	160.9	63 19.3	+59.1	162.3	61 24.7	+59.3	163.4	59 29.4	+59.5	164.4	57 33.6	+59.6	165.2	55 37.4	+59.7	166.0	53 40.8	+59.8	166.6
39	68 04.5	+58.3	158.8	66 12.0	+58.7	160.5	64 18.4	+59.1	161.9	62 24.0	+59.3	163.1	60 28.9	+59.4	164.1	58 33.2	+59.6	165.0	56 37.1	+59.7	166.5	54 40.6	+59.8	166.5
40	69 02.8	+58.1	158.2	67 10.7	+58.6	159.9	65 17.5	+58.9	161.4	63 23.3	+59.2	162.7	61 28.3	+59.5	163.8	59 32.8	+59.6	164.8	57 36.8	+59.7	166.5	55 40.4	+59.7	166.4
41	70 00.9	+58.0	157.5	68 09.3	+58.5	159.5	66 16.4	+58.9	161.0	64 22.5	+59.2	162.4	62 27.8	+59.4	163.5	60 32.4	+59.5	164.5	58 36.5	+59.7	166.4	56 40.1	+59.8	166.2
42	70 58.9	+57.7	156.7	69 07.8	+58.3	158.8	67 15.3	+58.8	160.5	65 21.7	+59.1	162.0	63 27.2	+59.3	163.2	61 31.9	+59.6	164.3	59 36.2	+59.6	165.2	57 39.9	+59.8	166.0
43	71 56.6	+57.5	155.8	70 06.1	+58.2	158.1	68 14.1	+58.6	160.0	66 20.8	+59.0	161.5	64 26.5	+59.3	162.9	62 31.5	+59.4	164.0	60 35.8	+59.6	165.0	58 39.7	+59.7	165.9
44	72 54.1	+57.1	154.9	71 04.3	+58.0	157.4	69 12.7	+58.6	159.4	67 19.8	+58.9	161.1	65 25.8	+59.2	162.5	63 30.9	+59.5	163.7	61 35.4	+59.6	164.8	59 39.4	+59.7	165.7
45	73 51.2	+56.8	153.8	72 02.3	+57.7	156.5	70 11.3	+58.4	158.8	68 18.7	+58.9	160.6	66 25.0	+59.2	162.1	64 30.4	+59.4	163.4	62 35.0	+59.6	164.5	60 39.1	+59.7	165.5
46	74 48.0	+56.4	152.																					

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 47.0	+59.9	169.7	11 48.9	+60.0	169.8	9 50.8	+60.0	169.8	7 52.7	+59.9	169.9	5 54.5	+60.0	169.9	3 56.3	+60.0	170.0	1 58.2	+60.0	170.0	0 00.0	+60.0	170.0
1	14 46.9	+60.0	169.7	12 48.9	+59.9	169.7	10 50.8	+59.9	169.8	8 52.6	+60.0	169.9	6 54.5	+60.0	169.9	4 56.3	+60.0	170.0	2 58.2	+60.0	170.0	1 00.0	+60.0	170.0
2	15 46.9	+59.9	169.6	13 48.8	+60.0	169.7	11 50.7	+60.0	169.8	9 52.6	+60.0	169.9	7 54.5	+60.0	169.9	5 56.3	+60.0	170.0	3 58.2	+60.0	170.0	2 00.0	+60.0	170.0
3	16 46.8	+60.0	169.6	14 48.8	+59.9	169.7	12 50.7	+60.0	169.8	10 52.6	+60.0	169.8	8 54.5	+60.0	169.9	6 56.3	+60.0	169.9	4 58.2	+60.0	170.0	3 00.0	+60.0	170.0
4	17 46.8	+59.9	169.5	15 48.7	+60.0	169.6	13 50.7	+60.0	169.7	11 52.6	+60.0	169.8	9 54.5	+60.0	169.9	7 56.3	+60.0	169.9	5 58.2	+60.0	170.0	4 00.0	+60.0	170.0
5	18 46.7	+59.9	169.5	16 48.7	+60.0	169.6	14 50.7	+59.9	169.7	12 52.6	+60.0	169.8	10 54.5	+60.0	169.9	8 56.3	+60.0	169.9	6 58.2	+60.0	170.0	5 00.0	+60.0	170.0
6	19 46.6	+60.0	169.4	17 48.7	+59.9	169.5	15 50.6	+60.0	169.6	13 52.6	+59.9	169.8	11 54.5	+59.9	169.8	9 56.3	+60.0	169.9	7 58.2	+60.0	170.0	6 00.0	+60.0	170.0
7	20 46.6	+59.9	169.4	18 48.6	+60.0	169.5	16 50.6	+60.0	169.6	14 52.5	+60.0	169.7	12 54.4	+60.0	169.8	10 56.3	+60.0	169.9	8 58.2	+60.0	170.0	7 00.0	+60.0	170.0
8	21 46.5	+60.0	169.3	19 48.6	+59.9	169.5	17 50.6	+59.9	169.6	15 52.5	+60.0	169.7	13 54.4	+60.0	169.8	11 56.3	+60.0	169.9	9 58.2	+60.0	169.9	8 00.0	+60.0	170.0
9	22 46.5	+59.9	169.3	20 48.5	+60.0	169.4	18 50.5	+60.0	169.6	16 52.5	+60.0	169.7	14 54.4	+60.0	169.8	12 56.3	+60.0	169.9	10 58.2	+60.0	169.9	9 00.0	+60.0	170.0
10	23 46.4	+59.9	169.2	21 48.5	+59.9	169.4	19 50.5	+60.0	169.5	17 52.5	+60.0	169.6	15 54.4	+60.0	169.8	13 56.3	+60.0	169.9	11 58.2	+60.0	169.9	10 00.0	+60.0	170.0
11	24 46.3	+60.0	169.2	22 48.4	+60.0	169.3	20 50.5	+59.9	169.5	18 52.5	+59.9	169.6	16 54.4	+60.0	169.7	14 56.3	+60.0	169.8	12 58.2	+60.0	169.9	11 00.0	+60.0	170.0
12	25 46.3	+59.9	169.1	23 48.4	+59.9	169.3	21 50.4	+60.0	169.5	19 52.4	+60.0	169.6	17 54.4	+60.0	169.7	15 56.3	+60.0	169.8	13 58.2	+60.0	169.9	12 00.0	+60.0	170.0
13	26 46.2	+59.9	169.1	24 48.3	+60.0	169.3	22 50.4	+60.0	169.4	20 52.4	+60.0	169.6	18 54.4	+60.0	169.7	16 56.3	+60.0	169.8	14 58.2	+60.0	169.9	13 00.0	+60.0	170.0
14	27 46.1	+60.0	169.0	25 48.3	+59.9	169.2	23 50.4	+59.9	169.4	21 52.4	+60.0	169.5	19 54.4	+60.0	169.7	17 56.3	+60.0	169.8	15 58.2	+60.0	169.9	14 00.0	+60.0	170.0
15	28 46.1	+59.9	169.0	26 48.2	+60.0	169.2	24 50.3	+60.0	169.3	22 52.4	+60.0	169.5	20 54.4	+59.9	169.7	18 56.3	+60.0	169.8	16 58.2	+60.0	169.9	15 00.0	+60.0	170.0
16	29 46.0	+59.9	168.9	27 48.2	+59.9	169.1	25 50.3	+60.0	169.3	23 52.4	+59.9	169.5	21 54.3	+60.0	169.6	19 56.3	+60.0	169.8	17 58.2	+60.0	169.9	16 00.0	+60.0	170.0
17	30 45.9	+59.9	168.9	28 48.1	+60.0	169.1	26 50.3	+59.9	169.3	24 52.3	+60.0	169.5	22 54.3	+60.0	169.6	20 56.3	+60.0	169.8	18 58.2	+60.0	169.9	17 00.0	+60.0	170.0
18	31 45.8	+60.0	168.8	29 48.1	+59.9	169.0	27 50.2	+60.0	169.2	25 52.3	+60.0	169.4	23 54.3	+60.0	169.6	21 56.3	+60.0	169.7	19 58.2	+60.0	169.9	18 00.0	+60.0	170.0
19	32 45.8	+59.9	168.7	30 48.0	+60.0	169.0	28 50.2	+60.0	169.2	26 52.3	+60.0	169.4	24 54.3	+60.0	169.6	22 56.3	+60.0	169.7	20 58.2	+60.0	169.9	19 00.0	+60.0	170.0
20	33 45.7	+59.9	168.7	31 48.0	+59.9	168.9	29 50.2	+59.9	169.2	27 52.3	+59.9	169.4	25 54.3	+60.0	169.5	23 56.3	+59.9	169.7	21 58.2	+60.0	169.9	20 00.0	+60.0	170.0
21	34 45.6	+59.9	168.6	32 47.9	+60.0	168.9	30 50.1	+60.0	169.1	28 52.2	+60.0	169.3	26 54.3	+60.0	169.5	24 56.2	+60.0	169.7	22 58.2	+60.0	169.9	21 00.0	+60.0	170.0
22	35 45.5	+60.0	168.6	33 47.9	+59.9	168.8	31 50.1	+60.0	169.1	29 52.2	+60.0	169.3	27 54.3	+60.0	169.5	25 56.2	+60.0	169.7	23 58.2	+59.9	169.9	22 00.0	+60.0	170.0
23	36 45.5	+59.9	168.5	34 47.8	+60.0	168.8	32 50.1	+59.9	169.0	30 52.2	+60.0	169.3	28 54.3	+59.9	169.5	26 56.2	+60.0	169.7	24 58.1	+60.0	169.8	23 00.0	+60.0	170.0
24	37 45.4	+59.9	168.4	35 47.8	+59.9	168.7	33 50.0	+60.0	169.0	31 52.2	+60.0	169.2	29 54.2	+60.0	169.5	27 56.2	+60.0	169.7	25 58.1	+60.0	169.8	24 00.0	+60.0	170.0
25	38 45.3	+59.9	168.4	36 47.7	+59.9	168.7	34 50.0	+59.9	168.9	32 52.2	+59.9	169.2	30 54.2	+60.0	169.4	28 56.2	+60.0	169.6	26 58.1	+60.0	169.8	25 00.0	+60.0	170.0
26	39 45.2	+59.9	168.3	37 47.6	+60.0	168.6	35 49.9	+60.0	168.9	33 52.1	+60.0	169.2	31 54.2	+60.0	169.4	29 56.2	+60.0	169.6	27 58.1	+60.0	169.8	26 00.0	+60.0	170.0
27	40 45.1	+59.9	168.2	38 47.6	+59.9	168.6	36 49.9	+59.9	168.9	34 52.1	+60.0	169.1	32 54.2	+60.0	169.4	30 56.2	+60.0	169.6	28 58.1	+60.0	169.8	27 00.0	+60.0	170.0
28	41 45.0	+59.9	168.1	39 47.5	+59.9	168.5	37 49.8	+60.0	168.8	35 52.1	+59.9	169.1	33 54.2	+60.0	169.4	31 56.2	+60.0	169.6	29 58.1	+60.0	169.8	28 00.0	+60.0	170.0
29	42 44.9	+59.9	168.1	40 47.4	+60.0	168.4	38 49.8	+60.0	168.8	36 52.0	+60.0	169.1	34 54.2	+60.0	169.3	32 56.2	+60.0	169.6	30 58.1	+60.0	169.8	29 00.0	+60.0	170.0
30	43 44.8	+59.9	168.0	41 47.4	+59.9	168.4	39 49.8	+59.9	168.7	37 52.0	+60.0	169.0	35 54.2	+59.9	169.3	33 56.2	+60.0	169.6	31 58.1	+60.0	169.8	30 00.0	+60.0	170.0
31	44 44.7	+59.9	167.9	42 47.3	+59.9	168.3	40 49.7	+60.0	168.7	38 52.0	+60.0	169.0	36 54.1	+60.0	169.3	34 56.2	+60.0	169.5	32 58.1	+60.0	169.8	31 00.0	+60.0	170.0
32	45 44.6	+59.9	167.8	43 47.2	+59.9	168.2	41 49.7	+59.9	168.6	39 52.0	+59.9	168.9	37 54.1	+60.0	169.2	35 56.2	+60.0	169.5	33 58.1	+60.0	169.8	32 00.0	+60.0	170.0
33	46 44.5	+59.9	167.7	44 47.1	+60.0	168.2	42 49.6	+60.0	168.5	40 51.9	+60.0	168.9	38 54.1	+60.0	169.2	36 56.2	+60.0	169.5	34 58.1	+60.0	169.8	33 00.0	+60.0	170.0
34	47 44.4	+59.9	167.6	45 47.1	+59.9	168.1	43 49.6	+59.9	168.5	41 51.9	+60.0	168.9	39 54.1	+60.0	169.2	37 56.2	+60.0	169.5	35 58.1	+60.0	169.8	34 00.0	+60.0	170.0
35	48 44.3	+59.8	167.5	46 47.0	+59.9	168.0	44 49.5	+60.0	168.4	42 51.9	+59.9	168.8	40 54.1	+60.0	169.2	38 56.2	+60.0	169.5	36 58.1	+60.0	169.7	35 00.0	+60.0	170.0
36	49 44.1	+59.9	167.4	47 46.9	+59.9	167.9	45 49.5	+59.9	168.4	43 51.8	+60.0	168.8	41 54.1	+59.9	169.1	39 56.2	+59.9	169.4	37 58.1	+60.0	169.7	36 00.0	+60.0	170.0
37	50 44.0	+59.9	167.3	48 46.8	+59.9	167.9	46 49.4	+59.9	168.3	44 51.8	+60.0	168.7	42 54.0	+60.0	169.1	40 56.1	+60.0	169.4	38 58.1	+60.0	169.7	37 00.0	+60.0	170.0
38	51 43.9	+59.8	167.2	49 46.7	+59.9	167.8	47 49.3	+60.0	168.2	45 51.8	+59.9	168.7	43 54.0	+60.0	169.1	41 56.1	+60.0	169.4	39 58.1	+60.0	169.7	38 00.0	+60.0	170.0
39	52 43.7	+59.9	167.1	50 46.6	+59.9	167.7	48 49.3	+59.9	168.2	46 51.7	+60.0	168.6	44 54.0	+60.0	169.0	42 56.1	+60.0	169.4	40 58.1	+60.0	169.7	39 00.0	+60.0	170.0
40	53 43.6	+59.8	167.0	51 46.5	+59.9	167.6	49 49.2	+59.9	168.1	47 51.7	+60.0	168.6	45 54.0	+60.0	169.0	43 56.1	+60.0	169.4	41 58.1	+60.0	169.7	40 00.0	+60.0	170.0
41	54 43.4	+59.9	166.9	52 46.4	+59.9	167.5	50 49.1	+60.0	168.0	48 51.7	+59.9	168.5	46 54.0	+59.9	168.9	44 56.1	+60.0	169.3	42 58.1	+60.0	169.7	41 00.0	+60.0	170.0
42	55 43.3	+59.8	166.8	53 46.3	+59.9	167.4	51 49.1	+59.9	168.0	49 51.6	+60.0	168.5	47 53.9	+60.0	168.9	45 56.1	+60.0	169.3	43 58.1	+60.0	169.7	42 00.0	+60.0	170.0
43	56 43.1	+59.8	166.6	54 46.2	+59.9	167.3	52 49.0	+59.9	167.9	50 51.6	+59.9	168.4	48 53.9	+60.0	168.9	46 56.1	+60.0	169.3	44 58.1	+60.0	169.7	43 00.0	+60.0	170.0
44	57 42.9	+59.8	166.5	55 46.1	+59.8	167.2	53 48.9	+59.9	167.8	51 51.5	+60.0	168.3	49 53.9	+60.0	168.8	47 56.1	+60.0	169.3	45 58.1	+60.0	169.6	44 00.0	+60.0	170.0
45	58 42.7	+59.8	166.3	56 45.9	+59.9	167.1	54 48.8	+60.0	167.7	52 51.5	+59.9	168.3	50 53.9	+59.9	168.8	48 56.1	+60.0	169.2	46 58.1	+60.0	169.6	45 00.0	+60.0	170.0
46	59 42.5	+59.8	166.2	57 45.8	+59.9	167.0																		

LATITUDE CONTRARY NAME

L.H.A. 10°, 350°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
13 47.0 -60.0	169.7		11 48.9 -60.0	169.8		9 50.8 -60.0	169.8		7 52.7 -60.0	169.9		5 54.5 -60.0	169.9		3 56.3 -59.9	170.0		1 58.2 -60.0	170.0		0 00.0 +60.0	10.0			0
12 47.0 -59.9	169.7		10 48.9 -59.9	169.8		8 50.8 -60.0	169.9		6 52.7 -60.0	169.9		4 54.5 -60.0	170.0		2 56.4 -60.0	170.0		0 58.2 -60.0	170.0		1 00.0 +60.0	10.0			1
11 47.1 -59.9	169.8		9 49.0 -60.0	169.9		7 50.8 -59.9	169.9		5 52.7 -60.0	170.0		3 54.5 -60.0	170.0		1 56.4 -60.0	170.0		0 01.8 +60.0	10.0		2 00.0 +60.0	10.0			2
10 47.2 -60.0	169.8		8 49.0 -59.9	169.9		6 50.9 -60.0	169.9		4 52.7 -60.0	170.0		2 54.5 -59.9	170.0		0 56.4 -60.0	170.0		1 01.8 +60.0	10.0		3 00.0 +60.0	10.0			3
9 47.2 -59.9	169.9		7 49.1 -60.0	169.9		5 50.9 -60.0	170.0		3 52.7 -60.0	170.0		1 54.6 -60.0	170.0		0 03.6 +60.0	10.0		2 01.8 +60.0	10.0		4 00.0 +60.0	10.0			4
8 47.3 -60.0	169.9		6 49.1 -60.0	170.0		4 50.9 -59.9	170.0		2 52.7 -59.9	170.0		0 54.6 -60.0	170.0		1 03.6 +60.0	10.0		3 01.8 +60.0	10.0		5 00.0 +60.0	10.0			5
7 47.3 -59.9	170.0		5 49.1 -59.9	170.0		3 51.0 -60.0	170.0		1 52.8 -60.0	170.0		0 05.4 +60.0	9.9		2 03.6 +60.0	10.0		4 01.8 +60.0	10.0		6 00.0 +60.0	10.0			6
6 47.4 -60.0	170.0		4 49.2 -60.0	170.0		2 51.0 -60.0	170.1		0 52.8 -60.0	170.1		1 05.4 +60.0	9.9		3 03.6 +60.0	9.9		5 01.8 +60.0	10.0		7 00.0 +60.0	10.0			7
5 47.4 -59.9	170.0		3 49.2 -59.9	170.1		1 51.0 -60.0	170.1		0 07.2 +60.0	9.9		2 05.4 +60.0	9.9		4 03.6 +60.0	9.9		6 01.8 +60.0	10.0		8 00.0 +60.0	10.0			8
4 47.5 -60.0	170.1		2 49.3 -60.0	170.1		0 51.0 -59.9	170.1		1 07.2 +60.0	9.9		3 05.4 +60.0	9.9		5 03.6 +60.0	9.9		7 01.8 +60.0	10.0		9 00.0 +60.0	10.0			9
3 47.5 -59.9	170.1		1 49.3 -60.0	170.1		0 08.9 +60.0	9.8		2 07.2 +59.9	9.9		4 05.4 +60.0	9.9		6 03.6 +60.0	9.9		8 01.8 +60.0	9.9		10 00.0 +60.0	10.0			10
2 47.6 -60.0	170.2		0 49.3 -59.9	170.2		1 08.9 +60.0	9.8		3 07.1 +60.0	9.8		5 05.4 +60.0	9.9		7 03.6 +60.0	9.9		9 01.8 +60.0	9.9		11 00.0 +60.0	10.0			11
1 47.6 -59.9	170.2		0 10.6 +60.0	9.8		2 08.9 +59.9	9.8		4 07.1 +60.0	9.8		6 05.4 +60.0	9.8		8 03.6 +60.0	9.9		10 01.8 +60.0	9.9		12 00.0 +60.0	10.0			12
0 47.7 -60.0	170.3		1 10.6 +59.9	9.7		3 08.8 +60.0	9.8		5 07.1 +60.0	9.8		7 05.4 +59.9	9.8		9 03.6 +60.0	9.9		11 01.8 +60.0	9.9		13 00.0 +60.0	10.0			13
0 12.3 +59.9	9.7		2 10.5 +60.0	9.7		4 08.8 +60.0	9.7		6 07.1 +60.0	9.8		8 05.3 +60.0	9.8		10 03.6 +60.0	9.9		12 01.8 +60.0	9.9		14 00.0 +60.0	10.0			14
1 12.2 +60.0	9.7		3 10.5 +60.0	9.7		5 08.8 +60.0	9.7		7 07.1 +60.0	9.7		9 05.3 +60.0	9.8		11 03.6 +60.0	9.8		13 01.8 +60.0	9.9		15 00.0 +60.0	10.0			15
2 12.2 +59.9	9.6		4 10.5 +59.9	9.6		6 08.8 +59.9	9.7		8 07.1 +59.9	9.7		10 05.3 +60.0	9.8		12 03.6 +60.0	9.8		14 01.8 +60.0	9.9		16 00.0 +60.0	10.0			16
3 12.1 +59.9	9.6		5 10.4 +60.0	9.6		7 08.7 +60.0	9.6		9 07.0 +60.0	9.7		11 05.3 +60.0	9.7		13 03.6 +60.0	9.8		15 01.8 +60.0	9.9		17 00.0 +60.0	10.0			17
4 12.0 +60.0	9.5		6 10.4 +59.9	9.6		8 08.7 +60.0	9.6		10 07.0 +60.0	9.7		12 05.3 +60.0	9.7		14 03.6 +60.0	9.8		16 01.8 +60.0	9.9		18 00.0 +60.0	10.0			18
5 12.0 +59.9	9.5		7 10.3 +60.0	9.5		9 08.7 +60.0	9.6		11 07.0 +60.0	9.6		13 05.3 +60.0	9.7		15 03.6 +60.0	9.8		17 01.8 +60.0	9.9		19 00.0 +60.0	10.0			19
6 11.9 +60.0	9.4		8 10.3 +60.0	9.5		10 08.7 +59.9	9.5		12 07.0 +60.0	9.6		14 05.3 +60.0	9.7		16 03.6 +60.0	9.8		18 01.8 +60.0	9.9		20 00.0 +60.0	10.0			20
7 11.9 +59.9	9.4		9 10.3 +59.9	9.5		11 08.6 +60.0	9.5		13 07.0 +59.9	9.6		15 05.3 +60.0	9.7		17 03.6 +60.0	9.8		19 01.8 +60.0	9.9		21 00.0 +60.0	10.0			21
8 11.8 +60.0	9.4		10 10.2 +60.0	9.4		12 08.6 +60.0	9.5		14 06.9 +60.0	9.6		16 05.3 +60.0	9.6		18 03.6 +59.9	9.7		20 01.8 +60.0	9.9		22 00.0 +60.0	10.0			22
9 11.8 +59.9	9.3		11 10.2 +59.9	9.4		13 08.6 +59.9	9.4		15 06.9 +60.0	9.5		17 05.3 +59.9	9.6		19 03.5 +60.0	9.7		21 01.8 +60.0	9.9		23 00.0 +60.0	10.0			23
10 11.7 +60.0	9.3		12 10.1 +60.0	9.3		14 08.5 +60.0	9.4		16 06.9 +60.0	9.5		18 05.2 +60.0	9.6		20 03.5 +60.0	9.7		22 01.8 +60.0	9.9		24 00.0 +60.0	10.0			24
11 11.7 +59.9	9.2		13 10.1 +60.0	9.3		15 08.5 +60.0	9.4		17 06.9 +60.0	9.5		19 05.2 +60.0	9.6		21 03.5 +60.0	9.7		23 01.8 +60.0	9.8		25 00.0 +60.0	10.0			25
12 11.6 +60.0	9.2		14 10.1 +59.9	9.3		16 08.5 +60.0	9.4		18 06.9 +60.0	9.5		20 05.2 +60.0	9.6		22 03.5 +60.0	9.7		24 01.8 +60.0	9.8		26 00.0 +60.0	10.0			26
13 11.6 +59.9	9.1		15 10.0 +60.0	9.2		17 08.5 +59.9	9.3		19 06.9 +59.9	9.4		21 05.2 +60.0	9.5		23 03.5 +60.0	9.7		25 01.8 +60.0	9.8		27 00.0 +60.0	10.0			27
14 11.5 +59.9	9.1		16 10.0 +59.9	9.2		18 08.4 +60.0	9.3		20 06.8 +60.0	9.4		22 05.2 +60.0	9.5		24 03.5 +60.0	9.7		26 01.8 +60.0	9.8		28 00.0 +60.0	10.0			28
15 11.4 +60.0	9.1		17 09.9 +60.0	9.1		19 08.4 +60.0	9.3		21 06.8 +60.0	9.4		23 05.2 +60.0	9.5		25 03.5 +60.0	9.7		27 01.8 +60.0	9.8		29 00.0 +60.0	10.0			29
16 11.4 +59.9	9.0		18 09.9 +59.9	9.1		20 08.4 +59.9	9.2		22 06.8 +60.0	9.3		24 05.2 +60.0	9.5		26 03.5 +60.0	9.6		28 01.8 +60.0	9.8		30 00.0 +60.0	10.0			30
17 11.3 +60.0	9.0		19 09.8 +60.0	9.1		21 08.3 +60.0	9.2		23 06.8 +60.0	9.3		25 05.2 +60.0	9.5		27 03.5 +60.0	9.6		29 01.8 +60.0	9.8		31 00.0 +60.0	10.0			31
18 11.3 +59.9	8.9		20 09.8 +60.0	9.0		22 08.3 +60.0	9.1		24 06.8 +59.9	9.3		26 05.2 +59.9	9.4		28 03.5 +60.0	9.6		30 01.8 +60.0	9.8		32 00.0 +60.0	10.0			32
19 11.2 +60.0	8.9		21 09.8 +59.9	9.0		23 08.3 +59.9	9.1		25 06.7 +60.0	9.3		27 05.1 +60.0	9.4		29 03.5 +60.0	9.6		31 01.8 +60.0	9.8		33 00.0 +60.0	10.0			33
20 11.2 +59.9	8.8		22 09.7 +60.0	8.9		24 08.2 +60.0	9.1		26 06.7 +60.0	9.2		28 05.1 +60.0	9.4		30 03.5 +60.0	9.6		32 01.8 +60.0	9.8		34 00.0 +60.0	10.0			34
21 11.1 +59.9	8.8		23 09.7 +59.9	8.9		25 08.2 +60.0	9.0		27 06.7 +60.0	9.2		29 05.1 +60.0	9.4		31 03.5 +60.0	9.6		33 01.8 +60.0	9.8		35 00.0 +60.0	10.0			35
22 11.0 +60.0	8.7		24 09.6 +60.0	8.9		26 08.2 +59.9	9.0		28 06.7 +59.9	9.2		30 05.1 +60.0	9.3		32 03.5 +60.0	9.5		34 01.8 +60.0	9.8		36 00.0 +60.0	10.0			36
23 11.0 +59.9	8.7		25 09.6 +59.9	8.8		27 08.1 +60.0	9.0		29 06.6 +60.0	9.1		31 05.1 +60.0	9.3		33 03.5 +60.0	9.5		35 01.8 +60.0	9.8		37 00.0 +60.0	10.0			37
24 10.9 +59.9	8.6		26 09.5 +60.0	8.8		28 08.1 +60.0	8.9		30 06.6 +60.0	9.1		32 05.1 +60.0	9.3		34 03.5 +60.0	9.5		36 01.8 +60.0	9.7		38 00.0 +60.0	10.0			38
25 10.8 +60.0	8.6		27 09.5 +59.9	8.7		29 08.1 +59.9	8.9		31 06.6 +60.0	9.1		33 05.1 +59.9	9.3		35 03.5 +60.0	9.5		37 01.8 +60.0	9.7		39 00.0 +60.0	10.0			39
26 10.8 +59.9	8.5		28 09.4 +60.0	8.7		30 08.0 +60.0	8.8		32 06.6 +59.9	9.0		34 05.0 +60.0	9.2		36 03.5 +59.9	9.5		38 01.8 +60.0	9.7		40 00.0 +60.0	10.0			40
27 10.7 +59.9	8.5		29 09.4 +59.9	8.6		31 08.0 +60.0	8.8		33 06.5 +60.0	9.0		35 05.0 +60.0	9.2		37 03.4 +60.0	9.5		39 01.8 +60.0	9.7		41 00.0 +60.0	10.0			41
28 10.6 +60.0	8.4		30 09.3 +60.0	8.6		32 08.0 +59.9	8.8		34 06.5 +60.0	9.0		36 05.0 +60.0	9.2		38 03.4 +60.0	9.4		40 01.8 +60.0	9.7		42 00.0 +60.0	10.0			42
29 10.6 +59.9	8.4		31 09.3 +59.9	8.5		33 07.9 +60.0																			

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	29 16.8	+59.6	166.2	27 20.2	+59.6	166.5	25 23.5	+59.6	166.7	23 26.6	+59.8	166.9	21 29.7	+59.8	167.1	19 32.7	+59.8	167.3	17 35.6	+59.9	167.4	15 38.5	+59.9	167.5
1	30 16.4	+59.5	166.1	28 19.8	+59.6	166.3	26 23.1	+59.7	166.6	24 26.4	+59.7	166.8	22 29.5	+59.8	167.0	20 32.5	+59.9	167.2	18 35.5	+59.8	167.3	16 38.4	+59.9	167.5
2	31 15.9	+59.6	165.9	29 19.4	+59.7	166.2	27 22.8	+59.7	166.5	25 26.1	+59.7	166.7	23 29.3	+59.8	166.9	21 32.4	+59.8	167.1	19 35.3	+59.9	167.3	17 38.3	+59.9	167.4
3	32 15.5	+59.5	165.8	30 19.1	+59.6	166.1	28 22.5	+59.7	166.4	26 25.8	+59.8	166.6	24 29.1	+59.7	166.8	22 32.0	+59.8	167.0	20 35.2	+59.9	167.2	18 38.2	+59.8	167.3
4	33 15.0	+59.5	165.6	31 18.7	+59.6	166.0	29 22.2	+59.7	166.2	27 25.6	+59.7	166.5	25 28.8	+59.8	166.7	23 32.0	+59.8	166.9	21 35.1	+59.8	167.1	19 38.0	+59.9	167.3
5	34 14.5	+59.5	165.5	32 18.3	+59.6	165.8	30 21.9	+59.6	166.1	28 25.3	+59.7	166.4	26 28.6	+59.8	166.6	24 31.8	+59.8	166.8	22 34.9	+59.9	167.0	20 37.9	+59.9	167.2
6	35 14.0	+59.6	165.3	33 17.9	+59.5	165.7	31 21.5	+59.7	166.0	29 25.0	+59.7	166.3	27 28.4	+59.7	166.5	25 31.6	+59.8	166.8	23 34.8	+59.8	167.0	21 37.8	+59.9	167.1
7	36 13.6	+59.4	165.2	34 17.4	+59.6	165.5	32 21.2	+59.6	165.9	30 24.7	+59.7	166.2	28 28.1	+59.8	166.4	26 31.4	+59.8	166.6	24 34.6	+59.9	166.9	22 37.7	+59.9	167.1
8	37 13.0	+59.5	165.0	35 17.0	+59.6	165.4	33 20.8	+59.7	165.7	31 24.4	+59.7	166.0	29 27.9	+59.8	166.3	27 31.2	+59.9	166.7	25 34.5	+59.8	166.8	23 37.6	+59.9	167.0
9	38 12.5	+59.5	164.9	36 16.6	+59.5	165.2	34 20.5	+59.6	165.6	32 24.1	+59.7	165.9	30 27.7	+59.7	166.2	28 31.1	+59.8	166.5	26 34.3	+59.9	166.7	24 37.5	+59.8	166.9
10	39 12.0	+59.4	164.7	37 16.1	+59.6	165.1	35 20.1	+59.6	165.5	33 23.8	+59.7	165.8	31 27.4	+59.8	166.1	29 30.9	+59.8	166.4	27 34.2	+59.8	166.6	25 37.3	+59.9	166.9
11	40 11.4	+59.5	164.5	38 15.7	+59.5	164.9	36 19.7	+59.6	165.3	34 23.5	+59.7	165.7	32 27.2	+59.7	166.0	30 30.7	+59.7	166.3	28 34.0	+59.8	166.6	26 37.2	+59.9	166.8
12	41 10.9	+59.4	164.3	39 15.2	+59.5	164.8	37 19.3	+59.6	165.2	35 23.2	+59.7	165.6	33 26.9	+59.7	165.9	31 30.4	+59.8	166.2	29 33.8	+59.9	166.5	27 37.1	+59.9	166.7
13	42 10.3	+59.4	164.1	40 14.7	+59.5	164.6	38 18.9	+59.6	165.0	36 22.9	+59.6	165.4	34 26.6	+59.8	165.8	32 30.2	+59.8	166.1	30 33.7	+59.8	166.4	28 37.0	+59.9	166.7
14	43 09.7	+59.4	163.9	41 14.2	+59.5	164.4	39 18.5	+59.6	164.9	37 22.5	+59.7	165.3	35 26.4	+59.7	165.7	33 30.0	+59.8	166.0	31 33.5	+59.8	166.3	29 36.8	+59.9	166.6
15	44 09.1	+59.3	163.7	42 13.7	+59.5	164.3	40 18.1	+59.5	164.7	38 22.2	+59.6	165.2	36 26.1	+59.7	165.5	34 29.8	+59.8	165.9	32 33.3	+59.9	166.2	30 36.7	+59.9	166.5
16	45 08.4	+59.4	163.5	43 13.2	+59.4	164.1	41 17.6	+59.6	164.6	39 21.8	+59.7	165.0	37 25.8	+59.7	165.4	35 29.6	+59.7	165.8	33 33.2	+59.8	166.1	31 36.6	+59.8	166.4
17	46 07.8	+59.3	163.3	44 12.6	+59.5	163.9	42 17.2	+59.5	164.4	40 21.5	+59.6	164.9	38 25.5	+59.7	165.3	36 29.3	+59.8	165.7	34 33.0	+59.8	166.0	32 36.4	+59.9	166.3
18	47 07.1	+59.2	163.1	45 12.1	+59.4	163.7	43 16.7	+59.5	164.2	41 21.1	+59.6	164.7	39 25.2	+59.7	165.2	37 29.1	+59.8	165.6	35 32.8	+59.8	165.9	33 36.3	+59.9	166.3
19	48 06.3	+59.3	162.9	46 11.5	+59.4	163.5	44 16.2	+59.5	164.1	42 20.7	+59.6	164.6	40 24.9	+59.7	165.0	38 28.9	+59.7	165.5	36 32.6	+59.8	165.8	34 36.2	+59.8	166.2
20	49 05.6	+59.2	162.6	47 10.9	+59.3	163.3	45 15.7	+59.5	163.9	43 20.3	+59.6	164.4	41 24.6	+59.6	164.9	39 28.6	+59.7	165.3	37 32.4	+59.8	165.7	35 36.0	+59.9	166.1
21	50 04.8	+59.2	162.4	48 10.4	+59.4	163.1	46 15.2	+59.5	163.7	44 19.9	+59.6	164.3	42 24.2	+59.7	164.8	40 28.3	+59.8	165.2	38 32.2	+59.8	165.6	36 35.9	+59.8	166.0
22	51 04.0	+59.2	162.1	49 09.6	+59.3	162.9	47 14.7	+59.4	163.5	45 19.5	+59.5	164.1	43 23.9	+59.7	164.6	41 28.1	+59.7	165.1	39 32.0	+59.8	165.5	37 35.7	+59.8	165.9
23	52 03.2	+59.1	161.9	50 08.9	+59.3	162.6	48 14.1	+59.5	163.3	46 19.0	+59.6	163.9	44 23.6	+59.6	164.5	42 27.8	+59.7	165.0	40 31.8	+59.8	165.4	38 35.5	+59.9	165.8
24	53 02.3	+59.1	161.6	51 08.2	+59.2	162.4	49 13.6	+59.4	163.1	47 18.6	+59.5	163.7	45 23.2	+59.6	164.3	43 27.5	+59.7	164.8	41 31.6	+59.7	165.3	39 35.4	+59.8	165.7
25	54 01.4	+59.0	161.3	52 07.4	+59.2	162.1	50 13.0	+59.3	162.9	48 18.1	+59.5	163.5	46 22.8	+59.6	164.1	44 27.2	+59.7	164.7	42 31.3	+59.8	165.2	40 35.2	+59.8	165.6
26	55 00.4	+59.0	161.0	53 06.6	+59.2	161.9	51 12.3	+59.4	162.6	49 17.6	+59.5	163.3	47 22.4	+59.6	164.0	45 26.9	+59.7	164.6	43 31.1	+59.8	165.1	41 35.0	+59.9	165.5
27	55 59.4	+58.9	160.7	54 05.8	+59.2	161.6	52 11.7	+59.3	162.4	50 17.1	+59.4	163.1	48 22.0	+59.6	163.8	46 26.6	+59.7	164.4	44 30.9	+59.7	164.9	42 34.9	+59.8	165.4
28	56 58.3	+58.9	160.3	55 05.0	+59.1	161.3	53 11.0	+59.3	162.2	51 16.5	+59.5	162.9	49 21.6	+59.6	163.6	47 26.3	+59.6	164.3	45 30.6	+59.8	164.8	43 34.7	+59.8	165.3
29	57 57.2	+58.8	160.0	56 04.1	+59.0	161.0	54 10.3	+59.2	161.9	52 16.0	+59.4	162.7	50 21.2	+59.5	163.4	48 25.9	+59.7	164.1	46 30.4	+59.7	164.7	44 34.5	+59.8	165.2
30	58 56.0	+58.7	159.6	57 03.1	+59.0	160.7	55 09.5	+59.3	161.6	53 15.4	+59.4	162.5	51 20.7	+59.5	163.2	49 25.6	+59.6	163.9	47 30.1	+59.7	164.5	45 34.3	+59.8	165.1
31	59 54.7	+58.7	159.2	58 02.1	+59.0	160.3	56 08.8	+59.1	161.3	54 14.8	+59.3	162.2	52 20.2	+59.5	163.0	50 25.2	+59.6	163.8	48 29.8	+59.7	164.4	46 34.1	+59.8	165.0
32	60 53.4	+58.5	158.8	59 01.1	+58.8	160.0	57 07.9	+59.2	161.0	55 14.1	+59.3	162.0	53 19.7	+59.5	162.8	51 24.8	+59.6	163.6	49 29.5	+59.7	164.2	47 33.9	+59.7	164.9
33	61 51.9	+58.5	158.3	59 59.9	+58.8	159.6	58 07.0	+59.1	160.7	56 13.4	+59.3	161.7	54 19.2	+59.4	162.6	52 24.4	+59.6	163.4	50 29.2	+59.7	164.1	48 33.6	+59.8	164.7
34	62 50.4	+58.4	157.8	60 58.7	+58.8	159.2	59 06.1	+59.0	160.4	57 12.7	+59.3	161.4	55 18.6	+59.5	162.4	53 24.0	+59.6	163.2	51 28.9	+59.7	163.9	49 33.4	+59.8	164.6
35	63 48.8	+58.2	157.3	61 57.5	+58.6	158.8	60 05.1	+59.0	160.0	58 12.0	+59.2	161.1	56 18.1	+59.4	162.1	54 23.6	+59.5	163.0	52 28.6	+59.6	163.8	50 33.2	+59.7	164.5
36	64 47.0	+58.1	156.7	62 56.1	+58.6	158.3	61 04.1	+58.9	159.7	59 11.2	+59.1	160.8	57 17.5	+59.3	161.9	55 23.1	+59.5	162.8	53 28.2	+59.6	163.6	51 32.9	+59.8	164.3
37	65 45.1	+58.0	156.2	63 54.7	+58.4	157.8	62 03.0	+58.8	159.3	60 10.3	+59.1	160.5	58 16.8	+59.3	161.6	56 22.6	+59.5	162.6	54 27.9	+59.6	163.4	52 32.7	+59.7	164.2
38	66 43.1	+57.8	155.5	64 53.1	+58.4	157.3	63 01.8	+58.7	158.8	61 09.4	+59.1	160.1	59 16.1	+59.3	161.3	57 22.1	+59.5	162.3	55 27.1	+59.6	163.2	53 32.4	+59.7	164.0
39	67 40.9	+57.6	154.8	65 51.5	+58.2	156.7	64 00.5	+58.7	158.4	62 08.5	+58.9	159.8	60 15.4	+59.2	161.0	58 21.6	+59.4	162.1	56 27.5	+59.6	163.0	54 32.1	+59.7	163.8
40	68 38.5	+57.4	154.1	66 49.7	+58.0	156.1	64 59.2	+58.5	157.9	63 07.4	+58.9	159.4	61 14.6	+59.2	160.7	59 21.0	+59.4	161.8	57 26.7	+59.6	162.8	55 31.8	+59.7	163.7
41	69 35.9	+57.1	153.2	67 47.7	+57.9	155.5	65 57.7	+58.4	157.3	64 06.3	+58.9	158.9	62 13.8	+59.2	160.3	60 20.4	+59.4	161.5	58 26.3	+59.5	162.6	56 31.5	+59.7	163.5
42	70 33.0	+56.9	152.4	68 45.6	+57.7	154.8	66 56.1	+58.3	156.8	65 05.2	+58.7	158.5	63 13.0	+59.0	159.9	61 19.8	+59.3	161.2	59 25.8	+59.5	162.3	57 31.2	+59.6	163.3
43	71 29.9	+56.6	151.4	69 43.3	+57.4	154.0	67 54.4	+58.2	156.2	66 03.9	+58.6	158.0	64 12.0	+59.0	159.6	62 19.1	+59.3	160.9	60 25.3	+59.5	162.1	58 30.8	+59.6	163.1
44	72 26.4	+56.1	150.3	70 40.7	+57.2	153.1	68 52.6	+57.9	155.5	67 02.5	+58.5	157.5	65 11.0	+58.9	159.1	63 18.4	+59.2	160.6	61 24.8	+59.4	161.8	59 30.4	+59.6	162.9
45	73 22.5	+55.7	149.1	71 37.9	+56.9	152.2	69 50.5	+57.8	154.7	68 01.0	+58.4	156.9	66 09.9	+58.9	158.7	64 17.6	+59.1	160.2	62 24.2	+59.4	161.5	60 30.0	+59.6	162.6
46	74 18.2	+55.1	147.7																					

LATITUDE CONTRARY NAME

L.H.A. 12°, 348°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 16.8	-59.6	166.2	27 20.2	-59.7	166.5	25 23.5	-59.7	166.7	23 26.6	-59.7	166.9	21 29.7	-59.8	167.1	19 32.7	-59.8	167.3	17 35.6	-59.8	167.4	15 38.5	-59.9	167.5	0
28 17.2	-59.6	166.3	26 20.5	-59.6	166.6	24 23.8	-59.7	166.8	22 26.9	-59.8	167.0	20 29.9	-59.8	167.2	18 32.9	-59.9	167.3	16 35.8	-59.9	167.5	14 38.6	-59.9	167.6	1
27 17.6	-59.6	166.5	25 20.9	-59.7	166.7	23 24.1	-59.7	166.9	21 27.1	-59.7	167.1	19 30.1	-59.8	167.3	17 33.0	-59.8	167.4	15 35.9	-59.9	167.5	13 38.7	-59.9	167.7	2
26 18.0	-59.6	166.6	24 21.2	-59.6	166.8	22 24.4	-59.8	167.0	20 27.4	-59.8	167.2	18 30.3	-59.8	167.4	16 33.2	-59.8	167.5	14 36.0	-59.8	167.6	12 38.8	-59.9	167.7	3
25 18.4	-59.6	166.7	23 21.6	-59.7	166.9	21 24.6	-59.7	167.1	19 27.6	-59.7	167.3	17 30.5	-59.8	167.4	15 33.4	-59.9	167.6	13 36.2	-59.9	167.7	11 38.9	-59.9	167.8	4
24 18.8	-59.6	166.9	22 21.9	-59.6	167.1	20 24.9	-59.7	167.2	18 27.9	-59.8	167.4	16 30.7	-59.8	167.5	14 33.5	-59.8	167.6	12 36.3	-59.9	167.7	10 39.0	-59.9	167.8	5
23 19.2	-59.6	167.0	21 22.3	-59.7	167.2	19 25.2	-59.7	167.3	17 28.1	-59.8	167.5	15 30.9	-59.8	167.6	13 33.7	-59.9	167.7	11 36.4	-59.9	167.8	9 39.1	-59.9	167.9	6
22 19.6	-59.6	167.1	20 22.6	-59.7	167.3	18 25.5	-59.7	167.4	16 28.3	-59.7	167.6	14 31.1	-59.8	167.7	12 33.8	-59.8	167.8	10 36.5	-59.8	167.9	8 39.2	-59.9	168.0	7
21 20.0	-59.7	167.2	19 22.9	-59.7	167.4	17 25.8	-59.8	167.5	15 28.6	-59.8	167.7	13 31.3	-59.8	167.8	11 34.0	-59.8	167.9	9 36.7	-59.9	167.9	7 39.3	-59.9	168.0	8
20 20.3	-59.6	167.3	18 23.2	-59.7	167.5	16 26.0	-59.7	167.6	14 28.8	-59.8	167.8	12 31.5	-59.8	167.9	10 34.2	-59.9	167.9	8 36.8	-59.9	168.0	6 39.4	-59.9	168.1	9
19 20.7	-59.6	167.5	17 23.5	-59.6	167.6	15 26.3	-59.7	167.7	13 29.0	-59.8	167.8	11 31.7	-59.8	167.9	9 34.3	-59.8	168.0	7 36.9	-59.8	168.1	5 39.5	-59.9	168.1	10
18 21.1	-59.7	167.6	16 23.9	-59.7	167.7	14 26.6	-59.8	167.8	12 29.2	-59.7	167.9	10 31.9	-59.8	168.0	8 34.5	-59.9	168.1	6 37.1	-59.9	168.1	4 39.6	-59.9	168.2	11
17 21.4	-59.6	167.7	15 24.2	-59.7	167.8	13 26.8	-59.7	167.9	11 29.5	-59.8	168.0	9 32.1	-59.8	168.1	7 34.6	-59.8	168.2	5 37.2	-59.9	168.2	3 39.7	-59.9	168.2	12
16 21.8	-59.7	167.8	14 24.5	-59.7	167.9	12 27.1	-59.7	168.0	10 29.7	-59.8	168.1	8 32.3	-59.9	168.2	6 34.8	-59.9	168.2	4 37.3	-59.9	168.3	2 39.8	-59.9	168.3	13
15 22.1	-59.6	167.9	13 24.8	-59.7	168.0	11 27.4	-59.8	168.1	9 29.9	-59.8	168.2	7 32.4	-59.8	168.3	5 34.9	-59.8	168.3	3 37.4	-59.9	168.3	1 39.9	-59.9	168.4	14
14 22.5	-59.7	168.0	12 25.1	-59.7	168.1	10 27.6	-59.7	168.2	8 30.1	-59.7	168.3	6 32.6	-59.8	168.3	4 35.1	-59.9	168.4	2 37.5	-59.8	168.4	0 40.0	-59.9	168.4	15
13 22.8	-59.6	168.1	11 25.4	-59.7	168.2	9 27.9	-59.8	168.3	7 30.4	-59.8	168.4	5 32.8	-59.8	168.4	3 35.2	-59.8	168.4	1 37.7	-59.9	168.5	0 19.9	+59.9	11.5	16
12 23.2	-59.7	168.3	10 25.7	-59.7	168.3	8 28.1	-59.7	168.4	6 30.6	-59.8	168.5	4 33.0	-59.8	168.5	2 35.4	-59.8	168.5	0 37.8	-59.9	168.5	1 19.8	+59.9	11.5	17
11 23.5	-59.6	168.4	9 26.0	-59.7	168.4	7 28.4	-59.8	168.5	5 30.8	-59.8	168.5	3 33.2	-59.8	168.6	1 35.6	-59.9	168.6	0 35.7	-59.8	168.7	0 22.1	+59.9	11.4	18
10 23.9	-59.7	168.5	8 26.3	-59.7	168.5	6 28.6	-59.7	168.6	4 31.0	-59.8	168.6	2 33.4	-59.8	168.6	0 35.7	-59.8	168.7	0 22.0	+59.8	11.3	3 19.6	+59.9	11.4	19
9 24.2	-59.7	168.6	7 26.6	-59.8	168.6	5 28.9	-59.8	168.7	3 31.2	-59.8	168.7	1 33.5	-59.8	168.7	0 33.7	-59.8	168.8	0 24.1	+59.9	11.3	2 21.8	+59.9	11.3	20
8 24.5	-59.6	168.7	6 26.8	-59.7	168.7	4 29.1	-59.7	168.8	2 31.4	-59.7	168.8	0 31.9	-59.8	168.9	0 26.1	+59.8	11.1	2 23.8	+59.9	11.1	4 21.6	+59.9	11.1	21
7 24.9	-59.7	168.8	5 27.1	-59.7	168.8	3 29.4	-59.7	168.9	1 31.7	-59.8	168.9	0 31.9	-59.8	169.0	0 25.9	+59.8	11.0	3 23.7	+59.8	11.1	5 21.5	+59.8	11.1	22
6 25.2	-59.7	168.9	4 27.4	-59.7	168.9	2 29.7	-59.8	169.0	1 29.9	-59.7	169.0	0 27.9	-59.8	169.0	0 25.7	+59.8	11.0	4 23.5	+59.9	11.0	6 21.3	+59.9	11.0	23
5 25.5	-59.7	169.0	3 27.7	-59.7	169.0	1 29.9	-59.7	169.0	0 30.2	-59.8	169.1	1 27.7	+59.8	10.9	3 25.5	+59.9	10.9	5 23.4	+59.8	10.9	7 21.2	+59.9	11.0	24
4 25.8	-59.6	169.1	2 28.0	-59.7	169.1	0 30.2	-59.8	169.1	0 29.6	+59.7	10.8	2 27.5	+59.8	10.8	4 25.4	+59.8	10.8	6 23.2	+59.9	10.8	8 21.1	+59.9	10.9	25
3 26.2	-59.7	169.2	1 28.3	-59.7	169.2	0 28.6	-59.7	169.3	0 29.3	+59.8	10.7	1 27.3	+59.8	10.7	5 25.2	+59.8	10.7	7 23.1	+59.8	10.8	9 21.0	+59.8	10.8	26
2 26.5	-59.7	169.3	0 28.6	-59.7	169.3	0 28.6	-59.7	169.3	0 29.1	+59.7	10.6	4 27.1	+59.7	10.6	6 25.0	+59.8	10.6	8 22.9	+59.9	10.7	10 20.8	+59.9	10.8	27
1 26.8	-59.6	169.4	0 27.1	-59.6	169.5	0 31.1	+59.8	10.6	3 28.8	+59.8	10.5	5 26.7	+59.8	10.5	7 24.8	+59.8	10.6	9 22.8	+59.8	10.6	11 20.7	+59.9	10.7	28
0 27.1	-59.6	169.5	0 31.1	+59.8	10.6	1 30.9	+59.7	10.5	4 28.6	+59.7	10.4	6 26.6	+59.8	10.4	8 24.6	+59.8	10.5	10 22.6	+59.9	10.5	12 20.6	+59.8	10.6	29
0 32.5	+59.7	10.4	1 32.2	+59.7	10.3	2 31.9	+59.7	10.2	3 31.6	+59.6	10.1	4 31.2	+59.7	10.0	5 30.9	+59.7	9.9	6 30.6	+59.6	9.7	7 30.2	+59.7	9.6	30
1 32.2	+59.7	10.3	2 31.9	+59.7	10.2	3 31.6	+59.6	10.1	4 31.2	+59.7	10.0	5 30.9	+59.7	9.9	6 30.6	+59.6	9.7	7 30.2	+59.7	9.6	8 29.9	+59.7	9.5	31
2 31.9	+59.7	10.2	3 31.6	+59.6	10.1	4 31.2	+59.7	10.0	5 30.9	+59.7	9.9	6 30.6	+59.6	9.7	7 30.2	+59.7	9.6	8 29.9	+59.7	9.5	9 29.6	+59.6	9.4	32
3 31.6	+59.6	10.1	4 31.2	+59.7	10.0	5 30.9	+59.7	9.9	6 30.6	+59.6	9.7	7 30.2	+59.7	9.6	8 29.9	+59.7	9.5	9 29.6	+59.6	9.4	10 29.2	+59.7	9.3	33
4 31.2	+59.7	10.0	5 30.9	+59.7	9.9	6 30.6	+59.6	9.7	7 30.2	+59.7	9.6	8 29.9	+59.7	9.5	9 29.6	+59.6	9.4	10 29.2	+59.7	9.3	11 28.9	+59.6	9.2	34
5 30.9	+59.7	9.9	6 30.6	+59.6	9.7	7 30.2	+59.7	9.6	8 29.9	+59.7	9.5	9 29.6	+59.6	9.4	10 29.2	+59.7	9.3	11 28.9	+59.6	9.2	12 28.6	+59.6	9.1	35
6 30.6	+59.6	9.7	7 30.2	+59.7	9.6	8 29.9	+59.7	9.5	9 29.6	+59.6	9.4	10 29.2	+59.7	9.3	11 28.9	+59.6	9.2	12 28.6	+59.6	9.1	13 28.2	+59.7	9.0	36
7 30.2	+59.7	9.6	8 29.9	+59.7	9.5	9 29.6	+59.6	9.4	10 29.2	+59.7	9.3	11 28.9	+59.6	9.2	12 28.6	+59.6	9.1	13 28.2	+59.7	9.0	14 27.9	+59.6	8.9	37
8 29.9	+59.7	9.5	9 29.6	+59.6	9.4	10 29.2	+59.7	9.3	11 28.9	+59.6	9.2	12 28.6	+59.6	9.1	13 28.2	+59.7	9.0	14 27.9	+59.6	8.9	15 27.5	+59.7	8.8	38
9 29.6	+59.6	9.4	10 29.2	+59.7	9.3	11 28.9	+59.6	9.2	12 28.6	+59.6	9.1	13 28.2	+59.7	9.0	14 27.9	+59.6	8.9	15 27.5	+59.7	8.8	16 27.2	+59.6	8.7	39
10 29.2	+59.7	9.3	11 28.9	+59.6	9.2	12 28.6	+59.6	9.1	13 28.2	+59.7	9.0	14 27.9	+59.6	8.9	15 27.5	+59.7	8.8	16 27.2	+59.6	8.7	17 26.8	+59.6	8.6	40
11 28.9	+59.7	9.2	12 28.6	+59.6	9.1	13 28.2	+59.7	9.0	14 27.9	+59.6	8.9	15 27.5	+59.7	8.8	16 27.2	+59.6	8.7	17 26.8	+59.6	8.6	18 26.5	+59.6	8.5	41
12 28.6	+59.6	9.1	13 28.2	+59.7	9.0	14 27.9	+59.6	8.9	15 27.5	+59.7	8.8	16 27.2	+59.6	8.7	17 26.8	+59.6	8.6	18 26.5	+59.6	8.5	19 26.1	+59.6	8.4	42
13 28.2	+59.7	9.0	14 27.9	+59.6	8.9	15 27.5	+59.7	8.8	16 27.2	+59.6	8.7	17 26.8	+59.6	8.6	18 26.5	+59.6	8.5	19 26.1	+59.6	8.4	20 25.8	+59.6	8.3	43
14 27.9	+59.6	8.9	15 27.5	+59.7	8.8	16 27.2	+59.6	8.7	17 26.8	+59.6	8.6	18 26.5	+59.6	8.5	19 26.1	+59.6	8.4	20 25.8	+59.6	8.3	21 25.4	+59.6	8.2	44
15 27.5	+59.7	8.8	16 27.2	+59.6	8.7	17 26.8	+59.6	8.6	18 26.5	+59.6	8.5	19 26.1	+59.6	8.4	20 25.8	+59.6	8.3	21 25.4	+59.6	8.2	22 25.1	+59.6	8.1	45
16 27.2	+59.6	8.7	17 26.8	+59.6	8.6	18 26.5	+59.6	8.5	19 26.1	+59.6	8.4	20 25.8	+59.6	8.3	21 25.4	+59.6	8.2	22 25.1	+59.6	8.1	23 24.8	+59.6	8.0	46
17 26.8	+59.7	8.5	18 26.5	+59.6	8.4	19 26.1	+59.6	8.3	20 25.8	+59.6	8.2	21 25.4	+59.6	8.1	22 25.1	+59.6	8.0	23 24.8	+59.6	7.9	24 24.5	+59.6	7.8	47
18 26.5																								

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 41.3	+59.9	167.6	11 44.0	+60.0	167.7	9 46.8	+59.9	167.8	7 49.4	+60.0	167.9	5 52.1	+60.0	167.9	3 54.7	+60.0	168.0	1 57.4	+60.0	168.0	0 00.0	+60.0	168.0
1	14 41.2	+59.9	167.6	12 44.0	+59.9	167.7	10 46.7	+60.0	167.8	8 49.4	+60.0	167.9	6 52.1	+60.0	167.9	4 54.7	+60.0	168.0	2 57.4	+60.0	168.0	1 00.0	+60.0	168.0
2	15 41.1	+59.9	167.5	13 43.9	+60.0	167.6	11 46.7	+59.9	167.7	9 49.4	+60.0	167.8	7 52.1	+60.0	167.9	5 54.7	+60.0	167.9	3 57.4	+60.0	168.0	2 00.0	+60.0	168.0
3	16 41.0	+60.0	167.5	14 43.9	+59.9	167.6	12 46.6	+60.0	167.7	10 49.4	+59.9	167.8	8 52.1	+59.9	167.8	6 54.7	+60.0	167.9	4 57.4	+60.0	168.0	3 00.0	+60.0	168.0
4	17 41.0	+59.9	167.4	15 43.8	+59.9	167.6	13 46.6	+60.0	167.7	11 49.3	+60.0	167.8	9 52.0	+60.0	167.8	7 54.7	+60.0	167.9	5 57.4	+60.0	168.0	4 00.0	+60.0	168.0
5	18 40.9	+59.9	167.4	16 43.7	+60.0	167.5	14 46.6	+59.9	167.6	12 49.3	+60.0	167.7	10 52.0	+60.0	167.8	8 54.7	+60.0	167.9	6 57.4	+60.0	168.0	5 00.0	+60.0	168.0
6	19 40.8	+59.9	167.3	17 43.7	+59.9	167.5	15 46.5	+60.0	167.6	13 49.3	+60.0	167.7	11 52.0	+60.0	167.8	9 54.7	+60.0	167.9	7 57.4	+60.0	167.9	6 00.0	+60.0	168.0
7	20 40.7	+59.9	167.3	18 43.6	+60.0	167.4	16 46.5	+59.9	167.6	14 49.3	+59.9	167.7	12 52.0	+60.0	167.8	10 54.7	+60.0	167.9	8 57.4	+60.0	167.9	7 00.0	+60.0	168.0
8	21 40.6	+59.9	167.2	19 43.6	+59.9	167.4	17 46.4	+60.0	167.5	15 49.2	+60.0	167.6	13 52.0	+60.0	167.8	11 54.7	+60.0	167.9	9 57.4	+60.0	167.9	8 00.0	+60.0	168.0
9	22 40.5	+59.9	167.1	20 43.5	+59.9	167.3	18 46.4	+59.9	167.5	16 49.2	+60.0	167.6	14 52.0	+60.0	167.7	12 54.7	+60.0	167.8	10 57.4	+60.0	167.9	9 00.0	+60.0	168.0
10	23 40.4	+59.9	167.1	21 43.4	+60.0	167.3	19 46.3	+60.0	167.4	17 49.2	+60.0	167.6	15 52.0	+59.9	167.7	13 54.7	+60.0	167.8	11 57.4	+60.0	167.9	10 00.0	+60.0	168.0
11	24 40.3	+59.9	167.0	22 43.4	+59.9	167.2	20 46.3	+59.9	167.4	18 49.2	+59.9	167.6	16 51.9	+60.0	167.7	14 54.7	+60.0	167.8	12 57.4	+60.0	167.9	11 00.0	+60.0	168.0
12	25 40.2	+60.0	167.0	23 43.3	+59.9	167.2	21 46.2	+60.0	167.4	19 49.1	+60.0	167.5	17 51.9	+60.0	167.7	15 54.7	+60.0	167.8	13 57.4	+60.0	167.9	12 00.0	+60.0	168.0
13	26 40.2	+59.9	166.9	24 43.2	+60.0	167.1	22 46.2	+60.0	167.3	20 49.1	+60.0	167.5	18 51.9	+60.0	167.6	16 54.7	+60.0	167.8	14 57.4	+60.0	167.9	13 00.0	+60.0	168.0
14	27 40.1	+59.9	166.8	25 43.2	+59.9	167.1	23 46.2	+59.9	167.3	21 49.1	+59.9	167.4	19 51.9	+60.0	167.6	17 54.7	+59.9	167.8	15 57.4	+60.0	167.9	14 00.0	+60.0	168.0
15	28 40.0	+59.9	166.8	26 43.1	+59.9	167.0	24 46.1	+60.0	167.2	22 49.0	+60.0	167.4	20 51.9	+60.0	167.6	18 54.6	+60.0	167.7	16 57.4	+60.0	167.9	15 00.0	+60.0	168.0
16	29 39.9	+59.9	166.7	27 43.0	+59.9	167.0	25 46.1	+59.9	167.2	23 49.0	+60.0	167.4	21 51.9	+59.9	167.6	19 54.6	+60.0	167.7	17 57.4	+59.9	167.9	16 00.0	+60.0	168.0
17	30 39.8	+59.9	166.6	28 42.9	+60.0	166.9	26 46.0	+60.0	167.1	24 49.0	+59.9	167.3	22 51.8	+60.0	167.5	20 54.6	+60.0	167.7	18 57.3	+60.0	167.9	17 00.0	+60.0	168.0
18	31 39.7	+59.9	166.6	29 42.9	+59.9	166.8	27 46.0	+59.9	167.1	25 49.0	+60.0	167.3	23 51.8	+60.0	167.5	21 54.6	+60.0	167.7	19 57.3	+60.0	167.9	18 00.0	+60.0	168.0
19	32 39.6	+59.9	166.5	30 42.8	+59.9	166.8	28 45.9	+60.0	167.0	26 48.9	+60.0	167.3	24 51.8	+60.0	167.5	22 54.6	+60.0	167.7	20 57.3	+60.0	167.8	19 00.0	+60.0	168.0
20	33 39.4	+59.9	166.4	31 42.7	+59.9	166.7	29 45.9	+59.9	167.0	27 48.9	+60.0	167.2	25 51.8	+60.0	167.5	23 54.6	+60.0	167.7	21 57.3	+60.0	167.8	20 00.0	+60.0	168.0
21	34 39.3	+59.9	166.4	32 42.6	+60.0	166.7	30 45.8	+60.0	166.9	28 48.9	+59.9	167.2	26 51.8	+60.0	167.4	24 54.6	+60.0	167.7	22 57.3	+60.0	167.8	21 00.0	+60.0	168.0
22	35 39.2	+59.9	166.3	33 42.6	+59.9	166.6	31 45.8	+59.9	166.9	29 48.8	+60.0	167.2	27 51.8	+59.9	167.4	25 54.6	+60.0	167.6	23 57.3	+60.0	167.8	22 00.0	+60.0	168.0
23	36 39.1	+59.9	166.2	34 42.5	+59.9	166.5	32 45.7	+59.9	166.8	30 48.8	+59.9	167.1	28 51.7	+60.0	167.4	26 54.6	+60.0	167.6	24 57.3	+60.0	167.8	23 00.0	+60.0	168.0
24	37 39.0	+59.9	166.1	35 42.4	+59.9	166.5	33 45.6	+60.0	166.8	31 48.7	+60.0	167.1	29 51.7	+60.0	167.3	27 54.6	+60.0	167.6	25 57.3	+60.0	167.8	24 00.0	+60.0	168.0
25	38 38.9	+59.9	166.0	36 42.3	+59.9	166.4	34 45.6	+59.9	166.7	32 48.7	+60.0	167.0	30 51.7	+60.0	167.3	28 54.6	+60.0	167.6	26 57.3	+60.0	167.8	25 00.0	+60.0	168.0
26	39 38.7	+59.9	166.0	37 42.2	+59.9	166.3	35 45.5	+60.0	166.7	33 48.7	+59.9	167.0	31 51.7	+60.0	167.3	29 54.6	+60.0	167.6	27 57.3	+60.0	167.8	26 00.0	+60.0	168.0
27	40 38.6	+59.9	165.9	38 42.1	+59.9	166.3	36 45.5	+59.9	166.6	34 48.6	+60.0	167.0	32 51.7	+59.9	167.3	30 54.6	+59.9	167.5	28 57.3	+60.0	167.8	27 00.0	+60.0	168.0
28	41 38.5	+59.9	165.8	39 42.0	+59.9	166.2	37 45.4	+59.9	166.6	35 48.6	+60.0	166.9	33 51.6	+60.0	167.2	31 54.5	+60.0	167.5	29 57.3	+60.0	167.8	28 00.0	+60.0	168.0
29	42 38.3	+59.9	165.7	40 41.9	+59.9	166.1	38 45.3	+60.0	166.5	36 48.6	+59.9	166.9	34 51.6	+60.0	167.2	32 54.5	+60.0	167.5	30 57.3	+60.0	167.8	29 00.0	+60.0	168.0
30	43 38.2	+59.9	165.6	41 41.8	+59.9	166.0	39 45.3	+59.9	166.5	37 48.5	+60.0	166.8	35 51.6	+60.0	167.2	33 54.5	+60.0	167.5	31 57.3	+60.0	167.7	30 00.0	+60.0	168.0
31	44 38.0	+59.9	165.5	42 41.7	+59.9	166.0	40 45.2	+59.9	166.4	38 48.5	+59.9	166.8	36 51.6	+60.0	167.1	34 54.5	+60.0	167.4	32 57.3	+60.0	167.7	31 00.0	+60.0	168.0
32	45 37.9	+59.8	165.4	43 41.6	+59.9	165.9	41 45.1	+60.0	166.3	39 48.4	+60.0	166.7	37 51.6	+59.9	167.1	35 54.5	+60.0	167.4	33 57.3	+60.0	167.7	32 00.0	+60.0	168.0
33	46 37.7	+59.9	165.3	44 41.5	+59.9	165.8	42 45.1	+59.9	166.3	40 48.4	+60.0	166.6	38 51.5	+60.0	167.1	36 54.5	+60.0	167.4	34 57.3	+60.0	167.7	33 00.0	+60.0	168.0
34	47 37.6	+59.8	165.2	45 41.4	+59.9	165.7	43 45.0	+59.9	166.2	41 48.4	+59.9	166.6	39 51.5	+60.0	167.0	37 54.5	+60.0	167.4	35 57.3	+60.0	167.7	34 00.0	+60.0	168.0
35	48 37.4	+59.8	165.1	46 41.3	+59.9	165.6	44 44.9	+59.9	166.1	42 48.3	+60.0	166.6	40 51.5	+60.0	167.0	38 54.5	+60.0	167.3	36 57.3	+60.0	167.7	35 00.0	+60.0	168.0
36	49 37.2	+59.8	165.0	47 41.2	+59.8	165.5	45 44.8	+60.0	166.1	43 48.3	+59.9	166.5	41 51.5	+59.9	166.9	39 54.5	+60.0	167.2	37 57.3	+60.0	167.7	36 00.0	+60.0	168.0
37	50 37.0	+59.8	164.8	48 41.0	+59.9	165.4	46 44.8	+59.9	166.0	44 48.2	+60.0	166.5	42 51.4	+60.0	166.9	40 54.5	+59.9	167.3	38 57.3	+60.0	167.7	37 00.0	+60.0	168.0
38	51 36.8	+59.8	164.7	49 40.9	+59.9	165.3	47 44.7	+59.9	165.9	45 48.2	+59.9	166.4	43 51.4	+60.0	166.9	41 54.4	+60.0	167.3	39 57.3	+60.0	167.7	38 00.0	+60.0	168.0
39	52 36.6	+59.8	164.6	50 40.8	+59.8	165.2	48 44.6	+59.9	165.8	46 48.1	+60.0	166.3	44 51.4	+60.0	166.8	42 54.4	+60.0	167.3	40 57.3	+60.0	167.6	39 00.0	+60.0	168.0
40	53 36.4	+59.8	164.4	51 40.6	+59.9	165.1	49 44.5	+59.9	165.7	47 48.1	+59.9	166.3	45 51.4	+59.9	166.8	43 54.4	+60.0	167.2	41 57.3	+60.0	167.6	40 00.0	+60.0	168.0
41	54 36.2	+59.8	164.3	52 40.5	+59.8	165.0	50 44.4	+59.9	165.6	48 48.0	+59.9	166.2	46 51.3	+60.0	166.7	44 54.4	+60.0	167.2	42 57.3	+60.0	167.6	41 00.0	+60.0	168.0
42	55 36.0	+59.7	164.1	53 40.3	+59.9	164.9	51 44.3	+59.9	165.6	49 47.9	+60.0	166.2	47 51.3	+60.0	166.7	45 54.4	+60.0	167.2	43 57.3	+60.0	167.6	42 00.0	+60.0	168.0
43	56 35.7	+59.8	164.0	54 40.2	+59.8	164.8	52 44.2	+59.9	165.5	50 47.9	+59.9	166.1	48 51.3	+59.9	166.6	46 54.4	+60.0	167.1	44 57.3	+60.0	167.6	43 00.0	+60.0	168.0
44	57 35.5	+59.7	163.8	55 40.0	+59.8	164.6	53 44.1	+59.9	165.4	51 47.8	+59.9	166.0	49 51.2	+60.0	166.6	47 54.4	+60.0	167.1	45 57.3	+60.0	167.6	44 00.0	+60.0	168.0
45	58 35.2	+59.7	163.6	56 39.8	+59.8	164.5	54 44.0	+59.9	165.2	52 47.7	+60.0	165.9	50 51.2	+60.0	166.5	48 54.4	+59.9	167.1	46 57.3	+60.0	167.6	45 00.0	+60.0	168.0
46	59 34.9	+59.7	163.4	57 39.6	+59.8	164.3																		

LATITUDE CONTRARY NAME

L.H.A. 12°, 348°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
13 41.3	-59.9	167.6	11 44.0	-59.9	167.7	9 46.8	-60.0	167.8	7 49.4	-59.9	167.9	5 52.1	-60.0	167.9	3 54.7	-59.9	168.0	1 57.4	-60.0	168.0	0 00.0	+60.0	12.0	0
12 41.4	-60.0	167.7	10 44.1	-59.9	167.8	8 46.8	-60.0	167.9	6 49.5	-60.0	167.9	4 52.1	-60.0	168.0	2 54.8	-60.0	168.0	0 57.4	-60.0	168.0	1 00.0	+60.0	12.0	1
11 41.4	-59.9	167.7	9 44.2	-60.0	167.8	7 46.8	-59.9	167.9	5 49.5	-60.0	167.9	3 52.1	-60.0	168.0	1 54.8	-60.0	168.0	0 02.6	+60.0	12.0	2 00.0	+60.0	12.0	2
10 41.5	-59.9	167.8	8 44.2	-59.9	167.9	6 46.9	-60.0	167.9	4 49.5	-60.0	168.0	2 52.1	-59.9	168.0	0 54.8	-60.0	168.0	1 02.6	+60.0	12.0	3 00.0	+60.0	12.0	3
9 41.6	-59.9	167.9	7 44.3	-60.0	167.9	5 46.9	-59.9	168.0	3 49.5	-59.9	168.0	1 52.2	-60.0	168.0	0 05.2	+60.0	12.0	2 02.6	+60.0	12.0	4 00.0	+60.0	12.0	4
8 41.7	-59.9	167.9	6 44.3	-59.9	168.0	4 47.0	-60.0	168.0	2 49.6	-60.0	168.0	0 52.2	-60.0	168.0	1 05.2	+60.0	12.0	3 02.6	+60.0	12.0	5 00.0	+60.0	12.0	5
7 41.8	-60.0	168.0	5 44.4	-60.0	168.0	3 47.0	-60.0	168.0	1 49.6	-60.0	168.1	0 07.8	+60.0	11.9	2 05.2	+60.0	11.9	4 02.6	+60.0	12.0	6 00.0	+60.0	12.0	6
6 41.8	-59.9	168.0	4 44.4	-59.9	168.0	2 47.0	-59.9	168.1	0 49.6	-60.0	168.1	1 07.8	+60.0	11.9	3 05.2	+60.0	11.9	5 02.6	+60.0	12.0	7 00.0	+60.0	12.0	7
5 41.9	-59.9	168.1	3 44.5	-59.9	168.1	1 47.1	-60.0	168.1	0 10.4	+59.9	11.9	2 07.8	+60.0	11.9	4 05.2	+60.0	11.9	6 02.6	+60.0	11.9	8 00.0	+60.0	12.0	8
4 42.0	-59.9	168.1	2 44.6	-60.0	168.1	0 47.1	-59.9	168.1	1 10.3	+60.0	11.9	3 07.8	+60.0	11.9	5 05.2	+60.0	11.9	7 02.6	+60.0	11.9	9 00.0	+60.0	12.0	9
3 42.1	-60.0	168.2	1 44.6	-59.9	168.2	0 12.8	+60.0	11.8	2 10.3	+60.0	11.8	4 07.8	+59.9	11.8	6 05.2	+60.0	11.9	8 02.6	+60.0	11.9	10 00.0	+60.0	12.0	10
2 42.1	-59.9	168.2	0 44.7	-60.0	168.2	1 12.8	+60.0	11.8	3 10.3	+60.0	11.8	5 07.8	+60.0	11.8	7 05.2	+60.0	11.9	9 02.6	+60.0	11.9	11 00.0	+60.0	12.0	11
1 42.2	-59.9	168.3	0 15.3	+59.9	11.7	2 12.8	+59.9	11.7	4 10.3	+59.9	11.8	6 07.7	+60.0	11.8	8 05.2	+60.0	11.9	10 02.6	+60.0	11.9	12 00.0	+60.0	12.0	12
0 42.3	-59.9	168.3	1 15.2	+60.0	11.7	3 12.7	+60.0	11.7	5 10.2	+60.0	11.7	7 07.7	+60.0	11.8	9 05.2	+60.0	11.8	11 02.6	+60.0	11.9	13 00.0	+60.0	12.0	13
0 17.6	+60.0	11.6	2 15.2	+59.9	11.6	4 12.7	+60.0	11.7	6 10.2	+60.0	11.7	8 07.7	+60.0	11.8	10 05.2	+60.0	11.8	12 02.6	+60.0	11.9	14 00.0	+60.0	12.0	14
1 17.6	+59.9	11.6	3 15.1	+60.0	11.6	5 12.7	+59.9	11.6	7 10.2	+60.0	11.7	9 07.7	+60.0	11.7	11 05.2	+60.0	11.8	13 02.6	+60.0	11.9	15 00.0	+60.0	12.0	15
2 17.5	+59.9	11.5	4 15.1	+59.9	11.6	6 12.6	+60.0	11.6	8 10.2	+59.9	11.6	10 07.7	+60.0	11.7	12 05.2	+59.9	11.8	14 02.6	+60.0	11.9	16 00.0	+60.0	12.0	16
3 17.4	+59.9	11.5	5 15.0	+59.9	11.5	7 12.6	+59.9	11.6	9 10.1	+60.0	11.6	11 07.7	+59.9	11.7	13 05.1	+60.0	11.8	15 02.6	+60.0	11.9	17 00.0	+60.0	12.0	17
4 17.3	+60.0	11.4	6 14.9	+60.0	11.5	8 12.5	+60.0	11.5	10 10.1	+60.0	11.6	12 07.6	+60.0	11.7	14 05.1	+60.0	11.8	16 02.6	+60.0	11.9	18 00.0	+60.0	12.0	18
5 17.3	+59.9	11.4	7 14.9	+59.9	11.4	9 12.5	+60.0	11.5	11 10.1	+59.9	11.6	13 07.6	+60.0	11.6	15 05.1	+60.0	11.7	17 02.6	+60.0	11.9	19 00.0	+60.0	12.0	19
6 17.2	+59.9	11.3	8 14.8	+60.0	11.4	10 12.5	+59.9	11.5	12 10.0	+60.0	11.5	14 07.6	+60.0	11.6	16 05.1	+60.0	11.7	18 02.6	+60.0	11.9	20 00.0	+60.0	12.0	20
7 17.1	+59.9	11.3	9 14.8	+59.9	11.3	11 12.4	+60.0	11.4	13 10.0	+60.0	11.5	15 07.6	+60.0	11.6	17 05.1	+60.0	11.7	19 02.6	+60.0	11.8	21 00.0	+60.0	12.0	21
8 17.0	+59.9	11.2	10 14.7	+60.0	11.3	12 12.4	+59.9	11.4	14 10.0	+60.0	11.5	16 07.6	+60.0	11.6	18 05.1	+60.0	11.7	20 02.6	+60.0	11.8	22 00.0	+60.0	12.0	22
9 16.9	+60.0	11.2	11 14.7	+59.9	11.3	13 12.3	+60.0	11.3	15 10.0	+59.9	11.4	17 07.6	+59.9	11.5	19 05.1	+60.0	11.7	21 02.6	+60.0	11.8	23 00.0	+60.0	12.0	23
10 16.9	+59.9	11.1	12 14.6	+59.9	11.2	14 12.3	+59.9	11.3	16 09.9	+60.0	11.4	18 07.5	+60.0	11.5	20 05.1	+60.0	11.6	22 02.6	+60.0	11.8	24 00.0	+60.0	12.0	24
11 16.8	+59.9	11.1	13 14.5	+60.0	11.2	15 12.2	+60.0	11.3	17 09.9	+60.0	11.4	19 07.5	+60.0	11.5	21 05.1	+60.0	11.7	23 02.6	+60.0	11.8	25 00.0	+60.0	12.0	25
12 16.7	+59.9	11.0	14 14.5	+59.9	11.1	16 12.2	+60.0	11.2	18 09.9	+60.0	11.3	20 07.5	+60.0	11.5	22 05.1	+60.0	11.6	24 02.6	+60.0	11.8	26 00.0	+60.0	12.0	26
13 16.6	+59.9	11.0	15 14.4	+60.0	11.1	17 12.2	+59.9	11.2	19 09.9	+59.9	11.3	21 07.5	+60.0	11.5	23 05.1	+60.0	11.6	25 02.6	+60.0	11.8	27 00.0	+60.0	12.0	27
14 16.5	+60.0	10.9	16 14.4	+59.9	11.0	18 12.1	+60.0	11.1	20 09.8	+60.0	11.3	22 07.5	+60.0	11.4	24 05.1	+60.0	11.6	26 02.6	+60.0	11.8	28 00.0	+60.0	12.0	28
15 16.5	+59.9	10.9	17 14.3	+59.9	11.0	19 12.1	+59.9	11.1	21 09.8	+60.0	11.2	23 07.5	+59.9	11.4	25 05.1	+60.0	11.6	27 02.6	+60.0	11.8	29 00.0	+60.0	12.0	29
16 16.4	+59.9	10.8	18 14.2	+60.0	10.9	20 12.0	+60.0	11.1	22 09.8	+59.9	11.2	24 07.4	+60.0	11.4	26 05.1	+59.9	11.6	28 02.6	+60.0	11.8	30 00.0	+60.0	12.0	30
17 16.3	+59.9	10.8	19 14.2	+59.9	10.9	21 12.0	+59.9	11.0	23 09.7	+60.0	11.2	25 07.4	+60.0	11.4	27 05.0	+60.0	11.5	29 02.6	+60.0	11.8	31 00.0	+60.0	12.0	31
18 16.2	+59.9	10.7	20 14.1	+59.9	10.8	22 11.9	+60.0	11.0	24 09.7	+60.0	11.1	26 07.4	+60.0	11.3	28 05.0	+60.0	11.5	30 02.6	+60.0	11.8	32 00.0	+60.0	12.0	32
19 16.1	+59.9	10.6	21 14.0	+60.0	10.8	23 11.9	+59.9	10.9	25 09.7	+60.0	11.1	27 07.4	+60.0	11.3	29 05.0	+60.0	11.5	31 02.6	+60.0	11.7	33 00.0	+60.0	12.0	33
20 16.0	+60.0	10.6	22 14.0	+59.9	10.7	24 11.8	+60.0	10.9	26 09.7	+59.9	11.1	28 07.4	+60.0	11.3	30 05.0	+60.0	11.5	32 02.6	+60.0	11.7	34 00.0	+60.0	12.0	34
21 16.0	+59.9	10.5	23 13.9	+59.9	10.7	25 11.8	+60.0	10.8	27 09.6	+60.0	11.0	29 07.4	+59.9	11.2	31 05.0	+60.0	11.5	33 02.6	+60.0	11.7	35 00.0	+60.0	12.0	35
22 15.9	+59.9	10.5	24 13.8	+60.0	10.6	26 11.8	+59.9	10.8	28 09.6	+60.0	11.0	30 07.3	+60.0	11.2	32 05.0	+60.0	11.5	34 02.6	+60.0	11.7	36 00.0	+60.0	12.0	36
23 15.8	+59.9	10.4	25 13.8	+59.9	10.6	27 11.7	+60.0	10.8	29 09.6	+59.9	11.0	31 07.3	+60.0	11.2	33 05.0	+60.0	11.4	35 02.6	+60.0	11.7	37 00.0	+60.0	12.0	37
24 15.7	+59.9	10.4	26 13.7	+59.9	10.5	28 11.7	+59.9	10.7	30 09.5	+60.0	10.9	32 07.3	+60.0	11.2	34 05.0	+60.0	11.4	36 02.6	+60.0	11.7	38 00.0	+60.0	12.0	38
25 15.6	+59.9	10.3	27 13.6	+60.0	10.5	29 11.6	+60.0	10.7	31 09.5	+60.0	10.9	33 07.3	+60.0	11.1	35 05.0	+60.0	11.4	37 02.6	+59.9	11.7	39 00.0	+60.0	12.0	39
26 15.5	+59.9	10.2	28 13.6	+59.9	10.4	30 11.6	+59.9	10.6	32 09.5	+59.9	10.8	34 07.3	+59.9	11.1	36 05.0	+60.0	11.4	38 02.5	+60.0	11.7	40 00.0	+60.0	12.0	40
27 15.4	+59.9	10.2	29 13.5	+59.9	10.4	31 11.5	+59.9	10.6	33 09.4	+60.0	10.8	35 07.2	+60.0	11.1	37 05.0	+59.9	11.3	39 02.5	+60.0	11.7	41 00.0	+60.0	12.0	41
28 15.3	+59.9	10.1	30 13.4	+59.9	10.3	32 11.4	+60.0	10.5	34 09.4	+59.9	10.8	36 07.2	+60.0	11.0	38 04.9	+60.0	11.3	40 02.5	+60.0	11.6	42 00.0	+60.0	12.0	42
29 15.2	+59.9	10.0	31 13.3	+60.0	10.2	33 11.4	+59.9	10.5	35 09.3	+60.0	10.7	37 07.2	+60.0	11.0	39 04.9	+60.0	11.3	41 02.5	+60.0	11.6	43 00.0	+60.0	12.0	43
30 15.1	+59.9	10.0	32 13.3	+59.9	10.2	34 11.3	+60.0	10.4	36 09.3	+60.0	10.7	38 07.2	+60.0	11.0	40 04.9	+60.0	11.3	42 02.5	+60.0	11.6	44 00.0	+60.0	12.0	44
31 15.0	+59.9	9.9	33 13.2	+59.9	10.1	35 11.3	+59.9	10.4	37 09.3	+59.9	10.6	39 07.2	+59.9	10.9	41 04.9	+60.0	11.2	43 02.5	+60.0	11.6	45 00.0</			

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	29 01.3	+59.4	163.9	27 05.9	+59.5	164.2	25 10.4	+59.6	164.5	23 14.7	+59.6	164.7	21 18.8	+59.8	164.9	19 22.9	+59.8	165.1	17 26.9	+59.8	165.3	15 30.8	+59.8	165.5
1	30 00.7	+59.5	163.8	28 05.4	+59.5	164.1	26 10.0	+59.5	164.4	24 14.3	+59.7	164.6	22 18.6	+59.7	164.8	20 22.7	+59.7	165.0	18 26.7	+59.8	165.2	16 30.6	+59.9	165.4
2	31 00.2	+59.3	163.6	29 04.9	+59.5	163.9	27 09.5	+59.6	164.2	25 14.0	+59.6	164.5	23 18.3	+59.7	164.7	21 22.4	+59.8	165.0	19 26.5	+59.8	165.1	17 30.5	+59.8	165.3
3	31 59.5	+59.4	163.4	30 04.4	+59.5	163.8	28 09.1	+59.6	164.1	26 13.6	+59.6	164.4	24 18.0	+59.7	164.6	22 22.2	+59.8	164.9	20 26.3	+59.8	165.1	18 30.3	+59.9	165.2
4	32 58.9	+59.4	163.3	31 03.9	+59.5	163.6	29 08.7	+59.5	164.0	27 13.2	+59.7	164.3	25 17.7	+59.7	164.5	23 22.0	+59.7	164.8	21 26.1	+59.8	165.0	19 30.2	+59.8	165.2
5	33 58.3	+59.3	163.1	32 03.4	+59.4	163.5	30 08.2	+59.5	163.8	28 12.9	+59.6	164.1	26 17.4	+59.7	164.4	24 21.7	+59.8	164.7	22 25.9	+59.8	164.9	20 30.0	+59.9	165.1
6	34 57.6	+59.4	162.9	33 02.8	+59.4	163.3	31 07.7	+59.6	163.7	29 12.5	+59.6	164.0	27 17.1	+59.6	164.3	25 21.5	+59.7	164.6	23 25.7	+59.8	164.8	21 29.9	+59.8	165.0
7	35 57.0	+59.3	162.7	34 02.2	+59.5	163.2	32 07.3	+59.5	163.5	30 12.1	+59.6	163.9	28 16.7	+59.7	164.2	26 21.2	+59.7	164.5	24 25.5	+59.8	164.7	22 29.7	+59.8	164.9
8	36 56.3	+59.3	162.6	35 01.7	+59.4	163.1	33 06.8	+59.5	163.4	31 11.7	+59.6	163.7	29 16.4	+59.7	164.1	27 20.9	+59.8	164.4	25 25.3	+59.8	164.6	23 29.5	+59.9	164.9
9	37 55.6	+59.3	162.4	36 01.1	+59.4	162.8	34 06.3	+59.5	163.2	32 11.3	+59.6	163.6	30 16.1	+59.7	163.9	28 20.7	+59.7	164.2	26 25.1	+59.8	164.5	24 29.4	+59.8	164.8
10	38 54.9	+59.2	162.2	37 00.5	+59.4	162.6	35 05.8	+59.5	163.1	33 10.9	+59.6	163.5	31 15.8	+59.6	163.8	29 20.4	+59.7	164.1	27 24.9	+59.8	164.4	25 29.2	+59.9	164.7
11	39 54.1	+59.3	162.0	37 59.9	+59.3	162.5	36 05.3	+59.5	162.9	34 10.5	+59.5	163.3	32 15.4	+59.6	163.7	30 20.1	+59.8	164.0	28 24.7	+59.8	164.3	26 29.1	+59.8	164.6
12	40 53.4	+59.2	161.8	38 59.2	+59.4	162.3	37 04.8	+59.4	162.7	35 10.0	+59.6	163.2	33 15.1	+59.6	163.6	31 19.9	+59.7	163.9	29 24.5	+59.7	164.2	27 28.9	+59.8	164.5
13	41 52.6	+59.2	161.5	39 58.6	+59.3	162.1	38 04.2	+59.5	162.6	36 09.6	+59.5	163.0	34 14.7	+59.6	163.4	32 19.6	+59.7	163.8	30 24.2	+59.8	164.1	28 28.7	+59.8	164.4
14	42 51.8	+59.1	161.3	40 57.9	+59.3	161.9	39 03.7	+59.4	162.4	37 09.1	+59.6	162.9	35 14.3	+59.7	163.3	33 19.3	+59.7	163.7	31 24.0	+59.8	164.0	29 28.5	+59.9	164.4
15	43 50.9	+59.2	161.1	41 57.2	+59.3	161.7	40 03.1	+59.4	162.2	38 08.7	+59.5	162.7	36 14.0	+59.6	163.2	34 19.0	+59.7	163.6	32 23.8	+59.7	163.9	30 28.4	+59.8	164.3
16	44 50.1	+59.1	160.9	42 56.5	+59.3	161.5	41 02.5	+59.4	162.0	39 08.2	+59.5	162.6	37 13.6	+59.6	163.0	35 18.7	+59.7	163.4	33 23.5	+59.8	163.8	31 28.2	+59.8	164.2
17	45 49.2	+59.1	160.6	43 55.8	+59.2	161.3	42 01.9	+59.4	161.9	40 07.7	+59.5	162.4	38 13.2	+59.6	162.9	36 18.4	+59.6	163.3	34 23.3	+59.7	163.7	32 28.0	+59.8	164.1
18	46 48.3	+59.0	160.4	44 55.0	+59.2	161.0	43 01.3	+59.4	161.7	41 07.2	+59.5	162.2	39 12.8	+59.6	162.7	37 18.0	+59.7	163.2	35 23.0	+59.8	163.6	33 27.8	+59.8	164.0
19	47 47.3	+59.0	160.1	45 54.2	+59.2	160.8	44 00.7	+59.3	161.5	42 06.7	+59.4	162.0	40 12.4	+59.5	162.6	38 17.7	+59.7	163.1	36 22.8	+59.7	163.5	34 27.6	+59.8	163.9
20	48 46.3	+59.0	159.8	46 53.4	+59.1	160.6	45 00.0	+59.3	161.2	43 06.1	+59.5	161.9	41 11.9	+59.6	162.4	39 17.4	+59.6	162.9	37 22.5	+59.8	163.4	35 27.4	+59.8	163.8
21	49 45.3	+58.9	159.5	47 52.7	+59.1	160.3	45 59.3	+59.3	161.0	44 05.6	+59.5	161.6	42 11.5	+59.6	162.3	40 17.0	+59.7	162.8	38 22.3	+59.8	163.3	36 27.2	+59.8	163.7
22	50 44.2	+58.8	159.2	48 51.7	+59.0	160.1	46 58.6	+59.2	160.8	45 05.0	+59.4	161.5	43 11.0	+59.6	162.1	41 16.7	+59.6	162.6	39 22.0	+59.7	163.1	37 27.0	+59.8	163.6
23	51 43.0	+58.9	158.9	49 50.7	+59.1	159.8	47 57.8	+59.3	160.6	46 04.4	+59.4	161.3	44 10.6	+59.5	161.9	42 16.3	+59.6	162.5	40 21.7	+59.7	163.0	38 26.8	+59.8	163.5
24	52 41.9	+58.7	158.6	50 49.8	+59.0	159.5	48 57.1	+59.2	160.3	47 03.8	+59.4	161.1	45 10.1	+59.5	161.7	43 15.9	+59.6	162.3	41 21.4	+59.7	162.9	39 26.6	+59.7	163.4
25	53 40.6	+58.7	158.3	51 48.8	+58.9	159.2	49 56.3	+59.1	160.1	48 03.2	+59.3	160.9	46 09.6	+59.4	161.5	44 15.5	+59.6	162.2	42 21.1	+59.7	162.7	40 26.3	+59.8	163.3
26	54 39.3	+58.7	157.9	52 47.7	+58.9	158.9	50 55.4	+59.1	159.8	49 02.5	+59.3	160.6	47 09.0	+59.5	161.4	45 15.1	+59.6	162.0	43 20.8	+59.7	162.6	41 26.1	+59.8	163.1
27	55 38.0	+58.5	157.6	53 46.6	+58.9	158.6	51 54.5	+59.1	159.5	50 01.8	+59.3	160.4	48 08.5	+59.4	161.2	46 14.7	+59.6	161.8	44 20.5	+59.6	162.5	42 25.9	+59.7	163.0
28	56 36.5	+58.5	157.2	54 45.5	+58.8	158.3	52 53.6	+59.1	159.3	51 01.1	+59.2	160.2	49 07.9	+59.4	160.9	47 14.3	+59.5	161.5	45 20.1	+59.7	162.3	43 25.6	+59.8	162.9
29	57 35.0	+58.4	156.8	55 44.3	+58.7	157.9	53 52.7	+59.0	159.0	52 00.3	+59.2	159.9	50 07.3	+59.4	160.7	48 13.8	+59.5	161.7	46 19.8	+59.6	162.2	44 25.4	+59.7	162.8
30	58 33.4	+58.4	156.3	56 43.0	+58.7	157.6	54 51.7	+58.9	158.7	52 59.5	+59.2	159.6	51 06.7	+59.4	160.5	49 13.3	+59.5	161.3	47 19.4	+59.7	162.0	45 25.1	+59.7	162.6
31	59 31.8	+58.2	155.9	57 41.7	+58.6	157.2	55 50.6	+58.8	158.3	53 58.7	+59.1	159.4	52 06.1	+59.3	160.3	50 12.8	+59.5	161.1	48 19.1	+59.6	161.8	46 24.8	+59.7	162.5
32	60 30.0	+58.1	155.4	58 40.3	+58.5	156.8	56 49.5	+58.8	158.0	54 57.8	+59.1	159.1	53 05.4	+59.3	160.0	51 12.3	+59.5	160.9	49 18.7	+59.6	161.7	47 24.5	+59.7	162.4
33	61 28.1	+58.0	154.9	59 38.8	+58.4	156.3	57 48.3	+58.8	157.6	55 56.9	+59.1	158.8	54 04.7	+59.2	159.8	52 11.8	+59.4	160.7	50 18.3	+59.6	161.5	48 24.2	+59.7	162.2
34	62 26.1	+57.8	154.3	60 37.2	+58.3	155.9	58 47.1	+58.7	157.2	56 56.0	+59.0	158.4	55 04.0	+59.2	159.5	53 11.2	+59.4	160.4	51 17.8	+59.5	161.3	49 23.9	+59.7	162.1
35	63 23.9	+57.7	153.7	61 35.5	+58.2	155.4	59 45.8	+58.6	156.8	57 55.0	+58.9	158.1	56 03.2	+59.2	159.2	54 10.6	+59.4	160.2	52 17.4	+59.5	161.1	50 23.6	+59.7	161.9
36	64 21.6	+57.5	153.1	62 33.7	+58.1	154.9	60 44.4	+58.5	156.4	58 53.9	+58.9	157.7	57 02.4	+59.1	158.9	55 10.0	+59.4	160.0	53 16.9	+59.6	160.9	51 23.3	+59.6	161.7
37	65 19.1	+57.3	152.4	63 31.8	+58.0	154.3	61 42.9	+58.5	155.9	59 52.8	+58.8	157.4	58 01.5	+59.1	158.6	56 09.4	+59.3	159.7	54 16.5	+59.4	160.7	52 22.9	+59.6	161.5
38	66 16.4	+57.2	151.7	64 29.8	+57.8	153.7	62 41.4	+58.3	155.4	60 51.6	+58.7	157.0	59 00.6	+59.0	158.3	57 08.7	+59.3	159.4	55 15.9	+59.5	160.5	53 22.5	+59.7	161.4
39	67 13.6	+56.8	150.9	65 27.6	+57.6	153.1	63 39.7	+58.2	154.9	61 50.3	+58.6	156.5	59 09.6	+59.0	157.9	58 08.0	+59.2	159.1	56 15.4	+59.5	160.2	54 22.2	+59.6	161.2
40	68 10.4	+56.6	150.1	66 25.2	+57.4	152.4	64 37.9	+58.0	154.4	62 48.9	+58.6	156.1	60 58.6	+58.9	157.5	59 07.2	+59.2	158.8	57 14.9	+59.4	160.0	55 18.1	+59.5	161.0
41	69 07.0	+56.3	149.2	67 22.6	+57.2	151.7	65 35.9	+58.0	153.8	63 47.5	+58.4	155.6	61 57.5	+58.9	157.1	60 06.4	+59.1	158.5	58 14.3	+59.3	159.7	56 21.3	+59.6	160.8
42	70 03.3	+55.9	148.2	68 19.8	+57.0	150.9	66 33.9	+57.7	153.1	64 45.9	+58.3	155.1	62 56.4	+58.7	156.7	61 05.5	+59.1	158.2	59 13.6	+59.4	159.4	57 20.9	+59.5	160.5
43	70 59.2	+55.5	147.1	69 16.8	+56.7	150.0	67 31.6	+57.5	152.4	65 44.2	+58.2	154.5	63 55.1	+58.7	156.3	62 04.6	+59.0	157.8	60 13.0	+59.3	159.1	58 20.4	+59.5	160.3
44	71 54.7	+55.0	145.9	70 13.5	+56.3	149.0	68 29.1	+57.4	151.7	66 42.4	+58.0	153.9	64 53.8	+58.5	155.8	63 03.6	+59.0	157.4	61 12.3	+59.2	158.8	59 19.9	+59.5	160.1
45	72 49.7	+54.4	144.6	71 09.8	+56.0	148.0	69 26.5	+57.0	150.8	67 40.4	+57.9	153.2	65 52.3	+58.5	155.3	64 02.6	+58.9	157.0	62 11.5	+59.2	158.5	60 19.4	+59.4	159.8
46	73 44.1	+53.8	143.1																					

LATITUDE CONTRARY NAME

L.H.A. 14°, 346°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
29 01.3	-59.4	163.9	27 05.9	-59.5	164.2	25 10.4	-59.6	164.5	23 14.7	-59.7	164.7	21 18.8	-59.7	164.9	19 22.9	-59.8	165.1	17 26.9	-59.8	165.3	15 30.8	-59.9	165.5	0
28 01.9	-59.4	164.1	26 06.4	-59.5	164.4	24 10.8	-59.6	164.6	22 15.0	-59.7	164.9	20 19.1	-59.7	165.1	18 23.1	-59.7	165.2	16 27.1	-59.7	165.4	14 30.9	-59.9	165.5	1
27 02.5	-59.5	164.2	25 06.9	-59.5	164.5	23 11.2	-59.6	164.8	21 15.3	-59.6	165.0	19 19.4	-59.7	165.2	17 23.4	-59.8	165.3	15 27.2	-59.8	165.5	13 31.0	-59.8	165.6	2
26 03.0	-59.4	164.4	24 07.4	-59.6	164.7	22 11.6	-59.6	164.9	20 15.7	-59.7	165.1	18 19.7	-59.7	165.3	16 23.6	-59.8	165.4	14 27.4	-59.8	165.6	12 31.2	-59.9	165.7	3
25 03.6	-59.5	164.5	23 07.8	-59.5	164.8	21 12.0	-59.6	165.0	19 16.0	-59.7	165.2	17 20.0	-59.8	165.4	15 23.8	-59.8	165.5	13 27.6	-59.8	165.6	11 31.3	-59.8	165.7	4
24 04.1	-59.5	164.7	22 08.3	-59.6	164.9	20 12.4	-59.7	165.1	18 16.3	-59.6	165.3	16 20.2	-59.7	165.5	14 24.0	-59.8	165.6	12 27.8	-59.9	165.7	10 31.5	-59.9	165.8	5
23 04.6	-59.5	164.8	21 08.7	-59.5	165.1	19 12.7	-59.6	165.2	17 16.7	-59.7	165.4	15 20.5	-59.7	165.6	13 24.2	-59.7	165.7	11 27.9	-59.8	165.8	9 31.6	-59.9	165.9	6
22 05.1	-59.5	165.0	20 09.2	-59.6	165.2	18 13.1	-59.6	165.4	16 17.0	-59.7	165.5	14 20.8	-59.8	165.6	12 24.5	-59.8	165.8	10 28.1	-59.8	165.9	8 31.7	-59.8	165.9	7
21 05.6	-59.5	165.1	19 09.6	-59.6	165.3	17 13.5	-59.6	165.5	15 17.3	-59.7	165.6	13 21.0	-59.7	165.7	11 24.7	-59.8	165.9	9 28.3	-59.8	165.9	7 31.9	-59.9	166.0	8
20 06.1	-59.5	165.3	18 10.0	-59.5	165.4	16 13.9	-59.7	165.6	14 17.6	-59.7	165.7	12 21.3	-59.8	165.8	10 24.9	-59.8	165.9	8 28.5	-59.9	166.0	6 32.0	-59.9	166.1	9
19 06.6	-59.5	165.4	17 10.5	-59.6	165.6	15 14.2	-59.6	165.7	13 17.9	-59.7	165.8	11 21.5	-59.7	165.9	9 25.1	-59.8	166.0	7 28.6	-59.8	166.1	5 32.1	-59.8	166.2	10
18 07.1	-59.5	165.5	16 10.9	-59.6	165.7	14 14.6	-59.7	165.8	12 18.2	-59.7	165.9	10 21.8	-59.8	166.0	8 25.3	-59.8	166.1	6 28.8	-59.8	166.2	4 32.3	-59.9	166.2	11
17 07.6	-59.5	165.7	15 11.3	-59.6	165.8	13 14.9	-59.6	165.9	11 18.5	-59.7	166.0	9 22.0	-59.7	166.1	7 25.5	-59.8	166.2	5 29.0	-59.9	166.2	3 32.4	-59.9	166.3	12
16 08.1	-59.5	165.8	14 11.7	-59.6	165.9	12 15.3	-59.6	166.0	10 18.8	-59.7	166.1	8 22.3	-59.8	166.2	6 25.7	-59.8	166.3	4 29.1	-59.8	166.3	2 32.5	-59.9	166.4	13
15 08.6	-59.6	165.9	13 12.1	-59.6	166.0	11 15.7	-59.7	166.2	9 19.1	-59.7	166.2	7 22.5	-59.7	166.3	5 25.9	-59.8	166.4	3 29.3	-59.8	166.4	1 32.7	-59.9	166.4	14
14 09.0	-59.5	166.1	12 12.5	-59.5	166.2	10 16.0	-59.6	166.3	8 19.4	-59.7	166.3	6 22.8	-59.8	166.4	4 26.1	-59.7	166.4	2 29.5	-59.8	166.5	0 32.8	-59.9	166.5	15
13 09.5	-59.5	166.2	11 13.0	-59.6	166.3	9 16.4	-59.7	166.3	7 19.7	-59.7	166.4	5 23.0	-59.7	166.5	3 26.4	-59.8	166.5	1 29.7	-59.8	166.5	0 27.1	-59.8	166.5	16
12 10.0	-59.6	166.3	10 13.4	-59.6	166.4	8 16.7	-59.7	166.5	6 20.0	-59.7	166.5	4 23.3	-59.8	166.6	2 26.6	-59.8	166.6	0 29.8	-59.8	166.6	1 26.9	-59.9	166.6	17
11 10.4	-59.5	166.4	9 13.8	-59.6	166.5	7 17.0	-59.6	166.6	5 20.3	-59.7	166.6	3 23.5	-59.7	166.7	1 26.8	-59.8	166.7	0 30.0	+59.8	166.7	2 26.8	+59.9	166.7	18
10 10.9	-59.6	166.6	8 14.2	-59.7	166.6	6 17.4	-59.7	166.6	4 20.6	-59.7	166.7	2 23.8	-59.8	166.8	0 27.0	-59.8	166.8	1 29.8	+59.9	166.8	3 26.7	+59.8	166.8	19
9 11.3	-59.5	166.7	7 14.5	-59.6	166.8	5 17.7	-59.6	166.8	3 20.9	-59.7	166.8	1 24.0	-59.7	166.9	0 32.8	+59.8	166.9	2 29.7	+59.8	166.9	4 26.5	+59.9	166.9	20
8 11.8	-59.6	166.8	6 14.9	-59.6	166.9	4 18.1	-59.7	166.9	2 21.2	-59.7	166.9	0 24.3	-59.8	166.9	1 32.6	+59.8	166.9	3 29.5	+59.8	167.0	5 26.4	+59.9	167.0	21
7 12.2	-59.5	166.9	5 15.3	-59.6	167.0	3 18.4	-59.7	167.0	1 21.5	-59.7	167.0	0 35.5	+59.7	167.0	2 32.4	+59.8	167.0	4 29.3	+59.9	167.0	6 26.3	+59.8	167.0	22
6 12.7	-59.6	167.1	4 15.7	-59.6	167.1	2 18.7	-59.6	167.1	0 21.8	-59.7	167.1	1 35.2	+59.8	167.1	3 32.2	+59.8	167.1	5 29.2	+59.8	167.1	7 26.1	+59.9	167.1	23
5 13.1	-59.5	167.2	3 16.1	-59.6	167.2	1 19.1	-59.7	167.2	0 37.9	+59.8	167.2	2 35.0	+59.7	167.2	4 32.0	+59.8	167.2	6 29.0	+59.8	167.2	8 26.0	+59.8	167.2	24
4 13.6	-59.6	167.3	2 16.5	-59.6	167.3	0 19.4	-59.6	167.3	1 37.7	+59.7	167.3	3 34.7	+59.8	167.3	5 31.8	+59.8	167.3	7 28.8	+59.9	167.3	9 25.8	+59.9	167.3	25
3 14.0	-59.5	167.4	1 16.9	-59.6	167.4	0 40.2	+59.7	167.4	2 37.4	+59.7	167.4	4 34.5	+59.8	167.4	6 31.6	+59.8	167.4	8 28.7	+59.8	167.4	10 25.7	+59.9	167.4	26
2 14.5	-59.6	167.5	0 42.3	+59.6	167.5	1 39.9	+59.7	167.5	3 37.1	+59.7	167.5	5 34.2	+59.8	167.5	7 31.4	+59.8	167.5	9 28.5	+59.8	167.5	11 25.6	+59.8	167.5	27
1 14.9	-59.6	167.7	0 49.3	+59.7	167.7	2 39.6	+59.6	167.7	4 36.8	+59.7	167.7	6 34.0	+59.7	167.7	8 31.2	+59.7	167.7	10 28.3	+59.8	167.7	12 25.4	+59.9	167.7	28
0 15.3	-59.5	167.8	1 41.9	+59.7	167.8	3 39.2	+59.7	167.8	5 36.5	+59.7	167.8	7 33.7	+59.8	167.8	9 30.9	+59.8	167.8	11 28.1	+59.9	167.8	13 25.3	+59.8	167.8	29
0 44.2	+59.6	12.1	2 41.6	+59.6	12.1	4 38.9	+59.6	12.1	6 36.2	+59.7	12.2	8 33.5	+59.7	12.2	10 30.7	+59.8	12.3	12 28.0	+59.8	12.4	14 25.1	+59.9	12.5	30
1 43.8	+59.5	12.0	3 41.2	+59.6	12.0	5 38.5	+59.7	12.0	7 35.9	+59.7	12.1	9 33.2	+59.8	12.1	11 30.5	+59.8	12.2	13 27.8	+59.8	12.3	15 25.0	+59.9	12.4	31
2 43.3	+59.6	11.9	4 40.8	+59.6	11.9	6 38.2	+59.7	11.9	8 35.6	+59.7	12.0	10 33.0	+59.7	12.0	12 30.3	+59.8	12.1	14 27.6	+59.8	12.2	16 24.9	+59.8	12.3	32
3 42.9	+59.6	11.7	5 40.4	+59.6	11.8	7 37.9	+59.6	11.8	9 35.3	+59.7	11.9	11 32.7	+59.8	12.0	13 30.1	+59.8	12.0	15 27.4	+59.8	12.2	17 24.7	+59.9	12.3	33
4 42.5	+59.5	11.6	6 40.0	+59.6	11.6	8 37.5	+59.7	11.7	10 35.0	+59.7	11.8	12 32.5	+59.7	11.9	14 29.9	+59.8	12.0	16 27.2	+59.9	12.1	18 24.6	+59.8	12.3	34
5 42.0	+59.6	11.5	7 39.6	+59.6	11.5	9 37.2	+59.6	11.6	11 34.7	+59.7	11.7	13 32.2	+59.7	11.8	15 29.7	+59.7	11.9	17 27.1	+59.8	12.0	19 24.4	+59.9	12.1	35
6 41.6	+59.5	11.4	8 39.2	+59.6	11.4	10 36.8	+59.7	11.5	12 34.4	+59.7	11.6	14 31.9	+59.8	11.7	16 29.4	+59.8	11.8	18 26.9	+59.8	11.9	20 24.3	+59.8	12.1	36
7 41.1	+59.6	11.2	9 38.8	+59.6	11.3	11 36.5	+59.6	11.4	13 34.1	+59.7	11.5	15 31.7	+59.7	11.6	17 29.2	+59.8	11.7	19 26.7	+59.8	11.8	21 24.1	+59.9	12.0	37
8 40.7	+59.5	11.1	10 38.4	+59.6	11.2	12 36.1	+59.6	11.3	14 33.8	+59.7	11.4	16 31.4	+59.7	11.5	18 29.0	+59.7	11.6	20 26.5	+59.8	11.7	22 24.0	+59.8	11.9	38
9 40.2	+59.6	11.0	11 38.0	+59.6	11.1	13 35.7	+59.7	11.2	15 33.5	+59.6	11.3	17 31.1	+59.8	11.4	19 28.7	+59.8	11.5	21 26.3	+59.8	11.7	23 23.8	+59.8	11.8	39
10 39.8	+59.5	10.9	12 37.6	+59.6	10.9	14 35.4	+59.6	11.0	16 33.1	+59.7	11.1	18 30.9	+59.7	11.3	20 28.5	+59.8	11.4	22 26.1	+59.8	11.6	24 23.6	+59.9	11.7	40
11 39.3	+59.5	10.7	13 37.2	+59.6	10.8	15 35.0	+59.7	10.9	17 32.8	+59.7	11.0	19 30.6	+59.7	11.2	21 28.3	+59.7	11.3	23 25.9	+59.8	11.5	25 23.5	+59.8	11.7	41
12 38.8	+59.6	10.6	14 36.8	+59.6	10.7	16 34.7	+59.6	10.8	18 32.5	+59.7	10.9	20 30.3	+59.7	11.1	22 28.0	+59.8	11.2	24 25.7	+59.8	11.4	26 23.3	+59.8	11.6	42
13 38.4	+59.5	10.5	15 36.4	+59.5	10.6	17 34.3	+59.6	10.7	19 32.2	+59.6	10.8	21 30.0	+59.7	11.0	23 27.8	+59.8	11.1	25 25.5	+59.8	11.3	27 23.1	+59.9	11.5	43
14 37.9	+59.5	10.4	16 35.9	+59.6	10.5	18 33.9	+59.6	10.6	20 31.8	+59.7	10.7	22 29.7	+59.7	10.9	24 27.6	+59.7	11.0	26 25.3	+59.8	11.2	28 23.0	+59.8	11.4	44
15 37.4	+59.6	10.2	17 35.5	+59.6	10.3	19 33.5	+59.7	10.5	21 31.5	+59.7	10.6	23 29.4	+59.7	10.7	25 27.3	+59.7	10.9	27 25.1	+59.8	11.1	29 22.8	+59.8	11.3	45
16 37.0	+59.5	10.1	18 35.1	+59.5	10.2	20 33.2	+59.6	10.3	22 31.2	+59.6	10.5	24 29.1	+59.7	10.6	26 27.0	+59.8	10.8	28 24.9	+59.8	11.0	30 22.6	+59.8	11.2	46
17 36.5	+59.5	10.0	19 34.6	+59.6	10.1	2																		

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 34.6	+59.9	165.6	11 38.3	+59.9	165.7	9 42.0	+59.9	165.8	7 45.7	+59.9	165.9	5 49.3	+59.9	165.9	3 52.9	+60.0	166.0	1 56.4	+60.0	166.0	0 00.0	+60.0	166.0
1	14 34.5	+59.8	165.5	12 38.2	+59.9	165.6	10 41.9	+60.0	165.7	8 45.6	+60.0	165.8	6 49.2	+60.0	165.9	4 52.9	+59.9	166.0	2 56.4	+60.0	166.0	1 00.0	+60.0	166.0
2	15 34.3	+59.9	165.5	13 38.1	+60.0	165.6	11 41.9	+59.9	165.7	9 45.6	+59.9	165.8	7 49.2	+60.0	165.9	5 52.8	+60.0	165.9	3 56.4	+60.0	166.0	2 00.0	+60.0	166.0
3	16 34.2	+59.9	165.4	14 38.1	+59.9	165.5	12 41.8	+60.0	165.7	10 45.5	+60.0	165.8	8 49.2	+60.0	165.9	6 52.8	+60.0	165.9	4 56.4	+60.0	166.0	3 00.0	+60.0	166.0
4	17 34.1	+59.9	165.3	15 38.0	+59.9	165.5	13 41.8	+59.9	165.6	11 45.5	+60.0	165.7	9 49.2	+60.0	165.8	7 52.8	+60.0	165.9	5 56.4	+60.0	166.0	4 00.0	+60.0	166.0
5	18 34.0	+59.9	165.3	16 37.9	+59.9	165.4	14 41.7	+60.0	165.6	12 45.5	+59.9	165.7	10 49.2	+60.0	165.8	8 52.8	+60.0	165.9	6 56.4	+60.0	165.9	5 00.0	+60.0	166.0
6	19 33.9	+59.9	165.2	17 37.8	+59.9	165.4	15 41.7	+59.9	165.5	13 45.4	+60.0	165.7	11 49.2	+59.9	165.8	9 52.8	+60.0	165.9	7 56.4	+60.0	165.9	6 00.0	+60.0	166.0
7	20 33.8	+59.9	165.1	18 37.7	+60.0	165.3	16 41.6	+60.0	165.5	14 45.4	+60.0	165.6	12 49.1	+60.0	165.7	10 52.8	+60.0	165.8	8 56.4	+60.0	165.9	7 00.0	+60.0	166.0
8	21 33.7	+59.8	165.1	19 37.7	+59.9	165.3	17 41.6	+59.9	165.4	15 45.4	+59.9	165.6	13 49.1	+60.0	165.7	11 52.8	+60.0	165.8	9 56.4	+60.0	165.9	8 00.0	+60.0	166.0
9	22 33.5	+59.9	165.0	20 37.6	+59.9	165.2	18 41.5	+59.9	165.4	16 45.3	+60.0	165.5	14 49.1	+60.0	165.7	12 52.8	+60.0	165.8	10 56.4	+60.0	165.9	9 00.0	+60.0	166.0
10	23 33.4	+59.9	164.9	21 37.5	+59.9	165.2	19 41.4	+60.0	165.3	17 45.3	+60.0	165.5	15 49.1	+59.9	165.7	13 52.8	+60.0	165.8	11 56.4	+60.0	165.9	10 00.0	+60.0	166.0
11	24 33.3	+59.9	164.9	22 37.4	+59.9	165.1	20 41.4	+59.9	165.3	18 45.3	+59.9	165.5	16 49.0	+60.0	165.6	14 52.8	+60.0	165.8	12 56.4	+60.0	165.9	11 00.0	+60.0	166.0
12	25 33.2	+59.8	164.8	23 37.3	+59.9	165.0	21 41.3	+60.0	165.2	19 45.2	+60.0	165.4	17 49.0	+60.0	165.6	15 52.8	+59.9	165.8	13 56.4	+60.0	165.9	12 00.0	+60.0	166.0
13	26 33.0	+59.9	164.7	24 37.2	+59.9	165.0	22 41.3	+59.9	165.2	20 45.2	+59.9	165.2	18 49.0	+60.0	165.6	16 52.7	+60.0	165.7	14 56.4	+60.0	165.9	13 00.0	+60.0	166.0
14	27 32.9	+59.9	164.6	25 37.1	+59.9	164.9	23 41.2	+59.9	165.1	21 45.1	+60.0	165.4	19 49.0	+60.0	165.6	17 52.7	+60.0	165.7	15 56.4	+60.0	165.9	14 00.0	+60.0	166.0
15	28 32.8	+59.8	164.6	26 37.0	+59.9	164.8	24 41.1	+60.0	165.1	22 45.1	+60.0	165.3	20 49.0	+59.9	165.5	18 52.7	+60.0	165.7	16 56.4	+60.0	165.9	15 00.0	+60.0	166.0
16	29 32.6	+59.9	164.5	27 36.9	+59.9	164.8	25 41.1	+59.9	165.0	23 45.1	+59.9	165.3	21 48.9	+60.0	165.5	19 52.7	+60.0	165.7	17 56.4	+60.0	165.9	16 00.0	+60.0	166.0
17	30 32.5	+59.9	164.4	28 36.8	+59.9	164.7	26 41.0	+59.9	165.0	24 45.0	+60.0	165.2	22 48.9	+60.0	165.5	20 52.7	+60.0	165.7	18 56.4	+60.0	165.8	17 00.0	+60.0	166.0
18	31 32.4	+59.8	164.3	29 36.7	+59.9	164.7	27 40.9	+60.0	164.9	25 45.0	+59.9	165.2	23 48.9	+60.0	165.4	21 52.7	+60.0	165.6	19 56.4	+60.0	165.8	18 00.0	+60.0	166.0
19	32 32.2	+59.9	164.3	30 36.6	+59.9	164.6	28 40.9	+59.9	164.9	26 44.9	+60.0	165.2	24 48.9	+59.9	165.4	22 52.7	+60.0	165.6	20 56.4	+60.0	165.8	19 00.0	+60.0	166.0
20	33 32.1	+59.8	164.2	31 36.5	+59.9	164.5	29 40.8	+59.9	164.8	27 44.9	+59.9	165.1	25 48.8	+60.0	165.4	23 52.7	+60.0	165.6	21 56.4	+60.0	165.8	20 00.0	+60.0	166.0
21	34 31.9	+59.9	164.1	32 36.4	+59.9	164.4	30 40.7	+59.9	164.8	28 44.8	+60.0	165.1	26 48.8	+60.0	165.3	24 52.7	+60.0	165.6	22 56.4	+60.0	165.8	21 00.0	+60.0	166.0
22	35 31.8	+59.8	164.0	33 36.3	+59.9	164.4	31 40.6	+60.0	164.7	29 44.8	+60.0	165.0	27 48.8	+60.0	165.3	25 52.7	+59.9	165.6	23 56.4	+60.0	165.8	22 00.0	+60.0	166.0
23	36 31.6	+59.9	163.9	34 36.2	+59.9	164.3	32 40.6	+59.9	164.7	30 44.8	+59.9	165.0	28 48.8	+60.0	165.3	26 52.6	+60.0	165.5	24 56.4	+60.0	165.8	23 00.0	+60.0	166.0
24	37 31.5	+59.8	163.8	35 36.1	+59.9	164.2	33 40.5	+59.9	164.6	31 44.7	+60.0	164.9	29 48.8	+59.9	165.2	27 52.6	+60.0	165.5	25 56.4	+60.0	165.8	24 00.0	+60.0	166.0
25	38 31.3	+59.8	163.7	36 36.0	+59.9	164.2	34 40.4	+59.9	164.5	32 44.7	+59.9	164.9	30 48.7	+60.0	165.2	28 52.6	+60.0	165.5	26 56.4	+60.0	165.8	25 00.0	+60.0	166.0
26	39 31.1	+59.8	163.6	37 35.9	+59.8	164.1	35 40.3	+60.0	164.5	33 44.6	+60.0	164.8	31 48.7	+60.0	165.2	29 52.6	+60.0	165.5	27 56.4	+60.0	165.8	26 00.0	+60.0	166.0
27	40 30.9	+59.9	163.5	38 35.7	+59.9	164.0	36 40.3	+59.9	164.4	34 44.6	+59.9	164.8	32 48.7	+59.9	165.1	30 52.6	+60.0	165.5	28 56.4	+60.0	165.7	27 00.0	+60.0	166.0
28	41 30.8	+59.8	163.4	39 35.6	+59.9	163.9	37 40.2	+59.9	164.3	35 44.5	+60.0	164.7	33 48.6	+60.0	165.1	31 52.6	+60.0	165.5	29 56.4	+60.0	165.7	28 00.0	+60.0	166.0
29	42 30.6	+59.8	163.3	40 35.5	+59.8	163.8	38 40.1	+59.9	164.3	36 44.5	+59.9	164.7	34 48.6	+60.0	165.1	32 52.6	+60.0	165.4	30 56.4	+60.0	165.7	29 00.0	+60.0	166.0
30	43 30.4	+59.8	163.2	41 35.3	+59.9	163.7	39 40.0	+59.9	164.2	37 44.4	+60.0	164.6	35 48.6	+60.0	165.0	33 52.6	+60.0	165.4	31 56.4	+60.0	165.7	30 00.0	+60.0	166.0
31	44 30.2	+59.8	163.1	42 35.2	+59.9	163.6	40 39.9	+59.9	164.1	38 44.4	+59.9	164.6	36 48.6	+59.9	165.0	34 52.6	+59.9	165.4	32 56.4	+60.0	165.7	31 00.0	+60.0	166.0
32	45 30.0	+59.8	163.0	43 35.1	+59.8	163.5	41 39.8	+59.9	164.1	39 44.3	+59.9	164.5	37 48.5	+60.0	164.9	35 52.5	+60.0	165.3	33 56.4	+60.0	165.7	32 00.0	+60.0	166.0
33	46 29.8	+59.7	162.9	44 34.9	+59.9	163.4	42 39.7	+59.9	164.0	40 44.2	+60.0	164.5	38 48.5	+60.0	164.9	36 52.5	+60.0	165.3	34 56.4	+59.9	165.7	33 00.0	+60.0	166.0
34	47 29.5	+59.8	162.7	45 34.8	+59.8	163.3	43 39.6	+59.9	163.9	41 44.2	+59.9	164.4	39 48.5	+59.9	164.9	37 52.5	+60.0	165.3	35 56.3	+60.0	165.7	34 00.0	+60.0	166.0
35	48 29.3	+59.8	162.6	46 34.6	+59.8	163.2	44 39.5	+59.9	163.8	42 44.1	+60.0	164.3	40 48.4	+60.0	164.8	38 52.5	+60.0	165.3	36 56.3	+60.0	165.6	35 00.0	+60.0	166.0
36	49 29.1	+59.7	162.5	47 34.5	+59.9	163.1	45 39.4	+59.9	163.7	43 44.1	+59.9	164.3	41 48.4	+60.0	164.8	39 52.5	+60.0	165.2	37 56.3	+60.0	165.6	36 00.0	+60.0	166.0
37	50 28.8	+59.8	162.3	48 34.3	+59.8	163.0	46 39.3	+59.9	163.7	44 44.0	+59.9	164.2	42 48.4	+59.9	164.7	40 52.5	+60.0	165.2	38 56.3	+60.0	165.6	37 00.0	+60.0	166.0
38	51 28.6	+59.7	162.2	49 34.1	+59.8	162.9	47 39.2	+59.9	163.6	45 43.9	+59.9	164.2	43 48.3	+60.0	164.7	41 52.5	+59.9	165.2	39 56.3	+60.0	165.6	38 00.0	+60.0	166.0
39	52 28.3	+59.7	162.0	50 33.9	+59.8	162.8	48 39.1	+59.8	163.5	46 43.8	+60.0	164.1	44 48.3	+59.9	164.6	42 52.4	+60.0	165.1	40 56.3	+60.0	165.6	39 00.0	+60.0	166.0
40	53 28.0	+59.7	161.9	51 33.7	+59.8	162.7	49 38.9	+59.9	163.4	47 43.8	+59.9	164.0	45 48.2	+60.0	164.6	43 52.4	+60.0	165.1	41 56.3	+60.0	165.6	40 00.0	+60.0	166.0
41	54 27.7	+59.7	161.7	52 33.5	+59.8	162.5	50 38.8	+59.9	163.3	48 43.7	+59.9	163.9	46 48.2	+60.0	164.5	44 52.4	+60.0	165.1	42 56.3	+60.0	165.6	41 00.0	+60.0	166.0
42	55 27.4	+59.7	161.5	53 33.3	+59.8	162.4	51 38.7	+59.8	163.2	49 43.6	+59.9	163.9	47 48.2	+59.9	164.5	45 52.4	+60.0	165.0	43 56.3	+60.0	165.5	42 00.0	+60.0	166.0
43	56 27.1	+59.6	161.3	54 33.1	+59.7	162.2	52 38.5	+59.9	163.0	50 43.5	+59.9	163.8	48 48.1	+60.0	164.4	46 52.4	+60.0	165.0	44 56.3	+60.0	165.5	43 00.0	+60.0	166.0
44	57 26.7	+59.7	161.1	55 32.8	+59.8	162.1	53 38.4	+59.8	162.9	51 43.4	+59.9	163.7	49 48.1	+59.9	164.4	47 52.4	+59.9	165.0	45 56.3	+60.0	165.5	44 00.0	+60.0	166.0
45	58 26.4	+59.6	160.9	56 32.6	+59.7	161.9	54 38.2	+59.9	162.8	52 43.4	+59.9	163.6	50 48.0	+60.0	164.3	48 52.3	+60.0	164.9	46 56.3	+60.0	165.5	45 00.0	+60.0	166.0
46	59 26.0	+59.6	160.7	57 32.3	+59.8	161.8																		

LATITUDE CONTRARY NAME

L.H.A. 14°, 346°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
13 34.6	-59.9	165.6	11 38.3	-59.9	165.7	9 42.0	-59.9	165.8	7 45.7	-60.0	165.9	5 49.3	-60.0	165.9	3 52.9	-60.0	166.0	1 56.4	-60.0	166.0	0 00.0	+60.0	14.0	0		
12 34.7	-59.9	165.7	10 38.4	-59.9	165.8	8 42.1	-60.0	165.8	6 45.7	-60.0	165.9	4 49.3	-60.0	166.0	2 52.9	-60.0	166.0	0 56.4	-60.0	166.0	1 00.0	+60.0	14.0	1		
11 34.8	-59.9	165.7	9 38.5	-60.0	165.8	7 42.1	-59.9	165.9	5 45.7	-59.9	165.9	3 49.3	-60.0	166.0	1 52.9	-60.0	166.0	0 03.6	+60.0	14.0	2 00.0	+60.0	14.0	2		
10 34.9	-59.9	165.8	8 38.5	-59.9	165.9	6 42.2	-60.0	165.9	4 45.8	-60.0	166.0	2 49.3	-60.0	166.0	0 52.9	-60.0	166.0	1 03.6	+60.0	14.0	3 00.0	+60.0	14.0	3		
9 35.0	-59.9	165.8	7 38.6	-59.9	165.9	5 42.2	-59.9	166.0	3 45.8	-60.0	166.0	1 49.3	-59.9	166.0	0 07.1	+60.0	14.0	2 03.6	+60.0	14.0	4 00.0	+60.0	14.0	4		
8 35.1	-59.9	165.9	6 38.7	-59.9	166.0	4 42.3	-60.0	166.0	2 45.8	-59.9	166.0	0 49.4	-60.0	166.1	1 07.1	+60.0	13.9	3 03.6	+60.0	14.0	5 00.0	+60.0	14.0	5		
7 35.2	-59.9	166.0	5 38.8	-59.9	166.0	3 42.3	-59.9	166.0	1 45.9	-60.0	166.1	0 10.6	+60.0	13.9	2 07.1	+60.0	13.9	4 03.6	+60.0	14.0	6 00.0	+60.0	14.0	6		
6 35.3	-59.9	166.0	4 38.9	-60.0	166.1	2 42.4	-60.0	166.1	0 45.9	-60.0	166.1	1 10.6	+60.0	13.9	3 07.1	+60.0	13.9	5 03.6	+59.9	13.9	7 00.0	+60.0	14.0	7		
5 35.4	-59.9	166.1	3 38.9	-59.9	166.1	1 42.4	-59.9	166.1	0 14.1	+59.9	13.9	2 10.6	+60.0	13.9	4 07.1	+60.0	13.9	6 03.6	+60.0	13.9	8 00.0	+60.0	14.0	8		
4 35.5	-59.9	166.1	2 39.0	-59.9	166.2	0 42.5	-60.0	166.2	1 14.0	+60.0	13.8	3 10.6	+59.9	13.8	5 07.1	+60.0	13.9	7 03.5	+60.0	13.9	9 00.0	+60.0	14.0	9		
3 35.6	-59.9	166.2	1 39.1	-59.9	166.2	0 17.5	+59.9	13.8	2 14.0	+60.0	13.8	4 10.5	+60.0	13.8	6 07.1	+59.9	13.9	8 03.5	+60.0	13.9	10 00.0	+60.0	14.0	10		
2 35.7	-59.9	166.2	0 39.2	-60.0	166.3	1 17.4	+60.0	13.7	3 14.0	+59.9	13.8	5 10.5	+60.0	13.8	7 07.0	+60.0	13.8	9 03.5	+60.0	13.9	11 00.0	+60.0	14.0	11		
1 35.8	-59.9	166.3	0 20.8	+59.9	13.7	2 17.4	+59.9	13.7	4 13.9	+60.0	13.7	6 10.5	+60.0	13.8	8 07.0	+60.0	13.8	10 03.5	+60.0	13.9	12 00.0	+60.0	14.0	12		
0 35.9	-59.9	166.4	1 20.7	+59.9	13.6	3 17.3	+60.0	13.7	5 13.9	+60.0	13.7	7 10.5	+60.0	13.7	9 07.0	+60.0	13.8	11 03.5	+60.0	13.9	13 00.0	+60.0	14.0	13		
0 24.0	+59.9	13.6	2 20.6	+59.9	13.6	4 17.3	+59.9	13.6	6 13.9	+59.9	13.7	8 10.5	+59.9	13.7	10 07.0	+60.0	13.8	12 03.5	+60.0	13.9	14 00.0	+60.0	14.0	14		
1 23.9	+59.9	13.5	3 20.5	+60.0	13.5	5 17.2	+59.9	13.6	7 13.8	+60.0	13.6	9 10.4	+60.0	13.7	11 07.0	+60.0	13.8	13 03.5	+60.0	13.9	15 00.0	+60.0	14.0	15		
2 23.8	+59.9	13.5	4 20.5	+59.9	13.5	6 17.1	+60.0	13.5	8 13.8	+60.0	13.6	10 10.4	+60.0	13.7	12 07.0	+60.0	13.8	14 03.5	+60.0	13.9	16 00.0	+60.0	14.0	16		
3 23.7	+59.9	13.4	5 20.4	+59.9	13.4	7 17.1	+59.9	13.5	9 13.8	+59.9	13.6	11 10.4	+60.0	13.6	13 07.0	+60.0	13.7	15 03.5	+60.0	13.9	17 00.0	+60.0	14.0	17		
4 23.6	+59.9	13.3	6 20.3	+59.9	13.4	8 17.0	+60.0	13.4	10 13.7	+60.0	13.5	12 10.4	+60.0	13.6	14 07.0	+60.0	13.7	16 03.5	+60.0	13.9	18 00.0	+60.0	14.0	18		
5 23.5	+59.9	13.3	7 20.2	+60.0	13.3	9 17.0	+59.9	13.4	11 13.7	+60.0	13.5	13 10.4	+59.9	13.6	15 07.0	+60.0	13.7	17 03.5	+60.0	13.8	19 00.0	+60.0	14.0	19		
6 23.4	+59.9	13.2	8 20.2	+59.9	13.3	10 16.9	+60.0	13.4	12 13.7	+59.9	13.5	14 10.3	+60.0	13.6	16 07.0	+60.0	13.7	18 03.5	+60.0	13.8	20 00.0	+60.0	14.0	20		
7 23.2	+59.9	13.2	9 20.1	+59.9	13.2	11 16.9	+59.9	13.3	13 13.6	+60.0	13.4	15 10.3	+60.0	13.5	17 07.0	+59.9	13.7	19 03.5	+60.0	13.8	21 00.0	+60.0	14.0	21		
8 23.1	+59.9	13.1	10 20.0	+59.9	13.2	12 16.8	+60.0	13.3	14 13.6	+60.0	13.4	16 10.3	+60.0	13.5	18 06.9	+60.0	13.7	20 03.5	+60.0	13.8	22 00.0	+60.0	14.0	22		
9 23.0	+59.9	13.0	11 19.9	+59.9	13.1	13 16.8	+59.9	13.2	15 13.6	+59.9	13.3	17 10.3	+60.0	13.5	19 06.9	+60.0	13.6	21 03.5	+60.0	13.8	23 00.0	+60.0	14.0	23		
10 22.9	+59.9	13.0	12 19.8	+60.0	13.1	14 16.7	+59.9	13.2	16 13.5	+60.0	13.3	18 10.3	+59.9	13.5	20 06.9	+60.0	13.6	22 03.5	+60.0	13.8	24 00.0	+60.0	14.0	24		
11 22.8	+59.9	12.9	13 19.8	+59.9	13.0	15 16.6	+60.0	13.1	17 13.5	+59.9	13.3	19 10.2	+60.0	13.4	21 06.9	+60.0	13.6	23 03.5	+60.0	13.8	25 00.0	+60.0	14.0	25		
12 22.7	+59.9	12.9	14 19.7	+59.9	13.0	16 16.6	+59.9	13.1	18 13.4	+60.0	13.2	20 10.2	+60.0	13.4	22 06.9	+60.0	13.6	24 03.5	+60.0	13.8	26 00.0	+60.0	14.0	26		
13 22.6	+59.9	12.8	15 19.6	+59.9	12.9	17 16.5	+60.0	13.0	19 13.4	+60.0	13.2	21 10.2	+60.0	13.4	23 06.9	+60.0	13.6	25 03.5	+60.0	13.8	27 00.0	+60.0	14.0	27		
14 22.5	+59.9	12.7	16 19.5	+59.9	12.9	18 16.5	+59.9	13.0	20 13.4	+59.9	13.2	22 10.2	+59.9	13.3	24 06.9	+60.0	13.5	26 03.5	+60.0	13.8	28 00.0	+60.0	14.0	28		
15 22.4	+59.9	12.7	17 19.4	+60.0	12.8	19 16.4	+60.0	13.0	21 13.3	+60.0	13.1	23 10.1	+60.0	13.3	25 06.9	+60.0	13.5	27 03.5	+60.0	13.7	29 00.0	+60.0	14.0	29		
16 22.3	+59.9	12.6	18 19.4	+59.9	12.8	20 16.4	+59.9	12.9	22 13.3	+59.9	13.1	24 10.1	+60.0	13.3	26 06.9	+60.0	13.5	28 03.5	+60.0	13.7	30 00.0	+60.0	14.0	30		
17 22.2	+59.9	12.5	19 19.3	+59.9	12.7	21 16.3	+59.9	12.9	23 13.2	+60.0	13.0	25 10.1	+60.0	13.2	27 06.9	+59.9	13.5	29 03.5	+60.0	13.7	31 00.0	+60.0	14.0	31		
18 22.1	+59.8	12.5	20 19.2	+59.9	12.6	22 16.2	+60.0	12.8	24 13.2	+60.0	13.0	26 10.1	+60.0	13.2	28 06.8	+60.0	13.5	30 03.5	+60.0	13.7	32 00.0	+60.0	14.0	32		
19 21.9	+59.9	12.4	21 19.1	+59.9	12.6	23 16.2	+59.9	12.8	25 13.2	+59.9	13.0	27 10.1	+59.9	13.2	29 06.8	+60.0	13.4	31 03.5	+60.0	13.7	33 00.0	+60.0	14.0	33		
20 21.8	+59.9	12.4	22 19.0	+59.9	12.5	24 16.1	+59.9	12.7	26 13.1	+60.0	12.9	28 10.0	+60.0	13.2	30 06.8	+60.0	13.4	32 03.5	+60.0	13.7	34 00.0	+60.0	14.0	34		
21 21.7	+59.9	12.3	23 18.9	+59.9	12.5	25 16.0	+60.0	12.7	27 13.1	+59.9	12.9	29 10.0	+60.0	13.1	31 06.8	+60.0	13.4	33 03.5	+60.0	13.7	35 00.0	+60.0	14.0	35		
22 21.6	+59.8	12.2	24 18.8	+59.9	12.4	26 16.0	+59.9	12.6	28 13.0	+60.0	12.8	30 10.0	+60.0	13.1	32 06.8	+60.0	13.4	34 03.5	+60.0	13.7	36 00.0	+60.0	14.0	36		
23 21.5	+59.8	12.1	25 18.7	+59.9	12.3	27 15.9	+59.9	12.6	29 13.0	+59.9	12.8	31 10.0	+59.9	13.0	33 06.8	+60.0	13.3	35 03.5	+60.0	13.7	37 00.0	+60.0	14.0	37		
24 21.3	+59.9	12.1	26 18.6	+59.9	12.3	28 15.8	+60.0	12.5	30 12.9	+60.0	12.7	32 09.9	+60.0	13.0	34 06.8	+60.0	13.3	36 03.5	+60.0	13.6	38 00.0	+60.0	14.0	38		
25 21.2	+59.9	12.0	27 18.5	+59.9	12.2	29 15.8	+59.9	12.4	31 12.9	+60.0	12.7	33 09.9	+60.0	13.0	35 06.8	+59.9	13.3	37 03.5	+60.0	13.6	39 00.0	+60.0	14.0	39		
26 21.1	+59.9	11.9	28 18.4	+59.9	12.2	30 15.7	+59.9	12.4	32 12.9	+59.9	12.7	34 09.9	+59.9	12.9	36 06.7	+60.0	13.3	38 03.5	+60.0	13.6	40 00.0	+60.0	14.0	40		
27 21.0	+59.8	11.9	29 18.3	+59.9	12.1	31 15.6	+60.0	12.3	33 12.8	+60.0	12.6	35 09.8	+60.0	12.9	37 06.7	+60.0	13.2	39 03.5	+60.0	13.6	41 00.0	+60.0	14.0	41		
28 20.8	+59.9	11.8	30 18.2	+59.9	12.0	32 15.6	+59.9	12.3	34 12.8	+59.9	12.6	36 09.8	+60.0	12.9	38 06.7	+60.0	13.2	40 03.5	+60.0	13.6	42 00.0	+60.0	14.0	42		
29 20.7	+59.9	11.7	31 18.1	+59.9	12.0	33 15.5	+59.9	12.2	35 12.7	+60.0	12.5	37 09.8	+60.0	12.8	39 06.7	+60.0	13.2	41 03.5	+60.0	13.6	43 00.0	+60.0	14.0	43		
30 20.6	+59.8	11.6	32 18.0	+59.9	11.9	34 15.4	+59.9	12.2	36 12.7	+59.9	12.5	38 09.8	+59.9	12.8	40 06.7	+60.0	13.2	42 03.5	+59.9	13.6	44 00.0	+60.0	14.0	44		
31 20.4	+59.9	11.6	33 17.9	+59.9	11.8	35 15.3	+60.0	12.1	37 12.6	+59.9	12.4	39 09.7	+60.0	12.7	41 06.7	+60.0	13.1	43 03.4	+60.0	13.5	45 00.0	+60.0	14.0	45		
32 20.3	+59.8	11.5	34 17.8	+59.9	11.7	36 15.3	+59.9	12.0	38 12.5	+60.0	12.3	40 09.7	+60.0	12.7	42 06.7	+59.9	13.1	44 03.4	+60.0	13.5	46 00.0	+60.0	14.0	46		
33 20.1	+59.9	11.4	35 17.7	+59.9	11.7	37 15.2	+59.9	12.0	39 12.5	+59.9	12.3	41 09.7	+59.9	12.7	43 06.6	+60.0	13.1	4								

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	28 43.6	+59.2	161.7	26 49.6	+59.3	162.0	24 55.3	+59.5	162.3	23 00.9	+59.6	162.6	21 06.4	+59.6	162.8	19 11.7	+59.6	163.0	17 16.8	+59.8	163.2	15 21.9	+59.8	163.4
1	29 42.8	+59.3	161.5	27 48.9	+59.4	161.8	25 54.8	+59.5	162.2	24 00.5	+59.5	162.4	22 06.0	+59.6	162.7	20 11.3	+59.7	162.9	18 16.6	+59.7	163.1	16 21.7	+59.8	163.3
2	30 42.1	+59.2	161.3	28 48.3	+59.3	161.7	26 54.3	+59.4	162.0	25 00.0	+59.6	162.3	23 05.6	+59.6	162.6	21 11.0	+59.7	162.8	19 16.3	+59.8	163.0	17 21.5	+59.8	163.2
3	31 41.3	+59.2	161.1	29 47.6	+59.3	161.5	27 53.7	+59.4	161.9	25 59.6	+59.5	162.2	24 05.2	+59.6	162.5	22 10.7	+59.7	162.9	20 16.1	+59.8	163.0	18 21.3	+59.8	163.1
4	32 40.5	+59.2	160.9	30 46.9	+59.3	161.3	28 53.1	+59.4	161.7	26 59.1	+59.5	162.0	25 04.8	+59.6	162.3	23 10.4	+59.7	162.6	21 15.8	+59.8	162.8	19 21.1	+59.8	163.1
5	33 39.7	+59.1	160.7	31 46.2	+59.3	161.2	29 52.5	+59.5	161.5	27 58.6	+59.5	161.9	26 04.4	+59.6	162.2	24 10.1	+59.7	162.5	22 15.6	+59.7	162.7	20 20.9	+59.8	163.0
6	34 38.8	+59.2	160.5	32 45.5	+59.3	161.0	30 52.0	+59.4	161.4	28 58.1	+59.5	161.7	27 04.0	+59.6	162.1	25 09.8	+59.6	162.4	23 15.3	+59.8	162.6	21 20.7	+59.8	162.9
7	35 38.0	+59.1	160.3	33 44.8	+59.3	160.8	31 51.4	+59.3	161.2	29 57.6	+59.5	161.6	28 03.6	+59.6	161.9	26 09.4	+59.7	162.3	24 15.1	+59.7	162.5	22 20.5	+59.8	162.8
8	36 37.1	+59.1	160.1	34 44.1	+59.2	160.6	32 50.7	+59.4	161.0	30 57.1	+59.5	161.4	29 03.2	+59.6	161.8	27 09.1	+59.7	162.1	25 14.8	+59.7	162.4	23 20.3	+59.8	162.7
9	37 36.2	+59.1	159.9	35 43.3	+59.2	160.4	33 50.1	+59.4	160.9	31 56.6	+59.5	161.3	30 02.8	+59.6	161.7	28 08.8	+59.6	162.0	26 14.5	+59.8	162.3	24 20.1	+59.8	162.6
10	38 35.3	+59.0	159.7	36 42.5	+59.2	160.2	34 49.5	+59.3	160.7	32 56.1	+59.4	161.1	31 02.4	+59.5	161.5	29 08.4	+59.7	161.9	27 14.3	+59.7	162.2	25 19.9	+59.8	162.5
11	39 34.3	+59.0	159.5	37 41.7	+59.2	160.0	35 48.8	+59.3	160.5	33 55.5	+59.5	161.0	32 01.9	+59.6	161.4	30 08.1	+59.6	161.8	28 14.0	+59.7	162.1	26 19.7	+59.8	162.4
12	40 33.3	+59.0	159.2	38 40.9	+59.2	159.8	36 48.1	+59.3	160.3	34 54.0	+59.4	160.8	33 01.5	+59.5	161.2	31 07.7	+59.6	161.6	29 13.7	+59.7	162.0	27 19.5	+59.7	162.3
13	41 32.3	+59.0	159.0	39 40.1	+59.1	159.6	37 47.4	+59.3	160.1	35 54.0	+59.4	160.6	34 01.0	+59.5	161.1	32 07.3	+59.7	161.5	30 13.4	+59.7	161.9	28 19.2	+59.8	162.2
14	42 31.3	+58.9	158.7	40 39.2	+59.1	159.4	38 46.7	+59.3	159.9	36 53.8	+59.4	160.5	35 00.5	+59.6	160.9	33 07.0	+59.6	161.4	31 13.1	+59.7	161.8	29 19.0	+59.8	162.1
15	43 30.0	+58.9	158.5	41 38.3	+59.1	159.1	39 46.0	+59.2	159.7	37 53.2	+59.4	160.3	36 00.1	+59.5	160.8	34 06.6	+59.6	161.2	32 12.8	+59.7	161.7	30 18.8	+59.7	162.0
16	44 29.1	+58.8	158.2	42 37.4	+59.1	158.9	40 45.2	+59.2	159.5	38 52.6	+59.3	160.1	36 59.6	+59.4	160.6	35 06.2	+59.6	161.1	33 12.5	+59.7	161.5	31 18.5	+59.8	161.9
17	45 27.9	+58.9	157.9	43 36.5	+59.0	158.7	41 44.4	+59.2	159.3	39 51.9	+59.4	159.9	37 59.0	+59.5	160.5	36 05.8	+59.6	161.0	34 12.2	+59.7	161.4	32 18.3	+59.8	161.8
18	46 26.8	+58.7	157.6	44 35.5	+59.0	158.4	42 43.6	+59.2	159.1	40 51.3	+59.3	159.7	38 58.5	+59.5	160.3	37 05.4	+59.5	160.8	35 11.9	+59.6	161.3	33 18.1	+59.7	161.7
19	47 25.5	+58.7	157.3	45 34.5	+58.9	158.1	43 42.8	+59.1	158.9	41 50.6	+59.3	159.5	39 58.0	+59.4	160.1	38 04.9	+59.6	160.7	36 11.5	+59.7	161.2	34 17.8	+59.8	161.6
20	48 24.2	+58.7	157.0	46 33.4	+58.9	157.9	44 41.9	+59.2	158.6	42 49.9	+59.3	159.3	40 57.4	+59.5	159.9	39 04.5	+59.6	160.5	37 11.2	+59.6	161.0	35 17.6	+59.7	161.5
21	49 22.9	+58.6	156.7	47 32.4	+58.9	157.0	45 41.1	+59.0	158.4	43 49.2	+59.3	159.1	41 56.9	+59.4	159.8	40 04.1	+59.5	160.4	38 10.8	+59.7	160.9	36 17.3	+59.7	161.4
22	50 21.5	+58.6	156.4	48 31.2	+58.8	157.3	46 40.1	+59.1	158.1	44 48.5	+59.2	158.9	42 56.3	+59.4	159.6	41 03.6	+59.5	160.2	39 10.5	+59.6	160.8	37 17.0	+59.7	161.3
23	51 20.1	+58.5	156.0	49 30.0	+58.8	157.0	47 39.2	+59.0	157.9	45 47.7	+59.2	158.7	43 55.7	+59.3	159.4	42 03.1	+59.5	160.0	40 10.1	+59.6	160.6	38 16.7	+59.8	161.1
24	52 18.6	+58.4	155.7	50 28.8	+58.7	156.7	48 38.2	+59.0	157.6	46 46.9	+59.2	158.4	44 55.0	+59.4	159.2	43 02.6	+59.5	159.8	41 09.7	+59.6	160.5	39 16.5	+59.7	161.0
25	53 17.0	+58.3	155.3	51 27.5	+58.6	156.4	49 37.2	+58.9	157.3	47 46.1	+59.1	158.2	45 54.4	+59.3	159.0	44 02.1	+59.5	159.7	42 09.3	+59.6	160.3	40 16.2	+59.7	160.9
26	54 15.3	+58.3	154.9	52 26.1	+58.5	156.0	50 36.1	+58.9	157.0	48 45.2	+59.1	157.9	46 53.7	+59.3	158.7	45 01.6	+59.4	159.5	43 08.9	+59.6	160.1	41 15.9	+59.6	160.8
27	55 13.6	+58.2	154.5	53 24.8	+58.5	155.7	51 35.0	+58.8	156.7	49 44.3	+59.1	157.7	47 53.0	+59.3	158.5	46 01.0	+59.5	159.3	44 08.5	+59.6	160.0	42 15.5	+59.7	160.6
28	56 11.8	+58.0	154.1	54 23.3	+58.4	155.3	52 33.8	+58.8	156.4	50 43.4	+59.0	157.4	48 52.3	+59.2	158.3	47 00.5	+59.4	159.1	45 08.1	+59.5	159.8	43 15.2	+59.7	160.5
29	57 09.8	+58.0	153.6	55 21.7	+58.4	154.9	53 32.6	+58.7	156.1	51 42.4	+59.0	157.1	49 51.5	+59.2	158.0	47 59.9	+59.4	158.9	46 07.6	+59.6	159.6	44 14.9	+59.6	160.3
30	58 07.8	+57.9	153.2	56 20.1	+58.3	154.5	54 31.3	+58.6	155.7	52 41.4	+59.0	156.8	50 50.7	+59.2	157.8	48 59.3	+59.3	158.7	47 07.2	+59.5	159.5	45 14.5	+59.7	160.2
31	59 05.7	+57.7	152.6	57 18.4	+58.2	154.1	55 29.9	+58.6	155.3	53 40.4	+58.9	156.5	51 49.9	+59.1	157.5	49 58.6	+59.4	158.4	48 06.7	+59.5	159.3	46 14.2	+59.6	160.0
32	60 03.4	+57.6	152.1	58 16.6	+58.1	153.6	56 28.5	+58.5	155.0	54 39.3	+58.8	156.2	52 49.0	+59.1	157.2	50 58.0	+59.3	158.2	49 06.2	+59.5	159.1	47 13.8	+59.6	159.9
33	61 01.0	+57.5	151.5	59 14.7	+58.0	153.1	57 27.0	+58.4	154.6	55 38.1	+58.8	155.8	53 48.1	+59.1	157.0	51 57.3	+59.3	158.0	50 05.7	+59.4	158.9	48 13.4	+59.6	159.7
34	61 58.5	+57.2	150.9	60 12.7	+57.9	152.6	58 25.4	+58.4	154.1	56 36.9	+58.7	155.5	54 47.2	+59.0	156.7	52 56.6	+59.2	157.7	51 05.1	+59.5	158.7	49 13.0	+59.6	159.5
35	62 55.7	+57.1	150.3	61 10.6	+57.7	152.1	59 23.8	+58.2	153.7	57 35.6	+58.6	155.1	55 46.2	+58.9	156.3	53 55.8	+59.2	157.4	52 04.6	+59.4	158.4	50 12.6	+59.6	159.3
36	63 52.8	+56.9	149.6	62 08.3	+57.6	151.5	60 22.0	+58.1	153.2	58 34.2	+58.6	154.7	56 45.1	+58.9	156.0	54 55.0	+59.2	157.2	53 04.0	+59.4	158.2	51 12.2	+59.5	159.2
37	64 49.7	+56.6	148.8	63 05.9	+57.4	150.9	61 20.1	+58.0	152.7	59 32.8	+58.4	154.3	57 44.0	+58.9	155.6	55 54.2	+59.1	156.9	54 03.4	+59.3	158.0	52 11.7	+59.6	159.0
38	65 46.3	+56.4	148.0	64 03.3	+57.2	150.2	62 18.1	+57.9	152.1	60 31.2	+58.3	153.8	58 42.9	+58.7	155.3	56 53.3	+59.1	156.6	55 02.7	+59.3	157.5	53 13.3	+59.5	158.7
39	66 42.7	+56.1	147.2	65 00.5	+57.0	149.5	63 16.0	+57.7	151.6	61 29.6	+58.2	153.3	59 41.6	+58.7	154.9	57 52.4	+59.0	156.2	56 02.0	+59.3	157.3	54 10.8	+59.4	158.5
40	67 38.8	+55.7	146.3	65 57.5	+56.8	148.8	64 13.7	+57.6	150.9	62 27.9	+58.1	152.8	60 40.3	+58.6	154.5	58 51.4	+59.0	155.9	57 01.3	+59.2	157.2	55 10.2	+59.5	158.3
41	68 34.5	+55.4	145.3	66 54.3	+56.6	148.0	65 11.3	+57.3	150.3	63 26.0	+58.0	152.3	61 38.9	+58.6	154.0	59 50.4	+58.9	155.5	58 00.5	+59.2	156.9	56 09.7	+59.4	158.1
42	69 29.9	+54.9	144.2	67 50.8	+56.2	147.1	66 08.6	+57.2	149.6	64 24.0	+57.9	151.7	62 37.5	+58.4	153.5	60 49.3	+58.8	155.2	58 59.7	+59.2	156.6	57 09.1	+59.4	157.8
43	70 24.8	+54.5	143.0	68 47.0	+55.8	146.1	67 05.8	+56.9	148.0	65 21.9	+57.7	151.1	63 35.9	+58.3	153.0	61 48.1	+58.7	154.7	59 58.9	+59.1	156.2	58 08.5	+59.4	157.5
44	71 19.3	+53.8	141.7	69 42.7	+55.5	145.1	68 02.7	+56.6	147.0	66 19.6	+57.5	150.4	64 34.2	+58.1	152.5	62 46.8	+58.7	154.3	60 58.0	+59.0	155.9	59 07.9	+59.3	157.3
45	72 13.1	+53.2	140.3	70 38.3	+55.0	144.0	68 59.3	+56.4	147.1	67 17.1	+57.3	149.7	65 32.3	+58.1	151.9	63 45.5	+58.6	153.8	61 57.0	+59.0	155.5	60 07.2	+59.3	157.0
46	73 06.3	+52.4	138.																					

LATITUDE CONTRARY NAME

L.H.A. 16°, 344°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
28 43.6	-59.3	161.7	26 49.6	-59.4	162.0	24 55.3	-59.4	162.3	23 00.9	-59.5	162.6	21 06.4	-59.7	162.8	19 11.7	-59.8	163.0	17 16.8	-59.7	163.2	15 21.9	-59.8	163.4	0		
27 44.3	-59.2	161.9	25 50.2	-59.4	162.2	23 55.9	-59.5	162.5	22 01.4	-59.6	162.7	20 06.7	-59.6	162.9	18 11.9	-59.7	163.1	16 17.1	-59.8	163.3	14 22.1	-59.9	163.5	1		
26 45.1	-59.3	162.0	24 50.8	-59.4	162.3	22 56.4	-59.5	162.6	21 01.8	-59.6	162.8	19 07.1	-59.7	163.0	17 12.2	-59.7	163.2	15 17.3	-59.8	163.4	13 22.2	-59.8	163.6	2		
25 45.8	-59.3	162.3	23 51.4	-59.4	162.5	21 56.9	-59.5	162.7	20 02.2	-59.6	163.0	18 07.4	-59.6	163.2	16 12.5	-59.7	163.3	14 17.5	-59.7	163.5	12 22.4	-59.8	163.6	3		
24 46.5	-59.3	162.4	22 52.0	-59.4	162.6	20 57.4	-59.5	162.9	19 02.7	-59.6	163.1	17 07.8	-59.7	163.3	15 12.8	-59.7	163.4	13 17.8	-59.8	163.6	11 22.6	-59.8	163.7	4		
23 47.2	-59.4	162.5	21 52.6	-59.4	162.8	19 57.9	-59.5	163.0	18 03.1	-59.6	163.2	16 08.1	-59.6	163.4	14 13.1	-59.7	163.5	12 18.0	-59.8	163.7	10 22.8	-59.8	163.8	5		
22 47.8	-59.3	162.7	20 53.2	-59.4	162.9	18 58.4	-59.5	163.1	17 03.5	-59.6	163.3	15 08.5	-59.7	163.5	13 13.4	-59.7	163.6	11 18.2	-59.8	163.8	9 23.0	-59.8	163.9	6		
21 48.5	-59.3	162.9	19 53.8	-59.5	163.1	17 58.9	-59.5	163.3	16 03.9	-59.6	163.5	14 08.8	-59.6	163.6	12 13.7	-59.7	163.7	10 18.4	-59.7	163.9	8 23.1	-59.8	163.9	7		
20 49.2	-59.4	163.0	18 54.3	-59.4	163.2	16 59.4	-59.5	163.4	15 04.3	-59.6	163.6	13 09.2	-59.7	163.7	11 14.0	-59.8	163.8	9 18.7	-59.8	163.9	7 23.3	-59.8	164.0	8		
19 49.8	-59.3	163.2	17 54.9	-59.4	163.4	15 59.9	-59.6	163.5	14 04.7	-59.6	163.7	12 09.5	-59.7	163.8	10 14.2	-59.7	163.9	8 18.9	-59.8	164.0	6 23.5	-59.8	164.1	9		
18 50.5	-59.4	163.3	16 55.5	-59.5	163.5	15 00.3	-59.5	163.7	13 05.1	-59.6	163.8	11 09.8	-59.6	163.9	9 14.5	-59.7	164.0	7 19.1	-59.8	164.1	5 23.7	-59.9	164.2	10		
17 51.1	-59.4	163.5	15 56.0	-59.5	163.7	14 00.8	-59.5	163.8	12 05.5	-59.6	163.9	10 10.2	-59.7	164.0	8 14.8	-59.8	164.1	6 19.3	-59.8	164.2	4 23.8	-59.8	164.3	11		
16 51.7	-59.3	163.6	14 56.5	-59.4	163.8	13 01.3	-59.6	163.9	11 05.9	-59.6	164.1	9 10.5	-59.7	164.2	7 15.0	-59.7	164.2	5 19.5	-59.7	164.3	3 24.0	-59.8	164.3	12		
15 52.4	-59.4	163.8	13 57.1	-59.5	163.9	12 01.7	-59.5	164.1	10 06.3	-59.6	164.2	8 10.8	-59.6	164.3	6 15.3	-59.7	164.3	4 19.8	-59.8	164.4	2 24.2	-59.8	164.4	13		
14 53.0	-59.4	163.9	12 57.6	-59.5	164.1	11 02.2	-59.6	164.2	9 06.7	-59.6	164.3	7 11.2	-59.7	164.4	5 15.6	-59.7	164.4	3 20.0	-59.8	164.5	1 24.4	-59.9	164.5	14		
13 53.6	-59.4	164.1	11 58.1	-59.4	164.2	10 02.6	-59.5	164.3	8 07.1	-59.6	164.4	6 11.5	-59.7	164.5	4 15.9	-59.8	164.5	2 20.2	-59.8	164.5	0 24.5	-59.8	164.6	15		
12 54.2	-59.4	164.2	10 58.7	-59.5	164.3	9 03.1	-59.6	164.4	7 07.5	-59.6	164.5	5 11.8	-59.7	164.6	3 16.1	-59.7	164.6	1 20.4	-59.8	164.6	0 35.3	-59.8	164.6	16		
11 54.8	-59.4	164.4	9 59.2	-59.5	164.5	8 03.5	-59.5	164.6	6 07.9	-59.7	164.6	4 12.1	-59.6	164.7	2 16.4	-59.7	164.7	0 20.6	-59.7	164.7	1 35.1	+59.8	15.3	17		
10 55.4	-59.4	164.5	8 59.7	-59.5	164.6	7 04.0	-59.6	164.7	5 08.2	-59.6	164.7	3 12.5	-59.7	164.8	1 16.7	-59.8	164.8	0 39.1	+59.8	15.2	2 34.9	+59.9	15.2	18		
9 56.0	-59.4	164.7	8 00.2	-59.5	164.7	6 04.4	-59.5	164.8	4 08.6	-59.6	164.9	2 12.8	-59.7	164.9	0 16.9	-59.7	164.9	1 38.9	+59.8	15.1	3 34.8	+59.8	15.1	19		
8 56.6	-59.5	164.8	7 00.7	-59.4	164.9	5 04.9	-59.6	164.9	3 09.0	-59.6	165.0	1 13.1	-59.7	165.0	0 42.8	+59.7	15.0	2 38.7	+59.8	15.0	4 34.6	+59.8	15.1	20		
7 57.1	-59.4	164.9	6 01.3	-59.5	165.0	4 05.3	-59.5	165.0	2 09.4	-59.6	165.1	0 13.4	-59.7	165.1	0 46.3	+59.6	14.8	1 42.5	+59.8	14.9	3 38.5	+59.8	14.9	21		
6 57.7	-59.4	165.1	5 01.8	-59.5	165.1	3 05.8	-59.6	165.2	1 09.8	-59.7	165.2	0 45.9	+59.7	14.7	2 42.3	+59.7	14.8	4 38.3	+59.7	14.9	5 38.0	+59.8	14.8	22		
5 58.3	-59.4	165.2	4 02.3	-59.5	165.3	2 06.2	-59.6	165.3	0 10.1	-59.6	165.3	1 45.9	+59.7	14.7	3 42.0	+59.7	14.7	5 38.0	+59.8	14.8	6 37.8	+59.8	14.7	23		
4 58.9	-59.4	165.4	3 02.8	-59.5	165.4	1 06.6	-59.5	165.4	0 49.5	+59.6	14.6	2 45.6	+59.7	14.6	4 41.7	+59.8	14.6	6 37.8	+59.8	14.7	7 34.1	+59.8	14.8	24		
3 59.5	-59.5	165.5	2 03.3	-59.5	165.5	0 07.1	-59.6	165.5	1 49.1	+59.6	14.5	3 45.3	+59.7	14.5	5 41.5	+59.7	14.5	7 37.6	+59.8	14.6	8 33.7	+59.8	14.7	25		
3 00.0	-59.4	165.6	1 03.8	-59.5	165.7	0 52.5	+59.5	14.3	2 48.7	+59.6	14.4	4 45.0	+59.6	14.4	6 41.2	+59.7	14.4	8 37.4	+59.8	14.5	10 33.5	+59.9	14.6	26		
2 00.6	-59.4	165.8	0 04.3	-59.5	165.8	1 52.0	+59.6	14.2	3 48.3	+59.7	14.2	5 44.6	+59.7	14.3	7 40.9	+59.7	14.3	9 37.2	+59.7	14.4	11 33.4	+59.8	14.5	27		
1 01.2	-59.4	165.9	0 55.2	+59.5	14.1	2 51.6	+59.6	14.1	4 48.0	+59.6	14.1	6 44.3	+59.7	14.2	8 40.6	+59.8	14.3	10 36.9	+59.8	14.3	12 33.2	+59.8	14.4	28		
0 01.8	-59.5	166.0	1 54.7	+59.5	14.0	3 51.2	+59.5	14.0	5 47.6	+59.6	14.0	7 44.0	+59.7	14.1	9 40.4	+59.7	14.2	11 36.7	+59.8	14.2	13 33.0	+59.8	14.4	29		
0 57.7	+59.4	13.8	2 54.2	+59.5	13.8	4 50.7	+59.6	13.9	6 47.2	+59.6	13.9	8 43.7	+59.6	14.0	10 40.1	+59.7	14.1	12 36.5	+59.7	14.2	14 32.8	+59.8	14.3	30		
1 57.1	+59.4	13.7	3 53.7	+59.5	13.7	5 50.3	+59.5	13.7	7 46.8	+59.6	13.8	9 43.3	+59.7	13.9	11 39.8	+59.7	14.0	13 36.2	+59.8	14.1	15 32.6	+59.8	14.2	31		
2 56.5	+59.4	13.5	4 53.2	+59.5	13.6	6 49.8	+59.6	13.6	8 46.4	+59.6	13.7	10 43.0	+59.7	13.8	12 39.5	+59.8	13.9	14 36.0	+59.8	14.0	16 32.4	+59.8	14.1	32		
3 55.9	+59.5	13.4	5 52.7	+59.5	13.4	7 49.4	+59.5	13.5	9 46.0	+59.7	13.6	11 42.7	+59.6	13.7	13 39.3	+59.7	13.8	15 35.8	+59.7	13.9	17 32.2	+59.8	14.0	33		
4 55.4	+59.4	13.3	6 52.2	+59.4	13.3	8 48.9	+59.6	13.4	10 45.7	+59.6	13.5	12 42.3	+59.7	13.5	14 39.0	+59.7	13.7	16 35.5	+59.8	13.8	18 32.0	+59.9	13.9	34		
5 54.8	+59.4	13.1	7 51.6	+59.5	13.2	9 48.5	+59.5	13.2	11 45.3	+59.6	13.3	13 42.0	+59.7	13.4	15 38.7	+59.7	13.6	17 35.3	+59.8	13.7	19 31.9	+59.8	13.9	35		
6 54.2	+59.4	13.0	8 51.1	+59.5	13.0	10 48.0	+59.6	13.1	12 44.9	+59.6	13.2	14 41.7	+59.6	13.3	16 38.4	+59.7	13.5	18 35.1	+59.7	13.6	20 31.7	+59.8	13.8	36		
7 53.6	+59.4	12.8	9 50.6	+59.5	12.9	11 47.6	+59.5	13.0	13 44.5	+59.6	13.1	15 41.3	+59.7	13.2	17 38.1	+59.7	13.4	19 34.8	+59.8	13.5	21 31.5	+59.8	13.7	37		
8 53.0	+59.5	12.7	10 50.1	+59.5	12.8	12 47.1	+59.5	12.9	14 44.1	+59.6	13.1	16 41.0	+59.6	13.1	18 37.8	+59.7	13.3	20 34.6	+59.7	13.4	22 31.3	+59.8	13.6	38		
9 52.5	+59.4	12.6	11 49.6	+59.4	12.6	13 46.6	+59.6	12.7	15 43.7	+59.5	12.9	17 40.6	+59.7	13.0	19 37.5	+59.7	13.1	21 34.3	+59.8	13.3	23 31.1	+59.7	13.5	39		
10 51.9	+59.4	12.4	12 49.0	+59.5	12.5	14 46.2	+59.5	12.6	16 43.2	+59.6	12.7	18 40.3	+59.6	12.9	20 37.2	+59.7	13.0	22 34.1	+59.7	13.2	24 30.8	+59.8	13.4	40		
11 51.3	+59.4	12.3	13 48.5	+59.5	12.4	15 45.7	+59.5	12.5	17 42.8	+59.6	12.6	19 39.9	+59.6	12.8	21 36.9	+59.7	12.9	23 33.8	+59.7	13.1	25 30.6	+59.8	13.3	41		
12 50.7	+59.4	12.1	14 48.0	+59.4	12.2	16 45.2	+59.5	12.4	18 42.4	+59.6	12.5	20 39.5	+59.7	12.6	22 36.6	+59.7	12.8	24 33.5	+59.8	13.0	26 30.4	+59.8	13.2	42		
13 50.1	+59.4	12.0	15 47.4	+59.5	12.1	17 44.7	+59.5	12.2	19 42.0	+59.6	12.4	21 39.2	+59.6	12.5	23 36.3	+59.6	12.7	25 33.3	+59.7	12.9	27 30.2	+59.8	13.1	43		
14 49.5	+59.3	11.8	16 46.9	+59.4	12.0	18 44.2	+59.6	12.1	20 41.6	+59.5	12.2	22 38.8	+59.6	12.4	24 35.9	+59.7	12.6	26 33.0	+59.7	12.8	28 30.0	+59.7	13.0	44		
15 48.8	+59.4	11.7	17 46.3	+59.5	11.8	19 43.8	+59.5	12.0	21 41.1	+59.6	12.1	23 38.4	+59.6	12.3	25 35.6	+59.7	12.5	27 32.7	+59.8	12.7	29 29.7	+59.8	12.9	45		
16 48.2	+59.4	11.5	18 45.8	+59.4	11.7	20 43.3	+59.5	11.8	22 40.7	+59.5	12.0	24 38.0	+59.6	12.2	26 35.3	+59.7	12.4	28 32.5	+59.7	12.6	30 29.5	+59.8	12.8	46		
17 47.6	+59.4	11.4	19 45.2	+59.4	11.5	21 42.8	+59.4	11.																		

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 26.8	+59.9	163.5	11 31.7	+59.9	163.7	9 36.5	+60.0	163.8	7 41.3	+59.9	163.9	5 46.0	+60.0	163.9	3 50.7	+60.0	164.0	1 55.3	+60.0	164.0	0 00.0	+60.0	164.0
1	14 26.7	+59.9	163.5	12 31.6	+59.9	163.6	10 36.5	+59.9	163.7	8 41.2	+60.0	163.8	6 46.0	+60.0	163.9	4 50.7	+60.0	163.9	2 55.3	+60.0	164.0	1 00.0	+60.0	164.0
2	15 26.6	+59.8	163.4	13 31.5	+59.9	163.5	11 36.4	+59.9	163.7	9 41.2	+60.0	163.8	7 46.0	+59.9	163.9	5 50.7	+60.0	163.9	3 55.3	+60.0	164.0	2 00.0	+60.0	164.0
3	16 26.4	+59.9	163.3	14 31.4	+59.9	163.5	12 36.3	+59.9	163.6	10 41.2	+59.9	163.7	8 45.9	+60.0	163.8	6 50.7	+59.9	163.9	4 55.3	+60.0	164.0	3 00.0	+60.0	164.0
4	17 26.3	+59.8	163.2	15 31.3	+59.9	163.4	13 36.2	+60.0	163.6	11 41.1	+60.0	163.7	9 45.9	+60.0	163.8	7 50.6	+60.0	163.9	5 55.3	+60.0	164.0	4 00.0	+60.0	164.0
5	18 26.1	+59.9	163.2	16 31.2	+59.9	163.4	14 36.2	+59.9	163.5	12 41.1	+59.9	163.7	10 45.9	+60.0	163.8	8 50.6	+60.0	163.9	6 55.3	+60.0	163.9	5 00.0	+60.0	164.0
6	19 26.0	+59.8	163.1	17 31.1	+59.9	163.3	15 36.1	+59.9	163.5	13 41.0	+60.0	163.6	11 45.9	+59.9	163.7	9 50.6	+60.0	163.8	7 55.3	+60.0	163.9	6 00.0	+60.0	164.0
7	20 25.8	+59.9	163.0	18 31.0	+59.9	163.2	16 36.0	+59.9	163.4	14 41.0	+59.9	163.6	12 45.8	+60.0	163.7	10 50.6	+60.0	163.8	8 55.3	+60.0	163.9	7 00.0	+60.0	164.0
8	21 25.7	+59.8	162.9	19 30.9	+59.9	163.2	17 35.9	+60.0	163.4	15 40.9	+60.0	163.5	13 45.8	+60.0	163.7	11 50.6	+60.0	163.8	9 55.3	+60.0	163.9	8 00.0	+60.0	164.0
9	22 25.5	+59.8	162.9	20 30.8	+59.8	163.1	18 35.9	+59.9	163.3	16 40.9	+59.9	163.5	14 45.8	+59.9	163.6	12 50.6	+60.0	163.8	10 55.3	+60.0	163.9	9 00.0	+60.0	164.0
10	23 25.3	+59.9	162.8	21 30.6	+59.9	163.0	19 35.8	+59.9	163.3	17 40.8	+60.0	163.4	15 45.7	+60.0	163.6	13 50.6	+60.0	163.8	11 55.3	+60.0	163.9	10 00.0	+60.0	164.0
11	24 25.2	+59.8	162.7	22 30.5	+59.9	163.0	20 35.7	+59.9	163.2	18 40.8	+59.9	163.4	16 45.7	+60.0	163.6	14 50.6	+60.0	163.7	12 55.3	+60.0	163.9	11 00.0	+60.0	164.0
12	25 25.0	+59.9	162.6	23 30.4	+59.9	162.9	21 35.6	+60.0	163.1	19 40.7	+60.0	163.4	17 45.7	+60.0	163.6	15 50.6	+59.9	163.7	13 55.3	+60.0	163.9	12 00.0	+60.0	164.0
13	26 24.9	+59.8	162.5	24 30.3	+59.9	162.8	22 35.6	+59.9	163.1	20 40.7	+59.9	163.3	18 45.7	+59.9	163.5	16 50.5	+60.0	163.7	14 55.3	+60.0	163.9	13 00.0	+60.0	164.0
14	27 24.7	+59.8	162.5	25 30.2	+59.8	162.8	23 35.5	+59.9	163.0	21 40.6	+60.0	163.3	19 45.6	+60.0	163.5	17 50.5	+60.0	163.7	15 55.3	+60.0	163.9	14 00.0	+60.0	164.0
15	28 24.5	+59.8	162.4	26 30.0	+59.9	162.7	24 35.4	+59.9	163.0	22 40.6	+59.9	163.2	20 45.6	+60.0	163.5	18 50.5	+60.0	163.7	16 55.3	+60.0	163.8	15 00.0	+60.0	164.0
16	29 24.3	+59.8	162.3	27 29.9	+59.9	162.6	25 35.3	+59.9	162.9	23 40.5	+60.0	163.2	21 45.6	+60.0	163.4	19 50.5	+60.0	163.6	17 55.3	+60.0	163.8	16 00.0	+60.0	164.0
17	30 24.2	+59.8	162.2	28 29.8	+59.9	162.5	26 35.2	+59.9	162.8	24 40.5	+59.9	163.1	22 45.6	+59.9	163.4	20 50.5	+60.0	163.6	18 55.3	+60.0	163.8	17 00.0	+60.0	164.0
18	31 24.0	+59.8	162.1	29 29.7	+59.8	162.5	27 35.1	+60.0	162.8	25 40.4	+60.0	163.1	23 45.6	+60.0	163.4	21 50.5	+60.0	163.6	19 55.3	+60.0	163.8	18 00.0	+60.0	164.0
19	32 23.8	+59.8	162.0	30 29.5	+59.9	162.4	28 35.1	+59.9	162.7	26 40.4	+59.9	163.0	24 45.5	+60.0	163.3	22 50.5	+60.0	163.6	20 55.3	+60.0	163.8	19 00.0	+60.0	164.0
20	33 23.6	+59.8	161.9	31 29.4	+59.9	162.3	29 35.0	+59.9	162.7	27 40.3	+59.9	163.0	25 45.5	+59.9	163.3	23 50.5	+59.9	163.6	21 55.3	+60.0	163.8	20 00.0	+60.0	164.0
21	34 23.4	+59.8	161.8	32 29.3	+59.8	162.2	30 34.9	+59.9	162.6	28 40.2	+60.0	162.9	26 45.4	+60.0	163.3	24 50.4	+60.0	163.5	22 55.3	+60.0	163.8	21 00.0	+60.0	164.0
22	35 23.2	+59.8	161.7	33 29.1	+59.9	162.2	31 34.8	+59.9	162.5	29 40.2	+59.9	162.9	27 45.4	+60.0	163.2	25 50.4	+60.0	163.5	23 55.3	+60.0	163.8	22 00.0	+60.0	164.0
23	36 23.0	+59.8	161.6	34 29.0	+59.8	162.1	32 34.7	+59.9	162.5	30 40.1	+60.0	162.8	28 45.4	+59.9	163.2	26 50.4	+60.0	163.5	24 55.3	+60.0	163.8	23 00.0	+60.0	164.0
24	37 22.8	+59.8	161.5	35 28.8	+59.9	162.0	33 34.6	+59.9	162.4	31 40.1	+59.9	162.8	29 45.3	+60.0	163.1	27 50.4	+60.0	163.5	25 55.3	+60.0	163.7	24 00.0	+60.0	164.0
25	38 22.6	+59.8	161.4	36 28.7	+59.8	161.9	34 34.5	+59.9	162.3	32 40.0	+59.9	162.7	30 45.3	+60.0	163.1	28 50.4	+60.0	163.4	26 55.3	+60.0	163.7	25 00.0	+60.0	164.0
26	39 22.4	+59.7	161.3	37 28.5	+59.8	161.8	35 34.4	+59.9	162.3	33 39.9	+60.0	162.7	31 45.3	+59.9	163.1	29 50.4	+60.0	163.4	27 55.3	+60.0	163.7	26 00.0	+60.0	164.0
27	40 22.1	+59.8	161.2	38 28.4	+59.8	161.7	36 34.3	+59.9	162.2	34 39.9	+59.9	162.6	32 45.2	+60.0	163.0	30 50.4	+59.9	163.4	28 55.3	+60.0	163.7	27 00.0	+60.0	164.0
28	41 21.9	+59.8	161.1	39 28.2	+59.8	161.6	37 34.2	+59.9	162.1	35 39.8	+59.9	162.6	33 45.2	+60.0	163.0	31 50.3	+60.0	163.4	29 55.3	+60.0	163.7	28 00.0	+60.0	164.0
29	42 21.7	+59.7	161.0	40 28.0	+59.9	161.5	38 34.1	+59.8	162.0	36 39.7	+60.0	162.5	34 45.2	+59.9	162.9	32 50.3	+60.0	163.3	30 55.3	+60.0	163.7	29 00.0	+60.0	164.0
30	43 21.4	+59.8	160.8	41 27.9	+59.8	161.4	39 33.9	+59.9	162.0	37 39.7	+59.9	162.4	35 45.1	+60.0	162.9	33 50.3	+60.0	163.3	31 55.3	+60.0	163.7	30 00.0	+60.0	164.0
31	44 21.2	+59.7	160.7	42 27.7	+59.8	161.3	40 33.8	+59.9	161.9	38 39.6	+59.9	162.4	36 45.1	+59.9	162.8	34 50.3	+60.0	163.3	32 55.3	+59.9	163.7	31 00.0	+60.0	164.0
32	45 20.9	+59.7	160.6	43 27.5	+59.8	161.2	41 33.7	+59.9	161.8	39 39.5	+60.0	162.3	37 45.0	+60.0	162.8	35 50.3	+60.0	163.2	33 55.2	+60.0	163.6	32 00.0	+60.0	164.0
33	46 20.6	+59.7	160.4	44 27.3	+59.8	161.1	42 33.6	+59.8	161.7	40 39.5	+59.9	162.3	38 45.0	+60.0	162.8	36 50.3	+59.9	163.2	34 55.2	+60.0	163.6	33 00.0	+60.0	164.0
34	47 20.3	+59.7	160.3	45 27.1	+59.8	161.0	43 33.4	+59.9	161.6	41 39.4	+59.9	162.2	39 45.0	+59.9	162.7	37 50.2	+60.0	163.2	35 55.2	+60.0	163.6	34 00.0	+60.0	164.0
35	48 20.0	+59.7	160.1	46 26.9	+59.8	160.9	44 33.3	+59.9	161.5	42 39.3	+59.9	162.1	40 44.9	+60.0	162.7	38 50.2	+60.0	163.1	36 55.2	+60.0	163.6	35 00.0	+60.0	164.0
36	49 19.7	+59.7	160.0	47 26.7	+59.8	160.8	45 33.2	+59.8	161.4	43 39.2	+59.9	162.0	41 44.9	+59.9	162.6	39 50.2	+60.0	163.1	37 55.2	+60.0	163.6	36 00.0	+60.0	164.0
37	50 19.4	+59.7	159.8	48 26.5	+59.8	160.6	46 33.0	+59.9	161.3	44 39.1	+59.9	162.0	42 44.8	+60.0	162.6	40 50.2	+60.0	163.1	38 55.2	+60.0	163.6	37 00.0	+60.0	164.0
38	51 19.1	+59.6	159.7	49 26.3	+59.7	160.5	47 32.9	+59.8	161.2	45 39.0	+59.9	161.9	43 44.8	+59.9	162.5	41 50.2	+59.9	163.1	39 55.2	+60.0	163.5	38 00.0	+60.0	164.0
39	52 18.7	+59.7	159.5	50 26.1	+59.8	160.3	48 32.7	+59.9	161.1	46 38.9	+60.0	161.8	44 44.7	+60.0	162.4	42 50.1	+60.0	163.0	40 55.2	+60.0	163.5	39 00.0	+60.0	164.0
40	53 18.4	+59.6	159.3	51 25.8	+59.7	160.2	49 32.6	+59.8	161.0	47 38.9	+59.9	161.7	45 44.7	+59.9	162.4	43 50.1	+60.0	163.0	41 55.2	+60.0	163.5	40 00.0	+60.0	164.0
41	54 18.0	+59.6	159.1	52 25.5	+59.7	160.1	50 32.4	+59.8	160.9	48 38.8	+59.9	161.6	46 44.6	+60.0	162.3	44 50.1	+60.0	162.9	42 55.2	+60.0	163.5	41 00.0	+60.0	164.0
42	55 17.6	+59.5	158.9	53 25.2	+59.8	159.9	51 32.2	+59.8	160.8	49 38.7	+59.8	161.6	47 44.6	+59.9	162.3	45 50.1	+60.0	162.9	43 55.2	+60.0	163.5	42 00.0	+60.0	164.0
43	56 17.1	+59.6	158.7	54 25.0	+59.7	159.7	52 32.0	+59.8	160.6	50 38.5	+59.9	161.5	48 44.5	+60.0	162.2	46 50.1	+59.9	162.9	44 55.2	+60.0	163.5	43 00.0	+60.0	164.0
44	57 16.7	+59.5	158.5	55 24.7	+59.6	159.6	53 31.9	+59.8	160.5	51 38.4	+59.9	161.4	49 44.5	+59.9	162.1	47 50.0	+60.0	162.8	45 55.2	+60.0	163.4	44 00.0	+60.0	164.0
45	58 16.2	+59.5	158.2	56 24.3	+59.7	159.4	54 31.7	+59.7	160.4	52 38.3	+59.9	161.3	50 44.4	+59.9	162.1	48 50.0	+60.0	162.8	46 55.2	+60.0	163.4	45 00.0	+60.0	164.0
46	59 15.7	+59.5	158.0	57 24.0	+59.6	159.2																		

LATITUDE CONTRARY NAME

L.H.A. 16°, 344°

Table with columns for latitude (76° to 90°) and corresponding values for Hc, d, Z, and Dec. Each latitude column contains three sub-columns for Hc, d, and Z. The Dec. column is on the far right.

LATITUDE SAME NAME

L.H.A. 164°, 196°

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	28 23.6	+59.1	159.4	26 31.1	+59.2	159.8	24 38.4	+59.3	160.1	22 45.4	+59.5	160.4	20 52.3	+59.5	160.7	18 59.0	+59.6	160.9	17 05.5	+59.7	161.1	15 11.8	+59.8	161.3
1	29 22.7	+59.0	159.2	27 30.3	+59.2	159.6	25 37.7	+59.3	160.0	23 44.9	+59.4	160.3	21 51.8	+59.5	160.6	19 58.6	+59.6	160.8	18 05.2	+59.7	161.0	16 11.6	+59.8	161.2
2	30 21.7	+59.0	159.0	28 29.5	+59.2	159.4	26 37.0	+59.3	159.8	24 44.3	+59.4	160.1	22 51.3	+59.6	160.4	20 58.2	+59.6	160.7	19 04.9	+59.7	160.9	17 11.4	+59.7	161.1
3	31 20.7	+59.0	158.8	29 28.7	+59.1	159.2	27 36.3	+59.3	159.6	25 47.7	+59.4	160.0	23 50.9	+59.5	160.3	21 57.8	+59.6	160.6	20 04.6	+59.6	160.8	18 11.1	+59.8	161.0
4	32 19.7	+59.0	158.6	30 27.8	+59.2	159.0	28 35.6	+59.3	159.4	26 43.1	+59.4	159.8	24 50.4	+59.5	160.1	22 57.4	+59.6	160.4	21 04.2	+59.7	160.7	19 10.9	+59.7	161.0
5	33 18.7	+59.0	158.4	31 27.0	+59.1	158.8	29 34.9	+59.3	159.3	27 42.5	+59.4	159.7	25 49.9	+59.5	160.0	23 57.0	+59.6	160.3	22 03.9	+59.7	160.6	20 10.6	+59.8	160.9
6	34 17.7	+58.9	158.2	32 26.1	+59.1	158.6	30 34.2	+59.2	159.1	28 41.9	+59.4	159.5	26 49.4	+59.5	159.9	24 56.6	+59.6	160.2	23 03.6	+59.7	160.5	21 10.4	+59.7	160.8
7	35 16.6	+58.9	157.9	33 25.2	+59.1	158.4	31 33.4	+59.2	158.9	29 41.3	+59.4	159.3	27 48.9	+59.5	159.7	25 56.2	+59.6	160.1	24 03.3	+59.6	160.4	22 10.1	+59.8	160.7
8	36 15.5	+58.9	157.7	34 24.3	+59.0	158.2	32 32.6	+59.2	158.7	30 40.7	+59.3	159.2	28 48.4	+59.4	159.6	26 55.8	+59.5	159.9	25 02.9	+59.7	160.3	23 09.9	+59.7	160.6
9	37 14.4	+58.8	157.5	35 23.3	+59.1	158.0	33 31.8	+59.2	158.5	31 40.0	+59.3	159.0	29 47.8	+59.5	159.4	27 55.3	+59.6	159.8	26 02.6	+59.7	160.1	24 09.6	+59.8	160.5
10	38 13.2	+58.8	157.2	36 22.4	+59.0	157.8	34 31.0	+59.2	158.3	32 39.3	+59.4	158.8	30 47.3	+59.4	159.3	28 54.9	+59.6	159.7	27 02.3	+59.6	160.0	25 09.4	+59.7	160.4
11	39 12.0	+58.8	157.0	37 21.4	+58.9	157.6	35 30.2	+59.2	158.1	33 38.7	+59.3	158.6	31 46.7	+59.5	159.1	29 54.5	+59.5	159.5	28 01.9	+59.7	159.9	26 09.1	+59.7	160.2
12	40 10.8	+58.8	156.7	38 20.3	+59.0	157.3	36 29.4	+59.1	157.9	34 38.0	+59.2	158.4	32 46.2	+59.4	158.9	30 54.0	+59.6	159.4	29 01.6	+59.6	159.8	27 08.8	+59.7	160.1
13	41 09.6	+58.7	156.4	39 19.3	+58.9	157.1	37 28.5	+59.1	157.7	35 37.2	+59.3	158.3	33 45.6	+59.4	158.8	31 53.6	+59.5	159.2	30 01.2	+59.6	159.6	28 08.5	+59.8	160.0
14	42 08.3	+58.6	156.1	40 18.2	+58.9	156.8	38 27.6	+59.1	157.5	36 36.5	+59.3	158.1	34 45.0	+59.4	158.6	32 53.1	+59.5	159.1	31 00.8	+59.6	159.5	29 08.3	+59.7	159.9
15	43 06.9	+58.6	155.9	41 17.1	+58.8	156.6	39 26.7	+59.0	157.3	37 35.8	+59.2	157.9	35 44.4	+59.4	158.4	33 52.6	+59.5	158.9	32 00.0	+59.7	159.4	30 08.0	+59.7	159.8
16	44 05.5	+58.6	155.6	42 15.9	+58.9	156.3	40 25.7	+59.1	157.0	38 35.0	+59.2	157.7	36 43.8	+59.3	158.2	34 52.1	+59.5	158.8	33 00.1	+59.6	159.3	31 07.7	+59.7	159.7
17	45 04.1	+58.5	155.3	43 14.8	+58.7	156.1	41 24.8	+59.0	156.8	39 34.2	+59.2	157.5	37 43.1	+59.4	158.1	35 51.6	+59.5	158.6	33 59.7	+59.6	159.1	32 07.4	+59.7	159.6
18	46 02.6	+58.5	154.9	44 13.5	+58.8	155.8	42 23.8	+58.9	156.5	40 33.4	+59.2	157.2	38 42.5	+59.3	157.9	36 51.1	+59.4	158.5	34 59.3	+59.6	159.0	33 07.1	+59.7	159.5
19	47 01.1	+58.4	154.6	45 12.3	+58.7	155.5	43 22.7	+58.9	156.3	41 32.6	+59.1	157.0	39 41.8	+59.3	157.7	37 50.5	+59.5	158.3	35 58.9	+59.5	158.8	34 06.8	+59.6	159.3
20	47 59.5	+58.4	154.3	46 11.0	+58.6	155.2	44 21.7	+58.9	156.0	42 31.7	+59.1	156.8	40 41.1	+59.3	157.5	38 50.0	+59.4	158.1	36 58.4	+59.6	158.7	35 06.4	+59.7	159.2
21	48 57.9	+58.2	153.9	47 09.6	+58.6	154.9	45 20.6	+58.8	155.8	43 38.7	+59.1	156.6	41 40.4	+59.3	157.3	39 49.4	+59.5	157.9	37 58.0	+59.5	158.5	36 06.1	+59.7	159.1
22	49 56.1	+58.2	153.6	48 08.2	+58.5	154.6	46 19.4	+58.8	155.5	44 29.9	+59.0	156.3	42 39.7	+59.2	157.1	40 48.9	+59.4	157.8	38 57.5	+59.6	158.4	37 05.8	+59.6	158.9
23	50 54.3	+58.2	153.2	49 06.7	+58.5	154.2	47 18.2	+58.8	155.2	45 29.9	+59.0	156.1	43 38.9	+59.2	156.9	41 48.3	+59.3	157.6	39 57.1	+59.5	158.2	38 05.4	+59.7	158.8
24	51 52.5	+58.0	152.8	50 05.2	+58.4	153.9	48 17.0	+58.7	154.9	46 27.9	+59.0	155.8	44 38.1	+59.2	156.6	42 47.6	+59.4	157.4	40 56.6	+59.5	158.1	39 05.1	+59.6	158.7
25	52 50.5	+58.0	152.4	51 03.6	+58.4	153.5	49 15.7	+58.7	154.6	47 26.9	+58.9	155.5	45 37.3	+59.2	156.4	43 47.0	+59.4	157.2	41 56.1	+59.5	157.9	40 04.7	+59.6	158.5
26	53 48.5	+57.8	151.9	52 02.0	+58.2	153.2	50 14.4	+58.6	154.3	48 25.8	+58.9	155.3	46 36.5	+59.1	156.2	44 46.4	+59.3	157.0	42 55.6	+59.5	157.7	41 04.3	+59.7	158.4
27	54 46.3	+57.8	151.5	53 00.2	+58.2	152.8	51 13.0	+58.5	153.9	49 24.7	+58.9	155.0	47 35.6	+59.1	155.9	45 45.7	+59.3	156.8	43 55.1	+59.5	157.5	42 03.9	+59.6	158.2
28	55 44.1	+57.6	151.0	53 58.4	+58.1	152.4	52 11.5	+58.5	153.6	50 23.6	+58.8	154.7	48 34.7	+59.0	155.6	46 45.0	+59.2	156.5	44 54.6	+59.4	157.3	43 03.5	+59.6	158.1
29	56 41.7	+57.5	150.5	54 56.5	+58.0	151.9	53 10.0	+58.4	153.2	51 22.4	+58.7	154.3	49 33.7	+59.0	155.4	47 44.2	+59.3	156.3	45 54.0	+59.4	157.1	44 03.1	+59.6	157.9
30	57 39.2	+57.4	150.0	55 54.5	+57.9	151.5	54 08.4	+58.4	152.8	52 21.1	+58.7	154.0	50 32.7	+59.0	155.1	48 43.5	+59.2	156.1	46 53.4	+59.4	156.9	45 02.7	+59.5	157.7
31	58 36.6	+57.2	149.4	56 52.4	+57.8	151.0	55 06.8	+58.2	152.4	53 19.8	+58.6	153.7	51 31.7	+58.9	154.8	49 42.7	+59.2	155.8	47 52.8	+59.4	156.7	46 02.2	+59.6	157.6
32	59 33.8	+57.1	148.8	57 50.2	+57.7	150.5	56 05.0	+58.2	152.0	54 18.4	+58.6	153.3	52 30.6	+58.9	154.5	50 41.9	+59.1	155.6	48 52.2	+59.3	156.5	47 01.8	+59.5	157.4
33	60 30.9	+56.9	148.2	58 47.9	+57.5	150.0	57 03.2	+58.0	151.5	55 17.0	+58.5	152.9	53 29.5	+58.9	154.2	51 41.0	+59.1	155.3	49 51.5	+59.4	156.3	48 01.3	+59.5	157.2
34	61 27.8	+56.6	147.6	59 45.4	+57.4	149.4	58 01.2	+58.0	151.1	56 15.5	+58.4	152.5	54 28.4	+58.7	153.8	52 40.1	+59.1	155.0	50 50.9	+59.3	156.1	49 00.8	+59.5	157.0
35	62 24.4	+56.5	146.9	60 42.8	+57.2	148.8	58 59.2	+57.8	150.6	57 13.9	+58.3	152.1	55 27.1	+58.7	153.5	53 39.2	+59.0	154.7	51 50.2	+59.2	155.8	50 00.3	+59.4	156.8
36	63 20.9	+56.2	146.1	61 40.0	+57.1	148.2	59 57.0	+57.7	150.0	58 12.2	+58.2	151.7	56 25.8	+58.7	153.1	54 38.2	+58.9	154.4	52 49.4	+59.3	156.5	50 59.7	+59.5	156.6
37	64 17.1	+55.9	145.3	62 37.1	+56.8	147.5	60 54.7	+57.5	149.5	59 10.4	+58.1	151.2	57 24.5	+58.5	152.7	55 37.1	+59.0	154.1	53 48.7	+59.1	155.3	51 59.2	+59.4	156.4
38	65 13.0	+55.6	144.5	63 33.9	+56.6	146.8	61 52.2	+57.4	148.9	60 08.5	+58.0	150.7	58 23.0	+58.5	152.3	56 36.1	+58.8	153.7	54 47.8	+59.2	155.0	52 58.6	+59.4	156.1
39	66 08.6	+55.3	143.6	64 30.5	+56.4	146.1	62 49.6	+57.2	148.3	61 06.5	+57.9	150.2	59 21.5	+58.4	151.9	57 34.9	+58.8	153.4	55 47.0	+59.1	154.7	53 58.0	+59.3	155.9
40	67 03.9	+54.9	142.6	65 26.9	+56.0	145.3	63 46.8	+57.0	147.6	62 04.4	+57.7	149.6	60 19.9	+58.3	151.4	58 33.7	+58.7	153.0	56 46.1	+59.1	154.4	54 57.3	+59.3	155.7
41	67 58.8	+54.4	141.5	66 22.9	+55.8	144.4	64 43.8	+56.8	146.9	63 02.1	+57.6	149.0	61 18.2	+58.1	150.9	59 32.4	+58.7	152.6	57 45.2	+59.0	154.1	55 56.6	+59.3	155.4
42	68 53.2	+53.9	140.4	67 18.7	+55.4	143.5	65 40.6	+56.6	146.1	63 59.7	+57.4	148.4	62 16.3	+58.1	150.4	60 31.1	+58.5	152.2	58 44.2	+58.9	153.7	56 55.9	+59.3	155.1
43	69 47.1	+53.4	139.2	68 14.1	+55.0	142.4	66 37.2	+56.2	145.3	64 57.1	+57.2	147.7	63 14.4	+57.9	149.9	61 29.6	+58.5	151.7	59 43.1	+58.9	153.4	57 55.2	+59.2	154.8
44	70 40.5	+52.7	137.8	69 09.1	+54.6	141.3	67 33.4	+55.9	144.4	65 54.3	+56.9	147.0	64 12.3	+57.8	149.3	62 28.1	+58.3	151.3	60 42.0	+58.8	153.0	58 54.4	+59.1	154.5
45	71 33.2	+52.0	136.3	70 03.7	+54.0	140.2	68 29.3	+55.6	143.4	66 51.2	+56.7	146.2	65 10.1	+57.5	148.6	63 26.4	+58.3	150.7	61 40.8	+58.7	152.6	59 53.5	+59.1	154.2
46	72 25.2	+51.1	134.																					

LATITUDE CONTRARY NAME

L.H.A. 18°, 342°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
28 23.6	-59.1	159.4	26 31.1	-59.2	159.8	24 38.4	-59.3	160.1	22 45.4	-59.4	160.4	20 52.3	-59.6	160.7	18 59.0	-59.7	160.9	17 05.5	-59.7	161.1	15 11.8	-59.7	161.3	0
27 24.5	-59.0	159.6	25 31.9	-59.2	160.0	23 39.1	-59.4	160.3	21 46.0	-59.5	160.6	19 52.7	-59.5	160.8	17 59.3	-59.6	161.0	16 05.8	-59.7	161.2	14 12.1	-59.8	161.4	1
26 25.5	-59.2	159.8	24 32.7	-59.2	160.2	22 39.7	-59.3	160.4	20 46.5	-59.4	160.7	18 53.2	-59.6	160.9	16 59.7	-59.6	161.2	15 06.1	-59.7	161.3	13 12.3	-59.8	161.5	2
25 26.3	-59.1	160.0	23 33.5	-59.3	160.3	21 40.4	-59.4	160.6	19 47.1	-59.5	160.9	17 53.6	-59.5	161.1	16 00.1	-59.7	161.3	14 06.4	-59.8	161.4	12 12.5	-59.7	161.6	3
24 27.2	-59.1	160.2	22 34.2	-59.2	160.5	20 41.0	-59.4	160.8	18 47.6	-59.5	161.0	16 54.1	-59.6	161.2	15 00.4	-59.6	161.4	13 06.6	-59.7	161.5	11 12.8	-59.8	161.7	4
23 28.1	-59.2	160.4	21 35.0	-59.3	160.7	19 41.6	-59.3	160.9	17 48.1	-59.4	161.1	15 54.5	-59.5	161.3	14 00.8	-59.7	161.5	12 06.9	-59.7	161.6	10 13.0	-59.8	161.8	5
22 28.9	-59.1	160.6	20 35.7	-59.3	160.8	18 42.3	-59.4	161.1	16 48.7	-59.5	161.3	14 55.0	-59.6	161.5	13 01.1	-59.6	161.6	11 07.2	-59.7	161.7	9 13.2	-59.8	161.9	6
21 29.8	-59.2	160.8	19 36.4	-59.3	161.0	17 42.9	-59.4	161.2	15 49.2	-59.5	161.4	13 55.4	-59.6	161.6	12 01.5	-59.7	161.7	10 07.5	-59.7	161.8	8 13.4	-59.7	161.9	7
20 30.6	-59.2	160.9	18 37.1	-59.3	161.2	16 43.5	-59.4	161.4	14 49.7	-59.5	161.5	12 55.8	-59.6	161.7	11 01.8	-59.6	161.8	9 07.8	-59.7	161.9	7 13.7	-59.8	162.0	8
19 31.4	-59.2	161.1	17 37.8	-59.3	161.3	15 44.1	-59.4	161.5	13 50.2	-59.5	161.7	11 56.2	-59.5	161.8	10 02.2	-59.7	161.9	8 08.1	-59.8	162.0	6 13.9	-59.8	162.1	9
18 32.2	-59.2	161.3	16 38.5	-59.3	161.5	14 44.7	-59.4	161.7	12 50.7	-59.5	161.8	10 56.7	-59.6	161.9	9 02.5	-59.6	162.1	7 08.3	-59.7	162.1	5 14.1	-59.8	162.2	10
17 33.0	-59.2	161.4	15 39.2	-59.3	161.6	13 45.3	-59.5	161.8	11 51.2	-59.5	161.9	9 57.1	-59.6	162.1	8 02.9	-59.7	162.2	6 08.6	-59.7	162.2	4 14.3	-59.8	162.3	11
16 33.8	-59.2	161.6	14 39.9	-59.3	161.8	12 45.8	-59.4	161.9	10 51.7	-59.5	162.1	8 57.5	-59.6	162.2	7 03.2	-59.6	162.3	5 08.9	-59.7	162.3	3 14.5	-59.7	162.4	12
15 34.6	-59.2	161.8	13 40.6	-59.4	161.9	11 46.4	-59.4	162.1	9 52.2	-59.5	162.2	7 57.9	-59.6	162.3	6 03.6	-59.7	162.4	4 09.2	-59.7	162.4	2 14.8	-59.8	162.5	13
14 35.4	-59.3	162.0	12 41.2	-59.3	162.1	10 47.0	-59.4	162.2	8 52.7	-59.5	162.3	6 58.3	-59.6	162.4	5 03.9	-59.7	162.5	3 09.5	-59.8	162.5	1 15.0	-59.8	162.5	14
13 36.1	-59.2	162.1	11 41.9	-59.3	162.3	9 47.6	-59.5	162.4	7 53.2	-59.5	162.5	5 58.7	-59.6	162.5	4 04.2	-59.6	162.6	2 09.7	-59.7	162.6	0 15.2	-59.8	162.6	15
12 36.9	-59.2	162.3	10 42.6	-59.4	162.4	8 48.1	-59.4	162.5	6 53.7	-59.6	162.6	4 59.1	-59.6	162.7	3 04.6	-59.7	162.7	1 10.0	-59.7	162.7	0 44.6	+59.8	17.3	16
11 37.7	-59.3	162.4	9 43.2	-59.3	162.6	7 48.7	-59.4	162.6	5 54.1	-59.5	162.7	3 59.5	-59.6	162.8	2 04.9	-59.7	162.8	0 10.3	-59.8	162.8	1 44.4	+59.7	17.2	17
10 38.4	-59.3	162.6	8 43.9	-59.4	162.7	6 49.3	-59.5	162.8	4 54.6	-59.5	162.8	2 59.9	-59.6	162.9	1 05.2	-59.6	162.9	0 49.5	+59.7	17.1	2 44.1	+59.8	17.1	18
9 39.1	-59.2	162.8	7 44.5	-59.3	162.9	5 49.8	-59.4	162.9	3 55.1	-59.5	163.0	2 00.3	-59.6	163.0	0 05.6	-59.7	163.0	1 49.2	+59.7	17.0	3 43.9	+59.8	17.0	19
8 39.9	-59.3	162.9	6 45.2	-59.4	163.0	4 50.4	-59.5	163.1	2 55.6	-59.6	163.1	1 00.8	-59.6	163.1	0 54.1	+59.6	16.9	2 48.9	+59.7	16.9	4 43.7	+59.8	16.9	20
7 40.6	-59.2	163.1	5 45.8	-59.4	163.1	3 50.9	-59.4	163.2	1 56.0	-59.5	163.2	0 01.2	-59.6	163.2	1 53.7	+59.7	16.8	3 48.6	+59.8	16.8	5 43.5	+59.8	16.9	21
6 41.4	-59.3	163.2	4 46.4	-59.3	163.3	2 51.5	-59.5	163.3	0 56.5	-59.5	163.3	0 58.4	+59.6	16.7	2 53.4	+59.7	16.7	4 48.4	+59.7	16.7	6 43.3	+59.7	16.8	22
5 42.1	-59.3	163.4	3 47.1	-59.4	163.4	1 52.0	-59.4	163.5	0 03.0	+59.5	16.5	1 58.0	+59.6	16.5	3 53.1	+59.6	16.6	5 48.1	+59.7	16.6	7 43.0	+59.8	16.7	23
4 42.8	-59.3	163.5	2 47.7	-59.4	163.6	0 52.6	-59.5	163.6	1 02.5	+59.5	16.4	2 57.6	+59.6	16.4	4 52.7	+59.7	16.5	6 47.8	+59.7	16.5	8 42.8	+59.8	16.6	24
3 43.5	-59.2	163.7	1 48.3	-59.3	163.7	0 06.9	+59.4	16.3	2 02.0	+59.6	16.3	3 57.2	+59.6	16.3	5 52.4	+59.7	16.4	7 47.5	+59.7	16.4	9 42.6	+59.8	16.5	25
2 44.3	-59.3	163.9	0 49.0	-59.4	163.9	1 06.3	+59.4	16.1	3 01.6	+59.5	16.1	4 56.8	+59.6	16.2	6 52.1	+59.6	16.2	8 47.2	+59.8	16.3	10 42.4	+59.7	16.4	26
1 45.0	-59.3	164.0	0 10.4	-59.3	16.0	2 05.7	+59.5	16.0	4 01.1	+59.5	16.0	5 56.4	+59.6	16.1	7 51.7	+59.7	16.1	9 47.0	+59.7	16.2	11 42.1	+59.8	16.3	27
0 45.7	-59.3	164.2	1 09.7	+59.4	15.8	3 05.2	+59.4	15.9	5 00.6	+59.5	15.9	6 56.0	+59.6	16.0	8 51.4	+59.6	16.0	10 46.7	+59.7	16.1	12 41.9	+59.8	16.2	28
0 13.6	+59.3	15.7	2 09.1	+59.4	15.7	4 04.6	+59.5	15.7	6 00.1	+59.6	15.8	7 55.6	+59.6	15.8	9 51.0	+59.7	15.9	11 46.4	+59.7	16.0	13 41.7	+59.8	16.2	29
1 12.9	+59.2	15.5	3 08.5	+59.3	15.5	5 04.1	+59.4	15.6	6 59.7	+59.5	15.6	8 55.2	+59.6	15.7	10 50.7	+59.6	15.8	12 46.1	+59.7	15.9	14 41.5	+59.7	16.1	30
2 12.1	+59.3	15.4	4 07.8	+59.4	15.4	6 03.5	+59.5	15.4	7 59.2	+59.5	15.5	9 54.8	+59.6	15.6	11 50.3	+59.7	15.7	13 45.8	+59.7	15.8	15 41.2	+59.8	16.0	31
3 11.4	+59.3	15.2	5 07.2	+59.4	15.3	7 03.0	+59.4	15.3	8 58.7	+59.5	15.4	10 54.4	+59.6	15.5	12 50.0	+59.6	15.6	14 45.5	+59.7	15.7	16 41.0	+59.7	15.9	32
4 10.7	+59.3	15.1	6 06.6	+59.3	15.1	8 02.4	+59.4	15.2	9 58.2	+59.5	15.3	11 53.9	+59.6	15.4	13 49.6	+59.7	15.5	15 45.2	+59.7	15.6	17 40.7	+59.8	15.8	33
5 10.0	+59.2	14.9	7 05.9	+59.4	15.0	9 01.8	+59.5	15.0	10 57.7	+59.5	15.1	12 53.5	+59.6	15.2	14 49.3	+59.6	15.4	16 44.9	+59.7	15.5	18 40.5	+59.8	15.7	34
6 09.2	+59.3	14.7	8 05.3	+59.3	14.8	10 01.3	+59.4	14.9	11 57.2	+59.5	15.0	13 53.1	+59.6	15.1	15 48.9	+59.6	15.3	17 44.6	+59.7	15.4	19 40.3	+59.7	15.6	35
7 08.5	+59.3	14.6	9 04.6	+59.4	14.7	11 00.7	+59.4	14.8	12 56.7	+59.5	14.9	14 52.7	+59.5	15.0	16 48.5	+59.7	15.1	18 44.3	+59.7	15.3	20 40.0	+59.8	15.5	36
8 07.8	+59.2	14.4	10 04.0	+59.3	14.5	12 00.1	+59.4	14.6	13 56.7	+59.5	14.7	15 52.2	+59.6	14.9	17 48.2	+59.6	15.0	19 44.0	+59.7	15.2	21 39.8	+59.7	15.4	37
9 07.0	+59.3	14.3	11 03.3	+59.4	14.4	12 59.5	+59.4	14.5	14 55.7	+59.5	14.6	16 51.8	+59.5	14.7	18 47.8	+59.6	14.9	20 43.7	+59.7	15.1	22 39.5	+59.8	15.3	38
10 06.3	+59.3	14.1	12 02.7	+59.3	14.2	13 58.9	+59.5	14.3	15 55.2	+59.5	14.5	17 51.3	+59.6	14.6	19 47.4	+59.6	14.8	21 43.4	+59.7	15.0	23 39.7	+59.7	15.2	39
11 05.6	+59.2	14.0	13 02.0	+59.3	14.1	14 58.4	+59.4	14.2	16 54.7	+59.4	14.3	18 50.9	+59.5	14.5	20 47.0	+59.6	14.7	22 43.1	+59.6	14.9	24 39.0	+59.7	15.1	40
12 04.8	+59.2	13.8	14 01.3	+59.3	13.9	15 57.8	+59.4	14.0	17 54.1	+59.5	14.2	19 50.4	+59.6	14.4	21 46.6	+59.7	14.5	23 42.7	+59.7	14.8	25 38.7	+59.8	15.0	41
13 04.0	+59.3	13.6	15 00.6	+59.4	13.8	16 57.2	+59.4	13.9	18 53.6	+59.5	14.0	20 50.0	+59.6	14.2	22 46.3	+59.6	14.4	24 42.4	+59.7	14.6	26 38.5	+59.7	14.9	42
14 03.3	+59.2	13.5	16 00.0	+59.3	13.6	17 56.6	+59.3	13.7	19 53.1	+59.4	13.9	21 49.5	+59.5	14.1	23 45.9	+59.5	14.3	25 42.1	+59.6	14.5	27 38.2	+59.7	14.8	43
15 02.5	+59.2	13.3	16 59.3	+59.3	13.4	18 55.9	+59.4	13.6	20 52.5	+59.5	13.8	22 49.0	+59.6	14.0	24 45.4	+59.6	14.2	26 41.7	+59.7	14.4	28 37.9	+59.7	14.7	44
16 01.7	+59.3	13.1	17 58.6	+59.3	13.3	19 55.3	+59.4	13.4	21 52.0	+59.4	13.6	23 48.6	+59.5	13.8	25 45.0	+59.6	14.0	27 41.4	+59.6	14.3	29 37.6	+59.7	14.6	45
17 01.0	+59.2	13.0	18 57.9	+59.2	13.1	20 54.7	+59.3	13.3	22 51.4	+59.5	13.5	24 48.1	+59.5	13.7	26 44.6	+59.6	13.9	28 41.0	+59.7	14.2	30 37.3	+59.7	14.4	46
18 00.2	+59.2	12.8	19 57.1	+59.3	13.0	21 54.0	+59.4	13.1	23 50.9	+59.4	13.3	25 4												

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 18.1	+59.8	161.5	11 24.3	+59.8	161.6	9 30.4	+59.9	161.7	7 36.4	+59.9	161.8	5 42.3	+60.0	161.9	3 48.2	+60.0	162.0	1 54.1	+60.0	162.0	0 00.0	+60.0	162.0
1	14 17.9	+59.9	161.4	12 24.1	+59.9	161.6	10 30.3	+59.9	161.7	8 36.3	+60.0	161.8	6 42.3	+60.0	161.9	4 48.2	+60.0	161.9	2 54.1	+60.0	162.0	1 00.0	+60.0	162.0
2	15 17.8	+59.8	161.3	13 24.0	+59.9	161.5	11 30.2	+59.9	161.6	9 36.3	+59.9	161.7	7 42.3	+59.9	161.8	5 48.2	+60.0	161.9	3 54.1	+60.0	162.0	2 00.0	+60.0	162.0
3	16 17.6	+59.8	161.2	14 23.9	+59.9	161.6	12 30.1	+59.9	161.6	10 36.2	+59.9	161.7	8 42.2	+60.0	161.8	6 48.2	+60.0	161.9	4 54.1	+60.0	162.0	3 00.0	+60.0	162.0
4	17 17.4	+59.8	161.2	15 23.8	+59.8	161.4	13 30.0	+59.9	161.5	11 36.1	+60.0	161.7	9 42.2	+60.0	161.8	7 48.2	+60.0	161.9	5 54.1	+60.0	161.9	4 00.0	+60.0	162.0
5	18 17.2	+59.8	161.1	16 23.6	+59.9	161.3	14 29.9	+59.9	161.5	12 36.1	+59.9	161.6	10 42.2	+59.9	161.7	8 48.2	+60.0	161.8	6 54.1	+60.0	161.9	5 00.0	+60.0	162.0
6	19 17.0	+59.8	161.0	17 23.5	+59.8	161.2	15 29.8	+59.9	161.4	13 36.0	+60.0	161.6	11 42.1	+60.0	161.7	9 48.2	+59.9	161.8	7 54.1	+60.0	161.9	6 00.0	+60.0	162.0
7	20 16.8	+59.8	160.9	18 23.3	+59.9	161.1	16 29.7	+59.9	161.3	14 36.0	+59.9	161.5	12 42.1	+60.0	161.7	10 48.1	+60.0	161.8	8 54.1	+60.0	161.9	7 00.0	+60.0	162.0
8	21 16.6	+59.8	160.8	19 23.2	+59.9	161.1	17 29.6	+59.9	161.3	15 35.9	+59.9	161.5	13 42.1	+59.9	161.6	11 48.1	+60.0	161.8	9 54.1	+60.0	161.9	8 00.0	+60.0	162.0
9	22 16.4	+59.8	160.7	20 23.1	+59.8	161.0	18 29.5	+59.9	161.2	16 35.8	+60.0	161.4	14 42.0	+60.0	161.6	12 48.1	+60.0	161.8	10 54.1	+60.0	161.9	9 00.0	+60.0	162.0
10	23 16.2	+59.8	160.7	21 22.9	+59.9	160.9	19 29.4	+59.9	161.2	17 35.8	+59.9	161.4	15 42.0	+60.0	161.6	13 48.1	+60.0	161.7	11 54.1	+60.0	161.9	10 00.0	+60.0	162.0
11	24 16.0	+59.8	160.6	22 22.8	+59.8	160.8	20 29.3	+59.9	161.1	18 35.7	+60.0	161.3	16 42.0	+59.9	161.5	14 48.1	+60.0	161.7	12 54.1	+60.0	161.9	11 00.0	+60.0	162.0
12	25 15.8	+59.8	160.5	23 22.6	+59.9	160.8	21 29.2	+59.9	161.0	19 35.7	+59.9	161.3	17 41.9	+60.0	161.5	15 48.1	+59.9	161.7	13 54.1	+60.0	161.9	12 00.0	+60.0	162.0
13	26 15.6	+59.8	160.4	24 22.5	+59.8	160.7	22 29.1	+59.9	161.0	20 35.6	+59.9	161.2	18 41.9	+60.0	161.5	16 48.0	+60.0	161.7	14 54.1	+60.0	161.8	13 00.0	+60.0	162.0
14	27 15.4	+59.8	160.3	25 22.3	+59.9	160.6	23 29.0	+59.9	160.9	21 35.5	+60.0	161.2	19 41.9	+59.9	161.4	17 48.0	+60.0	161.6	15 54.1	+60.0	161.8	14 00.0	+60.0	162.0
15	28 15.2	+59.8	160.2	26 22.2	+59.8	160.5	24 28.9	+59.9	160.9	22 35.5	+59.9	161.1	20 41.8	+60.0	161.4	18 48.0	+60.0	161.6	16 54.1	+60.0	161.8	15 00.0	+60.0	162.0
16	29 15.0	+59.8	160.1	27 22.0	+59.9	160.5	25 28.8	+59.9	160.8	23 35.4	+59.9	161.1	21 41.8	+59.9	161.4	19 48.0	+60.0	161.6	17 54.1	+60.0	161.8	16 00.0	+60.0	162.0
17	30 14.8	+59.7	160.0	28 21.9	+59.8	160.4	26 28.7	+59.9	160.7	24 35.3	+60.0	161.0	22 41.7	+60.0	161.3	20 48.0	+60.0	161.6	18 54.1	+60.0	161.8	17 00.0	+60.0	162.0
18	31 14.5	+59.8	159.9	29 21.7	+59.8	160.3	27 28.6	+59.9	160.7	25 35.3	+59.9	161.0	23 41.7	+60.0	161.3	21 48.0	+60.0	161.5	19 54.1	+60.0	161.8	18 00.0	+60.0	162.0
19	32 14.3	+59.8	159.8	30 21.5	+59.9	160.2	28 28.5	+59.9	160.6	26 35.2	+59.9	160.9	24 41.7	+59.9	161.2	22 48.0	+59.9	161.5	20 54.1	+60.0	161.8	19 00.0	+60.0	162.0
20	33 14.1	+59.7	159.7	31 21.4	+59.8	160.1	29 28.4	+59.9	160.5	27 35.1	+60.0	160.9	25 41.6	+60.0	161.2	23 47.9	+60.0	161.5	21 54.1	+59.9	161.8	20 00.0	+60.0	162.0
21	34 13.8	+59.8	159.6	32 21.2	+59.8	160.0	30 28.3	+59.8	160.4	28 35.1	+59.9	160.8	26 41.6	+60.0	161.2	24 47.9	+60.0	161.5	22 54.0	+60.0	161.7	21 00.0	+60.0	162.0
22	35 13.6	+59.7	159.5	33 21.0	+59.8	159.9	31 28.1	+59.9	160.4	29 35.0	+59.9	160.8	27 41.6	+59.9	161.1	25 47.9	+60.0	161.4	23 54.0	+60.0	161.7	22 00.0	+60.0	162.0
23	36 13.3	+59.8	159.4	34 20.8	+59.9	159.8	32 28.0	+59.9	160.3	30 34.9	+59.9	160.7	28 41.5	+60.0	161.1	26 47.9	+60.0	161.4	24 54.0	+60.0	161.7	23 00.0	+60.0	162.0
24	37 13.1	+59.7	159.2	35 20.7	+59.8	159.8	33 27.9	+59.9	160.2	31 34.8	+60.0	160.6	29 41.5	+59.9	161.0	27 47.9	+59.9	161.4	25 54.0	+60.0	161.7	24 00.0	+60.0	162.0
25	38 12.8	+59.7	159.1	36 20.5	+59.8	159.7	34 27.8	+59.9	160.1	32 34.8	+59.9	160.6	30 41.4	+60.0	161.0	28 47.8	+60.0	161.4	26 54.0	+60.0	161.7	25 00.0	+60.0	162.0
26	39 12.5	+59.7	159.0	37 20.3	+59.8	159.6	35 27.7	+59.8	160.1	33 34.7	+59.9	160.5	31 41.4	+59.9	160.9	29 47.8	+60.0	161.3	27 54.0	+60.0	161.7	26 00.0	+60.0	162.0
27	40 12.2	+59.7	158.9	38 20.1	+59.8	159.5	36 27.5	+59.9	160.0	34 34.6	+59.9	160.5	32 41.3	+60.0	160.9	30 47.8	+60.0	161.3	28 54.0	+60.0	161.7	27 00.0	+60.0	162.0
28	41 11.9	+59.7	158.7	39 19.9	+59.8	159.3	37 27.4	+59.8	159.9	35 34.5	+59.9	160.4	33 41.3	+60.0	160.9	31 47.8	+60.0	161.3	29 54.0	+60.0	161.7	28 00.0	+60.0	162.0
29	42 11.6	+59.7	158.6	40 19.7	+59.7	159.2	38 27.2	+59.9	159.8	36 34.4	+59.9	160.3	34 41.3	+59.9	160.8	32 47.8	+60.0	161.2	30 54.0	+60.0	161.6	29 00.0	+60.0	162.0
30	43 11.3	+59.7	158.5	41 19.4	+59.8	159.1	39 27.1	+59.9	159.7	37 34.3	+59.9	160.3	35 41.2	+60.0	160.8	33 47.8	+59.9	161.2	31 54.0	+60.0	161.6	30 00.0	+60.0	162.0
31	44 11.0	+59.7	158.3	42 19.2	+59.8	159.0	40 27.0	+59.8	159.6	38 34.2	+60.0	160.2	36 41.2	+59.9	160.7	34 47.7	+60.0	161.2	32 54.0	+60.0	161.6	31 00.0	+60.0	162.0
32	45 10.7	+59.6	158.2	43 19.0	+59.8	158.9	41 26.8	+59.8	159.5	39 34.2	+59.9	160.1	37 41.1	+60.0	160.7	35 47.7	+60.0	161.2	33 54.0	+60.0	161.6	32 00.0	+60.0	162.0
33	46 10.3	+59.7	158.0	44 18.8	+59.7	158.8	42 26.6	+59.9	159.4	40 34.1	+59.9	160.0	38 41.1	+59.9	160.6	36 47.7	+60.0	161.1	34 54.0	+60.0	161.6	33 00.0	+60.0	162.0
34	47 10.0	+59.6	157.9	45 18.5	+59.8	158.6	43 26.5	+59.8	159.3	41 34.0	+59.9	160.0	39 41.0	+60.0	160.6	37 47.7	+59.9	161.1	35 54.0	+60.0	161.6	34 00.0	+60.0	162.0
35	48 09.6	+59.6	157.7	46 18.3	+59.7	158.5	44 26.3	+59.8	159.2	42 33.9	+59.9	159.9	40 41.0	+59.9	160.5	38 47.6	+60.0	161.0	36 54.0	+60.0	161.5	35 00.0	+60.0	162.0
36	49 09.2	+59.6	157.5	47 18.0	+59.7	158.4	45 26.1	+59.9	159.1	43 33.8	+59.9	159.8	41 40.9	+59.9	160.4	39 47.6	+60.0	161.0	37 54.0	+60.0	161.5	36 00.0	+60.0	162.0
37	50 08.8	+59.6	157.3	48 17.7	+59.7	158.2	46 26.0	+59.8	159.0	44 33.7	+59.8	159.7	42 40.8	+60.0	160.4	40 47.6	+60.0	161.0	38 54.0	+60.0	161.5	37 00.0	+60.0	162.0
38	51 08.4	+59.6	157.2	49 17.4	+59.7	158.1	47 25.8	+59.8	158.9	45 33.5	+59.9	159.6	43 40.8	+59.9	160.3	41 47.6	+59.9	160.9	39 54.0	+60.0	161.5	38 00.0	+60.0	162.0
39	52 08.0	+59.5	157.0	50 17.1	+59.7	157.9	48 25.6	+59.8	158.8	46 33.4	+59.9	159.6	44 40.7	+60.0	160.3	42 47.5	+60.0	160.9	40 54.0	+60.0	161.5	39 00.0	+60.0	162.0
40	53 07.5	+59.5	156.8	51 16.8	+59.7	157.8	49 25.4	+59.8	158.7	47 33.3	+59.9	159.5	45 40.7	+59.9	160.2	43 47.5	+60.0	160.9	41 54.0	+59.9	161.5	40 00.0	+60.0	162.0
41	54 07.0	+59.5	156.6	52 16.5	+59.7	157.6	50 25.2	+59.8	158.5	48 33.2	+59.9	159.4	46 40.6	+59.9	160.1	44 47.5	+60.0	160.8	42 53.9	+60.0	161.4	41 00.0	+60.0	162.0
42	55 06.5	+59.5	156.3	53 16.2	+59.6	157.4	51 25.0	+59.7	158.4	49 33.1	+59.8	159.3	47 40.5	+60.0	160.1	45 47.5	+59.9	160.8	43 53.9	+60.0	161.4	42 00.0	+60.0	162.0
43	56 06.0	+59.4	156.1	54 15.8	+59.6	157.2	52 24.7	+59.8	158.3	50 32.9	+59.9	159.2	48 40.5	+59.9	160.0	46 47.4	+60.0	160.7	44 53.9	+60.0	161.4	43 00.0	+60.0	162.0
44	57 05.4	+59.4	155.8	55 15.4	+59.6	157.0	53 24.5	+59.7	158.1	51 32.8	+59.8	159.1	49 40.4	+59.9	159.9	47 47.4	+60.0	160.7	45 53.9	+60.0	161.4	44 00.0	+60.0	162.0
45	58 04.8	+59.4	155.6	56 15.0	+59.6	156.8	54 24.2	+59.8	158.0	52 32.6	+59.9	158.9	50 40.3	+59.9	159.8	48 47.4	+59.9	160.6	46 53.9	+60.0	161.3	45 00.0	+60.0	162.0
46	59 04.2	+59.4	155.3	57 14.6	+59.6	156.6																		

LATITUDE CONTRARY NAME

L.H.A. 18°, 342°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
13 18.1 - 59.8 161.5	11 24.3 - 59.9 161.6	9 30.4 - 60.0 161.7	7 36.4 - 60.0 161.8	5 42.3 - 59.9 161.9	3 48.2 - 60.0 162.0	1 54.1 - 60.0 162.0	0 00.0 + 60.0 18.0																	0	
12 18.3 - 59.8 161.6	10 24.4 - 59.9 161.7	8 30.4 - 59.9 161.8	6 36.4 - 59.9 161.9	4 42.4 - 60.0 161.9	2 48.2 - 59.9 162.0	0 54.1 - 60.0 162.0	1 00.0 + 60.0 18.0																		1
11 18.5 - 59.9 161.6	9 24.5 - 59.8 161.8	7 30.5 - 59.9 161.9	5 36.5 - 60.0 161.9	3 42.4 - 60.0 162.0	1 48.3 - 60.0 162.0	0 05.9 + 60.0 18.0	2 00.0 + 60.0 18.0																		2
10 18.6 - 59.8 161.7	8 24.7 - 59.9 161.8	6 30.6 - 59.9 161.9	4 36.5 - 59.9 162.0	2 42.4 - 60.0 162.0	0 48.3 - 60.0 162.0	1 05.9 + 60.0 18.0	3 00.0 + 60.0 18.0																		3
9 18.8 - 59.8 161.8	7 24.8 - 59.9 161.9	5 30.7 - 59.9 162.0	3 36.6 - 60.0 162.0	1 42.4 - 59.9 162.0	0 42.5 - 60.0 162.1	1 11.7 + 60.0 18.0	4 00.0 + 60.0 18.0																		4
8 19.0 - 59.8 161.9	6 24.9 - 59.9 162.0	4 30.8 - 59.9 162.0	2 36.6 - 59.9 162.1	0 42.5 - 60.0 162.1	1 11.7 + 60.0 17.9	3 05.9 + 60.0 18.0	5 00.0 + 60.0 18.0																		5
7 19.2 - 59.9 161.9	5 25.0 - 59.8 162.0	3 30.9 - 59.9 162.1	1 36.7 - 59.9 162.1	0 17.5 + 60.0 17.9	2 11.7 + 60.0 17.9	4 05.9 + 60.0 17.9	6 00.0 + 60.0 18.0																		6
6 19.3 - 59.8 162.0	4 25.2 - 59.9 162.1	2 31.0 - 59.9 162.1	0 36.8 - 60.0 162.1	1 17.5 + 59.9 17.9	3 11.7 + 60.0 17.9	5 05.9 + 59.9 17.9	7 00.0 + 60.0 18.0																		7
5 19.5 - 59.8 162.1	3 25.3 - 59.8 162.1	1 31.1 - 60.0 162.2	0 23.2 + 59.9 17.8	2 17.4 + 60.0 17.8	4 11.7 + 59.9 17.9	6 05.8 + 60.0 17.9	8 00.0 + 60.0 18.0																		8
4 19.7 - 59.9 162.2	2 25.4 - 59.9 162.2	0 31.1 - 59.9 162.2	1 23.1 + 60.0 17.8	3 17.4 + 60.0 17.8	5 11.6 + 60.0 17.8	7 05.8 + 60.0 17.9	9 00.0 + 60.0 18.0																		9
3 19.8 - 59.8 162.3	1 25.5 - 59.8 162.3	0 28.8 + 59.9 17.7	2 23.1 + 59.9 17.7	4 17.4 + 59.9 17.8	6 11.6 + 60.0 17.8	8 05.8 + 60.0 17.9	10 00.0 + 60.0 18.0																		10
2 20.0 - 59.8 162.3	0 25.7 - 59.9 162.3	1 28.7 + 59.9 17.7	3 23.0 + 60.0 17.7	5 17.3 + 60.0 17.7	7 11.6 + 60.0 17.8	9 05.8 + 60.0 17.9	11 00.0 + 60.0 18.0																		11
1 20.2 - 59.9 162.4	0 34.2 + 59.9 17.6	2 28.6 + 59.9 17.6	4 23.0 + 59.9 17.6	6 17.3 + 60.0 17.7	8 11.6 + 60.0 17.8	10 05.8 + 60.0 17.9	12 00.0 + 60.0 18.0																		12
0 20.3 - 59.8 162.5	1 34.1 + 59.9 17.5	3 28.5 + 59.9 17.6	5 22.9 + 60.0 17.6	7 17.3 + 59.9 17.7	9 11.6 + 60.0 17.8	11 05.8 + 60.0 17.9	13 00.0 + 60.0 18.0																		13
0 39.5 + 59.8 17.4	2 34.0 + 59.8 17.5	4 28.4 + 59.9 17.5	6 22.9 + 59.9 17.6	8 17.2 + 60.0 17.6	10 11.6 + 60.0 17.7	12 05.8 + 60.0 17.9	14 00.0 + 60.0 18.0																		14
1 39.3 + 59.9 17.4	3 33.8 + 59.9 17.4	5 28.3 + 60.0 17.4	7 22.8 + 59.9 17.5	9 17.2 + 60.0 17.6	11 11.6 + 59.9 17.7	13 05.8 + 60.0 17.8	15 00.0 + 60.0 18.0																		15
2 39.2 + 59.8 17.3	4 33.7 + 59.9 17.3	6 28.3 + 59.9 17.4	8 22.7 + 60.0 17.5	10 17.2 + 59.9 17.6	12 11.5 + 60.0 17.7	14 05.8 + 60.0 17.8	16 00.0 + 60.0 18.0																		16
3 39.0 + 59.8 17.2	5 33.6 + 59.9 17.3	7 28.2 + 59.9 17.3	9 22.7 + 59.9 17.4	11 17.1 + 60.0 17.5	13 11.5 + 60.0 17.6	15 05.8 + 60.0 17.8	17 00.0 + 60.0 18.0																		17
4 38.8 + 59.9 17.1	6 33.5 + 59.8 17.2	8 28.1 + 59.9 17.3	10 22.6 + 60.0 17.4	12 17.1 + 60.0 17.5	14 11.5 + 60.0 17.6	16 05.8 + 60.0 17.8	18 00.0 + 60.0 18.0																		18
5 38.7 + 59.8 17.1	7 33.3 + 59.9 17.1	9 28.0 + 59.9 17.2	11 22.6 + 59.9 17.3	13 17.1 + 59.9 17.5	15 11.5 + 60.0 17.6	17 05.8 + 60.0 17.8	19 00.0 + 60.0 18.0																		19
6 38.5 + 59.8 17.0	8 33.2 + 59.9 17.1	10 27.9 + 59.9 17.2	12 22.5 + 60.0 17.3	14 17.0 + 60.0 17.4	16 11.5 + 60.0 17.6	18 05.8 + 60.0 17.8	20 00.0 + 60.0 18.0																		20
7 38.3 + 59.8 16.9	9 33.1 + 59.9 17.0	11 27.8 + 59.9 17.1	13 22.5 + 59.9 17.2	15 17.0 + 60.0 17.4	17 11.5 + 59.9 17.6	19 05.8 + 60.0 17.8	21 00.0 + 60.0 18.0																		21
8 38.1 + 59.9 16.8	10 33.0 + 59.8 16.9	12 27.7 + 59.9 17.1	14 22.4 + 59.9 17.2	16 17.0 + 59.9 17.4	18 11.4 + 60.0 17.6	20 05.8 + 60.0 17.8	22 00.0 + 60.0 18.0																		22
9 38.0 + 59.8 16.8	11 32.8 + 59.9 16.9	13 27.6 + 59.9 17.0	15 22.3 + 60.0 17.2	17 16.9 + 60.0 17.3	19 11.4 + 60.0 17.5	21 05.8 + 60.0 17.8	23 00.0 + 60.0 18.0																		23
10 37.8 + 59.8 16.7	12 32.7 + 59.9 16.8	14 27.5 + 59.9 16.9	16 22.3 + 59.9 17.1	18 16.9 + 60.0 17.3	20 11.4 + 60.0 17.5	22 05.8 + 60.0 17.7	24 00.0 + 60.0 18.0																		24
11 37.6 + 59.8 16.6	13 32.6 + 59.8 16.7	15 27.4 + 59.9 16.9	17 22.2 + 60.0 17.1	19 16.9 + 59.9 17.3	21 11.4 + 60.0 17.5	23 05.8 + 60.0 17.7	25 00.0 + 60.0 18.0																		25
12 37.4 + 59.9 16.5	14 32.6 + 59.9 16.7	16 27.3 + 60.0 16.8	18 22.2 + 59.9 17.0	20 16.8 + 60.0 17.2	22 11.4 + 60.0 17.5	24 05.8 + 60.0 17.7	26 00.0 + 60.0 18.0																		26
13 37.3 + 59.8 16.5	15 32.3 + 59.9 16.6	17 27.3 + 59.9 16.8	19 22.1 + 59.9 17.0	21 16.8 + 60.0 17.2	23 11.4 + 60.0 17.4	25 05.8 + 60.0 17.7	27 00.0 + 60.0 18.0																		27
14 37.1 + 59.8 16.4	16 32.3 + 59.8 16.5	18 27.2 + 59.9 16.7	20 22.0 + 60.0 16.9	22 16.8 + 59.9 17.1	24 11.4 + 59.9 17.4	26 05.8 + 60.0 17.7	28 00.0 + 60.0 18.0																		28
15 36.9 + 59.8 16.3	17 32.0 + 59.9 16.5	19 27.1 + 59.9 16.7	21 22.0 + 59.9 16.9	23 16.7 + 60.0 17.1	25 11.3 + 60.0 17.4	27 05.8 + 60.0 17.7	29 00.0 + 60.0 18.0																		29
16 36.7 + 59.8 16.2	18 31.9 + 59.9 16.4	20 27.0 + 59.9 16.6	22 21.9 + 59.9 16.8	24 16.7 + 60.0 17.1	26 11.3 + 60.0 17.4	28 05.8 + 60.0 17.7	30 00.0 + 60.0 18.0																		30
17 36.5 + 59.8 16.1	19 31.8 + 59.8 16.3	21 26.9 + 59.9 16.5	23 21.8 + 60.0 16.8	25 16.7 + 59.9 17.0	27 11.3 + 60.0 17.3	29 05.8 + 60.0 17.6	31 00.0 + 60.0 18.0																		31
18 36.4 + 59.8 16.1	20 31.6 + 59.9 16.2	22 26.8 + 59.9 16.5	24 21.8 + 59.9 16.7	26 16.6 + 60.0 17.0	28 11.3 + 60.0 17.3	30 05.8 + 59.9 17.6	32 00.0 + 60.0 18.0																		32
19 36.2 + 59.8 16.0	21 31.5 + 59.8 16.2	23 26.7 + 59.9 16.4	25 21.7 + 59.9 16.7	27 16.6 + 59.9 17.0	29 11.3 + 59.9 17.3	31 05.7 + 60.0 17.6	33 00.0 + 60.0 18.0																		33
20 36.0 + 59.8 15.9	22 31.3 + 59.9 16.1	24 26.6 + 59.9 16.3	26 21.6 + 60.0 16.6	28 16.5 + 60.0 16.9	30 11.2 + 60.0 17.2	32 05.7 + 60.0 17.6	34 00.0 + 60.0 18.0																		34
21 35.8 + 59.8 15.8	23 31.2 + 59.8 16.0	25 26.5 + 59.8 16.3	27 21.6 + 59.9 16.6	29 16.5 + 60.0 16.9	31 11.2 + 60.0 17.2	33 05.7 + 60.0 17.6	35 00.0 + 60.0 18.0																		35
22 35.6 + 59.8 15.7	24 31.0 + 59.9 15.9	26 26.3 + 59.9 16.2	28 21.5 + 59.9 16.5	30 16.5 + 59.9 16.8	32 11.2 + 60.0 17.2	34 05.7 + 60.0 17.6	36 00.0 + 60.0 18.0																		36
23 35.4 + 59.8 15.6	25 30.9 + 59.8 15.9	27 26.2 + 59.9 16.1	29 21.4 + 59.9 16.4	31 16.4 + 60.0 16.8	33 11.2 + 60.0 17.2	35 05.7 + 60.0 17.6	37 00.0 + 60.0 18.0																		37
24 35.2 + 59.8 15.5	26 30.7 + 59.9 15.8	28 26.1 + 59.9 16.1	30 21.3 + 60.0 16.4	32 16.4 + 59.9 16.7	34 11.2 + 59.9 17.1	36 05.7 + 60.0 17.5	38 00.0 + 60.0 18.0																		38
25 35.0 + 59.8 15.4	27 30.6 + 59.8 15.7	29 26.0 + 59.9 16.0	31 21.3 + 59.9 16.3	33 16.3 + 60.0 16.7	35 11.1 + 60.0 17.1	37 05.7 + 60.0 17.5	39 00.0 + 60.0 18.0																		39
26 34.8 + 59.8 15.3	28 30.4 + 59.9 15.6	30 25.9 + 59.9 15.9	32 21.2 + 59.9 16.3	34 16.3 + 59.9 16.6	36 11.1 + 60.0 17.1	38 05.7 + 60.0 17.5	40 00.0 + 60.0 18.0																		40
27 34.6 + 59.8 15.3	29 30.3 + 59.8 15.5	31 25.8 + 59.9 15.9	33 21.1 + 59.9 16.2	35 16.2 + 60.0 16.6	37 11.1 + 60.0 17.0	39 05.7 + 60.0 17.5	41 00.0 + 60.0 18.0																		41
28 34.4 + 59.7 15.2	30 30.1 + 59.8 15.5	32 25.7 + 59.8 15.8	34 21.0 + 60.0 16.2	36 16.2 + 59.9 16.5	38 11.1 + 60.0 17.0	40 05.7 + 60.0 17.5	42 00.0 + 60.0 18.0																		42
29 34.1 + 59.8 15.1	31 29.9 + 59.9 15.4	33 25.5 + 59.9 15.7	35 21.0 + 59.9 16.1	37 16.1 + 60.0 16.5	39 11.1 + 59.9 17.0	41 05.7 + 60.0 17.5	43 00.0 + 60.0 18.0																		43
30 33.9 + 59.8 15.0	32 29.8 + 59.8 15.3	34 25.4 + 59.9 15.6	36 20.9 + 59.9 16.0	38 16.1 + 59.9 16.4	40 11.0 + 60.0 16.9	42 05.7 + 60.0 17.4	44 00.0 + 60.0 18.0																		44
31 33.7 + 59.7 14.9	33 29.6 + 59.8 15.2	35 25.3 + 59.9 15.6	37 20.8 + 59.9 16.0	39 16.0 + 60.0 16.4	41 11.0 + 60.0 16.9	43 05.7 + 60.0 17.4	45 00.0 + 60.0 18.0																		

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	28 01.5	+58.8	157.2	26 10.7	+59.0	157.6	24 19.6	+59.2	158.0	22 28.2	+59.3	158.3	20 36.6	+59.5	158.6	18 44.8	+59.6	158.8	16 52.8	+59.7	159.1	15 00.7	+59.7	159.3
1	29 00.3	+58.8	157.0	27 09.7	+59.0	157.4	25 18.8	+59.1	157.8	23 27.5	+59.3	158.1	21 36.1	+59.4	158.4	19 44.4	+59.5	158.7	17 52.5	+59.6	158.9	16 00.4	+59.7	159.2
2	29 59.1	+58.8	156.8	28 08.7	+59.0	157.2	26 17.9	+59.2	157.6	24 26.8	+59.3	157.9	22 35.5	+59.4	158.3	20 43.9	+59.5	158.6	18 52.1	+59.6	158.8	17 00.1	+59.7	159.1
3	30 57.9	+58.8	156.5	29 07.7	+59.0	157.0	27 17.1	+59.1	157.4	25 26.1	+59.3	157.8	23 34.9	+59.4	158.1	21 43.4	+59.5	158.4	19 51.7	+59.6	158.7	17 59.8	+59.7	159.0
4	31 56.7	+58.8	156.3	30 06.7	+58.9	156.8	28 16.2	+59.1	157.2	26 25.4	+59.3	157.6	24 34.3	+59.4	158.0	22 42.9	+59.6	158.3	20 51.3	+59.7	158.6	18 59.5	+59.7	158.8
5	32 55.5	+58.7	156.1	31 05.6	+58.9	156.6	29 15.3	+59.1	157.0	27 24.7	+59.2	157.4	25 33.7	+59.4	157.8	23 42.5	+59.5	158.2	21 51.0	+59.6	158.5	19 59.2	+59.7	158.7
6	33 54.2	+58.7	155.8	32 04.5	+58.9	156.3	30 14.4	+59.1	156.8	28 23.9	+59.3	157.3	26 33.1	+59.4	157.7	24 42.0	+59.5	158.0	22 50.6	+59.6	158.3	20 58.9	+59.7	158.6
7	34 52.9	+58.7	155.6	33 03.4	+58.9	156.1	31 13.5	+59.1	156.6	29 32.9	+59.2	157.1	27 32.5	+59.3	157.5	25 41.5	+59.4	157.9	23 50.2	+59.6	158.2	21 58.6	+59.7	158.5
8	35 51.6	+58.6	155.3	34 02.3	+58.9	155.9	32 12.6	+59.0	156.4	30 22.4	+59.2	156.9	28 31.8	+59.4	157.3	26 40.9	+59.5	157.7	24 49.8	+59.6	158.1	22 58.3	+59.7	158.4
9	36 50.2	+58.6	155.0	35 01.2	+58.8	155.6	33 11.6	+59.0	156.2	31 21.6	+59.2	156.7	29 31.2	+59.3	157.2	27 40.4	+59.5	157.6	25 49.3	+59.6	158.0	23 58.0	+59.7	158.3
10	37 48.8	+58.6	154.8	36 00.0	+58.8	155.4	34 10.6	+59.0	156.0	32 20.6	+59.2	156.5	30 30.5	+59.4	157.0	28 39.9	+59.5	157.4	26 48.9	+59.6	157.8	24 57.7	+59.6	158.2
11	38 47.4	+58.5	154.5	36 58.8	+58.7	155.1	35 09.6	+59.0	155.8	33 20.0	+59.1	156.3	31 29.9	+59.3	156.8	29 39.4	+59.4	157.3	27 48.5	+59.6	157.7	25 57.3	+59.7	158.1
12	39 45.9	+58.5	154.2	37 57.5	+58.7	154.9	36 08.6	+58.9	155.5	34 19.1	+59.1	156.1	32 29.2	+59.3	156.6	30 38.8	+59.4	157.1	28 48.1	+59.6	157.6	26 57.0	+59.7	158.0
13	40 44.4	+58.4	153.9	38 56.2	+58.7	154.6	37 07.5	+58.9	155.3	35 18.2	+59.2	155.9	33 28.5	+59.2	156.5	31 38.2	+59.5	157.0	29 47.6	+59.6	157.4	27 56.7	+59.6	157.8
14	41 42.8	+58.4	153.6	39 54.9	+58.7	154.4	38 06.4	+58.9	155.1	36 17.4	+59.0	155.7	34 27.7	+59.3	156.3	32 37.7	+59.4	156.8	30 47.2	+59.6	157.3	28 56.3	+59.7	157.7
15	42 41.2	+58.3	153.3	40 53.6	+58.6	154.1	39 05.3	+58.9	154.8	37 16.4	+59.1	155.5	35 27.0	+59.2	156.1	33 37.1	+59.4	156.6	31 46.7	+59.5	157.1	29 56.0	+59.6	157.6
16	43 39.5	+58.3	153.0	41 52.2	+58.6	153.8	40 04.2	+58.8	154.6	38 15.5	+59.0	155.2	36 26.2	+59.3	155.9	34 36.5	+59.4	156.5	32 46.2	+59.6	157.0	30 55.6	+59.6	157.5
17	44 37.8	+58.2	152.7	42 50.8	+58.5	153.5	41 03.0	+58.8	154.3	39 14.5	+59.0	155.0	37 25.5	+59.2	155.7	35 35.9	+59.3	156.3	33 45.8	+59.5	156.8	31 55.2	+59.7	157.3
18	45 36.0	+58.1	152.3	43 49.3	+58.5	153.2	42 01.8	+58.7	154.0	40 13.5	+59.0	154.8	38 24.7	+59.2	155.5	36 35.2	+59.4	156.1	34 45.3	+59.6	157.2	32 54.9	+59.6	157.2
19	46 34.1	+58.1	151.9	44 47.8	+58.4	152.9	43 00.5	+58.7	153.8	41 12.5	+59.0	154.5	39 23.9	+59.1	155.3	37 34.6	+59.3	155.9	35 44.8	+59.4	156.5	33 54.5	+59.6	157.1
20	47 32.2	+58.0	151.6	45 46.2	+58.3	152.6	43 59.2	+58.7	153.5	42 11.5	+58.9	154.3	40 23.0	+59.1	155.0	38 33.9	+59.3	155.7	36 44.2	+59.5	156.2	34 54.1	+59.6	156.9
21	48 30.2	+57.9	151.2	46 44.5	+58.3	152.2	44 57.9	+58.6	153.2	43 10.4	+58.9	154.0	41 22.1	+59.2	154.8	39 33.2	+59.3	155.5	37 43.7	+59.5	156.2	35 53.7	+59.6	156.8
22	49 28.1	+57.9	150.8	47 42.8	+58.3	151.9	45 56.5	+58.6	152.9	44 09.3	+58.8	153.8	42 21.3	+59.0	154.6	40 32.5	+59.3	155.3	38 43.2	+59.4	156.0	36 53.3	+59.6	156.6
23	50 26.0	+57.7	150.4	48 41.1	+58.1	151.5	46 55.1	+58.5	152.6	45 08.1	+58.8	153.5	43 20.3	+59.1	154.4	41 31.8	+59.2	155.1	39 42.6	+59.4	155.8	37 52.8	+59.6	156.5
24	51 23.7	+57.7	149.9	49 39.2	+58.1	151.1	47 53.6	+58.4	152.2	46 06.9	+58.8	153.2	44 19.4	+59.0	154.1	42 31.0	+59.3	154.9	40 42.0	+59.4	155.7	38 52.4	+59.6	156.3
25	52 21.4	+57.5	149.5	50 37.3	+58.0	150.8	48 52.0	+58.4	151.9	47 05.7	+58.7	152.9	45 18.4	+59.0	153.8	43 30.3	+59.2	154.7	41 41.4	+59.4	155.5	39 52.0	+59.5	156.2
26	53 18.9	+57.5	149.0	51 35.3	+57.9	150.3	49 50.4	+58.3	151.5	48 04.4	+58.6	152.6	46 17.4	+58.9	153.6	44 29.5	+59.2	154.5	42 40.8	+59.4	155.3	40 51.5	+59.5	156.0
27	54 16.4	+57.3	148.5	52 33.2	+57.9	149.9	50 48.7	+58.3	151.2	49 03.0	+58.6	152.3	47 16.3	+58.9	153.3	45 28.7	+59.1	154.2	43 40.2	+59.3	155.1	41 51.0	+59.5	155.9
28	55 13.7	+57.1	148.0	53 31.1	+57.7	149.5	51 47.0	+58.2	150.8	50 01.6	+58.6	152.0	48 15.2	+58.9	153.0	46 27.8	+59.1	154.0	44 39.5	+59.4	154.9	42 50.5	+59.5	155.7
29	56 10.8	+57.0	147.5	54 28.8	+57.6	149.0	52 45.2	+58.0	150.4	51 00.2	+58.5	151.6	49 14.1	+58.8	152.7	47 26.9	+59.1	153.7	45 38.9	+59.3	154.7	43 50.0	+59.5	155.5
30	57 07.8	+56.9	146.9	55 26.4	+57.5	148.5	53 43.2	+58.0	150.0	51 58.7	+58.4	151.3	50 12.9	+58.7	152.4	48 26.0	+59.0	153.5	46 38.2	+59.2	154.4	44 49.5	+59.5	155.3
31	58 04.7	+56.7	146.3	56 23.9	+57.3	148.0	54 41.2	+57.9	149.5	52 57.1	+58.3	150.9	51 11.6	+58.7	152.1	49 25.0	+59.0	153.2	47 37.4	+59.3	154.2	45 49.0	+59.4	155.1
32	59 01.4	+56.5	145.7	57 21.2	+57.2	147.5	55 39.1	+57.8	149.1	53 55.4	+58.3	150.5	52 10.3	+58.7	151.8	50 24.0	+59.0	152.9	48 36.7	+59.2	154.0	46 48.4	+59.4	154.9
33	59 57.9	+56.3	145.0	58 18.4	+57.1	146.9	56 36.9	+57.7	148.6	54 53.7	+58.2	150.1	53 09.0	+58.6	151.4	51 23.0	+58.9	152.6	49 35.9	+59.2	153.7	47 47.8	+59.4	154.7
34	60 54.2	+56.0	144.3	59 15.5	+56.8	146.3	57 34.6	+57.5	148.1	55 51.9	+58.0	149.6	54 07.6	+58.5	151.1	52 21.9	+58.9	152.3	50 35.1	+59.1	153.5	48 47.2	+59.4	154.5
35	61 50.2	+55.8	143.6	60 12.3	+56.7	145.7	58 32.1	+57.4	147.5	56 49.9	+58.0	149.2	55 06.1	+58.4	150.7	53 20.8	+58.8	152.0	51 34.2	+59.1	153.2	49 46.6	+59.3	154.3
36	62 46.0	+55.5	142.8	61 09.0	+56.5	145.0	59 29.5	+57.3	147.0	57 47.9	+57.9	148.7	56 04.5	+58.4	150.3	54 19.6	+58.7	151.7	52 33.3	+59.1	152.9	50 45.9	+59.3	154.1
37	63 41.5	+55.2	142.1	62 05.5	+56.2	144.3	60 26.8	+57.0	146.4	58 45.8	+57.7	148.2	57 02.9	+58.2	149.9	55 18.3	+58.7	151.3	53 32.4	+59.0	152.6	51 45.2	+59.3	153.8
38	64 36.7	+54.8	141.0	63 01.7	+56.0	143.5	61 23.8	+56.9	145.7	59 43.5	+57.6	147.7	58 01.1	+58.2	149.4	56 17.0	+58.6	151.0	54 31.4	+59.0	152.3	52 44.5	+59.3	153.6
39	65 31.5	+54.5	140.1	63 57.7	+55.7	142.7	62 20.7	+56.7	145.1	60 41.1	+57.5	147.1	58 59.3	+58.1	148.9	57 15.6	+58.6	150.6	55 30.4	+58.9	152.0	53 43.8	+59.2	153.3
40	66 26.0	+54.0	139.1	64 53.4	+55.4	141.9	63 17.4	+56.4	144.3	61 38.6	+57.3	146.5	59 57.4	+57.9	148.9	58 14.2	+58.4	150.2	56 29.3	+58.9	151.7	54 43.0	+59.2	153.0
41	67 20.0	+53.5	137.9	65 48.8	+55.0	140.9	64 13.8	+56.2	143.6	62 35.9	+57.0	145.9	60 55.3	+57.6	148.4	59 12.6	+58.4	149.7	57 28.2	+58.9	151.5	55 42.2	+59.1	152.7
42	68 13.5	+53.0	136.8	66 43.8	+54.6	140.0	65 10.0	+55.9	142.8	63 32.9	+56.9	145.2	61 53.1	+57.7	147.4	60 11.0	+58.3	149.3	58 26.9	+58.8	150.9	56 43.1	+59.1	152.4
43	69 06.5	+52.3	135.5	67 38.4	+54.2	138.9	66 05.9	+55.6	141.9	64 29.8	+56.7	144.5	62 50.8	+57.5	146.8	61 09.3	+58.1	148.8	59 25.7	+58.6	150.5	57 40.4	+59.0	152.1
44	69 58.8	+51.6	134.1	68 32.6	+53.6	137.7	67 01.5	+55.2	140.9	65 26.5	+56.4	143.7	63 48.3	+57.3	146.1	62 07.4	+58.0	148.3	60 24.3	+58.6	150.1	58 39.4	+59.0	151.8
45	70 50.4	+50.8	132.5	69 26.2	+53.1	136.5	67 56.7	+54.8	139.8	66 22.9	+56.1	142.9	64 45.6	+57.1	145.4	63 05.4	+57.9	147.7	61 22.9	+58.5	149.7	59 38.4	+58.9	151.4
46	71 41.2	+49.8	130.9																					

LATITUDE CONTRARY NAME

L.H.A. 20°, 340°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
28 01.5	-58.9	157.2	26 10.7	-59.1	157.6	24 19.6	-59.2	158.0	22 28.2	-59.3	158.3	20 36.6	-59.4	158.6	18 44.8	-59.5	158.8	16 52.8	-59.6	159.1	15 00.7	-59.7	159.3	0
27 02.6	-58.9	157.4	25 11.6	-59.0	157.8	23 20.4	-59.2	158.1	21 28.9	-59.3	158.4	19 37.2	-59.4	158.7	17 45.3	-59.5	159.0	15 53.2	-59.6	159.2	14 01.0	-59.7	159.4	1
26 03.7	-58.9	157.6	24 12.6	-59.1	158.0	22 21.2	-59.2	158.3	20 29.6	-59.4	158.6	18 37.8	-59.5	158.9	16 45.7	-59.5	159.1	14 53.6	-59.7	159.3	13 01.3	-59.8	159.5	2
25 04.8	-58.9	157.8	23 13.5	-59.1	158.2	21 22.0	-59.2	158.5	19 30.2	-59.3	158.8	17 38.3	-59.5	159.0	15 46.2	-59.6	159.2	13 53.9	-59.6	159.4	12 01.5	-59.7	159.6	3
24 05.9	-59.0	158.1	22 14.4	-59.1	158.4	20 22.8	-59.3	158.7	18 30.9	-59.4	158.9	16 38.8	-59.4	159.1	14 46.6	-59.5	159.3	12 54.3	-59.7	159.5	11 01.8	-59.7	159.7	4
23 06.9	-59.0	158.3	21 15.3	-59.1	158.6	19 23.5	-59.2	158.8	17 31.5	-59.3	159.1	15 39.4	-59.5	159.3	13 47.1	-59.6	159.5	11 54.6	-59.6	159.6	10 02.1	-59.7	159.8	5
22 07.9	-58.9	158.5	20 16.2	-59.1	158.7	18 24.3	-59.3	159.0	16 32.2	-59.4	159.2	14 39.9	-59.5	159.4	12 47.5	-59.6	159.6	10 55.0	-59.7	159.7	9 02.4	-59.8	159.9	6
21 09.0	-59.0	158.7	19 17.1	-59.1	158.9	17 25.0	-59.2	159.2	15 32.8	-59.4	159.4	13 40.4	-59.4	159.6	11 47.9	-59.5	159.7	9 55.3	-59.6	159.8	8 02.6	-59.7	159.9	7
20 10.0	-59.0	158.8	18 18.0	-59.2	159.1	16 25.8	-59.3	159.3	14 33.4	-59.3	159.5	12 41.0	-59.5	159.7	10 48.4	-59.6	159.8	8 55.7	-59.7	159.9	7 02.9	-59.7	160.0	8
19 11.0	-59.0	159.0	17 18.8	-59.1	159.3	15 26.5	-59.3	159.5	13 34.1	-59.4	159.7	11 41.5	-59.5	159.8	9 48.8	-59.6	160.0	7 56.0	-59.6	160.1	6 03.2	-59.7	160.1	9
18 12.0	-59.1	159.2	16 19.7	-59.2	159.5	14 27.2	-59.2	159.6	12 34.7	-59.4	159.8	10 42.0	-59.5	160.0	8 49.2	-59.6	160.1	6 56.4	-59.7	160.2	5 03.5	-59.8	160.2	10
17 12.9	-59.0	159.4	15 20.5	-59.1	159.6	13 28.0	-59.3	159.8	11 35.3	-59.4	160.0	9 42.5	-59.5	160.1	7 49.6	-59.5	160.2	5 56.7	-59.7	160.3	4 03.7	-59.7	160.3	11
16 13.9	-59.0	159.6	14 21.4	-59.2	159.8	12 28.7	-59.3	160.0	10 35.9	-59.4	160.1	8 43.0	-59.5	160.2	6 50.1	-59.6	160.3	4 57.0	-59.6	160.4	3 04.0	-59.7	160.4	12
15 14.9	-59.1	159.8	13 22.2	-59.2	160.0	11 29.4	-59.3	160.1	9 36.5	-59.4	160.2	7 43.5	-59.5	160.3	5 50.5	-59.6	160.4	3 57.4	-59.7	160.5	2 04.3	-59.8	160.5	13
14 15.8	-59.1	160.0	12 23.0	-59.2	160.1	10 30.1	-59.3	160.3	8 37.1	-59.4	160.4	6 44.0	-59.5	160.5	4 50.9	-59.6	160.5	2 57.7	-59.6	160.6	1 04.5	-59.7	160.6	14
13 16.7	-59.0	160.2	11 23.8	-59.2	160.3	9 30.8	-59.3	160.4	7 37.7	-59.4	160.5	5 44.5	-59.5	160.6	3 51.3	-59.6	160.7	1 58.1	-59.7	160.7	0 04.8	-59.7	160.7	15
12 17.7	-59.1	160.3	10 24.6	-59.2	160.5	8 31.5	-59.3	160.6	6 38.3	-59.4	160.7	4 45.0	-59.5	160.7	2 51.7	-59.6	160.8	0 58.4	-59.7	160.8	0 54.9	-59.8	160.8	16
11 18.6	-59.1	160.5	9 25.4	-59.2	160.6	7 32.2	-59.3	160.7	5 38.9	-59.4	160.8	3 45.5	-59.5	160.9	1 52.1	-59.6	160.9	0 52.5	-59.6	160.9	0 01.3	+59.6	19.1	17
10 19.5	-59.1	160.7	8 26.2	-59.2	160.8	6 32.9	-59.4	160.9	4 39.5	-59.5	161.0	2 46.0	-59.5	161.0	0 52.5	-59.5	161.0	0 07.0	+59.6	18.9	1 00.9	+59.7	19.0	18
9 20.4	-59.1	160.9	7 27.0	-59.2	161.0	5 33.5	-59.3	161.0	3 40.0	-59.4	161.1	1 46.5	-59.5	161.1	0 47.0	-59.5	161.1	0 07.0	+59.6	18.9	2 00.6	+59.7	18.9	19
8 21.3	-59.1	161.0	6 27.8	-59.2	161.1	4 34.2	-59.3	161.2	2 40.6	-59.4	161.2	0 47.0	-59.5	161.3	1 06.6	+59.6	18.8	3 00.3	+59.6	18.8	4 53.9	+59.7	18.8	20
7 22.2	-59.1	161.2	5 28.6	-59.2	161.3	3 34.9	-59.3	161.3	1 41.2	-59.4	161.4	0 12.5	+59.5	18.6	2 06.2	+59.6	18.6	3 59.9	+59.7	18.7	5 53.6	+59.7	18.7	21
6 23.1	-59.1	161.4	4 29.4	-59.2	161.5	2 35.6	-59.3	161.5	0 41.8	-59.4	161.5	1 12.0	+59.5	18.5	3 05.8	+59.6	18.5	4 59.6	+59.6	18.6	6 53.3	+59.8	18.6	22
5 24.0	-59.1	161.6	3 30.2	-59.3	161.6	1 36.3	-59.4	161.6	0 17.6	+59.4	18.4	2 11.5	+59.5	18.4	4 05.4	+59.6	18.4	5 59.2	+59.7	18.5	7 53.1	+59.7	18.5	24
4 24.9	-59.1	161.7	2 30.9	-59.2	161.8	0 36.9	-59.3	161.8	1 17.0	+59.5	18.2	3 2.0	+59.5	18.2	5 05.0	+59.6	18.3	6 58.9	+59.7	18.3	8 52.8	+59.7	18.4	24
3 25.8	-59.1	161.9	1 31.7	-59.2	161.9	0 22.4	+59.3	18.1	2 16.5	+59.4	18.1	4 10.5	+59.5	18.1	6 04.6	+59.5	18.2	7 58.6	+59.6	18.2	9 52.5	+59.7	18.3	25
2 26.7	-59.2	162.1	0 32.5	-59.2	162.1	1 21.7	+59.3	17.9	3 15.9	+59.4	17.9	5 10.0	+59.5	18.0	7 04.1	+59.6	18.0	8 58.2	+59.7	18.1	10 52.2	+59.7	18.2	26
1 27.6	-59.2	162.3	0 26.7	+59.2	17.7	2 21.0	+59.3	17.8	4 15.3	+59.4	17.8	6 09.5	+59.5	17.8	8 03.7	+59.6	17.9	9 57.9	+59.6	18.0	11 51.9	+59.8	18.1	27
0 28.4	-59.1	162.4	1 25.9	+59.3	17.6	3 20.3	+59.4	17.6	5 14.7	+59.4	17.7	7 09.0	+59.5	17.7	9 03.3	+59.6	17.8	10 57.5	+59.7	17.9	12 51.7	+59.7	18.0	28
0 30.7	+59.1	17.4	2 25.2	+59.2	17.4	4 19.7	+59.3	17.5	6 14.1	+59.4	17.5	8 08.5	+59.5	17.6	10 02.9	+59.6	17.7	11 57.2	+59.6	17.8	13 51.4	+59.7	17.9	29
1 29.8	+59.1	17.2	3 24.4	+59.2	17.3	5 19.0	+59.3	17.3	7 13.5	+59.4	17.4	9 08.0	+59.5	17.5	11 02.5	+59.5	17.6	12 56.8	+59.7	17.7	14 51.1	+59.7	17.8	30
2 28.9	+59.1	17.1	4 23.6	+59.2	17.1	6 18.3	+59.3	17.2	8 12.9	+59.4	17.2	10 07.5	+59.5	17.3	12 02.0	+59.6	17.4	13 56.1	+59.6	17.5	15 50.8	+59.7	17.7	31
3 28.0	+59.1	16.9	5 22.8	+59.2	16.9	7 17.6	+59.3	17.0	9 12.3	+59.4	17.1	11 07.0	+59.5	17.2	13 01.6	+59.6	17.3	14 56.1	+59.6	17.4	16 50.5	+59.7	17.6	32
4 27.1	+59.1	16.7	6 22.0	+59.2	16.8	8 16.9	+59.3	16.8	10 11.7	+59.4	16.9	12 06.5	+59.5	17.1	14 01.2	+59.5	17.2	15 55.7	+59.7	17.4	17 50.2	+59.7	17.5	33
5 26.2	+59.1	16.5	7 21.2	+59.3	16.6	9 16.2	+59.3	16.7	11 11.1	+59.4	16.8	13 06.0	+59.4	16.9	15 00.7	+59.6	17.1	16 55.4	+59.6	17.2	18 49.9	+59.7	17.4	34
6 25.3	+59.1	16.4	8 20.5	+59.2	16.4	10 15.5	+59.3	16.5	12 10.5	+59.4	16.7	14 05.4	+59.5	16.8	16 00.3	+59.5	16.9	17 55.0	+59.6	17.1	19 49.6	+59.7	17.3	35
7 24.4	+59.1	16.2	9 19.7	+59.2	16.3	11 14.8	+59.3	16.4	13 09.9	+59.4	16.5	15 04.9	+59.5	16.7	16 59.8	+59.6	16.8	18 54.6	+59.7	17.0	20 49.3	+59.7	17.2	36
8 23.5	+59.1	16.0	10 18.9	+59.1	16.1	12 14.1	+59.3	16.2	14 09.3	+59.4	16.4	16 04.4	+59.4	16.5	17 59.4	+59.5	16.7	19 54.3	+59.6	16.9	21 49.0	+59.7	17.1	37
9 22.6	+59.1	15.9	11 18.0	+59.2	16.0	13 13.4	+59.3	16.1	15 08.7	+59.3	16.2	17 03.8	+59.5	16.4	18 58.9	+59.6	16.6	20 53.9	+59.6	16.8	22 48.7	+59.7	17.0	38
10 21.7	+59.1	15.7	12 17.2	+59.2	15.8	14 12.7	+59.2	15.9	16 08.0	+59.4	16.1	18 03.3	+59.4	16.2	19 58.5	+59.5	16.4	21 53.5	+59.6	16.6	23 48.4	+59.7	16.9	39
11 20.8	+59.1	15.5	13 16.4	+59.2	15.6	15 11.9	+59.3	15.8	17 07.4	+59.4	15.9	19 02.7	+59.5	16.1	20 58.0	+59.5	16.3	22 53.1	+59.6	16.5	24 48.1	+59.6	16.8	40
12 19.9	+59.1	15.3	14 15.6	+59.2	15.4	16 11.2	+59.3	15.6	18 06.8	+59.3	15.8	20 02.2	+59.4	15.9	21 57.5	+59.5	16.2	23 52.7	+59.6	16.4	25 47.7	+59.7	16.7	41
13 19.0	+59.0	15.1	15 14.8	+59.1	15.3	17 10.5	+59.2	15.4	19 06.1	+59.3	15.6	21 01.6	+59.5	15.8	22 57.0	+59.5	16.0	24 52.3	+59.6	16.3	26 47.4	+59.7	16.5	42
14 18.0	+59.1	15.0	16 13.9	+59.2	15.1	18 09.7	+59.3	15.3	20 05.4	+59.4	15.4	22 01.1	+59.4	15.5	23 56.5	+59.5	15.9	25 51.9	+59.6	16.1	27 47.1	+59.6	16.4	43
15 17.1	+59.0	14.8	17 13.1	+59.1	14.9	19 09.0	+59.2	15.1	21 04.8	+59.3	15.3	23 00.5	+59.4	15.7	24 56.0	+59.5	15.7	26 51.5	+59.5	15.6	28 46.7	+59.7	16.3	44
16 16.1	+59.1	14.6	18 12.2	+59.1	14.7	20 08.2	+59.2	14.9	22 04.1	+59.3	15.1	23 59.9	+59.4	15.4	25 55.5	+59.5	15.6	27 51.0	+59.6	15.9	29 46.4	+59.6	16.2	45
17 15.2	+59.0	14.4	19 11.3	+59.2	14.6	21 07.4	+59.2	14.8	23 03.4	+59.3	15.0	24 59.3	+59.4	15.2	26 55.0	+59.5	15.5	28 50.6	+59.6	15.7	30 46.0	+59.7	16.1	46
18 14.2	+59.0	14.2	20 10.5	+59.1	14.4	22 06.6	+59.2	14.6	24 02.7	+59.3	14.8	25 5												

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	13 08.4	+59.8	159.4	11 16.0	+59.8	159.6	9 23.5	+59.9	159.7	7 30.9	+59.9	159.8	5 38.2	+60.0	159.9	3 45.5	+60.0	160.0	1 52.8	+60.0	160.0	0 00.0	+60.0	160.0
1	14 08.2	+59.8	159.4	12 15.8	+59.9	159.5	10 23.4	+59.9	159.7	8 30.8	+59.9	159.8	6 38.2	+59.9	159.9	4 45.5	+60.0	159.9	2 52.8	+60.0	160.0	1 00.0	+60.0	160.0
2	15 08.0	+59.7	159.3	13 15.7	+59.8	159.4	11 23.3	+59.8	159.6	9 30.7	+60.0	159.7	7 38.1	+60.0	159.8	5 45.5	+60.0	159.9	3 52.8	+59.9	160.0	2 00.0	+60.0	160.0
3	16 07.7	+59.8	159.2	14 15.5	+59.8	159.4	12 23.1	+59.9	159.5	10 30.7	+59.9	159.7	8 38.1	+60.0	159.8	6 45.5	+59.9	159.9	4 52.7	+60.0	160.0	3 00.0	+60.0	160.0
4	17 07.5	+59.8	159.1	15 15.3	+59.9	159.3	13 23.0	+59.9	159.5	11 30.6	+59.9	159.6	9 38.1	+59.9	159.8	7 45.4	+60.0	159.9	5 52.7	+60.0	159.9	4 00.0	+60.0	160.0
5	18 07.3	+59.8	159.0	16 15.2	+59.8	159.2	14 22.9	+59.9	159.4	12 30.5	+60.0	159.6	10 38.0	+60.0	159.7	8 45.4	+60.0	159.8	6 52.7	+60.0	159.8	5 00.0	+60.0	160.0
6	19 07.1	+59.7	158.9	17 15.0	+59.9	159.1	15 22.8	+59.9	159.3	13 30.5	+59.9	159.5	11 38.0	+59.9	159.7	9 45.4	+60.0	159.8	7 52.7	+60.0	159.9	6 00.0	+60.0	160.0
7	20 06.8	+59.8	158.8	18 14.9	+59.8	159.1	16 22.7	+59.9	159.3	14 30.4	+59.9	159.5	12 37.9	+60.0	159.6	10 45.4	+60.0	159.8	8 52.7	+60.0	159.9	7 00.0	+60.0	160.0
8	21 06.6	+59.8	158.7	19 14.7	+59.8	159.0	17 22.6	+59.9	159.2	15 30.3	+59.9	159.4	13 37.9	+60.0	159.6	11 45.4	+59.9	159.8	9 52.7	+60.0	159.9	8 00.0	+60.0	160.0
9	22 06.4	+59.7	158.6	20 14.5	+59.8	158.9	18 22.5	+59.8	159.1	16 30.2	+60.0	159.4	14 37.9	+59.9	159.6	12 45.3	+60.0	159.7	10 52.7	+60.0	159.9	9 00.0	+60.0	160.0
10	23 06.1	+59.8	158.5	21 14.3	+59.9	158.8	19 22.3	+59.9	159.1	17 30.2	+59.9	159.3	15 37.8	+60.0	159.5	13 45.3	+60.0	159.7	11 52.7	+60.0	159.9	10 00.0	+60.0	160.0
11	24 05.9	+59.7	158.4	22 14.2	+59.8	158.7	20 22.2	+59.9	159.0	18 30.1	+59.9	159.3	16 37.8	+59.9	159.5	14 45.3	+60.0	159.7	12 52.7	+60.0	159.9	11 00.0	+60.0	160.0
12	25 05.6	+59.8	158.3	23 14.0	+59.8	158.6	21 22.1	+59.9	158.9	19 30.0	+59.9	159.2	17 37.7	+60.0	159.4	15 45.3	+60.0	159.7	13 52.7	+60.0	159.8	12 00.0	+60.0	160.0
13	26 05.4	+59.7	158.2	24 13.8	+59.8	158.6	22 22.0	+59.9	158.9	20 29.9	+60.0	159.2	18 37.7	+59.9	159.4	16 45.3	+60.0	159.6	14 52.7	+60.0	159.8	13 00.0	+60.0	160.0
14	27 05.1	+59.8	158.1	25 13.6	+59.8	158.5	23 21.9	+59.8	158.8	21 29.9	+59.9	159.1	19 37.6	+60.0	159.4	17 45.3	+59.9	159.5	15 52.7	+60.0	159.8	14 00.0	+60.0	160.0
15	28 04.9	+59.7	158.0	26 13.4	+59.8	158.4	24 21.7	+59.9	158.7	22 29.8	+59.9	159.0	20 37.6	+60.0	159.3	18 45.2	+60.0	159.6	16 52.7	+60.0	159.8	15 00.0	+60.0	160.0
16	29 04.6	+59.7	157.9	27 13.2	+59.8	158.3	25 21.6	+59.9	158.7	23 29.7	+59.9	159.0	21 37.6	+59.9	159.3	19 45.2	+60.0	159.6	17 52.7	+60.0	159.8	16 00.0	+60.0	160.0
17	30 04.3	+59.7	157.8	28 13.0	+59.8	158.2	26 21.5	+59.8	158.6	24 29.6	+59.9	158.9	22 37.5	+60.0	159.2	20 45.2	+60.0	159.5	18 52.7	+60.0	159.8	17 00.0	+60.0	160.0
18	31 04.0	+59.8	157.7	29 12.8	+59.8	158.1	27 21.3	+59.9	158.5	25 29.5	+59.9	158.9	23 37.5	+59.9	159.2	21 45.2	+60.0	159.5	19 52.7	+60.0	159.8	18 00.0	+60.0	160.0
19	32 03.8	+59.7	157.6	30 12.6	+59.8	158.0	28 21.2	+59.9	158.4	26 29.4	+60.0	158.8	24 37.4	+60.0	159.2	22 45.2	+59.9	159.5	20 52.7	+60.0	159.8	19 00.0	+60.0	160.0
20	33 03.5	+59.7	157.5	31 12.4	+59.8	157.9	29 21.1	+59.8	158.4	27 29.4	+59.9	158.8	25 37.4	+59.9	159.1	23 45.1	+60.0	159.4	21 52.7	+60.0	159.7	20 00.0	+60.0	160.0
21	34 03.2	+59.7	157.3	32 12.2	+59.8	157.8	30 20.9	+59.9	158.3	28 29.3	+59.9	158.7	26 37.3	+60.0	159.1	24 45.1	+60.0	159.4	22 52.7	+60.0	159.7	21 00.0	+60.0	160.0
22	35 02.9	+59.6	157.2	33 12.0	+59.8	157.7	31 20.8	+59.8	158.2	29 29.2	+59.9	158.6	27 37.3	+59.9	159.0	25 45.1	+60.0	159.4	23 52.7	+60.0	159.7	22 00.0	+60.0	160.0
23	36 02.5	+59.7	157.1	34 11.8	+59.8	157.6	32 20.6	+59.8	158.1	30 29.1	+59.9	158.6	28 37.2	+60.0	159.0	26 45.1	+60.0	159.4	24 52.7	+59.9	159.7	23 00.0	+60.0	160.0
24	37 02.2	+59.7	157.0	35 11.6	+59.7	157.5	33 20.5	+59.8	158.0	31 29.0	+59.9	158.5	29 37.2	+59.9	158.9	27 45.1	+59.9	159.3	25 52.6	+60.0	159.7	24 00.0	+60.0	160.0
25	38 01.9	+59.7	156.8	36 11.3	+59.8	157.4	34 20.3	+59.9	158.0	32 28.9	+59.9	158.4	30 37.1	+60.0	158.9	28 45.0	+60.0	159.3	26 52.6	+60.0	159.7	25 00.0	+60.0	160.0
26	39 01.6	+59.6	156.7	37 11.1	+59.8	157.3	35 20.2	+59.8	157.9	33 28.8	+59.9	158.4	31 37.1	+59.9	158.8	29 45.0	+60.0	159.3	27 52.6	+60.0	159.6	26 00.0	+60.0	160.0
27	40 01.2	+59.7	156.6	38 10.9	+59.7	157.2	36 20.0	+59.8	157.8	34 28.7	+59.9	158.3	32 37.0	+60.0	158.8	30 45.0	+60.0	159.2	28 52.6	+60.0	159.6	27 00.0	+60.0	160.0
28	41 00.9	+59.6	156.4	39 10.6	+59.8	157.1	37 19.8	+59.9	157.7	35 28.6	+59.9	158.2	33 37.0	+59.9	158.7	31 45.0	+59.9	159.2	29 52.6	+60.0	159.6	28 00.0	+60.0	160.0
29	42 00.5	+59.6	156.3	40 10.4	+59.7	157.0	38 19.7	+59.8	157.6	36 28.5	+59.9	158.2	34 36.9	+60.0	158.7	32 44.9	+60.0	159.2	30 52.6	+60.0	159.6	29 00.0	+60.0	160.0
30	43 00.1	+59.6	156.1	41 10.1	+59.7	156.8	39 19.5	+59.8	157.5	37 28.4	+59.9	158.1	35 36.9	+59.9	158.6	33 44.9	+60.0	159.1	31 52.6	+60.0	159.6	30 00.0	+60.0	160.0
31	43 59.7	+59.6	156.0	42 09.8	+59.7	156.7	40 19.3	+59.8	157.4	38 28.3	+59.9	158.0	36 36.8	+59.9	158.6	34 44.9	+60.0	159.1	32 52.6	+60.0	159.6	31 00.0	+60.0	160.0
32	44 59.3	+59.6	155.8	43 09.5	+59.7	156.6	41 19.1	+59.8	157.3	39 28.2	+59.9	157.9	37 36.7	+60.0	158.5	35 44.9	+59.9	159.1	33 52.6	+60.0	159.6	32 00.0	+60.0	160.0
33	45 58.9	+59.6	155.6	44 09.2	+59.7	156.4	42 18.9	+59.8	157.2	40 28.1	+59.8	157.8	38 36.7	+59.9	158.5	36 44.8	+60.0	159.0	34 52.6	+60.0	159.5	33 00.0	+60.0	160.0
34	46 58.5	+59.5	155.4	45 08.9	+59.7	156.3	43 18.7	+59.8	157.1	41 27.9	+59.9	157.8	39 36.6	+59.9	158.4	37 44.8	+60.0	159.0	35 52.6	+60.0	159.5	34 00.0	+60.0	160.0
35	47 58.0	+59.5	155.3	46 08.6	+59.7	156.1	44 18.5	+59.8	157.0	42 27.8	+59.9	157.7	40 36.5	+60.0	158.3	38 44.8	+60.0	158.9	36 52.6	+60.0	159.5	35 00.0	+60.0	160.0
36	48 57.5	+59.6	155.1	47 08.3	+59.7	156.0	45 18.3	+59.8	156.8	43 27.7	+59.9	157.6	41 36.5	+59.9	158.3	39 44.8	+59.9	158.9	37 52.6	+60.0	159.5	36 00.0	+60.0	160.0
37	49 57.1	+59.4	154.9	48 08.0	+59.6	155.8	46 18.1	+59.8	156.7	44 27.6	+59.8	157.5	42 36.4	+59.9	158.2	40 44.7	+60.0	158.9	38 52.6	+60.0	159.5	37 00.0	+60.0	160.0
38	50 56.5	+59.5	154.7	49 07.7	+59.7	155.7	47 17.9	+59.8	156.6	45 27.5	+59.9	157.4	43 36.3	+60.0	158.1	41 44.7	+60.0	158.8	39 52.6	+60.0	159.4	38 00.0	+60.0	160.0
39	51 56.0	+59.5	154.5	50 07.3	+59.6	155.5	48 17.7	+59.7	156.5	46 27.3	+59.8	157.3	44 36.3	+59.9	158.1	42 44.7	+59.9	158.8	40 52.6	+59.9	159.4	39 00.0	+60.0	160.0
40	52 55.5	+59.4	154.2	51 06.9	+59.6	155.3	49 17.4	+59.8	156.3	47 27.1	+59.9	157.2	45 36.2	+59.9	158.0	43 44.6	+60.0	158.7	41 52.5	+60.0	159.4	40 00.0	+60.0	160.0
41	53 54.9	+59.4	154.0	52 06.5	+59.6	155.1	50 17.2	+59.7	156.2	48 27.0	+59.8	157.1	46 36.1	+59.9	157.9	44 44.6	+60.0	158.7	42 52.5	+60.0	159.4	41 00.0	+60.0	160.0
42	54 54.3	+59.3	153.8	53 06.1	+59.5	155.0	51 16.9	+59.7	156.0	49 26.8	+59.9	157.0	47 36.0	+59.9	157.9	45 44.6	+59.9	158.6	43 52.5	+60.0	159.4	42 00.0	+60.0	160.0
43	55 53.6	+59.4	153.5	54 05.6	+59.6	154.8	52 16.6	+59.7	155.9	50 26.7	+59.8	156.9	48 35.9	+59.9	157.8	46 44.5	+60.0	158.6	44 52.5	+60.0	159.3	43 00.0	+60.0	160.0
44	56 53.0	+59.2	153.2	55 05.2	+59.5	154.5	53 16.3	+59.7	155.7	51 26.5	+59.8	156.8	49 35.8	+60.0	157.7	47 44.5	+60.0	158.5	45 52.5	+60.0	159.3	44 00.0	+60.0	160.0
45	57 52.2	+59.3	153.0	56 04.7	+59.5	154.3	54 16.0	+59.7	155.5	52 26.3	+59.8	156.6	50 35.8	+59.9	157.6	48 44.5	+59.9	158.5	46 52.5	+60.0	159.3	45 00.0	+60.0	160.0
46	58 51.5	+59.2	152.7	57 04.2	+59.5	154.1																		

Table with columns for Dec., Latitude (60°, 62°, 64°, 66°, 68°, 70°, 72°, 74°), and Longitude (Hc, d, Z). It contains a grid of numerical data for each combination of latitude and longitude.

LATITUDE CONTRARY NAME

L.H.A. 22°, 338°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
27 37.1	-58.6	155.0	25 48.2	-58.8	155.4	23 58.9	-59.0	155.8	22 09.3	-59.2	156.1	20 19.4	-59.3	156.5	18 29.3	-59.4	156.7	16 39.0	-59.6	157.0	14 48.4	-59.6	157.2	0
26 38.5	-58.7	155.2	24 49.4	-58.9	155.6	22 59.9	-59.1	156.0	21 10.1	-59.2	156.3	19 20.1	-59.3	156.6	17 29.9	-59.5	156.9	15 39.4	-59.6	157.1	13 48.8	-59.7	157.3	1
25 39.8	-58.7	155.5	23 50.5	-58.9	155.8	22 00.8	-59.0	156.2	20 10.9	-59.2	156.5	18 20.8	-59.4	156.8	16 30.4	-59.5	157.0	14 39.8	-59.5	157.2	12 49.1	-59.7	157.4	2
24 41.1	-58.7	155.7	22 51.6	-58.9	156.0	21 01.8	-59.1	156.4	19 11.7	-59.2	156.7	17 21.4	-59.3	156.9	15 30.9	-59.4	157.2	13 40.3	-59.6	157.4	11 49.4	-59.6	157.5	3
23 42.4	-58.8	155.9	21 52.7	-58.9	156.3	20 02.7	-59.1	156.6	18 12.5	-59.2	156.8	16 22.1	-59.4	157.1	14 31.5	-59.5	157.3	12 40.7	-59.6	157.5	10 49.8	-59.7	157.6	4
22 43.6	-58.7	156.1	20 53.8	-59.0	156.5	19 03.6	-59.1	156.7	17 13.3	-59.3	157.0	15 22.7	-59.3	157.2	13 32.0	-59.5	157.4	11 41.1	-59.6	157.6	9 50.1	-59.7	157.7	5
21 44.9	-58.8	156.4	19 54.8	-58.9	156.7	18 04.5	-59.1	156.9	16 14.0	-59.2	157.2	14 23.4	-59.4	157.4	12 32.5	-59.5	157.6	10 41.5	-59.5	157.8	8 50.4	-59.6	157.8	6
20 46.1	-58.8	156.6	18 55.9	-59.0	156.9	17 05.4	-59.1	157.1	15 14.8	-59.2	157.3	13 24.0	-59.4	157.5	11 33.0	-59.5	157.7	9 42.0	-59.6	157.8	7 50.8	-59.7	158.0	7
19 47.3	-58.8	156.8	17 56.9	-58.9	157.0	16 06.3	-59.1	157.3	14 15.6	-59.3	157.5	12 24.6	-59.4	157.7	10 33.5	-59.4	157.8	8 42.0	-59.6	158.0	6 51.1	-59.7	158.1	8
18 48.5	-58.8	157.0	16 58.0	-59.0	157.2	15 07.2	-59.1	157.5	13 16.3	-59.3	157.7	11 25.2	-59.3	157.8	9 34.1	-59.5	158.0	7 42.8	-59.6	158.1	5 51.4	-59.7	158.2	9
17 49.7	-58.8	157.2	15 59.0	-59.0	157.4	14 08.1	-59.2	157.6	12 17.0	-59.2	157.8	10 25.9	-59.4	158.0	8 34.6	-59.5	158.1	6 43.2	-59.6	158.2	4 51.7	-59.6	158.3	10
16 50.9	-58.9	157.4	15 00.0	-59.0	157.6	13 08.9	-59.1	157.8	11 17.8	-59.3	158.0	9 26.5	-59.4	158.1	7 35.1	-59.5	158.2	5 43.6	-59.6	158.3	3 52.1	-59.7	158.4	11
15 52.0	-58.8	157.6	14 01.0	-59.0	157.8	12 09.8	-59.2	158.0	10 18.5	-59.3	158.1	8 27.1	-59.4	158.3	6 35.6	-59.5	158.4	4 44.0	-59.6	158.4	2 52.4	-59.7	158.5	12
14 53.2	-58.9	157.8	13 02.0	-59.0	158.0	11 10.6	-59.1	158.2	9 19.2	-59.3	158.3	7 27.7	-59.4	158.4	5 36.1	-59.5	158.5	3 44.4	-59.6	158.5	1 52.7	-59.7	158.6	13
13 54.3	-58.9	158.0	12 03.0	-59.1	158.2	10 11.5	-59.2	158.3	8 19.9	-59.3	158.4	6 28.3	-59.4	158.5	4 36.6	-59.5	158.6	2 44.8	-59.6	158.7	0 53.0	-59.7	158.7	14
12 55.4	-58.9	158.2	11 03.9	-59.0	158.4	9 12.3	-59.1	158.5	7 20.6	-59.2	158.6	5 28.9	-59.4	158.7	3 37.1	-59.5	158.7	1 45.2	-59.6	158.8	0 06.7	+59.6	21.2	15
11 56.5	-58.9	158.4	10 04.9	-59.0	158.5	8 13.2	-59.2	158.7	6 21.4	-59.3	158.8	4 29.5	-59.4	158.8	2 37.6	-59.5	158.9	0 45.6	-59.6	158.9	1 06.3	+59.7	21.1	16
10 57.6	-58.9	158.6	9 05.9	-59.1	158.7	7 14.0	-59.2	158.8	5 22.1	-59.3	158.9	3 30.1	-59.4	159.0	1 38.1	-59.5	159.0	0 38.6	-59.6	159.1	0 14.0	+59.6	21.0	17
9 58.7	-58.9	158.8	8 06.8	-59.0	158.9	6 14.8	-59.2	159.0	4 22.8	-59.3	159.1	2 30.7	-59.4	159.1	0 31.9	-59.5	159.1	0 38.6	-59.6	159.1	1 13.6	+59.6	20.9	18
8 59.8	-58.9	159.0	7 07.8	-59.1	159.1	5 15.6	-59.1	159.2	3 23.0	-59.3	159.2	1 31.3	-59.4	159.2	0 31.9	-59.5	159.2	0 21.0	+59.5	20.7	2 13.2	+59.6	20.8	19
8 00.9	-58.9	159.2	6 08.7	-59.0	159.3	4 16.5	-59.2	159.3	2 24.2	-59.3	159.4	0 31.9	-59.4	159.4	1 20.5	+59.5	20.6	1 20.5	+59.5	20.6	3 12.8	+59.6	20.6	20
7 02.0	-58.9	159.4	5 09.7	-59.1	159.4	3 17.3	-59.2	159.5	1 24.9	-59.3	159.5	0 27.5	+59.5	20.5	2 20.0	+59.5	20.5	2 20.0	+59.5	20.5	4 12.8	+59.6	20.5	21
6 03.1	-59.0	159.6	4 10.6	-59.1	159.6	2 18.1	-59.2	159.7	0 25.6	-59.3	159.7	1 27.0	+59.4	20.3	3 19.5	+59.5	20.4	3 19.5	+59.5	20.4	5 12.0	+59.5	20.4	22
5 04.1	-58.9	159.7	3 11.5	-59.0	159.8	1 18.9	-59.2	159.8	0 33.7	+59.3	20.2	2 26.4	+59.4	20.2	4 19.0	+59.5	20.2	4 19.0	+59.5	20.2	6 11.5	+59.6	20.3	23
4 05.2	-58.9	159.9	2 12.5	-59.1	160.0	0 19.7	-59.2	160.0	1 33.0	+59.3	20.0	3 25.8	+59.4	20.0	5 18.5	+59.5	20.1	5 18.5	+59.5	20.1	7 11.1	+59.6	20.2	24
3 06.3	-59.0	160.1	1 13.4	-59.1	160.1	0 39.5	+59.1	19.8	2 32.3	+59.3	19.9	4 25.2	+59.4	19.9	6 18.0	+59.5	20.0	6 18.0	+59.5	20.0	8 10.7	+59.6	20.1	25
2 07.3	-58.9	160.3	0 14.3	-59.0	160.3	1 38.6	+59.2	19.7	3 31.6	+59.3	19.7	5 24.6	+59.4	19.8	7 17.5	+59.5	19.8	7 17.5	+59.5	19.8	9 10.3	+59.6	19.9	26
1 08.4	-58.9	160.5	0 44.7	+59.1	19.5	2 37.8	+59.2	19.5	4 30.9	+59.3	19.6	6 24.0	+59.4	19.6	8 17.0	+59.5	19.7	8 17.0	+59.5	19.7	10 09.9	+59.6	19.8	27
0 09.5	-59.0	160.7	1 43.8	+59.0	19.3	3 37.0	+59.2	19.4	5 30.2	+59.3	19.4	7 23.4	+59.4	19.5	9 16.5	+59.5	19.6	11 09.5	+59.6	19.7	13 02.4	+59.7	19.8	28
0 49.5	+58.9	19.1	2 42.8	+59.1	19.1	4 36.2	+59.2	19.2	6 29.5	+59.3	19.3	8 22.8	+59.4	19.3	10 16.0	+59.4	19.4	12 09.1	+59.5	19.6	14 02.1	+59.6	19.7	29
1 48.4	+58.9	18.9	3 41.9	+59.1	19.0	5 35.4	+59.1	19.0	7 28.8	+59.3	19.1	9 22.2	+59.3	19.2	11 15.4	+59.5	19.3	13 08.6	+59.6	19.5	15 01.7	+59.7	19.6	30
2 47.3	+59.0	18.8	4 41.0	+59.0	18.8	6 34.5	+59.2	18.9	8 28.1	+59.3	18.9	10 21.5	+59.4	19.1	12 14.9	+59.5	19.2	14 08.2	+59.6	19.3	16 01.4	+59.6	19.5	31
3 46.3	+58.9	18.6	5 40.0	+59.1	18.6	7 33.7	+59.2	18.7	9 27.4	+59.2	18.8	11 20.9	+59.4	18.9	13 14.4	+59.5	19.0	15 07.8	+59.5	19.2	17 01.0	+59.7	19.4	32
4 45.2	+58.9	18.4	6 39.1	+59.0	18.4	8 32.9	+59.2	18.5	10 26.6	+59.3	18.6	12 20.3	+59.4	18.8	14 13.9	+59.5	18.9	16 07.3	+59.6	19.1	18 00.7	+59.6	19.3	33
5 44.1	+59.0	18.2	7 38.1	+59.1	18.3	9 32.1	+59.1	18.4	11 25.9	+59.3	18.5	13 19.7	+59.4	18.6	15 13.4	+59.4	18.8	17 06.9	+59.6	19.0	19 00.3	+59.7	19.2	34
6 43.1	+58.9	18.0	8 37.2	+59.0	18.1	10 31.2	+59.2	18.2	12 25.2	+59.2	18.3	14 19.1	+59.3	18.5	16 12.8	+59.5	18.6	18 06.5	+59.5	18.8	20 00.0	+59.6	19.1	35
7 42.0	+58.9	17.8	9 36.2	+59.0	17.9	11 30.4	+59.1	18.0	13 24.4	+59.3	18.2	15 18.4	+59.4	18.3	17 12.3	+59.4	18.5	19 06.0	+59.6	18.7	20 59.6	+59.6	18.9	36
8 40.9	+58.9	17.6	10 35.2	+59.1	17.7	12 29.5	+59.2	17.8	14 23.7	+59.2	18.0	16 17.8	+59.3	18.2	18 11.7	+59.5	18.4	20 05.6	+59.5	18.6	21 59.2	+59.6	18.8	37
9 39.8	+58.9	17.4	11 34.3	+59.0	17.5	13 28.7	+59.1	17.7	15 22.9	+59.3	17.8	17 17.1	+59.4	18.0	19 11.2	+59.4	18.2	21 05.1	+59.5	18.4	22 58.8	+59.7	18.7	38
10 38.7	+58.9	17.2	12 33.3	+59.0	17.4	14 27.8	+59.1	17.5	16 22.9	+59.2	17.7	18 16.5	+59.3	17.9	20 10.6	+59.5	18.1	22 04.6	+59.6	18.3	23 58.5	+59.6	18.6	39
11 37.6	+58.9	17.0	13 32.3	+59.0	17.2	15 26.9	+59.1	17.3	17 21.4	+59.2	17.5	19 15.8	+59.3	17.7	21 10.1	+59.4	17.9	23 04.2	+59.5	18.2	24 58.1	+59.6	18.5	40
12 36.5	+58.9	16.8	14 31.3	+59.0	17.0	16 26.0	+59.1	17.1	18 20.6	+59.3	17.3	20 15.1	+59.4	17.5	22 09.5	+59.4	17.8	24 03.7	+59.5	18.0	25 57.7	+59.6	18.3	41
13 35.4	+58.9	16.6	15 30.3	+59.0	16.8	17 25.1	+59.1	17.0	19 19.6	+59.2	17.2	21 14.5	+59.3	17.4	23 08.9	+59.4	17.6	25 03.7	+59.5	17.9	26 57.3	+59.6	18.2	42
14 34.3	+58.8	16.4	16 29.3	+59.0	16.6	18 24.2	+59.1	16.8	20 19.1	+59.2	17.0	22 13.8	+59.3	17.2	24 08.3	+59.4	17.5	26 02.7	+59.5	17.8	27 56.9	+59.6	18.1	43
15 33.1	+58.9	16.2	17 28.3	+58.9	16.4	19 23.3	+59.1	16.6	21 18.3	+59.2	16.8	23 13.1	+59.3	17.1	25 07.7	+59.4	17.3	27 02.2	+59.5	17.6	28 56.5	+59.5	17.9	44
16 32.0	+58.8	16.0	18 27.2	+59.0	16.2	20 22.4	+59.1	16.4	22 17.5	+59.1	16.6	24 12.4	+59.2	16.9	26 07.1	+59.4	17.2	28 01.7	+59.5	17.5	29 56.0	+59.6	17.8	45
17 30.8	+58.8	15.8	19 26.2	+58.9	16.0	21 21.5	+59.0	16.2	23 16.6	+59.2	16.5	25 11.6	+59.3	16.7	27 06.5	+59.4	17.0	29 01.2	+59.4	17.3	30 55.6	+59.6	17.7	46
18 29.6	+58.8	15.6	20 25.1	+59.0	15.8	22 20.5	+59.1	16.0	24 15.8	+59.1	16.3	26 10.9												

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	12 57.7	+59.8	157.4	11 06.9	+59.8	157.6	9 15.9	+59.9	157.7	7 24.8	+60.0	157.8	5 33.7	+60.0	157.9	3 42.5	+60.0	158.0	1 51.3	+60.0	158.0	0 00.0	+60.0	158.0
1	13 57.5	+59.7	157.3	12 06.7	+59.8	157.5	10 15.8	+59.8	157.6	8 24.8	+59.9	157.8	6 33.7	+59.9	157.9	4 42.5	+60.0	157.9	2 51.3	+59.9	158.0	1 00.0	+60.0	158.0
2	14 57.2	+59.7	157.2	13 06.5	+59.8	157.4	11 15.6	+59.9	157.6	9 24.7	+59.9	157.7	7 33.6	+60.0	157.8	5 42.5	+59.9	157.9	3 51.2	+60.0	158.0	2 00.0	+60.0	158.0
3	15 56.9	+59.8	157.1	14 06.3	+59.8	157.3	12 15.5	+59.9	157.5	10 24.6	+59.9	157.6	8 33.6	+59.9	157.8	6 42.4	+60.0	157.9	4 51.2	+60.0	157.9	3 00.0	+60.0	158.0
4	16 56.7	+59.7	157.0	15 06.1	+59.8	157.2	13 15.4	+59.8	157.4	11 24.5	+59.9	157.6	9 33.5	+60.0	157.7	7 42.4	+60.0	157.8	5 51.2	+60.0	157.9	4 00.0	+60.0	158.0
5	17 56.4	+59.7	156.9	16 05.9	+59.8	157.1	14 15.2	+59.9	157.4	12 24.4	+59.9	157.5	10 33.5	+59.9	157.7	8 42.4	+60.0	157.8	6 51.2	+60.0	157.9	5 00.0	+60.0	158.0
6	18 56.1	+59.7	156.8	17 05.7	+59.8	157.1	15 15.1	+59.9	157.3	13 24.3	+60.0	157.5	11 33.4	+60.0	157.6	9 42.4	+60.0	157.8	7 51.2	+60.0	157.9	6 00.0	+60.0	158.0
7	19 55.8	+59.8	156.7	18 05.5	+59.8	157.0	16 15.0	+59.8	157.2	14 24.3	+59.9	157.4	12 33.4	+59.9	157.6	10 42.4	+59.9	157.8	8 51.2	+60.0	157.9	7 00.0	+60.0	158.0
8	20 55.6	+59.7	156.6	19 05.3	+59.8	156.9	17 14.8	+59.9	157.1	15 24.2	+59.9	157.4	13 33.3	+60.0	157.6	11 42.3	+60.0	157.7	9 51.2	+60.0	157.9	8 00.0	+60.0	158.0
9	21 55.3	+59.7	156.5	20 05.1	+59.8	156.8	18 14.7	+59.9	157.1	16 24.1	+59.9	157.3	14 33.3	+59.9	157.5	12 42.3	+60.0	157.7	10 51.2	+60.0	157.9	9 00.0	+60.0	158.0
10	22 55.0	+59.7	156.4	21 04.9	+59.8	156.7	19 14.6	+59.8	157.0	17 24.0	+59.9	157.3	15 33.2	+60.0	157.5	13 42.3	+60.0	157.7	11 51.2	+60.0	157.9	10 00.0	+60.0	158.0
11	23 54.7	+59.7	156.3	22 04.7	+59.8	156.6	20 14.4	+59.9	156.9	18 24.0	+59.9	157.2	16 33.2	+59.9	157.4	14 42.3	+59.9	157.7	12 51.2	+60.0	157.8	11 00.0	+60.0	158.0
12	24 54.4	+59.7	156.2	23 04.5	+59.8	156.5	21 14.3	+59.8	156.9	19 23.8	+59.9	157.1	17 33.1	+60.0	157.4	15 42.2	+60.0	157.6	13 51.2	+60.0	157.8	12 00.0	+60.0	158.0
13	25 54.1	+59.7	156.1	24 04.3	+59.7	156.4	22 14.1	+59.9	156.8	20 23.7	+59.9	157.1	18 33.1	+59.9	157.4	16 42.2	+60.0	157.6	14 51.2	+60.0	157.8	13 00.0	+60.0	158.0
14	26 53.8	+59.7	155.9	25 04.0	+59.8	156.3	23 04.0	+59.8	156.7	21 23.6	+59.9	157.0	19 33.0	+60.0	157.3	17 42.2	+60.0	157.6	15 51.2	+60.0	157.8	14 00.0	+60.0	158.0
15	27 53.5	+59.7	155.8	26 03.8	+59.8	156.2	24 13.8	+59.9	156.6	22 23.5	+59.9	157.0	20 33.0	+59.9	157.3	18 42.2	+60.0	157.5	16 51.2	+60.0	157.8	15 00.0	+60.0	158.0
16	28 53.2	+59.6	155.7	27 03.6	+59.8	156.1	25 13.7	+59.8	156.5	23 23.4	+59.9	156.9	21 32.9	+60.0	157.2	19 42.2	+59.9	157.5	17 51.2	+60.0	157.8	16 00.0	+60.0	158.0
17	29 52.8	+59.7	155.6	28 03.4	+59.7	156.0	26 13.5	+59.8	156.5	24 23.3	+59.9	156.8	22 32.9	+59.9	157.2	20 42.1	+60.0	157.5	18 51.2	+60.0	157.8	17 00.0	+60.0	158.0
18	30 52.5	+59.7	155.5	29 03.1	+59.8	155.9	27 13.3	+59.9	156.4	25 23.2	+59.9	156.8	23 32.8	+60.0	157.1	21 42.1	+60.0	157.5	19 51.2	+60.0	157.7	18 00.0	+60.0	158.0
19	31 52.2	+59.6	155.4	30 02.9	+59.7	155.8	28 13.2	+59.8	156.3	26 23.1	+59.9	156.7	24 32.8	+59.9	157.1	22 42.1	+60.0	157.4	20 51.2	+60.0	157.7	19 00.0	+60.0	158.0
20	32 51.8	+59.7	155.2	31 02.6	+59.8	155.7	29 13.0	+59.8	156.2	27 23.0	+59.9	156.6	25 32.7	+59.9	157.0	23 42.1	+59.9	157.4	21 51.2	+59.9	157.7	20 00.0	+60.0	158.0
21	33 51.5	+59.6	155.1	32 02.4	+59.7	155.6	30 12.8	+59.8	156.1	28 22.9	+59.9	156.6	26 32.6	+60.0	157.0	24 42.0	+60.0	157.4	22 51.1	+60.0	157.7	21 00.0	+60.0	158.0
22	34 51.1	+59.6	155.0	33 02.1	+59.8	155.5	31 12.7	+59.8	156.0	29 22.8	+59.9	156.5	27 32.6	+59.9	156.9	25 42.0	+60.0	157.3	23 51.1	+60.0	157.7	22 00.0	+60.0	158.0
23	35 50.7	+59.6	154.8	34 01.9	+59.7	155.4	32 12.5	+59.8	155.9	30 22.7	+59.9	156.4	28 32.5	+60.0	156.9	26 42.0	+60.0	157.3	24 51.1	+60.0	157.7	23 00.0	+60.0	158.0
24	36 50.3	+59.6	154.7	35 01.6	+59.7	155.3	33 12.3	+59.8	155.9	31 22.6	+59.9	156.4	29 32.5	+59.9	156.8	27 42.0	+59.9	157.3	25 51.1	+60.0	157.6	24 00.0	+60.0	158.0
25	37 49.9	+59.6	154.5	36 01.3	+59.7	155.2	34 12.1	+59.9	155.8	32 22.5	+59.9	156.3	30 32.4	+59.9	156.8	28 41.9	+60.0	157.2	26 51.1	+60.0	157.6	25 00.0	+60.0	158.0
26	38 49.5	+59.6	154.4	37 01.0	+59.7	155.1	35 12.0	+59.8	155.7	33 22.4	+59.9	156.2	31 32.3	+60.0	156.7	29 41.9	+60.0	157.2	27 51.1	+60.0	157.6	26 00.0	+60.0	158.0
27	39 49.1	+59.6	154.2	38 00.7	+59.7	154.9	36 11.8	+59.8	155.6	34 22.3	+59.9	156.1	32 32.3	+59.9	156.7	30 41.9	+59.9	157.2	28 51.1	+60.0	157.6	27 00.0	+60.0	158.0
28	40 48.7	+59.6	154.1	39 00.4	+59.7	154.8	37 11.6	+59.8	155.5	35 22.1	+59.9	156.1	33 32.2	+59.9	156.6	31 41.8	+60.0	157.1	29 51.1	+60.0	157.6	28 00.0	+60.0	158.0
29	41 48.3	+59.5	153.9	40 00.1	+59.7	154.7	38 11.4	+59.7	155.4	36 22.0	+59.9	156.0	34 32.1	+60.0	156.6	32 41.8	+60.0	157.1	30 51.1	+60.0	157.6	29 00.0	+60.0	158.0
30	42 47.8	+59.6	153.8	40 59.8	+59.7	154.5	39 11.1	+59.8	155.3	37 21.9	+59.8	155.9	35 32.1	+59.9	156.5	33 41.8	+60.0	157.0	31 51.1	+60.0	157.5	30 00.0	+60.0	158.0
31	43 47.4	+59.5	153.6	41 59.5	+59.7	154.4	40 10.9	+59.8	155.1	38 21.7	+59.9	155.8	36 32.0	+59.9	156.4	34 41.8	+59.9	157.0	32 51.1	+60.0	157.5	31 00.0	+60.0	158.0
32	44 46.9	+59.5	153.4	42 59.2	+59.6	154.3	41 10.7	+59.8	155.0	39 21.6	+59.9	155.7	37 31.9	+60.0	156.4	35 41.7	+60.0	157.0	33 51.1	+60.0	157.5	32 00.0	+60.0	158.0
33	45 46.4	+59.5	153.2	43 58.8	+59.7	154.1	42 10.5	+59.7	154.9	40 21.5	+59.8	155.7	38 31.9	+59.9	156.3	36 41.7	+60.0	156.9	34 51.1	+60.0	157.5	33 00.0	+60.0	158.0
34	46 45.9	+59.4	153.0	44 58.5	+59.6	154.0	43 10.2	+59.8	154.8	41 21.3	+59.9	155.6	39 31.8	+59.9	156.3	37 41.7	+59.9	156.9	35 51.1	+59.9	157.5	34 00.0	+60.0	158.0
35	47 45.3	+59.5	152.8	45 58.1	+59.6	153.8	44 10.0	+59.8	154.7	42 21.2	+59.8	155.5	40 31.7	+59.9	156.2	38 41.6	+60.0	156.8	36 51.0	+60.0	157.5	35 00.0	+60.0	158.0
36	48 44.8	+59.4	152.6	46 57.7	+59.6	153.6	45 09.8	+59.7	154.5	43 21.0	+59.9	155.4	41 31.6	+59.9	156.1	39 41.6	+60.0	156.8	37 51.0	+60.0	157.4	36 00.0	+60.0	158.0
37	49 44.2	+59.4	152.4	47 57.3	+59.6	153.5	46 09.5	+59.7	154.4	44 20.9	+59.8	155.3	42 31.5	+60.0	156.0	40 41.6	+59.9	156.8	38 51.0	+60.0	157.4	37 00.0	+60.0	158.0
38	50 43.6	+59.3	152.2	48 56.9	+59.6	153.3	47 09.2	+59.7	154.3	45 20.7	+59.8	155.2	43 31.5	+59.9	156.0	41 41.5	+60.0	156.7	39 51.0	+60.0	157.4	38 00.0	+60.0	158.0
39	51 42.9	+59.4	152.0	49 56.5	+59.5	153.1	48 08.9	+59.8	154.1	46 20.5	+59.9	155.1	44 31.4	+59.9	155.9	42 41.5	+60.0	156.7	40 51.0	+60.0	157.4	39 00.0	+60.0	158.0
40	52 42.3	+59.3	151.7	50 56.0	+59.5	152.9	49 08.7	+59.8	154.0	47 20.4	+59.8	154.9	45 31.3	+59.9	155.8	43 41.5	+59.9	156.6	41 51.0	+60.0	157.3	40 00.0	+60.0	158.0
41	53 41.6	+59.3	151.5	51 55.5	+59.5	152.7	50 08.3	+59.7	153.8	48 20.2	+59.8	154.8	46 31.2	+59.9	155.7	44 41.4	+60.0	156.6	42 51.0	+60.0	157.3	41 00.0	+60.0	158.0
42	54 40.9	+59.2	151.2	52 55.0	+59.5	152.5	51 08.0	+59.7	153.7	49 20.0	+59.8	154.7	47 31.1	+59.9	155.7	45 41.4	+59.9	156.5	43 51.0	+60.0	157.3	42 00.0	+60.0	158.0
43	55 40.1	+59.2	150.9	53 54.5	+59.5	152.3	52 07.7	+59.7	153.5	50 19.8	+59.8	154.6	48 31.0	+59.9	155.6	46 41.3	+60.0	156.5	44 51.0	+60.0	157.3	43 00.0	+60.0	158.0
44	56 39.3	+59.2	150.6	54 54.0	+59.4	152.1	53 07.4	+59.6	153.3	51 19.6	+59.8	154.5	49 30.9	+59.9	155.5	47 41.3	+59.9	156.4	45 51.0	+60.0	157.2	44 00.0	+60.0	158.0
45	57 38.5	+59.1	150.3	55 53.4	+59.4	151.8	54 07.0	+59.6	153.1	52 19.4	+59.8	154.3	50 30.8	+59.8	155.4	48 41.2	+60.0	156.3	46 51.0	+59.9	157.2	45 00.0	+60.0	158.0
46	58 37.6	+59.0	150.0	56 52.8	+59.4	151.6																		

LATITUDE CONTRARY NAME

L.H.A. 22°, 338°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
12 57.7	-59.7	157.4	11 06.9	-59.8	157.6	9 15.9	-59.9	157.7	7 24.8	-59.9	157.8	5 33.7	-60.0	157.9	3 42.5	-60.0	158.0	1 51.3	-60.0	158.0	0 00.0	+60.0	22.0	0		
11 58.0	-59.8	157.5	10 07.1	-59.8	157.6	8 16.0	-59.8	157.8	6 24.9	-59.9	157.9	4 33.7	-59.9	157.9	2 42.5	-60.0	158.0	0 51.3	-60.0	158.0	1 00.0	+60.0	22.0	1		
10 58.2	-59.7	157.6	9 07.3	-59.9	157.7	7 16.2	-59.9	157.8	5 25.0	-59.9	157.9	3 33.8	-60.0	158.0	1 42.5	-59.9	158.0	0 08.7	+60.0	22.0	2 00.0	+60.0	22.0	2		
9 58.5	-59.8	157.7	8 07.4	-59.8	157.8	6 16.3	-59.9	157.9	4 25.1	-59.9	158.0	2 33.8	-59.9	158.0	0 42.6	-60.0	158.0	1 08.7	+60.0	22.0	3 00.0	+60.0	22.0	3		
8 58.7	-59.7	157.8	7 07.6	-59.8	157.9	5 16.4	-59.8	158.0	3 25.2	-59.9	158.0	1 33.9	-60.0	158.0	0 17.4	+60.0	21.9	2 08.7	+60.0	22.0	4 00.0	+60.0	22.0	4		
7 59.0	-59.7	157.9	6 07.8	-59.8	158.0	4 16.6	-59.9	158.0	2 25.3	-60.0	158.1	0 33.9	-59.9	158.1	1 17.4	+60.0	21.9	3 08.7	+60.0	21.9	5 00.0	+60.0	22.0	5		
6 59.3	-59.8	158.0	5 08.0	-59.8	158.0	3 16.7	-59.9	158.1	1 25.3	-59.9	158.1	0 26.0	+60.0	21.9	2 17.4	+60.0	21.9	4 08.7	+60.0	21.9	6 00.0	+60.0	22.0	6		
5 59.5	-59.7	158.0	4 08.2	-59.8	158.1	2 16.8	-59.9	158.2	0 25.4	-59.9	158.2	1 26.0	+60.0	21.8	3 17.4	+59.9	21.9	5 08.7	+60.0	21.9	7 00.0	+60.0	22.0	7		
4 59.8	-59.8	158.1	3 08.4	-59.9	158.2	1 16.9	-59.8	158.2	0 34.5	+59.9	21.8	2 25.9	+60.0	21.8	4 17.3	+60.0	21.8	6 08.7	+60.0	21.9	8 00.0	+60.0	22.0	8		
4 00.0	-59.8	158.2	2 08.5	-59.8	158.3	0 17.1	-59.9	158.3	1 34.4	+59.9	21.7	3 25.9	+59.9	21.8	5 17.3	+60.0	21.8	7 08.7	+60.0	21.9	9 00.0	+60.0	22.0	9		
3 00.2	-59.7	158.3	1 08.7	-59.8	158.3	0 42.8	+59.9	21.7	2 34.3	+60.0	21.7	4 25.8	+60.0	21.7	6 17.3	+60.0	21.8	8 08.7	+60.0	21.9	10 00.0	+60.0	22.0	10		
2 00.5	-59.8	158.4	0 08.9	-59.8	158.4	1 42.7	+59.9	21.6	3 34.3	+59.9	21.6	5 25.8	+59.9	21.7	7 17.3	+60.0	21.8	9 08.7	+60.0	21.9	11 00.0	+60.0	22.0	11		
1 00.7	-59.7	158.5	0 59.9	+59.8	21.5	2 42.6	+59.8	21.5	4 34.2	+59.9	21.6	6 25.7	+60.0	21.6	8 17.3	+59.9	21.8	10 08.7	+60.0	21.9	12 00.0	+60.0	22.0	12		
0 01.0	-59.8	158.6	1 50.7	+59.8	21.4	3 42.4	+59.9	21.5	5 34.1	+59.9	21.5	7 25.7	+60.0	21.6	9 17.2	+60.0	21.7	11 08.7	+60.0	21.8	13 00.0	+60.0	22.0	13		
0 58.8	+59.7	21.3	2 50.5	+59.9	21.3	4 42.3	+59.9	21.4	6 34.0	+59.9	21.5	8 25.7	+59.9	21.6	10 17.2	+60.0	21.7	12 08.7	+60.0	21.8	14 00.0	+60.0	22.0	14		
1 58.5	+59.8	21.2	3 50.4	+59.8	21.3	5 42.2	+59.8	21.3	7 33.9	+59.9	21.4	9 25.6	+60.0	21.5	11 17.2	+60.0	21.7	13 08.7	+60.0	21.8	15 00.0	+60.0	22.0	15		
2 58.3	+59.7	21.1	4 50.2	+59.8	21.2	6 42.0	+59.9	21.3	8 33.8	+60.0	21.4	10 25.6	+59.9	21.5	12 17.2	+59.9	21.6	14 08.7	+60.0	21.8	16 00.0	+60.0	22.0	16		
3 58.0	+59.8	21.0	5 50.0	+59.8	21.1	7 41.9	+59.9	21.2	9 33.8	+59.9	21.3	11 25.5	+60.0	21.4	13 17.1	+60.0	21.6	15 08.7	+59.9	21.8	17 00.0	+60.0	22.0	17		
4 57.8	+59.7	21.0	6 49.8	+59.8	21.0	8 41.8	+59.9	21.1	10 33.7	+59.9	21.2	12 25.5	+59.9	21.4	14 17.1	+60.0	21.6	16 08.6	+60.0	21.8	18 00.0	+60.0	22.0	18		
5 57.5	+59.8	20.9	7 49.6	+59.8	20.9	9 41.7	+59.8	21.1	11 33.6	+59.9	21.2	13 25.4	+60.0	21.4	15 17.1	+60.0	21.5	17 08.6	+60.0	21.8	19 00.0	+60.0	22.0	19		
6 57.3	+59.7	20.8	8 49.4	+59.9	20.9	10 41.5	+59.9	21.0	12 33.5	+59.9	21.1	14 25.4	+59.9	21.3	16 17.1	+60.0	21.5	18 08.6	+60.0	21.7	20 00.0	+60.0	22.0	20		
7 57.0	+59.8	20.7	9 49.3	+59.8	20.8	11 41.4	+59.9	20.9	13 33.4	+59.9	21.1	15 25.3	+60.0	21.3	17 17.1	+59.9	21.5	19 08.6	+60.0	21.7	21 00.0	+60.0	22.0	21		
8 56.8	+59.7	20.6	10 49.1	+59.8	20.7	12 41.3	+59.8	20.8	14 33.3	+59.9	21.0	16 25.3	+59.9	21.2	18 17.0	+60.0	21.5	20 08.6	+60.0	21.7	22 00.0	+60.0	22.0	22		
9 56.5	+59.8	20.5	11 48.9	+59.8	20.6	13 41.1	+59.9	20.8	15 33.2	+60.0	21.0	17 25.2	+60.0	21.2	19 17.0	+60.0	21.4	21 08.6	+60.0	21.7	23 00.0	+60.0	22.0	23		
10 56.3	+59.7	20.4	12 48.7	+59.8	20.5	14 41.0	+59.9	20.7	16 33.2	+59.9	20.9	18 25.2	+59.9	21.1	20 17.0	+60.0	21.4	22 08.6	+60.0	21.7	24 00.0	+60.0	22.0	24		
11 56.0	+59.7	20.3	13 48.5	+59.8	20.5	15 40.9	+59.8	20.6	17 33.1	+59.9	20.9	19 25.1	+60.0	21.1	21 17.0	+59.9	21.4	23 08.6	+60.0	21.7	25 00.0	+60.0	22.0	25		
12 55.7	+59.8	20.2	14 48.3	+59.8	20.4	16 40.7	+59.9	20.6	18 33.0	+59.9	20.8	20 25.1	+59.9	21.1	22 16.9	+60.0	21.3	24 08.6	+60.0	21.7	26 00.0	+60.0	22.0	26		
13 55.5	+59.7	20.1	15 48.1	+59.8	20.3	17 40.6	+59.8	20.5	19 32.9	+59.9	20.7	21 25.0	+60.0	21.0	23 16.9	+60.0	21.3	25 08.6	+60.0	21.6	27 00.0	+60.0	22.0	27		
14 55.2	+59.8	20.0	16 47.9	+59.8	20.2	18 40.4	+59.9	20.4	20 32.8	+59.9	20.7	22 25.0	+59.9	21.0	24 16.9	+60.0	21.3	26 08.6	+60.0	21.6	28 00.0	+60.0	22.0	28		
15 55.0	+59.7	19.9	17 47.7	+59.8	20.1	19 40.3	+59.8	20.4	21 32.7	+59.9	20.6	23 24.9	+59.9	20.9	25 16.9	+59.9	21.2	27 08.6	+60.0	21.6	29 00.0	+60.0	22.0	29		
16 54.7	+59.7	19.8	18 47.5	+59.8	20.0	20 40.1	+59.9	20.3	22 32.6	+59.9	20.6	24 24.8	+60.0	20.9	26 16.8	+60.0	21.2	28 08.6	+60.0	21.6	30 00.0	+60.0	22.0	30		
17 54.4	+59.7	19.7	19 47.3	+59.8	20.0	21 40.0	+59.9	20.2	23 32.5	+59.9	20.5	25 24.8	+59.9	20.8	27 16.8	+60.0	21.2	29 08.6	+60.0	21.6	31 00.0	+60.0	22.0	31		
18 54.1	+59.8	19.6	20 47.1	+59.8	19.9	22 39.9	+59.8	20.1	24 32.4	+59.9	20.4	26 24.7	+60.0	20.8	28 16.8	+60.0	21.1	30 08.6	+60.0	21.6	32 00.0	+60.0	22.0	32		
19 53.9	+59.7	19.5	21 46.9	+59.8	19.8	23 39.7	+59.8	20.1	25 32.3	+59.9	20.4	27 24.7	+59.9	20.7	29 16.8	+59.9	21.1	31 08.6	+59.9	21.5	33 00.0	+60.0	22.0	33		
20 53.6	+59.7	19.4	22 46.7	+59.7	19.7	24 39.5	+59.9	20.0	26 32.2	+59.9	20.3	28 24.6	+60.0	20.7	30 16.7	+60.0	21.1	32 08.5	+60.0	21.5	34 00.0	+60.0	22.0	34		
21 53.3	+59.7	19.3	23 46.4	+59.8	19.6	25 39.4	+59.8	19.9	27 32.1	+59.9	20.2	29 24.6	+59.9	20.6	31 16.7	+60.0	21.0	33 08.5	+60.0	21.5	35 00.0	+60.0	22.0	35		
22 53.0	+59.7	19.2	24 46.2	+59.8	19.5	26 39.2	+59.9	19.8	28 32.0	+59.9	20.2	30 24.5	+59.9	20.6	32 16.7	+60.0	21.0	34 08.5	+60.0	21.5	36 00.0	+60.0	22.0	36		
23 52.7	+59.7	19.1	25 46.0	+59.8	19.4	27 39.1	+59.8	19.7	29 31.9	+59.9	20.1	31 24.4	+60.0	20.5	33 16.7	+59.9	21.0	35 08.5	+60.0	21.5	37 00.0	+60.0	22.0	37		
24 52.4	+59.7	19.0	26 45.8	+59.7	19.3	28 38.9	+59.8	19.7	30 31.8	+59.9	20.0	32 24.4	+59.9	20.5	34 16.6	+60.0	20.9	36 08.5	+60.0	21.4	38 00.0	+60.0	22.0	38		
25 52.1	+59.7	18.9	27 45.5	+59.8	19.2	29 38.7	+59.9	19.6	31 31.7	+59.9	20.0	33 24.3	+59.9	20.4	35 16.6	+60.0	20.9	37 08.5	+60.0	21.4	39 00.0	+60.0	22.0	39		
26 51.8	+59.7	18.8	28 45.3	+59.8	19.1	30 38.6	+59.8	19.5	32 31.6	+59.8	19.9	34 24.2	+60.0	20.4	36 16.6	+59.9	20.9	38 08.5	+60.0	21.4	40 00.0	+60.0	22.0	40		
27 51.5	+59.7	18.6	29 45.1	+59.7	19.0	31 38.4	+59.8	19.4	33 31.4	+59.9	19.8	35 24.2	+59.9	20.3	37 16.5	+60.0	20.8	39 08.5	+60.0	21.4	41 00.0	+60.0	22.0	41		
28 51.2	+59.6	18.5	30 44.8	+59.8	18.9	32 38.2	+59.8	19.3	34 31.3	+59.9	19.7	36 24.1	+59.9	20.2	38 16.5	+60.0	20.8	40 08.5	+60.0	21.4	42 00.0	+60.0	22.0	42		
29 50.8	+59.7	18.4	31 44.6	+59.7	18.8	33 38.0	+59.9	19.2	35 31.2	+59.9	19.7	37 24.0	+60.0	20.2	39 16.5	+59.9	20.7	41 08.5	+60.0	21.3	43 00.0	+60.0	22.0	43		
30 50.5	+59.7	18.3	32 44.3	+59.8	18.7	34 37.9	+59.8	19.1	36 31.1	+59.9	19.6	38 24.0	+59.9	20.1	40 16.4	+60.0	20.7	42 08.5	+60.0	21.3	44 00.0	+60.0	22.0	44		
31 50.2	+59.6	18.2	33 44.1	+59.7	18.6	35 37.7	+59.8	19.0	37 31.0	+59.8	19.5	39 23.9	+59.9	20.0	41 16.4	+60.0	20.6	43 08.5	+59.9	21.3	45 00.0	+60.0	22.0	45		
32 49.8	+59.7	18.0	34 43.8	+59.7	18.5	36 37.5	+59.8	18.9	38 30.8	+59.9	19.4	40 23.8	+59.9	20.0	42 16.4	+60.0	20.6	44 08.4	+60.0	21.3	46 00.0	+60.0	22.0	46		
33 49.5	+59.6	17.9	35 43.5	+59.7	18.3	37 37.3	+59.8	18.8	39 30.7	+59.8	19.3	41 23.7	+59.9	19.9	43 16.3	+60.0	20.5									

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	27 10.7	+58.4	152.8	25 23.8	+58.6	153.2	23 36.5	+58.8	153.6	21 48.8	+59.0	154.0	20 00.7	+59.2	154.3	18 12.4	+59.4	154.6	16 23.9	+59.6	154.9	14 35.1	+59.8	155.1
1	28 09.1	+58.4	152.5	26 22.4	+58.6	153.0	24 35.3	+58.8	153.4	22 47.8	+59.0	153.8	20 59.9	+59.2	154.2	19 11.8	+59.3	154.5	17 23.3	+59.5	154.8	15 34.7	+59.6	155.0
2	29 07.5	+58.3	152.3	27 21.0	+58.6	152.8	25 34.1	+58.8	153.2	23 46.8	+59.0	153.6	21 59.1	+59.2	154.0	20 11.1	+59.3	154.3	18 22.8	+59.5	154.6	16 34.3	+59.5	154.9
3	30 05.8	+58.3	152.0	28 19.6	+58.6	152.5	26 32.9	+58.8	153.0	24 45.8	+59.0	153.4	22 58.3	+59.2	153.8	21 10.4	+59.4	154.2	19 22.3	+59.4	154.5	17 33.8	+59.6	154.8
4	31 04.1	+58.3	151.7	29 18.2	+58.5	152.3	27 31.7	+58.8	152.8	25 44.8	+59.0	153.2	23 57.5	+59.1	153.6	22 09.8	+59.3	154.0	20 21.7	+59.5	154.4	18 33.4	+59.6	154.7
5	32 02.4	+58.2	151.4	30 16.7	+58.5	152.0	28 30.5	+58.7	152.5	26 43.8	+58.9	153.0	24 56.6	+59.2	153.5	23 09.1	+59.3	153.9	21 21.2	+59.4	154.2	19 33.0	+59.6	154.5
6	33 00.6	+58.2	151.2	31 15.2	+58.5	151.8	29 29.2	+58.7	152.3	27 42.7	+59.0	152.8	25 55.8	+59.1	153.3	24 08.4	+59.3	153.7	22 20.6	+59.5	154.1	20 32.6	+59.5	154.4
7	33 58.8	+58.2	150.9	32 13.7	+58.4	151.5	30 27.9	+58.7	152.1	28 41.7	+58.9	152.6	26 54.9	+59.1	153.1	25 07.7	+59.3	153.5	23 20.1	+59.4	153.9	21 32.1	+59.6	154.3
8	34 57.0	+58.1	150.6	33 12.1	+58.4	151.2	31 26.6	+58.7	151.8	29 40.6	+58.9	152.4	27 54.0	+59.1	152.9	26 07.0	+59.2	153.3	24 19.5	+59.4	153.8	22 31.7	+59.5	154.1
9	35 55.1	+58.0	150.3	34 10.5	+58.4	150.9	32 25.3	+58.6	151.6	30 39.5	+58.8	152.2	28 53.1	+59.1	152.7	27 06.2	+59.3	153.2	25 18.9	+59.4	153.6	23 31.2	+59.6	154.0
10	36 53.1	+58.0	149.9	35 08.9	+58.3	150.7	33 23.9	+58.6	151.3	31 38.3	+58.9	151.9	29 52.2	+59.0	152.5	28 05.5	+59.2	153.0	26 18.3	+59.4	153.5	24 30.8	+59.5	153.9
11	37 51.1	+58.0	149.6	36 07.2	+58.3	150.4	34 22.5	+58.6	151.1	32 37.2	+58.8	151.7	30 51.2	+59.1	152.3	29 04.7	+59.3	153.2	27 17.7	+59.4	153.3	25 30.3	+59.6	153.7
12	38 49.1	+57.9	149.3	37 05.5	+58.2	150.1	35 21.1	+58.5	150.8	33 36.0	+58.8	151.5	31 50.3	+59.0	152.1	30 04.0	+59.2	152.6	28 17.1	+59.4	153.1	26 29.9	+59.5	153.6
13	39 47.0	+57.8	149.0	38 03.7	+58.2	149.8	36 19.6	+58.5	150.5	34 34.8	+58.7	151.2	32 49.3	+59.0	151.9	31 03.2	+59.2	152.4	29 16.5	+59.4	153.0	27 29.4	+59.5	153.5
14	40 44.8	+57.8	148.6	39 01.9	+58.1	149.5	37 18.1	+58.5	150.3	35 33.5	+58.6	151.0	33 48.3	+58.9	151.6	32 02.4	+59.1	152.3	30 15.9	+59.3	152.8	28 28.9	+59.5	153.3
15	41 42.6	+57.7	148.2	40 00.0	+58.1	149.1	38 16.6	+58.4	150.0	36 32.3	+58.7	150.7	34 47.2	+59.0	151.4	33 01.5	+59.2	152.1	31 15.2	+59.4	152.6	29 28.4	+59.5	153.2
16	42 40.3	+57.6	147.9	40 58.1	+58.0	148.8	39 15.0	+58.3	149.7	37 31.0	+58.6	150.5	35 46.2	+58.9	151.2	34 00.7	+59.1	151.9	32 14.6	+59.3	152.5	30 27.9	+59.5	153.0
17	43 37.9	+57.5	147.5	41 56.1	+58.0	148.5	40 13.3	+58.4	149.4	38 29.6	+58.7	150.2	36 45.1	+58.9	151.0	34 59.8	+59.2	151.7	33 13.9	+59.3	152.3	31 27.4	+59.5	152.9
18	44 35.4	+57.5	147.1	42 54.1	+57.9	148.1	41 11.7	+58.2	149.1	39 28.3	+58.6	149.9	37 44.0	+58.9	150.7	35 59.0	+59.1	151.4	34 13.2	+59.3	152.1	32 26.9	+59.4	152.7
19	45 32.9	+57.3	146.7	43 52.0	+57.8	147.8	42 09.9	+58.2	148.7	40 26.8	+58.6	149.6	38 42.9	+58.8	150.5	36 58.1	+59.0	151.2	35 12.5	+59.3	151.9	33 26.3	+59.5	152.6
20	46 30.2	+57.3	146.3	44 49.8	+57.7	147.4	43 08.1	+58.2	148.4	41 25.4	+58.5	149.4	39 41.7	+58.8	150.2	37 57.1	+59.1	151.0	36 11.8	+59.2	151.7	34 25.8	+59.4	152.4
21	47 27.5	+57.2	145.8	45 47.5	+57.7	147.0	44 06.3	+58.1	148.1	42 23.9	+58.4	149.1	40 40.5	+58.7	150.0	38 56.2	+59.0	150.8	37 11.0	+59.3	151.5	35 25.2	+59.4	152.2
22	48 24.7	+57.0	145.4	46 45.2	+57.6	146.6	45 04.4	+58.0	147.7	43 23.3	+58.4	148.7	41 39.2	+58.8	149.7	39 55.2	+59.0	150.5	38 10.3	+59.2	151.3	36 24.6	+59.4	152.1
23	49 21.7	+57.0	144.9	47 42.8	+57.5	146.2	46 02.4	+57.9	147.4	44 20.7	+58.4	148.4	42 38.0	+58.6	149.4	40 54.2	+58.9	150.3	39 09.5	+59.2	151.1	37 24.0	+59.4	151.9
24	50 18.7	+56.8	144.4	48 40.3	+57.4	145.8	47 00.3	+57.9	147.0	45 19.1	+58.3	148.1	43 36.6	+58.7	149.1	41 53.1	+59.0	150.1	40 08.7	+59.2	150.9	38 23.4	+59.4	151.7
25	51 15.5	+56.7	143.9	49 37.7	+57.2	145.3	47 58.2	+57.8	146.6	46 17.4	+58.2	147.8	44 35.3	+58.6	148.8	42 52.1	+58.9	149.8	41 07.9	+59.1	150.7	39 22.8	+59.4	151.5
26	52 12.2	+56.6	143.4	50 34.9	+57.2	144.8	48 56.0	+57.7	146.2	47 15.6	+58.1	147.4	45 33.9	+58.5	148.5	43 51.0	+58.8	149.5	42 07.0	+59.1	150.5	40 22.2	+59.3	151.3
27	53 08.7	+56.4	142.8	51 32.1	+57.0	144.4	49 53.7	+57.6	145.8	48 13.7	+58.1	147.0	46 32.4	+58.5	148.2	44 49.8	+58.8	149.3	43 06.1	+59.1	150.2	41 21.5	+59.3	151.1
28	54 05.1	+56.1	142.2	52 29.1	+56.9	143.9	50 51.3	+57.5	145.3	49 11.8	+58.0	146.7	47 30.9	+58.4	147.9	45 48.6	+58.8	149.0	44 05.2	+59.1	150.0	42 20.8	+59.3	150.9
29	55 01.2	+56.0	141.6	53 26.0	+56.8	143.3	51 48.8	+57.4	144.9	50 09.8	+58.0	146.3	48 29.3	+58.4	147.5	46 47.4	+58.7	148.7	45 04.3	+59.0	149.8	43 20.1	+59.3	150.7
30	55 57.2	+55.8	141.0	54 22.8	+56.6	142.8	52 46.2	+57.3	144.4	51 07.8	+57.8	145.9	49 27.7	+58.3	147.2	47 46.1	+58.7	148.4	46 03.3	+59.0	149.5	44 19.4	+59.2	150.5
31	56 53.0	+55.6	140.3	55 19.4	+56.4	142.2	53 43.5	+57.1	143.9	52 05.6	+57.7	145.4	50 26.0	+58.2	146.8	48 44.8	+58.6	148.1	47 02.3	+58.9	149.2	45 18.6	+59.2	150.3
32	57 48.6	+55.3	139.6	56 15.8	+56.3	141.6	54 40.6	+57.0	143.4	53 03.3	+57.6	145.0	51 24.2	+58.1	146.4	49 43.4	+58.6	147.8	48 01.2	+58.9	149.0	46 17.8	+59.2	150.1
33	58 43.9	+55.1	138.9	57 12.1	+56.0	141.0	55 37.6	+56.9	142.8	54 00.9	+57.6	144.5	52 22.3	+58.1	146.0	50 42.0	+58.5	147.4	49 00.2	+58.8	148.7	47 17.0	+59.2	149.8
34	59 39.0	+54.8	138.1	58 08.1	+55.9	140.3	56 34.5	+56.7	142.3	54 58.5	+57.4	144.0	53 20.4	+57.9	145.6	51 40.5	+58.4	147.1	49 59.0	+58.8	148.4	48 16.2	+59.1	149.6
35	60 33.8	+54.4	137.3	59 04.0	+55.5	139.6	57 31.2	+56.5	141.7	55 55.9	+57.2	143.5	54 18.3	+57.9	145.2	52 38.9	+58.4	146.7	50 57.8	+58.8	148.1	49 15.3	+59.1	149.3
36	61 28.2	+54.2	136.5	59 59.5	+55.4	138.9	58 27.7	+56.3	141.0	56 53.1	+57.1	143.0	55 16.2	+57.8	144.7	53 37.3	+58.3	146.3	51 56.6	+58.7	147.7	50 14.4	+59.1	149.0
37	62 22.4	+54.0	135.5	60 54.9	+55.0	138.1	59 24.0	+56.1	140.3	57 50.2	+57.0	142.4	56 14.0	+57.6	144.2	54 35.6	+58.2	145.9	52 55.3	+58.7	147.4	51 13.5	+59.0	148.8
38	63 16.1	+53.3	134.6	61 49.9	+54.7	137.2	60 20.1	+55.8	139.6	58 47.2	+56.7	141.8	57 11.6	+57.5	143.7	55 33.8	+58.1	145.5	53 54.0	+58.6	147.0	52 12.5	+58.9	148.5
39	64 09.4	+52.8	133.5	62 44.6	+54.3	136.4	61 15.9	+55.6	138.9	59 43.9	+56.6	141.2	58 09.1	+57.4	143.2	56 31.9	+58.0	145.0	54 52.6	+58.5	146.7	53 11.4	+58.9	148.2
40	65 02.2	+52.3	132.4	63 38.9	+54.0	135.4	62 11.5	+55.3	138.1	60 40.5	+56.4	140.5	59 06.5	+57.2	142.6	57 29.9	+57.9	144.6	55 51.1	+58.4	146.3	54 10.3	+58.9	147.8
41	65 54.5	+51.7	131.2	64 32.9	+53.5	134.4	63 06.8	+55.0	137.3	61 36.9	+56.1	139.8	60 03.7	+57.1	142.0	58 27.8	+57.8	144.1	56 49.5	+58.4	145.9	55 09.2	+58.8	147.5
42	66 46.2	+51.1	130.0	65 26.4	+53.1	133.3	64 01.8	+54.6	136.3	62 33.0	+55.9	139.0	61 00.8	+56.8	141.4	59 25.6	+57.6	143.5	57 47.9	+58.2	145.4	56 08.0	+58.8	147.2
43	67 37.3	+50.3	128.6	66 19.5	+52.5	132.2	64 56.4	+54.2	135.4	63 28.9	+55.5	138.2	61 57.6	+56.7	140.7	60 23.2	+57.5	143.0	58 46.1	+58.2	145.0	57 06.8	+58.6	146.8
44	68 27.6	+49.6	127.2	67 12.0	+51.9	131.0	65 50.6	+53.8	134.4	64 24.4	+55.3	137.4	62 54.3	+56.4	140.0	61 20.7	+57.3	142.4	59 44.3	+58.0	144.5	58 05.4	+58.6	146.4
45	69 17.2	+48.6	125.6	68 03.9	+51.2	129.7	66 44.4	+53.3	133.3	65 19.7	+54.9	136.4	63 50.7	+56.2	139.3	62 18.0	+57.2	141.8	60 42.3	+57.9	144.0	59 04.0	+58.5	146.0
46	70 05.8	+47.6	123.9																					

LATITUDE CONTRARY NAME

L.H.A. 24°, 336°

Table with columns for latitude (60° to 74°), longitude (Hc, d, Z), and Dec. (0 to 90). Each latitude column contains three sub-columns for Hc, d, and Z. The Dec. column is on the far right.

LATITUDE SAME NAME

L.H.A. 156°, 204°

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	12 46.1	+59.7	155.4	10 56.9	+59.8	155.5	9 07.7	+59.8	155.7	7 18.3	+59.9	155.8	5 28.8	+59.9	155.9	3 39.2	+60.0	155.9	1 49.6	+60.0	156.0	0 00.0	+60.0	156.0
1	13 45.8	+59.7	155.2	11 56.7	+59.8	155.4	10 07.5	+59.9	155.6	8 18.2	+59.9	155.7	6 28.7	+60.0	155.8	4 39.2	+60.0	155.9	2 49.6	+60.0	156.0	1 00.0	+60.0	156.0
2	14 45.5	+59.7	155.1	12 56.5	+59.8	155.3	11 07.4	+59.8	155.5	9 18.1	+59.9	155.7	7 28.7	+59.9	155.8	5 39.2	+59.9	155.9	3 49.6	+60.0	156.0	2 00.0	+60.0	156.0
3	15 45.2	+59.6	155.0	13 56.3	+59.7	155.3	12 07.2	+59.8	155.5	10 18.0	+59.9	155.6	8 28.6	+60.0	155.8	6 39.1	+60.0	155.9	4 49.6	+60.0	155.9	3 00.0	+60.0	156.0
4	16 44.8	+59.7	154.9	14 56.0	+59.8	155.2	13 07.0	+59.9	155.4	11 17.9	+59.9	155.6	9 28.6	+59.9	155.7	7 39.1	+60.0	155.8	5 49.6	+60.0	155.9	4 00.0	+60.0	156.0
5	17 44.5	+59.7	154.8	15 55.8	+59.8	155.1	14 06.9	+59.8	155.3	12 17.8	+59.9	155.5	10 28.5	+59.9	155.7	8 39.1	+60.0	155.8	6 49.6	+60.0	155.9	5 00.0	+60.0	156.0
6	18 44.2	+59.7	154.7	16 55.6	+59.7	155.0	15 06.7	+59.9	155.2	13 17.7	+59.9	155.4	11 28.4	+60.0	155.6	9 39.1	+59.9	155.8	7 49.6	+60.0	155.9	6 00.0	+60.0	156.0
7	19 43.9	+59.6	154.6	17 55.3	+59.8	154.9	16 06.6	+59.8	155.2	14 17.6	+59.9	155.4	12 28.4	+59.9	155.6	10 39.0	+60.0	155.7	8 49.6	+60.0	155.9	7 00.0	+60.0	156.0
8	20 43.5	+59.7	154.5	18 55.1	+59.8	154.8	17 06.4	+59.8	155.1	15 17.5	+59.9	155.3	13 28.3	+60.0	155.5	11 39.0	+60.0	155.7	9 49.6	+60.0	155.9	8 00.0	+60.0	156.0
9	21 43.2	+59.7	154.4	19 54.9	+59.7	154.7	18 06.2	+59.9	155.0	16 17.4	+59.9	155.3	14 28.3	+59.9	155.5	12 39.0	+60.0	155.7	10 49.6	+60.0	155.9	9 00.0	+60.0	156.0
10	22 42.9	+59.6	154.3	20 54.6	+59.8	154.6	19 06.1	+59.8	154.9	17 17.3	+59.8	155.2	15 28.2	+60.0	155.4	13 39.0	+59.9	155.7	11 49.6	+60.0	155.8	10 00.0	+60.0	156.0
11	23 42.5	+59.7	154.1	21 54.4	+59.7	154.5	20 05.9	+59.8	154.8	18 17.1	+59.9	155.1	16 28.2	+59.9	155.4	14 38.9	+60.0	155.6	12 49.6	+59.9	155.8	11 00.0	+60.0	156.0
12	24 42.2	+59.6	154.0	22 54.1	+59.8	154.4	21 05.7	+59.9	154.8	19 17.0	+59.9	155.1	17 28.1	+59.9	155.3	15 38.9	+60.0	155.6	13 49.5	+60.0	155.8	12 00.0	+60.0	156.0
13	25 41.8	+59.7	153.9	23 53.9	+59.7	154.3	22 05.6	+59.8	154.7	20 16.9	+59.9	155.0	18 28.0	+60.0	155.3	16 38.9	+60.0	155.6	14 49.5	+60.0	155.8	13 00.0	+60.0	156.0
14	26 41.5	+59.6	153.8	24 53.6	+59.7	154.2	23 05.4	+59.8	154.6	21 16.8	+59.9	154.9	19 28.0	+59.9	155.3	17 38.9	+59.9	155.5	15 49.5	+60.0	155.8	14 00.0	+60.0	156.0
15	27 41.1	+59.6	153.7	25 53.3	+59.8	154.1	24 05.2	+59.8	154.5	22 16.7	+59.9	154.9	20 27.9	+60.0	155.2	18 38.8	+60.0	155.5	16 49.5	+60.0	155.8	15 00.0	+60.0	156.0
16	28 40.7	+59.6	153.5	26 53.1	+59.7	154.0	25 05.0	+59.8	154.4	23 16.6	+59.9	154.8	21 27.9	+59.9	155.2	19 38.8	+60.0	155.5	17 49.5	+60.0	155.8	16 00.0	+60.0	156.0
17	29 40.3	+59.6	153.4	27 52.8	+59.7	153.9	26 04.8	+59.8	154.3	24 16.5	+59.9	154.7	22 27.8	+59.9	155.1	20 38.8	+60.0	155.4	18 49.5	+60.0	155.7	17 00.0	+60.0	156.0
18	30 39.9	+59.6	153.3	28 52.5	+59.7	153.8	27 04.6	+59.9	154.2	25 16.4	+59.8	154.7	23 27.7	+60.0	155.1	21 38.8	+59.9	155.4	19 49.5	+60.0	155.7	18 00.0	+60.0	156.0
19	31 39.5	+59.6	153.1	29 52.2	+59.7	153.7	28 04.5	+59.8	154.2	26 16.2	+59.9	154.6	24 27.7	+59.9	155.0	22 38.7	+60.0	155.4	20 49.5	+60.0	155.7	19 00.0	+60.0	156.0
20	32 39.1	+59.6	153.0	30 51.9	+59.8	153.6	29 04.3	+59.8	154.1	27 16.1	+59.9	154.5	25 27.6	+59.9	155.0	23 38.7	+60.0	155.3	21 49.5	+60.0	155.7	20 00.0	+60.0	156.0
21	33 38.7	+59.6	152.9	31 51.7	+59.6	153.5	30 04.1	+59.8	154.0	28 16.0	+59.9	154.5	26 27.5	+60.0	154.9	24 38.7	+59.9	155.3	22 49.5	+60.0	155.7	21 00.0	+60.0	156.0
22	34 38.3	+59.6	152.7	32 51.3	+59.7	153.3	31 03.9	+59.8	153.9	29 15.9	+59.8	154.4	27 27.5	+59.9	154.8	25 38.6	+60.0	155.3	23 49.5	+60.0	155.7	22 00.0	+60.0	156.0
23	35 37.9	+59.5	152.6	33 51.0	+59.7	153.2	32 03.7	+59.7	153.8	30 15.7	+59.9	154.3	28 27.4	+59.9	154.8	26 38.6	+60.0	155.2	24 49.5	+60.0	155.6	23 00.0	+60.0	156.0
24	36 37.4	+59.6	152.4	34 50.7	+59.7	153.1	33 03.4	+59.8	153.7	31 15.6	+59.9	154.2	29 27.3	+59.9	154.7	27 38.6	+60.0	155.2	25 49.5	+60.0	155.6	24 00.0	+60.0	156.0
25	37 37.0	+59.5	152.3	35 50.4	+59.7	153.0	34 03.2	+59.8	153.6	32 15.5	+59.9	154.2	30 27.2	+60.0	154.7	28 38.6	+59.9	155.2	26 49.5	+60.0	155.6	25 00.0	+60.0	156.0
26	38 36.5	+59.5	152.1	36 50.1	+59.6	152.8	35 03.0	+59.8	153.5	33 15.4	+59.8	154.1	31 27.2	+59.9	154.6	29 38.5	+60.0	155.1	27 49.5	+59.9	155.6	26 00.0	+60.0	156.0
27	39 36.0	+59.5	151.9	37 49.7	+59.7	152.7	36 02.8	+59.7	153.4	34 15.2	+59.9	154.0	32 27.1	+59.9	154.6	30 38.5	+60.0	155.1	28 49.4	+60.0	155.6	27 00.0	+60.0	156.0
28	40 35.5	+59.5	151.8	38 49.4	+59.6	152.6	37 02.5	+59.8	153.3	35 15.1	+59.8	153.9	33 27.0	+59.9	154.5	31 38.5	+59.9	155.0	29 49.4	+60.0	155.5	28 00.0	+60.0	156.0
29	41 35.0	+59.5	151.6	39 49.0	+59.7	152.4	38 02.3	+59.8	153.2	36 14.9	+59.9	153.8	34 26.9	+60.0	154.4	32 38.4	+60.0	155.0	30 49.4	+60.0	155.5	29 00.0	+60.0	156.0
30	42 34.5	+59.4	151.4	40 48.7	+59.6	152.3	39 02.1	+59.7	153.0	37 14.8	+59.8	153.7	35 26.9	+59.9	154.4	33 38.4	+60.0	155.0	31 49.4	+60.0	155.5	30 00.0	+60.0	156.0
31	43 33.9	+59.4	151.2	41 48.3	+59.6	152.1	40 01.8	+59.7	152.9	38 14.6	+59.9	153.6	36 26.8	+59.9	154.3	34 38.4	+59.9	154.9	32 49.4	+60.0	155.5	31 00.0	+60.0	156.0
32	44 33.3	+59.5	151.0	42 47.9	+59.6	152.0	41 01.5	+59.8	152.8	39 14.5	+59.8	153.6	37 26.7	+59.9	154.2	35 38.3	+60.0	154.9	33 49.4	+60.0	155.5	32 00.0	+60.0	156.0
33	45 32.8	+59.4	150.9	43 47.5	+59.5	151.8	42 01.3	+59.7	152.7	40 14.3	+59.8	153.5	38 26.6	+59.9	154.2	36 38.3	+59.9	154.8	34 49.4	+60.0	155.4	33 00.0	+60.0	156.0
34	46 32.2	+59.3	150.6	44 47.0	+59.6	151.6	43 01.0	+59.7	152.5	41 14.1	+59.9	153.4	39 26.5	+59.9	154.1	37 38.2	+60.0	154.8	35 49.4	+60.0	155.4	34 00.0	+60.0	156.0
35	47 31.5	+59.4	150.4	45 46.6	+59.6	151.5	44 00.7	+59.7	152.4	42 14.0	+59.8	153.3	40 26.4	+59.9	154.0	38 38.2	+60.0	154.8	36 49.4	+60.0	155.4	35 00.0	+60.0	156.0
36	48 30.9	+59.3	150.2	46 46.2	+59.5	151.3	45 00.4	+59.7	152.3	43 13.8	+59.8	153.2	41 26.3	+59.9	154.0	39 38.2	+59.9	154.7	37 49.4	+60.0	155.4	36 00.0	+60.0	156.0
37	49 30.2	+59.3	150.0	47 45.7	+59.5	151.1	46 00.1	+59.7	152.1	44 13.6	+59.8	153.0	42 26.2	+59.9	153.9	40 38.1	+60.0	154.7	38 49.4	+59.9	155.4	37 00.0	+60.0	156.0
38	50 29.5	+59.2	149.7	48 45.2	+59.5	150.9	46 59.8	+59.7	152.0	45 13.4	+59.8	152.9	43 26.1	+59.9	153.8	41 38.1	+59.9	154.6	39 49.3	+60.0	155.3	38 00.0	+60.0	156.0
39	51 28.7	+59.3	149.5	49 44.7	+59.5	150.7	47 59.5	+59.6	151.8	46 13.2	+59.8	152.8	44 26.0	+59.9	153.7	42 38.0	+60.0	154.6	40 49.3	+60.0	155.3	39 00.0	+60.0	156.0
40	52 28.0	+59.2	149.2	50 44.2	+59.4	150.5	48 59.1	+59.7	151.7	47 13.0	+59.8	152.7	45 25.9	+59.9	153.6	43 38.0	+59.9	154.5	41 49.3	+60.0	155.3	40 00.0	+60.0	156.0
41	53 27.2	+59.1	149.0	51 43.6	+59.5	150.3	49 58.8	+59.6	151.5	48 12.8	+59.8	152.6	46 25.8	+59.9	153.6	44 37.9	+60.0	154.4	42 49.3	+60.0	155.3	41 00.0	+60.0	156.0
42	54 26.3	+59.1	148.7	52 43.1	+59.4	150.1	50 58.4	+59.6	151.3	49 12.6	+59.7	152.4	47 25.7	+59.9	153.5	45 37.9	+59.9	154.4	43 49.3	+60.0	155.2	42 00.0	+60.0	156.0
43	55 25.4	+59.1	148.4	53 42.5	+59.3	149.8	51 58.0	+59.6	151.1	50 12.3	+59.8	152.3	48 25.6	+59.8	153.4	46 37.8	+60.0	154.3	44 49.3	+60.0	155.2	43 00.0	+60.0	156.0
44	56 24.5	+59.0	148.1	54 41.8	+59.4	149.6	52 57.6	+59.6	150.9	51 12.1	+59.7	152.2	49 25.4	+59.9	153.3	47 37.8	+59.9	154.3	45 49.3	+60.0	155.2	44 00.0	+60.0	156.0
45	57 23.5	+59.0	147.7	55 41.2	+59.3	149.3	53 57.2	+59.5	150.7	52 11.8	+59.8	152.0	50 25.3	+59.9	153.2	48 37.7	+60.0	154.2	46 49.3	+60.0	155.1	45 00.0	+60.0	156.0
46	58 22.5	+58.9	147.4	56 40.5	+59.2	149.1																		

Table with columns for Dec. (0-90) and latitude (60°-74°). Each cell contains three values (Hc, d, Z) for a specific latitude and declination. The table is organized into 10 columns of latitude and 10 rows of declination.

LATITUDE CONTRARY NAME

L.H.A. 26°, 334°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
26 42.3	-58.2	150.6	24 57.5	-58.4	151.1	23 12.2	-58.6	151.5	21 26.6	-58.9	151.9	19 40.5	-59.1	152.3	17 54.2	-59.3	152.6	16 07.5	-59.4	152.8	14 20.6	-59.5	153.1	0		
25 44.1	-58.2	150.9	23 59.1	-58.5	151.3	22 13.6	-58.7	151.7	20 27.7	-58.9	152.1	18 41.4	-59.0	152.4	16 54.9	-59.2	152.7	15 08.1	-59.4	153.0	13 21.1	-59.5	153.2	1		
24 45.9	-58.2	151.2	23 00.6	-58.5	151.6	21 14.9	-58.8	152.0	19 28.8	-59.0	152.3	17 42.4	-59.2	152.6	15 55.7	-59.3	152.9	14 08.7	-59.4	153.1	12 12.6	-59.6	153.4	2		
23 47.7	-58.3	151.4	22 02.1	-58.5	151.8	20 16.1	-58.7	152.2	18 29.8	-58.9	152.5	16 43.2	-59.1	152.8	14 56.4	-59.3	153.1	13 09.3	-59.4	153.3	11 22.0	-59.5	153.5	3		
22 49.4	-58.3	151.7	21 03.6	-58.6	152.1	19 17.4	-58.8	152.4	17 30.9	-58.9	152.7	15 44.1	-59.1	153.0	13 57.1	-59.3	153.2	12 09.9	-59.4	153.4	10 22.5	-59.6	153.6	4		
21 51.1	-58.3	151.9	20 05.0	-58.5	152.3	18 18.6	-58.7	152.6	16 32.0	-59.0	152.9	14 45.0	-59.1	153.2	12 57.8	-59.3	153.4	11 10.5	-59.5	153.6	9 22.9	-59.5	153.7	5		
20 52.8	-58.3	152.2	19 06.5	-58.6	152.5	17 19.9	-58.8	152.8	15 33.0	-59.0	153.1	13 45.9	-59.2	153.3	11 58.5	-59.3	153.5	10 11.0	-59.4	153.7	8 23.4	-59.6	153.9	6		
19 54.5	-58.4	152.4	18 07.9	-58.6	152.8	16 21.1	-58.8	153.0	14 34.0	-58.9	153.3	12 46.7	-59.1	153.5	10 59.2	-59.2	153.7	9 11.6	-59.4	153.8	7 23.8	-59.5	154.0	7		
18 56.1	-58.4	152.7	17 09.3	-58.6	153.0	15 22.3	-58.8	153.2	13 35.1	-59.0	153.5	11 47.6	-59.2	153.7	10 00.0	-59.4	153.8	8 12.2	-59.5	154.0	6 24.3	-59.6	154.1	8		
17 57.7	-58.4	152.9	16 10.7	-58.6	153.2	14 23.5	-58.8	153.4	12 36.1	-59.0	153.7	10 48.4	-59.1	153.8	9 00.6	-59.3	154.0	7 12.7	-59.4	154.1	5 24.7	-59.5	154.2	9		
16 59.3	-58.4	153.2	15 12.1	-58.6	153.4	13 24.7	-58.8	153.7	11 37.1	-59.0	153.8	9 49.3	-59.2	154.0	8 01.3	-59.3	154.2	6 13.3	-59.4	154.3	4 25.2	-59.6	154.3	10		
16 00.9	-58.4	153.4	14 13.5	-58.6	153.6	12 25.9	-58.9	153.9	10 38.1	-59.0	154.0	8 50.1	-59.2	154.2	7 02.0	-59.3	154.3	5 13.9	-59.5	154.4	3 25.6	-59.6	154.5	11		
15 02.5	-58.4	153.6	13 14.9	-58.7	153.9	11 27.0	-58.8	154.1	9 39.1	-59.1	154.2	7 50.9	-59.1	154.4	6 02.7	-59.3	154.5	4 14.4	-59.4	154.5	2 26.0	-59.5	154.6	12		
14 04.1	-58.5	153.9	12 16.2	-58.6	154.1	10 28.2	-58.8	154.3	8 40.0	-59.0	154.4	6 51.8	-59.2	154.5	5 03.4	-59.3	154.6	3 15.0	-59.5	154.7	1 26.5	-59.6	154.7	13		
13 05.6	-58.5	154.1	11 17.6	-58.7	154.3	9 29.4	-58.9	154.5	7 41.0	-59.0	154.6	5 52.6	-59.2	154.7	4 04.1	-59.3	154.8	2 15.5	-59.4	154.8	0 26.9	-59.5	154.8	14		
12 07.1	-58.4	154.3	10 18.9	-58.7	154.5	8 30.5	-58.9	154.7	6 42.0	-59.0	154.8	4 53.4	-59.2	154.9	3 04.8	-59.4	154.9	1 16.1	-59.5	154.9	0 32.6	-59.6	25.1	15		
11 08.7	-58.5	154.6	9 20.2	-58.7	154.7	7 31.6	-58.8	154.8	5 43.0	-59.0	154.9	3 54.2	-59.1	155.0	2 05.4	-59.3	155.1	0 16.6	-59.4	155.1	0 32.2	-59.6	24.9	16		
10 10.2	-58.5	154.8	8 21.5	-58.7	154.9	6 32.8	-58.9	155.0	4 44.0	-59.1	155.1	2 55.1	-59.2	155.2	1 06.1	-59.3	155.2	0 06.8	-59.3	155.4	0 42.8	-59.5	24.8	17		
9 11.7	-58.5	155.0	7 22.8	-58.7	155.1	5 33.9	-58.9	155.2	3 44.9	-59.0	155.3	1 55.9	-59.2	155.3	0 06.8	-59.3	155.4	0 06.8	-59.3	155.4	1 42.3	-59.4	24.7	18		
8 13.2	-58.6	155.2	6 24.1	-58.7	155.3	4 35.0	-58.8	155.4	2 45.9	-59.1	155.5	0 56.7	-59.2	155.5	0 52.5	-59.3	155.5	0 52.5	-59.3	155.5	2 41.7	-59.5	24.5	19		
7 14.6	-58.5	155.5	5 25.4	-58.7	155.6	3 36.2	-58.9	155.6	1 46.8	-59.0	155.7	0 02.5	-59.2	24.3	1 51.8	-59.4	24.3	1 51.8	-59.4	24.3	3 41.2	-59.4	24.4	20		
6 16.1	-58.5	155.7	4 26.7	-58.7	155.8	2 37.3	-58.9	155.8	0 47.8	-59.0	155.8	1 01.7	-59.2	24.2	2 51.2	-59.3	24.2	2 51.2	-59.3	24.2	4 40.6	-59.4	24.2	21		
5 17.6	-58.5	155.9	3 28.0	-58.7	156.0	1 38.4	-58.9	156.0	0 11.2	-59.1	24.0	2 00.9	-59.2	24.0	3 50.5	-59.3	24.0	3 50.5	-59.3	24.0	5 40.0	-59.5	24.1	22		
4 19.1	-58.6	156.1	2 29.3	-58.7	156.2	0 39.5	-58.9	156.2	1 10.3	-59.0	23.8	3 00.1	-59.1	23.8	4 49.8	-59.3	23.9	4 49.8	-59.3	23.9	6 39.5	-59.4	24.0	23		
3 20.5	-58.5	156.3	1 30.6	-58.7	156.4	0 19.4	-58.8	23.6	2 09.3	-59.0	23.6	3 59.2	-59.2	23.7	5 49.1	-59.3	23.7	5 49.1	-59.3	23.7	7 38.9	-59.5	23.8	24		
2 22.0	-58.5	156.6	0 31.9	-58.7	156.6	1 18.2	-58.9	23.4	3 08.3	-59.1	23.4	4 58.4	-59.2	23.5	6 48.4	-59.3	23.6	6 48.4	-59.3	23.6	8 38.4	-59.4	23.7	25		
1 23.5	-58.6	156.8	0 24.9	-58.5	157.0	2 17.1	-58.9	23.2	4 07.4	-59.0	23.3	5 57.6	-59.2	23.3	7 47.7	-59.3	23.4	7 47.7	-59.3	23.4	9 37.8	-59.4	23.6	26		
0 33.6	-58.6	22.8	1 25.5	-58.8	23.0	3 16.0	-58.9	23.0	5 06.4	-59.0	23.1	6 56.8	-59.1	23.2	8 47.0	-59.3	23.3	8 47.0	-59.3	23.3	10 37.2	-59.4	23.4	27		
1 32.2	-58.5	22.6	2 24.3	-58.7	22.8	4 14.9	-58.8	22.8	6 05.4	-59.1	22.9	7 55.9	-59.2	23.0	9 46.3	-59.3	23.1	9 46.3	-59.3	23.1	11 36.6	-59.5	23.3	28		
2 30.7	-58.5	22.3	3 23.0	-58.7	22.6	5 13.7	-58.9	22.6	7 04.5	-59.0	22.7	8 55.1	-59.2	22.8	10 45.6	-59.3	23.0	10 45.6	-59.3	23.0	12 36.1	-59.5	23.1	29		
3 29.2	-58.6	22.1	4 21.7	-58.7	22.4	6 12.6	-58.9	22.5	8 03.5	-59.0	22.5	9 54.3	-59.1	22.7	11 44.9	-59.3	22.8	11 44.9	-59.3	22.8	13 35.5	-59.4	23.0	30		
4 27.8	-58.5	21.9	5 20.4	-58.7	22.2	7 11.5	-58.8	22.3	9 02.5	-59.0	22.4	10 53.4	-59.2	22.5	12 44.2	-59.3	22.7	12 44.2	-59.3	22.7	14 34.9	-59.4	22.8	31		
5 26.3	-58.5	21.7	6 19.1	-58.7	22.0	8 10.3	-58.9	22.1	10 01.5	-59.0	22.2	11 52.6	-59.1	22.3	13 43.5	-59.3	22.5	13 43.5	-59.3	22.5	15 34.3	-59.4	22.7	32		
6 24.8	-58.5	21.5	7 17.8	-58.7	21.8	9 09.2	-58.9	21.9	11 00.5	-59.0	22.0	12 51.7	-59.2	22.2	14 42.8	-59.3	22.3	14 42.8	-59.3	22.3	16 33.7	-59.4	22.6	33		
7 23.3	-58.6	21.2	8 16.5	-58.7	21.5	10 08.1	-58.8	21.7	11 59.5	-59.0	21.8	13 50.9	-59.2	22.0	15 42.1	-59.3	22.2	15 42.1	-59.3	22.2	17 33.1	-59.4	22.4	34		
8 21.9	-58.5	21.0	9 15.2	-58.6	21.3	11 06.9	-58.8	21.5	12 58.5	-59.0	21.6	14 50.0	-59.1	21.8	16 41.3	-59.3	22.0	16 41.3	-59.3	22.0	18 32.5	-59.4	22.3	35		
9 20.4	-58.5	20.8	10 13.8	-58.7	21.1	12 05.7	-58.9	21.3	13 57.5	-59.0	21.4	15 49.1	-59.1	21.6	17 40.6	-59.2	21.9	17 40.6	-59.2	21.9	19 31.9	-59.3	22.1	36		
10 18.9	-58.4	20.6	11 12.5	-58.7	20.9	13 04.6	-58.8	21.1	14 56.5	-58.9	21.2	16 48.2	-59.1	21.5	18 39.8	-59.3	21.7	18 39.8	-59.3	21.7	20 31.2	-59.4	22.0	37		
11 17.3	-58.5	20.3	12 11.2	-58.6	20.7	14 03.4	-58.8	20.9	15 55.4	-59.0	21.1	17 47.3	-59.1	21.3	19 39.1	-59.2	21.5	19 39.1	-59.2	21.5	21 30.6	-59.3	21.8	38		
12 15.8	-58.5	20.1	13 09.8	-58.7	20.5	15 02.2	-58.8	20.7	16 54.4	-58.9	20.9	18 46.4	-59.1	21.1	20 38.3	-59.2	21.3	20 38.3	-59.2	21.3	22 30.0	-59.3	21.6	39		
13 14.3	-58.4	19.9	14 08.5	-58.6	20.3	16 01.0	-58.8	20.4	17 53.3	-59.0	20.7	19 45.5	-59.1	20.9	21 37.5	-59.2	21.2	21 37.5	-59.2	21.2	23 29.3	-59.3	21.5	40		
14 12.7	-58.5	19.6	15 07.1	-58.6	20.0	16 59.8	-58.7	20.2	18 52.3	-58.9	20.5	20 44.6	-59.1	20.7	22 36.7	-59.2	21.0	22 36.7	-59.2	21.0	24 28.6	-59.3	21.3	41		
15 11.2	-58.4	19.4	16 05.7	-58.6	19.8	17 58.5	-58.8	20.0	19 51.2	-58.9	20.3	21 43.7	-59.0	20.5	23 35.9	-59.2	20.8	23 35.9	-59.2	20.8	25 28.0	-59.3	21.2	42		
16 09.6	-58.4	19.2	17 04.3	-58.6	19.6	18 57.3	-58.7	19.8	20 50.1	-58.9	20.1	22 42.7	-59.0	20.3	24 35.1	-59.2	20.6	24 35.1	-59.2	20.6	26 27.3	-59.3	21.0	43		
17 08.0	-58.4	18.9	18 02.9	-58.6	19.4	19 56.0	-58.7	19.6	21 49.0	-58.9	19.9	23 41.7	-59.1	20.1	25 34.3	-59.1	20.5	25 34.3	-59.1	20.5	27 26.6	-59.3	20.8	44		
18 06.4	-58.4	18.7	19 01.5	-58.5	19.1	20 54.7	-58.7	19.4	22 47.9	-58.8	19.6	24 40.8	-59.0	19.9	26 33.4	-59.2	20.3	26 33.4	-59.2	20.3	28 25.9	-59.3	20.6	45		
19 04.8	-58.3	18.4	20 00.0	-58.5	18.9	21 53.4	-58.7	19.2	23 46.7	-58.8	19.4	25 39.8	-59.0	19.7	27 32.6	-59.1	20.1	27 32.6	-59.1	20.1	29 25.2	-59.2	20.5	46		
20 03.1	-58.4	18.2	20 58.5	-58.6	18.7	22 52.1	-58.7	18.9	24 45.																	

Table with columns for Dec., 76°, 78°, 80°, 82°, 84°, 86°, 88°, 90°. Each column contains three sub-columns: Hc, d, Z. The table lists astronomical data for various declinations from 0 to 90 degrees.

LATITUDE CONTRARY NAME

L.H.A. 26°, 334°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.								
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z					
12	33.5	-59.6	153.3	10	46.2	-59.7	153.5	8	58.7	-59.8	153.7	7	11.2	-59.9	153.8	5	23.5	-60.0	153.9	3	35.7	-60.0	154.0	1	47.9	-60.0	154.0	0	00.0	+60.0	26.0	0
11	33.9	-59.7	153.4	9	46.5	-59.8	153.6	7	58.9	-59.8	153.7	6	11.3	-59.9	153.8	4	23.5	-59.9	153.9	2	35.7	-60.0	154.0	0	47.9	-60.0	154.0	1	00.0	+60.0	26.0	1
10	34.2	-59.6	153.5	8	46.7	-59.7	153.7	6	59.1	-59.8	153.8	5	11.4	-59.9	153.9	3	23.6	-60.0	154.0	1	35.7	-59.9	154.0	0	12.1	+60.0	26.0	2	00.0	+60.0	26.0	2
9	34.6	-59.7	153.6	7	47.0	-59.8	153.8	5	59.3	-59.8	153.9	4	11.5	-59.9	154.0	2	23.6	-59.9	154.0	0	35.8	-60.0	154.0	0	12.1	+60.0	26.0	3	00.0	+60.0	26.0	3
8	34.9	-59.6	153.8	6	47.2	-59.7	153.9	4	59.5	-59.9	154.0	3	11.6	-59.9	154.0	1	23.7	-59.9	154.1	0	24.2	+60.0	25.9	2	12.1	+60.0	26.0	4	00.0	+60.0	26.0	4
7	35.3	-59.7	153.9	5	47.5	-59.8	154.0	3	59.6	-59.8	154.0	2	11.7	-59.9	154.1	0	23.8	-60.0	154.1	0	24.2	+60.0	25.9	3	12.1	+60.0	25.9	5	00.0	+60.0	26.0	5
6	35.6	-59.7	154.0	4	47.7	-59.7	154.1	2	59.8	-59.8	154.1	1	11.8	-59.9	154.1	0	36.2	+59.9	25.8	2	24.2	+59.9	25.9	4	12.1	+60.0	25.9	6	00.0	+60.0	26.0	6
5	35.9	-59.6	154.1	3	48.0	-59.8	154.1	2	00.0	-59.8	154.2	0	11.9	-59.9	154.2	0	36.1	+59.9	25.8	3	24.1	+60.0	25.8	5	12.1	+60.0	25.9	7	00.0	+60.0	26.0	7
4	36.3	-59.7	154.2	2	48.2	-59.7	154.2	1	00.2	-59.9	154.3	0	48.0	+59.8	25.7	2	36.0	+60.0	25.8	4	24.1	+60.0	25.8	6	12.1	+60.0	25.9	8	00.0	+60.0	26.0	8
3	36.6	-59.6	154.3	1	48.5	-59.8	154.3	0	00.3	-59.8	154.3	1	47.8	+59.9	25.7	3	36.0	+59.9	25.7	5	24.1	+59.9	25.8	7	12.1	+60.0	25.9	9	00.0	+60.0	26.0	9
2	37.0	-59.7	154.4	0	48.7	-59.7	154.4	0	59.5	+59.8	25.6	2	47.7	+59.9	25.6	4	35.9	+60.0	25.7	6	24.0	+60.0	25.7	8	12.1	+60.0	25.9	10	00.0	+60.0	26.0	10
1	37.3	-59.7	154.5	0	48.9	-59.7	154.5	0	59.3	+59.9	25.5	1	47.6	+59.9	25.5	5	35.9	+59.9	25.6	7	24.0	+60.0	25.7	9	12.1	+60.0	25.8	11	00.0	+60.0	26.0	11
0	37.6	-59.6	154.6	0	49.1	-59.7	154.6	0	59.2	+59.8	25.4	2	47.5	+59.9	25.5	6	35.8	+59.9	25.6	8	24.0	+60.0	25.7	10	12.1	+60.0	25.8	12	00.0	+60.0	26.0	12
0	22.0	+59.7	25.3	2	10.5	+59.8	25.3	3	59.0	+59.8	25.4	5	47.4	+59.9	25.4	7	35.7	+60.0	25.5	9	24.0	+59.9	25.7	11	12.1	+59.9	25.8	13	00.0	+60.0	26.0	13
1	21.7	+59.6	25.2	3	10.3	+59.7	25.2	4	58.8	+59.8	25.3	6	47.3	+59.9	25.4	8	35.7	+59.9	25.5	10	23.9	+60.0	25.6	12	12.0	+60.0	25.8	14	00.0	+60.0	26.0	14
2	21.3	+59.7	25.1	4	10.0	+59.8	25.1	5	58.6	+59.9	25.2	7	47.2	+59.8	25.3	9	35.6	+59.9	25.4	11	23.9	+60.0	25.6	13	12.0	+60.0	25.8	15	00.0	+60.0	26.0	15
3	21.0	+59.7	25.0	5	09.8	+59.7	25.0	6	58.5	+59.8	25.1	8	47.0	+59.9	25.2	10	35.5	+60.0	25.4	12	23.9	+59.9	25.6	14	12.0	+60.0	25.8	16	00.0	+60.0	26.0	16
4	20.7	+59.6	24.9	6	09.5	+59.8	24.9	7	58.3	+59.8	25.0	9	46.9	+59.9	25.2	11	35.5	+59.9	25.3	13	23.8	+60.0	25.5	15	12.0	+60.0	25.7	17	00.0	+60.0	26.0	17
5	20.3	+59.7	24.8	7	09.3	+59.7	24.8	8	58.1	+59.8	25.0	10	46.8	+59.9	25.1	12	35.4	+60.0	25.3	14	23.8	+60.0	25.5	16	12.0	+60.0	25.7	18	00.0	+60.0	26.0	18
6	20.0	+59.6	24.6	8	09.0	+59.7	24.8	9	57.9	+59.8	24.9	11	46.7	+59.9	25.0	13	35.3	+60.0	25.2	15	23.8	+59.9	25.5	17	12.0	+60.0	25.7	19	00.0	+60.0	26.0	19
7	19.6	+59.7	24.5	9	08.7	+59.8	24.7	10	57.7	+59.9	24.8	12	46.6	+59.9	25.0	14	35.3	+59.9	25.1	16	23.7	+60.0	25.4	18	12.0	+60.0	25.7	20	00.0	+60.0	26.0	20
8	19.3	+59.6	24.4	10	08.5	+59.7	24.6	11	57.6	+59.8	24.7	13	46.5	+59.8	24.9	15	35.2	+59.9	25.1	17	23.7	+60.0	25.4	19	12.0	+60.0	25.7	21	00.0	+60.0	26.0	21
9	18.9	+59.7	24.3	11	08.2	+59.8	24.5	12	57.4	+59.8	24.6	14	46.3	+59.9	24.9	16	35.1	+60.0	25.1	18	23.7	+60.0	25.4	20	12.0	+60.0	25.7	22	00.0	+60.0	26.0	22
10	18.6	+59.6	24.2	12	08.0	+59.7	24.4	13	57.2	+59.8	24.6	15	46.2	+59.9	24.8	17	35.0	+59.9	25.0	19	23.7	+59.9	25.3	21	12.0	+60.0	25.6	23	00.0	+60.0	26.0	23
11	18.2	+59.7	24.1	13	07.7	+59.7	24.3	14	57.0	+59.8	24.5	16	46.1	+59.9	24.7	18	35.0	+59.9	25.0	20	23.6	+60.0	25.3	22	12.0	+60.0	25.6	24	00.0	+60.0	26.0	24
12	17.9	+59.6	24.0	14	07.4	+59.8	24.2	15	56.8	+59.8	24.4	17	46.0	+59.9	24.7	19	34.9	+59.9	24.9	21	23.6	+60.0	25.3	23	12.0	+60.0	25.6	25	00.0	+60.0	26.0	25
13	17.5	+59.7	23.9	15	07.2	+59.7	24.1	16	56.6	+59.8	24.3	18	45.9	+59.8	24.6	20	34.8	+60.0	24.9	22	23.6	+59.9	25.2	24	12.0	+59.9	25.6	26	00.0	+60.0	26.0	26
14	17.2	+59.6	23.8	16	06.9	+59.7	24.0	17	56.4	+59.8	24.2	19	45.7	+59.9	24.5	21	34.8	+59.9	24.8	23	23.5	+60.0	25.2	25	11.9	+60.0	25.6	27	00.0	+60.0	26.0	27
15	16.8	+59.6	23.7	17	06.6	+59.8	23.9	18	56.2	+59.8	24.2	20	45.6	+59.9	24.5	22	34.7	+59.9	24.8	24	23.5	+60.0	25.2	26	11.9	+60.0	25.6	28	00.0	+60.0	26.0	28
16	16.4	+59.7	23.5	18	06.4	+59.7	23.8	19	56.0	+59.8	24.1	21	45.5	+59.8	24.4	23	34.6	+60.0	24.7	25	23.5	+59.9	25.1	27	11.9	+60.0	25.5	29	00.0	+60.0	26.0	29
17	16.1	+59.6	23.4	19	06.1	+59.7	23.7	20	55.8	+59.8	24.0	22	45.3	+59.9	24.3	24	34.6	+59.9	24.7	26	23.4	+60.0	25.1	28	11.9	+60.0	25.5	30	00.0	+60.0	26.0	30
18	15.7	+59.6	23.3	20	05.8	+59.7	23.6	21	55.6	+59.8	23.9	23	45.2	+59.9	24.2	25	34.5	+59.9	24.6	27	23.4	+60.0	25.0	29	11.9	+60.0	25.5	31	00.0	+60.0	26.0	31
19	15.3	+59.6	23.2	21	05.5	+59.7	23.5	22	55.4	+59.8	23.8	24	45.1	+59.8	24.2	26	34.4	+59.9	24.6	28	23.4	+59.9	25.0	30	11.9	+60.0	25.5	32	00.0	+60.0	26.0	32
20	14.9	+59.7	23.1	22	05.2	+59.7	23.4	23	55.2	+59.8	23.7	25	44.9	+59.9	24.1	27	34.3	+59.9	24.5	29	23.3	+60.0	25.0	31	11.9	+60.0	25.5	33	00.0	+60.0	26.0	33
21	14.6	+59.6	22.9	23	04.9	+59.7	23.3	24	55.0	+59.8	23.6	26	44.8	+59.9	24.0	28	34.2	+60.0	24.4	30	23.3	+59.9	24.9	32	11.9	+60.0	25.4	34	00.0	+60.0	26.0	34
22	14.2	+59.6	22.8	24	04.6	+59.7	23.2	25	54.8	+59.8	23.5	27	44.7	+59.8	23.9	29	34.2	+59.9	24.4	31	23.2	+60.0	24.9	33	11.9	+60.0	25.4	35	00.0	+60.0	26.0	35
23	13.8	+59.6	22.7	25	04.3	+59.7	23.1	26	54.6	+59.8	23.4	28	44.5	+59.9	23.9	30	34.1	+59.9	24.3	32	23.2	+60.0	24.8	34	11.9	+60.0	25.4	36	00.0	+60.0	26.0	36
24	13.4	+59.6	22.6	26	04.0	+59.7	22.9	27	54.4	+59.7	23.3	29	44.4	+59.8	23.8	31	34.0	+59.9	24.3	33	23.2	+59.9	24.8	35	11.9	+59.9	25.4	37	00.0	+60.0	26.0	37
25	13.0	+59.5	22.4	27	03.7	+59.7	22.8	28	54.1	+59.8	23.2	30	44.2	+59.9	23.7	32	33.9	+59.9	24.2	34	23.1	+60.0	24.7	36	11.8	+60.0	25.3	38	00.0	+60.0	26.0	38
26	12.5	+59.6	22.3	28	03.4	+59.7	22.7	29	53.9	+59.8	23.1	31	44.1	+59.8	23.6	33	33.8	+59.9	24.1	35	23.1	+59.9	24.7	37	11.8	+60.0	25.3	39	00.0	+60.0	26.0	39
27	12.1	+59.6	22.2	29	03.1	+59.6	22.6	30	53.7	+59.7	23.0	32	43.9	+59.9	23.5	34	33.7	+59.9	24.1	36	23.0	+60.0	24.7	38	11.8	+60.0	25.3	40	00.0	+60.0	26.0	40
28	11.7	+59.5	22.0	30	02.7	+59.7	22.5	31	53.4	+59.8	22.9	33	43.8	+59.8	23.4	35	33.6	+59.9	24.0	37	23.0	+59.9	24.6	39	11.8	+60.0	25.3	41	00.0	+60.0	26.0	41
29	11.2	+59.6	21.9	31	02.4	+59.7	22.3	32	53.2	+59.8	22.8																					

28°, 332° L.H.A.

LATITUDE SAME NAME

Table with columns for Dec. (0-90) and latitude (60°, 62°, 64°, 66°, 68°, 70°, 72°, 74°). Each cell contains three values (Hc, d, Z) for each latitude. The table is a grid of astronomical data.

28°, 332° L.H.A.

LATITUDE SAME NAME

LATITUDE CONTRARY NAME

L.H.A. 28°, 332°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.												
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z									
26	11.9	-58.0	148.5	24	29.3	-58.2	148.9	22	46.3	-58.5	149.4	21	02.8	-58.7	149.8	19	18.9	-59.0	150.2	17	34.6	-59.1	150.5	15	50.0	-59.3	150.8	14	05.1	-59.4	151.1	0				
25	13.9	-57.9	148.7	23	31.1	-58.2	149.2	21	47.8	-58.5	149.6	20	04.1	-58.8	150.0	18	19.9	-58.9	150.4	16	35.5	-59.2	150.7	14	50.7	-59.3	150.9	13	05.7	-59.5	151.2	1				
24	16.0	-58.0	149.0	22	32.9	-58.3	149.5	20	49.3	-58.6	149.9	19	05.3	-58.8	150.2	17	21.0	-59.0	150.6	15	36.3	-59.2	150.8	13	51.4	-59.3	151.1	12	06.2	-59.5	151.3	2				
23	18.0	-58.0	149.3	21	34.6	-58.3	149.7	19	50.7	-58.5	150.1	18	06.5	-58.8	150.4	16	22.0	-59.0	150.7	14	37.1	-59.1	151.0	12	52.1	-59.4	151.3	11	06.7	-59.4	151.5	3				
22	20.0	-58.1	149.6	20	36.3	-58.3	150.0	18	52.2	-58.6	150.3	17	07.7	-58.7	150.7	15	23.0	-59.0	150.9	13	38.0	-59.2	151.2	11	52.7	-59.3	151.4	10	07.3	-59.5	151.6	4				
21	21.9	-58.1	149.9	19	38.0	-58.4	150.2	17	53.6	-58.6	150.6	16	09.0	-58.9	150.9	14	24.0	-59.0	151.1	12	38.8	-59.2	151.4	10	53.4	-59.4	151.6	9	07.8	-59.5	151.7	5				
20	23.8	-58.1	150.1	18	39.6	-58.4	150.5	16	55.0	-58.6	150.8	15	10.1	-58.8	151.1	13	25.0	-59.0	151.3	11	39.6	-59.2	151.5	9	54.0	-59.3	151.7	8	08.3	-59.5	151.9	6				
19	25.7	-58.1	150.4	17	41.2	-58.3	150.7	15	56.4	-58.6	151.0	14	11.3	-58.8	151.3	12	26.0	-59.0	151.5	10	40.4	-59.2	151.7	8	54.7	-59.4	151.9	7	08.8	-59.5	152.0	7				
18	27.6	-58.1	150.7	16	42.9	-58.4	151.0	14	57.8	-58.6	151.2	13	12.5	-58.8	151.5	11	27.0	-59.1	151.7	9	41.2	-59.2	151.9	7	55.3	-59.3	152.0	6	09.3	-59.5	152.1	8				
17	29.5	-58.2	150.9	15	44.5	-58.4	151.2	13	59.2	-58.7	151.5	12	13.7	-58.9	151.7	10	27.9	-59.0	151.9	8	42.0	-59.2	152.0	6	56.0	-59.4	152.2	5	09.8	-59.5	152.3	9				
16	31.3	-58.2	151.2	14	46.1	-58.5	151.4	12	00.5	-58.6	151.7	11	14.8	-58.8	151.9	9	28.9	-59.1	152.0	7	42.8	-59.2	152.2	5	56.6	-59.3	152.3	4	10.3	-59.5	152.4	10				
15	33.1	-58.2	151.4	13	47.6	-58.4	151.7	12	01.9	-58.7	151.9	10	16.0	-58.9	152.1	8	29.8	-59.0	152.2	6	43.6	-59.2	152.4	4	57.3	-59.4	152.4	3	10.8	-59.5	152.5	11				
14	34.9	-58.2	151.7	12	49.2	-58.5	151.9	11	03.2	-58.6	152.1	9	17.1	-58.9	152.3	7	30.8	-59.0	152.4	5	44.4	-59.2	152.5	3	57.9	-59.4	152.6	2	11.3	-59.4	152.6	12				
13	36.7	-58.2	151.9	11	50.7	-58.4	152.1	10	04.6	-58.7	152.3	8	18.2	-58.9	152.5	6	31.8	-59.1	152.6	4	45.2	-59.2	152.7	2	58.5	-59.3	152.7	1	11.9	-59.5	152.8	13				
12	38.5	-58.3	152.2	10	52.3	-58.5	152.4	9	05.9	-58.7	152.5	7	19.3	-58.8	152.7	5	32.7	-59.1	152.8	3	46.0	-59.3	152.8	1	59.2	-59.4	152.9	0	12.4	-59.5	152.9	14				
11	40.2	-58.2	152.4	9	53.8	-58.5	152.6	8	07.2	-58.7	152.7	6	20.5	-58.9	152.9	4	33.6	-59.0	152.9	2	46.7	-59.2	153.0	0	59.8	-59.4	153.0	0	47.1	+59.5	27.0	15				
10	42.0	-58.3	152.7	8	55.3	-58.5	152.8	7	08.5	-58.7	152.9	5	21.6	-58.9	153.0	3	34.6	-59.1	153.1	1	47.5	-59.2	153.2	0	00.4	-59.3	153.2	0	46.6	+59.5	26.8	16				
9	43.7	-58.3	152.9	7	56.8	-58.5	153.0	6	09.8	-58.7	153.2	4	22.7	-58.9	153.2	2	35.5	-59.0	153.3	0	48.3	-59.2	153.3	0	58.9	+59.4	26.7	2	46.1	+59.5	26.7	17				
8	45.4	-58.2	153.1	6	58.3	-58.5	153.3	5	11.1	-58.7	153.4	3	23.8	-58.9	153.4	1	36.5	-59.1	153.5	0	10.9	+59.2	26.5	1	58.3	+59.3	26.5	3	45.6	+59.5	26.6	18				
7	47.2	-58.3	153.4	5	59.8	-58.5	153.5	4	12.4	-58.7	153.6	2	24.9	-58.9	153.6	0	37.4	-59.1	153.6	0	11.0	+59.3	26.4	2	57.6	+59.4	26.4	4	45.1	+59.5	26.5	19				
6	48.9	-58.3	153.6	4	01.3	-58.5	153.7	3	13.7	-58.7	153.8	1	26.0	-58.9	153.8	0	21.7	+59.0	26.2	2	09.4	+59.2	26.2	2	09.4	+59.2	26.2	3	57.0	+59.4	26.2	20				
5	50.6	-58.4	153.9	3	02.8	-58.5	153.9	2	15.0	-58.7	154.0	0	27.1	-58.9	154.0	0	20.7	+59.1	26.0	3	08.6	+59.2	26.0	3	08.6	+59.2	26.0	4	56.4	+59.5	26.3	21				
4	52.2	-58.3	154.1	3	04.3	-58.5	154.2	1	16.3	-58.8	154.2	0	31.8	+58.9	25.8	2	19.8	+59.1	25.8	4	07.8	+59.2	25.9	4	07.8	+59.2	25.9	5	55.7	+59.4	26.0	7	43.6	+59.5	26.1	22
3	53.9	-58.3	154.3	2	05.8	-58.6	154.4	0	17.5	-58.7	154.4	0	30.7	+58.9	25.6	3	18.9	+59.0	25.7	5	07.0	+59.2	25.7	6	55.1	+59.3	25.8	8	43.1	+59.5	25.9	23				
2	55.6	-58.3	154.6	1	07.2	-58.5	154.6	0	41.2	+58.7	25.4	2	29.6	+58.9	25.4	4	17.9	+59.1	25.5	6	06.2	+59.2	25.6	7	54.4	+59.4	25.7	9	42.6	+59.4	25.8	24				
1	57.3	-58.3	154.8	0	08.7	-58.5	154.8	1	39.9	+58.7	25.2	3	28.5	+58.9	25.2	5	17.0	+59.0	25.3	7	05.4	+59.2	25.4	8	53.8	+59.3	25.5	10	42.0	+59.5	25.7	25				
0	59.0	-58.4	155.0	0	49.8	+58.5	25.0	2	38.6	+58.7	25.0	4	27.4	+58.8	25.0	6	16.0	+59.1	25.1	8	04.6	+59.2	25.2	9	53.1	+59.4	25.4	11	41.5	+59.5	25.5	26				
0	00.6	-58.3	155.3	1	48.3	+58.6	24.7	3	37.3	+58.7	24.8	5	26.2	+58.9	24.8	7	15.1	+59.0	24.9	9	03.8	+59.2	25.1	10	52.5	+59.3	25.2	12	41.0	+59.4	25.4	27				
0	57.7	+58.3	24.5	2	46.9	+58.5	24.5	4	36.0	+58.7	24.6	6	25.1	+58.9	24.7	8	14.1	+59.1	24.8	10	03.0	+59.2	24.9	11	51.8	+59.4	25.1	13	40.4	+59.5	25.3	28				
1	56.0	+58.3	24.3	3	45.4	+58.5	24.3	5	34.7	+58.7	24.4	7	24.0	+58.9	24.5	9	13.2	+59.0	24.6	11	02.2	+59.2	24.7	12	51.2	+59.3	24.9	14	39.9	+59.5	25.1	29				
2	54.3	+58.3	24.0	4	43.9	+58.5	24.1	6	33.4	+58.7	24.2	8	22.9	+58.8	24.3	10	12.2	+59.0	24.4	12	01.4	+59.2	24.6	13	50.5	+59.3	24.8	15	39.4	+59.4	25.0	30				
3	52.6	+58.3	23.8	5	42.4	+58.5	23.9	7	32.1	+58.7	23.9	9	21.7	+58.9	24.1	11	11.2	+59.1	24.2	13	00.6	+59.2	24.4	14	49.8	+59.3	24.6	16	38.8	+59.5	24.8	31				
4	50.9	+58.4	23.6	6	40.9	+58.5	23.6	8	30.8	+58.7	23.7	10	20.6	+58.9	23.9	12	10.3	+59.0	24.0	14	00.0	+59.2	24.2	15	49.1	+59.3	24.4	17	38.3	+59.4	24.7	32				
5	49.3	+58.3	23.3	7	39.4	+58.5	23.4	9	29.5	+58.7	23.5	11	19.5	+58.8	23.5	13	09.3	+59.0	23.8	14	00.0	+59.2	24.0	16	48.4	+59.3	24.1	18	37.7	+59.4	24.6	33				
6	47.6	+58.3	23.1	8	37.9	+58.5	23.2	10	28.2	+58.6	23.3	12	18.3	+58.8	23.7	14	08.3	+59.0	23.7	15	59.1	+59.2	23.9	17	47.7	+59.3	24.3	19	37.1	+59.5	24.4	34				
7	45.9	+58.2	22.8	9	36.4	+58.5	23.0	11	26.8	+58.7	23.1	13	17.1	+58.9	23.3	15	07.3	+59.0	23.5	16	57.3	+59.1	23.7	18	47.0	+59.3	24.0	20	36.6	+59.4	24.3	35				
8	44.1	+58.3	22.6	10	34.9	+58.4	22.7	12	25.5	+58.6	22.9	14	16.0	+58.8	23.1	16	06.3	+59.0	23.3	17	56.4	+59.2	23.5	19	46.3	+59.3	23.8	21	36.0	+59.4	24.1	36				
9	42.4	+58.3	22.4	11	33.3	+58.5	22.5	13	24.1	+58.7	22.7	15	14.8	+58.8	22.9	17	05.3	+58.9	23.1	18	55.6	+59.1	23.4	20	45.6	+59.3	23.6	22	35.4	+59.4	24.0	37				
10	40.7	+58.2	22.1	12	31.8	+58.4	22.3	14	22.8	+58.6	22.5	16	13.6	+58.8	22.7	18	04.2	+59.0	22.9	19	54.7	+59.1	23.2	21	44.9	+59.2	23.5	23	34.8	+59.4	23.8	38				
11	38.9	+58.3	21.9	13	30.2	+58.5	22.0	15	21.4	+58.6	22.2	17	12.4	+58.8	22.5	19	03.2	+58.9	22.7	20	53.8	+59.1	23.0	22	44.1	+59.3	23.3	24	34.2	+59.4	23.7	39				
12	37.2	+58.2	21.6	14	28.7	+58.4	21.8	16	20.0	+58.6	22.0	18	11.2	+58.7	22.2	20	02.1	+59.0	22.5	21	52.9	+59.1	22.8	23	43.4	+59.2	23.1	25	33.6	+59.4	23.5	40				
13	35.4	+58.2	21.4	15	27.1	+58.4	21.6	17	18.6	+58.6	21.8	19	09.9	+58.8	22.0	21	01.1	+58.9	22.3	22	52.0	+59.1	22.6	24	42.6	+59.2	23.0	26	33.0	+59.3	23.3					

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	12 20.0	+59.6	151.3	10 34.7	+59.7	151.5	8 49.2	+59.8	151.6	7 03.5	+59.9	151.8	5 17.7	+60.0	151.9	3 31.9	+59.9	151.9	1 45.9	+60.0	152.0	0 00.0	+60.0	152.0
1	13 19.6	+59.6	151.2	11 34.4	+59.7	151.4	9 49.0	+59.8	151.6	8 03.4	+59.8	151.7	6 17.7	+60.0	151.8	4 31.8	+60.0	151.9	2 45.9	+60.0	152.0	1 00.0	+60.0	152.0
2	14 19.2	+59.6	151.0	12 34.1	+59.7	151.3	10 48.8	+59.8	151.5	9 03.2	+59.9	151.6	7 17.6	+59.9	151.8	5 31.8	+60.0	151.9	3 45.9	+60.0	152.0	2 00.0	+60.0	152.0
3	15 18.8	+59.6	150.9	13 33.8	+59.7	151.2	11 48.6	+59.7	151.4	10 03.1	+59.9	151.6	8 17.5	+59.9	151.7	6 31.8	+59.9	151.8	4 45.9	+60.0	151.9	3 00.0	+60.0	152.0
4	16 18.4	+59.5	150.8	14 33.5	+59.7	151.1	12 48.3	+59.8	151.3	11 03.0	+59.8	151.5	9 17.4	+60.0	151.7	7 31.7	+60.0	151.8	5 45.9	+60.0	151.9	4 00.0	+60.0	152.0
5	17 17.9	+59.6	150.7	15 33.2	+59.7	151.0	13 48.1	+59.8	151.2	12 02.8	+59.9	151.4	10 17.4	+59.9	151.6	8 31.7	+60.0	151.8	6 45.9	+60.0	151.9	5 00.0	+60.0	152.0
6	18 17.5	+59.6	150.5	16 32.9	+59.6	150.9	14 47.9	+59.8	151.1	13 02.7	+59.9	151.4	11 17.3	+59.9	151.6	9 31.7	+59.9	151.7	7 45.9	+60.0	151.9	6 00.0	+60.0	152.0
7	19 17.1	+59.5	150.4	17 32.5	+59.7	150.7	15 47.7	+59.8	151.0	14 02.6	+59.8	151.3	12 17.2	+59.9	151.5	10 31.6	+60.0	151.7	8 45.9	+60.0	151.9	7 00.0	+60.0	152.0
8	20 16.6	+59.6	150.3	18 32.2	+59.7	150.6	16 47.5	+59.8	150.9	15 02.4	+59.9	151.2	13 17.1	+60.0	151.5	11 31.6	+60.0	151.7	9 45.9	+60.0	151.9	8 00.0	+60.0	152.0
9	21 16.2	+59.5	150.2	19 31.9	+59.7	150.5	17 47.3	+59.7	150.9	16 02.3	+59.9	151.2	14 17.1	+59.9	151.4	12 31.6	+60.0	151.6	10 45.9	+60.0	151.8	9 00.0	+60.0	152.0
10	22 15.7	+59.6	150.0	20 31.6	+59.7	150.4	18 47.0	+59.8	150.8	17 02.2	+59.8	151.1	15 17.0	+59.9	151.4	13 31.5	+60.0	151.6	11 45.9	+60.0	151.8	10 00.0	+60.0	152.0
11	23 15.3	+59.5	149.9	21 31.3	+59.6	150.3	19 46.8	+59.8	150.7	18 02.0	+59.9	151.0	16 16.9	+59.9	151.3	14 31.5	+60.0	151.6	12 45.9	+60.0	151.8	11 00.0	+60.0	152.0
12	24 14.8	+59.6	149.8	22 30.9	+59.7	150.2	20 46.6	+59.8	150.6	19 01.9	+59.8	150.9	17 16.8	+59.9	151.3	15 31.5	+59.9	151.5	13 45.9	+59.9	151.8	12 00.0	+60.0	152.0
13	25 14.4	+59.5	149.6	23 30.6	+59.6	150.1	21 46.4	+59.7	150.5	20 01.7	+59.9	150.9	18 16.7	+60.0	151.2	16 31.4	+60.0	151.5	14 45.8	+60.0	151.8	13 00.0	+60.0	152.0
14	26 13.9	+59.5	149.5	24 30.2	+59.7	150.0	22 46.1	+59.8	150.4	21 01.6	+59.8	150.8	19 16.7	+59.9	151.1	17 31.4	+60.0	151.5	15 45.8	+60.0	151.7	14 00.0	+60.0	152.0
15	27 13.4	+59.5	149.3	25 29.9	+59.6	149.8	23 45.9	+59.8	150.3	22 01.4	+59.9	150.7	20 16.6	+59.9	151.0	18 31.4	+59.9	151.4	16 45.8	+60.0	151.7	15 00.0	+60.0	152.0
16	28 12.9	+59.5	149.2	26 29.5	+59.7	149.7	24 45.7	+59.7	150.2	23 01.3	+59.8	150.6	21 16.5	+59.9	151.0	19 31.3	+60.0	151.4	17 45.8	+60.0	151.7	16 00.0	+60.0	152.0
17	29 12.4	+59.5	149.0	27 29.2	+59.6	149.6	25 45.4	+59.8	150.1	24 01.1	+59.9	150.6	22 16.4	+59.9	151.0	20 31.3	+60.0	151.4	18 45.8	+60.0	151.7	17 00.0	+60.0	152.0
18	30 11.9	+59.4	148.9	28 28.8	+59.6	149.5	26 45.2	+59.7	150.0	25 01.0	+59.8	150.5	23 16.3	+59.9	150.9	21 31.3	+59.9	151.3	19 45.8	+60.0	151.7	18 00.0	+60.0	152.0
19	31 11.3	+59.5	148.7	29 28.4	+59.7	149.3	27 44.9	+59.8	149.9	26 00.8	+59.9	150.4	24 16.2	+60.0	150.9	22 31.2	+60.0	151.3	20 45.8	+60.0	151.7	19 00.0	+60.0	152.0
20	32 10.8	+59.5	148.6	30 28.1	+59.6	149.2	28 44.7	+59.7	149.8	27 00.7	+59.8	150.3	25 16.2	+59.9	150.8	23 31.2	+59.9	151.2	21 45.8	+60.0	151.6	20 00.0	+60.0	152.0
21	33 10.3	+59.4	148.4	31 27.7	+59.6	149.1	29 44.4	+59.7	149.7	28 00.5	+59.8	150.2	26 16.1	+59.9	150.7	24 31.1	+60.0	151.2	22 45.8	+60.0	151.6	21 00.0	+60.0	152.0
22	34 09.7	+59.4	148.3	32 27.3	+59.6	148.9	30 44.1	+59.7	149.6	29 00.3	+59.9	150.2	27 16.0	+59.9	150.7	25 31.1	+60.0	151.2	23 45.8	+60.0	151.6	22 00.0	+60.0	152.0
23	35 09.1	+59.4	148.1	33 26.9	+59.5	148.8	31 43.8	+59.8	149.5	30 00.2	+59.8	150.1	28 15.9	+59.9	150.6	26 31.1	+59.9	151.1	24 45.8	+59.9	151.6	23 00.0	+60.0	152.0
24	36 08.5	+59.4	147.9	34 26.4	+59.6	148.7	32 43.6	+59.7	149.3	31 00.0	+59.8	150.0	29 15.8	+59.9	150.6	27 31.0	+60.0	151.1	25 45.7	+60.0	151.6	24 00.0	+60.0	152.0
25	37 07.9	+59.4	147.7	35 26.0	+59.6	148.5	33 43.3	+59.7	149.2	31 59.8	+59.8	149.9	30 15.7	+59.9	150.5	28 31.0	+59.9	151.0	26 45.7	+60.0	151.5	25 00.0	+60.0	152.0
26	38 07.3	+59.4	147.6	36 25.6	+59.5	148.4	34 43.0	+59.7	149.1	32 59.6	+59.9	149.8	31 15.6	+59.9	150.4	29 30.9	+60.0	151.0	27 45.7	+60.0	151.5	26 00.0	+60.0	152.0
27	39 06.7	+59.3	147.4	37 25.1	+59.6	148.2	35 42.7	+59.7	149.0	33 59.5	+59.8	149.7	32 15.5	+59.9	150.4	30 30.9	+60.0	151.0	28 45.7	+60.0	151.5	27 00.0	+60.0	152.0
28	40 06.0	+59.3	147.2	38 24.7	+59.5	148.1	36 42.4	+59.7	148.9	34 59.3	+59.8	149.6	33 15.4	+59.9	150.3	31 30.9	+59.9	150.9	29 45.7	+60.0	151.5	28 00.0	+60.0	152.0
29	41 05.3	+59.3	147.0	39 24.2	+59.5	147.9	37 42.1	+59.6	148.7	35 59.1	+59.8	149.5	34 15.3	+59.9	150.2	32 30.8	+60.0	150.9	30 45.7	+60.0	151.5	29 00.0	+60.0	152.0
30	42 04.6	+59.3	146.8	40 23.7	+59.5	147.7	38 41.7	+59.7	148.6	36 58.9	+59.8	149.4	35 15.2	+59.9	150.1	33 30.8	+59.9	150.8	31 45.7	+60.0	151.4	30 00.0	+60.0	152.0
31	43 03.9	+59.3	146.6	41 23.2	+59.5	147.6	39 41.4	+59.7	148.5	37 58.7	+59.8	149.3	36 15.1	+59.9	150.1	34 30.7	+60.0	150.8	32 45.7	+60.0	151.4	31 00.0	+60.0	152.0
32	44 03.2	+59.2	146.4	42 22.7	+59.5	147.4	40 41.1	+59.6	148.3	38 58.5	+59.7	149.2	37 15.0	+59.8	150.0	35 30.7	+59.9	150.7	33 45.7	+59.9	151.4	32 00.0	+60.0	152.0
33	45 02.4	+59.2	146.1	43 22.2	+59.4	147.2	41 40.7	+59.7	148.2	39 58.2	+59.8	149.1	38 14.8	+59.9	149.9	36 30.6	+60.0	150.7	34 45.6	+60.0	151.4	33 00.0	+60.0	152.0
34	46 01.6	+59.2	145.9	44 21.6	+59.4	147.0	42 40.4	+59.6	148.0	40 58.0	+59.8	149.0	39 14.7	+59.9	149.8	37 30.6	+59.9	150.6	35 45.6	+60.0	151.3	34 00.0	+60.0	152.0
35	47 00.8	+59.1	145.7	45 21.0	+59.4	146.8	43 40.0	+59.6	147.9	41 57.8	+59.8	148.9	40 14.6	+59.9	149.7	38 30.5	+60.0	150.6	36 45.6	+60.0	151.3	35 00.0	+60.0	152.0
36	47 59.9	+59.2	145.4	46 20.4	+59.4	146.6	44 39.6	+59.6	147.6	42 57.6	+59.7	148.7	41 14.5	+59.8	149.7	39 30.5	+59.9	150.5	37 45.6	+60.0	151.3	36 00.0	+60.0	152.0
37	48 59.1	+59.0	145.2	47 19.8	+59.4	146.4	45 39.2	+59.6	147.4	43 57.3	+59.8	148.6	42 14.3	+59.9	149.6	40 30.4	+60.0	150.5	38 45.6	+60.0	151.3	37 00.0	+60.0	152.0
38	49 58.1	+59.1	144.9	48 19.2	+59.3	146.2	46 38.8	+59.5	147.4	44 57.1	+59.7	148.5	43 14.2	+59.9	149.5	41 30.4	+59.9	150.4	39 45.6	+60.0	151.2	38 00.0	+60.0	152.0
39	50 57.2	+59.0	144.6	49 18.5	+59.3	146.0	47 38.3	+59.6	147.2	45 56.8	+59.7	148.4	44 14.1	+59.8	149.4	42 30.3	+59.9	150.3	40 45.6	+60.0	151.2	39 00.0	+60.0	152.0
40	51 56.2	+58.9	144.3	50 17.8	+59.3	145.7	48 37.9	+59.5	147.0	46 56.5	+59.8	148.2	45 13.9	+59.9	149.3	43 30.2	+60.0	150.3	41 45.6	+59.9	151.2	40 00.0	+60.0	152.0
41	52 55.1	+58.9	144.0	51 17.1	+59.3	145.5	49 37.4	+59.5	146.8	47 56.3	+59.7	148.1	46 13.8	+59.8	149.2	44 30.2	+59.9	150.2	42 45.5	+60.0	151.1	41 00.0	+60.0	152.0
42	53 54.0	+58.9	143.7	52 16.4	+59.2	145.2	50 36.9	+59.5	146.6	48 56.0	+59.7	147.9	47 13.6	+59.9	149.1	45 30.1	+59.9	150.1	43 45.5	+60.0	151.1	42 00.0	+60.0	152.0
43	54 52.9	+58.8	143.4	53 15.6	+59.1	145.0	51 36.4	+59.5	146.4	49 55.7	+59.6	147.8	48 13.5	+59.8	149.0	46 30.0	+60.0	150.1	44 45.5	+60.0	151.1	43 00.0	+60.0	152.0
44	55 51.7	+58.7	143.0	54 14.7	+59.2	144.7	52 35.9	+59.4	146.2	50 55.3	+59.7	147.6	49 13.3	+59.8	148.9	47 30.0	+59.9	150.0	45 45.5	+60.0	151.1	44 00.0	+60.0	152.0
45	56 50.4	+58.6	142.6	55 13.9	+59.1	144.4	53 35.3	+59.5	146.0	51 55.0	+59.7	147.4	50 13.1	+59.8	148.7	48 29.9	+59.9	149.9	46 45.5	+60.0	151.0	45 00.0	+60.0	152.0
46	57 49.0	+58.6	142.2	56 13.0	+59.0	144.1																		

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	25 39.5	+57.7	146.3	23 59.4	+58.0	146.8	22 18.7	+58.3	147.3	20 37.5	+58.5	147.7	18 55.8	+58.8	148.1	17 13.8	+59.0	148.4	15 31.3	+59.3	148.7	13 48.6	+59.4	149.0
1	26 37.2	+57.6	146.0	24 57.4	+57.9	146.5	23 17.0	+58.2	147.0	21 36.0	+58.6	147.5	19 54.6	+58.8	147.9	18 12.8	+59.0	148.2	16 30.6	+59.2	148.6	14 48.0	+59.4	148.9
2	27 34.7	+57.6	145.7	25 55.3	+57.9	146.2	24 15.2	+58.2	146.8	22 34.6	+58.5	147.2	20 53.4	+58.8	147.7	19 11.8	+59.0	148.1	17 29.8	+59.2	148.4	15 47.4	+59.4	148.7
3	28 32.3	+57.5	145.4	26 53.2	+57.9	146.0	25 13.4	+58.2	146.5	23 33.1	+58.5	147.0	21 52.2	+58.7	147.4	20 10.8	+59.0	147.9	18 29.0	+59.2	148.2	16 46.8	+59.3	148.6
4	29 29.8	+57.4	145.0	27 51.1	+57.8	145.7	26 11.6	+58.2	146.2	24 31.6	+58.5	146.8	22 50.9	+58.8	147.2	21 09.8	+59.0	147.7	19 28.2	+59.2	148.1	17 46.1	+59.4	148.4
5	30 27.2	+57.4	144.7	28 49.9	+57.8	145.4	27 09.8	+58.1	146.0	25 30.1	+58.4	146.5	23 49.7	+58.7	147.0	22 08.8	+58.9	147.5	20 27.4	+59.1	147.9	18 45.5	+59.4	148.3
6	31 24.6	+57.4	144.4	29 48.7	+57.7	145.0	28 07.9	+58.1	145.7	26 28.5	+58.4	146.3	24 48.4	+58.7	146.8	23 07.7	+59.0	147.3	21 26.5	+59.2	147.7	19 44.9	+59.3	148.1
7	32 22.0	+57.2	144.0	30 44.4	+57.7	144.7	29 06.0	+58.1	145.4	27 26.9	+58.4	146.0	25 47.1	+58.7	146.6	24 06.7	+58.9	147.1	22 25.7	+59.1	147.5	20 44.2	+59.4	148.0
8	33 19.2	+57.3	143.7	31 42.1	+57.7	144.4	30 04.1	+58.0	145.1	28 25.3	+58.4	145.7	26 45.8	+58.6	146.3	25 05.6	+58.9	146.9	23 24.8	+59.2	147.3	21 43.6	+59.3	147.8
9	34 16.5	+57.1	143.3	32 39.8	+57.6	144.1	31 02.1	+58.0	144.8	29 23.7	+58.3	145.5	27 44.4	+58.7	146.1	26 04.5	+58.9	146.6	24 24.0	+59.1	147.2	22 42.9	+59.3	147.6
10	35 13.6	+57.1	142.9	33 37.4	+57.5	143.7	32 00.1	+58.0	144.5	30 22.0	+58.3	145.2	28 43.1	+58.6	145.8	27 03.4	+58.9	146.4	25 23.1	+59.1	147.0	23 42.2	+59.3	147.5
11	36 10.7	+57.0	142.6	34 34.9	+57.5	143.4	32 58.1	+57.8	144.2	31 20.3	+58.2	144.9	29 41.7	+58.5	145.6	28 02.3	+58.8	146.2	26 22.2	+59.1	146.8	24 41.5	+59.3	147.3
12	37 07.7	+57.0	142.2	35 32.4	+57.4	143.1	33 55.9	+57.9	143.9	32 18.5	+58.3	144.6	30 40.2	+58.6	145.3	29 01.1	+58.9	146.0	27 21.3	+59.1	146.6	25 40.8	+59.3	147.1
13	38 04.7	+56.8	141.8	36 29.8	+57.3	142.7	34 53.8	+57.8	143.6	33 16.8	+58.1	144.4	31 38.8	+58.5	145.1	30 00.0	+58.8	145.8	28 20.4	+59.0	146.4	26 40.1	+59.3	147.0
14	39 01.5	+56.8	141.4	37 27.1	+57.3	142.3	35 51.6	+57.7	143.2	34 14.9	+58.2	144.1	32 37.3	+58.5	144.8	30 58.8	+58.8	145.5	29 19.4	+59.1	146.2	27 39.4	+59.2	146.8
15	39 58.3	+56.6	140.9	38 24.4	+57.2	142.0	36 49.3	+57.7	142.9	35 13.1	+58.1	143.8	33 35.8	+58.4	144.6	31 57.6	+58.7	145.3	30 18.5	+59.0	146.0	28 38.6	+59.3	146.6
16	40 54.9	+56.6	140.5	39 21.6	+57.2	141.6	37 47.0	+57.6	142.5	36 11.2	+58.0	143.5	34 34.2	+58.4	144.3	32 56.3	+58.7	145.3	31 17.5	+59.0	145.8	29 37.9	+59.2	146.4
17	41 51.5	+56.5	140.1	40 18.8	+57.0	141.2	38 44.6	+57.6	142.2	37 09.2	+58.0	143.1	35 32.6	+58.4	144.0	33 55.0	+58.7	144.8	32 16.5	+59.0	145.6	30 37.1	+59.2	146.2
18	42 48.0	+56.3	139.6	41 15.8	+57.0	140.8	39 42.2	+57.4	141.8	38 07.2	+57.9	142.8	36 31.0	+58.3	143.7	34 53.7	+58.7	144.6	33 15.5	+58.9	145.3	31 36.3	+59.2	146.1
19	43 44.3	+56.3	139.1	42 12.8	+56.8	140.3	40 39.6	+57.4	141.4	39 05.1	+57.9	142.5	37 29.3	+58.3	143.4	35 52.4	+58.6	144.3	34 14.4	+59.0	145.1	32 35.5	+59.2	145.9
20	44 40.6	+56.1	138.6	43 09.6	+56.8	139.9	41 37.0	+57.4	141.1	40 03.0	+57.8	142.1	38 27.6	+58.2	143.1	36 51.0	+58.6	144.0	35 13.4	+58.9	144.9	33 34.7	+59.2	145.7
21	45 36.7	+55.9	138.1	44 06.4	+56.6	139.5	42 34.4	+57.2	140.7	41 00.8	+57.7	141.8	39 25.8	+58.2	142.8	37 49.6	+58.6	143.8	36 12.3	+58.8	144.7	34 33.9	+59.1	145.5
22	46 32.6	+55.9	137.6	45 03.0	+56.5	139.0	43 31.6	+57.1	140.3	41 58.5	+57.7	141.4	40 24.0	+58.2	142.5	38 48.2	+58.5	143.5	37 11.1	+58.9	144.4	35 33.0	+59.2	145.3
23	47 28.5	+55.6	137.1	45 59.5	+56.5	138.5	44 28.7	+57.1	139.8	42 56.2	+57.6	141.0	41 22.2	+58.0	142.2	39 46.7	+58.5	143.2	38 10.0	+58.8	144.2	36 32.2	+59.1	145.1
24	48 24.1	+55.5	136.5	46 56.0	+56.2	138.0	45 25.8	+56.9	139.4	43 53.7	+57.5	140.7	42 20.2	+58.0	141.8	40 45.2	+58.4	142.9	39 08.8	+58.8	143.9	37 31.3	+59.0	144.8
25	49 19.6	+55.3	135.9	47 52.2	+56.2	137.5	46 22.7	+56.9	138.9	44 51.3	+57.5	140.3	43 18.2	+58.0	141.5	41 43.6	+58.4	142.6	40 07.6	+58.7	143.7	38 30.3	+59.1	144.6
26	50 14.9	+55.2	135.3	48 48.4	+55.9	137.0	47 19.6	+56.7	138.5	45 48.8	+57.3	139.9	44 16.2	+57.9	141.1	42 42.0	+58.3	142.3	41 06.3	+58.7	143.4	39 29.4	+59.0	144.4
27	51 10.1	+54.9	134.7	49 44.3	+55.9	136.4	48 16.3	+56.6	138.0	46 46.4	+57.3	139.4	45 14.1	+57.8	140.8	43 40.3	+58.3	142.0	42 05.0	+58.7	143.1	40 28.4	+59.0	144.2
28	52 05.0	+54.7	134.1	50 40.2	+55.6	135.8	49 12.9	+56.4	137.5	47 43.4	+57.1	139.0	46 11.9	+57.7	140.4	44 38.6	+58.2	141.6	43 03.7	+58.6	142.8	41 27.4	+59.0	143.9
29	52 59.7	+54.4	133.4	51 35.8	+55.5	135.3	50 09.3	+56.3	137.0	48 40.5	+57.0	138.5	47 09.6	+57.6	140.0	45 36.8	+58.1	141.3	44 02.3	+58.6	142.5	42 26.4	+58.9	143.7
30	53 54.1	+54.2	132.7	52 31.3	+55.2	134.6	51 05.6	+56.2	136.4	49 37.5	+56.9	138.1	48 07.2	+57.6	139.6	46 34.9	+58.1	140.9	45 00.9	+58.5	142.2	43 25.3	+58.9	143.4
31	54 48.3	+53.9	132.0	53 26.5	+55.0	134.0	52 01.8	+56.0	135.8	50 34.4	+56.8	137.6	49 04.8	+57.4	139.1	47 33.0	+58.0	140.6	45 59.4	+58.5	141.9	44 24.2	+58.8	143.1
32	55 42.2	+53.7	131.2	54 21.5	+54.8	133.3	52 57.8	+55.7	135.3	51 31.2	+56.6	137.0	50 02.2	+57.3	138.7	48 31.0	+57.9	140.2	46 57.9	+58.4	141.6	45 23.0	+58.8	142.9
33	56 35.9	+53.3	130.4	55 16.3	+54.6	132.6	53 53.5	+55.6	134.6	52 27.8	+56.5	136.5	50 59.5	+57.3	138.2	49 28.9	+57.9	139.8	47 56.3	+58.4	141.2	46 21.8	+58.8	142.6
34	57 29.2	+52.9	129.5	56 10.9	+54.2	131.9	54 49.1	+55.4	134.0	53 24.3	+56.3	135.9	51 56.8	+57.1	137.7	50 26.8	+57.7	139.4	48 54.7	+58.2	140.9	47 20.6	+58.7	142.3
35	58 22.1	+52.5	128.7	57 05.1	+54.0	131.1	55 44.5	+55.2	133.3	54 20.6	+56.2	135.4	52 53.9	+56.9	137.2	51 24.5	+57.7	139.0	49 52.9	+58.3	140.5	48 19.3	+58.7	142.0
36	59 14.6	+52.2	127.7	57 59.1	+53.6	130.3	56 39.7	+54.9	132.6	55 16.8	+55.9	134.7	53 50.8	+56.8	136.7	52 22.2	+57.5	138.5	50 51.2	+58.1	140.2	49 18.0	+58.6	141.7
37	60 06.8	+51.6	126.7	58 52.7	+53.3	129.4	57 34.6	+54.6	131.9	56 12.7	+55.8	134.1	54 47.6	+56.7	136.2	53 19.7	+57.5	138.0	51 49.3	+58.0	139.8	50 16.6	+58.6	141.3
38	60 58.4	+51.2	125.7	59 46.0	+52.9	128.5	58 29.2	+54.3	131.1	57 08.5	+55.5	133.4	55 44.3	+56.5	135.6	54 17.2	+57.3	137.5	52 47.3	+58.0	139.3	51 15.2	+58.5	141.0
39	61 49.6	+50.6	124.6	60 38.9	+52.4	127.6	59 23.5	+54.0	130.3	58 04.0	+55.2	132.7	56 40.8	+56.3	135.0	55 14.5	+57.1	137.0	53 45.3	+57.9	138.9	52 13.7	+58.4	140.6
40	62 40.2	+50.0	123.5	61 31.3	+52.0	126.6	60 17.5	+53.6	129.4	58 59.2	+55.0	132.0	57 37.1	+56.1	134.3	56 11.6	+57.0	136.5	54 43.2	+57.7	138.5	53 12.1	+58.4	140.3
41	63 30.4	+49.4	122.2	62 23.3	+51.5	125.5	61 11.1	+53.2	128.5	59 54.2	+54.7	131.2	58 33.2	+55.9	133.7	57 08.6	+56.9	135.9	55 40.9	+57.7	138.0	54 10.5	+58.2	139.9
42	64 19.6	+48.6	120.9	63 14.8	+50.9	124.4	62 04.3	+52.8	127.5	60 48.9	+54.4	130.4	59 29.1	+55.7	133.0	58 05.5	+56.7	135.3	56 38.6	+57.5	137.5	55 08.7	+58.2	139.4
43	65 08.2	+47.8	119.6	64 05.7	+50.3	123.2	62 57.1	+52.4	126.5	61 43.3	+54.0	129.5	60 24.8	+55.3	132.2	59 02.2	+56.5	134.7	57 36.1	+57.4	137.0	56 06.9	+58.1	139.0
44	65 56.0	+47.0	118.1	64 56.0	+49.6	121.9	63 49.5	+51.8	125.4	62 37.3	+53.6	128.5	61 20.1	+55.1	131.4	59 58.7	+56.3	134.0	58 33.5	+57.2	136.4	57 05.0	+58.0	138.6
45	66 43.0	+45.9	116.6	65 45.6	+48.8	120.6	64 41.3	+51.2	124.2	63 30.9	+53.2	127.6	62 15.2	+54.8	130.6	60 55.0	+56.0	133.3	59 30.7	+57.1	135.8	58 03.0	+57.9	138.1
46	67 28.9	+44.9	114.9																					

LATITUDE CONTRARY NAME

L.H.A. 30°, 330°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
25 39.5	-57.6	146.3	23 59.4	-58.0	146.8	22 18.7	-58.3	147.3	20 37.5	-58.6	147.7	18 55.8	-58.8	148.1	17 13.8	-59.1	148.4	15 31.3	-59.2	148.7	13 48.6	-59.4	149.0	0		
24 41.9	-57.7	146.6	23 01.4	-58.0	147.1	21 20.4	-58.3	147.5	19 38.9	-58.6	147.9	17 57.0	-58.8	148.3	16 14.7	-59.0	148.6	14 32.1	-59.2	148.9	12 49.2	-59.4	149.2	1		
23 44.2	-57.8	146.9	22 03.4	-58.1	147.4	20 22.1	-58.4	147.8	18 40.3	-58.6	148.2	16 58.2	-58.8	148.5	15 15.7	-59.1	148.8	13 32.9	-59.3	149.1	11 49.8	-59.4	149.3	2		
22 46.4	-57.7	147.2	21 05.3	-58.1	147.6	19 23.7	-58.4	148.0	17 41.7	-58.6	148.4	15 59.3	-58.8	148.7	14 16.6	-59.0	149.0	12 33.6	-59.2	149.2	10 50.4	-59.4	149.4	3		
21 48.7	-57.8	147.5	20 07.2	-58.1	147.9	18 25.3	-58.3	148.3	16 43.1	-58.7	148.6	15 00.5	-58.9	148.9	13 17.6	-59.1	149.2	11 34.4	-59.3	149.4	9 51.0	-59.4	149.6	4		
20 50.9	-57.9	147.8	19 09.1	-58.1	148.2	17 27.0	-58.4	148.5	15 44.4	-58.6	148.8	14 01.6	-58.9	149.1	12 18.5	-59.1	149.3	10 35.1	-59.2	149.6	8 51.6	-59.4	149.7	5		
19 53.0	-57.8	148.1	18 11.0	-58.2	148.4	16 28.6	-58.5	148.8	14 45.8	-58.7	149.1	13 02.7	-58.9	149.3	11 19.4	-59.1	149.5	9 35.9	-59.3	149.7	7 52.2	-59.4	149.9	6		
18 55.2	-57.9	148.4	17 12.8	-58.1	148.7	15 30.1	-58.4	149.0	13 47.1	-58.7	149.3	12 03.8	-58.8	149.5	10 20.3	-59.1	149.7	8 36.6	-59.2	149.9	6 52.8	-59.5	150.0	7		
17 57.3	-57.9	148.6	16 14.7	-58.2	149.0	14 31.7	-58.5	149.5	12 48.4	-58.6	149.5	11 05.0	-58.9	149.7	9 21.2	-59.0	149.9	7 37.4	-59.3	150.0	5 53.3	-59.4	150.1	8		
16 59.4	-57.9	148.9	15 16.5	-58.2	149.2	13 33.2	-58.4	149.5	11 49.8	-58.7	149.7	10 06.1	-59.0	149.9	8 22.2	-59.1	150.1	6 38.1	-59.3	150.2	4 53.9	-59.4	150.3	9		
16 01.5	-58.0	149.2	14 18.3	-58.2	149.5	12 34.8	-58.5	149.7	10 51.1	-58.7	149.9	9 07.1	-58.9	150.1	7 23.1	-59.2	150.2	5 38.8	-59.2	150.3	3 54.5	-59.4	150.4	10		
15 03.5	-57.9	149.5	13 20.1	-58.3	149.7	11 36.3	-58.5	149.9	9 52.4	-58.7	150.1	8 08.2	-58.9	150.3	6 23.9	-59.1	150.4	4 39.6	-59.3	150.5	2 55.1	-59.4	150.6	11		
14 05.6	-58.0	149.7	12 21.8	-58.2	150.0	10 37.8	-58.5	150.2	8 53.7	-58.8	150.3	7 09.3	-58.9	150.5	5 24.8	-59.1	150.6	3 40.3	-59.3	150.7	1 55.7	-59.5	150.7	12		
13 07.6	-58.0	150.0	11 23.6	-58.3	150.2	9 39.3	-58.5	150.4	7 54.9	-58.7	150.5	6 10.4	-58.9	150.7	4 25.7	-59.1	150.7	2 41.0	-59.3	150.8	0 56.2	-59.5	150.8	13		
12 09.6	-58.0	150.2	10 25.3	-58.3	150.4	8 40.8	-58.5	150.6	6 56.2	-58.7	150.7	5 11.5	-59.0	150.8	3 26.6	-59.1	150.9	1 41.7	-59.3	151.0	0 03.2	+59.4	29.0	14		
11 11.6	-58.0	150.5	9 27.0	-58.2	150.7	7 42.3	-58.5	150.8	5 57.5	-58.8	150.9	4 12.5	-58.9	151.0	2 27.5	-59.1	151.1	0 42.4	+59.2	151.1	1 02.6	+59.5	28.9	15		
10 13.6	-58.1	150.8	8 28.8	-58.3	150.9	6 43.8	-58.5	151.1	4 58.7	-58.7	151.2	3 13.6	-58.9	151.2	1 28.4	-59.1	151.3	0 16.8	+59.3	28.7	2 02.1	+59.6	28.7	16		
9 15.5	-58.0	151.0	7 30.5	-58.3	151.2	5 45.3	-58.5	151.3	4 00.0	-58.7	151.4	2 14.7	-59.0	151.4	0 29.3	-59.1	151.4	1 16.1	+59.3	28.6	3 01.5	+59.4	28.6	17		
8 17.5	-58.1	151.3	6 32.2	-58.3	151.4	4 46.8	-58.6	151.5	3 01.3	-58.8	151.6	1 15.7	-58.9	151.6	0 29.8	+59.2	28.4	2 15.4	+59.3	28.4	4 00.9	+59.4	28.5	18		
7 19.4	-58.1	151.5	5 33.9	-58.3	151.6	3 48.2	-58.5	151.7	2 02.5	-58.7	151.8	0 16.8	-59.0	151.8	1 29.0	+59.1	28.2	3 14.7	+59.2	28.3	5 00.3	+59.5	28.3	19		
6 21.3	-58.0	151.8	4 35.6	-58.4	151.9	2 49.7	-58.6	151.9	1 03.8	-58.8	152.0	0 42.2	+58.9	28.0	2 28.1	+59.1	28.1	4 13.9	+59.3	28.1	5 59.8	+59.4	28.2	20		
5 23.3	-58.1	152.0	3 37.2	-58.3	152.1	1 51.1	-58.5	152.2	0 05.0	-58.7	152.2	1 41.1	+58.9	27.8	3 27.2	+59.1	27.9	5 13.2	+59.3	28.0	6 59.2	+59.4	28.1	21		
4 25.2	-58.1	152.3	2 38.9	-58.3	152.3	0 52.6	-58.5	152.4	0 53.7	+58.8	27.6	2 40.0	+59.0	27.7	4 26.3	+59.1	27.7	6 12.5	+59.3	27.8	7 58.6	+59.4	27.9	22		
3 27.1	-58.1	152.5	1 40.6	-58.3	152.6	0 05.9	+58.6	27.4	1 52.5	+58.7	27.4	3 39.0	+58.9	27.5	5 25.4	+59.1	27.5	7 11.8	+59.2	27.6	8 58.0	+59.4	27.8	23		
2 29.0	-58.1	152.8	0 42.3	-58.3	152.8	1 04.5	+58.5	27.2	2 51.2	+58.7	27.2	4 37.9	+58.9	27.3	6 24.5	+59.1	27.4	8 11.0	+59.3	27.5	9 57.4	+59.4	27.6	24		
1 30.9	-58.1	153.0	0 16.0	+58.4	26.9	2 03.0	+58.6	27.0	3 49.9	+58.8	27.0	5 36.8	+59.0	27.1	7 23.6	+59.1	27.2	9 10.3	+59.3	27.3	10 56.8	+59.4	27.5	25		
0 32.8	-58.1	153.3	1 14.4	+58.3	26.7	3 01.6	+58.5	26.7	4 48.7	+58.7	26.8	6 35.8	+58.9	26.9	8 22.7	+59.1	27.0	10 09.6	+59.2	27.2	11 56.2	+59.4	27.3	26		
0 25.3	+58.1	26.5	2 12.7	+58.3	26.5	4 00.1	+58.2	26.5	5 47.4	+58.8	26.6	7 34.7	+58.9	26.7	9 21.8	+59.1	26.8	11 08.8	+59.3	27.0	12 55.6	+59.4	27.2	27		
1 23.4	+58.1	26.2	3 11.0	+58.3	26.2	4 58.6	+58.5	26.3	6 46.2	+58.7	26.4	8 33.6	+58.9	26.5	10 20.9	+59.1	26.7	12 08.1	+59.2	26.8	13 55.0	+59.4	27.1	28		
2 21.5	+58.0	26.0	4 09.3	+58.3	26.0	5 57.1	+58.6	26.1	7 44.9	+58.7	26.2	9 32.5	+58.9	26.3	11 20.9	+59.1	26.5	13 07.3	+59.2	26.7	14 54.4	+59.4	26.9	29		
3 19.5	+58.1	25.7	5 07.6	+58.3	25.8	6 55.7	+58.5	25.9	8 43.6	+58.7	26.0	10 31.4	+58.9	26.1	12 19.1	+59.0	26.3	14 06.5	+59.3	26.5	15 53.8	+59.4	26.8	30		
4 17.6	+58.1	25.5	6 05.9	+58.4	25.5	7 54.2	+58.5	25.6	9 42.3	+58.7	25.8	11 30.3	+58.9	25.9	13 18.1	+59.1	26.1	15 05.8	+59.2	26.4	16 53.2	+59.3	26.6	31		
5 15.7	+58.1	25.2	7 04.3	+58.2	25.3	8 52.7	+58.5	25.4	10 41.0	+58.7	25.6	12 29.2	+58.9	25.7	14 17.2	+59.0	25.9	16 05.0	+59.2	26.2	17 52.5	+59.4	26.5	32		
6 13.8	+58.1	24.9	8 02.5	+58.3	25.1	9 51.2	+58.5	25.2	11 39.7	+58.7	25.4	13 28.1	+58.8	25.5	15 16.2	+59.1	25.8	17 04.2	+59.2	26.0	18 51.9	+59.4	26.3	33		
7 11.9	+58.0	24.7	9 00.8	+58.3	24.8	10 49.7	+58.5	25.0	12 38.4	+58.7	25.1	14 26.9	+58.9	25.3	16 15.3	+59.0	25.6	18 03.4	+59.2	25.8	19 51.3	+59.3	26.1	34		
8 09.9	+58.1	24.4	9 59.1	+58.3	24.6	11 48.2	+58.4	24.7	13 37.1	+58.6	24.9	15 25.8	+58.9	25.1	17 14.3	+59.1	25.4	19 02.6	+59.2	25.7	20 50.6	+59.4	26.0	35		
9 08.0	+58.0	24.2	10 57.4	+58.2	24.3	12 46.6	+58.5	24.5	14 35.7	+58.7	24.7	16 24.7	+58.8	24.9	18 13.4	+59.0	25.2	20 01.8	+59.2	25.5	21 50.0	+59.3	25.8	36		
10 06.0	+58.0	23.9	11 55.6	+58.3	24.1	13 45.1	+58.4	24.3	15 34.4	+58.6	24.5	17 23.5	+58.8	24.7	19 12.4	+59.0	25.0	21 01.0	+59.1	25.3	22 49.3	+59.3	25.7	37		
11 04.0	+58.0	23.7	12 53.9	+58.2	23.8	14 43.5	+58.5	24.0	16 33.0	+58.7	24.3	18 22.3	+58.8	24.5	20 11.4	+59.0	24.8	22 00.1	+59.1	25.1	23 48.6	+59.3	25.5	38		
12 02.0	+58.0	23.4	13 52.1	+58.2	23.6	15 42.0	+58.4	23.8	17 31.7	+58.6	24.0	19 21.1	+58.8	24.3	21 10.4	+58.9	24.6	22 59.3	+59.1	25.0	24 47.9	+59.3	25.3	39		
13 00.0	+58.0	23.1	14 50.3	+58.2	23.3	16 40.4	+58.4	23.6	18 30.3	+58.6	23.8	20 19.9	+58.8	24.1	22 09.3	+59.0	24.4	23 58.4	+59.2	24.8	25 47.2	+59.3	25.2	40		
13 58.0	+58.0	22.9	15 48.5	+58.2	23.1	17 38.8	+58.4	23.3	19 28.9	+58.6	23.6	21 18.7	+58.8	23.9	23 08.3	+58.9	24.2	24 57.6	+59.1	24.6	26 46.5	+59.3	25.0	41		
14 56.0	+57.9	22.6	16 46.7	+58.1	22.8	18 37.2	+58.3	23.1	20 27.5	+58.5	23.4	22 17.5	+58.7	23.7	24 07.2	+59.0	24.0	25 56.7	+59.1	24.4	27 45.8	+59.2	24.8	42		
15 53.9	+58.0	22.3	17 44.8	+58.2	22.6	19 35.5	+58.4	22.8	21 26.0	+58.6	23.1	23 16.2	+58.8	23.5	25 06.2	+58.9	23.8	26 55.8	+59.0	24.2	28 45.0	+59.3	24.7	43		
16 51.9	+57.9	22.1	18 43.0	+58.1	22.3	20 33.9	+58.3	22.6	22 24.6	+58.5	22.9	24 15.0	+58.7	23.2	26 05.1	+58.9	23.6	27 54.9	+59.1	24.0	29 44.3	+59.2	24.5	44		
17 49.8	+57.9	21.8	19 41.1	+58.1	22.1	21 32.2	+58.3	22.3	23 23.1	+58.5	22.7	25 13.7	+58.7	23.0	27 04.0	+58.8	23.4	28 53.9	+59.1	23.8	30 43.5	+59.2	24.3	45		
18 47.7	+57.8	21.5	20 39.2	+58.1	21.8	22 30.5	+58.3	22.1	24 21.6	+58.4	22.4	26 12.4	+58.6	22.8	28 02.8	+58.9	23.2	29 53.0	+59.0	23.6	31 42.7	+59.2	24.1	46		
19 45.5	+57.8	21.2	21 37.3	+58.0	21.5	23 28.8	+58.2	21.8	25 20.0	+5																

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	12 05.6	+59.6	149.2	10 22.4	+59.6	149.4	8 38.9	+59.8	149.6	6 55.4	+59.8	149.8	5 11.6	+59.9	149.9	3 27.8	+60.0	149.9	1 43.9	+60.0	150.0	0 00.0	+60.0	150.0
1	13 05.2	+59.5	149.1	11 22.0	+59.7	149.3	9 38.7	+59.8	149.5	7 55.2	+59.9	149.7	6 11.5	+60.0	149.8	4 27.8	+59.9	149.9	2 43.9	+60.0	150.0	1 00.0	+60.0	150.0
2	14 04.7	+59.5	149.0	12 21.7	+59.7	149.2	10 38.5	+59.7	149.4	8 55.1	+59.8	149.6	7 11.5	+59.9	149.8	5 27.7	+60.0	149.9	3 43.9	+60.0	149.9	2 00.0	+60.0	150.0
3	15 04.2	+59.5	148.9	13 21.4	+59.6	149.1	11 38.2	+59.8	149.3	9 54.9	+59.9	149.5	8 11.4	+59.9	149.7	6 27.7	+60.0	149.8	4 43.9	+60.0	149.9	3 00.0	+60.0	150.0
4	16 03.7	+59.6	148.7	14 21.0	+59.7	149.0	12 38.0	+59.8	149.3	10 54.8	+59.8	149.5	9 11.3	+59.9	149.7	7 27.7	+59.9	149.8	5 43.9	+60.0	149.9	4 00.0	+60.0	150.0
5	17 03.3	+59.5	148.5	15 20.7	+59.6	148.9	13 37.8	+59.7	149.2	11 54.6	+59.9	149.4	10 11.2	+59.9	149.6	8 27.6	+60.0	149.8	6 43.9	+60.0	149.9	5 00.0	+60.0	150.0
6	18 02.8	+59.5	148.5	16 20.3	+59.7	148.8	14 37.5	+59.8	149.1	12 54.5	+59.8	149.3	11 11.1	+59.9	149.5	9 27.6	+59.9	149.7	7 43.9	+60.0	149.9	6 00.0	+60.0	150.0
7	19 02.3	+59.5	148.3	17 20.0	+59.6	148.7	15 37.3	+59.7	149.0	13 54.3	+59.8	149.3	12 11.0	+60.0	149.5	10 27.5	+60.0	149.7	8 43.9	+59.9	149.9	7 00.0	+60.0	150.0
8	20 01.8	+59.5	148.2	18 19.6	+59.6	148.6	16 37.0	+59.8	148.9	14 54.1	+59.9	149.2	13 11.0	+59.9	149.4	11 27.5	+60.0	149.7	9 43.9	+60.0	149.8	8 00.0	+60.0	150.0
9	21 01.3	+59.5	148.1	19 19.2	+59.7	148.4	17 36.8	+59.7	148.8	15 54.0	+59.8	149.1	14 10.9	+59.9	149.4	12 27.5	+59.9	149.6	10 43.8	+60.0	149.8	9 00.0	+60.0	150.0
10	22 00.8	+59.5	147.9	20 18.9	+59.6	148.3	18 36.5	+59.8	148.7	16 53.8	+59.9	149.0	15 10.8	+59.9	149.3	13 27.4	+60.0	149.6	11 43.8	+60.0	149.8	10 00.0	+60.0	150.0
11	23 00.3	+59.4	147.8	21 18.5	+59.6	148.2	19 36.3	+59.7	148.6	17 53.7	+59.8	149.0	16 10.7	+59.9	149.3	14 27.4	+60.0	149.5	12 43.8	+60.0	149.8	11 00.0	+60.0	150.0
12	23 59.7	+59.5	147.6	22 18.1	+59.6	148.1	20 36.0	+59.8	148.5	18 53.5	+59.8	148.9	17 10.6	+59.9	149.2	15 27.4	+59.9	149.5	13 43.8	+60.0	149.8	12 00.0	+60.0	150.0
13	24 59.2	+59.5	147.5	23 17.7	+59.7	148.0	21 35.8	+59.7	148.4	19 53.3	+59.9	148.8	18 10.5	+59.9	149.2	16 27.3	+60.0	149.5	14 43.8	+60.0	149.8	13 00.0	+60.0	150.0
14	25 58.7	+59.4	147.3	24 17.4	+59.6	147.8	22 35.5	+59.7	148.3	20 53.2	+59.8	148.7	19 10.4	+59.9	149.1	17 27.3	+59.9	149.4	15 43.8	+60.0	149.7	14 00.0	+60.0	150.0
15	26 58.1	+59.5	147.2	25 17.0	+59.6	147.7	23 35.2	+59.8	148.2	21 53.0	+59.8	148.6	20 10.3	+59.9	149.0	18 27.2	+60.0	149.4	16 43.8	+60.0	149.7	15 00.0	+60.0	150.0
16	27 57.6	+59.4	147.0	26 16.6	+59.6	147.6	24 35.0	+59.7	148.1	22 52.8	+59.9	148.6	21 10.2	+59.9	149.0	19 27.2	+59.9	149.4	17 43.8	+60.0	149.7	16 00.0	+60.0	150.0
17	28 57.0	+59.4	146.9	27 16.2	+59.5	147.5	25 34.7	+59.7	148.0	23 52.7	+59.8	148.5	22 10.1	+59.9	148.9	20 27.1	+60.0	149.3	18 43.8	+59.9	149.7	17 00.0	+60.0	150.0
18	29 56.4	+59.4	146.7	28 15.7	+59.6	147.3	26 34.4	+59.7	147.9	24 52.5	+59.8	148.4	23 10.0	+59.9	148.9	21 27.1	+60.0	149.3	19 43.8	+60.0	149.7	18 00.0	+60.0	150.0
19	30 55.8	+59.4	146.6	29 15.3	+59.6	147.2	27 34.1	+59.7	147.8	25 52.3	+59.8	148.3	24 09.9	+59.9	148.8	22 27.1	+59.9	149.2	20 43.7	+60.0	149.6	19 00.0	+60.0	150.0
20	31 55.2	+59.4	146.4	30 14.9	+59.5	147.1	28 33.8	+59.7	147.7	26 52.1	+59.8	148.2	25 09.8	+59.9	148.7	23 27.0	+60.0	149.2	21 43.7	+60.0	149.6	20 00.0	+60.0	150.0
21	32 54.6	+59.4	146.2	31 14.4	+59.6	146.9	29 33.5	+59.7	147.5	27 51.9	+59.9	148.1	26 09.7	+59.9	148.7	24 27.0	+59.9	149.4	22 43.7	+60.0	149.6	21 00.0	+60.0	150.0
22	33 54.0	+59.3	146.0	32 14.0	+59.5	146.8	30 33.2	+59.7	147.4	28 51.8	+59.8	148.0	27 09.6	+59.9	148.6	25 26.9	+60.0	149.1	23 43.7	+60.0	149.6	22 00.0	+60.0	150.0
23	34 53.3	+59.3	145.9	33 13.5	+59.6	146.6	31 32.9	+59.7	147.3	29 51.6	+59.8	147.9	28 09.5	+59.9	148.5	26 26.9	+59.9	149.1	24 43.7	+60.0	149.6	23 00.0	+60.0	150.0
24	35 52.6	+59.4	145.7	34 13.1	+59.5	146.5	32 32.6	+59.7	147.2	30 51.4	+59.8	147.9	29 09.4	+59.9	148.5	27 26.8	+60.0	149.0	25 43.7	+60.0	149.5	24 00.0	+60.0	150.0
25	36 52.0	+59.3	145.5	35 12.6	+59.5	146.3	33 32.3	+59.7	147.1	31 51.2	+59.8	147.8	30 09.3	+59.9	148.4	28 26.8	+59.9	149.0	26 43.7	+60.0	149.5	25 00.0	+60.0	150.0
26	37 51.3	+59.2	145.3	36 12.1	+59.5	146.2	34 32.0	+59.6	146.9	32 51.0	+59.8	147.7	31 09.2	+59.9	148.3	29 26.7	+60.0	149.2	27 43.7	+59.9	149.5	26 00.0	+60.0	150.0
27	38 50.5	+59.3	145.1	37 11.6	+59.5	146.0	35 31.6	+59.7	146.8	33 50.8	+59.7	147.6	32 09.1	+59.9	148.3	30 26.7	+60.0	148.9	28 43.6	+60.0	149.5	27 00.0	+60.0	150.0
28	39 49.8	+59.2	144.9	38 11.1	+59.4	145.8	36 31.3	+59.6	146.7	34 50.5	+59.8	147.5	33 09.0	+59.9	148.2	31 26.7	+59.9	148.8	29 43.6	+60.0	149.4	28 00.0	+60.0	150.0
29	40 49.0	+59.3	144.7	39 10.5	+59.5	145.7	37 30.9	+59.7	146.5	35 50.3	+59.8	147.4	34 08.9	+59.8	148.1	32 26.6	+59.9	148.8	30 43.6	+60.0	149.4	29 00.0	+60.0	150.0
30	41 48.3	+59.2	144.5	40 10.0	+59.4	145.5	38 30.6	+59.6	146.4	36 50.1	+59.8	147.2	35 08.7	+59.9	148.0	33 26.5	+60.0	148.7	31 43.6	+60.0	149.4	30 00.0	+60.0	150.0
31	42 47.5	+59.1	144.3	41 09.4	+59.4	145.3	39 30.3	+59.6	146.3	37 49.9	+59.7	147.1	36 08.5	+59.9	147.9	34 26.5	+59.9	148.7	32 43.6	+60.0	149.4	31 00.0	+60.0	150.0
32	43 46.6	+59.2	144.0	42 08.8	+59.4	145.1	40 29.8	+59.6	146.1	38 49.6	+59.8	147.0	37 08.5	+59.9	147.9	35 26.4	+60.0	148.6	33 43.6	+60.0	149.3	32 00.0	+60.0	150.0
33	44 45.8	+59.1	143.8	43 08.2	+59.4	144.9	41 29.4	+59.6	146.0	39 49.4	+59.7	146.9	38 08.4	+59.8	147.8	36 26.4	+59.9	148.6	34 43.6	+60.0	149.3	33 00.0	+60.0	150.0
34	45 44.9	+59.0	143.6	44 07.6	+59.4	144.7	42 29.0	+59.6	145.8	40 49.1	+59.8	146.8	39 08.2	+59.9	147.7	37 26.3	+60.0	148.5	35 43.6	+59.9	149.3	34 00.0	+60.0	150.0
35	46 43.9	+59.1	143.3	45 07.0	+59.3	144.5	43 28.6	+59.5	145.6	41 48.9	+59.7	146.6	40 08.1	+59.8	147.6	38 26.3	+59.9	148.5	36 43.5	+60.0	149.3	35 00.0	+60.0	150.0
36	47 43.0	+59.0	143.0	46 06.3	+59.3	144.3	44 28.1	+59.6	145.5	42 48.6	+59.7	146.5	41 07.9	+59.9	147.5	39 26.2	+59.9	148.4	37 43.5	+60.0	149.2	36 00.0	+60.0	150.0
37	48 42.0	+58.9	142.8	47 05.6	+59.3	144.1	45 27.7	+59.5	145.3	43 48.3	+59.8	146.4	42 07.8	+59.8	147.4	40 26.1	+60.0	148.4	38 43.5	+60.0	149.2	37 00.0	+60.0	150.0
38	49 40.9	+59.0	142.5	48 04.9	+59.2	143.9	46 27.2	+59.5	145.1	44 48.1	+59.7	146.3	43 07.6	+59.9	147.3	41 26.1	+59.9	148.3	39 43.5	+60.0	149.2	38 00.0	+60.0	150.0
39	50 39.9	+58.8	142.2	49 04.1	+59.3	143.6	47 26.7	+59.5	144.9	45 47.8	+59.7	146.1	44 07.5	+59.8	147.2	42 26.0	+59.9	148.2	40 43.5	+60.0	149.2	39 00.0	+60.0	150.0
40	51 38.7	+58.9	141.9	50 03.4	+59.2	143.4	48 26.2	+59.5	144.7	46 47.5	+59.6	146.0	45 07.3	+59.9	147.1	43 25.9	+60.0	148.2	41 43.5	+60.0	149.1	40 00.0	+60.0	150.0
41	52 37.6	+58.7	141.6	51 02.6	+59.1	143.1	49 25.7	+59.4	144.5	47 47.1	+59.7	145.8	46 07.2	+59.8	147.0	44 25.9	+59.9	148.1	42 43.5	+59.9	149.1	41 00.0	+60.0	150.0
42	53 36.3	+58.7	141.2	52 01.7	+59.1	142.8	50 25.1	+59.5	144.3	48 46.8	+59.7	145.7	47 07.0	+59.8	146.9	45 25.8	+59.9	148.0	43 43.4	+60.0	149.1	42 00.0	+60.0	150.0
43	54 35.0	+58.7	140.9	53 00.8	+59.1	142.6	51 24.6	+59.4	144.1	49 46.5	+59.6	145.5	48 06.8	+59.8	146.8	46 25.7	+60.0	148.0	44 43.4	+60.0	149.0	43 00.0	+60.0	150.0
44	55 33.7	+58.6	140.5	53 59.9	+59.0	142.3	52 24.0	+59.3	143.9	50 46.1	+59.6	145.3	49 06.6	+59.8	146.7	47 25.7	+59.9	147.9	45 43.4	+60.0	149.0	44 00.0	+60.0	150.0
45	56 32.3	+58.5	140.1	54 58.9	+59.0	142.0	53 23.3	+59.4	143.6	51 45.7	+59.7	145.2	50 06.4	+59.8	146.5	48 25.6	+59.9	147.8	46 43.4	+60.0	149.0	45 00.0	+60.0	150.0
46	57 30.8	+58.4	139.7	55 57.9	+58.9	141.6	5																	

LATITUDE CONTRARY NAME

L.H.A. 30°, 330°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
12 05.6	-59.5	149.2	10 22.4	-59.7	149.4	8 38.9	-59.7	149.6	6 55.4	-59.9	149.8	5 11.6	-59.9	149.9	3 27.8	-60.0	149.9	1 43.9	-60.0	150.0	0 00.0	+60.0	30.0	0		
11 06.1	-59.6	149.4	9 22.7	-59.6	149.6	7 39.2	-59.8	149.7	5 55.5	-59.9	149.8	4 11.7	-59.9	149.9	2 27.8	-59.9	150.0	0 43.9	-60.0	150.0	1 00.0	+60.0	30.0	1		
10 06.5	-59.5	149.5	8 23.1	-59.7	149.7	6 39.4	-59.8	149.8	4 55.6	-59.8	149.9	3 11.8	-59.9	150.0	1 27.9	-60.0	150.0	0 16.1	+60.0	30.0	2 00.0	+60.0	30.0	2		
9 07.0	-59.6	149.6	7 23.4	-59.7	149.8	5 39.6	-59.7	149.9	3 55.8	-59.9	150.0	2 11.9	-59.9	150.0	0 27.9	-59.9	150.0	1 16.1	+60.0	30.0	3 00.0	+60.0	30.0	3		
8 07.4	-59.5	149.7	6 23.7	-59.7	149.9	4 39.9	-59.8	150.0	2 55.9	-59.8	150.0	1 12.0	-60.0	150.1	0 32.0	+60.0	29.9	2 16.0	+60.0	29.9	4 00.0	+60.0	30.0	4		
7 07.9	-59.6	149.9	5 24.0	-59.6	150.0	3 40.1	-59.8	150.1	1 56.1	-59.9	150.1	0 12.0	-59.9	150.1	1 32.0	+60.0	29.9	3 16.0	+60.0	29.9	5 00.0	+60.0	30.0	5		
6 08.3	-59.5	150.0	4 24.4	-59.7	150.1	2 40.3	-59.7	150.1	0 56.2	-59.8	150.2	0 47.9	+59.9	29.8	2 32.0	+59.9	29.9	4 16.0	+60.0	29.9	6 00.0	+60.0	30.0	6		
5 08.8	-59.6	150.1	3 24.7	-59.7	150.2	1 40.6	-59.8	150.2	0 03.6	+59.9	29.8	1 47.8	+59.9	29.8	3 31.9	+60.0	29.8	5 16.0	+60.0	29.9	7 00.0	+60.0	30.0	7		
4 09.2	-59.5	150.2	2 25.0	-59.7	150.3	0 40.8	-59.8	150.3	1 03.5	+59.8	29.7	2 47.7	+59.9	29.7	4 31.9	+60.0	29.8	6 16.0	+60.0	29.9	8 00.0	+60.0	30.0	8		
3 09.7	-59.6	150.4	1 25.3	-59.6	150.4	0 19.0	+59.8	29.6	2 03.3	+59.9	29.6	3 47.6	+60.0	29.7	5 31.9	+59.9	29.7	7 16.0	+60.0	29.9	9 00.0	+60.0	30.0	9		
2 10.1	-59.6	150.5	0 25.7	-59.7	150.5	1 18.8	+59.7	29.5	3 03.2	+59.8	29.5	4 47.6	+59.9	29.6	6 31.8	+60.0	29.7	8 16.0	+60.0	29.8	10 00.0	+60.0	30.0	10		
1 10.5	-59.5	150.6	0 34.0	+59.7	29.4	2 18.5	+59.8	29.4	4 03.0	+59.9	29.5	5 47.5	+59.9	29.6	7 31.8	+60.0	29.7	9 16.0	+60.0	29.8	11 00.0	+60.0	30.0	11		
0 11.0	-59.6	150.7	1 33.7	+59.7	29.3	3 18.3	+59.8	29.3	5 02.9	+59.8	29.4	6 47.4	+59.9	29.5	8 31.8	+59.9	29.6	10 16.0	+60.0	29.8	12 00.0	+60.0	30.0	12		
0 48.6	+59.5	29.2	2 33.4	+59.6	29.2	4 18.1	+59.8	29.2	6 02.7	+59.9	29.3	7 47.3	+59.9	29.5	9 31.7	+60.0	29.6	11 16.0	+60.0	29.8	13 00.0	+60.0	30.0	13		
1 48.1	+59.6	29.0	3 33.0	+59.7	29.1	5 17.9	+59.7	29.2	7 02.6	+59.9	29.3	8 47.2	+59.9	29.4	10 31.7	+59.9	29.6	12 16.0	+59.9	29.8	14 00.0	+60.0	30.0	14		
2 47.7	+59.5	28.9	4 32.7	+59.7	29.0	6 17.6	+59.8	29.1	8 02.5	+59.8	29.2	9 47.1	+59.9	29.3	11 31.6	+60.0	29.5	13 15.9	+60.0	29.7	15 00.0	+60.0	30.0	15		
3 47.2	+59.6	28.8	5 32.4	+59.6	28.9	7 17.4	+59.8	29.0	9 02.3	+59.9	29.1	10 47.0	+60.0	29.3	12 31.6	+60.0	29.5	14 15.9	+60.0	29.7	16 00.0	+60.0	30.0	16		
4 46.8	+59.6	28.7	6 32.0	+59.7	28.8	8 17.2	+59.7	28.9	10 02.2	+59.8	29.1	11 47.0	+59.9	29.2	13 31.6	+59.9	29.5	15 15.9	+60.0	29.7	17 00.0	+60.0	30.0	17		
5 46.4	+59.5	28.6	7 31.7	+59.7	28.7	9 16.9	+59.8	28.8	11 02.0	+59.9	29.0	12 46.9	+59.9	29.2	14 31.5	+60.0	29.4	16 15.9	+60.0	29.7	18 00.0	+60.0	30.0	18		
6 45.9	+59.6	28.4	8 31.4	+59.6	28.6	10 16.7	+59.8	28.7	12 01.9	+59.8	28.9	13 46.8	+59.9	29.1	15 31.5	+59.9	29.4	17 15.9	+60.0	29.7	19 00.0	+60.0	30.0	19		
7 45.5	+59.5	28.3	9 31.0	+59.7	28.5	11 16.5	+59.7	28.6	13 01.7	+59.8	28.8	14 46.7	+59.9	29.1	16 31.4	+60.0	29.3	18 15.9	+60.0	29.7	20 00.0	+60.0	30.0	20		
8 45.0	+59.6	28.2	10 30.7	+59.7	28.3	12 16.2	+59.8	28.5	14 01.5	+59.9	28.8	15 46.6	+59.9	29.0	17 31.4	+60.0	29.3	19 15.9	+60.0	29.6	21 00.0	+60.0	30.0	21		
9 44.6	+59.5	28.1	11 30.4	+59.6	28.2	13 16.0	+59.8	28.4	15 01.4	+59.8	28.7	16 46.5	+59.9	29.0	18 31.4	+59.9	29.3	20 15.9	+60.0	29.6	22 00.0	+60.0	30.0	22		
10 44.1	+59.6	27.9	12 30.0	+59.7	28.1	14 15.8	+59.7	28.4	16 01.2	+59.9	28.6	17 46.4	+59.9	28.9	19 31.3	+60.0	29.2	21 15.9	+60.0	29.6	23 00.0	+60.0	30.0	23		
11 43.7	+59.5	27.8	13 29.7	+59.6	28.0	15 15.5	+59.8	28.3	17 01.1	+59.8	28.5	18 46.3	+60.0	28.8	20 31.3	+59.9	29.2	22 15.9	+59.9	29.6	24 00.0	+60.0	30.0	24		
12 43.2	+59.5	27.7	14 29.3	+59.7	27.9	16 15.3	+59.7	28.2	18 00.9	+59.9	28.5	19 46.3	+59.9	28.8	21 31.2	+60.0	29.2	23 15.8	+60.0	29.6	25 00.0	+60.0	30.0	25		
13 42.7	+59.6	27.6	15 29.0	+59.6	27.8	17 15.0	+59.8	28.1	19 00.8	+59.8	28.4	20 46.2	+59.9	28.7	22 31.2	+60.0	29.1	24 15.8	+60.0	29.5	26 00.0	+60.0	30.0	26		
14 42.3	+59.5	27.4	16 28.8	+59.7	27.7	18 14.8	+59.7	28.0	20 00.6	+59.8	28.3	21 46.1	+59.9	28.7	23 31.2	+59.9	29.1	25 15.8	+60.0	29.5	27 00.0	+60.0	30.0	27		
15 41.8	+59.5	27.3	17 28.3	+59.6	27.6	19 14.5	+59.8	27.9	21 00.4	+59.9	28.2	22 46.0	+59.9	28.6	24 31.1	+60.0	29.0	26 15.8	+60.0	29.5	28 00.0	+60.0	30.0	28		
16 41.3	+59.5	27.2	18 27.9	+59.7	27.5	20 14.3	+59.7	27.8	22 00.3	+59.8	28.1	23 45.9	+59.9	28.5	25 31.1	+59.9	29.0	27 15.8	+60.0	29.5	29 00.0	+60.0	30.0	29		
17 40.8	+59.5	27.0	19 27.6	+59.6	27.3	21 14.0	+59.7	27.7	23 00.1	+59.8	28.1	24 45.8	+59.9	28.5	26 31.0	+60.0	28.9	28 15.8	+60.0	29.4	30 00.0	+60.0	30.0	30		
18 40.3	+59.5	26.9	20 27.2	+59.6	27.2	22 13.7	+59.8	27.6	23 59.9	+59.8	28.0	25 45.7	+59.9	28.4	27 31.0	+59.9	28.9	29 15.8	+60.0	29.3	31 00.0	+60.0	30.0	31		
19 39.8	+59.5	26.8	21 26.8	+59.6	27.1	23 13.5	+59.7	27.5	24 59.7	+59.9	27.9	26 45.6	+59.9	28.3	28 30.9	+60.0	28.9	30 15.8	+59.9	29.4	32 00.0	+60.0	30.0	32		
20 39.3	+59.5	26.6	22 26.4	+59.7	27.0	24 13.2	+59.7	27.4	25 59.6	+59.8	27.8	27 45.5	+59.9	28.3	29 30.9	+59.9	28.8	31 15.7	+60.0	29.4	33 00.0	+60.0	30.0	33		
21 38.8	+59.5	26.5	23 26.1	+59.6	26.9	25 12.9	+59.7	27.3	26 59.4	+59.8	27.7	28 45.4	+59.9	28.2	30 30.8	+60.0	28.8	32 15.7	+60.0	29.4	34 00.0	+60.0	30.0	34		
22 38.3	+59.5	26.3	24 25.7	+59.6	26.7	26 12.6	+59.8	27.2	27 59.2	+59.8	27.6	29 45.3	+59.8	28.1	31 30.8	+59.9	28.7	33 15.7	+60.0	29.3	35 00.0	+60.0	30.0	35		
23 37.8	+59.5	26.2	25 25.3	+59.6	26.6	27 12.4	+59.7	27.1	28 59.0	+59.8	27.5	30 45.1	+59.9	28.1	32 30.7	+60.0	28.7	34 15.7	+60.0	29.3	36 00.0	+60.0	30.0	36		
24 37.3	+59.4	26.1	26 24.9	+59.6	26.5	28 12.1	+59.7	26.9	29 58.8	+59.8	27.5	31 45.0	+59.9	28.0	33 30.7	+59.9	28.6	35 15.7	+60.0	29.3	37 00.0	+60.0	30.0	37		
25 36.7	+59.5	25.9	27 24.5	+59.6	26.3	29 11.8	+59.7	26.8	30 58.6	+59.8	27.4	32 44.9	+59.9	27.9	34 30.6	+60.0	28.6	36 15.7	+60.0	29.3	38 00.0	+60.0	30.0	38		
26 36.2	+59.4	25.8	28 24.1	+59.5	26.2	30 11.5	+59.7	26.7	31 58.4	+59.8	27.3	33 44.8	+59.9	27.9	35 30.6	+60.0	28.5	37 15.7	+60.0	29.2	39 00.0	+60.0	30.0	39		
27 35.6	+59.5	25.6	29 23.6	+59.6	26.1	31 11.2	+59.7	26.6	32 58.2	+59.8	27.2	34 44.7	+59.9	27.8	36 30.5	+60.0	28.5	38 15.7	+59.9	29.2	40 00.0	+60.0	30.0	40		
28 35.1	+59.4	25.5	30 23.2	+59.6	25.9	32 10.9	+59.6	26.5	33 58.0	+59.8	27.1	35 44.6	+59.8	27.7	37 30.5	+59.9	28.4	39 15.6	+60.0	29.2	41 00.0	+60.0	30.0	41		
29 34.5	+59.4	25.3	31 22.8	+59.5	25.8	33 10.5	+59.7	26.4	34 57.8	+59.8	27.0	36 44.4	+59.9	27.6	38 30.4	+59.9	28.3	40 15.6	+60.0	29.1	42 00.0	+60.0	30.0	42		
30 33.9	+59.4	25.1	32 22.3	+59.5	25.7	34 10.2	+59.7	26.2	35 57.6	+59.7	26.9	37 44.3	+59.9	27.5	39 30.3	+60.0	28.3	41 15.6	+60.0	29.1	43 00.0	+60.0	30.0	43		
31 33.3	+59.4	25.0	33 21.8	+59.6	25.5	35 09.9	+59.6	26.1	36 57.3	+59.8	26.7	38 44.2	+59.8	27.5	40 30.3	+59.9	28.2	42 15.6	+60.0	29.1	44 00.0	+60.0	30.0	44		
32 32.7	+59.3	24.8	34 21.4	+59.5	25.4	36 09.5	+59.7	26.0	37 57.1	+59.8	26.6	39 44.0	+59.9	27.4	41 30.2	+60.0	28.2	43 15.6	+60.0	29.0	45 00.0	+60.0	30.0	45		
33 32.0	+59.4	24.6	35 20.9	+59.5	25.2	37 09.2	+59.6	25.8	38 56.9	+59.7	26.5	40 43.9	+59.8	27.3	42 30.2	+59.9	28.1	44 15.6	+59.9	29.0	46 00.0	+60.0	30.0	46		
34 31.4	+59.3	24.4	36 20.4	+59.5	25.0	38 08.8	+59.6	25.7	39 56.6	+59.8	26.4	41 43.7	+59.9	27.2	43 30.1	+59.9	28.0									

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	25 05.3	+57.4	144.2	23 27.7	+57.7	144.7	21 49.5	+58.0	145.2	20 10.7	+58.3	145.6	18 31.4	+58.6	146.0	16 51.7	+58.9	146.4	15 11.5	+59.2	146.7	13 31.1	+59.3	147.0
1	26 02.7	+57.3	143.9	24 25.4	+57.7	144.4	22 47.5	+58.1	144.9	21 09.0	+58.4	145.4	19 30.0	+58.7	145.8	17 50.6	+58.9	146.2	16 10.7	+59.1	146.5	14 30.4	+59.3	146.8
2	27 00.0	+57.3	143.5	25 23.1	+57.7	144.1	23 45.6	+58.0	144.6	22 07.4	+58.4	145.1	20 28.7	+58.6	145.6	18 49.5	+58.8	146.0	17 09.8	+59.1	146.3	15 29.7	+59.3	146.7
3	27 57.3	+57.2	143.2	26 20.8	+57.6	143.8	24 43.6	+58.0	144.4	23 05.8	+58.3	144.9	21 27.3	+58.5	145.3	19 48.3	+58.9	145.8	18 08.9	+59.1	146.2	16 29.0	+59.3	146.5
4	28 54.5	+57.1	142.9	27 18.4	+57.6	143.5	25 41.6	+57.9	144.1	24 04.1	+58.3	144.6	22 25.9	+58.6	145.1	20 47.2	+58.9	145.6	19 08.0	+59.1	146.0	17 28.3	+59.3	146.3
5	29 51.6	+57.1	142.5	28 16.0	+57.5	143.2	26 39.5	+58.0	143.8	25 02.4	+58.2	144.4	23 24.5	+58.6	144.9	21 46.1	+58.8	145.4	20 07.1	+59.1	145.8	18 27.6	+59.3	146.2
6	30 48.7	+57.1	142.1	29 13.5	+57.5	142.9	27 37.5	+57.8	143.5	26 00.6	+58.3	144.1	24 23.1	+58.5	144.6	22 44.9	+58.8	145.1	21 06.2	+59.0	145.6	19 26.9	+59.3	146.0
7	31 45.8	+57.0	141.8	30 11.0	+57.4	142.5	28 35.3	+57.9	143.2	26 58.9	+58.2	143.8	25 21.6	+58.5	144.4	23 43.7	+58.8	144.9	22 05.2	+59.1	145.4	20 26.2	+59.2	145.9
8	32 42.8	+56.9	141.4	31 08.4	+57.4	142.2	29 33.2	+57.8	142.9	27 57.1	+58.1	143.6	26 20.1	+58.5	144.2	24 42.5	+58.8	144.7	23 04.3	+59.0	145.2	21 25.4	+59.3	145.7
9	33 39.7	+56.8	141.0	32 05.8	+57.4	141.8	30 31.0	+57.7	142.6	28 55.2	+58.2	143.3	27 18.6	+58.5	143.9	25 41.3	+58.8	144.5	24 03.3	+59.0	145.0	22 24.7	+59.2	145.5
10	34 36.5	+56.8	140.6	33 03.2	+57.2	141.5	31 28.7	+57.7	142.3	29 53.4	+58.1	143.0	28 17.1	+58.5	143.7	26 40.1	+58.7	144.3	25 02.3	+59.0	144.8	23 23.9	+59.2	145.3
11	35 33.3	+56.7	140.3	34 00.4	+57.2	141.1	32 26.4	+57.7	141.9	30 51.5	+58.0	142.7	29 15.6	+58.4	143.4	27 38.8	+58.7	144.0	26 01.3	+59.0	144.6	24 23.1	+59.3	145.2
12	36 30.0	+56.6	139.8	34 57.6	+57.2	140.8	33 24.1	+57.6	141.6	31 49.5	+58.0	142.4	30 14.0	+58.3	143.1	28 37.5	+58.7	143.8	27 00.3	+59.0	144.4	25 22.4	+59.2	145.0
13	37 26.6	+56.5	139.4	35 54.8	+57.0	140.4	34 21.7	+57.6	141.3	32 47.5	+58.0	142.1	31 12.3	+58.4	142.9	29 36.2	+58.7	143.6	27 59.3	+58.9	144.2	26 21.6	+59.2	144.8
14	38 23.1	+56.4	139.0	36 51.8	+57.0	140.0	35 19.3	+57.4	140.9	33 45.5	+57.9	141.8	32 10.7	+58.3	142.6	30 34.9	+58.6	143.3	28 58.2	+59.0	144.0	27 20.8	+59.1	144.6
15	39 19.5	+56.3	138.6	37 48.8	+56.9	139.6	36 16.7	+57.5	140.6	34 43.4	+57.9	141.5	33 09.0	+58.3	142.3	31 33.5	+58.7	143.1	29 57.2	+58.9	143.8	28 19.9	+59.2	144.4
16	40 15.8	+56.2	138.1	38 45.7	+56.8	139.2	37 14.2	+57.3	140.2	35 41.3	+57.8	141.2	34 07.3	+58.2	142.0	32 32.2	+58.5	142.8	30 56.1	+58.8	143.6	29 19.1	+59.1	144.3
17	41 12.0	+56.1	137.7	39 42.5	+56.8	138.8	38 11.5	+57.3	139.9	36 39.1	+57.8	140.8	35 05.5	+58.2	141.7	33 30.7	+58.6	142.6	31 54.9	+58.9	143.3	30 18.2	+59.2	144.1
18	42 08.1	+56.0	137.2	40 39.3	+56.6	138.4	39 08.8	+57.2	139.5	37 36.9	+57.7	140.5	36 03.7	+58.1	141.4	34 29.3	+58.5	142.3	32 53.8	+58.8	143.1	31 17.4	+59.1	143.9
19	43 04.1	+55.9	136.7	41 35.9	+56.5	137.9	40 06.0	+57.1	139.1	38 34.6	+57.6	140.1	37 01.8	+58.1	141.1	35 27.8	+58.5	142.0	33 52.6	+58.9	142.9	32 16.5	+59.1	143.7
20	44 00.0	+55.7	136.2	42 32.4	+56.4	137.5	41 03.1	+57.1	138.7	39 32.2	+57.6	139.8	37 59.9	+58.1	140.8	36 26.3	+58.4	141.8	34 51.5	+58.7	142.6	33 15.6	+59.0	143.5
21	44 55.7	+55.5	135.7	43 28.8	+56.3	137.0	42 00.2	+56.9	138.3	40 29.8	+57.5	139.4	38 58.0	+58.0	140.5	37 24.7	+58.4	141.5	35 50.2	+58.8	142.4	34 14.6	+59.1	143.2
22	45 51.2	+55.4	135.1	44 25.1	+56.2	136.5	42 57.1	+56.9	137.8	41 27.3	+57.4	139.0	39 55.9	+58.0	140.2	38 23.1	+58.4	141.2	36 49.0	+58.7	142.1	35 13.7	+59.0	143.0
23	46 46.6	+55.3	134.6	45 21.3	+56.1	136.0	43 54.0	+56.7	137.4	42 24.7	+57.4	138.6	40 53.9	+57.8	139.8	39 21.5	+58.3	140.9	37 47.7	+58.7	141.9	36 12.7	+59.0	142.8
24	47 41.9	+55.1	134.0	46 17.4	+55.9	135.5	44 50.7	+56.6	136.9	43 22.1	+57.2	138.2	41 51.7	+57.8	139.5	40 19.8	+58.2	140.6	38 46.4	+58.6	141.6	37 11.7	+58.9	142.6
25	48 37.0	+54.8	133.4	47 13.3	+55.7	135.0	45 47.3	+56.5	136.5	44 19.3	+57.2	137.8	42 49.5	+57.7	139.1	41 18.0	+58.2	140.3	39 45.0	+58.6	141.3	38 10.6	+59.0	142.3
26	49 31.8	+54.7	132.8	48 09.0	+55.6	134.4	46 43.8	+56.4	136.0	45 16.5	+57.1	137.4	43 47.2	+57.7	138.7	42 16.2	+58.2	139.9	40 43.6	+58.6	141.1	39 09.6	+58.9	142.1
27	50 26.5	+54.4	132.2	49 04.6	+55.4	133.9	47 40.2	+56.3	135.5	46 13.6	+56.9	137.0	44 44.9	+57.6	138.3	43 14.4	+58.0	139.6	41 42.2	+58.5	140.8	40 08.5	+58.9	141.9
28	51 20.9	+54.3	131.5	50 00.0	+55.3	133.3	48 36.5	+56.1	135.0	47 10.5	+56.9	136.5	45 42.5	+57.4	137.9	44 12.4	+58.1	139.3	42 40.7	+58.5	140.5	41 07.4	+58.8	141.6
29	52 15.2	+54.3	130.8	50 55.3	+55.0	132.7	49 32.6	+55.9	134.4	48 07.4	+56.7	136.0	46 39.9	+57.4	137.5	45 10.5	+57.9	138.9	43 39.2	+58.4	140.2	42 06.2	+58.8	141.3
30	53 09.1	+54.3	130.1	51 50.3	+54.8	132.0	50 28.5	+55.8	133.9	49 04.1	+56.6	135.5	47 37.3	+57.3	137.1	46 08.4	+57.9	138.5	44 37.6	+58.3	139.8	43 05.0	+58.8	141.1
31	54 02.8	+54.3	129.3	52 45.1	+54.6	131.4	51 24.3	+55.6	133.3	50 00.7	+56.5	135.0	48 34.6	+57.2	136.6	47 06.3	+57.8	138.1	45 35.9	+58.3	139.5	44 03.8	+58.7	140.8
32	54 56.2	+54.1	128.5	53 39.7	+54.3	130.7	52 19.9	+55.4	132.7	50 57.2	+56.3	134.5	49 31.8	+57.1	136.2	48 04.1	+57.7	137.7	46 34.2	+58.3	139.2	45 02.5	+58.7	140.5
33	55 49.3	+52.7	127.7	54 34.0	+54.1	130.0	53 15.3	+55.2	132.0	51 53.5	+56.1	133.9	50 28.9	+56.9	135.7	49 01.8	+57.6	137.3	47 32.5	+58.2	138.8	46 01.2	+58.6	140.2
34	56 42.0	+52.4	126.9	55 28.4	+53.9	129.2	54 10.5	+54.9	131.4	52 49.6	+56.0	133.4	51 25.8	+56.8	135.2	49 59.4	+57.5	136.9	48 30.7	+58.1	138.5	46 59.8	+58.6	139.9
35	57 34.4	+51.9	126.0	56 21.8	+53.5	128.4	55 05.4	+54.7	130.7	53 45.6	+55.7	132.8	52 22.6	+56.7	134.7	50 56.9	+57.4	136.4	49 28.8	+58.0	138.1	47 58.4	+58.5	139.6
36	58 26.3	+51.5	125.0	57 15.3	+53.1	127.6	56 00.1	+54.5	129.9	54 41.3	+55.6	132.1	53 19.3	+56.5	134.1	51 54.3	+57.3	136.0	50 26.8	+57.9	137.7	48 56.9	+58.5	139.2
37	59 17.8	+51.1	124.0	58 08.4	+52.7	126.7	56 54.6	+54.1	129.2	55 36.9	+55.3	131.5	54 15.8	+56.3	133.6	52 51.6	+57.2	135.5	51 24.7	+57.9	137.3	49 55.4	+58.4	138.9
38	60 08.9	+50.5	123.0	59 01.1	+52.3	125.8	57 48.7	+53.8	128.4	56 32.2	+55.1	130.8	55 12.1	+56.2	133.0	53 48.8	+57.0	135.0	52 22.6	+57.7	136.8	50 53.8	+58.3	138.5
39	60 59.4	+50.0	121.9	59 53.4	+51.9	124.8	58 42.5	+53.5	127.5	57 27.3	+54.9	130.0	56 05.8	+55.9	132.3	54 45.8	+56.9	134.5	53 20.3	+57.7	136.4	51 52.1	+58.3	138.2
40	61 49.4	+49.3	120.7	60 45.3	+51.4	123.8	59 36.0	+53.1	126.7	58 22.2	+54.5	129.3	57 04.2	+55.8	131.7	55 42.7	+56.7	133.9	54 18.0	+57.5	135.9	52 50.4	+58.2	137.8
41	62 38.7	+48.7	119.5	61 36.7	+50.8	122.8	60 29.1	+52.7	125.7	59 16.7	+54.3	128.5	58 00.0	+55.5	131.0	56 39.4	+56.6	133.3	55 15.5	+57.4	135.4	53 48.6	+58.1	137.4
42	63 27.4	+47.9	118.2	62 27.5	+50.3	121.6	61 21.8	+52.3	124.7	60 11.0	+53.9	127.6	58 55.5	+55.3	130.3	57 36.0	+56.4	132.7	56 12.9	+57.3	134.9	54 46.7	+58.0	136.9
43	64 15.3	+47.2	116.8	63 17.8	+49.6	120.4	62 14.1	+51.7	123.6	61 04.9	+53.5	126.7	59 50.8	+54.9	129.5	58 32.4	+56.1	132.0	57 10.2	+57.1	134.4	55 44.7	+57.9	136.5
44	65 02.5	+46.2	115.4	64 07.4	+49.0	119.1	63 05.8	+51.2	122.6	61 58.4	+53.1	125.8	60 45.7	+54.7	128.7	59 28.5	+55.9	131.4	58 07.3	+57.0	133.8	56 42.6	+57.7	136.0
45	65 48.7	+45.3	113.9	64 56.4	+48.1	117.8	63 57.0	+50.7	121.4	62 51.5	+52.6	124.8	61 40.4	+54.3	127.8	60 24.4	+55.7	130.6	59 04.3	+56.7	133.2	57 40.3	+57.7	135.5
46	66 34.0	+44.1	112.																					

LATITUDE CONTRARY NAME

L.H.A. 32°, 328°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
25 05.3	-57.4	144.2	23 27.7	-57.8	144.7	21 49.5	-58.2	145.2	20 10.7	-58.4	145.6	18 31.4	-58.7	146.0	16 51.7	-59.0	146.4	15 11.5	-59.1	146.7	13 31.1	-59.3	147.0	0		
24 07.9	-57.4	144.5	22 29.9	-57.8	145.0	20 51.3	-58.1	145.5	19 12.3	-58.5	145.9	17 32.7	-58.7	146.2	15 52.7	-58.9	146.6	14 12.4	-59.1	146.9	12 31.8	-59.4	147.1	1		
23 10.5	-57.5	144.8	21 32.1	-57.8	145.3	19 53.2	-58.1	145.7	18 13.8	-58.4	146.1	16 34.0	-58.7	146.5	14 53.8	-58.9	146.8	13 13.3	-59.2	147.0	11 32.4	-59.3	147.3	2		
22 13.0	-57.5	145.1	20 34.3	-57.9	145.6	18 55.1	-58.2	146.0	17 15.4	-58.5	146.3	15 35.3	-58.7	146.7	13 54.9	-59.0	147.0	12 14.1	-59.1	147.2	10 33.1	-59.3	147.4	3		
21 15.5	-57.5	145.4	19 36.4	-57.8	145.9	17 56.9	-58.2	146.2	16 16.9	-58.5	146.6	14 36.6	-58.7	146.9	12 55.9	-58.9	147.2	11 15.0	-59.2	147.4	9 33.8	-59.4	147.6	4		
20 18.0	-57.6	145.7	18 38.6	-57.9	146.1	16 58.7	-58.2	146.5	15 18.4	-58.4	146.8	13 37.9	-58.8	147.1	11 57.0	-59.0	147.3	10 15.8	-59.2	147.6	8 34.4	-59.3	147.7	5		
19 20.4	-57.6	146.0	17 40.7	-58.0	146.4	16 00.5	-58.2	146.8	14 20.0	-58.5	147.2	12 39.1	-58.7	147.3	10 58.0	-59.0	147.5	9 16.6	-59.1	147.7	7 35.1	-59.4	147.9	6		
18 22.8	-57.6	146.3	16 42.7	-57.9	146.7	15 02.3	-58.3	147.0	13 21.5	-58.6	147.3	11 40.4	-58.8	147.5	9 59.0	-59.0	147.7	8 17.5	-59.2	147.9	6 35.7	-59.3	148.0	7		
17 25.2	-57.7	146.6	15 44.8	-58.0	147.0	14 04.0	-58.2	147.2	12 22.9	-58.5	147.5	10 41.6	-58.8	147.7	9 00.0	-58.9	147.9	7 18.3	-59.2	148.1	5 36.4	-59.3	148.2	8		
16 27.5	-57.6	146.9	14 46.8	-58.0	147.2	13 05.7	-58.2	147.5	11 24.4	-58.5	147.7	9 42.8	-58.7	147.9	8 01.1	-59.0	148.1	6 19.1	-59.2	148.2	4 37.0	-59.3	148.3	9		
15 29.9	-57.7	147.2	13 48.8	-58.0	147.5	12 07.5	-58.3	147.7	10 25.9	-58.6	148.0	8 44.1	-58.8	148.1	7 02.1	-59.0	148.3	5 19.9	-59.2	148.4	3 37.7	-59.4	148.5	10		
14 32.2	-57.8	147.5	12 50.8	-58.0	147.8	11 09.2	-58.3	148.0	9 27.3	-58.5	148.2	7 45.3	-58.8	148.3	6 03.1	-59.0	148.5	4 20.7	-59.1	148.6	2 38.3	-59.3	148.6	11		
13 34.4	-57.7	147.8	11 52.8	-58.0	148.0	10 10.9	-58.3	148.2	8 28.8	-58.6	148.4	6 46.5	-58.8	148.5	5 04.1	-59.0	148.6	3 21.6	-59.2	148.7	1 39.0	-59.4	148.8	12		
12 36.7	-57.8	148.1	10 54.8	-58.1	148.3	9 12.6	-58.3	148.5	7 30.2	-58.6	148.6	5 47.7	-58.8	148.7	4 05.1	-59.0	148.8	2 22.4	-59.2	148.9	0 39.6	-59.3	148.9	13		
11 38.9	-57.7	148.3	9 56.7	-58.1	148.5	8 14.3	-58.4	148.7	6 31.0	-58.5	148.8	4 48.9	-58.8	148.9	3 06.1	-59.0	149.0	1 23.2	-59.2	149.0	0 19.7	+59.4	30.9	14		
10 41.2	-57.8	148.6	8 58.6	-58.0	148.8	7 15.9	-58.3	148.9	5 33.1	-58.6	149.1	3 50.1	-58.8	149.1	2 07.1	-59.0	149.2	0 24.0	-59.2	149.2	1 19.1	+59.3	30.8	15		
9 43.4	-57.8	148.9	8 00.6	-58.1	149.0	6 17.6	-58.3	149.2	4 34.5	-58.6	149.3	2 51.3	-58.8	149.3	1 08.1	-59.0	149.4	0 35.2	+59.2	30.6	2 19.1	+59.4	30.7	16		
8 45.6	-57.8	149.2	7 02.5	-58.1	149.3	5 19.3	-58.4	149.4	3 35.9	-58.6	149.5	1 52.5	-58.8	149.5	0 09.1	-59.0	149.6	1 34.4	+59.2	30.5	3 17.8	+59.4	30.5	17		
7 47.8	-57.8	149.4	6 04.4	-58.1	149.5	4 20.9	-58.3	149.6	2 37.3	-58.6	149.7	0 53.7	-58.8	149.7	0 49.9	+59.0	30.3	2 33.6	+59.2	30.3	4 17.2	+59.3	30.4	18		
6 50.0	-57.9	149.7	5 06.3	-58.1	149.8	3 22.6	-58.4	149.9	1 38.7	-58.5	149.9	0 05.1	+58.8	30.1	1 48.9	+59.1	30.1	3 32.8	+59.1	30.1	5 16.5	+59.4	30.2	19		
5 52.1	-57.8	150.0	4 08.2	-58.1	150.0	2 24.2	-58.4	150.1	0 40.2	-58.6	150.1	1 03.9	+58.8	29.9	2 48.0	+59.0	29.9	4 31.9	+59.2	30.0	6 15.9	+59.3	30.1	20		
4 54.3	-57.8	150.2	3 10.1	-58.1	150.3	1 25.8	-58.3	150.3	0 18.4	+58.6	29.7	2 02.7	+58.8	29.7	3 01.5	+58.8	29.5	5 31.1	+59.2	29.8	7 15.2	+59.3	29.9	21		
3 56.5	-57.9	150.5	2 12.0	-58.1	150.5	0 27.5	-58.4	150.6	1 17.0	+58.6	29.4	3 01.5	+58.8	29.5	4 00.3	+58.8	29.3	6 30.3	+59.2	29.6	8 14.5	+59.4	29.8	22		
2 58.6	-57.8	150.8	1 13.9	-58.1	150.8	0 30.9	+58.3	29.2	2 15.6	+58.6	29.2	4 00.3	+58.8	29.3	5 45.0	+58.9	29.4	7 29.5	+59.2	29.5	9 13.9	+59.3	29.6	23		
2 00.8	-57.9	151.0	0 15.8	-58.1	151.0	1 29.2	+58.4	29.0	3 14.2	+58.6	29.0	4 59.1	+58.8	29.1	6 43.9	+59.0	29.2	8 28.7	+59.1	29.3	10 13.2	+59.4	29.5	24		
1 02.9	-57.8	151.3	0 42.3	+58.2	28.7	2 27.6	+58.3	28.7	4 12.8	+58.6	28.8	5 57.9	+58.8	28.9	7 42.9	+59.0	29.0	9 27.8	+59.2	29.1	11 12.6	+59.3	29.3	25		
0 05.1	-57.9	151.6	1 40.5	+58.1	28.5	3 25.9	+58.4	28.5	5 11.4	+58.5	28.6	6 56.7	+58.8	28.7	8 41.9	+59.0	28.8	10 27.0	+59.2	29.0	12 11.9	+59.3	29.2	26		
0 52.8	+57.9	28.2	2 38.6	+58.1	28.2	4 24.3	+58.3	28.3	6 09.9	+58.6	28.4	7 55.5	+58.8	28.5	9 40.9	+59.0	28.6	11 26.2	+59.1	28.8	13 11.2	+59.3	29.0	27		
1 50.7	+57.8	27.9	3 36.7	+58.1	28.0	5 22.6	+58.4	28.0	7 08.5	+58.6	28.1	8 54.3	+58.7	28.3	10 39.9	+58.9	28.4	12 25.3	+59.2	28.6	14 10.5	+59.3	28.9	28		
2 48.5	+57.9	27.6	4 34.8	+58.1	27.7	6 21.0	+58.3	27.8	8 07.1	+58.5	27.9	9 53.0	+58.8	28.1	11 38.8	+59.0	28.2	13 24.5	+59.1	28.5	15 09.8	+59.3	28.7	29		
3 46.4	+57.8	27.4	5 32.9	+58.1	27.5	7 19.3	+58.3	27.6	9 05.6	+58.6	27.7	10 51.8	+58.8	27.9	12 37.8	+59.0	28.1	14 23.6	+59.1	28.3	16 09.1	+59.3	28.5	30		
4 44.2	+57.8	27.1	6 31.0	+58.1	27.2	8 17.6	+58.4	27.3	10 04.2	+58.5	27.5	11 50.6	+58.7	27.7	13 36.8	+58.9	27.9	15 22.7	+59.2	28.1	17 08.4	+59.3	28.3	31		
5 42.0	+57.9	26.8	7 29.1	+58.0	27.0	9 16.0	+58.3	27.1	11 02.7	+58.6	27.3	12 49.3	+58.8	27.4	14 35.7	+58.9	27.7	16 21.9	+59.1	27.9	18 07.7	+59.3	28.2	32		
6 39.9	+57.8	26.6	8 27.1	+58.1	26.7	10 14.3	+58.3	26.8	12 01.3	+58.5	27.0	13 48.1	+58.7	27.2	15 34.6	+58.9	27.5	17 21.0	+59.1	27.7	19 07.0	+59.3	28.1	33		
7 37.7	+57.8	26.3	9 25.2	+58.1	26.4	11 12.6	+58.3	26.6	12 59.8	+58.5	26.8	14 46.8	+58.7	27.0	16 33.6	+58.9	27.3	18 20.1	+59.1	27.6	20 06.3	+59.3	27.9	34		
8 35.5	+57.8	26.0	10 23.3	+58.0	26.2	12 10.9	+58.2	26.4	13 58.3	+58.5	26.6	15 45.5	+58.7	26.8	17 32.5	+58.9	27.1	19 19.2	+59.1	27.4	21 05.6	+59.2	27.7	35		
9 33.3	+57.8	25.8	11 21.3	+58.0	25.9	13 09.1	+58.3	26.1	14 56.8	+58.5	26.3	16 44.2	+58.7	26.6	18 31.4	+58.9	26.9	20 18.3	+59.0	27.2	22 04.8	+59.3	27.6	36		
10 31.1	+57.8	25.5	12 19.3	+58.0	25.7	14 07.4	+58.2	25.9	15 55.3	+58.4	26.1	17 42.9	+58.7	26.4	19 30.3	+58.8	26.7	21 17.3	+59.1	27.0	23 04.1	+59.2	27.4	37		
11 28.9	+57.7	25.2	13 17.3	+58.0	25.4	15 05.6	+58.3	25.6	16 53.7	+58.5	25.9	18 41.6	+58.6	26.2	20 29.1	+58.9	26.5	22 16.4	+59.0	26.8	24 03.3	+59.2	27.2	38		
12 26.6	+57.8	24.9	14 15.3	+58.0	25.1	16 03.9	+58.2	25.4	17 52.2	+58.4	25.6	19 40.2	+58.7	25.9	21 28.0	+58.8	26.3	23 15.4	+59.1	26.6	25 02.5	+59.2	27.0	39		
13 24.4	+57.7	24.7	15 13.3	+58.0	24.9	17 02.1	+58.2	25.1	18 50.6	+58.4	25.4	20 38.9	+58.6	25.7	22 26.8	+58.9	26.1	24 14.5	+59.0	26.4	26 01.7	+59.2	26.9	40		
14 22.1	+57.7	24.4	16 11.3	+57.9	24.6	18 00.3	+58.1	24.9	19 49.0	+58.4	25.2	21 37.5	+58.6	25.5	23 25.7	+58.8	25.8	25 13.5	+59.0	26.2	27 00.9	+59.2	26.7	41		
15 19.8	+57.7	24.1	17 09.2	+57.9	24.3	18 58.4	+58.2	24.6	20 47.4	+58.4	24.9	22 36.1	+58.6	25.2	24 24.5	+58.8	25.6	26 12.5	+59.0	26.2	28 00.1	+59.2	26.5	42		
16 17.5	+57.6	23.8	18 07.1	+57.9	24.1	19 56.6	+58.1	24.3	21 45.8	+58.3	24.7	23 34.7	+58.5	25.0	25 23.3	+58.7	25.4	27 11.5	+58.9	25.8	28 59.3	+59.1	26.3	43		
17 15.1	+57.6	23.5	19 05.0	+57.9	23.8	20 54.7	+58.1	24.1	22 44.1	+58.4	24.4	24 33.2	+58.6	24.8	26 22.0	+58.8	25.2	28 10.4	+59.0	25.6	29 58.4	+59.1	26.1	44		
18 12.7	+57.7	23.2	20 02.9	+57.9	23.5	21 52.8	+58.1	23.8	23 42.5	+58.3	24.2	25 31.8	+58.5	24.5	27 20.8	+58.7	25.0	29 09.4	+58.9	25.4	30 57.5	+59.2	25.9	45		
19 10.4	+57.5	22.9	21 00.8	+57.8	23.2	22 50.9	+58.0	23.5	24 40.8	+58.2	23.9	26 30.3	+58.5	24.3	28 19.5	+58.7	24.7	30 08.3	+58.9	25.2	31 56.7	+59.1	25.7	46		
20 07.9	+57.6	22.6	21 58.6	+57.8	22.9	23 48.9	+58.1	23.3	25 39.0	+58																

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	11 50.3	+59.5	147.2	10 09.3	+59.6	147.4	8 28.1	+59.7	147.6	6 46.7	+59.8	147.7	5 05.1	+59.9	147.9	3 23.5	+59.9	147.9	1 41.8	+59.9	148.0	0 00.0	+60.0	148.0
1	12 49.8	+59.5	147.1	11 08.9	+59.7	147.3	9 27.8	+59.8	147.5	7 46.5	+59.9	147.7	6 05.0	+60.0	147.8	4 23.4	+60.0	147.9	2 41.7	+60.0	148.0	1 00.0	+60.0	148.0
2	13 49.3	+59.5	146.9	12 08.6	+59.6	147.2	10 27.6	+59.7	147.4	8 46.4	+59.8	147.6	7 05.0	+59.9	147.7	5 23.4	+60.0	147.9	3 41.7	+60.0	147.9	2 00.0	+60.0	148.0
3	14 48.8	+59.4	146.8	13 08.2	+59.6	147.1	11 27.3	+59.7	147.3	9 46.2	+59.8	147.5	8 04.9	+59.9	147.7	6 23.4	+59.9	147.8	4 41.7	+60.0	147.9	3 00.0	+60.0	148.0
4	15 48.2	+59.5	146.7	14 07.8	+59.6	147.0	12 27.0	+59.8	147.2	10 46.0	+59.9	147.4	9 04.8	+59.9	147.6	7 23.3	+60.0	147.8	5 41.7	+60.0	147.9	4 00.0	+60.0	148.0
5	16 47.7	+59.5	146.5	15 07.4	+59.6	146.8	13 26.8	+59.7	147.1	11 45.9	+59.8	147.4	10 04.7	+59.9	147.6	8 23.3	+59.9	147.8	6 41.7	+60.0	147.9	5 00.0	+60.0	148.0
6	17 47.2	+59.4	146.4	16 07.0	+59.6	146.7	14 26.5	+59.7	147.0	12 45.7	+59.8	147.3	11 04.6	+59.9	147.5	9 23.2	+60.0	147.7	7 41.7	+60.0	147.9	6 00.0	+60.0	148.0
7	18 46.6	+59.4	146.3	17 06.6	+59.6	146.6	15 26.2	+59.8	146.9	13 45.5	+59.8	147.2	12 04.5	+59.9	147.5	10 23.2	+60.0	147.7	8 41.7	+60.0	147.9	7 00.0	+60.0	148.0
8	19 46.0	+59.5	146.1	18 06.2	+59.6	146.5	16 26.0	+59.7	146.8	14 45.3	+59.9	147.1	13 04.4	+59.9	147.4	11 23.2	+59.9	147.6	9 41.7	+60.0	147.8	8 00.0	+60.0	148.0
9	20 45.5	+59.4	146.0	19 05.8	+59.6	146.4	17 25.7	+59.7	146.7	15 45.2	+59.8	147.1	14 04.3	+59.9	147.3	12 23.1	+60.0	147.6	10 41.7	+60.0	147.8	9 00.0	+60.0	148.0
10	21 44.9	+59.4	145.8	20 05.4	+59.6	146.2	18 25.4	+59.7	146.6	16 45.0	+59.8	147.0	15 04.2	+59.9	147.3	13 23.1	+59.9	147.6	11 41.7	+59.9	147.8	10 00.0	+60.0	148.0
11	22 44.3	+59.5	145.7	21 05.0	+59.6	146.1	19 25.1	+59.7	146.5	17 44.8	+59.8	146.9	16 04.1	+59.9	147.2	14 23.0	+60.0	147.5	12 41.6	+60.0	147.8	11 00.0	+60.0	148.0
12	23 43.8	+59.4	145.5	22 04.6	+59.5	146.0	20 24.8	+59.7	146.4	18 44.6	+59.8	146.8	17 04.0	+59.9	147.2	15 23.0	+59.9	147.5	13 41.6	+60.0	147.8	12 00.0	+60.0	148.0
13	24 43.2	+59.3	145.4	23 04.1	+59.6	145.9	21 24.5	+59.7	146.3	19 44.4	+59.9	146.7	18 03.9	+59.9	147.1	16 22.9	+60.0	147.4	14 41.6	+60.0	147.7	13 00.0	+60.0	148.0
14	25 42.5	+59.4	145.2	24 03.7	+59.5	145.7	22 24.2	+59.7	146.2	20 44.3	+59.8	146.6	19 03.8	+59.9	147.0	17 22.9	+59.9	147.4	15 41.6	+60.0	147.7	14 00.0	+60.0	148.0
15	26 41.9	+59.4	145.0	25 03.2	+59.6	145.5	23 23.9	+59.7	146.1	21 44.1	+59.8	146.6	20 03.7	+59.9	147.0	18 22.8	+60.0	147.4	16 41.6	+60.0	147.7	15 00.0	+60.0	148.0
16	27 41.3	+59.4	144.9	26 02.8	+59.5	145.6	24 23.6	+59.7	146.0	22 43.9	+59.8	146.5	21 03.6	+59.9	146.9	19 22.8	+60.0	147.3	17 41.6	+60.0	147.7	16 00.0	+60.0	148.0
17	28 40.7	+59.3	144.7	27 02.3	+59.6	145.3	25 23.3	+59.7	145.9	23 43.7	+59.8	146.4	22 03.5	+59.9	146.9	20 22.8	+59.9	147.3	18 41.6	+60.0	147.7	17 00.0	+60.0	148.0
18	29 40.0	+59.4	144.5	28 01.9	+59.5	145.2	26 23.0	+59.7	145.8	24 43.5	+59.8	146.3	23 03.4	+59.9	146.8	21 22.7	+60.0	147.2	19 41.6	+60.0	147.6	18 00.0	+60.0	148.0
19	30 39.4	+59.3	144.4	29 01.4	+59.5	145.0	27 22.7	+59.7	145.6	25 43.3	+59.8	146.2	24 03.3	+59.8	146.7	22 22.7	+59.9	147.2	20 41.6	+59.9	147.6	19 00.0	+60.0	148.0
20	31 38.7	+59.3	144.2	30 00.9	+59.5	144.9	28 22.4	+59.6	145.5	26 43.1	+59.8	146.1	25 03.1	+59.9	146.7	23 22.6	+60.0	147.1	21 41.5	+60.0	147.6	20 00.0	+60.0	148.0
21	32 38.0	+59.3	144.0	31 00.4	+59.5	144.7	29 22.0	+59.7	145.4	27 42.9	+59.8	146.0	26 03.0	+59.9	146.6	24 22.6	+59.9	147.1	22 41.5	+60.0	147.6	21 00.0	+60.0	148.0
22	33 37.3	+59.3	143.8	31 59.9	+59.5	144.6	30 21.7	+59.6	145.3	28 42.7	+59.7	145.9	27 02.9	+59.9	146.5	25 22.5	+60.0	147.1	23 41.5	+60.0	147.6	22 00.0	+60.0	148.0
23	34 36.6	+59.2	143.7	32 59.4	+59.5	144.4	31 21.3	+59.7	145.2	29 42.4	+59.8	145.8	28 02.8	+59.9	146.4	26 22.5	+59.9	147.0	24 41.5	+60.0	147.5	23 00.0	+60.0	148.0
24	35 35.8	+59.3	143.5	33 58.9	+59.4	144.3	32 21.0	+59.6	145.0	30 42.2	+59.8	145.7	29 02.7	+59.9	146.4	27 22.4	+60.0	147.0	25 41.5	+60.0	147.5	24 00.0	+60.0	148.0
25	36 35.1	+59.2	143.3	34 58.3	+59.5	144.1	33 20.6	+59.7	144.9	31 42.0	+59.8	145.6	30 02.6	+59.8	146.3	28 22.4	+59.9	146.9	26 41.5	+60.0	147.5	25 00.0	+60.0	148.0
26	37 34.3	+59.2	143.1	35 57.8	+59.4	144.0	34 20.3	+59.6	144.8	32 41.8	+59.7	145.5	31 02.4	+59.9	146.2	29 22.3	+59.9	146.9	27 41.5	+60.0	147.5	26 00.0	+60.0	148.0
27	38 33.5	+59.2	142.9	36 57.2	+59.4	143.8	35 19.9	+59.6	144.6	33 41.5	+59.8	145.4	32 02.3	+59.9	146.2	30 22.2	+60.0	146.8	28 41.5	+59.9	147.4	27 00.0	+60.0	148.0
28	39 32.7	+59.1	142.6	37 56.6	+59.5	143.6	36 19.5	+59.6	144.5	34 41.3	+59.8	145.3	33 02.2	+59.8	146.1	31 22.2	+59.9	146.8	29 41.4	+60.0	147.4	28 00.0	+60.0	148.0
29	40 31.8	+59.1	142.4	38 56.1	+59.3	143.4	37 19.1	+59.6	144.4	35 41.1	+59.7	145.2	34 02.0	+59.9	146.0	32 22.1	+60.0	146.7	30 41.4	+60.0	147.4	29 00.0	+60.0	148.0
30	41 30.9	+59.1	142.2	39 55.4	+59.4	143.2	38 18.7	+59.6	144.2	36 40.8	+59.8	145.1	35 01.9	+59.9	145.9	33 22.1	+59.9	146.7	31 41.4	+60.0	147.4	30 00.0	+60.0	148.0
31	42 30.0	+59.1	142.0	40 54.8	+59.4	143.1	39 18.3	+59.5	144.1	37 40.6	+59.7	145.0	36 01.8	+59.8	145.8	34 22.0	+60.0	146.6	32 41.4	+60.0	147.3	31 00.0	+60.0	148.0
32	43 29.1	+59.0	141.7	41 54.2	+59.3	142.9	40 17.8	+59.6	143.9	38 40.3	+59.7	144.9	37 01.6	+59.9	145.7	35 22.0	+59.9	146.6	33 41.4	+60.0	147.3	32 00.0	+60.0	148.0
33	44 28.1	+59.0	141.5	42 53.5	+59.3	142.7	41 17.4	+59.5	143.7	39 40.0	+59.7	144.7	38 01.5	+59.8	145.7	36 21.9	+59.9	146.5	34 41.4	+60.0	147.3	33 00.0	+60.0	148.0
34	45 27.1	+59.0	141.2	43 52.8	+59.3	142.4	42 16.9	+59.6	143.6	40 39.7	+59.7	144.6	39 01.3	+59.9	145.6	37 21.8	+60.0	146.4	35 41.4	+59.9	147.3	34 00.0	+60.0	148.0
35	46 26.1	+59.0	141.0	44 52.1	+59.2	142.2	43 16.5	+59.5	143.4	41 39.4	+59.7	144.5	40 01.2	+59.8	145.5	38 21.8	+59.9	146.4	36 41.3	+60.0	147.2	35 00.0	+60.0	148.0
36	47 25.1	+58.9	140.7	45 51.5	+59.3	142.0	44 16.0	+59.5	143.2	42 39.1	+59.7	144.3	41 01.0	+59.8	145.4	39 21.7	+59.9	146.3	37 41.3	+60.0	147.2	36 00.0	+60.0	148.0
37	48 23.9	+58.9	140.4	46 50.6	+59.2	141.8	45 15.5	+59.4	143.0	43 38.8	+59.7	144.2	42 00.8	+59.9	145.3	40 21.6	+60.0	146.3	38 41.3	+60.0	147.2	37 00.0	+60.0	148.0
38	49 22.8	+58.8	140.1	47 49.8	+59.1	141.5	46 14.9	+59.5	142.9	44 38.5	+59.7	144.1	43 00.7	+59.8	145.2	41 21.6	+59.9	146.2	39 41.3	+60.0	147.1	38 00.0	+60.0	148.0
39	50 21.6	+58.7	139.8	48 48.9	+59.2	141.3	47 14.4	+59.4	142.7	45 38.2	+59.7	143.9	44 00.5	+59.8	145.1	42 21.5	+59.9	146.1	40 41.3	+60.0	147.1	39 00.0	+60.0	148.0
40	51 20.3	+58.7	139.5	49 48.1	+59.1	141.0	48 13.8	+59.4	142.5	46 37.9	+59.6	143.8	45 00.3	+59.8	145.0	43 21.4	+59.9	146.1	41 41.3	+59.9	147.1	40 00.0	+60.0	148.0
41	52 19.0	+58.7	139.1	50 47.2	+59.0	140.8	49 13.2	+59.4	142.2	47 37.5	+59.6	143.6	46 00.1	+59.8	144.8	44 21.3	+59.9	146.0	42 41.2	+60.0	147.0	41 00.0	+60.0	148.0
42	53 17.7	+58.5	138.8	51 46.2	+58.9	140.5	50 12.6	+59.4	142.0	48 37.1	+59.6	143.4	46 59.9	+59.8	144.7	45 21.2	+60.0	145.9	43 41.2	+60.0	147.0	42 00.0	+60.0	148.0
43	54 16.2	+58.5	138.4	52 45.3	+58.9	140.2	51 12.0	+59.3	141.8	49 36.7	+59.7	143.3	47 59.7	+59.8	144.6	46 21.2	+59.9	145.8	44 41.2	+60.0	147.0	43 00.0	+60.0	148.0
44	55 14.7	+58.5	138.0	53 44.5	+58.9	139.9	52 11.3	+59.3	141.6	50 36.6	+59.5	143.1	48 59.5	+59.8	144.5	47 21.1	+59.9	145.8	45 41.2	+60.0	146.9	44 00.0	+60.0	148.0
45	56 13.2	+58.3	137.6	54 43.2	+58.8	139.6	53 10.6	+59.3	141.3	51 35.9	+59.6	142.9	49 59.3	+59.8	144.4	48 21.0	+59.9	145.7	46 41.2	+59.9	146.9	45 00.0	+60.0	148.0
46	57 11.5	+58.3	137.2	55 42.0	+58.8	139.2																		

LATITUDE CONTRARY NAME

L.H.A. 32°, 328°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
11 50.3	-59.4	147.2	10 09.3	-59.6	147.4	8 28.1	-59.7	147.6	6 46.7	-59.8	147.7	5 05.1	-59.9	147.9	3 23.5	-60.0	147.9	1 41.8	-60.0	148.0	0 00.0	+60.0	32.0	0
10 50.9	-59.5	147.4	9 09.7	-59.6	147.5	7 28.4	-59.8	147.7	5 46.9	-59.9	147.8	4 05.2	-59.9	147.9	2 23.5	-59.9	148.0	0 41.8	-60.0	148.0	1 00.0	+60.0	32.0	1
9 51.4	-59.5	147.5	8 10.1	-59.7	147.7	6 28.6	-59.7	147.8	4 47.0	-59.8	147.9	3 05.3	-59.9	148.0	1 23.6	-60.0	148.0				2 00.0	+60.0	32.0	2
8 51.9	-59.5	147.6	7 10.4	-59.6	147.8	5 28.9	-59.8	147.9	3 47.2	-59.9	148.0	2 05.4	-59.9	148.0	0 23.6	-60.0	148.0				3 00.0	+60.0	32.0	3
7 52.4	-59.5	147.7	6 10.8	-59.6	147.9	4 29.1	-59.7	148.0	2 47.3	-59.8	148.0	1 05.5	-59.9	148.1	0 36.4	+59.9	31.9				4 00.0	+60.0	32.0	4
6 52.9	-59.5	147.9	5 11.2	-59.6	148.0	3 29.4	-59.8	148.1	1 47.5	-59.8	148.1	0 05.6	-59.9	148.1	3 36.3	+60.0	31.9				5 00.0	+60.0	32.0	5
5 53.4	-59.5	148.0	4 11.6	-59.7	148.1	2 29.6	-59.7	148.2	0 47.7	-59.9	148.2	0 54.3	+59.9	31.8	2 36.3	+59.9	31.8				6 00.0	+60.0	32.0	6
4 53.9	-59.5	148.1	3 11.9	-59.6	148.2	1 29.9	-59.8	148.3	0 12.2	+59.8	31.7	1 54.2	+59.9	31.8	3 36.2	+60.0	31.8				7 00.0	+60.0	32.0	7
3 54.4	-59.5	148.3	2 12.3	-59.6	148.3	0 30.1	-59.7	148.3	1 12.0	+59.8	31.7	2 54.1	+59.9	31.7	4 36.2	+59.9	31.8				8 00.0	+60.0	32.0	8
2 54.9	-59.5	148.4	1 12.7	-59.7	148.4	0 29.6	+59.7	31.6	2 11.8	+59.9	31.6	3 54.0	+59.9	31.6	5 36.1	+60.0	31.7				9 00.0	+60.0	32.0	9
1 55.4	-59.5	148.5	0 13.0	-59.6	148.5	1 29.3	+59.8	31.5	3 11.7	+59.8	31.5	4 53.9	+59.9	31.6	6 36.1	+60.0	31.7				10 00.0	+60.0	32.0	10
0 55.9	-59.5	148.7	0 46.6	+59.7	31.3	2 29.1	+59.7	31.4	4 11.5	+59.8	31.4	5 53.8	+60.0	31.5	7 36.1	+59.9	31.7				11 00.0	+60.0	32.0	11
0 03.6	+59.5	31.2	1 46.3	+59.6	31.2	3 28.8	+59.8	31.3	5 11.3	+59.9	31.4	6 53.8	+59.9	31.5	8 36.0	+60.0	31.6				12 00.0	+60.0	32.0	12
1 03.1	+59.5	31.1	2 45.9	+59.6	31.1	4 28.6	+59.7	31.2	6 11.2	+59.8	31.3	7 52.7	+59.9	31.4	9 35.5	+59.9	31.6				13 00.0	+60.0	32.0	13
2 02.6	+59.5	31.0	3 45.5	+59.7	31.0	5 28.3	+59.8	31.1	7 11.0	+59.8	31.2	8 53.6	+59.9	31.4	10 35.9	+60.0	31.5				14 00.0	+60.0	32.0	14
3 02.1	+59.6	30.8	4 45.2	+59.6	30.9	6 28.1	+59.7	31.0	8 10.8	+59.9	31.1	9 53.5	+59.9	31.3	11 35.9	+60.0	31.5				15 00.0	+60.0	32.0	15
4 01.7	+59.5	30.7	5 44.8	+59.6	30.8	7 27.8	+59.7	30.9	9 10.7	+59.8	31.1	10 53.4	+59.9	31.2	12 35.9	+59.9	31.5				16 00.0	+60.0	32.0	16
5 01.2	+59.5	30.6	6 44.4	+59.6	30.7	8 27.5	+59.8	30.8	10 10.5	+59.8	31.0	11 53.3	+59.9	31.2	13 35.8	+60.0	31.4				17 00.0	+60.0	32.0	17
6 00.7	+59.5	30.4	7 44.0	+59.7	30.6	9 27.3	+59.7	30.7	11 10.3	+59.9	30.9	12 52.7	+59.9	31.1	14 35.8	+59.9	31.4				18 00.0	+60.0	32.0	18
7 00.2	+59.4	30.3	8 43.7	+59.6	30.5	10 27.0	+59.8	30.6	12 10.2	+59.8	30.8	13 53.1	+59.9	31.1	15 35.7	+60.0	31.3				19 00.0	+60.0	32.0	19
7 59.6	+59.5	30.2	9 43.3	+59.6	30.3	11 26.8	+59.7	30.5	13 10.0	+59.8	30.8	14 53.0	+59.9	31.0	16 35.7	+59.9	31.3				20 00.0	+60.0	32.0	20
8 59.1	+59.5	30.1	10 42.9	+59.6	30.2	12 26.5	+59.7	30.4	14 09.8	+59.9	30.7	15 52.9	+59.9	31.0	17 35.6	+60.0	31.3				21 00.0	+60.0	32.0	21
9 58.6	+59.5	29.9	11 42.5	+59.7	30.1	13 26.2	+59.8	30.3	15 09.7	+59.8	30.6	16 52.8	+59.9	30.9	18 35.6	+59.9	31.2				22 00.0	+60.0	32.0	22
10 58.1	+59.5	29.8	12 42.2	+59.6	30.0	14 26.0	+59.7	30.2	16 09.5	+59.8	30.5	17 52.7	+59.9	30.8	19 35.5	+60.0	31.2				23 00.0	+60.0	32.0	23
11 57.6	+59.5	29.7	13 41.8	+59.6	29.9	15 25.7	+59.7	30.1	17 09.3	+59.8	30.4	18 52.6	+59.9	30.8	20 35.5	+59.9	31.1				24 00.0	+60.0	32.0	24
12 57.1	+59.5	29.5	14 41.4	+59.6	29.8	16 25.4	+59.7	30.0	18 09.1	+59.8	30.3	19 52.5	+59.9	30.7	21 35.4	+60.0	31.1				25 00.0	+60.0	32.0	25
13 56.6	+59.4	29.4	15 41.0	+59.6	29.7	17 25.1	+59.7	29.9	19 08.9	+59.9	30.4	20 52.4	+59.9	30.6	22 35.4	+59.9	31.1				26 00.0	+60.0	32.0	26
14 56.0	+59.5	29.3	16 40.6	+59.6	29.5	18 24.8	+59.8	29.8	20 08.8	+59.8	30.2	21 52.3	+59.9	30.6	23 35.3	+60.0	31.0				27 00.0	+60.0	32.0	27
15 55.5	+59.5	29.1	17 40.2	+59.6	29.4	19 24.6	+59.7	29.7	21 08.6	+59.8	30.1	22 52.2	+59.9	30.5	24 35.3	+59.9	31.0				28 00.0	+60.0	32.0	28
16 55.0	+59.4	29.0	18 39.8	+59.6	29.3	20 24.3	+59.7	29.6	22 08.4	+59.8	30.0	23 52.1	+59.8	30.5	25 35.2	+60.0	30.9				29 00.0	+60.0	32.0	29
17 54.4	+59.5	28.8	19 39.4	+59.6	29.2	21 24.0	+59.7	29.5	23 08.2	+59.8	29.9	24 51.9	+59.9	30.4	26 35.2	+59.9	30.8				30 00.0	+60.0	32.0	30
18 53.9	+59.4	28.7	20 39.0	+59.5	29.0	22 23.7	+59.7	29.4	24 08.0	+59.8	29.9	25 51.8	+59.9	30.3	27 35.1	+60.0	30.9				31 00.0	+60.0	32.0	31
19 53.3	+59.4	28.5	21 38.5	+59.6	28.9	23 23.4	+59.7	29.3	25 07.8	+59.8	29.8	26 51.7	+59.9	30.2	28 35.1	+59.9	30.8				32 00.0	+60.0	32.0	32
20 52.7	+59.5	28.4	22 38.1	+59.6	28.8	24 23.1	+59.7	29.2	26 07.6	+59.8	29.7	27 51.6	+59.9	30.2	29 35.0	+60.0	30.7				33 00.0	+60.0	32.0	33
21 52.2	+59.4	28.3	23 37.7	+59.5	28.7	25 22.8	+59.7	29.1	27 07.4	+59.8	29.6	28 51.5	+59.9	30.1	30 35.0	+59.9	30.7				34 00.0	+60.0	32.0	34
22 51.6	+59.4	28.1	24 37.2	+59.6	28.5	26 22.5	+59.6	29.0	28 07.2	+59.8	29.5	29 51.4	+59.8	30.0	31 34.9	+60.0	30.6				35 00.0	+60.0	32.0	35
23 51.0	+59.4	28.0	25 36.8	+59.5	28.4	27 22.1	+59.7	28.9	29 07.0	+59.7	29.4	30 51.2	+59.9	30.0	32 34.8	+59.9	30.6				36 00.0	+60.0	32.0	36
24 50.4	+59.4	27.8	26 36.3	+59.6	28.3	28 21.8	+59.7	28.7	30 06.7	+59.8	29.3	31 51.1	+59.9	29.9	33 34.8	+60.0	30.5				37 00.0	+60.0	32.0	37
25 49.8	+59.4	27.6	27 35.9	+59.5	28.1	29 21.5	+59.6	28.6	31 06.5	+59.8	29.2	32 51.0	+59.8	29.8	34 34.8	+59.9	30.5				38 00.0	+60.0	32.0	38
26 49.2	+59.4	27.5	28 35.4	+59.5	28.0	30 21.1	+59.7	28.5	32 06.3	+59.8	29.1	33 50.8	+59.9	29.7	35 34.7	+59.9	30.4				39 00.0	+60.0	32.0	39
27 48.6	+59.3	27.3	29 34.9	+59.5	27.8	31 20.8	+59.6	28.4	33 06.1	+59.7	29.0	34 50.7	+59.9	29.6	36 34.6	+60.0	30.4				40 00.0	+60.0	32.0	40
28 47.9	+59.4	27.2	30 34.4	+59.5	27.7	32 20.4	+59.7	28.3	34 05.8	+59.8	28.9	35 50.6	+59.8	29.6	37 34.6	+59.9	30.3				41 00.0	+60.0	32.0	41
29 47.3	+59.3	27.0	31 33.9	+59.5	27.5	33 20.1	+59.6	28.1	35 05.6	+59.7	28.8	36 50.4	+59.9	29.5	38 34.5	+59.9	30.2				42 00.0	+60.0	32.0	42
30 46.6	+59.3	26.8	32 33.4	+59.5	27.4	34 19.7	+59.6	28.0	36 05.3	+59.8	28.7	37 50.3	+59.8	29.4	39 34.4	+60.0	30.2				43 00.0	+60.0	32.0	43
31 45.9	+59.3	26.6	33 32.9	+59.5	27.2	35 19.3	+59.6	27.9	37 05.1	+59.7	28.5	38 50.1	+59.9	29.3	40 34.4	+59.9	30.1				44 00.0	+60.0	32.0	44
32 45.2	+59.3	26.5	34 32.4	+59.4	27.1	36 18.9	+59.6	27.7	38 04.8	+59.8	28.4	39 50.0	+59.8	29.2	41 34.3	+59.9	30.0				45 00.0	+60.0	32.0	45
33 44.5	+59.3	26.3	35 31.8	+59.5	26.9	37 18.5	+59.6	27.6	39 04.6	+59.7	28.3	40 49.8	+59.9	29.1	42 34.2	+59.9	30.1				46 00.0	+60.0	32.0	46
34 43.8	+59.3	26.1	36 31.3	+59.4	26.7	38 18.1	+59.6	27.4	40 04.3	+59.7	28.2	41 49.7	+59.8	29.0	43 34.1	+60.0	29.9				47 00.0	+60.0	32.0	47
35 43.1	+59.2	25.9	37 30.7	+59.4	26.6	39 17.7	+59.6	27.3	41 04.0	+59.7	28.1	42 49.5	+59.8	28.9	44 34.1	+59.9	29.8				48 00.0	+60.0	32.0	48
36 42.3	+59.2	25.7	38 30.1	+59.4	26.4	40 17.3	+59.5	27.1	42 03.7	+59.7	27.9	43 49.3	+59.8	28.8	45 34.0	+59.9	29.8				49 00.0	+60.0	32.0	49
37 41.5	+59.2	25.5	39 29.5	+59.4	26.2	41 16.8	+59.6	27.0	43 03.4	+59.7	27.8	44 49.1	+59.8	28.7	46 33.9	+59.9	29.7				50 00.0	+60.0	32.0	50
38 40.7	+59.2	25.3	40 28.9	+59.3	26.0	42 16.4	+59.5	26.																

Table with columns for Dec. (0-90) and Latitude (60-74). Each cell contains three values: Hc, d, Z. The table is a grid of 90 rows and 10 columns of data.

LATITUDE CONTRARY NAME

L.H.A. 34°, 326°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.								
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z					
24	29.3	-57.1	142.1	22	54.3	-57.5	142.6	21	18.6	-57.9	143.1	19	42.4	-58.3	143.6	18	05.6	-58.5	144.0	16	28.3	-58.8	144.3	14	50.6	-59.0	144.7	13	12.6	-59.3	144.9	0
23	32.2	-57.1	142.4	21	56.8	-57.6	142.9	20	20.7	-57.9	143.4	18	44.1	-58.2	143.8	17	07.1	-58.6	144.2	15	29.5	-58.8	144.5	13	51.6	-59.0	144.8	12	13.3	-59.2	145.1	1
22	35.1	-57.2	142.8	20	59.2	-57.6	143.2	19	22.8	-57.9	143.7	17	45.9	-58.3	144.1	16	08.5	-58.6	144.4	14	30.7	-58.8	144.7	12	52.6	-59.1	145.0	11	14.1	-59.3	145.3	2
21	37.9	-57.3	143.1	20	01.6	-57.6	143.5	18	24.9	-58.0	143.9	16	47.6	-58.3	144.3	15	09.9	-58.5	144.6	13	31.9	-58.8	144.9	11	53.5	-59.1	145.2	10	14.8	-59.2	145.4	3
20	40.6	-57.3	143.4	19	04.0	-57.6	143.8	17	26.9	-58.0	144.2	15	49.3	-58.3	144.6	14	11.4	-58.6	144.9	12	33.1	-58.9	145.1	10	54.4	-59.0	145.4	9	15.6	-59.3	145.6	4
19	43.3	-57.3	143.7	18	06.4	-57.7	144.1	16	28.9	-58.0	144.5	14	51.0	-58.3	144.8	13	12.8	-58.6	145.1	11	34.2	-58.8	145.3	9	55.4	-59.1	145.6	8	16.3	-59.3	145.7	5
18	46.0	-57.3	144.0	17	08.7	-57.7	144.4	15	30.9	-58.1	144.6	13	52.7	-58.3	145.1	12	14.2	-58.6	145.3	10	35.4	-58.9	145.5	8	56.3	-59.1	145.7	7	17.0	-59.2	145.9	6
17	48.7	-57.4	144.3	16	11.0	-57.8	144.7	14	32.8	-58.0	145.0	12	54.4	-58.4	145.3	11	15.6	-58.7	145.5	9	36.5	-58.9	145.7	7	57.2	-59.1	145.9	6	17.8	-59.3	146.1	7
16	51.3	-57.4	144.6	15	13.2	-57.7	145.0	13	34.8	-58.1	145.3	11	56.0	-58.3	145.5	10	16.9	-58.6	145.8	8	37.6	-58.8	145.9	6	58.1	-59.0	146.1	5	18.5	-59.3	146.2	8
15	53.9	-57.4	145.0	14	15.5	-57.8	145.3	12	36.7	-58.1	145.5	10	57.7	-58.4	145.8	9	18.3	-58.6	146.0	7	38.8	-58.9	146.1	5	59.1	-59.1	146.3	4	19.2	-59.3	146.4	9
14	56.5	-57.4	145.3	13	17.7	-57.8	145.5	11	38.6	-58.1	145.8	9	59.3	-58.4	146.0	8	19.7	-58.7	146.2	6	39.9	-58.9	146.3	4	00.0	-59.1	146.4	3	19.9	-59.3	146.5	10
13	59.1	-57.5	145.6	12	19.9	-57.8	145.8	10	40.5	-58.1	146.0	7	00.9	-58.4	146.2	5	21.0	-58.6	146.4	4	41.0	-58.9	146.5	2	00.9	-59.1	146.6	1	20.6	-59.2	146.7	11
12	01.6	-57.5	145.8	11	22.1	-57.8	146.1	9	42.4	-58.1	146.3	8	02.5	-58.4	146.5	6	22.4	-58.7	146.6	4	42.1	-58.8	146.7	3	01.8	-59.1	146.8	2	21.4	-59.3	146.8	12
11	04.1	-57.5	146.1	10	24.3	-57.8	146.4	8	44.3	-58.1	146.5	7	04.1	-58.4	146.7	5	23.7	-58.6	146.8	3	43.3	-58.9	146.9	2	02.7	-59.1	147.0	1	22.1	-59.3	147.0	13
10	06.6	-57.5	146.4	9	26.5	-57.9	146.6	7	46.2	-58.2	146.8	6	05.7	-58.4	146.9	4	25.1	-58.7	147.0	2	44.4	-58.9	147.1	1	03.6	-59.1	147.1	0	37.2	+59.3	32.9	14
9	09.1	-57.5	146.7	8	28.7	-57.9	146.9	6	48.0	-58.1	147.0	5	07.3	-58.4	147.2	3	26.4	-58.6	147.2	1	45.5	-58.9	147.3	0	04.5	-59.1	147.3	0	36.5	+59.3	32.7	15
8	11.6	-57.6	147.0	7	30.8	-57.9	147.2	5	49.9	-58.2	147.3	4	08.9	-58.5	147.4	2	27.8	-58.7	147.5	0	46.6	-58.9	147.5	0	04.6	+59.1	32.5	0	35.8	+59.3	32.6	16
7	14.0	-57.6	147.3	6	32.9	-57.8	147.4	4	51.7	-58.1	147.5	3	10.4	-58.4	147.6	1	29.1	-58.7	147.7	0	12.3	+58.9	32.3	0	12.3	+58.9	32.3	0	35.1	+59.2	32.4	17
6	16.4	-57.5	147.6	5	35.1	-57.9	147.7	3	53.6	-58.2	147.8	2	12.0	-58.4	147.8	0	30.4	-58.7	147.9	0	11.2	+58.9	32.1	0	11.2	+58.9	32.1	0	34.3	+59.3	32.2	18
5	18.9	-57.6	147.9	4	37.2	-57.9	148.0	2	55.4	-58.1	148.0	1	13.6	-58.4	148.1	0	28.3	+58.6	31.9	0	28.3	+58.6	31.9	0	28.3	+58.6	31.9	0	33.6	+59.3	32.1	19
4	21.3	-57.6	148.1	3	39.3	-57.9	148.2	1	57.3	-58.2	148.3	0	15.2	-58.5	148.3	0	26.9	+58.7	31.7	0	26.9	+58.7	31.7	0	26.9	+58.7	31.7	0	32.9	+59.3	31.9	20
3	23.8	-57.6	148.4	2	41.4	-57.9	148.5	0	59.1	-58.2	148.5	0	00.9	-58.1	148.8	0	25.6	+58.7	31.5	0	25.6	+58.7	31.5	0	25.6	+58.7	31.5	0	32.2	+59.3	31.8	21
2	26.2	-57.6	148.7	1	43.5	-57.9	148.8	0	00.9	-58.1	148.8	0	00.9	-58.1	148.8	0	24.3	+58.6	31.3	0	24.3	+58.6	31.3	0	24.3	+58.6	31.3	0	31.4	+59.3	31.6	22
1	28.5	-57.6	149.0	0	45.6	-57.9	149.0	0	57.2	+58.2	31.0	2	40.1	+58.4	31.0	0	22.9	+58.7	31.1	0	22.9	+58.7	31.1	0	22.9	+58.7	31.1	0	30.7	+59.3	31.5	23
0	30.9	-57.6	149.3	0	47.7	-57.9	149.3	0	59.1	+58.2	30.7	1	55.4	+58.2	30.7	0	21.6	+58.6	30.9	0	21.6	+58.6	30.9	0	21.6	+58.6	30.9	0	30.0	+59.2	31.3	24
0	33.3	-57.6	149.5	0	49.8	-57.9	149.5	0	57.2	+58.2	31.0	2	53.6	+58.1	30.5	4	36.9	+58.5	30.6	0	20.2	+58.7	30.7	0	20.2	+58.7	30.7	0	29.3	+59.2	31.1	25
0	35.7	-57.6	149.8	0	51.9	-57.9	149.8	0	57.2	+58.2	31.0	3	51.7	+58.2	30.2	5	35.4	+58.4	30.3	0	18.9	+58.6	30.4	0	18.9	+58.6	30.4	0	28.5	+59.2	31.0	26
0	38.1	-57.6	150.1	0	54.0	-57.9	150.1	0	57.2	+58.2	31.0	4	49.9	+58.2	30.0	6	33.8	+58.4	30.1	0	17.5	+58.6	30.2	0	17.5	+58.6	30.2	0	27.7	+59.2	30.8	27
0	40.5	-57.6	150.4	0	56.1	-57.9	150.4	0	57.2	+58.2	31.0	5	48.1	+58.1	29.8	7	32.2	+58.4	29.9	0	16.2	+58.6	30.0	0	16.2	+58.6	30.0	0	26.9	+59.2	30.7	28
0	42.9	-57.6	150.7	0	58.2	-57.9	150.7	0	57.2	+58.2	31.0	6	46.2	+58.1	29.5	8	30.6	+58.4	29.6	0	14.8	+58.6	29.8	0	14.8	+58.6	29.8	0	26.6	+59.2	30.5	29
0	45.3	-57.6	151.0	0	60.3	-57.9	151.0	0	57.2	+58.2	31.0	7	44.3	+58.2	29.3	9	29.0	+58.3	29.4	0	13.4	+58.6	29.6	0	13.4	+58.6	29.6	0	26.4	+59.2	30.3	30
0	47.7	-57.6	151.3	0	62.4	-57.9	151.3	0	57.2	+58.2	31.0	8	42.5	+58.1	29.0	10	27.3	+58.4	29.2	0	12.0	+58.6	29.4	0	12.0	+58.6	29.4	0	26.2	+59.2	30.2	31
0	50.1	-57.6	151.6	0	64.5	-57.9	151.6	0	57.2	+58.2	31.0	9	40.6	+58.1	28.8	11	25.7	+58.4	28.9	0	10.6	+58.6	29.1	0	10.6	+58.6	29.1	0	26.0	+59.2	30.0	32
0	52.5	-57.6	151.9	0	66.6	-57.9	151.9	0	57.2	+58.2	31.0	10	38.7	+58.1	28.5	12	24.1	+58.3	28.7	0	9.2	+58.6	28.9	0	9.2	+58.6	28.9	0	25.8	+59.2	29.8	33
0	54.9	-57.6	152.2	0	68.7	-57.9	152.2	0	57.2	+58.2	31.0	11	36.8	+58.1	28.2	13	22.4	+58.3	28.5	0	7.8	+58.6	28.7	0	7.8	+58.6	28.7	0	25.6	+59.2	29.6	34
0	57.3	-57.6	152.5	0	70.8	-57.9	152.5	0	57.2	+58.2	31.0	12	34.9	+58.1	28.0	14	20.7	+58.4	28.2	0	6.4	+58.5	28.5	0	6.4	+58.5	28.5	0	25.4	+59.2	29.5	35
0	59.7	-57.6	152.8	0	72.9	-57.9	152.8	0	57.2	+58.2	31.0	13	33.0	+58.0	27.7	15	19.1	+58.3	28.0	0	5.0	+58.5	28.2	0	5.0	+58.5	28.2	0	25.2	+59.2	29.3	36
0	62.1	-57.6	153.1	0	75.0	-57.9	153.1	0	57.2	+58.2	31.0	14	31.1	+58.0	27.5	16	17.4	+58.2	27.7	0	3.6	+58.4	28.0	0	3.6	+58.4	28.0	0	25.0	+59.2	29.1	37
0	64.5	-57.6	153.4	0	77.1	-57.9	153.4	0	57.2	+58.2	31.0	15	29.2	+58.1	27.2	17	15.6	+58.3	27.5	0	2.2	+58.4	27.8	0	2.2	+58.4	27.8	0	24.8	+59.2	28.9	38
0	66.9	-57.6	153.7	0	79.2	-57.9	153.7	0	57.2	+58.2	31.0	16	27.1	+58.0	26.9	18	13.9	+58.2	27.2	0	0.8	+58.5	27.5	0	0.8	+58.5	27.5	0	24.6	+59.2	28.7	39
0	69.3	-57.6	154.0	0	81.3	-57.9	154.0	0	57.2	+58.2	31.0	17	25.1	+57.9	26.7	19	12.1	+58.3	27.0	0	0.4	+58.5	27.3	0	0.4	+58.5	27.3	0	24.4	+59.2	28.5	40
0	71.7	-57.6	154.3	0	83.4	-57.9	154.3	0	57.2	+58.2	31.0	18	23.0	+58.0	26.4	20	10.4	+58.2	26.7	0	0.0	+58.4	27.1	0	0.0	+58.4	27.1	0	24.2	+59.2	28.3	41
0	74.1	-57.6	154.6	0	85.5	-57.9	154.6	0	57.2																							

34°, 326° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	11 34.2	+59.4	145.2	9 55.5	+59.6	145.4	8 16.6	+59.7	145.6	6 37.5	+59.8	145.7	4 58.3	+59.9	145.9	3 18.9	+60.0	145.9	1 39.5	+60.0	146.0	0 00.0	+60.0	146.0
1	12 33.6	+59.4	145.1	10 55.1	+59.6	145.3	9 16.3	+59.7	145.5	7 37.3	+59.8	145.7	5 58.2	+59.9	145.8	4 18.9	+59.9	145.9	2 39.5	+60.0	146.0	1 00.0	+60.0	146.0
2	13 33.0	+59.4	144.9	11 54.7	+59.6	145.2	10 16.0	+59.8	145.4	8 37.2	+59.8	145.6	6 58.1	+59.9	145.7	5 18.8	+60.0	145.9	3 39.5	+59.9	145.9	2 00.0	+60.0	146.0
3	14 32.4	+59.5	144.8	12 54.3	+59.5	145.0	11 15.8	+59.7	145.3	9 37.0	+59.8	145.5	7 58.0	+59.9	145.7	6 18.7	+59.9	145.8	4 39.4	+60.0	145.9	3 00.0	+60.0	146.0
4	15 31.9	+59.4	144.6	13 53.8	+59.6	144.9	12 15.5	+59.7	145.2	10 36.8	+59.8	145.4	8 57.9	+59.9	145.6	7 18.7	+60.0	145.8	5 39.4	+60.0	145.9	4 00.0	+60.0	146.0
5	16 31.3	+59.4	144.5	14 53.4	+59.6	144.8	13 15.2	+59.7	145.1	11 36.6	+59.8	145.3	9 57.8	+59.9	145.6	8 18.7	+59.9	145.7	6 39.4	+60.0	145.9	5 00.0	+60.0	146.0
6	17 30.7	+59.3	144.3	15 53.0	+59.5	144.7	14 14.9	+59.7	145.0	12 36.4	+59.8	145.3	10 57.7	+59.8	145.5	9 18.6	+60.0	145.7	7 39.4	+60.0	145.9	6 00.0	+60.0	146.0
7	18 30.0	+59.4	144.2	16 52.5	+59.6	144.5	15 14.6	+59.6	144.9	13 36.2	+59.8	145.2	11 57.5	+59.9	145.4	10 18.6	+59.9	145.7	8 39.4	+60.0	145.8	7 00.0	+60.0	146.0
8	19 29.4	+59.4	144.0	17 52.1	+59.5	144.4	16 14.2	+59.7	144.8	14 36.0	+59.8	145.1	12 57.4	+59.9	145.4	11 18.5	+60.0	145.6	9 39.4	+60.0	145.8	8 00.0	+60.0	146.0
9	20 28.8	+59.4	143.9	18 51.6	+59.6	144.3	17 13.9	+59.7	144.7	15 35.8	+59.8	145.0	13 57.3	+59.9	145.3	12 18.5	+60.0	145.6	10 39.4	+60.0	145.8	9 00.0	+60.0	146.0
10	21 28.2	+59.3	143.7	19 51.2	+59.5	144.2	18 13.6	+59.7	144.6	16 35.6	+59.8	144.9	14 57.2	+59.9	145.2	13 18.5	+59.9	145.5	11 39.4	+60.0	145.8	10 00.0	+60.0	146.0
11	22 27.5	+59.4	143.6	20 50.7	+59.5	144.0	19 13.3	+59.7	144.5	17 35.4	+59.8	144.8	15 57.1	+59.9	145.2	14 18.4	+60.0	145.5	12 39.4	+59.9	145.8	11 00.0	+60.0	146.0
12	23 26.9	+59.3	143.4	21 50.2	+59.5	143.9	20 13.0	+59.7	144.3	18 35.2	+59.8	144.8	16 57.0	+59.9	145.1	15 18.4	+59.9	145.5	13 39.3	+60.0	145.7	12 00.0	+60.0	146.0
13	24 26.2	+59.3	143.2	22 49.7	+59.6	143.8	21 12.7	+59.6	144.2	19 35.0	+59.8	144.7	17 56.9	+59.9	145.1	16 18.3	+60.0	145.4	14 39.3	+60.0	145.7	13 00.0	+60.0	146.0
14	25 25.5	+59.4	143.1	23 49.3	+59.5	143.6	22 12.3	+59.7	144.1	20 34.8	+59.8	144.6	18 56.8	+59.9	145.0	17 18.3	+60.0	145.4	15 39.3	+60.0	145.7	14 00.0	+60.0	146.0
15	26 24.9	+59.3	142.9	24 48.8	+59.5	143.5	23 12.0	+59.7	144.0	21 34.6	+59.8	144.5	19 56.7	+59.8	144.9	18 18.2	+60.0	145.3	16 39.3	+60.0	145.7	15 00.0	+60.0	146.0
16	27 24.2	+59.3	142.7	25 48.3	+59.5	143.3	24 11.7	+59.6	143.9	22 34.4	+59.8	144.4	20 56.5	+59.9	144.9	19 18.2	+59.9	145.3	17 39.3	+60.0	145.7	16 00.0	+60.0	146.0
17	28 23.5	+59.2	142.6	26 47.8	+59.5	143.2	25 11.3	+59.7	143.8	23 34.2	+59.8	144.3	21 56.4	+59.9	144.8	20 18.1	+59.9	145.2	18 39.3	+60.0	145.6	17 00.0	+60.0	146.0
18	29 22.7	+59.3	142.4	27 47.3	+59.4	143.0	26 11.0	+59.6	143.7	24 34.0	+59.7	144.2	22 56.3	+59.9	144.7	21 18.0	+60.0	145.2	19 39.3	+60.0	145.6	18 00.0	+60.0	146.0
19	30 22.0	+59.3	142.2	28 46.7	+59.5	142.9	27 10.6	+59.7	143.5	25 33.7	+59.8	144.1	23 56.2	+59.9	144.7	22 18.0	+59.9	145.1	20 39.3	+59.9	145.6	19 00.0	+60.0	146.0
20	31 21.3	+59.2	142.0	29 46.2	+59.4	142.7	28 10.3	+59.6	143.4	26 33.5	+59.8	144.0	24 56.1	+59.8	144.6	23 17.9	+60.0	145.1	21 39.2	+60.0	145.6	20 00.0	+60.0	146.0
21	32 20.5	+59.2	141.8	30 45.6	+59.5	142.6	29 09.9	+59.6	143.3	27 33.3	+59.8	143.9	25 55.9	+59.9	144.5	24 17.9	+59.9	145.1	22 39.2	+60.0	145.5	21 00.0	+60.0	146.0
22	33 19.7	+59.2	141.6	31 45.1	+59.4	142.4	30 09.5	+59.6	143.2	28 33.1	+59.7	143.8	26 55.8	+59.9	144.4	25 17.8	+60.0	145.0	23 39.2	+60.0	145.5	22 00.0	+60.0	146.0
23	34 18.9	+59.2	141.4	32 44.5	+59.4	142.3	31 09.1	+59.6	143.0	29 32.8	+59.8	143.7	27 55.7	+59.8	144.4	26 17.8	+59.9	145.0	24 39.2	+60.0	145.5	23 00.0	+60.0	146.0
24	35 18.1	+59.1	141.2	33 43.9	+59.4	142.1	32 08.7	+59.6	142.9	30 32.6	+59.7	143.6	28 55.5	+59.9	144.3	27 17.7	+60.0	144.9	25 39.2	+60.0	145.5	24 00.0	+60.0	146.0
25	36 17.2	+59.2	141.0	34 43.3	+59.4	141.9	33 08.3	+59.6	142.8	31 32.3	+59.8	143.5	29 55.4	+59.9	144.2	28 17.7	+59.9	144.9	26 39.2	+60.0	145.5	25 00.0	+60.0	146.0
26	37 16.4	+59.1	140.8	35 42.7	+59.4	141.8	34 07.9	+59.6	142.6	32 32.1	+59.7	143.4	30 55.3	+59.8	144.1	29 17.6	+59.9	144.8	27 39.2	+59.9	145.4	26 00.0	+60.0	146.0
27	38 15.5	+59.1	140.6	36 42.1	+59.4	141.6	35 07.5	+59.6	142.5	33 31.8	+59.7	143.3	31 55.1	+59.9	144.1	30 17.5	+60.0	144.8	28 39.1	+60.0	145.4	27 00.0	+60.0	146.0
28	39 14.6	+59.1	140.4	37 41.5	+59.3	141.4	36 07.1	+59.5	142.3	34 31.5	+59.8	143.2	32 55.0	+59.8	144.0	31 17.5	+59.9	144.7	29 39.1	+60.0	145.4	28 00.0	+60.0	146.0
29	40 13.7	+59.0	140.2	38 40.8	+59.3	141.2	37 06.6	+59.6	142.2	35 31.3	+59.7	143.1	33 54.8	+59.9	143.9	32 17.4	+60.0	144.7	30 39.1	+60.0	145.4	29 00.0	+60.0	146.0
30	41 12.7	+59.0	139.9	39 40.1	+59.3	141.0	38 06.2	+59.5	142.0	36 31.0	+59.7	142.9	34 54.7	+59.8	143.8	33 17.4	+59.9	144.6	31 39.1	+60.0	145.3	30 00.0	+60.0	146.0
31	42 11.7	+59.0	139.7	40 39.4	+59.3	140.8	39 05.7	+59.5	141.9	37 30.7	+59.7	142.8	35 54.5	+59.9	143.7	34 17.3	+59.9	144.5	32 39.1	+60.0	145.3	31 00.0	+60.0	146.0
32	43 10.7	+58.9	139.4	41 38.7	+59.3	140.6	40 05.2	+59.5	141.7	38 30.4	+59.7	142.7	36 54.4	+59.8	143.6	35 17.2	+59.9	144.5	33 39.1	+59.9	145.3	32 00.0	+60.0	146.0
33	44 09.6	+58.9	139.2	42 38.0	+59.2	140.4	41 04.7	+59.5	141.5	39 30.1	+59.7	142.6	37 54.2	+59.8	143.5	36 17.1	+60.0	144.4	34 39.0	+60.0	145.2	33 00.0	+60.0	146.0
34	45 08.5	+58.9	138.9	43 37.2	+59.2	140.2	42 04.2	+59.5	141.4	40 29.8	+59.7	142.4	38 54.0	+59.9	143.4	37 17.1	+59.9	144.4	35 39.0	+60.0	145.2	34 00.0	+60.0	146.0
35	46 07.4	+58.8	138.6	44 36.4	+59.2	140.0	43 03.7	+59.5	141.2	41 29.5	+59.7	142.3	39 53.9	+59.8	143.3	38 17.0	+59.9	144.3	36 39.0	+60.0	145.2	35 00.0	+60.0	146.0
36	47 06.2	+58.8	138.3	45 35.6	+59.1	139.7	44 03.2	+59.4	141.0	42 29.2	+59.6	142.2	40 53.7	+59.8	143.2	39 16.9	+60.0	144.2	37 39.0	+60.0	145.2	36 00.0	+60.0	146.0
37	48 05.0	+58.7	138.0	46 34.7	+59.2	139.5	45 02.6	+59.4	140.8	43 28.9	+59.7	142.0	41 53.5	+59.8	143.1	40 16.9	+59.9	144.2	38 39.0	+60.0	145.1	37 00.0	+60.0	146.0
38	49 03.7	+58.7	137.7	47 33.9	+59.0	139.2	46 02.0	+59.4	140.6	44 28.5	+59.6	141.9	42 53.3	+59.8	143.0	41 16.8	+59.9	144.1	39 39.0	+59.9	145.1	38 00.0	+60.0	146.0
39	50 02.4	+58.6	137.4	48 32.9	+59.1	139.0	47 01.4	+59.4	140.4	45 28.1	+59.6	141.7	43 53.1	+59.8	142.9	42 16.7	+59.9	144.0	40 39.0	+60.0	145.1	39 00.0	+60.0	146.0
40	51 01.0	+58.6	137.1	49 32.0	+59.0	138.7	48 00.8	+59.4	140.2	46 27.7	+59.6	141.5	44 52.9	+59.8	142.8	43 16.6	+59.9	144.0	41 39.0	+60.0	145.0	40 00.0	+60.0	146.0
41	51 59.6	+58.5	136.7	50 31.0	+59.0	138.4	49 00.2	+59.3	140.0	47 27.3	+59.6	141.4	45 52.7	+59.8	142.7	44 16.5	+59.9	143.9	42 39.0	+60.0	145.0	41 00.0	+60.0	146.0
42	52 58.1	+58.4	136.4	51 30.0	+58.9	138.1	49 59.5	+59.3	139.7	48 26.9	+59.6	141.2	46 52.5	+59.8	142.6	45 16.4	+59.9	143.8	43 39.0	+60.0	144.9	42 00.0	+60.0	146.0
43	53 56.5	+58.4	136.0	52 28.9	+58.9	137.8	50 58.8	+59.3	139.5	49 26.5	+59.6	141.0	47 52.3	+59.7	142.4	46 16.3	+59.9	143.7	44 39.0	+60.0	145.2	43 00.0	+60.0	146.0
44	54 54.9	+58.3	135.6	53 27.8	+58.8	137.5	51 58.1	+59.2	139.2	50 26.1	+59.5	140.8	48 52.0	+59.8	142.3	47 16.2	+59.9	143.6	45 39.0	+60.0	145.2	44 00.0	+60.0	146.0
45	55 53.2	+58.1	135.2	54 26.6	+58.7	137.2	52 57.3	+59.2	139.0	51 25.6	+59.5	140.6	49 51.8	+59.8	142.2	48 16.1	+59.9	143.6	46 39.0	+60.0	145.2	45 00.0	+60.0	146.0
46	56 51.3	+58.1	134.7	55 25.3	+58.7	136.8	53 56.5																	

LATITUDE CONTRARY NAME

L.H.A. 34°, 326°

Table with columns for latitude (76° to 90°) and longitude (Dec. 0 to 90). Each cell contains three values: Hc, d, and Z. The table is organized into 15-degree latitude bands, with each band containing 15-degree longitude increments. The values represent celestial coordinates for various stars.

LATITUDE SAME NAME

L.H.A. 146°, 214°

36°, 324° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	23 51.6	+56.8	140.0	22 19.3	+57.3	140.6	20 46.3	+57.7	141.0	19 12.7	+58.0	141.5	17 38.5	+58.4	141.9	16 03.8	+58.7	142.3	14 28.7	+58.9	142.6	12 53.1	+59.2	142.9
1	24 48.4	+56.8	139.7	23 16.6	+57.2	140.2	21 44.0	+57.6	140.8	20 10.7	+58.0	141.2	18 36.9	+58.3	141.7	17 02.5	+58.6	142.1	15 27.6	+58.9	142.4	13 52.3	+59.1	142.7
2	25 45.2	+56.6	139.3	24 13.8	+57.1	139.9	22 41.6	+57.6	140.5	21 08.7	+58.0	141.0	19 35.2	+58.3	141.4	18 01.1	+58.7	141.8	16 26.5	+58.9	142.2	14 51.4	+59.2	142.6
3	26 41.8	+56.7	138.9	25 10.9	+57.2	139.6	23 39.2	+57.6	140.1	22 06.7	+58.0	140.7	20 33.5	+58.4	141.2	18 59.8	+58.6	141.6	17 25.4	+58.9	142.0	15 50.6	+59.1	142.4
4	27 38.5	+56.5	138.6	26 08.1	+57.0	139.2	24 36.8	+57.5	139.8	23 04.7	+57.9	140.4	21 31.9	+58.2	140.9	19 58.4	+58.6	141.4	18 24.3	+58.9	141.8	16 49.7	+59.1	142.2
5	28 35.0	+56.6	138.2	27 05.1	+57.0	138.9	25 34.3	+57.5	139.5	24 02.6	+57.9	140.1	22 30.1	+58.3	140.7	20 57.0	+58.6	141.2	19 23.2	+58.9	141.6	17 48.8	+59.2	142.0
6	29 31.6	+56.4	137.8	28 02.1	+57.0	138.5	26 31.8	+57.4	139.2	25 00.5	+57.8	139.8	23 28.4	+58.2	140.4	21 55.6	+58.5	140.9	20 22.1	+58.8	141.4	18 48.0	+59.1	141.9
7	30 28.0	+56.4	137.4	28 59.1	+56.9	138.2	27 29.2	+57.4	138.9	25 58.3	+57.9	139.5	24 26.6	+58.2	140.1	22 54.1	+58.6	140.7	21 20.9	+58.9	141.2	19 47.1	+59.1	141.7
8	31 24.4	+56.3	137.0	29 56.0	+56.9	137.8	28 26.6	+57.3	138.5	26 56.2	+57.7	139.2	25 24.8	+58.2	139.9	23 52.7	+58.5	140.5	22 19.8	+58.8	141.0	20 46.2	+59.0	141.5
9	32 20.7	+56.2	136.6	30 52.9	+56.7	137.4	29 23.9	+57.3	138.2	27 53.9	+57.8	138.9	26 23.0	+58.1	139.6	24 51.2	+58.5	140.2	23 18.6	+58.8	140.8	21 45.2	+59.1	141.3
10	33 16.9	+56.1	136.2	31 49.6	+56.8	137.1	30 21.2	+57.3	137.9	28 51.7	+57.7	138.6	27 21.1	+58.2	139.3	25 49.7	+58.5	140.0	24 17.4	+58.8	140.6	22 44.3	+59.1	141.1
11	34 13.0	+56.0	135.8	32 46.4	+56.6	136.7	31 18.5	+57.1	137.5	29 49.4	+57.6	138.3	28 19.3	+58.0	139.0	26 48.2	+58.4	139.7	25 16.2	+58.7	140.4	23 43.4	+59.0	140.9
12	35 09.0	+56.0	135.3	33 43.0	+56.6	136.3	32 15.6	+57.1	137.2	30 47.0	+57.6	138.0	29 17.3	+58.1	138.8	27 46.6	+58.4	139.5	26 14.9	+58.8	140.1	24 42.4	+59.1	140.7
13	36 05.0	+55.8	134.9	34 39.6	+56.4	135.9	33 12.7	+57.1	136.8	31 44.6	+57.6	137.7	30 15.4	+58.0	138.5	28 45.0	+58.4	139.2	27 13.7	+58.7	139.9	25 41.5	+59.0	140.5
14	37 00.8	+55.7	134.4	35 36.0	+56.4	135.5	34 09.8	+57.0	136.4	32 42.2	+57.5	137.3	31 13.4	+57.9	138.2	29 43.4	+58.4	138.9	28 12.4	+58.7	139.7	26 40.5	+59.0	140.3
15	37 56.5	+55.7	134.0	36 32.4	+56.3	135.0	35 06.8	+56.9	136.0	33 39.7	+57.4	137.0	32 11.3	+57.9	137.9	30 41.8	+58.3	138.7	29 11.1	+58.7	139.4	27 39.5	+58.9	140.1
16	38 52.2	+55.5	133.5	37 28.7	+56.2	134.6	36 03.7	+56.8	135.7	34 37.1	+57.4	136.6	33 09.2	+57.9	137.6	31 40.1	+58.3	138.4	30 09.8	+58.6	139.2	28 38.4	+59.0	139.9
17	39 47.7	+55.3	133.0	38 24.9	+56.1	134.2	37 00.5	+56.8	135.3	35 34.5	+57.3	136.3	34 07.1	+57.8	137.2	32 38.4	+58.2	138.1	31 08.4	+58.6	138.9	29 37.4	+58.9	139.7
18	40 43.0	+55.3	132.5	39 21.0	+56.0	133.7	37 57.3	+56.6	134.8	36 31.8	+57.3	135.9	35 04.9	+57.8	136.9	33 36.6	+58.2	137.8	32 07.0	+58.6	138.7	30 36.3	+59.0	139.5
19	41 38.3	+55.1	132.0	40 17.0	+55.9	133.2	38 53.9	+56.6	134.4	37 29.1	+57.2	135.5	36 02.7	+57.7	136.6	34 34.8	+58.2	137.5	33 05.6	+58.6	138.4	31 35.3	+58.9	139.3
20	42 33.4	+54.9	131.4	41 12.9	+55.8	132.8	39 50.5	+56.5	134.0	38 26.3	+57.1	135.2	37 00.4	+57.6	136.2	35 33.0	+58.1	137.2	34 04.2	+58.5	138.2	32 34.2	+58.8	139.0
21	43 28.3	+54.8	130.9	42 08.7	+55.6	132.3	40 47.0	+56.3	133.6	39 23.4	+57.0	134.8	37 58.0	+57.6	135.9	36 31.1	+58.1	136.9	35 02.7	+58.5	137.9	33 33.0	+58.9	138.8
22	44 23.1	+54.6	130.3	43 04.3	+55.5	131.8	41 43.3	+56.3	133.1	40 20.4	+56.9	134.8	38 55.6	+57.5	135.5	37 29.2	+58.0	136.6	36 01.2	+58.4	137.6	34 31.9	+58.8	138.6
23	45 17.7	+54.4	129.7	43 59.8	+55.3	131.2	42 39.6	+56.1	132.6	41 17.3	+56.8	133.9	39 53.1	+57.4	135.2	38 27.2	+57.9	136.3	36 59.6	+58.5	137.3	35 30.7	+58.8	138.3
24	46 12.1	+54.2	129.1	44 55.1	+55.2	130.7	43 35.7	+56.0	132.1	42 14.1	+56.8	133.5	40 50.5	+57.4	134.8	39 25.1	+57.9	136.0	37 58.1	+58.5	137.1	36 29.5	+58.7	138.1
25	47 06.3	+54.0	128.5	45 50.3	+55.0	130.1	44 31.7	+55.9	131.6	43 10.9	+56.6	133.1	41 47.9	+57.3	134.4	40 23.0	+57.9	135.6	38 56.4	+58.3	136.8	37 28.2	+58.7	137.8
26	48 00.3	+53.8	127.9	46 45.3	+54.8	129.5	45 27.6	+55.7	131.1	44 07.5	+56.5	132.6	42 45.2	+57.2	134.0	41 20.9	+57.8	135.3	39 54.7	+58.2	136.5	38 26.9	+58.7	137.6
27	48 54.1	+53.6	127.2	47 40.1	+54.7	128.9	46 23.6	+55.6	130.6	45 04.0	+56.4	132.1	43 42.4	+57.1	133.6	42 18.7	+57.7	134.9	40 53.0	+58.2	136.2	39 25.6	+58.7	137.3
28	49 47.7	+53.3	126.5	48 34.8	+54.4	128.3	47 18.9	+55.4	130.0	46 00.4	+56.3	131.5	44 39.5	+57.0	133.1	43 16.4	+57.6	134.5	41 51.2	+58.2	135.8	40 24.3	+58.6	137.0
29	50 41.0	+53.0	125.8	49 29.2	+54.2	127.7	48 14.3	+55.3	129.5	46 56.7	+56.1	131.1	45 36.5	+56.9	132.7	44 14.0	+57.5	134.2	42 49.4	+58.1	135.5	41 22.9	+58.5	136.8
30	51 34.0	+52.7	125.0	50 23.4	+54.0	127.0	49 09.6	+55.0	128.9	47 52.8	+56.0	130.6	46 33.4	+56.8	132.2	45 11.5	+57.5	133.8	43 47.5	+58.0	135.2	42 21.4	+58.5	136.5
31	52 26.7	+52.4	124.2	51 17.4	+53.7	126.3	50 04.6	+54.9	128.3	48 48.8	+55.8	130.1	47 30.2	+56.6	131.8	46 09.0	+57.4	133.3	44 45.5	+58.0	134.8	43 19.9	+58.5	136.2
32	53 19.1	+52.1	123.4	52 11.1	+53.4	125.6	50 59.5	+54.6	127.6	49 44.6	+55.7	129.5	48 26.6	+56.6	131.3	47 06.4	+57.2	132.9	45 43.5	+57.9	134.4	44 18.4	+58.4	135.8
33	54 11.2	+51.7	122.6	53 04.5	+53.2	124.9	51 54.1	+54.4	127.0	50 40.3	+55.5	128.9	49 23.4	+56.4	130.8	48 03.6	+57.2	132.5	46 41.4	+57.8	134.1	45 16.8	+58.4	135.5
34	55 02.9	+51.3	121.7	53 57.7	+52.8	124.1	52 48.5	+54.1	126.3	51 35.8	+55.2	128.3	50 19.8	+56.2	130.2	49 00.8	+57.1	132.0	47 39.2	+57.7	133.7	46 15.2	+58.3	135.2
35	55 54.2	+50.8	120.8	54 50.5	+52.5	123.3	53 42.6	+53.9	125.6	52 31.0	+55.1	127.7	51 16.0	+56.1	129.7	49 57.9	+56.9	131.5	48 36.9	+57.7	133.3	47 13.5	+58.2	134.8
36	56 45.0	+50.4	119.9	55 43.0	+52.1	122.4	54 36.5	+53.6	124.8	53 26.1	+54.8	127.0	52 12.1	+55.9	129.1	50 54.8	+56.8	131.0	49 34.6	+57.5	132.8	48 11.7	+58.2	134.5
37	57 35.4	+50.0	118.9	56 35.1	+51.7	121.5	55 30.1	+53.3	124.0	54 20.9	+54.6	126.4	53 08.0	+55.7	128.5	51 51.6	+56.7	130.5	50 32.1	+57.5	132.4	49 09.9	+58.1	134.1
38	58 25.4	+49.4	117.8	57 26.8	+51.3	120.6	56 23.4	+52.9	123.2	55 15.5	+54.4	125.6	54 03.7	+55.5	127.9	52 48.3	+56.5	130.0	51 29.6	+57.3	131.9	50 08.0	+58.0	133.7
39	59 14.8	+48.8	116.7	58 18.1	+50.8	119.6	57 16.3	+52.6	122.3	56 09.9	+54.0	124.9	54 59.2	+55.3	127.2	53 44.8	+56.3	129.4	52 26.9	+57.2	131.5	51 06.0	+57.9	133.3
40	60 03.6	+48.1	115.6	59 08.9	+50.3	118.6	58 08.9	+52.1	121.4	57 03.9	+53.7	124.1	55 54.5	+55.1	126.6	54 41.1	+56.2	128.8	53 24.1	+57.1	131.0	52 03.9	+57.8	132.9
41	60 51.7	+47.5	114.3	59 59.2	+49.8	117.5	59 01.0	+51.7	120.5	57 57.6	+53.4	123.3	56 49.6	+54.7	125.8	55 37.3	+55.9	128.2	54 21.2	+56.9	130.4	53 01.7	+57.8	132.5
42	61 39.2	+46.8	113.1	60 49.0	+49.1	116.4	59 52.7	+51.3	119.5	58 51.0	+53.0	122.4	57 44.3	+54.6	125.1	56 33.2	+55.8	127.6	55 18.1	+56.8	129.9	53 59.5	+57.6	132.0
43	62 26.0	+45.9	111.7	61 38.1	+48.5	115.2	60 44.0	+50.7	118.4	59 44.0	+52.6	121.5	58 38.9	+54.2	124.3	57 29.0	+55.5	126.9	56 14.9	+56.6	129.3	54 57.1	+57.5	131.5
44	63 11.9	+45.0	110.3	62 26.6	+47.8	113.9	61 34.7	+50.2	117.3	60 36.6	+52.2	120.5	59 33.1	+53.8	123.5	58 24.5	+55.3	126.2	57 11.5	+56.5	128.7	55 54.6	+57.4	131.0
45	63 56.9	+44.1	108.8	63 14.4	+47.0	112.6	62 24.9	+49.5	116.2	61 28.8	+51.7	119.5	60 26.9	+53.5	122.6	59 19.8	+55.0	125.4	58 08.0	+56.2	128.1	56 52.0	+57.2	130.5
46	64 41.0	+43.1	107.3																					

36°, 324° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	11 17.2	+59.4	143.2	9 41.0	+59.5	143.4	8 04.6	+59.6	143.6	6 27.9	+59.8	143.7	4 51.1	+59.8	143.9	3 14.1	+60.0	143.9	1 37.1	+60.0	144.0	0 00.0	+60.0	144.0
1	12 16.6	+59.3	143.0	10 40.5	+59.6	143.3	9 04.2	+59.7	143.5	7 27.7	+59.8	143.7	5 50.9	+59.9	143.8	4 14.1	+59.9	143.9	2 37.1	+59.9	144.0	1 00.0	+60.0	144.0
2	13 15.9	+59.4	142.9	11 40.1	+59.5	143.1	10 03.9	+59.7	143.4	8 27.5	+59.8	143.6	6 50.8	+59.9	143.7	5 14.0	+60.0	143.9	3 37.0	+60.0	143.9	2 00.0	+60.0	144.0
3	14 15.3	+59.3	142.7	12 39.6	+59.5	143.0	11 03.6	+59.7	143.3	9 27.3	+59.8	143.5	7 50.7	+59.9	143.7	6 14.0	+59.9	143.8	4 37.0	+60.0	143.9	3 00.0	+60.0	144.0
4	15 14.6	+59.4	142.6	13 39.1	+59.5	142.9	12 03.3	+59.6	143.2	10 27.1	+59.8	143.4	8 50.6	+59.9	143.6	7 13.9	+60.0	143.8	5 37.0	+60.0	143.9	4 00.0	+60.0	144.0
5	16 14.0	+59.3	142.4	14 38.6	+59.6	142.8	13 02.9	+59.7	143.1	11 26.9	+59.7	143.3	9 50.5	+59.9	143.5	8 13.9	+59.9	143.7	6 37.0	+60.0	143.9	5 00.0	+60.0	144.0
6	17 13.3	+59.3	142.3	15 38.2	+59.5	142.6	14 02.6	+59.7	142.9	12 26.6	+59.8	143.2	10 50.4	+59.9	143.5	9 13.8	+60.0	143.7	7 37.0	+60.0	143.9	6 00.0	+60.0	144.0
7	18 12.6	+59.4	142.1	16 37.7	+59.5	142.5	15 02.3	+59.6	142.8	13 26.4	+59.8	143.1	11 50.3	+59.8	143.4	10 13.8	+59.9	143.6	8 37.0	+60.0	143.8	7 00.0	+60.0	144.0
8	19 12.0	+59.3	142.0	17 37.2	+59.5	142.4	16 01.9	+59.7	142.7	14 26.2	+59.8	143.1	12 50.1	+59.9	143.3	11 13.7	+59.9	143.6	9 37.0	+60.0	143.8	8 00.0	+60.0	144.0
9	20 11.3	+59.3	141.8	18 36.7	+59.5	142.2	17 01.6	+59.6	142.6	15 26.0	+59.8	143.0	13 50.0	+59.9	143.3	12 13.6	+60.0	143.6	10 37.0	+59.9	143.8	9 00.0	+60.0	144.0
10	21 10.6	+59.3	141.6	19 36.2	+59.5	142.1	18 01.2	+59.7	142.5	16 25.8	+59.8	142.9	14 49.9	+59.9	143.2	13 13.6	+59.9	143.5	11 36.9	+60.0	143.8	10 00.0	+60.0	144.0
11	22 09.9	+59.2	141.5	20 35.7	+59.5	141.9	19 00.9	+59.6	142.4	17 25.6	+59.7	142.8	15 49.8	+59.8	143.1	14 13.5	+60.0	143.5	12 36.9	+60.0	143.8	11 00.0	+60.0	144.0
12	23 09.1	+59.3	141.3	21 35.2	+59.4	141.8	20 00.5	+59.7	142.3	18 25.3	+59.8	142.7	16 49.6	+59.9	143.1	15 13.5	+59.9	143.2	13 36.9	+60.0	143.7	12 00.0	+60.0	144.0
13	24 08.4	+59.3	141.1	22 34.6	+59.5	141.7	21 00.2	+59.6	142.2	19 25.1	+59.8	142.6	17 49.5	+59.9	143.0	16 13.4	+60.0	143.4	14 36.9	+60.0	143.7	13 00.0	+60.0	144.0
14	25 07.7	+59.2	141.0	23 34.1	+59.5	141.5	22 00.9	+59.7	142.0	20 24.9	+59.8	142.5	18 49.4	+59.9	142.9	17 13.4	+59.9	143.3	15 36.9	+60.0	143.7	14 00.0	+60.0	144.0
15	26 06.9	+59.3	140.8	24 33.6	+59.4	141.4	22 59.5	+59.6	141.9	21 24.7	+59.7	142.4	19 49.3	+59.8	142.9	18 13.3	+60.0	143.3	16 36.9	+60.0	143.7	15 00.0	+60.0	144.0
16	27 06.2	+59.2	140.6	25 33.0	+59.5	141.2	23 59.1	+59.6	141.8	22 24.4	+59.8	142.3	20 49.1	+59.9	142.8	19 13.3	+59.9	143.2	17 36.9	+60.0	143.6	16 00.0	+60.0	144.0
17	28 05.4	+59.2	140.4	26 32.5	+59.4	141.1	24 58.7	+59.6	141.7	23 24.2	+59.8	142.2	21 49.0	+59.9	142.7	20 13.2	+59.9	143.2	18 36.9	+59.9	143.6	17 00.0	+60.0	144.0
18	29 04.6	+59.2	140.2	27 31.9	+59.4	140.9	25 58.3	+59.6	141.6	24 24.0	+59.7	142.1	22 48.9	+59.8	142.7	21 13.1	+60.0	143.2	19 36.8	+60.0	143.6	18 00.0	+60.0	144.0
19	30 03.8	+59.2	140.0	28 31.3	+59.4	140.8	26 57.9	+59.6	141.4	25 23.7	+59.8	142.0	23 47.8	+59.9	142.6	22 13.1	+59.9	143.1	20 36.8	+60.0	143.6	19 00.0	+60.0	144.0
20	31 03.0	+59.1	139.9	29 30.7	+59.4	140.6	27 57.5	+59.6	141.3	26 23.5	+59.7	141.9	24 48.6	+59.9	142.5	23 13.0	+60.0	143.1	21 36.8	+60.0	143.6	20 00.0	+60.0	144.0
21	32 02.1	+59.2	139.7	30 30.1	+59.4	140.4	28 57.1	+59.6	141.2	27 23.2	+59.8	141.8	25 48.5	+59.8	142.4	24 13.0	+59.9	143.0	22 36.8	+60.0	143.5	21 00.0	+60.0	144.0
22	33 01.3	+59.1	139.5	31 29.5	+59.4	140.3	29 56.7	+59.6	141.0	28 23.0	+59.7	141.7	26 48.3	+59.9	142.4	25 12.9	+59.9	143.0	23 36.8	+60.0	143.5	22 00.0	+60.0	144.0
23	34 00.4	+59.1	139.3	32 28.9	+59.3	140.1	30 56.3	+59.6	140.9	29 22.7	+59.7	141.6	27 48.2	+59.8	142.3	26 12.8	+60.0	142.9	24 36.8	+59.9	143.5	23 00.0	+60.0	144.0
24	34 59.5	+59.1	139.0	33 28.2	+59.4	139.9	31 55.9	+59.5	140.8	30 22.4	+59.7	141.5	28 48.0	+59.9	142.2	27 12.8	+59.9	142.9	25 36.7	+60.0	143.5	24 00.0	+60.0	144.0
25	35 58.6	+59.0	138.8	34 27.6	+59.3	139.8	32 55.4	+59.6	140.6	31 22.1	+59.8	141.4	29 47.9	+59.8	142.1	28 12.7	+60.0	142.8	26 36.7	+60.0	143.4	25 00.0	+60.0	144.0
26	36 57.6	+59.0	138.6	35 26.9	+59.3	139.6	33 55.0	+59.5	140.5	32 21.9	+59.7	141.3	30 47.7	+59.9	142.0	29 12.7	+59.9	142.8	27 36.7	+60.0	143.4	26 00.0	+60.0	144.0
27	37 56.6	+59.0	138.4	36 26.3	+59.3	139.4	34 54.5	+59.5	140.3	33 21.6	+59.7	141.2	31 47.6	+59.8	142.0	30 12.6	+59.9	142.7	28 36.7	+60.0	143.4	27 00.0	+60.0	144.0
28	38 55.6	+59.0	138.2	37 25.5	+59.3	139.2	35 54.0	+59.5	140.2	34 21.3	+59.7	141.0	32 47.4	+59.9	141.9	31 12.5	+60.0	142.6	29 36.7	+60.0	143.3	28 00.0	+60.0	144.0
29	39 54.6	+59.0	137.9	38 24.7	+59.3	139.0	36 53.5	+59.5	140.0	35 21.0	+59.7	140.9	33 47.3	+59.8	141.8	32 12.5	+59.9	142.6	30 36.7	+60.0	143.3	29 00.0	+60.0	144.0
30	40 53.6	+58.9	137.7	39 24.1	+59.2	138.8	37 53.0	+59.5	139.8	36 20.7	+59.7	140.8	34 47.1	+59.8	141.7	33 12.4	+59.9	142.5	31 36.7	+59.9	143.3	30 00.0	+60.0	144.0
31	41 52.5	+58.9	137.4	40 23.3	+59.2	138.6	38 52.5	+59.5	139.7	37 20.4	+59.6	140.7	35 46.9	+59.8	141.6	34 12.3	+59.9	142.5	32 36.6	+60.0	143.2	31 00.0	+60.0	144.0
32	42 51.4	+58.8	137.2	41 22.5	+59.2	138.4	39 52.0	+59.5	139.5	38 20.0	+59.5	140.5	36 46.7	+59.9	141.5	35 12.2	+60.0	142.4	33 36.6	+60.0	143.2	32 00.0	+60.0	144.0
33	43 50.2	+58.8	136.9	42 21.7	+59.1	138.2	40 51.5	+59.4	139.3	39 19.7	+59.7	140.4	37 46.6	+59.8	141.4	36 12.2	+59.9	142.3	34 36.6	+60.0	143.2	33 00.0	+60.0	144.0
34	44 49.0	+58.8	136.6	43 20.8	+59.2	137.9	41 50.9	+59.4	139.1	40 19.4	+59.6	140.3	38 46.4	+59.8	141.3	37 12.1	+59.9	142.3	35 36.6	+60.0	143.2	34 00.0	+60.0	144.0
35	45 47.8	+58.7	136.3	44 20.0	+59.1	137.7	42 50.3	+59.4	139.0	41 19.0	+59.7	140.1	39 46.2	+59.8	141.2	38 12.0	+59.9	142.2	36 36.6	+59.9	143.1	35 00.0	+60.0	144.0
36	46 46.5	+58.6	136.0	45 19.1	+59.1	137.4	43 49.7	+59.4	138.8	42 18.7	+59.6	140.0	40 46.0	+59.8	141.1	39 11.9	+59.9	142.1	37 36.5	+60.0	143.1	36 00.0	+60.0	144.0
37	47 45.1	+58.7	135.7	46 18.2	+59.0	137.2	44 49.1	+59.4	138.6	43 18.3	+59.6	139.8	41 45.8	+59.8	141.0	40 11.8	+59.9	142.1	38 36.5	+60.0	143.1	37 00.0	+60.0	144.0
38	48 43.8	+58.5	135.4	47 17.2	+59.0	136.9	45 48.5	+59.3	138.4	44 17.9	+59.6	139.7	42 45.6	+59.8	140.9	41 11.7	+59.9	142.0	39 36.5	+60.0	143.0	38 00.0	+60.0	144.0
39	49 42.3	+58.5	135.1	48 16.2	+58.9	136.7	46 47.8	+59.4	138.1	45 17.5	+59.6	139.5	43 45.4	+59.8	140.8	42 11.6	+60.0	141.9	40 36.5	+60.0	143.0	39 00.0	+60.0	144.0
40	50 40.8	+58.5	134.7	49 15.1	+58.9	136.4	47 47.2	+59.2	137.9	46 17.1	+59.6	139.3	44 45.2	+59.7	140.7	43 11.6	+59.9	141.9	41 36.5	+59.9	143.0	40 00.0	+60.0	144.0
41	51 39.3	+58.3	134.4	50 14.1	+58.8	136.1	48 46.4	+59.3	137.7	47 16.7	+59.5	139.2	45 44.9	+59.8	140.5	44 11.5	+59.9	141.8	42 36.4	+60.0	142.9	41 00.0	+60.0	144.0
42	52 37.6	+58.3	134.0	51 12.9	+58.9	135.8	49 45.7	+59.2	137.5	48 16.2	+59.5	139.0	46 44.7	+59.7	140.4	45 11.4	+59.9	141.7	43 36.4	+60.0	142.9	42 00.0	+60.0	144.0
43	53 35.9	+58.2	133.6	52 11.8	+58.7	135.5	50 44.9	+59.2	137.2	49 15.7	+59.6	138.8	47 44.4	+59.8	140.3	46 11.3	+59.8	141.6	44 36.4	+60.0	142.9	43 00.0	+60.0	144.0
44	54 34.1	+58.2	133.2	53 10.5	+58.7	135.1	51 44.1	+59.2	136.9	50 15.3	+59.5	138.6	48 44.2	+59.7	140.1	47 11.1	+59.9	141.5	45 36.4	+59.9	142.8	44 00.0	+60.0	144.0
45	55 32.3	+58.0	132.7	54 09.2	+58.7	134.8	52 43.3	+59.1	136.6	51 14.8	+59.4	138.4	49 43.9	+59.7	140.0	48 11.0	+59.9	141.4	46 36.3	+60.0	142.8	45 00.0	+60.0	144.0
46	56 30.3	+57.9	132.3	55 07.9	+58.6	134.4	53 42.4																	

LATITUDE CONTRARY NAME

L.H.A. 36°, 324°

Table with columns for latitude (76° to 90°), Hc, d, Z, and Dec. Each latitude column contains three sub-columns (Hc, d, Z) and a Dec. column. The table lists astronomical data for various latitudes.

LATITUDE SAME NAME

L.H.A. 144°, 216°

Table with columns for Dec. (0-90) and Latitude (60°-74°). Each cell contains three values: Hc, d, Z. The table is a grid of 90 rows and 10 columns of data.

LATITUDE CONTRARY NAME

L.H.A. 38°, 322°

Table with columns for latitude (60° to 74°), longitude (Hc, d, Z), and Dec. (0 to 90). Each latitude column contains three sub-columns for Hc, d, and Z. The Dec. column is on the far right.

LATITUDE SAME NAME

L.H.A. 142°, 218°

38°, 322° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	10 59.4	+59.3	141.2	9 25.8	+59.5	141.4	7 51.9	+59.6	141.6	6 17.8	+59.8	141.7	4 43.5	+59.9	141.8	3 09.1	+59.9	141.9	1 34.6	+59.9	142.0	0 00.0	+60.0	142.0
1	11 58.7	+59.3	141.0	10 25.3	+59.5	141.3	8 51.5	+59.7	141.5	7 17.6	+59.7	141.6	5 43.4	+59.8	141.8	4 09.0	+60.0	141.9	2 34.5	+60.0	142.0	1 00.0	+60.0	142.0
2	12 58.0	+59.3	140.8	11 24.8	+59.4	141.1	9 51.2	+59.6	141.4	8 17.3	+59.8	141.6	6 43.2	+59.9	141.7	5 09.0	+59.9	141.8	3 34.5	+60.0	141.9	2 00.0	+60.0	142.0
3	13 57.3	+59.3	140.7	12 24.2	+59.5	141.0	10 50.8	+59.7	141.2	9 17.1	+59.8	141.5	7 43.1	+59.9	141.7	6 08.9	+59.9	141.8	4 34.5	+60.0	141.9	3 00.0	+60.0	142.0
4	14 56.6	+59.3	140.5	13 23.7	+59.5	140.9	11 50.5	+59.6	141.1	10 16.9	+59.7	141.4	8 43.0	+59.9	141.6	7 08.8	+60.0	141.8	5 34.5	+60.0	141.9	4 00.0	+60.0	142.0
5	15 55.9	+59.2	140.4	14 23.2	+59.5	140.7	12 50.1	+59.6	141.0	11 16.6	+59.8	141.3	9 42.9	+59.8	141.5	8 08.8	+59.9	141.7	6 34.5	+60.0	141.9	5 00.0	+60.0	142.0
6	16 55.1	+59.3	140.2	15 22.7	+59.4	140.6	13 49.7	+59.7	140.9	12 16.4	+59.8	141.2	10 42.7	+59.9	141.5	9 08.7	+60.0	141.7	7 34.5	+60.0	141.9	6 00.0	+60.0	142.0
7	17 54.4	+59.2	140.0	16 22.1	+59.5	140.4	14 49.4	+59.6	140.8	13 16.2	+59.8	141.1	11 42.6	+59.9	141.4	10 08.7	+59.9	141.6	8 34.5	+59.9	141.8	7 00.0	+60.0	142.0
8	18 53.6	+59.3	139.9	17 21.6	+59.5	140.3	15 49.0	+59.6	140.7	14 16.0	+59.7	141.0	12 42.5	+59.8	141.3	11 08.6	+60.0	141.6	9 34.4	+60.0	141.8	8 00.0	+60.0	142.0
9	19 52.9	+59.2	139.7	18 21.1	+59.4	140.2	16 48.6	+59.7	140.6	15 15.7	+59.8	140.9	13 42.3	+59.9	141.3	12 08.6	+59.9	141.5	10 34.4	+60.0	141.8	9 00.0	+60.0	142.0
10	20 52.1	+59.3	139.5	19 20.5	+59.4	140.0	17 48.3	+59.6	140.4	16 15.5	+59.7	140.8	14 42.2	+59.9	141.2	13 08.5	+59.9	141.5	11 34.4	+60.0	141.8	10 00.0	+60.0	142.0
11	21 51.4	+59.2	139.2	20 19.9	+59.5	139.9	18 47.9	+59.6	140.3	17 15.2	+59.8	140.7	15 42.1	+59.9	141.1	14 08.4	+60.0	141.4	12 34.4	+60.0	141.7	11 00.0	+60.0	142.0
12	22 50.6	+59.2	139.2	21 19.4	+59.4	139.7	19 47.5	+59.6	140.2	18 15.0	+59.7	140.6	16 41.9	+59.8	141.0	15 08.4	+59.9	141.4	13 34.4	+60.0	141.7	12 00.0	+60.0	142.0
13	23 49.8	+59.2	139.0	22 18.8	+59.4	139.6	20 47.1	+59.6	140.1	19 14.7	+59.8	140.6	17 41.8	+59.9	141.0	16 08.3	+60.0	141.4	14 34.4	+60.0	141.7	13 00.0	+60.0	142.0
14	24 49.0	+59.2	138.8	23 18.2	+59.4	139.4	21 46.7	+59.6	140.0	20 14.5	+59.7	140.5	18 41.7	+59.8	140.9	17 08.3	+59.9	141.3	15 34.4	+59.9	141.7	14 00.0	+60.0	142.0
15	25 48.2	+59.1	138.7	24 17.6	+59.4	139.3	22 46.3	+59.6	139.8	21 14.2	+59.8	140.4	19 41.5	+59.9	140.8	18 08.2	+59.9	141.3	16 34.3	+60.0	141.7	15 00.0	+60.0	142.0
16	26 47.3	+59.2	138.5	25 17.0	+59.4	139.1	23 45.9	+59.6	139.7	22 14.0	+59.7	140.3	20 41.4	+59.8	140.8	19 08.1	+60.0	141.2	17 34.3	+60.0	141.6	16 00.0	+60.0	142.0
17	27 46.5	+59.1	138.3	26 16.4	+59.4	139.0	24 45.5	+59.6	139.6	23 13.7	+59.8	140.2	21 41.2	+59.9	140.7	20 08.1	+59.9	141.2	18 34.3	+60.0	141.6	17 00.0	+60.0	142.0
18	28 45.6	+59.1	138.1	27 15.8	+59.4	138.8	25 45.1	+59.5	139.5	24 13.5	+59.7	140.1	22 41.1	+59.8	140.6	21 08.0	+59.9	141.1	19 34.3	+60.0	141.6	18 00.0	+60.0	142.0
19	29 44.7	+59.1	137.9	28 15.2	+59.3	138.6	26 44.6	+59.6	139.3	25 13.2	+59.7	140.0	23 40.9	+59.9	140.5	22 07.9	+60.0	141.1	20 34.3	+60.0	141.6	19 00.0	+60.0	142.0
20	30 43.8	+59.1	137.7	29 14.5	+59.4	138.5	27 44.2	+59.6	139.2	26 12.9	+59.7	139.8	24 40.8	+59.8	140.5	23 07.9	+59.9	141.0	21 34.3	+59.9	141.5	20 00.0	+60.0	142.0
21	31 42.9	+59.1	137.5	30 13.9	+59.3	138.3	28 43.8	+59.5	139.0	27 12.6	+59.8	139.7	25 40.6	+59.9	140.4	24 07.8	+59.9	141.0	22 34.2	+60.0	141.5	21 00.0	+60.0	142.0
22	32 42.0	+59.0	137.3	31 13.2	+59.3	138.1	29 43.3	+59.5	138.9	28 12.4	+59.7	139.6	26 40.5	+59.8	140.3	25 07.7	+60.0	140.9	23 34.2	+60.0	141.5	22 00.0	+60.0	142.0
23	33 41.0	+59.0	137.1	32 12.5	+59.3	137.9	30 42.8	+59.6	138.8	29 12.1	+59.7	139.5	27 40.3	+59.9	140.2	26 07.7	+59.9	140.9	24 34.2	+60.0	141.5	23 00.0	+60.0	142.0
24	34 40.0	+59.0	136.9	33 11.8	+59.3	137.8	31 42.4	+59.5	138.6	30 11.8	+59.7	139.4	28 40.2	+59.8	140.1	27 07.6	+59.9	140.8	25 34.2	+60.0	141.4	24 00.0	+60.0	142.0
25	35 39.0	+59.0	136.6	34 11.1	+59.3	137.6	32 41.9	+59.5	138.5	31 11.5	+59.7	139.3	29 40.0	+59.8	140.0	28 07.5	+60.0	140.8	26 34.2	+60.0	141.4	25 00.0	+60.0	142.0
26	36 38.0	+58.9	136.4	35 10.4	+59.2	137.4	33 41.4	+59.5	138.3	32 11.2	+59.7	139.2	30 39.9	+59.9	140.0	29 07.5	+59.9	140.7	27 34.2	+59.9	141.4	26 00.0	+60.0	142.0
27	37 36.9	+58.9	136.2	36 09.6	+59.0	137.2	34 40.9	+59.5	138.2	33 10.9	+59.7	139.0	31 39.7	+59.8	139.9	30 07.4	+59.9	140.6	28 34.1	+60.0	141.3	27 00.0	+60.0	142.0
28	38 35.9	+58.8	135.9	37 08.9	+59.2	137.0	35 40.4	+59.5	138.0	34 10.6	+59.6	138.9	32 39.5	+59.8	139.8	31 07.3	+59.9	140.6	29 34.1	+60.0	141.3	28 00.0	+60.0	142.0
29	39 34.7	+58.9	135.7	38 08.1	+59.2	136.8	36 39.9	+59.4	137.8	35 10.2	+59.7	138.8	33 39.3	+59.8	139.7	32 07.2	+60.0	140.5	30 34.1	+60.0	141.3	29 00.0	+60.0	142.0
30	40 33.6	+58.8	135.4	39 07.3	+59.1	136.6	37 39.3	+59.5	137.7	36 09.9	+59.6	138.7	34 39.1	+59.9	139.6	33 07.2	+59.9	140.5	31 34.1	+60.0	141.3	30 00.0	+60.0	142.0
31	41 32.4	+58.8	135.2	40 06.4	+59.2	136.4	38 38.8	+59.4	137.5	37 09.5	+59.7	138.5	35 39.0	+59.8	139.5	34 07.1	+59.9	140.4	32 34.1	+59.9	141.2	31 00.0	+60.0	142.0
32	42 31.2	+58.7	134.9	41 05.6	+59.1	136.1	39 38.2	+59.4	137.3	38 09.2	+59.6	138.4	36 38.8	+59.8	139.4	35 07.0	+59.9	140.3	33 34.0	+60.0	141.2	32 00.0	+60.0	142.0
33	43 29.9	+58.7	134.6	42 04.7	+59.1	135.9	40 37.6	+59.4	137.1	39 08.8	+59.7	138.3	37 38.6	+59.8	139.3	36 06.9	+59.9	140.3	34 34.0	+60.0	141.2	33 00.0	+60.0	142.0
34	44 28.6	+58.7	134.3	43 03.8	+59.0	135.7	41 37.0	+59.4	136.9	40 08.5	+59.6	138.1	38 38.4	+59.8	139.2	37 06.8	+59.9	140.2	35 34.0	+60.0	141.1	34 00.0	+60.0	142.0
35	45 27.3	+58.6	134.0	44 02.8	+59.1	135.4	42 36.4	+59.3	136.7	41 08.1	+59.6	138.0	39 38.2	+59.7	139.1	38 06.7	+60.0	140.1	36 34.0	+60.0	141.1	35 00.0	+60.0	142.0
36	46 25.9	+58.6	133.7	45 01.9	+58.9	135.2	43 35.7	+59.3	136.5	42 07.7	+59.6	137.8	40 37.9	+59.8	139.0	39 06.7	+59.9	140.1	37 34.0	+59.9	141.1	36 00.0	+60.0	142.0
37	47 24.5	+58.5	133.4	46 00.8	+59.0	134.9	44 35.0	+59.4	136.3	43 07.3	+59.6	137.7	41 37.7	+59.8	138.9	40 06.6	+59.9	140.0	38 33.9	+60.0	141.0	37 00.0	+60.0	142.0
38	48 23.0	+58.4	133.1	46 59.8	+58.9	134.7	45 34.4	+59.2	136.1	44 06.9	+59.5	137.5	42 37.5	+59.8	138.8	41 06.5	+59.9	139.9	39 33.9	+60.0	141.0	38 00.0	+60.0	142.0
39	49 21.4	+58.4	132.7	47 58.7	+58.9	134.4	46 33.6	+59.3	135.9	45 06.4	+59.6	137.3	43 37.3	+59.7	138.6	42 06.4	+59.9	139.8	40 33.9	+60.0	141.0	39 00.0	+60.0	142.0
40	50 19.8	+58.3	132.4	48 57.6	+58.8	134.1	47 32.9	+59.2	135.7	46 06.0	+59.5	137.1	44 37.0	+59.8	138.5	43 06.3	+59.9	139.8	41 33.9	+59.9	140.9	40 00.0	+60.0	142.0
41	51 18.1	+58.2	132.0	49 56.4	+58.8	133.8	48 32.1	+59.2	135.4	47 05.5	+59.5	137.0	45 36.8	+59.7	138.4	44 06.2	+59.9	139.7	42 33.8	+60.0	140.9	41 00.0	+60.0	142.0
42	52 16.3	+58.2	131.6	50 55.2	+58.7	133.5	49 31.3	+59.2	135.2	48 05.0	+59.5	136.8	46 36.5	+59.7	138.2	45 06.1	+59.8	139.6	43 33.8	+60.0	140.8	42 00.0	+60.0	142.0
43	53 14.5	+58.0	131.2	51 53.9	+58.7	133.1	50 30.5	+59.1	134.9	49 04.5	+59.5	136.6	47 36.2	+59.8	138.1	46 05.9	+59.9	139.5	44 33.8	+60.0	140.8	43 00.0	+60.0	142.0
44	54 12.5	+58.0	130.8	52 52.6	+58.6	132.8	51 29.6	+59.1	134.7	50 04.0	+59.4	136.4	48 36.0	+59.7	138.0	47 05.8	+59.9	139.4	45 33.8	+59.9	140.8	44 00.0	+60.0	142.0
45	55 10.5	+57.9	130.3	53 51.2	+58.5	132.4	52 28.7	+59.0	134.4	51 03.4	+59.5	136.2	49 35.7	+59.7	137.8	48 05.7	+59.9	139.3	46 33.7	+60.0	140.7	45 00.0	+60.0	142.0
46	56 08.4	+57.7	129.9	54 49.7	+58.5	132.1	53 27.7</																	

LATITUDE CONTRARY NAME

L.H.A. 38°, 322°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
10 59.4	-59.3	141.2	9 25.8	-59.5	141.4	7 51.9	-59.7	141.6	6 17.8	-59.8	141.7	4 43.5	-59.9	141.8	3 09.1	-60.0	141.9	1 34.6	-60.0	142.0	0 00.0	+60.0	38.0	0		
10 00.1	-59.3	141.3	8 26.3	-59.5	141.5	6 52.2	-59.6	141.7	5 18.0	-59.8	141.8	3 43.6	-59.9	141.9	2 09.1	-59.9	142.0	0 34.6	-60.0	142.0	1 00.0	+60.0	38.0	1		
9 00.8	-59.3	141.5	7 26.8	-59.5	141.6	5 52.6	-59.7	141.8	4 18.2	-59.8	141.9	2 43.7	-59.8	142.0	1 09.2	-60.0	142.0	0 25.4	+60.0	38.0	2 00.0	+60.0	38.0	2		
8 01.5	-59.4	141.6	6 27.3	-59.5	141.8	4 52.9	-59.6	141.9	3 18.4	-59.7	142.0	1 43.9	-59.9	142.0	0 09.2	-59.9	142.1	1 25.4	+60.0	38.0	3 00.0	+60.0	38.0	3		
7 02.1	-59.3	141.8	5 27.8	-59.5	141.9	3 53.3	-59.7	142.0	2 18.7	-59.8	142.1	0 44.0	-59.9	142.1	0 50.7	+60.0	37.9	2 25.4	+60.0	37.9	4 00.0	+60.0	38.0	4		
6 02.8	-59.3	141.9	4 28.3	-59.5	142.0	2 53.6	-59.6	142.1	1 18.9	-59.8	142.2	0 15.9	+59.9	37.8	1 50.7	+59.9	37.9	3 25.4	+60.0	37.9	5 00.0	+60.0	38.0	5		
5 03.5	-59.3	142.1	3 28.8	-59.5	142.2	1 54.0	-59.7	142.2	0 19.1	-59.8	142.2	1 15.8	+59.8	37.8	2 50.6	+59.9	37.8	4 25.4	+59.9	37.9	6 00.0	+60.0	38.0	6		
4 04.2	-59.4	142.2	2 29.3	-59.5	142.3	0 54.3	-59.6	142.3	0 40.7	+59.8	37.7	2 15.6	+59.9	37.7	3 50.5	+60.0	37.8	5 25.3	+60.0	37.9	7 00.0	+60.0	38.0	7		
3 04.8	-59.3	142.4	1 29.8	-59.5	142.4	0 05.3	+59.7	37.6	1 40.5	+59.7	37.6	3 15.5	+59.9	37.6	4 50.5	+59.9	37.7	6 25.3	+60.0	37.8	8 00.0	+60.0	38.0	8		
2 05.5	-59.3	142.5	0 30.3	-59.5	142.5	1 05.0	+59.7	37.5	2 40.2	+59.8	37.5	4 15.4	+59.9	37.6	5 50.4	+60.0	37.7	7 25.3	+60.0	37.8	9 00.0	+60.0	38.0	9		
1 06.2	-59.3	142.7	0 29.2	+59.5	37.3	2 04.7	+59.6	37.4	3 40.0	+59.8	37.4	5 15.3	+59.8	37.5	6 50.4	+59.9	37.6	8 25.3	+60.0	37.8	10 00.0	+60.0	38.0	10		
0 06.9	-59.4	142.8	1 28.7	+59.6	37.2	3 04.3	+59.7	37.2	4 39.8	+59.8	37.3	6 15.1	+59.9	37.4	7 50.3	+60.0	37.6	9 25.3	+60.0	37.9	11 00.0	+60.0	38.0	11		
0 52.5	+59.3	37.0	2 28.3	+59.5	37.1	4 04.0	+59.6	37.1	5 39.6	+59.7	37.2	7 15.0	+59.9	37.4	8 50.3	+59.9	37.5	10 25.3	+60.0	37.8	12 00.0	+60.0	38.0	12		
1 51.8	+59.3	36.9	3 27.8	+59.5	36.9	5 03.6	+59.7	37.0	6 39.3	+59.8	37.2	8 14.9	+59.9	37.3	9 50.2	+60.0	37.5	11 25.3	+59.9	37.7	13 00.0	+60.0	38.0	13		
2 51.1	+59.4	36.7	4 27.3	+59.5	36.8	6 03.3	+59.6	36.9	7 39.1	+59.8	37.1	9 14.8	+59.8	37.2	10 50.2	+59.9	37.5	12 25.2	+60.0	37.7	14 00.0	+60.0	38.0	14		
3 50.5	+59.3	36.6	5 26.8	+59.5	36.7	7 02.9	+59.7	36.8	8 38.9	+59.8	37.0	10 14.6	+59.9	37.2	11 50.1	+59.9	37.4	13 25.2	+60.0	37.7	15 00.0	+60.0	38.0	15		
4 49.8	+59.3	36.4	6 26.3	+59.5	36.6	8 02.6	+59.6	36.7	9 38.7	+59.7	36.9	11 14.5	+59.9	37.1	12 50.0	+60.0	37.4	14 25.2	+60.0	37.4	16 00.0	+60.0	38.0	16		
5 49.1	+59.3	36.3	7 25.8	+59.5	36.4	9 02.2	+59.7	36.6	10 38.4	+59.8	36.8	12 14.4	+59.8	37.0	13 50.0	+59.9	37.3	15 25.2	+60.0	37.6	17 00.0	+60.0	38.0	17		
6 48.4	+59.4	36.1	8 25.3	+59.5	36.3	10 01.9	+59.6	36.5	11 38.2	+59.8	36.7	13 14.2	+59.9	37.0	14 49.9	+60.0	37.3	16 25.2	+60.0	37.6	18 00.0	+60.0	38.0	18		
7 47.8	+59.3	36.0	9 24.8	+59.4	36.2	11 01.5	+59.7	36.4	12 38.0	+59.7	36.6	14 14.1	+59.9	36.9	15 49.9	+59.9	37.2	17 25.2	+60.0	37.6	19 00.0	+60.0	38.0	19		
8 47.1	+59.3	35.8	10 24.2	+59.5	36.0	12 01.2	+59.6	36.3	13 37.7	+59.8	36.5	15 14.0	+59.8	36.8	16 49.8	+59.9	37.2	18 25.2	+59.9	37.6	20 00.0	+60.0	38.0	20		
9 46.4	+59.3	35.7	11 23.7	+59.5	35.9	13 00.8	+59.6	36.2	14 37.5	+59.8	36.4	16 13.8	+59.9	36.8	17 49.7	+60.0	37.1	19 25.1	+60.0	37.5	21 00.0	+60.0	38.0	21		
10 45.7	+59.3	35.5	12 23.2	+59.5	35.8	14 00.4	+59.7	36.0	15 37.3	+59.7	36.4	17 13.7	+59.9	36.7	18 49.7	+59.9	37.1	20 25.1	+60.0	37.5	22 00.0	+60.0	38.0	22		
11 45.0	+59.3	35.4	13 22.7	+59.5	35.6	15 00.1	+59.6	35.9	16 37.0	+59.8	36.3	18 13.6	+59.8	36.6	19 49.6	+60.0	37.0	21 25.1	+60.0	37.5	23 00.0	+60.0	38.0	23		
12 44.3	+59.3	35.2	14 22.2	+59.4	35.5	15 59.7	+59.6	35.8	17 36.8	+59.7	36.2	19 13.4	+59.9	36.6	20 49.6	+59.9	37.0	22 25.1	+60.0	37.5	24 00.0	+60.0	38.0	24		
13 43.6	+59.3	35.1	15 21.6	+59.5	35.4	16 59.3	+59.6	35.7	18 36.5	+59.8	36.1	20 13.3	+59.9	36.5	21 49.5	+59.9	36.9	23 25.1	+60.0	37.4	25 00.0	+60.0	38.0	25		
14 42.9	+59.3	34.9	16 21.1	+59.5	35.2	17 58.9	+59.7	35.6	19 36.3	+59.8	36.0	21 13.2	+59.8	36.4	22 49.4	+60.0	36.9	24 25.1	+59.9	37.4	26 00.0	+60.0	38.0	26		
15 42.2	+59.2	34.7	17 20.6	+59.4	35.1	18 58.6	+59.6	35.5	20 36.1	+59.7	35.9	22 13.0	+59.9	36.3	23 49.4	+59.9	36.8	25 25.0	+60.0	37.4	27 00.0	+60.0	38.0	27		
16 41.4	+59.3	34.6	18 20.0	+59.5	34.9	19 58.2	+59.6	35.3	21 35.8	+59.7	35.8	23 12.9	+59.8	36.3	24 49.3	+59.9	36.8	26 25.0	+60.0	37.4	28 00.0	+60.0	38.0	28		
17 40.7	+59.3	34.4	19 19.5	+59.4	34.8	20 57.8	+59.6	35.2	22 35.5	+59.8	35.7	24 12.7	+59.9	36.2	25 49.2	+60.0	36.7	27 25.0	+60.0	37.3	29 00.0	+60.0	38.0	29		
18 40.0	+59.2	34.2	20 18.9	+59.5	34.6	21 57.4	+59.6	35.1	23 35.3	+59.7	35.6	25 12.6	+59.8	36.1	26 49.2	+59.9	36.7	28 25.0	+60.0	37.3	30 00.0	+60.0	38.0	30		
19 39.2	+59.3	34.1	21 18.4	+59.4	34.5	22 57.0	+59.6	35.0	24 35.0	+59.7	35.5	26 12.4	+59.9	36.0	27 49.1	+59.9	36.6	29 25.0	+60.0	37.3	31 00.0	+60.0	38.0	31		
20 38.5	+59.2	33.9	22 17.8	+59.4	34.4	23 56.6	+59.6	34.8	25 34.7	+59.8	35.4	27 12.3	+59.8	35.9	28 49.0	+59.9	36.6	30 25.0	+59.9	37.3	32 00.0	+60.0	38.0	32		
21 37.7	+59.2	33.7	23 17.2	+59.4	34.2	24 56.2	+59.5	34.7	26 34.5	+59.7	35.3	28 12.1	+59.8	35.9	29 48.9	+60.0	36.5	31 24.9	+60.0	37.2	33 00.0	+60.0	38.0	33		
22 36.9	+59.2	33.6	24 16.6	+59.4	34.1	25 55.7	+59.6	34.6	27 34.2	+59.7	35.2	29 11.9	+59.9	35.8	30 48.9	+59.9	36.5	32 24.9	+60.0	37.2	34 00.0	+60.0	38.0	34		
23 36.1	+59.2	33.4	25 16.0	+59.4	33.9	26 55.3	+59.6	34.4	28 33.9	+59.7	35.0	30 11.8	+59.8	35.7	31 48.8	+59.9	36.4	33 24.9	+60.0	37.2	35 00.0	+60.0	38.0	35		
24 35.3	+59.2	33.2	26 15.4	+59.4	33.7	27 54.9	+59.5	34.3	29 33.6	+59.7	34.9	31 11.6	+59.8	35.6	32 48.7	+59.9	36.3	34 24.9	+60.0	37.1	36 00.0	+60.0	38.0	36		
25 34.5	+59.2	33.0	27 14.8	+59.4	33.6	28 54.4	+59.6	34.2	30 33.3	+59.7	34.8	32 11.4	+59.9	35.5	33 48.6	+60.0	36.3	35 24.9	+59.9	37.1	37 00.0	+60.0	38.0	37		
26 33.7	+59.1	32.8	28 14.2	+59.3	33.4	29 54.0	+59.5	34.0	31 33.0	+59.7	34.7	33 11.3	+59.8	35.4	34 48.6	+59.9	36.2	36 24.8	+60.0	37.1	38 00.0	+60.0	38.0	38		
27 32.8	+59.2	32.7	29 13.5	+59.4	33.2	30 53.5	+59.5	33.9	32 32.7	+59.7	34.6	34 11.1	+59.8	35.3	35 48.5	+59.9	36.2	37 24.8	+60.0	37.0	39 00.0	+60.0	38.0	39		
28 32.0	+59.1	32.5	30 12.9	+59.3	33.1	31 53.0	+59.5	33.7	33 32.4	+59.7	34.5	35 10.9	+59.8	35.2	36 48.4	+59.9	36.1	38 24.8	+60.0	37.0	40 00.0	+60.0	38.0	40		
29 31.1	+59.1	32.3	31 12.2	+59.3	32.9	32 52.5	+59.6	33.6	34 32.1	+59.7	34.3	36 10.7	+59.8	35.1	37 48.3	+59.9	36.0	39 24.8	+59.9	37.0	41 00.0	+60.0	38.0	41		
30 30.2	+59.1	32.1	32 11.5	+59.3	32.7	33 52.1	+59.5	33.4	35 31.8	+59.6	34.2	37 10.5	+59.8	35.0	38 48.2	+59.9	36.0	40 24.7	+60.0	36.9	42 00.0	+60.0	38.0	42		
31 29.3	+59.0	31.9	33 10.8	+59.3	32.5	34 51.6	+59.4	33.3	36 31.4	+59.7	34.1	38 10.3	+59.8	34.9	39 48.1	+59.9	35.9	41 24.7	+60.0	36.9	43 00.0	+60.0	38.0	43		
32 28.3	+59.1	31.7	34 10.1	+59.3	32.4	35 51.0	+59.5	33.1	37 31.1	+59.6	33.9	39 10.1	+59.8	34.8	40 48.0	+59.9	35.8	42 24.7	+60.0	36.9	44 00.0	+60.0	38.0	44		
33 27.4	+59.0	31.5	35 09.4	+59.2	32.2	36 50.5	+59.5	33.0	38 30.7	+59.6	33.8	40 09.9	+59.8	34.7	41 47.9	+59.9	35.7	43 24.7	+59.9	36.8	45 00.0	+60.0	38.0	45		
34 26.6	+59.0	31.2	36 08.6	+59.2	32.0	37 50.0	+59.4	32.8	39 30.3	+59.7	33.7	41 09.7	+59.8	34.6	42 47.8	+59.9	35.7	44 24.6	+60.0	36.8	46 00.0	+60.0	38.0	46		
35 25.4	+59.0	31.0	37 07.8	+59.2	31.8	38 49.4	+59.4	32.6	40 30.0	+59.6	33.5	42 09.5	+59.7	34.5	43 47.7	+59.9	35.6	45								

40°, 320° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	22 31.3	+56.2	135.9	21 04.7	+56.7	136.5	19 37.3	+57.2	137.0	18 09.3	+57.6	137.4	16 40.6	+58.0	137.9	15 11.3	+58.5	138.2	13 41.6	+58.7	138.6	12 11.4	+59.0	138.9
1	23 27.5	+56.2	135.5	22 01.4	+56.7	136.1	20 34.5	+57.2	136.6	19 06.9	+57.7	137.1	17 38.6	+58.1	137.6	16 09.8	+58.3	138.0	14 40.3	+58.7	138.4	13 10.4	+59.0	138.7
2	24 23.7	+56.1	135.1	22 58.1	+56.7	135.8	21 31.7	+57.2	136.3	20 04.6	+57.6	136.8	18 36.7	+58.0	137.3	17 08.1	+58.4	137.8	15 39.0	+58.7	138.2	14 09.4	+59.0	138.5
3	25 19.8	+56.0	134.8	23 54.8	+56.6	135.4	22 28.9	+57.1	136.0	21 02.2	+57.6	136.5	19 34.7	+58.0	137.1	18 06.5	+58.4	137.5	16 37.7	+58.7	137.9	15 08.4	+58.9	138.3
4	26 15.8	+56.0	134.4	24 51.4	+56.6	135.0	23 26.0	+57.1	135.7	21 59.8	+57.5	136.2	20 32.7	+58.0	136.8	19 04.9	+58.3	137.3	17 36.4	+58.7	137.7	16 07.3	+59.0	138.1
5	27 11.8	+55.9	134.0	25 48.0	+56.5	134.7	24 23.1	+57.0	135.3	22 57.3	+57.5	135.9	21 30.7	+57.9	136.5	20 03.2	+58.4	137.0	18 35.1	+58.7	137.5	17 06.3	+59.0	137.9
6	28 07.7	+55.8	133.5	26 44.5	+56.4	134.3	25 20.1	+57.0	135.0	23 54.8	+57.5	135.6	22 28.6	+57.9	136.2	21 01.6	+58.3	136.8	19 33.8	+58.6	137.3	18 05.3	+58.9	137.7
7	29 03.5	+55.8	133.1	27 40.9	+56.4	133.9	26 17.1	+57.0	134.6	24 52.3	+57.4	135.3	23 26.5	+57.9	135.9	21 59.9	+58.2	136.5	20 32.4	+58.6	137.1	19 04.2	+58.9	137.5
8	29 59.3	+55.7	132.7	28 37.3	+56.3	133.5	27 14.1	+56.8	134.3	25 49.7	+57.4	135.0	24 24.4	+57.9	135.7	22 58.1	+58.3	136.3	21 31.0	+58.6	136.8	20 03.1	+59.0	137.3
9	30 55.0	+55.6	132.3	29 33.6	+56.2	133.1	28 10.9	+56.9	133.9	26 47.1	+57.4	134.7	25 22.3	+57.8	135.4	23 56.4	+58.2	136.0	22 29.6	+58.6	136.6	21 02.1	+58.9	137.1
10	31 50.6	+55.4	131.8	30 29.8	+56.2	132.7	29 07.8	+56.7	133.6	27 44.5	+57.3	134.3	26 20.1	+57.7	135.1	24 54.6	+58.2	135.7	23 28.2	+58.6	136.4	22 01.0	+58.8	136.9
11	32 46.0	+55.4	131.4	31 26.0	+56.1	132.3	30 04.5	+56.7	133.2	28 41.8	+57.2	134.0	27 17.8	+57.8	134.8	25 52.8	+58.2	135.5	24 26.8	+58.5	136.1	22 59.8	+58.9	136.7
12	33 41.4	+55.3	130.9	32 22.1	+56.0	131.9	31 01.2	+56.7	132.8	29 39.0	+57.2	133.7	28 15.6	+57.7	134.5	26 51.0	+58.1	135.2	25 25.3	+58.5	135.9	23 58.7	+58.9	136.5
13	34 36.7	+55.2	130.4	33 18.1	+55.9	131.5	31 57.9	+56.5	132.4	31 36.2	+57.2	133.3	29 13.3	+57.6	134.1	27 49.1	+58.1	134.9	26 23.8	+58.5	135.6	24 57.6	+58.8	136.3
14	35 31.9	+55.1	130.0	34 14.0	+55.8	131.0	32 54.4	+56.5	132.0	30 33.4	+57.0	133.0	30 10.9	+57.6	133.8	28 47.2	+58.1	134.6	27 22.3	+58.5	135.4	25 56.4	+58.8	136.1
15	36 27.0	+54.9	129.5	35 09.8	+55.7	130.6	33 50.9	+56.4	131.6	32 30.4	+57.0	132.6	31 08.5	+57.6	133.5	29 45.3	+58.0	134.3	28 20.8	+58.4	135.1	26 55.2	+58.8	135.9
16	37 21.9	+54.8	129.0	36 05.5	+55.6	130.1	34 47.3	+56.3	131.2	33 27.4	+57.0	132.2	32 06.1	+57.5	133.2	30 43.3	+58.0	134.0	29 19.2	+58.4	134.9	27 54.0	+58.8	135.6
17	38 16.7	+54.7	128.5	37 01.1	+55.5	129.7	35 43.6	+56.2	130.8	34 24.4	+56.9	131.8	33 03.6	+57.4	132.8	31 41.3	+57.9	133.7	30 17.6	+58.4	134.6	28 52.8	+58.7	135.4
18	39 11.4	+54.5	127.9	37 56.6	+55.4	129.2	36 39.8	+56.2	130.3	35 21.3	+56.7	131.4	34 01.0	+57.4	132.5	32 39.2	+57.9	133.4	31 16.0	+58.4	134.3	29 51.5	+58.7	135.2
19	40 05.9	+54.4	127.4	38 52.0	+55.2	128.7	37 36.0	+56.0	129.9	36 18.0	+56.8	131.1	34 58.4	+57.3	132.1	33 37.1	+57.9	133.1	32 14.4	+58.3	134.0	30 50.2	+58.7	134.9
20	41 00.3	+54.2	126.8	39 47.2	+55.1	128.2	38 32.0	+55.9	129.5	37 14.8	+56.6	130.6	35 55.7	+57.3	131.8	34 35.0	+57.8	132.8	33 12.7	+58.2	133.8	31 48.9	+58.7	134.7
21	41 54.5	+54.0	126.3	40 42.3	+55.0	127.7	39 27.9	+55.8	129.0	38 11.4	+56.5	130.1	36 53.0	+57.1	131.4	35 32.8	+57.7	132.5	34 10.9	+58.3	133.5	32 47.6	+58.6	134.4
22	42 48.5	+53.9	125.7	41 37.3	+54.8	127.1	40 23.7	+55.7	128.5	39 09.9	+56.5	129.8	37 50.1	+57.1	131.0	36 30.5	+57.7	132.1	35 09.2	+58.1	133.2	33 46.2	+58.6	134.2
23	43 42.4	+53.6	125.1	42 32.1	+54.7	126.6	41 19.4	+55.5	128.0	40 04.4	+56.3	129.4	38 47.2	+57.1	130.6	37 28.2	+57.6	131.8	36 07.3	+58.2	132.9	34 44.8	+58.6	133.9
24	44 36.0	+53.4	124.4	43 26.8	+54.6	126.0	42 14.9	+55.4	127.5	41 00.7	+56.2	128.9	39 44.3	+56.9	130.2	38 25.8	+57.6	131.4	37 05.5	+58.1	132.6	35 43.4	+58.6	133.7
25	45 29.4	+53.2	123.8	44 21.2	+54.3	125.4	43 10.3	+55.3	127.0	41 56.9	+56.1	128.4	40 41.2	+56.9	129.8	39 23.4	+57.4	131.1	38 03.6	+58.0	132.3	36 42.0	+58.4	133.4
26	46 22.6	+53.0	123.1	45 15.5	+54.2	124.8	44 05.6	+55.1	126.4	42 53.0	+56.0	128.0	41 38.1	+56.7	129.4	40 20.8	+57.5	130.7	39 01.6	+58.0	132.0	37 40.4	+58.5	133.1
27	47 15.6	+52.7	122.4	46 09.7	+53.9	124.2	45 00.7	+55.0	125.9	43 49.0	+55.9	127.5	42 34.8	+56.7	128.9	41 18.3	+57.3	130.3	39 59.6	+57.9	131.6	38 38.9	+58.4	132.8
28	48 08.3	+52.5	121.7	47 03.6	+53.6	123.6	45 55.7	+54.7	125.3	44 44.9	+55.7	127.0	43 31.5	+56.5	128.5	42 15.6	+57.2	129.9	40 57.5	+57.8	131.3	39 37.3	+58.4	132.5
29	49 00.8	+52.1	121.0	47 57.2	+53.5	122.9	46 50.4	+54.6	124.7	45 40.6	+55.6	126.4	44 28.0	+56.4	128.0	43 12.8	+57.2	129.5	41 55.3	+57.8	130.9	40 35.7	+58.3	132.2
30	49 52.9	+51.9	120.2	48 50.7	+53.2	122.2	47 45.0	+54.4	124.1	46 36.2	+55.4	125.9	45 24.4	+56.3	127.5	44 10.0	+57.1	129.1	42 53.1	+57.7	130.6	41 34.0	+58.3	131.9
31	50 44.8	+51.5	119.5	49 43.9	+52.9	121.5	48 39.4	+54.1	123.5	47 31.6	+55.2	125.3	46 20.7	+56.2	127.0	45 07.1	+56.9	128.7	43 50.8	+57.7	130.2	42 32.3	+58.2	131.6
32	51 36.3	+51.1	118.6	50 36.8	+52.6	120.8	49 33.5	+54.0	122.8	48 26.8	+55.0	124.7	47 16.9	+56.0	126.5	46 04.0	+56.9	128.2	44 48.5	+57.5	129.8	43 30.5	+58.1	131.3
33	52 27.4	+50.8	117.8	51 29.4	+52.3	120.0	50 27.5	+53.6	122.1	49 21.8	+54.9	124.1	48 12.9	+55.9	126.0	47 00.9	+56.7	127.8	45 46.0	+57.5	129.4	44 28.6	+58.1	130.9
34	53 18.2	+50.4	116.9	52 21.7	+52.0	119.2	51 21.1	+53.4	121.4	50 16.7	+54.6	123.5	49 08.8	+55.7	125.4	47 57.6	+56.6	127.3	46 43.5	+57.4	129.0	45 26.7	+58.0	130.6
35	54 08.6	+49.9	116.0	53 13.7	+51.7	118.4	52 14.5	+53.2	120.7	51 11.3	+54.5	122.8	50 04.5	+55.5	124.9	48 54.2	+56.5	126.8	47 40.9	+57.3	128.5	46 24.7	+58.0	130.2
36	54 58.5	+49.5	115.0	54 05.4	+51.2	117.5	53 07.7	+52.8	119.9	52 05.8	+54.1	122.2	51 00.0	+55.3	124.3	49 50.7	+56.3	126.3	48 38.2	+57.1	128.1	47 22.7	+57.9	129.8
37	55 48.0	+49.0	114.0	54 56.6	+50.9	116.7	54 00.5	+52.5	119.1	52 59.9	+53.9	121.5	51 55.3	+55.2	123.7	50 47.0	+56.2	125.7	49 35.3	+57.1	127.6	48 20.6	+57.7	129.4
38	56 37.0	+48.4	113.0	55 47.5	+50.4	115.7	54 53.0	+52.1	118.3	53 53.8	+53.7	120.7	52 50.5	+54.9	123.0	51 43.2	+56.0	125.2	50 32.4	+56.9	127.2	49 18.3	+57.7	129.0
39	57 25.4	+47.8	111.9	56 37.9	+49.9	114.7	55 45.1	+51.7	117.4	54 47.5	+53.3	120.0	53 45.4	+54.7	122.3	52 39.2	+55.8	124.6	51 29.3	+56.8	126.7	50 16.0	+57.6	128.6
40	58 13.2	+47.2	110.8	57 27.8	+49.4	113.7	56 36.8	+51.4	116.5	55 40.8	+53.0	119.2	54 40.1	+54.4	121.6	53 35.0	+55.7	124.0	52 26.1	+56.7	126.1	51 13.6	+57.5	128.2
41	59 00.4	+46.6	109.6	58 17.2	+48.8	112.7	57 28.2	+50.8	115.6	56 33.8	+52.6	118.3	55 34.5	+54.1	120.9	54 30.7	+55.4	123.3	53 22.8	+56.5	125.6	52 11.1	+57.4	127.7
42	59 47.0	+45.8	108.4	59 06.0	+48.3	111.5	58 19.0	+50.4	114.6	57 26.4	+52.3	117.4	56 28.6	+53.9	120.1	55 26.1	+55.2	122.7	54 19.3	+56.3	125.0	53 08.5	+57.3	127.2
43	60 32.8	+45.0	107.1	59 54.3	+47.5	110.4	59 09.4	+49.9	113.5	58 18.7	+51.8	116.5	57 22.5	+53.5	119.3	56 21.3	+54.9	122.0	55 15.6	+56.1	124.4	54 05.8	+57.1	126.7
44	61 17.8	+44.1	105.7	60 41.8	+46.9	109.1	59 59.3	+49.2	112.4	59 10.5	+51.3	115.5	58 16.0	+53.1	118.5	57 16.2	+54.7	121.2	56 11.7	+56.0	123.8	55 02.9	+57.0	126.2
45	62 01.9	+43.2	104.3	61 28.7	+46.1	107.8	60 48.5	+48.7	111.3	60 01.8	+50.9	114.5	59 09.1	+52.8	117.6	58 10.9	+54.4	120.4	57 07.7	+55.7	123.1	55 59.9	+56.8	125.6
46	62 45.1	+42.3	102.8																					

40°, 320° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	10 40.8	+59.2	139.1	9 09.9	+59.4	139.4	7 38.7	+59.6	139.6	6 07.2	+59.8	139.7	4 35.6	+59.8	139.8	3 03.8	+59.9	139.9	1 31.9	+60.0	140.0	0 00.0	+60.0	140.0
1	11 40.0	+59.3	139.0	10 09.3	+59.5	139.2	8 38.3	+59.6	139.5	7 07.0	+59.7	139.6	5 35.4	+59.9	139.8	4 03.7	+60.0	139.9	2 31.9	+60.0	140.0	1 00.0	+60.0	140.0
2	12 39.3	+59.2	138.8	11 08.8	+59.4	139.1	9 37.9	+59.6	139.3	8 06.7	+59.8	139.5	6 35.3	+59.9	139.7	5 03.7	+59.9	139.8	3 31.9	+60.0	139.9	2 00.0	+60.0	140.0
3	13 38.5	+59.2	138.7	12 08.2	+59.4	139.0	10 37.5	+59.6	139.2	9 06.5	+59.7	139.5	7 35.2	+59.8	139.6	6 03.6	+59.9	139.8	4 31.9	+60.0	139.9	3 00.0	+60.0	140.0
4	14 37.7	+59.2	138.5	13 07.7	+59.5	138.8	11 37.1	+59.6	139.1	10 06.2	+59.8	139.4	8 35.0	+59.9	139.6	7 03.5	+60.0	139.8	5 31.9	+59.9	139.9	4 00.0	+60.0	140.0
5	15 36.9	+59.3	138.3	14 07.1	+59.4	138.7	12 36.7	+59.6	139.0	11 06.0	+59.7	139.3	9 34.9	+59.8	139.5	8 03.5	+59.9	139.7	6 31.8	+60.0	139.9	5 00.0	+60.0	140.0
6	16 36.2	+59.2	138.2	15 06.5	+59.4	138.5	13 36.3	+59.6	138.9	12 05.7	+59.8	139.2	10 34.7	+59.9	139.4	9 03.4	+60.0	139.7	7 31.8	+60.0	139.8	6 00.0	+60.0	140.0
7	17 35.4	+59.1	138.0	16 05.9	+59.4	138.4	14 35.9	+59.6	138.8	13 05.5	+59.7	139.1	11 34.6	+59.9	139.4	10 03.4	+59.9	139.6	8 31.8	+60.0	139.8	7 00.0	+60.0	140.0
8	18 34.5	+59.2	137.8	17 05.3	+59.4	138.2	15 35.5	+59.6	138.6	14 05.2	+59.8	139.0	12 34.5	+59.8	139.3	11 03.3	+59.9	139.6	9 31.8	+60.0	139.8	8 00.0	+60.0	140.0
9	19 33.7	+59.2	137.6	18 04.7	+59.4	138.1	16 35.1	+59.6	138.5	15 05.0	+59.7	138.9	13 34.3	+59.9	139.2	12 03.2	+60.0	139.5	10 31.8	+60.0	139.8	9 00.0	+60.0	140.0
10	20 32.9	+59.2	137.5	19 04.1	+59.4	138.0	17 34.7	+59.6	138.4	16 04.7	+59.7	138.8	14 34.2	+59.8	139.2	13 03.2	+59.9	139.5	11 31.8	+59.9	139.8	10 00.0	+60.0	140.0
11	21 32.1	+59.1	137.3	20 03.5	+59.4	137.8	18 34.3	+59.6	138.3	17 04.4	+59.8	138.7	15 34.0	+59.9	139.1	14 03.1	+59.9	139.4	12 31.7	+60.0	139.7	11 00.0	+60.0	140.0
12	22 31.2	+59.1	137.1	21 02.9	+59.4	137.6	19 33.9	+59.5	138.1	18 04.2	+59.7	138.6	16 33.9	+59.8	139.0	15 03.0	+60.0	139.4	13 31.7	+60.0	139.7	12 00.0	+60.0	140.0
13	23 30.3	+59.2	136.9	22 02.3	+59.4	137.5	20 33.4	+59.6	138.0	19 03.9	+59.7	138.5	17 33.7	+59.8	138.9	16 03.0	+59.9	139.3	14 31.7	+60.0	139.7	13 00.0	+60.0	140.0
14	24 29.5	+59.1	136.7	23 01.7	+59.3	137.3	21 33.0	+59.6	137.9	20 03.6	+59.8	138.4	18 03.6	+59.8	138.9	17 02.9	+59.9	139.3	15 31.7	+60.0	139.7	14 00.0	+60.0	140.0
15	25 28.6	+59.1	136.5	24 01.0	+59.4	137.2	22 32.6	+59.5	137.8	21 03.4	+59.7	138.3	19 33.4	+59.8	138.8	18 02.8	+60.0	139.2	16 31.7	+60.0	139.6	15 00.0	+60.0	140.0
16	26 27.7	+59.1	136.4	25 00.4	+59.3	137.0	23 32.1	+59.6	137.6	22 03.1	+59.7	138.2	20 33.3	+59.8	138.7	19 02.8	+59.9	139.2	17 31.7	+60.0	139.6	16 00.0	+60.0	140.0
17	27 26.8	+59.0	136.2	25 00.4	+59.3	136.9	24 31.7	+59.5	137.5	23 02.8	+59.7	138.1	21 33.1	+59.9	138.6	20 02.7	+59.9	139.1	18 31.7	+59.9	139.6	17 00.0	+60.0	140.0
18	28 25.8	+59.1	136.0	26 59.0	+59.3	136.7	25 31.2	+59.6	137.4	24 02.5	+59.7	138.0	22 33.0	+59.8	138.6	21 02.6	+60.0	139.1	19 31.6	+60.0	139.6	18 00.0	+60.0	140.0
19	29 24.9	+59.0	135.8	27 58.3	+59.3	136.5	26 30.8	+59.5	137.2	25 02.2	+59.7	137.9	23 32.8	+59.8	138.5	22 02.6	+59.9	139.0	20 31.6	+60.0	139.5	19 00.0	+60.0	140.0
20	30 23.9	+59.0	135.5	28 57.6	+59.3	136.3	27 30.3	+59.5	137.1	26 01.9	+59.7	137.8	24 32.6	+59.9	138.4	23 02.5	+59.9	139.0	21 31.6	+60.0	139.5	20 00.0	+60.0	140.0
21	31 22.9	+59.0	135.3	29 56.9	+59.3	136.2	28 29.8	+59.5	136.9	27 01.6	+59.7	137.6	25 32.5	+59.8	138.3	24 02.4	+60.0	138.9	22 31.6	+60.0	139.5	21 00.0	+60.0	140.0
22	32 21.9	+58.9	135.1	30 56.2	+59.3	136.0	29 29.3	+59.5	136.8	28 01.3	+59.7	137.5	26 32.3	+59.8	138.2	25 02.4	+59.9	138.9	23 31.6	+59.9	139.5	22 00.0	+60.0	140.0
23	33 20.8	+59.0	134.9	31 55.5	+59.2	135.8	30 28.8	+59.5	136.6	29 01.0	+59.7	137.4	27 32.1	+59.8	138.1	26 02.3	+59.9	138.8	24 31.5	+60.0	139.4	23 00.0	+60.0	140.0
24	34 19.8	+58.9	134.7	32 54.7	+59.2	135.6	31 28.3	+59.5	136.5	30 00.7	+59.7	137.3	28 32.0	+59.8	138.1	27 02.2	+59.9	138.8	25 31.5	+60.0	139.4	24 00.0	+60.0	140.0
25	35 18.7	+58.9	134.4	33 53.9	+59.2	135.4	32 27.8	+59.5	136.3	31 00.4	+59.6	137.2	29 31.8	+59.8	138.0	28 02.1	+60.0	138.7	26 31.5	+60.0	139.4	25 00.0	+60.0	140.0
26	36 17.6	+58.8	134.2	34 53.1	+59.2	135.2	33 27.3	+59.4	136.2	32 00.0	+59.7	137.1	30 31.6	+59.8	137.9	29 02.1	+59.9	138.6	27 31.5	+60.0	139.3	26 00.0	+60.0	140.0
27	37 16.4	+58.9	134.0	35 52.3	+59.2	135.0	34 26.7	+59.5	136.0	32 59.7	+59.7	136.9	31 31.4	+59.8	137.8	30 02.0	+59.9	138.6	28 31.5	+60.0	139.3	27 00.0	+60.0	140.0
28	38 15.3	+58.8	133.7	36 51.5	+59.1	134.8	35 26.2	+59.4	135.8	33 59.4	+59.6	136.8	32 31.2	+59.8	137.7	31 01.9	+59.9	138.5	29 31.5	+59.9	139.3	28 00.0	+60.0	140.0
29	39 14.1	+58.7	133.5	37 50.6	+59.2	134.6	36 25.6	+59.4	135.7	34 59.0	+59.6	136.7	33 31.0	+59.8	137.6	32 01.8	+59.9	138.5	30 31.4	+60.0	139.3	29 00.0	+60.0	140.0
30	40 12.8	+58.8	133.2	38 49.8	+59.1	134.4	37 25.0	+59.4	135.5	35 58.6	+59.7	136.5	34 30.8	+59.8	137.5	33 01.7	+59.9	138.4	31 31.4	+60.0	139.2	30 00.0	+60.0	140.0
31	41 11.6	+58.6	132.9	39 48.9	+59.0	134.2	38 24.4	+59.4	135.3	36 58.3	+59.6	136.4	35 30.6	+59.8	137.4	34 01.6	+59.9	138.3	32 31.4	+60.0	139.2	31 00.0	+60.0	140.0
32	42 10.2	+58.7	132.7	40 47.9	+58.9	133.9	39 23.8	+59.3	135.1	37 57.9	+59.6	136.3	36 30.4	+59.8	137.3	35 01.5	+60.0	138.3	33 31.4	+59.9	139.2	32 00.0	+60.0	140.0
33	43 08.9	+58.6	132.4	41 47.0	+59.0	133.7	40 23.1	+59.4	134.9	38 57.5	+59.6	136.1	37 30.2	+59.8	137.2	36 01.5	+59.9	138.2	34 31.3	+60.0	139.1	33 00.0	+60.0	140.0
34	44 07.5	+58.5	132.1	42 46.0	+59.0	133.5	41 22.5	+59.3	134.8	39 57.1	+59.6	136.0	38 30.0	+59.8	137.1	37 01.4	+59.9	138.1	35 31.3	+60.0	139.1	34 00.0	+60.0	140.0
35	45 06.0	+58.5	131.8	43 45.0	+58.9	133.2	42 21.8	+59.3	134.6	40 56.7	+59.5	135.8	39 29.8	+59.7	137.0	38 01.3	+59.9	138.1	36 31.3	+60.0	139.1	35 00.0	+60.0	140.0
36	46 04.5	+58.5	131.4	44 43.9	+58.9	132.9	43 21.1	+59.3	134.3	41 56.2	+59.6	135.6	40 29.5	+59.8	136.9	39 01.2	+59.9	138.0	37 31.3	+60.0	139.0	36 00.0	+60.0	140.0
37	47 03.0	+58.4	131.1	45 42.8	+58.9	132.7	44 20.4	+59.2	134.1	42 55.8	+59.5	135.5	41 29.3	+59.8	136.7	40 01.1	+59.9	137.9	38 31.3	+59.9	139.0	37 00.0	+60.0	140.0
38	48 01.4	+58.3	130.8	46 41.7	+58.8	132.4	45 19.6	+59.2	133.9	43 55.3	+59.6	135.3	42 29.1	+59.7	136.6	41 01.0	+59.9	137.8	39 31.2	+60.0	139.0	38 00.0	+60.0	140.0
39	48 59.7	+58.2	130.4	47 40.5	+58.8	132.1	46 18.8	+59.2	133.7	44 54.9	+59.5	135.1	43 28.8	+59.7	136.5	42 00.9	+59.8	138.7	40 31.2	+60.0	138.9	39 00.0	+60.0	140.0
40	49 57.9	+58.2	130.0	48 39.3	+58.8	131.8	47 18.0	+59.2	133.4	45 54.4	+59.5	135.0	44 28.5	+59.8	136.4	43 00.7	+59.9	138.7	41 31.2	+59.9	138.9	40 00.0	+60.0	140.0
41	50 56.1	+58.1	129.7	49 38.1	+58.6	131.5	48 17.2	+59.1	133.2	46 53.9	+59.4	134.8	45 28.3	+59.7	136.2	44 00.6	+59.9	138.6	42 31.1	+60.0	138.8	41 00.0	+60.0	140.0
42	51 54.2	+58.0	129.3	50 36.7	+58.7	131.2	49 16.3	+59.1	132.9	47 53.3	+59.5	134.6	46 28.0	+59.7	136.1	45 00.5	+59.9	137.5	43 31.1	+60.0	138.8	42 00.0	+60.0	140.0
43	52 52.2	+58.0	128.8	51 35.4	+58.5	130.8	50 15.4	+59.1	132.7	48 52.8	+59.4	134.4	47 27.7	+59.7	135.9	46 00.4	+59.9	137.4	44 31.1	+60.0	138.8	43 00.0	+60.0	140.0
44	53 50.2	+57.8	128.4	52 33.9	+58.5	130.5	51 14.5	+59.0	132.4	49 52.2	+59.4	134.2	48 27.4	+59.7	135.8	47 00.3	+59.8	137.3	45 31.1	+59.9	138.7	44 00.0	+60.0	140.0
45	54 48.0	+57.7	128.0	53 32.4	+58.4	130.1	52 13.5	+59.0	132.1	50 51.6	+59.4	133.9	49 27.1	+59.6	135.6	48 00.1	+59.9	137.2	46 31.0	+60.0	138.7	45 00.0	+60.0	140.0
46	55 45.7	+57.6	127.5	54 30.8	+58.4	129.7	53																	

Table with columns for Dec. (0-90) and Latitude (60-74). Each cell contains three values (Hc, d, Z) for a specific latitude. The table is organized into 10 columns of latitude (60, 62, 64, 66, 68, 70, 72, 74) and 91 rows of declination (0-90).

LATITUDE CONTRARY NAME

L.H.A. 42°, 318°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
21 48.8 -56.0 133.9			20 25.1 -56.5 134.4			19 00.7 -57.0 134.9			17 35.6 -57.5 135.4			16 09.8 -57.9 135.8			14 43.5 -58.3 136.2			13 16.6 -58.7 136.6			11 49.2 -58.9 136.9			0
20 52.8 -56.1 134.3			19 28.6 -56.6 134.8			18 03.7 -57.1 135.3			16 38.1 -57.5 135.7			15 11.9 -57.9 136.1			13 45.2 -58.4 136.5			12 17.9 -58.6 136.8			10 50.3 -59.0 137.1			1
19 56.7 -56.1 134.7			18 32.0 -56.6 135.1			17 06.6 -57.1 135.6			15 40.6 -57.6 136.0			14 14.0 -58.0 136.4			12 46.8 -58.3 136.7			11 19.3 -58.7 137.0			9 51.3 -58.9 137.3			2
19 00.6 -56.1 135.0			17 35.4 -56.7 135.5			16 09.5 -57.2 135.9			14 43.0 -57.6 136.3			13 16.0 -58.0 136.6			11 48.5 -58.3 136.9			10 20.6 -58.6 137.2			8 52.4 -59.0 137.4			3
18 04.5 -56.2 135.4			16 38.7 -56.7 135.8			15 12.3 -57.1 136.2			13 45.4 -57.6 136.6			12 18.0 -58.0 136.9			10 50.2 -58.4 137.2			9 22.0 -58.7 137.4			7 53.4 -58.9 137.6			4
17 08.3 -56.2 135.8			15 42.0 -56.7 136.2			14 15.2 -57.2 136.5			12 47.8 -57.6 136.9			11 20.0 -58.0 137.2			9 51.8 -58.3 137.4			8 23.3 -58.7 137.6			6 54.5 -59.0 137.8			5
16 12.1 -56.3 136.1			14 45.3 -56.8 136.5			13 18.0 -57.3 136.9			11 50.2 -57.7 137.2			10 22.0 -58.0 137.4			8 53.5 -58.4 137.7			7 24.6 -58.7 137.9			5 55.5 -58.9 138.0			6
15 15.8 -56.3 136.5			13 48.5 -56.8 136.9			12 20.7 -57.2 137.2			10 52.5 -57.6 137.4			9 24.0 -58.1 137.7			7 55.1 -58.4 137.9			6 25.9 -58.7 138.1			4 56.6 -59.0 138.2			7
14 19.5 -56.3 136.9			12 51.7 -56.8 137.2			11 23.5 -57.3 137.5			9 54.9 -57.7 137.7			8 25.9 -58.1 137.9			6 56.7 -58.4 138.1			5 27.2 -58.6 138.3			3 57.6 -59.0 138.4			8
13 23.2 -56.4 137.2			11 54.9 -56.8 137.5			10 26.2 -57.2 137.8			8 57.2 -57.7 138.0			7 27.9 -58.1 138.2			5 58.3 -58.4 138.4			4 28.6 -58.7 138.5			2 58.6 -58.9 138.6			9
12 26.8 -56.3 137.6			10 58.1 -56.9 137.8			9 29.0 -57.3 138.1			7 59.5 -57.7 138.3			6 29.8 -58.0 138.5			4 59.9 -58.4 138.6			3 29.9 -58.7 138.7			1 59.7 -59.0 138.7			10
11 30.5 -56.4 137.9			10 01.2 -56.8 138.2			8 31.7 -57.3 138.4			7 01.8 -57.7 138.6			5 31.8 -58.1 138.7			4 01.5 -58.4 138.8			2 31.2 -58.7 138.9			1 00.7 -59.0 138.9			11
10 34.1 -56.5 138.3			9 04.4 -56.9 138.5			7 34.4 -57.4 138.7			6 04.1 -57.7 138.8			4 33.7 -58.1 139.0			3 03.1 -58.4 139.0			1 32.5 -58.7 139.1			0 01.7 -58.9 139.1			12
9 37.6 -56.4 138.6			8 07.5 -56.9 138.8			6 37.0 -57.3 139.0			5 06.4 -57.7 139.1			3 35.6 -58.1 139.2			2 04.7 -58.4 139.3			0 33.8 -58.7 139.3			0 57.2 +59.0 40.7			13
8 41.2 -56.5 138.9			7 10.6 -57.0 139.1			5 39.7 -57.3 139.3			4 08.7 -57.7 139.4			2 37.5 -58.0 139.5			1 06.3 -58.4 139.5			0 25.0 +58.7 40.5			1 56.2 +59.0 40.5			14
7 44.7 -56.5 139.3			6 13.6 -56.9 139.4			4 42.4 -57.4 139.6			3 11.0 -57.8 139.7			1 39.5 -58.1 139.7			0 07.9 -58.4 139.7			1 23.7 +58.7 40.3			2 55.2 +58.9 40.3			15
6 48.2 -56.5 139.6			5 16.7 -56.9 139.8			3 45.0 -57.3 139.9			2 13.2 -57.7 139.9			0 41.4 -58.1 140.0			0 50.5 +58.4 40.0			2 22.4 +58.7 40.1			3 54.1 +59.0 40.1			16
5 51.7 -56.5 140.0			4 19.8 -57.0 140.1			2 47.7 -57.4 140.2			1 15.5 -57.7 140.2			0 16.7 +58.1 39.8			1 48.9 +58.4 39.8			3 21.1 +58.7 39.9			4 53.1 +59.0 40.0			17
4 55.2 -56.5 140.3			3 22.8 -56.9 140.4			1 50.3 -57.3 140.5			0 17.8 -57.8 140.5			1 14.8 +58.1 39.5			2 47.3 +58.4 39.6			4 19.8 +58.6 39.7			5 52.1 +58.9 39.8			18
3 58.7 -56.5 140.6			2 25.9 -57.0 140.7			0 53.0 -57.4 140.7			0 40.0 +57.7 39.3			2 12.9 +58.1 39.3			3 45.7 +58.4 39.3			5 18.4 +58.7 39.4			6 51.0 +59.0 39.6			19
3 02.2 -56.6 141.0			1 28.9 -57.0 141.0			0 04.4 +57.4 39.0			1 37.7 +57.7 39.0			3 11.0 +58.0 39.0			4 44.1 +58.4 39.1			6 17.1 +58.7 39.2			7 50.0 +58.9 39.4			20
2 05.6 -56.6 141.3			0 31.9 -56.9 141.3			1 01.8 +57.3 38.7			2 35.4 +57.8 38.7			4 09.0 +58.1 38.8			5 42.5 +58.4 38.9			7 15.8 +58.7 39.0			8 48.9 +59.0 39.2			21
1 09.1 -56.5 141.6			0 25.0 +57.0 38.3			1 59.1 +57.4 38.4			3 33.2 +57.7 38.4			5 07.1 +58.1 38.5			6 40.9 +58.4 38.7			8 14.5 +58.7 38.8			9 47.9 +58.9 39.0			22
0 12.6 -56.6 142.0			1 22.0 +56.9 38.0			2 56.5 +57.3 38.1			4 30.9 +57.7 38.2			6 05.2 +58.0 38.3			7 39.3 +58.4 38.4			9 13.2 +58.6 38.6			10 46.8 +58.9 38.8			23
0 44.0 +56.5 37.7			2 18.9 +57.0 37.7			3 53.8 +57.4 37.8			5 28.6 +57.7 37.9			7 03.2 +58.1 38.0			8 37.7 +58.3 38.2			10 11.8 +58.7 38.4			11 45.7 +59.0 38.6			24
1 40.5 +56.6 37.4			3 15.9 +56.9 37.4			4 51.2 +57.3 37.5			6 26.3 +57.7 37.6			8 01.3 +58.0 37.8			9 36.0 +58.4 38.0			11 10.5 +58.6 38.2			12 44.7 +58.9 38.4			25
2 37.1 +56.5 37.0			4 12.8 +57.0 37.1			5 48.5 +57.3 37.2			7 24.0 +57.7 37.3			8 59.3 +58.0 37.5			10 34.4 +58.3 37.7			12 09.1 +58.6 38.0			13 43.6 +58.9 38.2			26
3 33.6 +56.5 36.7			5 09.8 +56.9 36.8			6 45.8 +57.3 36.9			8 21.7 +57.7 37.1			9 57.3 +58.1 37.3			11 32.7 +58.4 37.5			13 07.8 +58.6 37.7			14 42.5 +58.9 38.1			27
4 30.1 +56.5 36.3			6 06.7 +56.9 36.5			7 43.1 +57.4 36.6			9 19.4 +57.6 36.8			10 55.4 +58.0 37.0			12 31.1 +58.3 37.2			14 06.4 +58.6 37.5			15 41.4 +58.9 37.9			28
5 26.6 +56.5 36.0			7 03.6 +56.9 36.1			8 40.5 +57.2 36.3			10 17.0 +57.7 36.5			11 53.4 +58.0 36.7			13 29.4 +58.3 37.0			15 00.5 +58.6 37.3			16 40.3 +58.8 37.7			29
6 23.1 +56.5 35.7			8 00.5 +56.9 35.8			9 37.7 +57.3 36.0			11 14.7 +57.6 36.2			12 51.4 +57.9 36.5			14 27.7 +58.3 36.8			16 03.6 +58.6 37.1			17 39.1 +58.9 37.5			30
7 19.6 +56.5 35.3			8 57.4 +56.9 35.5			10 35.0 +57.3 35.7			12 12.3 +57.7 35.9			13 49.3 +58.0 36.2			15 26.0 +58.3 36.5			17 02.2 +58.6 36.9			18 38.0 +58.8 37.2			31
8 16.1 +56.5 35.0			9 54.3 +56.9 35.2			11 32.3 +57.2 35.4			13 10.0 +57.6 35.6			14 47.3 +57.9 35.9			16 24.3 +58.2 36.3			18 00.8 +58.5 36.6			19 36.8 +58.9 37.0			32
9 12.6 +56.4 34.6			10 51.2 +56.8 34.8			12 29.5 +57.2 35.1			14 07.6 +57.5 35.4			15 45.2 +58.0 35.7			17 22.5 +58.3 36.0			18 59.3 +58.6 36.4			20 35.7 +58.8 36.6			33
10 09.0 +56.4 34.3			11 48.0 +56.8 34.5			13 26.7 +57.2 34.8			15 05.1 +57.6 35.1			16 43.2 +57.8 35.4			18 20.8 +58.2 35.8			19 57.9 +58.5 36.2			21 34.5 +58.8 36.8			34
11 05.4 +56.4 34.0			12 44.8 +56.8 34.2			14 23.9 +57.2 34.5			16 02.7 +57.5 34.8			17 41.0 +57.9 35.1			19 19.0 +58.2 35.5			20 56.4 +58.5 35.9			22 33.3 +58.8 36.4			35
12 01.8 +56.4 33.6			13 41.6 +56.8 33.9			15 21.1 +57.1 34.2			17 00.2 +57.5 34.5			18 38.9 +57.9 34.8			20 17.2 +58.1 35.2			21 54.9 +58.5 35.7			23 32.1 +58.7 36.2			36
12 58.2 +56.3 33.3			14 38.4 +56.7 33.5			16 18.2 +57.2 33.8			17 57.7 +57.5 34.2			19 36.8 +57.8 34.6			21 15.3 +58.2 35.0			22 53.4 +58.4 35.5			24 30.8 +58.8 36.0			37
13 54.5 +56.3 32.9			15 35.1 +56.7 33.2			17 15.4 +57.0 33.5			18 55.2 +57.4 33.9			20 34.6 +57.8 34.3			22 13.5 +58.1 34.7			23 51.8 +58.5 35.2			25 29.6 +58.7 35.5			38
14 50.8 +56.3 32.5			16 31.8 +56.7 32.8			18 12.4 +57.1 33.2			19 52.6 +57.5 33.6			21 32.4 +57.8 34.0			23 11.6 +58.1 34.5			24 50.3 +58.4 35.0			26 28.3 +58.7 35.7			39
15 47.1 +56.2 32.2			17 28.5 +56.6 32.5			19 09.5 +57.0 32.9			20 50.1 +57.3 33.3			22 30.2 +57.7 33.7			24 09.7 +58.1 34.2			25 48.7 +58.4 34.7			27 27.0 +58.7 35.3			40
16 43.3 +56.2 31.8			18 25.1 +56.6 32.2			20 06.5 +57.0 32.5			21 47.4 +57.4 32.9			23 27.9 +57.7 33.4			25 07.8 +58.0 33.9			26 47.1 +58.3 34.5			28 25.7 +58.6 35.0			41
17 39.5 +56.2 31.5			19 21.7 +56.6 31.8			21 03.5 +56.9 32.2			22 44.8 +57.3 32.6			24 25.6 +57.7 33.1			26 05.8 +58.0 33.6			27 45.4 +58.3 34.2			29 24.3 +58.6 34.8			42
18 35.7 +56.1 31.1			20 18.3 +56.5 31.5			22 00.4 +56.9 31.9			23 42.1 +57.3 32.3			25 23.3 +57.6 32.8			27 03.8 +58.0 33.3			28 43.7 +58.3 33.9			30 22.9 +58.6 34.6			43
19 31.8 +56.1 30.7			21 14.8 +56.5 31.1			22 57.3 +56.9 31.5			24 39.4 +57.2 32.0			26 20.9 +57.6 32.5			28 01.8 +57.9 33.0			29 42.0 +58.3 33.7			31 21.5 +58.6 34.3			44
20 27.9 +56.0 30.3			22 11.3 +56.4 30.7			23 54.2 +56.8 31.2			25 36.6 +57.2 31.6			27 18.5 +57.5 32.2			28 59.7 +57.9 32.7			30 40.3 +58.2 33.4			32 20.1 +58.6 34.1			45
21 23.9 +56.0 29.9			23 07.7 +56.3 30.4			24 51.0 +56.7 30.8			26 33.8 +57.1 31.3			28 16.0 +57.5 31.9			29 57.6 +57.9 32.4			31 38.5 +58.2 33.1			33 17.7 +58.5 33.8			46
22 19.9 +55.9 29.6			23 04.0 +56.3 30.0			25 47.7 +56.7 30.5			27 30.9 +57.1 31.0			29 13.5 +57.4 31.5			30 55.5 +57.8									

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	10 21.4	+59.2	137.1	8 53.3	+59.4	137.4	7 24.9	+59.6	137.6	5 56.2	+59.7	137.7	4 27.3	+59.9	137.8	2 58.3	+59.9	137.9	1 29.2	+60.0	138.0	0 00.0	+60.0	138.0
1	11 20.6	+59.2	137.0	9 52.7	+59.4	137.2	8 24.5	+59.5	137.4	6 55.9	+59.8	137.6	5 27.2	+59.8	137.8	3 58.2	+60.0	137.9	2 29.2	+59.9	138.0	1 00.0	+60.0	138.0
2	12 19.8	+59.1	136.8	10 52.1	+59.4	137.1	9 24.0	+59.6	137.3	7 55.7	+59.7	137.5	6 27.0	+59.9	137.7	4 58.2	+59.9	137.8	3 29.1	+60.0	137.9	2 00.0	+60.0	138.0
3	13 18.9	+59.2	136.6	11 51.5	+59.4	136.9	10 23.6	+59.6	137.2	8 55.4	+59.7	137.4	7 26.9	+59.8	137.6	5 58.1	+59.9	137.8	4 29.1	+60.0	137.9	3 00.0	+60.0	138.0
4	14 18.1	+59.2	136.5	12 50.9	+59.4	136.8	11 23.2	+59.6	137.3	9 55.1	+59.8	137.3	8 26.7	+59.9	137.6	6 58.0	+60.0	137.7	5 29.1	+60.0	137.9	4 00.0	+60.0	138.0
5	15 17.3	+59.1	136.3	13 50.3	+59.3	136.6	12 22.8	+59.5	137.0	10 54.9	+59.7	137.2	9 26.6	+59.8	137.5	7 58.0	+59.9	137.7	6 29.1	+60.0	137.9	5 00.0	+60.0	138.0
6	16 16.4	+59.1	136.1	14 49.6	+59.4	136.5	13 22.3	+59.6	136.8	11 54.6	+59.7	137.1	10 26.4	+59.9	137.4	8 57.9	+59.9	137.6	7 29.1	+60.0	137.8	6 00.0	+60.0	138.0
7	17 15.5	+59.2	135.9	15 49.0	+59.4	136.3	14 21.9	+59.6	136.7	12 54.3	+59.7	137.1	11 26.3	+59.8	137.3	9 57.8	+60.0	137.6	8 29.1	+59.9	137.8	7 00.0	+60.0	138.0
8	18 14.7	+59.1	135.8	16 48.4	+59.3	136.2	15 21.5	+59.5	136.6	13 54.0	+59.8	137.0	12 26.1	+59.9	137.3	10 57.8	+59.9	137.6	9 29.0	+60.0	137.8	8 00.0	+60.0	138.0
9	19 13.8	+59.1	135.6	17 47.7	+59.4	136.0	16 21.0	+59.6	136.5	14 53.8	+59.7	136.9	13 26.0	+59.8	137.2	11 57.7	+59.9	137.5	10 29.0	+60.0	137.8	9 00.0	+60.0	138.0
10	20 12.9	+59.1	135.4	18 47.1	+59.3	135.9	17 20.6	+59.5	136.3	15 53.5	+59.7	136.8	14 25.8	+59.8	137.1	12 57.6	+60.0	137.5	11 29.0	+60.0	137.7	10 00.0	+60.0	138.0
11	21 12.0	+59.1	135.2	19 46.4	+59.4	135.7	18 20.1	+59.6	136.2	16 53.2	+59.7	136.7	15 25.6	+59.9	137.0	13 57.6	+59.9	137.4	12 29.0	+60.0	137.7	11 00.0	+60.0	138.0
12	22 11.1	+59.0	135.0	20 45.8	+59.3	135.6	19 19.7	+59.5	136.1	17 52.9	+59.7	136.5	16 25.5	+59.8	137.0	14 57.5	+59.9	137.4	13 29.0	+60.0	137.7	12 00.0	+60.0	138.0
13	23 10.1	+59.1	134.8	21 45.1	+59.3	135.4	20 19.2	+59.6	136.0	18 52.6	+59.7	136.4	17 25.3	+59.9	136.9	15 57.4	+59.9	137.3	14 29.0	+59.9	137.7	13 00.0	+60.0	138.0
14	24 09.2	+59.0	134.6	22 44.4	+59.3	135.3	21 18.8	+59.5	135.8	19 52.3	+59.7	136.3	18 25.2	+59.8	136.8	16 57.3	+60.0	137.3	15 28.9	+60.0	137.6	14 00.0	+60.0	138.0
15	25 08.2	+59.1	134.4	23 43.7	+59.3	135.1	22 18.3	+59.5	135.7	20 52.0	+59.7	136.2	19 25.0	+59.8	136.7	17 57.3	+59.9	137.2	16 28.9	+60.0	137.6	15 00.0	+60.0	138.0
16	26 07.3	+59.0	134.2	24 43.0	+59.3	134.9	23 17.8	+59.5	135.5	21 51.7	+59.7	136.1	20 24.8	+59.9	136.7	18 57.2	+59.9	137.2	17 28.9	+60.0	137.6	16 00.0	+60.0	138.0
17	27 06.3	+59.0	134.0	25 42.3	+59.3	134.8	24 17.3	+59.5	135.4	22 51.4	+59.7	136.0	21 24.7	+59.8	136.6	19 57.1	+59.9	137.1	18 28.9	+60.0	137.6	17 00.0	+60.0	138.0
18	28 05.3	+58.9	133.8	26 41.6	+59.2	134.6	25 16.8	+59.5	135.3	23 51.1	+59.7	135.9	22 24.5	+59.8	136.5	20 57.0	+60.0	137.0	19 28.9	+59.9	137.5	18 00.0	+60.0	138.0
19	29 04.2	+58.9	133.6	27 40.8	+59.3	134.4	26 16.3	+59.5	135.1	24 50.8	+59.7	135.8	23 24.3	+59.8	136.4	21 57.0	+59.9	137.0	20 28.8	+60.0	137.5	19 00.0	+60.0	138.0
20	30 03.2	+58.9	133.4	28 40.1	+59.2	134.2	27 15.8	+59.5	135.0	25 50.5	+59.7	135.7	24 24.1	+59.9	136.3	22 56.9	+59.9	136.9	21 28.8	+60.0	137.5	20 00.0	+60.0	138.0
21	31 02.1	+58.9	133.2	29 39.3	+59.2	134.0	28 15.3	+59.5	134.8	26 50.2	+59.6	135.6	25 24.0	+59.8	136.2	23 56.8	+59.9	136.9	22 28.8	+60.0	137.5	21 00.0	+60.0	138.0
22	32 01.0	+58.9	133.0	30 38.5	+59.2	133.9	29 14.8	+59.4	134.7	27 49.8	+59.7	135.4	26 23.8	+59.8	136.2	24 56.7	+60.0	136.8	23 28.8	+60.0	137.4	22 00.0	+60.0	138.0
23	32 59.9	+58.9	132.7	31 37.7	+59.2	133.7	30 14.2	+59.5	134.5	28 49.5	+59.6	135.3	27 23.6	+59.8	136.1	25 56.7	+59.9	136.8	24 28.8	+59.9	137.4	23 00.0	+60.0	138.0
24	33 58.8	+58.8	132.5	32 36.9	+59.2	133.5	31 13.7	+59.4	134.3	29 49.1	+59.7	135.2	28 23.4	+59.8	136.0	26 56.6	+59.9	136.7	25 28.7	+60.0	137.4	24 00.0	+60.0	138.0
25	34 57.6	+58.8	132.3	33 36.1	+59.1	133.3	32 13.1	+59.4	134.2	30 48.8	+59.6	135.1	29 23.2	+59.8	135.9	27 56.5	+59.9	136.6	26 28.7	+60.0	137.4	25 00.0	+60.0	138.0
26	35 56.4	+58.8	132.0	34 35.2	+59.2	133.1	33 12.5	+59.5	134.0	31 48.4	+59.7	135.0	30 23.0	+59.8	135.8	28 56.4	+59.9	136.6	27 28.7	+60.0	137.3	26 00.0	+60.0	138.0
27	36 55.2	+58.7	131.8	35 34.4	+59.1	132.9	34 12.0	+59.4	133.9	32 48.1	+59.6	134.8	31 22.8	+59.8	135.7	29 56.3	+59.9	136.5	28 28.7	+60.0	137.3	27 00.0	+60.0	138.0
28	37 53.9	+58.7	131.5	36 33.5	+59.1	132.6	35 11.4	+59.3	133.7	33 47.7	+59.6	134.7	32 22.6	+59.8	135.6	30 56.2	+59.9	136.5	29 28.7	+59.9	137.3	28 00.0	+60.0	138.0
29	38 52.6	+58.7	131.3	37 32.6	+59.0	132.4	36 10.7	+59.3	133.5	34 47.3	+59.6	134.6	33 22.4	+59.8	135.5	31 56.1	+60.0	136.4	30 28.6	+60.0	137.2	29 00.0	+60.0	138.0
30	39 51.3	+58.6	131.0	38 31.6	+59.0	132.2	37 10.1	+59.4	133.3	35 46.9	+59.6	134.4	34 22.2	+59.8	135.4	32 56.1	+59.9	136.3	31 28.6	+60.0	137.2	30 00.0	+60.0	138.0
31	40 49.9	+58.6	130.7	39 30.6	+59.0	132.0	38 09.5	+59.3	133.2	36 46.5	+59.6	134.3	35 22.0	+59.8	135.3	33 56.0	+59.9	136.3	32 28.6	+60.0	137.2	31 00.0	+60.0	138.0
32	41 48.5	+58.6	130.4	40 29.6	+59.0	131.7	39 08.8	+59.3	133.0	37 46.1	+59.6	134.1	36 21.8	+59.7	135.2	34 55.9	+59.9	136.2	33 28.6	+59.9	137.1	32 00.0	+60.0	138.0
33	42 47.1	+58.5	130.1	41 28.6	+59.0	131.5	40 08.1	+59.3	132.8	38 45.7	+59.5	134.0	37 21.5	+59.8	135.1	35 55.8	+59.9	136.1	34 28.5	+60.0	137.1	33 00.0	+60.0	138.0
34	43 45.6	+58.4	129.8	42 27.6	+58.9	131.2	41 07.4	+59.3	132.6	39 45.2	+59.5	133.8	38 21.3	+59.7	135.0	36 55.7	+59.9	136.1	35 28.5	+60.0	137.1	34 00.0	+60.0	138.0
35	44 44.0	+58.4	129.5	43 26.5	+58.8	131.0	42 06.7	+59.2	132.4	40 44.8	+59.5	133.7	39 21.0	+59.8	134.9	37 55.6	+59.9	136.0	36 28.5	+60.0	137.0	35 00.0	+60.0	138.0
36	45 42.4	+58.3	129.2	44 25.3	+58.9	130.7	43 05.9	+59.2	132.2	41 44.3	+59.6	133.5	40 20.8	+59.7	134.7	38 55.5	+59.8	135.9	37 28.5	+59.9	137.0	36 00.0	+60.0	138.0
37	46 40.7	+58.3	128.8	45 24.2	+58.8	130.4	44 05.1	+59.2	131.9	42 43.9	+59.5	133.3	41 20.5	+59.8	134.6	39 55.3	+59.9	135.8	38 28.4	+60.0	137.0	37 00.0	+60.0	138.0
38	47 39.0	+58.2	128.5	46 23.0	+58.7	130.2	45 04.3	+59.2	131.7	43 43.4	+59.5	133.1	42 20.3	+59.7	134.5	40 55.2	+59.9	135.7	39 28.4	+60.0	136.9	38 00.0	+60.0	138.0
39	48 37.2	+58.2	128.1	47 21.7	+58.7	129.9	46 03.5	+59.1	131.5	44 42.9	+59.4	133.0	43 20.0	+59.7	134.4	41 55.1	+59.9	135.7	40 28.4	+60.0	136.9	39 00.0	+60.0	138.0
40	49 35.4	+58.0	127.7	48 20.4	+58.6	129.5	47 02.6	+59.1	131.2	45 42.3	+59.5	132.8	44 19.7	+59.7	134.2	42 55.0	+59.9	135.6	41 28.4	+59.9	136.8	40 00.0	+60.0	138.0
41	50 33.4	+57.9	127.4	49 19.0	+58.6	129.2	48 01.7	+59.1	131.0	46 41.8	+59.4	132.6	45 19.4	+59.7	134.1	43 54.9	+59.8	135.5	42 28.3	+60.0	136.8	41 00.0	+60.0	138.0
42	51 31.4	+57.9	126.9	50 17.6	+58.6	128.9	49 00.8	+59.0	130.7	47 41.2	+59.4	132.4	46 19.1	+59.7	133.9	44 54.7	+59.9	135.4	43 28.3	+60.0	136.7	42 00.0	+60.0	138.0
43	52 29.3	+57.8	126.5	51 16.2	+58.4	128.5	49 59.8	+59.0	130.4	48 40.6	+59.4	132.2	47 18.8	+59.7	133.8	45 54.6	+59.9	135.3	44 28.3	+59.9	136.7	43 00.0	+60.0	138.0
44	53 27.1	+57.7	126.1	52 14.6	+58.4	128.2	50 58.8	+59.0	130.1	49 40.0	+59.4	132.0	48 18.5	+59.6	133.6	46 54.5	+59.8	135.2	45 28.2	+60.0	136.7	44 00.0	+60.0	138.0
45	54 24.8	+57.5	125.6	53 13.0	+58.3	127.8	51 57.8	+58.9	129.8	50 39.4	+59.3	131.7	49 18.1	+59.7	133.5	47 54.3	+59.9	135.1	46 28.2	+60.0	136.6	45 00.0	+60.0	138.0
46	55 22.3	+57.5	125.1	54 11.3	+58.3	127.4	52 56.7																	

LATITUDE CONTRARY NAME

L.H.A. 42°, 318°

Table with columns for latitude (76° to 90°) and Dec. (0 to 90). Each latitude column contains three sub-columns: Hc, d, and Z. The table lists celestial coordinates for various stars.

LATITUDE SAME NAME

L.H.A. 138°, 220°

Table with columns for Dec. (0-90) and latitude (60-74) and rows for each latitude (60-74). Each cell contains three values: Hc, d, Z.

LATITUDE CONTRARY NAME

L.H.A. 44°, 316°

Table with columns for latitude (60° to 74°), longitude (Hc, d, Z), and Dec. (0 to 90). Each latitude column contains three sub-columns of Hc, d, and Z values. The Dec. column is on the far right.

LATITUDE SAME NAME

L.H.A. 136°, 224°

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	10 01.3	+59.1	135.1	8 36.1	+59.3	135.4	7 10.5	+59.6	135.6	5 44.7	+59.8	135.7	4 18.7	+59.9	135.8	2 52.6	+59.9	135.9	1 26.3	+60.0	136.0	0 00.0	+60.0	136.0
1	11 00.4	+59.1	135.0	9 35.4	+59.4	135.2	8 10.1	+59.5	135.4	6 44.5	+59.7	135.6	5 18.6	+59.8	135.8	3 52.5	+59.9	135.9	2 26.3	+60.0	136.0	1 00.0	+60.0	136.0
2	11 59.5	+59.1	134.8	10 34.8	+59.3	135.1	9 09.6	+59.6	135.3	7 44.2	+59.7	135.5	6 18.4	+59.9	135.7	4 52.4	+60.0	135.8	3 26.3	+60.0	135.9	2 00.0	+60.0	136.0
3	12 58.6	+59.1	134.6	11 34.1	+59.4	134.9	10 09.2	+59.5	135.2	8 43.9	+59.7	135.4	7 18.3	+59.8	135.6	5 52.4	+59.9	135.8	4 26.3	+59.9	135.9	3 00.0	+60.0	136.0
4	13 57.7	+59.1	134.4	12 33.5	+59.3	134.8	11 08.7	+59.6	135.1	9 43.6	+59.7	135.3	8 18.1	+59.8	135.5	6 52.3	+59.9	135.7	5 26.2	+60.0	135.9	4 00.0	+60.0	136.0
5	14 56.8	+59.1	134.3	13 32.8	+59.3	134.6	12 08.3	+59.5	134.9	10 43.3	+59.7	135.2	9 17.9	+59.9	135.5	7 52.2	+59.9	135.7	6 26.2	+60.0	135.9	5 00.0	+60.0	136.0
6	15 55.9	+59.1	134.1	14 32.1	+59.4	134.5	13 07.8	+59.6	134.8	11 43.0	+59.7	135.1	10 17.8	+59.8	135.4	8 52.1	+60.0	135.6	7 26.2	+60.0	135.8	6 00.0	+60.0	136.0
7	16 55.0	+59.0	133.9	15 31.5	+59.3	134.3	14 07.4	+59.5	134.7	12 42.7	+59.7	135.0	11 17.6	+59.8	135.3	9 52.1	+59.9	135.6	8 26.2	+60.0	135.8	7 00.0	+60.0	136.0
8	17 54.0	+59.1	133.7	16 30.8	+59.3	134.2	15 06.9	+59.5	134.6	13 42.4	+59.7	134.9	12 17.4	+59.9	135.2	10 52.0	+59.9	135.5	9 26.2	+60.0	135.8	8 00.0	+60.0	136.0
9	18 53.1	+59.0	133.5	17 30.1	+59.3	134.0	16 06.4	+59.5	134.4	14 42.1	+59.7	134.8	13 17.3	+59.8	135.2	11 51.9	+60.0	135.5	10 26.2	+59.9	135.8	9 00.0	+60.0	136.0
10	19 52.1	+59.1	133.3	18 29.4	+59.3	133.8	17 05.9	+59.6	134.3	15 41.8	+59.7	134.7	14 17.1	+59.8	135.1	12 51.9	+59.9	135.4	11 26.1	+60.0	135.7	10 00.0	+60.0	136.0
11	20 51.2	+59.0	133.1	19 28.7	+59.3	133.7	18 05.5	+59.5	134.2	16 41.5	+59.7	134.6	15 16.9	+59.9	135.0	13 51.8	+59.9	135.4	12 26.1	+60.0	135.7	11 00.0	+60.0	136.0
12	21 50.2	+59.0	132.9	20 28.0	+59.3	133.5	19 05.0	+59.5	134.0	17 41.2	+59.7	134.5	16 16.8	+59.8	134.9	14 51.7	+59.9	135.3	13 26.1	+60.0	135.7	12 00.0	+60.0	136.0
13	22 49.2	+59.0	132.7	21 27.3	+59.2	133.3	20 04.5	+59.5	133.9	18 40.9	+59.7	134.4	17 16.6	+59.8	134.9	15 51.6	+60.0	135.3	14 26.1	+60.0	135.7	13 00.0	+60.0	136.0
14	23 48.2	+58.9	132.6	22 26.5	+59.3	133.2	21 04.0	+59.5	133.8	19 40.6	+59.7	134.3	18 16.4	+59.8	134.8	16 51.6	+59.9	135.2	15 26.1	+59.9	135.6	14 00.0	+60.0	136.0
15	24 47.1	+59.0	132.3	23 25.8	+59.2	133.0	22 03.5	+59.5	133.6	20 40.3	+59.6	134.2	19 16.2	+59.9	134.7	17 51.5	+59.9	135.2	16 26.0	+60.0	135.6	15 00.0	+60.0	136.0
16	25 46.1	+58.9	132.1	24 25.0	+59.3	132.8	23 03.0	+59.4	133.5	21 39.9	+59.7	134.1	20 16.1	+59.8	134.6	18 51.4	+59.9	135.1	17 26.0	+60.0	135.6	16 00.0	+60.0	136.0
17	26 45.0	+58.9	131.9	25 24.3	+59.2	132.7	24 02.4	+59.3	133.3	22 39.6	+59.6	134.0	21 15.9	+59.8	134.5	19 51.3	+59.9	135.1	18 26.0	+60.0	135.6	17 00.0	+60.0	136.0
18	27 44.0	+58.8	131.7	26 23.5	+59.2	132.5	25 01.9	+59.3	133.2	23 39.3	+59.6	133.8	22 15.7	+59.8	134.4	20 51.2	+60.0	135.0	19 26.0	+60.0	135.5	18 00.0	+60.0	136.0
19	28 42.8	+58.9	131.5	27 22.7	+59.2	132.3	26 01.4	+59.4	133.0	24 38.9	+59.7	133.7	23 15.5	+59.8	134.4	21 51.2	+59.9	135.0	20 26.0	+59.9	135.5	19 00.0	+60.0	136.0
20	29 41.7	+58.9	131.3	28 21.9	+59.2	132.1	27 00.8	+59.5	132.9	25 38.6	+59.6	133.6	24 15.3	+59.8	134.3	22 51.1	+59.9	134.9	21 25.9	+60.0	135.5	20 00.0	+60.0	136.0
21	30 40.6	+58.8	131.1	29 21.1	+59.1	131.9	28 00.3	+59.4	132.7	26 38.2	+59.7	133.5	25 15.1	+59.8	134.2	23 51.0	+59.9	134.8	22 25.9	+60.0	135.4	21 00.0	+60.0	136.0
22	31 39.4	+58.8	130.8	30 20.2	+59.2	131.7	28 59.7	+59.4	132.6	27 37.9	+59.6	133.4	26 14.9	+59.8	134.1	24 50.9	+59.9	134.8	23 25.9	+60.0	135.4	22 00.0	+60.0	136.0
23	32 38.2	+58.8	130.6	31 19.4	+59.1	131.5	29 59.1	+59.4	132.4	28 37.5	+59.7	133.2	27 14.7	+59.8	134.0	25 50.8	+59.9	134.7	24 25.9	+60.0	135.4	23 00.0	+60.0	136.0
24	33 37.0	+58.8	130.4	32 18.5	+59.1	131.3	30 58.5	+59.4	132.3	29 37.2	+59.6	133.1	28 14.5	+59.8	133.9	26 50.7	+59.9	134.7	25 25.9	+59.9	135.4	24 00.0	+60.0	136.0
25	34 35.8	+58.7	130.1	33 17.6	+59.1	131.1	31 57.9	+59.4	132.1	30 36.8	+59.6	133.0	29 14.3	+59.8	133.8	27 50.6	+59.9	134.6	26 25.8	+60.0	135.3	25 00.0	+60.0	136.0
26	35 34.5	+58.7	129.9	34 16.7	+59.1	130.9	32 57.3	+59.4	131.9	31 36.4	+59.6	132.9	30 14.1	+59.8	133.7	28 50.5	+60.0	134.5	27 25.8	+60.0	135.3	26 00.0	+60.0	136.0
27	36 33.2	+58.6	129.6	35 15.8	+59.0	130.7	33 56.7	+59.3	131.7	32 36.0	+59.6	132.7	31 13.9	+59.8	133.6	29 50.5	+59.9	134.5	28 25.8	+60.0	135.3	27 00.0	+60.0	136.0
28	37 31.8	+58.6	129.3	36 14.8	+59.0	130.5	34 56.0	+59.4	131.6	33 35.6	+59.6	132.6	32 13.7	+59.8	133.5	30 50.4	+59.9	134.4	29 25.8	+59.9	135.2	28 00.0	+60.0	136.0
29	38 30.4	+58.6	129.1	37 13.8	+59.0	130.3	35 55.4	+59.3	131.4	34 35.2	+59.6	132.4	33 13.5	+59.7	133.4	31 50.3	+59.9	134.3	30 25.7	+60.0	135.2	29 00.0	+60.0	136.0
30	39 29.0	+58.6	128.8	38 12.8	+59.0	130.0	36 54.7	+59.3	131.2	35 34.8	+59.5	132.3	34 13.2	+59.8	133.3	32 50.2	+59.9	134.3	31 25.7	+60.0	135.2	30 00.0	+60.0	136.0
31	40 27.6	+58.5	128.5	39 11.8	+58.9	129.8	37 54.0	+59.3	131.0	36 34.3	+59.6	132.1	35 13.0	+59.8	133.2	33 50.1	+59.9	134.2	32 25.7	+60.0	135.1	31 00.0	+60.0	136.0
32	41 26.1	+58.4	128.2	40 10.7	+58.9	129.6	38 53.3	+59.2	130.8	37 33.9	+59.6	132.0	36 12.8	+59.7	133.1	34 50.0	+59.9	134.1	33 25.7	+59.9	135.1	32 00.0	+60.0	136.0
33	42 24.5	+58.4	127.9	41 09.6	+58.9	129.3	39 52.5	+59.3	130.6	38 33.5	+59.5	131.8	37 12.5	+59.8	133.0	35 49.9	+59.8	134.1	34 25.6	+60.0	135.1	33 00.0	+60.0	136.0
34	43 22.9	+58.3	127.6	42 08.5	+58.8	129.0	40 51.8	+59.2	130.4	39 33.0	+59.5	131.7	38 12.3	+59.7	132.9	36 49.7	+59.9	134.0	35 25.6	+60.0	135.0	34 00.0	+60.0	136.0
35	44 21.2	+58.3	127.3	43 07.5	+58.8	128.8	41 51.0	+59.2	130.2	40 32.5	+59.5	131.5	39 12.0	+59.7	132.8	37 49.6	+59.9	133.9	36 25.6	+60.0	135.0	35 00.0	+60.0	136.0
36	45 19.5	+58.3	126.9	44 06.1	+58.8	128.5	42 50.2	+59.2	130.0	41 32.0	+59.5	131.3	40 11.7	+59.7	132.6	38 49.5	+59.9	133.8	37 25.6	+59.9	135.0	36 00.0	+60.0	136.0
37	46 17.8	+58.1	126.6	45 04.9	+58.7	128.2	43 49.4	+59.1	129.7	42 31.5	+59.5	131.2	41 11.4	+59.8	132.5	39 49.4	+59.9	133.8	38 25.6	+60.0	134.9	37 00.0	+60.0	136.0
38	47 15.9	+58.1	126.2	46 03.6	+58.6	127.9	44 48.5	+59.1	129.5	43 31.0	+59.4	131.0	42 11.2	+59.7	132.4	40 49.3	+59.9	133.7	39 25.5	+60.0	134.9	38 00.0	+60.0	136.0
39	48 14.0	+58.0	125.9	47 02.2	+58.6	127.6	45 47.6	+59.1	129.3	44 30.4	+59.5	130.8	43 10.9	+59.7	132.2	41 49.2	+59.8	133.6	40 25.5	+59.9	134.8	39 00.0	+60.0	136.0
40	49 12.0	+58.0	125.5	48 00.8	+58.6	127.3	46 46.7	+59.0	129.0	45 29.9	+59.4	130.6	44 10.6	+59.7	132.1	42 49.0	+59.9	133.5	41 25.4	+60.0	134.8	40 00.0	+60.0	136.0
41	50 10.0	+57.8	125.1	48 59.4	+58.5	127.0	47 45.7	+59.1	128.7	46 29.3	+59.4	130.4	45 10.3	+59.6	132.0	43 48.9	+59.9	133.4	42 25.4	+60.0	134.7	41 00.0	+60.0	136.0
42	51 07.8	+57.8	124.7	49 57.9	+58.4	126.6	48 44.8	+58.9	128.5	47 28.7	+59.3	130.2	46 09.9	+59.7	131.8	44 48.8	+59.8	133.3	43 25.4	+59.9	134.7	42 00.0	+60.0	136.0
43	52 05.6	+57.7	124.2	50 56.3	+58.4	126.3	49 43.7	+58.9	128.2	48 28.0	+59.4	130.0	47 09.6	+59.6	131.7	45 48.6	+59.9	133.2	44 25.3	+60.0	134.7	43 00.0	+60.0	136.0
44	53 03.3	+57.5	123.8	51 54.7	+58.3	125.9	50 42.6	+58.9	127.9	49 27.4	+59.3	129.8	48 09.2	+59.7	131.5	46 48.5	+59.8	133.1	45 25.3	+60.0	134.6	44 00.0	+60.0	136.0
45	54 00.8	+57.4	123.3	52 53.0	+58.2	125.5	51 41.5	+58.9	127.6	50 26.7	+59.3	129.5	49 08.9	+59.6	131.3	47 48.3	+59.9	133.0	46 25.3	+59.9	134.6	45 00.0	+60.0	136.0
46	54 58.2	+57.4	122.8	53 51.2	+58.1	125.1	5																	

LATITUDE CONTRARY NAME

L.H.A. 44°, 316°

Table with columns for latitude (76° to 90°), Hc, d, Z, and Dec. Each latitude column contains three sub-columns (Hc, d, Z) and a Dec. column. The table lists astronomical data for various latitudes from 76° to 90°.

LATITUDE SAME NAME

L.H.A. 136°, 224°

46°, 314° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	20 19.4	+55.4	129.9	19 02.0	+56.0	130.5	17 43.8	+56.5	131.0	16 24.7	+57.1	131.4	15 05.0	+57.6	131.8	13 44.7	+58.0	132.2	12 23.7	+58.5	132.6	11 02.3	+58.8	132.9
1	21 14.8	+55.3	129.5	19 58.0	+56.0	130.1	18 40.3	+56.6	130.6	17 21.8	+57.1	131.1	16 02.6	+57.6	131.5	14 42.7	+58.0	132.0	13 22.2	+58.4	132.3	12 01.1	+58.7	132.7
2	22 10.1	+55.3	129.1	20 54.0	+55.9	129.7	19 36.9	+56.5	130.3	18 18.9	+57.1	130.8	17 00.2	+57.5	131.3	15 40.7	+58.0	131.7	14 20.6	+58.4	132.1	12 59.8	+58.8	132.5
3	23 05.4	+55.2	128.7	21 49.9	+55.9	129.3	20 33.4	+56.5	129.9	19 16.0	+57.0	130.4	17 57.7	+57.6	131.0	16 38.7	+58.0	131.4	15 19.0	+58.3	131.9	13 58.6	+58.7	132.2
4	24 00.6	+55.1	128.2	22 45.8	+55.8	128.9	21 29.9	+56.4	129.5	20 13.0	+57.0	130.1	18 55.3	+57.5	130.7	17 36.7	+57.9	131.2	16 17.3	+58.4	131.6	14 57.3	+58.7	132.0
5	24 55.7	+55.0	127.8	23 41.6	+55.7	128.5	22 26.3	+56.4	129.2	21 10.0	+57.0	129.8	19 52.8	+57.4	130.4	18 34.6	+58.0	130.9	17 15.7	+58.3	131.4	15 56.0	+58.7	131.8
6	25 50.7	+55.0	127.4	24 37.3	+55.7	128.1	23 22.7	+56.3	128.8	22 07.0	+56.9	129.4	20 50.2	+57.5	130.1	19 32.6	+57.9	130.6	18 14.0	+58.4	131.1	16 54.7	+58.7	131.6
7	26 45.7	+54.9	126.9	25 33.0	+55.6	127.7	24 19.0	+56.3	128.4	23 03.9	+56.8	129.1	21 47.7	+57.4	129.7	20 30.5	+57.9	130.3	19 12.4	+58.3	130.9	17 53.4	+58.7	131.4
8	27 40.6	+54.8	126.5	26 28.6	+55.5	127.3	25 15.3	+56.2	128.0	24 00.7	+56.9	128.8	22 45.1	+57.3	129.4	21 28.4	+57.8	130.0	20 10.7	+58.2	130.6	18 52.1	+58.7	131.2
9	28 35.4	+54.7	126.0	27 24.1	+55.5	126.8	26 11.5	+56.1	127.6	24 57.6	+56.7	128.4	23 42.4	+57.4	129.1	22 26.2	+57.8	129.8	21 08.9	+58.3	130.4	19 50.8	+58.6	130.9
10	29 30.1	+54.5	125.5	28 19.6	+55.3	126.4	27 07.6	+56.1	127.3	25 54.3	+56.7	128.0	24 39.8	+57.2	128.8	23 24.0	+57.8	129.5	22 07.2	+58.2	130.1	20 49.4	+58.6	130.7
11	30 24.6	+54.5	125.0	29 14.9	+55.3	126.0	28 03.7	+56.0	126.9	26 51.0	+56.7	127.7	25 37.0	+57.3	128.5	24 21.8	+57.8	129.2	23 05.4	+58.2	129.9	21 48.0	+58.6	130.5
12	31 19.1	+54.4	124.6	30 10.2	+55.2	125.5	28 59.7	+55.9	126.4	27 47.7	+56.6	127.2	26 34.3	+57.2	128.1	25 19.6	+57.7	128.9	24 03.6	+58.2	129.6	22 46.6	+58.6	130.3
13	32 13.5	+54.2	124.1	31 05.4	+55.1	125.1	29 55.6	+55.9	126.0	28 44.3	+56.5	126.9	27 31.5	+57.1	127.8	26 17.3	+57.7	128.6	25 01.8	+58.2	129.3	23 45.2	+58.6	130.0
14	33 07.7	+54.1	123.5	32 00.5	+55.0	124.6	30 51.5	+55.7	125.6	29 40.8	+56.5	126.5	28 28.6	+57.1	127.4	27 15.0	+57.6	128.3	26 00.0	+58.1	129.1	24 43.8	+58.5	129.8
15	34 01.8	+54.0	123.0	32 55.5	+54.8	124.1	31 47.2	+55.7	125.2	30 37.3	+56.4	126.2	29 25.7	+57.0	127.1	28 12.6	+57.6	128.0	26 58.1	+58.1	128.8	25 42.3	+58.5	129.5
16	34 55.8	+53.9	122.5	33 50.3	+54.8	123.6	32 42.9	+55.6	124.7	31 33.7	+56.3	125.8	30 22.7	+57.0	126.7	29 10.2	+57.5	127.6	27 56.2	+58.0	128.5	26 40.8	+58.5	129.3
17	35 49.7	+53.7	122.0	34 45.1	+54.6	123.1	33 38.5	+55.5	124.3	32 30.0	+56.2	125.3	31 19.7	+56.9	126.4	30 07.7	+57.5	127.3	28 54.2	+58.1	128.2	27 39.3	+58.5	129.0
18	36 43.4	+53.5	121.4	35 39.7	+54.5	122.6	34 34.0	+55.3	123.8	34 34.0	+56.2	124.9	32 16.6	+56.8	126.0	31 05.2	+57.5	127.0	29 52.3	+57.9	127.9	28 37.8	+58.4	128.8
19	37 36.9	+53.4	120.8	36 34.2	+54.4	122.1	35 29.3	+55.3	123.3	34 22.2	+56.0	124.5	33 13.4	+56.8	126.6	32 02.7	+57.4	126.6	30 50.2	+58.0	127.6	29 36.2	+58.4	128.5
20	38 30.3	+53.2	120.3	37 28.6	+54.2	121.6	36 24.6	+55.1	122.9	35 18.4	+56.0	124.1	34 10.2	+56.7	125.2	33 00.1	+57.3	126.3	31 48.2	+57.9	127.3	30 34.6	+58.4	128.3
21	39 23.5	+53.0	119.7	38 22.8	+54.1	121.1	37 19.7	+55.1	122.4	36 14.4	+55.8	123.6	35 06.9	+56.6	124.8	33 57.4	+57.3	125.9	32 46.1	+57.8	127.0	31 33.0	+58.3	128.0
22	40 16.5	+52.8	119.1	39 16.9	+53.9	120.5	38 14.8	+54.8	121.9	37 10.2	+55.8	123.2	36 03.5	+56.5	124.4	34 54.7	+57.2	125.6	33 43.9	+57.8	126.7	32 31.3	+58.3	127.7
23	41 09.3	+52.6	118.4	40 10.8	+53.7	119.9	39 09.6	+54.8	121.4	38 06.0	+55.6	122.7	37 00.0	+56.4	124.0	35 51.9	+57.1	125.2	34 41.7	+57.7	126.4	33 29.6	+58.3	127.4
24	42 01.9	+52.4	117.8	41 04.5	+53.6	119.3	40 04.4	+54.6	120.8	39 01.6	+55.5	122.2	37 56.4	+56.4	123.6	36 49.0	+57.0	124.8	35 39.4	+57.7	126.0	34 27.9	+58.2	127.2
25	42 54.3	+52.2	117.1	41 58.1	+53.3	118.7	40 59.0	+54.4	120.3	39 57.1	+55.4	121.7	38 52.8	+56.2	123.1	37 46.0	+57.0	124.4	36 37.1	+57.6	125.7	35 26.1	+58.2	126.9
26	43 46.5	+51.9	116.4	42 51.4	+53.2	118.1	41 53.4	+54.3	119.7	40 52.5	+55.3	121.2	39 49.0	+56.2	122.7	38 43.0	+56.9	124.0	37 34.7	+57.6	125.3	36 24.3	+58.1	126.6
27	44 38.4	+51.6	115.7	43 44.6	+52.9	117.5	42 47.7	+54.1	119.1	41 47.8	+55.1	120.7	40 45.2	+56.0	122.2	39 39.9	+56.8	123.6	38 32.3	+57.5	125.0	37 22.4	+58.1	126.2
28	45 30.0	+51.3	115.0	44 37.5	+52.7	116.8	43 41.8	+53.9	118.5	42 42.9	+55.0	120.2	41 41.2	+55.9	121.7	40 36.7	+56.7	123.2	39 29.8	+57.4	124.6	38 20.5	+58.0	125.9
29	46 21.3	+51.1	114.3	45 30.2	+52.5	116.1	44 35.7	+53.6	117.9	43 37.9	+54.8	119.6	42 37.1	+55.7	121.2	41 33.4	+56.7	122.8	40 27.2	+57.3	124.2	39 18.5	+58.0	125.6
30	47 12.4	+50.7	113.5	46 22.7	+52.2	115.4	45 29.3	+53.5	117.3	44 32.7	+54.6	119.1	43 32.8	+55.7	120.7	42 30.1	+56.5	122.3	41 24.5	+57.3	123.8	40 16.5	+57.9	125.3
31	48 03.1	+50.4	112.7	47 14.9	+51.9	114.7	46 22.8	+53.3	116.6	45 27.3	+54.4	118.5	44 28.5	+55.4	120.2	43 26.6	+56.4	121.9	42 21.8	+57.2	123.4	41 14.4	+57.8	124.9
32	48 53.5	+50.1	111.9	48 06.8	+51.6	114.0	47 16.1	+53.0	116.0	46 21.7	+54.3	117.9	45 23.9	+55.4	119.7	44 23.0	+56.2	121.4	43 19.0	+57.1	123.0	42 12.2	+57.8	124.6
33	49 43.6	+49.6	111.1	48 58.4	+51.2	113.2	48 09.1	+52.7	115.3	47 16.0	+54.0	117.2	46 19.3	+55.1	119.1	45 19.2	+56.2	120.9	44 16.1	+57.0	122.6	43 10.0	+57.7	124.2
34	50 33.2	+49.3	110.2	49 49.6	+51.0	112.4	49 01.8	+52.5	114.6	48 10.0	+53.8	116.6	47 14.4	+55.0	118.6	46 15.4	+56.0	120.4	45 13.1	+56.8	122.2	44 07.7	+57.6	123.8
35	51 22.5	+48.8	109.3	50 40.6	+50.6	111.6	49 54.3	+52.1	113.8	49 03.8	+53.6	115.9	48 09.4	+54.8	118.0	47 11.4	+55.8	119.9	46 09.9	+56.8	121.7	45 05.3	+57.6	123.4
36	52 11.3	+48.4	108.3	51 31.2	+50.2	110.7	50 46.4	+51.9	113.0	49 57.4	+53.3	115.2	49 04.2	+54.6	117.3	48 07.2	+55.7	119.3	47 06.7	+56.6	121.2	46 02.9	+57.4	123.0
37	52 59.7	+47.8	107.4	52 21.4	+49.8	109.8	51 38.3	+51.5	112.2	50 50.7	+53.0	114.5	49 58.8	+54.3	116.7	49 02.9	+55.5	118.8	48 03.3	+56.6	120.7	47 00.3	+57.4	122.6
38	53 47.5	+47.3	106.3	53 11.2	+49.3	108.9	52 29.8	+51.1	111.4	51 43.7	+52.7	113.8	50 53.1	+54.2	116.0	49 58.4	+55.4	118.2	48 59.9	+56.3	120.2	47 57.7	+57.2	122.2
39	54 34.8	+46.8	105.3	54 00.5	+48.9	108.0	53 20.9	+50.8	110.5	52 36.4	+52.4	113.0	51 47.3	+53.9	115.3	50 53.8	+55.1	117.6	49 56.2	+56.3	119.7	48 54.9	+57.2	121.7
40	55 21.6	+46.2	104.2	54 49.4	+48.3	107.0	54 11.7	+50.3	109.6	53 28.8	+52.1	112.2	52 41.2	+53.6	114.6	51 48.9	+55.0	117.0	50 52.5	+56.1	119.2	49 52.1	+57.0	121.2
41	56 07.8	+45.5	103.1	55 37.7	+47.8	105.9	55 02.0	+49.9	108.7	54 20.9	+51.7	111.3	53 34.8	+53.3	113.9	52 43.9	+54.7	116.3	51 48.6	+55.9	118.6	50 49.1	+56.9	120.8
42	56 53.3	+44.8	101.9	56 25.5	+47.2	104.8	55 95.5	+49.3	107.7	55 12.6	+51.3	110.5	54 28.1	+53.0	113.1	53 38.6	+54.4	115.6	52 44.5	+55.7	118.0	51 46.0	+56.8	120.3
43	57 38.1	+44.0	100.7	57 12.7	+46.6	103.7	56 41.2	+48.9	106.7	56 03.9	+50.9	109.5	55 21.1	+52.6	112.3	54 33.0	+54.2	114.9	53 40.2	+55.5	117.4	52 42.8	+56.6	119.7
44	58 22.1	+43.3	99.4	57 59.3	+45.9	102.5	57 30.1	+48.3	105.6	56 54.8	+50.4	108.6	56 13.7	+52.3	111.4	55 27.2	+54.0	114.1	54 35.7	+55.3	116.7	53 39.4	+56.5	119.2
45	59 05.4	+42.4	98.0	58 45.2	+45.2	101.3	58 18.4	+47.7	104.5	57 45.2	+49.9	107.6	57 06.0	+51.9	110.5	56 21.2	+53.6	113.4	55 31.0	+55.0	116.1	54 35.9	+56.3	118.6
46	59 47.8	+41.5	96.6	59																				

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	9 40.5	+59.0	133.1	8 18.2	+59.4	133.4	6 55.7	+59.5	133.6	5 32.9	+59.7	133.7	4 09.8	+59.9	133.8	2 46.6	+60.0	133.9	1 23.4	+59.9	134.0	0 00.0	+60.0	134.0
1	10 39.5	+59.1	133.0	9 17.6	+59.3	133.2	7 55.2	+59.5	133.4	6 32.6	+59.7	133.6	5 09.7	+59.8	133.8	3 46.6	+59.9	133.9	2 23.3	+60.0	134.0	1 00.0	+60.0	134.0
2	11 38.6	+59.0	132.8	10 16.9	+59.3	133.1	8 54.7	+59.6	133.3	7 32.3	+59.7	133.5	6 09.5	+59.8	133.7	4 46.5	+59.9	133.8	3 23.3	+60.0	133.9	2 00.0	+60.0	134.0
3	12 37.6	+59.1	132.6	11 16.2	+59.3	132.9	9 54.3	+59.5	133.2	8 32.0	+59.6	133.4	7 09.3	+59.9	133.6	5 46.4	+59.9	133.8	4 23.3	+60.0	133.9	3 00.0	+60.0	134.0
4	13 36.7	+59.0	132.4	12 15.5	+59.2	132.7	10 53.8	+59.5	133.0	9 31.6	+59.7	133.3	8 09.2	+59.8	133.5	6 46.3	+60.0	133.7	5 23.3	+60.0	133.9	4 00.0	+60.0	134.0
5	14 35.7	+59.0	132.2	13 14.7	+59.3	132.6	11 53.3	+59.5	132.9	10 31.3	+59.7	133.2	9 09.0	+59.8	133.5	7 46.3	+59.9	133.7	6 23.3	+59.9	133.9	5 00.0	+60.0	134.0
6	15 34.7	+59.0	132.0	14 14.0	+59.3	132.4	12 52.8	+59.5	132.8	11 31.0	+59.7	133.1	10 08.8	+59.8	133.4	8 46.2	+59.9	133.6	7 23.2	+60.0	133.8	6 00.0	+60.0	134.0
7	16 33.7	+59.0	131.9	15 13.3	+59.3	132.3	13 52.3	+59.5	132.7	12 30.7	+59.7	133.0	11 08.6	+59.9	133.3	9 46.1	+59.9	133.6	8 23.2	+60.0	133.8	7 00.0	+60.0	134.0
8	17 32.7	+59.0	131.7	16 12.6	+59.2	132.1	14 51.8	+59.5	132.5	13 30.4	+59.7	132.9	12 08.5	+59.8	133.2	10 46.0	+60.0	133.5	9 23.2	+60.0	133.8	8 00.0	+60.0	134.0
9	18 31.7	+59.0	131.5	17 11.8	+59.3	131.9	15 51.3	+59.5	132.4	14 30.1	+59.6	132.8	13 08.3	+59.8	133.1	11 46.0	+59.9	133.5	10 23.2	+60.0	133.8	9 00.0	+60.0	134.0
10	19 30.7	+58.9	131.3	18 11.1	+59.3	131.8	16 50.8	+59.5	132.3	15 29.7	+59.7	132.7	14 08.1	+59.8	133.1	12 45.9	+59.9	133.4	11 23.2	+59.9	133.7	10 00.0	+60.0	134.0
11	20 29.6	+59.0	131.1	19 10.4	+59.2	131.6	17 50.3	+59.4	132.1	16 29.4	+59.7	132.6	15 07.9	+59.8	133.0	13 45.8	+59.9	133.4	12 23.1	+60.0	133.7	11 00.0	+60.0	134.0
12	21 28.6	+58.9	130.9	20 09.6	+59.2	131.4	18 49.7	+59.5	132.0	17 29.1	+59.7	132.5	16 07.7	+59.8	132.9	14 45.7	+59.9	133.3	13 23.1	+60.0	133.7	12 00.0	+60.0	134.0
13	22 27.5	+58.9	130.7	21 08.8	+59.2	131.3	19 49.2	+59.5	131.8	18 28.8	+59.6	132.4	17 07.5	+59.9	132.8	15 45.6	+60.0	133.3	14 23.1	+60.0	133.6	13 00.0	+60.0	134.0
14	23 26.4	+58.9	130.5	22 08.0	+59.2	131.1	20 48.7	+59.4	131.7	19 28.4	+59.7	132.2	18 07.4	+59.8	132.7	16 45.6	+59.9	133.2	15 23.1	+60.0	133.6	14 00.0	+60.0	134.0
15	24 25.3	+58.9	130.3	23 07.2	+59.2	130.9	21 48.1	+59.5	131.6	20 28.1	+59.6	132.1	19 07.2	+59.8	132.7	17 45.5	+59.9	133.1	16 23.1	+59.9	133.6	15 00.0	+60.0	134.0
16	25 24.2	+58.9	130.0	24 06.4	+59.2	130.6	22 47.6	+59.4	131.4	21 27.7	+59.7	132.0	20 07.0	+59.8	132.6	18 45.4	+59.9	133.1	17 23.0	+60.0	133.6	16 00.0	+60.0	134.0
17	26 23.1	+58.8	129.8	25 05.6	+59.2	130.6	23 47.0	+59.5	131.3	22 27.4	+59.6	131.9	21 06.8	+59.8	132.5	19 45.3	+59.9	133.0	18 23.0	+60.0	133.5	17 00.0	+60.0	134.0
18	27 21.9	+58.9	129.6	26 04.8	+59.1	130.4	24 46.5	+59.4	131.1	23 27.0	+59.7	131.8	22 06.6	+59.8	132.4	20 45.2	+59.9	133.0	19 23.0	+60.0	133.5	18 00.0	+60.0	134.0
19	28 20.8	+58.8	129.4	27 03.9	+59.2	130.2	25 45.9	+59.4	131.0	24 26.7	+59.6	131.7	23 06.4	+59.8	132.3	21 45.1	+59.9	132.9	20 23.0	+60.0	133.5	19 00.0	+60.0	134.0
20	29 19.6	+58.7	129.2	28 03.1	+59.1	130.0	26 45.3	+59.4	130.8	25 26.3	+59.6	131.5	24 06.2	+59.8	132.2	22 45.0	+60.0	132.9	21 23.0	+59.9	133.5	20 00.0	+60.0	134.0
21	30 18.3	+58.8	128.9	29 02.2	+59.1	129.8	27 44.7	+59.4	130.6	26 25.9	+59.6	131.4	25 06.0	+59.8	132.1	23 45.0	+59.9	132.8	22 22.9	+60.0	133.4	21 00.0	+60.0	134.0
22	31 17.1	+58.7	128.7	30 01.3	+59.1	129.6	28 44.1	+59.4	130.5	27 25.5	+59.7	131.3	26 05.8	+59.8	132.0	24 44.9	+59.9	132.7	23 22.9	+60.0	133.4	22 00.0	+60.0	134.0
23	32 15.8	+58.7	128.5	31 00.4	+59.1	129.4	29 43.5	+59.3	130.3	28 25.2	+59.6	131.2	27 05.6	+59.7	131.9	25 44.8	+59.9	132.7	24 22.9	+60.0	133.4	23 00.0	+60.0	134.0
24	33 14.5	+58.7	128.2	31 59.5	+59.0	129.2	30 42.8	+59.4	130.1	29 24.8	+59.6	131.0	28 05.3	+59.8	131.9	26 44.7	+59.9	132.6	25 22.9	+59.9	133.3	24 00.0	+60.0	134.0
25	34 13.2	+58.6	128.0	32 58.5	+59.1	129.0	31 42.2	+59.3	130.0	30 24.4	+59.6	130.9	29 05.1	+59.8	131.8	27 44.6	+59.9	132.6	26 22.8	+60.0	133.3	25 00.0	+60.0	134.0
26	35 11.8	+58.6	127.7	33 57.6	+59.0	128.8	32 41.5	+59.4	129.8	31 24.0	+59.5	130.8	30 04.9	+59.8	131.7	28 44.5	+59.9	132.5	27 22.8	+60.0	133.3	26 00.0	+60.0	134.0
27	36 10.4	+58.6	127.4	34 56.6	+58.9	128.6	33 40.9	+59.3	129.6	32 23.5	+59.6	130.6	31 04.7	+59.7	131.6	29 44.4	+59.9	132.4	28 22.8	+60.0	133.2	27 00.0	+60.0	134.0
28	37 09.0	+58.6	127.2	35 55.5	+59.0	128.3	34 40.2	+59.3	129.4	33 23.1	+59.6	130.5	32 04.4	+59.8	131.4	30 44.3	+59.9	132.4	29 22.8	+59.9	133.2	28 00.0	+60.0	134.0
29	38 07.6	+58.5	126.9	36 54.5	+58.9	128.1	35 39.5	+59.3	129.3	34 22.7	+59.5	130.3	33 04.2	+59.7	131.3	31 44.2	+59.9	132.3	30 22.7	+60.0	133.2	29 00.0	+60.0	134.0
30	39 06.0	+58.5	126.6	37 53.4	+58.9	127.9	36 38.8	+59.2	129.1	35 22.2	+59.6	130.2	34 03.9	+59.8	131.2	32 44.1	+59.9	132.2	31 22.7	+60.0	133.1	30 00.0	+60.0	134.0
31	40 04.5	+58.4	126.3	38 52.3	+58.9	127.6	37 38.0	+59.3	128.9	36 21.8	+59.5	130.0	35 03.7	+59.7	131.1	33 44.0	+59.9	132.1	32 22.7	+60.0	133.1	31 00.0	+60.0	134.0
32	41 02.9	+58.4	126.0	39 51.2	+58.8	127.4	38 37.3	+59.2	128.7	37 21.3	+59.5	129.9	36 03.4	+59.8	131.0	34 43.9	+59.8	132.1	33 22.7	+59.9	133.1	32 00.0	+60.0	134.0
33	42 01.3	+58.3	125.7	40 50.0	+58.8	127.1	39 36.5	+59.2	128.5	38 20.8	+59.5	129.7	37 03.2	+59.7	130.9	35 43.7	+59.9	132.0	34 22.6	+60.0	133.0	33 00.0	+60.0	134.0
34	42 59.6	+58.2	125.4	41 48.8	+58.8	126.9	40 35.7	+59.1	128.2	39 20.3	+59.5	129.5	38 02.9	+59.7	130.8	36 43.6	+59.9	131.9	35 22.6	+60.0	133.0	34 00.0	+60.0	134.0
35	43 57.8	+58.2	125.1	42 47.6	+58.7	126.6	41 34.8	+59.2	128.0	40 19.8	+59.5	129.4	39 02.6	+59.7	130.7	37 43.5	+59.9	131.8	36 22.6	+59.9	133.0	35 00.0	+60.0	134.0
36	44 56.0	+58.1	124.7	43 46.3	+58.7	126.3	42 34.0	+59.1	127.8	41 19.3	+59.4	129.2	40 02.3	+59.7	130.5	38 43.4	+59.9	131.8	37 22.5	+60.0	132.9	36 00.0	+60.0	134.0
37	45 54.1	+58.1	124.4	44 45.0	+58.6	126.0	43 33.1	+59.1	127.6	42 18.7	+59.5	129.0	41 02.0	+59.7	130.4	39 43.3	+59.8	131.7	38 22.5	+60.0	132.9	37 00.0	+60.0	134.0
38	46 52.2	+58.0	124.0	45 43.6	+58.6	125.7	44 32.2	+59.0	127.3	43 18.2	+59.4	128.8	42 01.7	+59.7	130.3	40 43.1	+59.9	131.6	39 22.5	+60.0	132.8	38 00.0	+60.0	134.0
39	47 50.2	+57.9	123.6	46 42.2	+58.5	125.4	45 31.2	+59.1	127.1	44 17.6	+59.4	128.6	43 01.4	+59.7	130.1	41 43.0	+59.9	131.5	40 22.5	+59.9	132.8	39 00.0	+60.0	134.0
40	48 48.1	+57.8	123.2	47 40.7	+58.5	125.1	46 30.3	+59.0	126.8	45 17.0	+59.4	128.4	44 01.1	+59.7	130.0	42 42.9	+59.8	131.4	41 22.4	+60.0	132.8	40 00.0	+60.0	134.0
41	49 45.9	+57.7	122.8	48 39.2	+58.4	124.7	47 29.2	+59.0	126.5	46 16.4	+59.3	128.2	45 00.8	+59.6	129.8	43 42.7	+59.9	131.3	42 22.4	+60.0	132.7	41 00.0	+60.0	134.0
42	50 43.6	+57.7	122.4	49 37.6	+58.3	124.4	48 28.2	+58.9	126.3	47 15.7	+59.3	128.0	46 00.4	+59.7	129.7	44 42.6	+59.8	131.2	43 22.4	+59.9	132.7	42 00.0	+60.0	134.0
43	51 41.3	+57.5	121.9	50 35.9	+58.3	124.0	49 27.1	+58.9	126.0	48 15.0	+59.4	127.8	47 00.1	+59.6	129.5	45 42.4	+59.9	131.1	44 22.3	+60.0	132.6	43 00.0	+60.0	134.0
44	52 38.8	+57.4	121.5	51 34.2	+58.2	123.6	50 26.0	+58.8	125.7	49 14.4	+59.2	127.6	47 59.7	+59.6	129.4	46 42.3	+59.8	131.0	45 22.3	+59.9	132.6	44 00.0	+60.0	134.0
45	53 36.2	+57.3	121.0	52 32.4	+58.1	123.2	51 24.8	+58.7	125.4	50 13.6	+59.3	127.3	48 59.3	+59.6	129.2	47 42.1	+59.8	130.9	46 22.2	+60.0	132.5	45 00.0	+60.0	134.0
46	54 33.5	+57.2	120.5	53 30.5	+58.1	122.8	52 23.5																	

LATITUDE CONTRARY NAME

L.H.A. 46°, 314°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
9 40.5 -59.1 133.1	8 18.2 -59.3 133.4	6 55.7 -59.5 133.6	5 32.9 -59.7 133.7	4 09.8 -59.8 133.8	2 46.6 -59.9 133.9	1 23.4 -60.0 134.0	0 00.0 +60.0 46.0																		0	
8 41.4 -59.0 133.3	7 18.9 -59.3 133.5	5 56.2 -59.6 133.7	4 33.2 -59.7 133.8	3 10.0 -59.8 133.9	1 46.7 -59.9 134.0	0 23.4 -60.0 134.0	1 00.0 +60.0 46.0																			1
7 42.4 -59.1 133.5	6 19.6 -59.3 133.7	4 56.6 -59.5 133.8	3 33.5 -59.7 133.9	2 10.2 -59.8 134.0	0 46.8 -59.9 134.0	0 36.6 +60.0 46.0	2 00.0 +60.0 46.0																			2
6 43.3 -59.1 133.7	5 20.3 -59.3 133.8	3 57.1 -59.5 133.9	2 33.8 -59.7 134.0	1 10.4 -59.8 134.0	0 13.1 +59.9 45.9	1 36.6 +60.0 45.9	3 00.0 +60.0 46.0																			3
5 44.2 -59.1 133.8	4 21.0 -59.3 134.0	2 57.6 -59.5 134.1	1 34.1 -59.7 134.1	0 10.5 -59.8 134.1	1 13.0 +60.0 45.9	2 36.6 +60.0 45.9	4 00.0 +60.0 46.0																			4
4 45.1 -59.0 134.0	3 21.7 -59.4 134.1	1 58.1 -59.6 134.2	0 34.4 -59.7 134.2	0 49.3 +59.8 45.8	2 13.0 +59.9 45.8	3 36.6 +59.9 45.9	5 00.0 +60.0 46.0																			5
3 46.1 -59.1 134.2	2 22.3 -59.3 134.3	0 58.5 -59.5 134.3	0 25.3 +59.7 45.7	1 49.1 +59.9 45.7	3 12.9 +59.9 45.8	4 36.5 +60.0 45.9	6 00.0 +60.0 46.0																			6
2 47.0 -59.1 134.4	1 23.0 -59.3 134.4	0 01.0 +59.5 45.6	1 25.0 +59.7 45.6	2 49.0 +59.8 45.6	4 12.8 +59.9 45.7	5 36.5 +60.0 45.8	7 00.0 +60.0 46.0																			7
1 47.9 -59.1 134.5	0 23.7 -59.3 134.6	1 00.5 +59.6 45.6	2 24.7 +59.7 45.5	3 48.8 +59.8 45.6	5 12.7 +60.0 45.7	6 36.5 +60.0 45.8	8 00.0 +60.0 46.0																			8
0 48.8 -59.1 134.7	0 35.6 +59.4 45.3	2 00.1 +59.5 45.3	3 24.4 +59.7 45.4	4 48.6 +59.9 45.5	6 12.7 +59.9 45.6	7 36.5 +60.0 45.8	9 00.0 +60.0 46.0																			9
0 10.3 +59.1 45.1	1 35.0 +59.3 45.1	2 59.6 +59.5 45.2	4 24.1 +59.7 45.3	5 48.5 +59.8 45.4	7 12.6 +59.9 45.6	8 36.5 +59.9 45.8	10 00.0 +60.0 46.0																			10
1 09.4 +59.0 44.9	2 34.3 +59.3 45.0	3 59.1 +59.5 45.1	5 23.8 +59.7 45.2	6 48.3 +59.8 45.3	8 12.5 +59.9 45.5	9 36.4 +60.0 45.7	11 00.0 +60.0 46.0																			11
2 08.4 +59.1 44.8	3 33.6 +59.3 44.8	4 58.6 +59.6 44.9	6 23.5 +59.7 45.1	7 48.1 +59.8 45.3	9 12.4 +60.0 45.5	10 36.4 +60.0 45.7	12 00.0 +60.0 46.0																			12
3 07.5 +59.1 44.6	4 32.9 +59.4 44.7	5 58.2 +59.5 44.8	7 23.2 +59.7 45.0	8 47.9 +59.9 45.2	10 12.4 +59.9 45.4	11 36.4 +60.0 45.7	13 00.0 +60.0 46.0																			13
4 06.6 +59.1 44.4	5 32.3 +59.3 44.5	6 57.7 +59.5 44.7	8 22.9 +59.7 44.9	9 47.8 +59.8 45.1	11 12.3 +59.9 45.4	12 36.4 +60.0 45.7	14 00.0 +60.0 46.0																			14
5 05.7 +59.1 44.2	6 31.6 +59.3 44.4	7 57.2 +59.5 44.6	9 22.6 +59.7 44.8	10 47.6 +59.8 45.0	12 12.2 +59.9 45.3	13 36.4 +59.9 45.6	15 00.0 +60.0 46.0																			15
6 04.8 +59.0 44.1	7 30.9 +59.3 44.2	8 56.7 +59.6 44.4	10 22.3 +59.7 44.7	11 47.4 +59.8 44.9	13 12.1 +59.9 45.3	14 36.3 +60.0 45.6	16 00.0 +60.0 46.0																			16
7 03.8 +59.1 43.9	8 30.2 +59.3 44.1	9 56.3 +59.5 44.3	11 22.0 +59.6 44.6	12 47.2 +59.9 44.9	14 12.0 +60.0 45.2	15 36.3 +60.0 45.6	17 00.0 +60.0 46.0																			17
8 02.9 +59.1 43.7	9 29.5 +59.3 43.9	10 55.8 +59.5 44.2	12 12.6 +59.7 44.5	13 47.1 +59.8 44.8	15 12.0 +59.9 45.1	16 36.3 +60.0 45.6	18 00.0 +60.0 46.0																			18
9 02.0 +59.0 43.5	10 28.8 +59.3 43.8	11 55.3 +59.5 44.0	13 21.3 +59.7 44.4	14 46.9 +59.8 44.7	16 11.9 +59.9 45.1	17 36.3 +60.0 45.5	19 00.0 +60.0 46.0																			19
10 01.0 +59.1 43.3	11 28.1 +59.3 43.6	12 54.8 +59.5 43.8	14 21.0 +59.7 44.2	15 46.7 +59.8 44.6	17 11.8 +59.9 45.0	18 36.3 +59.9 45.5	20 00.0 +60.0 46.0																			20
11 00.1 +59.0 43.2	12 27.4 +59.3 43.5	13 54.3 +59.5 43.9	15 20.7 +59.7 44.1	16 46.5 +59.8 44.5	18 11.7 +59.9 45.0	19 36.2 +60.0 45.5	21 00.0 +60.0 46.0																			21
11 59.1 +59.1 43.0	13 26.7 +59.3 43.3	14 53.8 +59.5 43.6	16 20.4 +59.6 44.0	17 46.3 +59.8 44.5	19 11.6 +59.9 44.9	20 36.2 +60.0 45.4	22 00.0 +60.0 46.0																			22
12 58.2 +59.0 42.8	14 26.0 +59.3 43.1	15 53.3 +59.5 43.5	17 20.0 +59.7 43.9	18 46.1 +59.8 44.4	20 11.5 +60.0 44.9	21 36.2 +60.0 45.4	23 00.0 +60.0 46.0																			23
13 57.2 +59.0 42.6	15 25.3 +59.2 43.0	16 52.8 +59.5 43.4	18 19.7 +59.7 43.8	19 45.9 +59.8 44.3	21 11.5 +59.9 44.8	22 36.2 +59.9 45.4	24 00.0 +60.0 46.0																			24
14 56.2 +59.0 42.4	16 24.5 +59.3 42.8	17 52.3 +59.4 43.2	19 19.4 +59.6 43.7	20 45.7 +59.9 44.2	22 11.4 +59.9 44.8	23 36.1 +60.0 45.4	25 00.0 +60.0 46.0																			25
15 55.2 +59.0 42.2	17 23.8 +59.2 42.7	18 51.7 +59.5 43.1	20 19.0 +59.7 43.6	21 45.6 +59.8 44.1	23 11.3 +59.9 44.7	24 36.1 +60.0 45.3	26 00.0 +60.0 46.0																			26
16 54.2 +59.0 42.1	18 23.0 +59.3 42.5	19 51.2 +59.5 43.0	21 18.7 +59.6 43.5	22 45.4 +59.8 44.0	24 11.2 +59.9 44.6	25 36.1 +60.0 45.3	27 00.0 +60.0 46.0																			27
17 53.2 +59.0 41.9	19 22.3 +59.2 42.3	20 50.7 +59.4 42.8	22 18.3 +59.7 43.4	23 45.2 +59.7 43.9	25 11.1 +59.9 44.6	26 36.1 +60.0 45.3	28 00.0 +60.0 46.0																			28
18 52.2 +59.0 41.7	20 21.5 +59.2 42.1	21 50.1 +59.5 42.7	23 18.0 +59.6 43.2	24 44.9 +59.8 43.9	26 11.0 +59.9 44.5	27 36.1 +59.9 45.2	29 00.0 +60.0 46.0																			29
19 51.2 +58.9 41.5	21 20.7 +59.3 42.0	22 49.6 +59.4 42.5	24 17.6 +59.6 43.1	25 44.7 +59.8 43.8	27 10.9 +59.9 44.5	28 36.0 +60.0 45.2	30 00.0 +60.0 46.0																			30
20 50.1 +59.0 41.3	22 20.0 +59.2 41.8	23 49.0 +59.5 42.4	25 17.2 +59.7 43.0	26 44.5 +59.8 43.7	28 10.8 +59.9 44.4	29 36.0 +60.0 45.2	31 00.0 +60.0 46.0																			31
21 49.1 +58.9 41.1	23 19.2 +59.2 41.6	24 48.5 +59.4 42.2	26 16.9 +59.6 42.9	27 44.3 +59.8 43.6	29 10.7 +59.9 44.3	30 36.0 +60.0 45.1	32 00.0 +60.0 46.0																			32
22 48.0 +58.9 40.9	24 18.4 +59.1 41.4	25 47.9 +59.4 42.1	27 16.5 +59.6 42.7	28 44.1 +59.8 43.5	30 10.6 +59.9 44.3	31 36.0 +59.9 45.1	33 00.0 +60.0 46.0																			33
23 46.9 +58.9 40.7	25 17.5 +59.2 41.3	26 47.3 +59.4 41.9	28 16.1 +59.6 42.6	29 43.9 +59.7 43.4	31 10.5 +59.9 44.2	32 35.9 +60.0 45.1	34 00.0 +60.0 46.0																			34
24 45.8 +58.9 40.5	26 16.7 +59.2 41.1	27 46.7 +59.4 41.8	29 15.7 +59.6 42.5	30 43.6 +59.8 43.3	32 10.4 +59.9 44.1	33 35.9 +60.0 45.0	35 00.0 +60.0 46.0																			35
25 44.7 +58.9 40.2	27 15.9 +59.1 40.9	28 46.1 +59.4 41.6	30 15.3 +59.6 42.4	31 43.4 +59.8 43.2	33 10.3 +59.9 44.0	34 35.9 +59.9 45.0	36 00.0 +60.0 46.0																			36
26 43.6 +58.8 40.0	28 15.0 +59.1 40.7	29 45.5 +59.3 41.4	31 14.9 +59.6 42.2	32 43.2 +59.7 43.1	34 10.2 +59.9 44.0	35 35.8 +60.0 45.0	37 00.0 +60.0 46.0																			37
27 42.4 +58.8 39.8	29 14.1 +59.1 40.5	30 44.8 +59.4 41.3	32 14.5 +59.6 42.1	33 42.9 +59.8 43.0	35 10.1 +59.9 43.9	36 35.8 +60.0 44.9	38 00.0 +60.0 46.0																			38
28 41.2 +58.8 39.6	30 13.2 +59.1 40.3	31 44.2 +59.3 41.1	33 14.1 +59.5 41.9	34 42.7 +59.7 42.8	36 10.0 +59.9 43.8	37 35.8 +60.0 44.9	39 00.0 +60.0 46.0																			39
29 40.0 +58.8 39.4	31 12.3 +59.1 40.1	32 43.5 +59.4 40.9	34 13.6 +59.6 41.8	35 42.4 +59.8 42.7	37 09.9 +59.8 43.7	38 35.8 +59.9 44.8	40 00.0 +60.0 46.0																			40
30 38.8 +58.7 39.1	32 11.4 +59.0 39.9	33 42.9 +59.3 40.7	35 13.2 +59.5 41.6	36 42.2 +59.7 42.6	38 09.7 +59.9 43.7	39 35.7 +60.0 44.8	41 00.0 +60.0 46.0																			41
31 37.5 +58.8 38.9	33 10.4 +59.0 39.7	34 42.2 +59.3 40.6	36 12.7 +59.5 41.5	37 41.9 +59.7 42.5	39 09.6 +59.9 43.6	40 35.7 +60.0 44.7	42 00.0 +60.0 46.0																			42
32 36.3 +58.6 38.6	34 09.4 +59.0 39.5	35 41.5 +59.3 40.4	37 12.2 +59.6 41.3	38 41.6 +59.7 42.4	40 09.5 +59.8 43.5	41 35.7 +59.9 44.7	43 00.0 +60.0 46.0																			43
33 34.9 +58.7 38.4	35 08.4 +59.0 39.3	36 40.8 +59.2 40.2	38 11.8 +59.5 41.2	39 41.3 +59.8 42.3	41 09.3 +59.9 43.4	42 35.6 +60.0 44.7	44 00.0 +60.0 46.0																			44
34 33.6 +58.6 38.1	36 07.4 +59.0 39.0	37 40.0 +59.2 40.0	39 11.3 +59.5 41.0	40 41.1 +59.7 42.1	42 09.2 +59.9 43.3	43 35.6 +60.0 44.6	45 00.0 +60.0 46.0																			45
35 32.2 +58.6 37.9	37 06.4 +58.9 38.8	38 39.2 +59.3 39.8	40 10.8																							

48° 312° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	19 32.8	+55.1	127.9	18 18.5	+55.8	128.5	17 03.4	+56.4	129.0	15 47.6	+56.9	129.4	14 31.0	+57.5	129.9	13 13.8	+57.9	130.2	11 56.0	+58.3	130.6	10 37.7	+58.7	130.9
1	20 27.7	+55.0	127.5	19 14.3	+55.7	128.1	17 59.8	+56.4	128.6	16 44.5	+56.9	129.1	15 28.5	+57.4	129.6	14 11.7	+57.9	130.0	12 54.3	+58.3	130.3	11 36.4	+58.6	130.7
2	21 22.9	+55.0	127.1	20 10.0	+55.7	127.7	18 56.2	+56.3	128.3	17 41.4	+56.9	128.8	16 25.9	+57.4	129.3	15 09.6	+57.9	129.7	13 52.6	+58.3	130.1	12 35.0	+58.7	130.4
3	22 17.9	+54.9	126.7	21 05.7	+55.6	127.3	19 52.5	+56.2	127.9	18 38.3	+56.9	128.4	17 23.3	+57.4	129.3	16 07.5	+57.8	129.4	14 50.9	+58.3	129.8	13 33.7	+58.7	130.2
4	23 12.8	+54.9	126.2	22 01.3	+55.6	126.9	20 48.7	+56.3	127.5	19 35.2	+56.8	128.1	18 20.7	+57.3	128.6	17 05.3	+57.8	129.1	15 49.2	+58.2	129.6	14 32.4	+58.6	130.0
5	24 07.7	+54.7	125.8	22 56.9	+55.5	126.5	21 45.0	+56.1	127.2	20 32.0	+56.7	127.8	19 18.0	+57.3	128.3	18 03.1	+57.8	128.9	16 47.4	+58.3	129.4	15 31.0	+58.6	129.8
6	25 02.4	+54.7	125.3	23 52.4	+55.4	126.1	22 41.1	+56.1	126.8	21 28.7	+56.8	127.4	20 15.3	+57.3	128.0	19 00.9	+57.8	128.6	17 45.7	+58.2	129.1	16 29.6	+58.6	129.6
7	25 57.1	+54.6	124.9	24 47.8	+55.4	125.7	23 37.2	+56.1	126.4	22 25.5	+56.6	127.1	21 12.6	+57.2	127.7	19 58.7	+57.8	128.3	18 43.9	+58.2	128.8	17 28.2	+58.6	129.4
8	26 51.7	+54.5	124.4	25 43.2	+55.2	125.2	24 33.3	+56.0	126.0	23 22.1	+56.7	126.7	22 09.8	+57.3	127.4	20 56.5	+57.7	128.0	19 42.1	+58.2	128.6	18 26.8	+58.6	129.1
9	27 46.2	+54.4	123.9	26 38.4	+55.2	124.8	25 39.3	+55.9	125.6	24 18.8	+56.5	126.3	23 07.1	+57.1	127.1	21 54.2	+57.7	127.7	20 40.3	+58.1	128.3	19 25.4	+58.5	128.9
10	28 40.6	+54.3	123.5	27 33.6	+55.2	124.4	26 25.2	+55.8	125.2	25 15.3	+56.6	126.0	24 04.2	+57.1	126.7	22 51.9	+57.6	127.4	21 38.4	+58.2	128.1	20 23.9	+58.6	128.7
11	29 34.9	+54.2	123.0	28 28.8	+55.0	123.9	27 21.0	+55.8	124.8	26 11.9	+56.4	125.6	25 01.3	+57.1	126.4	23 49.5	+57.7	127.1	22 36.6	+58.1	127.8	21 22.5	+58.5	128.4
12	30 29.1	+54.1	122.5	29 23.8	+54.9	123.5	28 16.8	+55.7	124.4	27 08.3	+56.4	125.2	25 58.4	+57.0	126.0	24 47.2	+57.5	126.8	23 34.7	+58.0	127.5	22 21.0	+58.5	128.2
13	31 23.2	+53.9	122.0	30 18.7	+54.8	123.0	29 12.5	+55.7	123.9	28 04.7	+56.4	124.8	26 55.4	+57.0	125.7	25 44.7	+57.6	126.5	24 32.7	+58.1	127.2	23 19.5	+58.5	128.0
14	32 17.1	+53.9	121.5	31 13.5	+54.8	122.5	30 08.2	+55.5	123.5	29 01.1	+56.2	124.5	27 52.4	+56.9	125.3	26 42.3	+57.5	126.2	25 30.8	+58.0	127.0	24 18.0	+58.4	127.7
15	33 11.0	+53.7	120.9	32 08.3	+54.6	122.0	31 03.7	+55.4	123.1	29 57.3	+56.2	124.1	28 49.3	+56.9	125.0	27 39.8	+57.4	125.9	26 28.8	+57.9	126.7	25 16.4	+58.5	127.5
16	34 04.7	+53.5	120.4	33 02.9	+54.5	121.5	31 59.1	+55.4	122.6	30 53.5	+56.1	123.6	29 46.2	+56.8	124.6	28 37.2	+57.4	125.5	27 26.7	+58.0	126.4	26 14.9	+58.4	127.2
17	34 58.2	+53.4	119.9	33 57.4	+54.3	121.0	32 54.5	+55.2	122.2	31 49.6	+56.1	123.2	30 43.0	+56.7	124.2	29 34.6	+57.4	125.2	28 24.7	+57.9	126.1	27 13.3	+58.3	126.9
18	35 51.6	+53.2	119.3	34 51.7	+54.3	120.5	33 49.7	+55.2	121.7	32 45.7	+55.9	122.8	31 39.7	+56.7	123.9	30 32.0	+57.3	124.9	29 22.6	+57.8	125.8	28 11.6	+58.4	126.7
19	36 44.8	+53.1	118.7	35 46.0	+54.1	120.0	34 44.9	+55.0	121.2	33 41.6	+55.9	122.4	32 36.4	+56.6	123.5	31 29.3	+57.2	124.5	30 20.4	+57.9	125.5	29 10.0	+58.3	126.4
20	37 37.9	+52.9	118.1	36 40.1	+53.9	119.5	35 39.9	+54.9	120.7	34 37.5	+55.7	121.9	33 33.0	+56.5	123.1	32 26.5	+57.2	124.2	31 18.3	+57.7	125.2	30 08.3	+58.3	126.1
21	38 30.8	+52.7	117.5	37 34.0	+53.8	118.9	36 34.8	+54.8	120.2	35 33.2	+55.7	121.5	34 29.5	+56.4	122.7	33 23.7	+57.1	123.8	32 16.0	+57.7	124.9	31 06.6	+58.2	125.9
22	39 23.5	+52.5	116.9	38 27.8	+53.7	118.4	37 29.6	+54.6	119.7	36 28.9	+55.6	121.3	35 25.9	+56.4	122.3	34 20.8	+57.1	123.4	33 13.7	+57.7	124.5	32 04.8	+58.2	125.6
23	40 16.0	+52.3	116.3	39 21.5	+53.4	117.8	38 24.2	+54.5	119.2	37 24.4	+55.5	120.6	36 22.3	+56.2	121.8	35 17.9	+57.0	123.1	34 11.4	+57.6	124.2	33 03.0	+58.2	125.3
24	41 08.3	+52.1	115.7	40 14.9	+53.3	117.2	39 18.7	+54.4	118.7	38 19.9	+55.5	120.1	37 18.5	+56.2	121.4	36 14.9	+56.9	122.7	35 09.0	+57.5	123.9	34 01.2	+58.1	125.0
25	42 00.4	+51.8	115.0	41 08.2	+53.1	116.6	40 13.1	+54.1	118.1	39 15.2	+55.1	119.6	38 14.7	+56.0	121.0	37 11.8	+56.8	122.3	36 06.6	+57.5	123.5	34 59.3	+58.0	124.7
26	42 52.2	+51.6	114.3	42 01.3	+52.8	116.0	41 07.2	+54.0	117.5	40 10.3	+55.1	119.1	39 10.7	+56.0	120.5	38 08.6	+56.7	121.9	37 04.1	+57.4	123.2	35 57.3	+57.9	124.4
27	43 43.8	+51.4	113.6	42 54.1	+52.7	115.3	42 01.2	+53.9	117.0	41 05.4	+54.9	118.5	40 06.7	+56.8	120.0	39 05.3	+56.7	121.5	38 01.5	+57.4	123.8	36 55.4	+57.9	124.1
28	44 35.2	+51.0	112.9	43 46.8	+52.4	114.7	42 55.1	+53.6	116.4	42 00.3	+54.7	118.0	41 02.5	+56.7	119.5	40 02.0	+56.5	121.0	38 58.9	+57.2	122.4	37 53.3	+58.0	123.8
29	45 26.2	+50.7	112.1	44 39.2	+52.1	114.0	43 48.7	+53.5	115.7	42 55.0	+54.6	117.4	41 58.2	+56.5	119.0	40 58.5	+56.5	120.6	39 56.1	+57.3	122.0	38 51.3	+57.8	123.4
30	46 16.9	+50.5	111.4	45 31.3	+51.9	113.3	44 42.2	+53.2	115.1	43 49.6	+54.3	116.9	42 53.8	+56.4	118.5	41 55.0	+56.3	120.1	40 53.4	+57.1	121.6	39 49.1	+57.8	123.1
31	47 07.4	+50.3	110.6	46 23.2	+51.7	112.6	45 35.4	+53.0	114.5	44 43.9	+54.2	116.3	43 49.2	+56.3	118.1	42 51.3	+56.2	119.7	41 50.5	+57.0	121.2	40 46.9	+57.7	122.7
32	47 57.5	+50.1	109.8	47 14.9	+51.3	111.8	46 28.4	+52.7	113.8	45 38.1	+54.1	115.7	44 44.5	+56.1	117.5	43 47.5	+56.1	119.2	42 47.5	+56.9	120.8	41 44.6	+57.7	122.4
33	48 47.2	+49.4	108.9	48 06.2	+51.0	111.0	47 21.1	+52.5	113.1	46 32.2	+53.7	115.0	45 39.6	+54.9	116.9	44 43.6	+56.0	118.7	43 44.4	+56.9	120.4	42 42.3	+57.6	122.0
34	49 36.6	+48.9	108.1	48 57.2	+50.6	110.2	48 13.6	+52.2	112.4	47 25.9	+53.6	114.4	46 34.5	+54.8	116.3	45 39.6	+55.8	118.2	44 41.3	+56.7	119.9	43 39.9	+57.5	121.6
35	50 25.5	+48.5	107.2	49 47.8	+50.3	109.4	49 05.8	+51.8	111.6	48 19.5	+53.3	113.7	47 29.3	+54.6	115.7	46 35.4	+55.7	117.6	45 38.0	+56.6	119.5	44 37.4	+57.4	121.2
36	51 14.0	+48.1	106.2	50 38.1	+49.9	108.6	49 57.6	+51.6	110.8	49 12.8	+53.1	113.0	48 23.9	+54.3	115.1	47 31.1	+55.5	117.1	46 34.6	+56.5	119.0	45 34.8	+57.3	120.8
37	52 02.1	+47.5	105.3	51 28.0	+49.5	107.7	50 49.2	+51.3	110.0	50 05.9	+52.8	112.3	49 18.2	+54.2	114.5	48 26.6	+55.3	116.5	47 31.1	+56.4	118.5	46 32.1	+57.3	120.4
38	52 49.6	+47.1	104.3	52 17.5	+49.1	106.8	51 40.5	+50.8	109.2	50 58.7	+52.4	111.6	50 12.4	+53.9	113.8	49 21.9	+55.1	115.9	48 27.5	+56.2	118.0	47 29.4	+57.1	119.9
39	53 36.7	+46.5	103.2	53 06.6	+48.6	105.8	52 31.3	+50.5	108.3	51 51.1	+52.2	110.8	51 06.3	+53.6	113.1	50 17.0	+55.0	115.3	49 23.7	+56.0	117.5	48 26.5	+57.0	119.5
40	54 23.2	+45.9	102.1	53 55.2	+48.1	104.8	53 21.8	+50.1	107.4	52 43.3	+51.8	110.0	51 59.9	+53.4	112.4	51 12.0	+54.7	114.7	50 19.7	+55.9	116.9	49 23.5	+56.9	119.0
41	55 09.1	+45.2	101.0	54 43.3	+47.5	103.8	54 11.9	+49.6	106.5	53 35.1	+51.5	109.3	52 53.3	+53.1	111.6	52 06.7	+54.5	114.0	51 15.6	+55.8	116.3	50 20.4	+56.7	118.5
42	55 54.3	+44.6	99.9	55 30.8	+47.0	102.7	55 01.5	+49.1	105.5	54 26.6	+51.0	108.3	53 46.4	+52.8	110.9	53 01.2	+54.3	113.4	52 11.4	+55.5	115.7	51 17.1	+56.7	118.0
43	56 38.9	+43.9	98.7	56 17.8	+46.3	101.6	55 50.6	+48.6	104.5	55 17.6	+50.7	107.3	54 39.2	+52.4	110.0	53 55.5	+54.0	112.6	53 06.9	+55.3	115.1	52 13.8	+56.4	117.5
44	57 22.8	+43.0	97.4	57 04.1	+45.7	100.5	56 39.2	+48.0	103.5	56 08.3	+50.1	106.4	55 31.6	+52.0	109.2	54 49.5	+53.7	111.9	54 07.2	+55.1	114.5	53 10.2	+56.3	116.9
45	58 05.8	+42.3	96.1	57 49.8	+44.9	99.3	57 27.2	+47.5	102.4	56 58.4	+49.7	105.4	56 23.6	+51.7	108.3	55 43.2	+53.3	111.1	54 57.3	+54.9	113.8	54 06.5	+56.2	116.3
46	58 48.1	+41.3	94.7	58 34																				

LATITUDE CONTRARY NAME

L.H.A. 48°, 312°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.				
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z	
19 32.8	-55.2	127.9	18 18.5	-55.8	128.5	17 03.4	-56.4	129.0	15 47.6	-57.0	129.4	14 31.0	-57.5	129.9	13 13.8	-57.9	130.2	11 56.0	-58.3	130.6	10 37.7	-58.7	130.9	0	0			
18 37.6	-55.2	128.4	17 22.7	-55.9	128.9	16 07.0	-56.5	129.3	14 50.6	-57.0	129.8	13 33.5	-57.5	130.2	12 15.9	-58.0	130.5	10 57.7	-58.4	130.8	9 39.0	-58.7	131.1	1	0			
17 42.4	-55.3	128.8	16 26.8	-55.9	129.3	15 10.5	-56.4	129.7	13 53.6	-57.0	130.1	12 36.0	-57.5	130.4	11 17.9	-57.9	130.8	9 59.3	-58.3	131.1	8 40.3	-58.7	131.3	2	0			
16 47.1	-55.3	129.2	15 30.9	-55.9	129.6	14 14.1	-56.6	130.0	12 56.6	-57.1	130.4	11 38.5	-57.5	130.7	10 20.0	-58.0	131.0	9 01.0	-58.4	131.3	7 41.6	-58.7	131.5	3	0			
15 51.8	-55.4	129.6	14 35.0	-56.0	130.0	13 17.5	-56.5	130.4	11 59.5	-57.1	130.7	10 41.0	-57.6	131.0	9 22.0	-58.0	131.3	8 02.6	-58.4	131.5	6 42.9	-58.7	131.7	4	0			
14 56.4	-55.4	130.0	13 39.0	-56.0	130.4	12 21.0	-56.6	130.7	11 02.4	-57.1	131.0	9 43.4	-57.5	131.3	8 24.0	-58.0	131.6	7 04.2	-58.3	131.8	5 44.2	-58.7	131.9	5	0			
14 01.0	-55.4	130.4	12 43.0	-56.1	130.7	11 24.4	-56.6	131.1	10 05.3	-57.1	131.4	8 45.9	-57.6	131.6	7 26.0	-58.0	131.8	6 05.9	-58.4	132.0	4 45.5	-58.7	132.1	6	0			
13 05.6	-55.5	130.8	11 46.9	-56.0	131.1	10 27.8	-56.6	131.4	9 08.2	-57.1	131.7	7 48.3	-57.6	131.9	6 28.0	-58.0	132.1	5 07.5	-58.4	132.2	3 46.8	-58.7	132.3	7	0			
12 10.1	-55.5	131.2	10 50.9	-56.1	131.5	9 31.2	-56.7	131.7	8 11.1	-57.1	132.0	6 50.7	-57.6	132.2	5 30.0	-58.0	132.3	4 09.1	-58.4	132.5	2 48.0	-58.7	132.5	8	0			
11 14.6	-55.6	131.6	9 54.8	-56.2	131.8	8 34.5	-56.6	132.1	7 14.0	-57.2	132.3	5 53.1	-57.6	132.4	4 32.0	-58.0	132.6	3 10.7	-58.4	132.7	1 49.3	-58.7	132.7	9	0			
10 19.0	-55.5	131.9	8 58.6	-56.1	132.2	7 37.9	-56.7	132.4	6 16.8	-57.2	132.6	4 55.5	-57.6	132.7	3 34.0	-58.0	132.8	2 12.3	-58.4	132.9	0 50.6	-58.7	133.0	10	0			
9 23.5	-55.6	132.3	8 02.5	-56.2	132.5	6 41.2	-56.7	132.7	5 19.6	-57.1	132.9	3 57.9	-57.6	133.0	2 36.0	-58.1	133.1	1 13.9	-58.4	133.1	0 08.1	-58.8	133.1	11	0			
8 27.9	-55.6	132.7	7 06.3	-56.1	132.9	5 44.5	-56.7	133.1	4 22.5	-57.2	133.2	3 00.3	-57.7	133.3	1 37.9	-58.0	133.3	0 15.5	-58.4	133.4	1 06.9	-58.7	133.4	12	0			
7 32.3	-55.7	133.1	6 10.2	-56.2	133.3	4 47.8	-56.7	133.4	3 25.3	-57.2	133.5	2 02.6	-57.6	133.6	0 39.9	-58.0	133.6	0 42.9	-58.4	133.6	2 05.6	-58.7	133.6	13	0			
6 36.6	-55.6	133.5	5 14.0	-56.2	133.6	3 51.1	-56.7	133.7	2 28.1	-57.2	133.8	1 05.0	-57.6	133.8	0 18.1	-58.1	133.8	1 41.3	-58.4	133.8	3 04.3	-58.7	133.8	14	0			
5 41.0	-55.7	133.8	4 17.8	-56.2	134.0	2 54.4	-56.7	134.0	1 30.9	-57.2	134.1	0 07.4	-57.6	134.1	1 16.2	-58.0	134.1	2 39.7	-58.3	134.1	4 03.0	-58.8	134.1	15	0			
4 45.3	-55.7	134.2	3 21.6	-56.3	134.3	1 57.7	-56.8	134.4	0 33.7	-57.2	134.4	0 50.2	-57.7	134.4	1 14.2	-58.0	134.4	3 38.0	-58.4	134.4	5 01.8	-58.7	134.4	16	0			
3 49.6	-55.7	134.6	2 25.3	-56.2	134.7	1 00.9	-56.7	134.7	0 23.5	-57.2	134.7	1 47.9	-57.6	134.7	3 12.2	-58.0	134.7	4 36.4	-58.4	134.7	6 00.5	-58.7	134.7	17	0			
2 53.9	-55.7	135.0	1 29.1	-56.2	135.0	0 04.2	-56.7	135.0	1 20.7	-57.2	135.0	2 45.5	-57.6	135.0	4 10.2	-58.1	135.0	5 34.8	-58.4	135.0	7 02.6	-58.7	135.0	18	0			
1 58.2	-55.7	135.3	0 32.9	-56.3	135.4	0 52.5	-56.7	135.4	2 17.9	-57.1	135.4	3 43.1	-57.6	135.4	5 08.3	-58.0	135.4	6 33.2	-58.4	135.4	8 06.9	-58.7	135.4	19	0			
0 06.8	-55.7	135.7	0 23.4	-56.2	135.7	1 49.2	-56.7	135.7	3 15.0	-57.2	135.7	4 40.7	-57.6	135.7	6 06.3	-58.0	135.7	7 31.6	-58.3	135.7	8 56.6	-58.7	135.7	20	0			
0 08.9	+55.7	43.6	1 19.6	+56.2	43.9	2 45.9	+56.8	44.0	4 12.2	+57.2	44.1	5 38.3	+57.6	44.2	6 35.9	+57.6	44.3	7 06.3	+58.0	44.4	8 29.9	+58.4	44.5	9 53.5	+58.7	44.5	21	0
1 44.6	+55.7	43.2	2 15.8	+56.2	43.6	3 42.7	+56.7	43.7	5 09.4	+57.2	43.8	6 35.9	+57.6	43.9	7 33.5	+57.6	43.9	8 02.3	+57.9	44.1	9 28.3	+58.3	44.3	10 54.0	+58.6	44.6	22	0
2 40.3	+55.7	42.8	3 12.0	+56.2	43.2	4 39.4	+56.7	43.3	6 06.6	+57.1	43.5	7 33.5	+57.6	43.6	8 31.1	+57.6	43.4	9 00.2	+58.0	43.8	10 26.6	+58.4	44.1	11 52.6	+58.7	44.3	23	0
3 36.0	+55.6	42.4	4 08.2	+56.2	42.9	5 36.1	+56.7	43.0	7 03.7	+57.2	43.2	8 31.1	+57.6	43.4	9 58.2	+58.0	43.6	11 25.0	+58.3	43.8	12 51.3	+58.7	44.1	14 27.9	+58.7	44.2	24	0
4 31.6	+55.7	42.1	5 04.4	+56.2	42.5	6 32.8	+56.6	42.7	8 00.9	+57.1	42.9	9 28.7	+57.5	43.1	10 56.2	+57.9	43.3	12 23.3	+58.3	43.6	13 50.0	+58.6	43.9	15 17.9	+58.7	44.2	25	0
5 27.3	+55.7	41.7	6 00.6	+56.2	42.2	7 29.4	+56.7	42.4	9 08.0	+57.1	42.5	10 26.2	+57.6	42.8	11 54.1	+58.0	43.0	13 21.6	+58.3	43.3	14 48.6	+58.6	43.7	16 16.4	+58.6	43.3	26	0
6 23.0	+55.6	41.3	6 56.8	+56.2	41.8	8 26.1	+56.6	42.0	9 55.1	+57.1	42.2	11 23.8	+57.5	42.5	12 52.1	+57.9	42.8	14 19.9	+58.3	43.1	15 47.2	+58.7	43.5	17 16.4	+58.6	43.0	27	0
7 18.6	+55.6	40.9	7 53.0	+56.1	41.5	9 22.7	+56.7	41.7	10 52.2	+57.1	41.9	12 21.3	+57.5	42.2	13 50.0	+57.9	42.5	15 18.2	+58.2	42.9	16 45.9	+58.6	43.3	18 16.4	+58.6	43.0	28	0
8 14.2	+55.6	40.6	8 49.1	+56.2	41.1	10 19.4	+56.6	41.4	11 49.3	+57.0	41.6	13 18.8	+57.5	41.9	14 47.9	+57.9	42.2	16 16.4	+58.3	42.6	17 44.5	+58.6	43.0	19 16.4	+58.6	43.0	29	0
9 09.8	+55.6	40.2	9 45.3	+56.1	40.8	11 16.0	+56.6	41.0	12 46.3	+57.1	41.3	14 16.3	+57.4	41.6	15 45.8	+57.8	42.0	17 14.7	+58.2	42.4	18 43.1	+58.5	42.8	20 16.4	+58.6	42.6	30	0
10 05.4	+55.6	39.8	10 41.4	+56.0	40.4	12 12.6	+56.5	40.7	13 43.4	+57.0	41.0	15 13.7	+57.5	41.3	16 43.6	+57.8	41.7	18 12.9	+58.2	42.1	19 41.6	+58.6	42.6	21 16.4	+58.6	42.6	31	0
11 01.0	+55.5	39.4	11 37.4	+56.1	40.0	13 09.1	+56.5	40.3	14 40.4	+57.0	40.7	16 11.2	+57.4	41.0	17 41.4	+57.9	41.4	19 11.1	+58.2	41.9	20 40.2	+58.5	42.3	22 16.4	+58.6	42.6	32	0
11 56.5	+55.5	39.0	12 33.5	+56.0	39.7	14 05.6	+56.5	40.0	15 37.4	+56.9	40.3	17 08.6	+57.4	40.7	18 39.3	+57.7	41.1	20 09.3	+58.2	41.6	21 38.7	+58.5	42.1	23 16.4	+58.6	42.6	33	0
12 52.0	+55.4	38.6	13 29.5	+56.0	39.3	15 02.1	+56.5	39.6	16 34.5	+56.9	40.0	18 06.0	+57.3	40.4	19 37.0	+57.8	40.8	21 07.5	+58.1	41.3	22 37.2	+58.5	41.9	24 16.4	+58.6	42.6	34	0
13 47.4	+55.4	38.2	14 25.5	+55.9	38.9	15 58.6	+56.4	39.3	17 31.2	+56.9	39.7	19 03.3	+57.3	40.1	20 34.8	+57.7	40.6	22 05.6	+58.1	41.1	23 35.7	+58.5	41.6	25 16.4	+58.6	42.6	35	0
14 42.8	+55.4	37.9	15 21.4	+56.0	38.6	16 55.0	+56.4	38.9	18 28.1	+56.9	39.3	20 00.6	+57.3	39.8	21 32.5	+57.7	40.3	23 03.7	+58.1	40.8	24 34.2	+58.4	41.4	26 16.4	+58.6	42.6	36	0
15 38.2	+55.3	37.5	16 17.4	+55.8	38.2	17 51.4	+56.4	38.6	19 25.0	+56.8	39.0	21 57.9	+57.3	39.5	23 06.2	+57.7	40.0	24 01.8	+58.1	40.5	25 32.6	+58.5	41.1	27 16.4	+58.6	42.6	37	0
16 33.5	+55.3	37.1	17 13.2	+55.9	37.8	18 47.8	+56.3	38.2	20 21.8	+56.8	38.7	22 55.2	+57.2	39.1	23 27.9	+57.6	39.7	24 59.9	+58.0	40.3	26 31.1	+58.4	40.9	28 16.4	+58.6	42.6	38	0
17 28.8	+55.3	36.6	18 09.1	+55.8	37.4	19 44.1	+56.3	37.8	21 18.6	+56.7	38.3	22 52.4	+57.2	38.8	24 25.5	+57.6	39.4	25 57.9	+58.0	40.0	27 29.5	+58.3	40.6	29 16.4	+58.6	42.6	39	0
18 24.1	+55.1	36.2	19 04.9	+55.7	37.0	20 40.4	+56.2	37.5	22 15.3	+56.7	38.0	23 49.6	+57.1	38.5	25 23.1	+57.6	39.1	26 55.9	+58.0	39.7	28 27.8	+58.3	40.4	30 16.4	+58.6	42.6	40	0
19 19.2	+55.2	35.8	20 00.6	+55.7	36.6	21 36.6	+56.2	37.1	23 12.0	+56.6	37.6	24 46.7	+57.1	38.2	26 20.7	+57.5	38.7	27 53.9	+57.9	39.4	29 26.1	+58.3	40.1	31 16.4	+58.6	42.6	41	0
20 14.4	+55.0	35.4	22 32.8	+56.1	36.7	22 32.8	+56.1	36.7	24 08.6	+56.6	37.2	25 43.8	+57.0	37.8	27 18.2	+57.5	38.4	28 51.8	+57.9	39.1	30 24.4	+58.3	39.8	32 16.4	+58.6	42.6	42	0
21 09.4	+55.0	35.0	23 28.9	+56.0	36.3	23 28.9	+56.0	36.3	25 05.2	+56.5	36.9	26 40.8	+57.0	37.5	28 15.7	+57.4	38.1	29 49.7	+57.8									

48° 312° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	9 19.0	+58.9	131.1	7 59.8	+59.3	131.4	6 40.3	+59.5	131.6	5 20.6	+59.7	131.7	4 00.6	+59.9	131.8	2 40.5	+59.9	131.9	1 20.3	+60.0	132.0	0 00.0	+60.0	132.0
1	10 17.9	+59.0	131.0	8 59.1	+59.2	131.2	7 39.8	+59.5	131.4	6 20.3	+59.7	131.6	5 00.5	+59.8	131.8	3 40.4	+60.0	131.9	2 20.3	+59.9	132.0	1 00.0	+60.0	132.0
2	11 16.9	+59.0	130.8	9 58.3	+59.3	131.1	8 39.3	+59.5	131.3	7 20.0	+59.6	131.5	6 00.3	+59.8	131.7	4 40.4	+59.9	131.8	3 20.2	+60.0	131.9	2 00.0	+60.0	132.0
3	12 15.9	+59.0	130.6	10 57.6	+59.2	130.9	9 38.8	+59.5	131.2	8 19.6	+59.7	131.4	7 00.1	+59.8	131.6	5 40.3	+59.9	131.8	4 20.2	+60.0	131.9	3 00.0	+60.0	132.0
4	13 14.9	+58.9	130.4	11 56.8	+59.3	130.7	10 38.3	+59.5	131.0	9 19.3	+59.7	131.3	7 59.9	+59.8	131.5	6 40.2	+59.9	131.7	5 20.2	+60.0	131.9	4 00.0	+60.0	132.0
5	14 13.8	+59.0	130.2	12 56.1	+59.2	130.6	11 37.8	+59.4	130.9	10 19.0	+59.6	131.2	8 59.7	+59.8	131.4	7 40.1	+59.9	131.7	6 20.2	+60.0	131.9	5 00.0	+60.0	132.0
6	15 12.8	+58.9	130.0	13 55.3	+59.3	130.4	12 37.2	+59.5	130.8	11 18.6	+59.7	131.1	9 59.5	+59.8	131.4	8 40.0	+59.9	131.6	7 20.2	+59.9	131.8	6 00.0	+60.0	132.0
7	16 11.7	+59.0	129.8	14 54.6	+59.2	130.2	13 36.7	+59.5	130.6	12 18.3	+59.7	131.0	10 59.4	+59.8	131.3	9 39.9	+60.0	131.6	8 20.1	+60.0	131.8	7 00.0	+60.0	132.0
8	17 10.7	+58.9	129.6	15 53.8	+59.2	130.0	14 36.2	+59.4	130.5	13 18.0	+59.6	130.8	11 59.2	+59.8	131.2	10 39.9	+59.9	131.5	9 20.1	+60.0	131.8	8 00.0	+60.0	132.0
9	18 09.6	+58.9	129.4	16 53.0	+59.2	129.9	15 35.6	+59.5	130.4	14 17.6	+59.7	130.8	12 59.0	+59.8	131.1	11 39.8	+59.9	131.5	10 20.1	+60.0	131.7	9 00.0	+60.0	132.0
10	19 08.5	+58.9	129.2	17 52.2	+59.2	129.7	16 35.1	+59.5	130.2	15 17.3	+59.6	130.7	13 58.8	+59.8	131.0	12 39.7	+59.9	131.4	11 20.1	+60.0	131.7	10 00.0	+60.0	132.0
11	20 07.4	+58.9	129.0	18 51.4	+59.2	129.6	17 34.6	+59.4	130.1	16 16.9	+59.7	130.5	14 58.6	+59.8	131.0	13 39.6	+59.9	131.3	12 20.1	+59.9	131.7	11 00.0	+60.0	132.0
12	21 06.3	+58.9	128.8	19 50.6	+59.2	129.4	18 34.0	+59.4	129.9	17 16.6	+59.6	130.4	15 58.4	+59.8	130.9	14 39.5	+59.9	131.3	13 20.0	+60.0	131.7	12 00.0	+60.0	132.0
13	22 05.2	+58.8	128.6	20 49.8	+59.1	129.2	19 33.4	+59.5	129.8	18 16.2	+59.7	130.3	16 58.2	+59.8	130.8	15 39.4	+60.0	131.2	14 20.0	+60.0	131.6	13 00.0	+60.0	132.0
14	23 04.0	+58.8	128.4	21 48.9	+59.2	129.0	20 32.9	+59.4	129.6	19 15.9	+59.6	130.2	17 58.0	+59.8	130.7	16 39.4	+59.9	131.2	15 20.0	+60.0	131.6	14 00.0	+60.0	132.0
15	24 02.8	+58.9	128.2	22 48.1	+59.1	128.9	21 32.3	+59.4	129.5	20 15.5	+59.6	130.1	18 57.8	+59.8	130.6	17 39.3	+59.9	131.1	16 20.0	+60.0	131.6	15 00.0	+60.0	132.0
16	25 01.7	+58.8	128.0	23 47.2	+59.2	128.7	22 31.7	+59.4	129.3	21 15.1	+59.7	130.0	19 57.6	+59.8	130.5	18 39.2	+59.9	131.1	17 20.0	+59.9	131.6	16 00.0	+60.0	132.0
17	26 00.5	+58.7	127.7	24 46.4	+59.1	128.5	23 31.1	+59.4	129.2	22 14.8	+59.6	129.8	20 57.4	+59.8	130.4	19 39.1	+59.9	131.0	18 19.9	+60.0	131.5	17 00.0	+60.0	132.0
18	26 59.2	+58.8	127.5	25 45.5	+59.1	128.3	24 30.5	+59.4	129.0	23 14.4	+59.6	129.7	21 57.2	+59.8	130.4	20 39.0	+59.9	130.9	19 19.9	+60.0	131.5	18 00.0	+60.0	132.0
19	27 58.0	+58.7	127.3	26 44.6	+59.1	128.1	25 29.9	+59.4	128.9	24 14.0	+59.6	129.6	22 57.0	+59.7	130.3	21 38.9	+59.9	130.9	20 19.9	+60.0	131.5	19 00.0	+60.0	132.0
20	28 56.7	+58.7	127.1	27 43.7	+59.1	127.9	26 29.3	+59.3	128.7	25 13.6	+59.6	129.5	23 56.7	+59.8	130.2	22 38.8	+59.9	130.8	21 19.9	+59.9	131.4	20 00.0	+60.0	132.0
21	29 55.4	+58.7	126.8	28 42.8	+59.0	127.7	27 28.6	+59.4	128.6	26 13.2	+59.6	129.3	24 56.5	+59.8	130.1	23 38.7	+59.9	130.8	22 19.8	+60.0	131.4	21 00.0	+60.0	132.0
22	30 54.1	+58.7	126.6	29 41.8	+59.0	127.5	28 28.0	+59.3	128.4	27 12.8	+59.6	129.2	25 56.3	+59.8	130.0	24 38.6	+59.9	130.7	23 19.8	+60.0	131.4	22 00.0	+60.0	132.0
23	31 52.8	+58.6	126.3	30 40.8	+59.1	127.3	29 27.3	+59.4	128.2	28 12.4	+59.6	129.1	26 56.1	+59.7	129.9	25 38.5	+59.9	130.6	24 19.8	+60.0	131.3	23 00.0	+60.0	132.0
24	32 51.4	+58.6	126.1	31 39.9	+59.1	127.1	30 26.7	+59.3	128.0	29 12.0	+59.5	128.9	27 55.8	+59.8	129.8	26 38.4	+59.9	130.6	25 19.8	+59.9	131.3	24 00.0	+60.0	132.0
25	33 50.0	+58.5	125.8	32 38.8	+59.0	126.9	31 26.0	+59.3	127.9	30 11.5	+59.6	128.8	28 55.6	+59.8	129.7	27 38.3	+59.9	130.5	26 19.7	+60.0	131.3	25 00.0	+60.0	132.0
26	34 48.5	+58.6	125.6	33 37.8	+59.0	126.7	32 25.3	+59.3	127.7	31 11.1	+59.6	128.6	29 55.4	+59.7	129.6	28 38.2	+59.9	130.4	27 19.7	+60.0	131.2	26 00.0	+60.0	132.0
27	35 47.1	+58.5	125.3	34 36.8	+58.9	126.4	33 36.8	+59.3	127.5	32 10.7	+59.5	128.5	30 55.1	+59.8	129.5	29 38.1	+59.9	130.4	28 19.7	+60.0	131.2	27 00.0	+60.0	132.0
28	36 45.6	+58.4	125.0	35 35.7	+58.9	126.2	34 23.9	+59.2	127.3	33 10.2	+59.5	128.4	31 54.9	+59.7	129.4	30 38.0	+59.9	130.3	29 19.7	+59.9	131.2	28 00.0	+60.0	132.0
29	37 44.0	+58.4	124.7	36 34.6	+58.8	126.0	35 23.1	+59.2	127.1	34 09.7	+59.5	128.2	32 54.6	+59.8	129.3	31 37.9	+59.9	130.2	30 19.6	+60.0	131.1	29 00.0	+60.0	132.0
30	38 42.4	+58.4	124.4	37 33.4	+58.9	125.7	36 22.3	+59.3	126.9	35 09.3	+59.5	128.1	33 54.4	+59.7	129.2	32 37.8	+59.9	130.2	31 19.6	+60.0	131.1	30 00.0	+60.0	132.0
31	39 40.8	+58.3	124.1	38 32.3	+58.8	125.5	37 21.6	+59.1	126.7	36 08.8	+59.5	127.9	34 54.1	+59.7	129.0	33 37.7	+59.8	130.1	32 19.6	+60.0	131.1	31 00.0	+60.0	132.0
32	40 39.1	+58.3	123.8	39 31.1	+58.7	125.2	38 20.7	+59.2	126.5	37 08.3	+59.5	127.8	35 53.8	+59.7	128.9	34 37.5	+59.9	130.0	33 19.6	+59.9	131.0	32 00.0	+60.0	132.0
33	41 37.4	+58.2	123.5	40 29.8	+58.8	125.0	39 19.9	+59.2	126.3	38 07.8	+59.4	127.6	36 53.5	+59.8	128.8	35 37.4	+59.9	129.9	34 19.5	+60.0	131.0	33 00.0	+60.0	132.0
34	42 35.6	+58.1	123.2	41 28.6	+58.7	124.7	40 19.1	+59.1	126.1	39 07.2	+59.5	127.4	37 53.3	+59.7	128.7	36 37.3	+59.9	129.9	35 19.5	+60.0	131.0	34 00.0	+60.0	132.0
35	43 33.7	+58.1	122.9	42 27.3	+58.6	124.4	41 18.2	+59.1	125.9	40 06.7	+59.4	127.3	38 53.0	+59.7	128.6	37 37.2	+59.8	129.8	36 19.5	+59.9	130.9	35 00.0	+60.0	132.0
36	44 31.8	+58.0	122.5	43 25.9	+58.6	124.1	42 17.3	+59.0	125.6	41 06.1	+59.5	127.1	39 52.7	+59.6	128.4	38 37.0	+59.9	129.7	37 19.4	+60.0	130.9	36 00.0	+60.0	132.0
37	45 29.8	+58.0	122.1	44 24.5	+58.6	123.8	43 24.5	+59.1	125.4	42 05.6	+59.4	126.9	40 52.3	+59.7	128.3	39 36.9	+59.9	129.6	38 19.4	+60.0	130.8	37 00.0	+60.0	132.0
38	46 27.8	+57.9	121.8	45 23.1	+58.5	123.5	44 15.4	+59.0	125.2	43 05.0	+59.3	126.7	41 52.0	+59.7	128.2	40 36.8	+59.8	129.5	39 19.4	+59.9	130.8	38 00.0	+60.0	132.0
39	47 25.7	+57.8	121.4	46 21.6	+58.4	123.2	45 14.4	+58.9	124.9	44 04.3	+59.4	126.5	42 51.7	+59.6	128.0	41 36.6	+59.9	129.4	40 19.3	+60.0	130.8	39 00.0	+60.0	132.0
40	48 23.5	+57.7	121.0	47 20.0	+58.4	122.9	46 13.3	+59.0	124.6	45 03.7	+59.4	126.3	43 51.3	+59.7	127.9	42 36.5	+59.8	129.3	41 19.3	+60.0	130.7	40 00.0	+60.0	132.0
41	49 21.2	+57.6	120.6	48 18.4	+58.3	122.5	47 12.3	+58.9	124.4	46 03.1	+59.3	126.1	44 51.0	+59.6	127.7	43 36.3	+59.9	129.2	42 19.3	+59.9	130.7	41 00.0	+60.0	132.0
42	50 18.8	+57.5	120.1	49 16.7	+58.3	122.2	48 11.2	+58.8	124.1	47 02.4	+59.3	125.9	45 50.6	+59.6	127.6	44 36.2	+59.8	129.1	43 19.2	+60.0	130.6	42 00.0	+60.0	132.0
43	51 16.3	+57.5	119.7	50 15.0	+58.2	121.8	49 10.0	+58.8	123.8	48 01.7	+59.2	125.6	46 50.2	+59.6	127.4	45 36.0	+59.8	129.0	44 19.2	+59.9	130.6	43 00.0	+60.0	132.0
44	52 13.8	+57.3	119.2	51 13.2	+58.1	121.4	50 08.8	+58.7	123.5	49 00.9	+59.3	125.4	47 49.8	+59.6	127.2	46 35.8	+59.9	128.9	45 19.1	+60.0	130.5	44 00.0	+60.0	132.0
45	53 11.1	+57.1	118.7	52 11.3	+58.0	121.0	51 07.5	+58.7	123.1	50 00.2	+59.2	125.2	48 49.4	+59.6	127.0	47 35.7	+59.8	128.8	46 19.1	+60.0	130.4	45 00.0	+60.0	132.0
46	54 08.2	+57.1	118.2	53 09.3	+57.9	120.6	52 06.2	+58.																

LATITUDE CONTRARY NAME

L.H.A. 48°, 312°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
9 19.0	-59.0	131.1	7 59.8	-59.3	131.4	6 40.3	-59.4	131.6	5 20.6	-59.7	131.7	4 00.6	-59.8	131.8	2 40.5	-59.9	131.9	1 20.3	-60.0	132.0	0 00.0	+60.0	48.0	0		
8 20.0	-59.0	131.3	7 00.5	-59.2	131.5	5 40.9	-59.5	131.7	4 20.9	-59.6	131.8	3 00.8	-59.8	131.9	1 40.6	-59.9	132.0	0 20.3	-60.0	132.0	1 00.0	+60.0	48.0	1		
7 21.0	-59.1	131.5	6 01.3	-59.3	131.7	4 41.4	-59.5	131.8	3 21.3	-59.7	131.9	2 01.0	-59.8	132.0	0 40.7	-59.9	132.0	0 20.3	-60.0	132.0	2 00.0	+60.0	48.0	2		
6 21.9	-59.0	131.7	5 02.0	-59.3	131.8	3 41.9	-59.5	132.0	2 21.6	-59.7	132.0	1 01.2	-59.8	132.0	0 19.2	+60.0	47.9	0 39.7	+60.0	48.0	3 00.0	+60.0	48.0	3		
5 22.9	-59.0	131.9	4 02.7	-59.2	132.0	2 42.4	-59.5	132.1	1 21.9	-59.7	132.1	0 01.4	-59.8	132.2	1 19.2	+59.9	47.9	2 39.6	+60.0	47.9	4 00.0	+60.0	48.0	4		
4 23.9	-59.0	132.1	3 03.5	-59.3	132.2	1 42.9	-59.5	132.2	0 22.2	-59.7	132.2	0 58.4	+59.9	47.8	2 19.1	+59.9	47.8	3 39.6	+60.0	47.9	5 00.0	+60.0	48.0	5		
3 24.9	-59.0	132.2	2 04.2	-59.3	132.3	0 43.4	-59.5	132.3	0 37.5	+59.6	47.7	1 58.3	+59.8	47.7	3 19.0	+59.9	47.8	4 39.6	+60.0	47.9	6 00.0	+60.0	48.0	6		
2 25.9	-59.0	132.4	1 04.9	-59.3	132.5	0 16.1	+59.5	47.5	1 37.1	+59.7	47.6	2 58.1	+59.8	47.6	4 18.9	+59.9	47.7	5 39.6	+60.0	47.8	7 00.0	+60.0	48.0	7		
1 26.9	-59.1	132.6	0 05.6	-59.3	132.6	1 15.6	+59.5	47.4	2 36.8	+59.7	47.4	3 57.9	+59.8	47.5	5 18.8	+60.0	47.7	6 39.6	+59.9	47.8	8 00.0	+60.0	48.0	8		
0 27.8	-59.0	132.8	0 53.7	+59.2	47.2	2 15.1	+59.5	47.3	3 36.5	+59.7	47.3	4 57.7	+59.8	47.5	6 18.8	+59.9	47.6	7 39.5	+60.0	47.8	9 00.0	+60.0	48.0	9		
0 31.2	+59.0	47.0	1 52.9	+59.3	47.1	3 14.6	+59.5	47.1	4 36.2	+59.6	47.2	5 57.5	+59.9	47.4	7 18.7	+59.9	47.5	8 39.5	+60.0	47.8	10 00.0	+60.0	48.0	10		
1 30.2	+59.0	46.9	2 52.2	+59.3	46.9	4 14.1	+59.5	47.0	5 35.8	+59.7	47.1	6 57.4	+59.8	47.3	8 18.6	+59.9	47.5	9 39.5	+60.0	47.7	11 00.0	+60.0	48.0	11		
2 29.2	+59.1	46.7	3 51.5	+59.3	46.8	5 13.6	+59.5	46.9	6 35.5	+59.7	47.0	7 57.2	+59.8	47.2	9 18.5	+59.9	47.4	10 39.5	+59.9	47.7	12 00.0	+60.0	48.0	12		
3 28.3	+59.0	46.5	4 50.8	+59.2	46.6	6 13.1	+59.5	46.8	7 35.2	+59.7	46.9	8 57.0	+59.8	47.1	10 18.4	+59.9	47.4	11 39.4	+60.0	47.7	13 00.0	+60.0	48.0	13		
4 27.3	+59.0	46.3	5 50.0	+59.3	46.5	7 12.6	+59.5	46.6	8 34.9	+59.6	46.8	9 56.8	+59.8	47.1	11 18.3	+60.0	47.3	12 39.4	+60.0	47.6	14 00.0	+60.0	48.0	14		
5 26.3	+59.0	46.1	6 49.3	+59.3	46.3	8 12.1	+59.5	46.5	9 34.5	+59.7	46.7	10 56.6	+59.8	47.0	12 18.3	+59.9	47.3	13 39.4	+60.0	47.6	15 00.0	+60.0	48.0	15		
6 25.4	+59.0	46.0	7 48.6	+59.2	46.1	9 11.6	+59.5	46.4	10 34.2	+59.7	46.6	11 56.4	+59.8	46.9	13 18.2	+59.9	47.2	14 39.4	+60.0	47.6	16 00.0	+60.0	48.0	16		
7 24.3	+59.0	45.8	8 47.8	+59.3	46.0	10 11.1	+59.4	46.2	11 33.9	+59.6	46.5	12 56.2	+59.8	46.8	14 18.1	+59.9	47.2	15 39.4	+59.9	47.6	17 00.0	+60.0	48.0	17		
8 23.3	+59.0	45.6	9 47.1	+59.3	45.8	11 10.5	+59.5	46.1	12 33.5	+59.7	46.4	13 56.0	+59.8	46.7	15 18.0	+59.9	47.1	16 39.3	+60.0	47.5	18 00.0	+60.0	48.0	18		
9 22.3	+59.0	45.4	10 46.4	+59.2	45.7	12 10.0	+59.5	46.0	13 33.2	+59.7	46.3	14 55.8	+59.9	46.7	16 17.9	+59.9	47.1	17 39.3	+60.0	47.5	19 00.0	+60.0	48.0	19		
10 21.3	+59.0	45.2	11 45.6	+59.3	45.5	13 09.5	+59.5	45.8	14 32.9	+59.6	46.2	15 55.7	+59.8	46.6	17 17.8	+59.9	47.0	18 39.3	+60.0	47.5	20 00.0	+60.0	48.0	20		
11 20.3	+59.0	45.0	12 44.9	+59.2	45.3	14 09.0	+59.4	45.7	15 32.5	+59.7	46.1	16 55.5	+59.8	46.5	18 17.7	+59.9	46.9	19 39.3	+60.0	47.5	21 00.0	+60.0	48.0	21		
12 19.3	+58.9	44.9	13 44.1	+59.2	45.2	15 08.4	+59.5	45.5	16 32.2	+59.6	46.0	17 55.3	+59.8	46.4	19 17.6	+60.0	46.9	20 39.3	+59.9	47.4	22 00.0	+60.0	48.0	22		
13 18.2	+59.0	44.7	14 43.3	+59.3	45.0	16 07.9	+59.4	45.4	17 31.8	+59.6	45.8	18 55.1	+59.8	46.3	20 17.6	+59.9	46.8	21 39.2	+60.0	47.4	23 00.0	+60.0	48.0	23		
14 17.2	+59.0	44.5	15 42.6	+59.2	44.8	17 07.3	+59.5	45.3	18 31.4	+59.7	45.7	19 54.9	+59.7	46.2	21 17.5	+59.9	46.8	22 39.2	+60.0	47.4	24 00.0	+60.0	48.0	24		
15 16.2	+58.9	44.3	16 41.8	+59.2	44.7	18 06.8	+59.4	45.1	19 31.1	+59.6	45.6	20 54.6	+59.8	46.1	22 17.4	+59.9	46.7	23 39.2	+60.0	47.3	25 00.0	+60.0	48.0	25		
16 15.1	+58.9	44.1	17 41.0	+59.2	44.5	19 06.2	+59.5	45.0	20 30.7	+59.7	45.5	21 54.4	+59.8	46.0	23 17.3	+59.9	46.7	24 39.2	+60.0	47.3	26 00.0	+60.0	48.0	26		
17 14.0	+58.9	43.9	18 40.2	+59.2	44.3	20 05.7	+59.4	44.8	21 30.4	+59.6	45.4	22 54.2	+59.8	46.0	24 17.2	+59.9	46.6	25 39.1	+60.0	47.3	27 00.0	+60.0	48.0	27		
18 12.9	+59.0	43.7	19 39.4	+59.2	44.2	21 05.1	+59.4	44.7	22 30.0	+59.6	45.3	23 54.0	+59.8	45.9	25 17.1	+59.9	46.5	26 39.1	+60.0	47.2	28 00.0	+60.0	48.0	28		
19 11.9	+58.9	43.5	20 38.6	+59.1	44.0	22 04.5	+59.4	44.5	23 29.6	+59.6	45.1	24 53.8	+59.8	45.8	26 17.0	+59.9	46.5	27 39.1	+60.0	47.2	29 00.0	+60.0	48.0	29		
20 10.8	+58.8	43.3	21 37.7	+59.2	43.8	23 03.9	+59.4	44.4	24 29.2	+59.6	45.0	25 53.6	+59.7	45.7	27 16.9	+59.9	46.4	28 39.1	+59.9	47.2	30 00.0	+60.0	48.0	30		
21 09.6	+58.9	43.1	22 36.9	+59.1	43.6	24 03.3	+59.4	44.2	25 28.8	+59.6	44.9	26 53.3	+59.8	45.6	28 16.8	+59.9	46.3	29 39.0	+60.0	47.1	31 00.0	+60.0	48.0	31		
22 08.5	+58.9	42.9	23 36.0	+59.2	43.5	25 02.7	+59.4	44.1	26 28.4	+59.6	44.8	27 53.1	+59.8	45.5	29 16.7	+59.9	46.3	30 39.0	+60.0	47.1	32 00.0	+60.0	48.0	32		
23 07.4	+58.8	42.7	24 35.2	+59.1	43.3	26 02.1	+59.4	43.9	27 28.0	+59.6	44.6	28 52.9	+59.7	45.4	30 16.6	+59.9	46.2	31 39.0	+59.9	47.1	33 00.0	+60.0	48.0	33		
24 06.2	+58.8	42.4	25 34.3	+59.1	43.1	27 01.5	+59.3	43.8	28 27.6	+59.6	44.5	29 52.6	+59.8	45.3	31 16.5	+59.8	46.1	32 38.9	+60.0	47.0	34 00.0	+60.0	48.0	34		
25 05.0	+58.8	42.2	26 33.4	+59.1	42.9	28 00.8	+59.4	43.6	29 27.2	+59.6	44.4	30 52.4	+59.7	45.2	32 16.3	+59.9	46.1	33 38.9	+60.0	47.0	35 00.0	+60.0	48.0	35		
26 03.8	+58.8	42.0	27 32.5	+59.1	42.7	29 00.2	+59.3	43.4	30 26.8	+59.5	44.2	31 52.1	+59.8	45.1	33 16.2	+59.9	46.0	34 38.9	+60.0	47.0	36 00.0	+60.0	48.0	36		
27 02.6	+58.7	41.8	28 31.6	+59.0	42.5	29 59.5	+59.3	43.3	31 26.3	+59.6	44.1	32 51.9	+59.7	45.0	34 16.1	+59.9	45.9	35 38.9	+59.9	46.9	37 00.0	+60.0	48.0	37		
28 01.3	+58.8	41.6	29 30.6	+59.1	42.3	30 58.8	+59.3	43.1	32 25.9	+59.5	43.9	33 51.6	+59.8	44.8	35 16.0	+59.9	45.8	36 38.8	+60.0	46.9	38 00.0	+60.0	48.0	38		
29 00.1	+58.7	41.3	30 29.7	+59.0	42.1	31 58.1	+59.3	42.9	33 25.4	+59.5	43.8	34 51.4	+59.7	44.7	36 15.9	+59.8	45.7	37 38.8	+60.0	46.8	39 00.0	+60.0	48.0	39		
29 58.8	+58.6	41.1	31 28.7	+59.0	41.9	32 57.4	+59.3	42.7	34 24.9	+59.6	43.6	35 51.1	+59.7	44.6	37 15.7	+59.9	45.7	38 38.8	+59.9	46.8	40 00.0	+60.0	48.0	40		
30 57.4	+58.7	40.8	32 27.7	+58.9	41.7	33 56.7	+59.3	42.5	35 24.5	+59.5	43.5	36 50.8	+59.7	44.5	38 15.6	+59.9	45.6	39 38.7	+60.0	46.8	41 00.0	+60.0	48.0	41		
31 56.1	+58.6	40.6	33 26.6	+59.0	41.4	34 56.0	+59.2	42.3	36 24.0	+59.0	43.3	37 50.5	+59.7	44.4	39 15.5	+59.8	45.5	40 38.7	+60.0	46.7	42 00.0	+60.0	48.0	42		
32 54.7	+58.6	40.3	34 25.6	+58.9	41.2	35 55.2	+59.2	42.2	37 23.5	+59.5	43.2	38 50.2	+59.7	44.2	40 15.3	+59.9	45.4	41 38.7	+59.9	46.7	43 00.0	+60.0	48.0	43		
33 53.3	+58.6	40.1	35 24.5	+58.9	41.0	36 54.4	+59.2	42.0	38 23.0	+59.4	43.0	39 49.9	+59.7	44.1	41 15.2	+59.9	45.3	42 38.6	+60.0	46.6	44 00.0	+60.0	48.0	44		
34 51.9	+58.5	39.8	36 23.4	+58.9	40.8	37 53.6	+59.2	41.8	39 22.4	+59.5	42.8	40 49.6	+59.7	44.0	42 15.1	+59.8	45.2	43 38.6	+59.9	46.6	45 00.0	+60.0	48.0	45		
35 50.4	+58.5	39.6	37 22.3	+58.8	40.5	38 52.8	+59.2	41.5	40 21.9	+59.4	42.7	41 49.3	+59.7	43.8	43 14.9	+59.9	45.1	44 38.5	+60.0	46.5	46 00.0	+60.0	48.0	46		
36 48.9	+58.4	39.3	38 21.1	+58.8	40.3	39 52.0	+59.1	41.3	41 21.3	+59.4	42.5	42 49.0	+59.6	43.7	44 14.8	+59.8	45.0	45								

50°, 310° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	18 44.8	+54.9	126.0	17 33.8	+55.6	126.5	16 22.0	+56.2	127.0	15 09.4	+56.7	127.5	13 56.0	+57.3	127.9	12 42.0	+57.8	128.3	11 27.4	+58.2	128.6	10 12.3	+58.6	128.9
1	19 39.7	+54.8	125.6	18 29.4	+55.5	126.1	17 18.2	+56.1	126.7	16 06.1	+56.8	127.1	14 53.3	+57.3	127.6	13 39.8	+57.8	128.0	12 25.6	+58.2	128.3	11 10.9	+58.6	128.7
2	20 34.5	+54.7	125.1	19 24.9	+55.4	125.7	18 14.3	+56.1	126.3	17 02.9	+56.7	126.8	15 50.6	+57.2	127.3	14 37.6	+57.7	127.7	13 23.8	+58.2	128.1	12 09.5	+58.6	128.5
3	21 29.2	+54.6	124.7	20 20.3	+55.4	125.3	19 10.4	+56.1	125.9	17 59.6	+56.6	126.5	16 47.8	+57.3	127.0	15 35.3	+57.7	127.4	14 22.0	+58.2	127.8	13 08.1	+58.6	128.2
4	22 23.8	+54.6	124.3	21 15.7	+55.3	124.9	20 06.5	+56.0	125.5	18 56.2	+56.7	126.1	17 45.1	+57.2	126.6	16 33.0	+57.1	127.1	15 20.2	+58.2	127.6	14 06.7	+58.5	128.0
5	23 18.4	+54.5	123.8	22 11.0	+55.3	124.5	21 02.5	+55.9	125.1	19 52.9	+56.6	125.8	18 42.3	+57.1	126.3	17 30.7	+57.7	126.8	16 18.4	+58.1	127.3	15 05.2	+58.5	127.8
6	24 12.9	+54.4	123.3	23 06.3	+55.2	124.1	21 58.4	+55.9	124.8	20 49.5	+56.5	125.4	19 39.4	+57.2	126.0	18 28.4	+57.7	126.6	17 16.5	+58.1	127.1	16 03.7	+58.6	127.6
7	25 07.3	+54.3	122.9	24 01.5	+55.1	123.6	22 54.3	+55.9	124.4	21 46.0	+56.5	125.0	20 36.6	+57.0	125.7	19 26.1	+57.6	126.3	18 14.6	+58.1	126.8	17 02.3	+58.5	127.3
8	26 01.6	+54.2	122.4	24 56.6	+55.0	123.2	23 50.2	+55.8	124.0	22 42.5	+56.5	124.7	21 33.6	+57.1	125.3	20 23.7	+57.6	126.0	19 12.7	+58.1	126.6	18 00.8	+58.5	127.1
9	26 55.8	+54.2	121.9	25 51.6	+55.0	122.8	24 46.0	+55.7	123.6	23 39.0	+56.3	124.3	22 30.7	+57.0	125.0	21 21.3	+57.5	125.7	20 10.8	+58.0	126.3	18 59.3	+58.5	126.9
10	27 50.0	+54.0	121.4	26 46.6	+54.9	122.3	25 41.7	+55.6	123.2	24 35.3	+56.4	123.9	23 27.7	+57.0	124.7	22 18.8	+57.6	125.4	21 08.8	+58.0	126.0	19 57.8	+58.4	126.6
11	28 44.0	+53.9	121.0	27 41.5	+54.7	121.9	26 37.3	+55.6	122.7	25 31.7	+56.3	123.6	24 24.7	+56.9	124.3	23 16.4	+57.5	125.1	22 06.8	+58.0	125.7	20 56.2	+58.4	126.4
12	29 37.9	+53.8	120.5	28 36.2	+54.7	121.4	27 32.9	+55.5	122.3	26 28.0	+56.2	123.2	25 21.6	+56.9	124.0	24 13.9	+57.4	124.7	23 04.8	+58.0	125.5	21 54.6	+58.5	126.1
13	30 31.7	+53.7	119.9	29 30.9	+54.6	120.9	28 28.4	+55.4	121.9	27 24.2	+56.1	122.8	26 18.5	+56.8	123.6	25 11.3	+57.4	124.4	24 02.8	+57.9	125.2	22 53.1	+58.4	125.9
14	31 25.4	+53.6	119.4	30 25.5	+54.5	120.5	29 23.8	+55.3	121.4	28 20.3	+56.1	122.4	27 15.3	+56.7	123.3	26 08.7	+57.4	124.1	25 00.7	+57.9	124.9	23 51.5	+58.3	125.6
15	32 19.0	+53.4	118.9	31 20.0	+54.3	120.0	30 19.1	+55.2	121.0	29 16.4	+56.0	122.0	28 12.0	+56.7	122.9	27 06.1	+57.3	123.8	25 58.6	+57.9	124.6	24 49.8	+58.4	125.4
16	33 12.4	+53.2	118.3	32 14.3	+54.3	119.5	31 14.3	+55.2	120.5	30 12.4	+55.9	121.6	29 08.7	+56.7	122.5	28 03.4	+57.3	123.4	26 56.5	+57.8	124.3	25 48.2	+58.3	125.1
17	34 05.6	+53.2	117.8	33 08.6	+54.1	119.0	32 09.5	+55.0	120.1	31 08.3	+55.9	121.1	30 05.4	+56.5	122.1	29 00.7	+57.2	123.1	27 54.3	+57.8	124.0	26 46.5	+58.3	124.9
18	34 58.8	+52.9	117.2	34 02.7	+54.0	118.4	33 04.5	+54.9	119.6	32 04.2	+55.7	120.7	31 01.9	+56.5	121.8	29 57.9	+57.1	122.8	28 52.1	+57.8	123.7	27 44.8	+58.2	124.6
19	35 51.7	+52.8	116.7	34 56.7	+53.8	117.9	33 59.4	+54.8	119.1	33 59.9	+55.7	120.3	31 58.4	+56.5	121.4	30 55.0	+57.2	122.4	29 49.9	+57.8	123.4	28 43.0	+58.2	124.3
20	36 44.5	+52.6	116.1	35 50.5	+53.7	117.4	34 54.2	+54.7	118.6	33 55.6	+55.5	119.8	32 54.9	+56.3	121.0	31 52.2	+57.0	122.0	30 47.6	+57.6	123.1	29 41.2	+58.2	124.0
21	37 37.1	+52.4	115.5	36 44.2	+53.6	116.8	35 48.9	+54.5	118.1	34 51.1	+55.5	119.4	33 51.2	+56.3	120.6	32 49.2	+57.0	121.7	31 45.2	+57.6	122.7	30 39.4	+58.2	123.8
22	38 29.5	+52.3	114.8	37 37.8	+53.5	116.3	36 43.4	+54.4	117.6	35 46.4	+55.3	118.9	34 47.5	+56.1	120.1	33 46.2	+56.9	121.3	32 42.8	+57.6	122.4	31 37.6	+58.1	123.5
23	39 21.8	+52.0	114.2	38 31.1	+53.2	115.7	37 37.8	+54.3	117.1	36 41.9	+55.3	118.4	35 43.6	+56.1	119.7	34 43.1	+56.8	120.9	33 40.4	+57.5	122.1	32 35.7	+58.0	123.2
24	40 13.8	+51.8	113.6	39 24.3	+53.1	115.1	38 32.1	+54.1	116.5	37 37.2	+55.1	117.9	36 39.7	+56.0	119.3	35 39.9	+56.8	120.5	34 37.9	+57.4	121.7	33 33.7	+58.0	122.9
25	41 05.6	+51.5	112.9	40 17.4	+52.8	114.5	39 26.2	+54.0	116.0	38 32.3	+54.9	117.4	37 35.7	+55.9	118.8	36 36.7	+56.6	120.1	35 35.3	+57.4	121.4	34 31.7	+58.0	122.6
26	41 57.1	+51.3	112.2	41 10.2	+52.6	113.8	40 20.2	+53.7	115.4	39 27.2	+54.9	116.9	38 31.6	+55.7	118.3	37 33.3	+56.6	119.7	36 32.7	+57.3	121.0	35 29.7	+57.9	122.3
27	42 48.4	+51.1	111.5	42 02.8	+52.4	113.2	41 13.9	+53.6	114.8	40 22.1	+54.6	116.4	39 27.3	+55.7	117.9	38 29.9	+56.5	119.3	37 30.0	+57.2	120.6	36 27.6	+57.9	121.9
28	43 39.5	+50.7	110.8	42 55.2	+52.1	112.5	42 07.5	+53.4	114.2	41 16.7	+54.6	115.8	40 23.0	+55.5	117.4	39 26.4	+56.4	118.9	38 27.2	+57.1	120.3	37 25.5	+57.8	121.6
29	44 30.2	+50.5	110.0	43 47.3	+51.9	111.9	43 00.9	+53.2	113.6	42 11.3	+54.3	115.3	41 18.5	+55.4	116.9	40 22.8	+56.3	118.4	39 24.3	+57.1	119.9	38 23.3	+57.8	121.3
30	45 20.7	+50.1	109.3	44 39.2	+51.6	111.2	43 54.1	+53.0	113.0	43 05.6	+54.2	114.7	42 13.9	+55.2	116.4	41 19.1	+56.2	118.0	40 21.4	+57.0	119.5	39 21.1	+57.6	120.9
31	46 10.8	+49.8	108.5	45 30.8	+51.4	110.4	44 47.1	+52.7	112.3	43 59.8	+54.0	114.1	43 09.1	+55.1	115.8	42 15.3	+56.0	117.5	41 18.4	+56.9	119.1	40 18.7	+57.7	120.6
32	47 00.6	+49.5	107.7	46 22.2	+51.0	109.7	45 39.8	+52.5	111.6	44 53.8	+53.7	113.5	44 04.2	+54.9	115.3	43 11.3	+55.9	117.0	42 15.3	+56.8	118.6	41 16.4	+57.5	120.2
33	47 50.1	+49.1	106.8	47 13.2	+50.8	108.9	46 32.3	+52.2	110.9	45 47.5	+53.6	112.9	44 59.1	+54.8	114.7	44 07.2	+55.8	116.5	43 12.1	+56.7	118.2	42 13.9	+57.5	119.8
34	48 39.2	+48.7	106.0	48 04.0	+50.4	108.1	47 24.5	+52.0	110.2	46 41.1	+53.4	112.2	45 53.9	+54.5	114.1	45 03.0	+55.7	116.0	44 08.8	+56.6	117.7	43 11.4	+57.4	119.4
35	49 27.9	+48.2	105.1	48 54.4	+50.0	107.3	48 16.5	+51.6	109.5	47 34.5	+53.0	111.5	46 48.4	+54.4	113.5	45 58.7	+55.5	115.4	45 05.4	+56.5	117.3	44 08.8	+57.3	119.0
36	50 16.1	+47.8	104.2	49 44.4	+49.7	106.5	49 08.1	+51.4	108.7	48 27.5	+52.9	110.8	47 42.8	+54.2	112.9	46 54.2	+55.3	114.9	46 01.9	+56.3	116.8	45 06.1	+57.2	118.6
37	51 03.9	+47.3	103.2	50 34.1	+49.2	105.6	49 59.5	+51.0	107.9	49 20.4	+52.5	110.1	48 37.0	+53.9	112.3	47 49.5	+55.2	114.3	46 58.2	+56.2	116.3	46 03.3	+57.1	118.2
38	51 51.2	+46.9	102.2	51 23.3	+48.8	104.7	50 50.5	+50.6	107.1	50 12.9	+52.3	109.4	49 30.9	+53.7	111.6	48 44.7	+54.9	113.7	47 54.4	+56.1	115.8	47 00.4	+57.0	117.7
39	52 38.1	+46.2	101.2	52 12.1	+48.4	103.7	51 41.1	+50.2	106.2	51 05.2	+51.9	108.6	50 24.6	+53.5	110.9	49 39.6	+54.8	113.1	48 50.5	+55.9	115.2	47 57.4	+56.9	117.3
40	53 24.3	+45.7	100.1	53 00.5	+47.8	102.8	52 31.3	+49.9	105.3	51 57.1	+51.6	107.8	51 18.1	+53.1	110.2	50 34.4	+54.5	112.5	49 46.4	+55.7	114.7	48 54.3	+56.7	116.8
41	54 10.0	+45.1	99.1	53 48.3	+47.3	101.8	53 21.2	+49.3	104.4	52 48.7	+51.2	107.0	52 11.2	+52.9	109.4	51 28.9	+54.3	111.8	50 42.1	+55.6	114.1	49 51.0	+56.6	116.3
42	54 55.1	+44.4	97.9	54 35.6	+46.8	100.7	54 10.5	+48.9	103.4	53 39.9	+50.9	106.1	53 04.1	+52.5	108.7	52 23.2	+54.1	111.1	51 37.7	+55.3	113.5	50 47.6	+56.5	115.8
43	55 39.5	+43.6	96.7	55 22.4	+46.1	99.6	54 59.4	+48.4	102.4	54 30.8	+50.4	105.2	53 56.6	+52.3	107.8	53 17.3	+53.8	110.4	52 33.0	+55.2	112.9	51 44.1	+56.3	115.2
44	56 23.1	+43.0	95.5	56 08.5	+45.5	98.5	55 47.8	+47.8	101.4	55 21.2	+49.9	104.2	54 48.9	+51.8	107.0	54 11.1	+53.5	109.7	53 28.2	+54.9	112.2	52 40.4	+56.2	114.7
45	57 06.1	+42.1	94.2	56 54.4	+44.8	97.3	56 35.6	+47.3	100.3	56 11.1	+49.5	103.3	55 40.7	+51.4	106.1	55 04.6	+53.2	108.9	54 23.1	+54.7	111.5	53 36.6	+56.0	114.1
46	57 48.2	+41.3	92.9	57 38.8</																				

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	8 56.8	+58.9	129.2	7 40.8	+59.2	129.4	6 24.5	+59.5	129.6	5 07.9	+59.7	129.7	3 51.2	+59.8	129.8	2 34.2	+59.9	129.9	1 17.1	+60.0	130.0	0 00.0	+60.0	130.0
1	9 55.7	+58.9	129.0	8 40.0	+59.2	129.2	7 24.0	+59.4	129.4	6 07.6	+59.7	129.6	4 51.0	+59.8	129.8	3 34.1	+59.9	129.9	2 17.1	+60.0	130.0	1 00.0	+60.0	130.0
2	10 54.6	+58.9	128.8	9 39.2	+59.3	129.1	8 23.4	+59.5	129.3	7 07.3	+59.6	129.5	5 50.8	+59.8	129.7	4 34.0	+59.9	129.8	3 17.1	+60.0	129.9	2 00.0	+60.0	130.0
3	11 53.5	+58.9	128.6	10 38.5	+59.2	128.9	9 22.9	+59.4	129.0	8 06.9	+59.7	129.4	6 50.6	+59.8	129.6	5 33.9	+60.0	129.8	4 17.1	+59.9	129.9	3 00.0	+60.0	130.0
4	12 52.4	+58.9	128.4	11 37.7	+59.2	128.7	10 22.3	+59.5	129.0	9 06.6	+59.6	129.3	7 50.4	+59.8	129.5	6 33.9	+59.9	129.7	5 17.0	+60.0	129.9	4 00.0	+60.0	130.0
5	13 51.3	+58.9	128.2	12 36.9	+59.1	128.6	11 21.8	+59.4	128.9	10 06.2	+59.7	129.2	8 50.2	+59.8	129.4	7 33.8	+59.9	129.7	6 17.0	+60.0	129.8	5 00.0	+60.0	130.0
6	14 50.2	+58.9	128.0	13 36.0	+59.2	128.4	12 21.2	+59.5	128.7	11 05.9	+59.6	129.1	9 50.0	+59.8	129.4	8 33.7	+59.9	129.6	7 17.0	+60.0	129.8	6 00.0	+60.0	130.0
7	15 49.1	+58.9	127.8	14 35.2	+59.2	128.2	13 20.7	+59.4	128.6	12 05.5	+59.6	129.0	10 49.8	+59.8	129.3	9 33.6	+59.9	129.6	8 17.0	+60.0	129.8	7 00.0	+60.0	130.0
8	16 48.0	+58.9	127.6	15 34.4	+59.2	128.0	14 20.1	+59.4	128.5	13 05.1	+59.7	128.8	11 49.6	+59.8	129.2	10 33.5	+59.9	129.5	9 17.0	+59.9	129.8	8 00.0	+60.0	130.0
9	17 46.9	+58.8	127.4	16 33.6	+59.1	127.9	15 19.5	+59.5	128.3	14 04.8	+59.6	128.7	12 49.4	+59.8	129.1	11 33.4	+59.9	129.4	10 16.9	+60.0	129.7	9 00.0	+60.0	130.0
10	18 45.7	+58.8	127.2	17 32.7	+59.2	127.7	16 19.0	+59.4	128.2	15 04.4	+59.6	128.6	13 49.2	+59.8	129.0	12 33.3	+59.9	129.4	11 16.9	+60.0	129.7	10 00.0	+60.0	130.0
11	19 44.5	+58.8	127.0	18 31.9	+59.1	127.5	17 18.4	+59.4	128.0	16 04.0	+59.7	128.5	14 49.0	+59.8	128.9	13 33.2	+59.9	129.3	12 16.9	+60.0	129.7	11 00.0	+60.0	130.0
12	20 43.3	+58.9	126.8	19 31.0	+59.2	127.3	18 17.8	+59.4	127.9	17 03.7	+59.6	128.4	15 48.8	+59.8	128.9	14 33.1	+59.9	129.3	13 16.9	+59.9	129.7	12 00.0	+60.0	130.0
13	21 42.2	+58.7	126.5	20 30.2	+59.1	127.2	19 17.2	+59.4	127.7	18 03.3	+59.6	128.3	16 48.6	+59.7	128.8	15 33.0	+60.0	129.2	14 16.8	+60.0	129.6	13 00.0	+60.0	130.0
14	22 40.9	+58.8	126.3	21 29.3	+59.1	127.0	20 16.6	+59.4	127.6	19 02.9	+59.6	128.2	17 48.3	+59.8	128.7	16 33.0	+59.9	129.2	15 16.8	+60.0	129.6	14 00.0	+60.0	130.0
15	23 39.7	+58.8	126.1	22 28.4	+59.1	126.8	21 16.0	+59.4	127.4	20 02.5	+59.6	128.0	18 48.1	+59.8	128.6	17 32.9	+59.9	129.1	16 16.8	+60.0	129.6	15 00.0	+60.0	130.0
16	24 38.5	+58.7	125.9	23 27.5	+59.1	126.6	22 15.4	+59.3	127.3	21 02.1	+59.6	127.9	19 47.9	+59.8	128.5	18 32.8	+59.9	129.0	17 16.8	+59.9	129.5	16 00.0	+60.0	130.0
17	25 37.2	+58.7	125.7	24 26.6	+59.0	126.4	23 14.7	+59.4	127.1	22 01.7	+59.6	127.8	20 47.7	+59.8	128.4	19 32.7	+59.9	129.0	18 16.7	+60.0	129.5	17 00.0	+60.0	130.0
18	26 35.9	+58.7	125.4	25 25.6	+59.1	126.2	24 14.1	+59.3	127.0	23 01.3	+59.6	127.7	21 47.5	+59.7	128.3	20 32.6	+59.9	128.9	19 16.7	+60.0	129.5	18 00.0	+60.0	130.0
19	27 34.6	+58.6	125.2	26 24.7	+59.0	126.0	25 13.4	+59.4	126.8	24 00.9	+59.6	127.5	22 47.2	+59.8	128.2	21 32.5	+59.9	128.9	20 16.7	+60.0	129.5	19 00.0	+60.0	130.0
20	28 33.2	+58.7	125.0	27 23.7	+59.0	125.8	26 12.8	+59.3	126.6	25 00.5	+59.6	127.4	23 47.0	+59.8	128.1	22 32.4	+59.9	128.8	21 16.7	+59.9	129.4	20 00.0	+60.0	130.0
21	29 31.9	+58.6	124.7	28 22.7	+59.0	125.6	27 12.1	+59.3	126.5	26 00.1	+59.6	127.3	24 46.8	+59.8	128.0	23 32.3	+59.9	128.7	22 16.6	+60.0	129.4	21 00.0	+60.0	130.0
22	30 30.5	+58.6	124.5	29 21.7	+59.0	125.4	28 11.4	+59.3	126.3	26 59.7	+59.5	127.1	25 46.6	+59.7	127.9	24 32.2	+59.9	128.7	23 16.6	+60.0	129.4	22 00.0	+60.0	130.0
23	31 29.1	+58.5	124.2	30 20.7	+59.0	125.2	29 10.7	+59.3	126.1	27 59.2	+59.6	127.0	26 46.3	+59.8	127.8	25 32.1	+59.9	128.6	24 16.6	+60.0	129.3	23 00.0	+60.0	130.0
24	32 27.6	+58.5	124.0	31 19.7	+58.9	125.0	30 10.0	+59.3	126.0	28 58.8	+59.5	126.9	27 46.1	+59.7	127.7	26 32.0	+59.9	128.5	25 16.6	+59.9	129.3	24 00.0	+60.0	130.0
25	33 26.1	+58.5	123.7	32 18.6	+58.9	124.8	31 09.3	+59.3	125.8	29 58.3	+59.6	126.7	28 45.8	+59.8	127.6	27 31.9	+59.8	128.5	26 16.5	+60.0	129.3	25 00.0	+60.0	130.0
26	34 24.6	+58.5	123.4	33 17.5	+58.9	124.5	32 08.6	+59.2	125.6	30 57.9	+59.5	126.6	29 45.6	+59.7	127.5	28 31.7	+59.9	128.4	27 16.5	+60.0	129.2	26 00.0	+60.0	130.0
27	35 23.1	+58.4	123.2	34 16.4	+58.9	124.3	33 07.8	+59.3	125.4	31 57.4	+59.5	126.4	30 45.3	+59.7	127.4	29 31.6	+59.9	128.3	28 16.5	+60.0	129.2	27 00.0	+60.0	130.0
28	36 21.5	+58.3	122.9	35 15.3	+58.8	124.1	34 07.1	+59.2	125.2	32 56.9	+59.5	126.3	31 45.0	+59.8	127.3	30 31.5	+59.9	128.2	29 16.5	+59.9	129.2	28 00.0	+60.0	130.0
29	37 19.8	+58.4	122.6	36 14.1	+58.8	123.8	35 06.3	+59.2	125.0	33 56.4	+59.5	126.1	32 44.8	+59.7	127.2	31 31.4	+59.9	128.3	30 16.4	+60.0	129.1	29 00.0	+60.0	130.0
30	38 18.2	+58.3	122.3	37 12.9	+58.8	123.6	36 05.5	+59.1	124.8	34 55.9	+59.5	126.0	33 44.5	+59.7	127.1	32 31.3	+59.9	128.1	31 16.4	+60.0	129.1	30 00.0	+60.0	130.0
31	39 16.5	+58.2	122.0	38 11.7	+58.7	123.3	37 04.6	+59.2	124.6	35 55.4	+59.5	125.8	34 44.2	+59.7	127.0	33 31.2	+59.8	128.0	32 16.4	+59.9	129.0	31 00.0	+60.0	130.0
32	40 14.7	+58.2	121.7	39 10.4	+58.7	123.1	38 03.8	+59.1	124.4	36 54.9	+59.4	125.7	35 43.9	+59.7	126.8	34 31.0	+59.9	128.0	33 16.3	+60.0	129.0	32 00.0	+60.0	130.0
33	41 12.9	+58.1	121.3	40 09.1	+58.7	122.8	39 02.9	+59.1	124.2	37 54.3	+59.5	125.5	36 43.6	+59.7	126.7	35 30.9	+59.9	127.9	34 16.3	+60.0	129.0	33 00.0	+60.0	130.0
34	42 11.0	+58.0	121.0	41 07.8	+58.6	122.5	40 02.0	+59.1	124.0	38 53.8	+59.4	125.3	37 43.3	+59.7	126.6	36 30.8	+59.8	127.8	35 16.3	+60.0	128.9	34 00.0	+60.0	130.0
35	43 09.0	+58.0	120.7	42 06.4	+58.6	122.2	41 01.1	+59.0	123.7	39 53.2	+59.4	125.1	38 43.0	+59.7	126.5	37 30.6	+59.9	127.7	36 16.3	+59.9	128.9	35 00.0	+60.0	130.0
36	44 07.0	+58.0	120.3	43 05.0	+58.5	121.9	42 00.1	+59.0	123.5	40 52.6	+59.4	125.0	39 42.7	+59.7	126.3	38 30.5	+59.9	127.6	37 16.2	+60.0	128.9	36 00.0	+60.0	130.0
37	45 05.0	+57.8	120.0	44 03.5	+58.5	121.6	42 59.1	+59.0	123.2	41 52.0	+59.4	124.8	40 42.4	+59.6	126.2	39 30.4	+59.8	127.5	38 16.2	+59.9	128.8	37 00.0	+60.0	130.0
38	46 02.8	+57.8	119.6	45 02.0	+58.4	121.3	43 58.1	+59.0	123.0	42 51.4	+59.3	124.6	41 42.0	+59.7	126.1	40 30.2	+59.9	127.4	39 16.1	+60.0	128.8	38 00.0	+60.0	130.0
39	47 00.6	+57.7	119.2	46 00.4	+58.4	121.0	44 57.1	+58.9	122.7	43 50.7	+59.4	124.4	42 41.7	+59.6	125.9	41 30.1	+59.8	127.4	40 16.1	+60.0	128.7	39 00.0	+60.0	130.0
40	47 58.3	+57.6	118.8	46 58.8	+58.3	120.7	45 56.0	+58.9	122.5	44 50.1	+59.4	124.2	43 41.3	+59.6	125.8	42 29.9	+59.8	127.3	41 16.1	+59.9	128.7	40 00.0	+60.0	130.0
41	48 55.9	+57.5	118.4	47 57.1	+58.3	120.3	46 54.9	+58.8	122.2	45 49.4	+59.3	123.9	44 40.9	+59.6	125.6	43 29.7	+59.9	127.2	42 16.0	+60.0	128.6	41 00.0	+60.0	130.0
42	49 53.4	+57.5	117.9	48 55.4	+58.1	120.0	47 53.7	+58.8	121.9	46 48.7	+59.2	123.7	45 40.5	+59.6	125.4	44 29.6	+59.8	127.1	43 16.0	+60.0	128.6	42 00.0	+60.0	130.0
43	50 50.9	+57.3	117.5	49 53.5	+58.1	119.6	48 52.5	+58.7	121.6	47 47.9	+59.2	123.5	46 40.1	+59.6	125.3	45 29.4	+59.8	126.9	44 16.0	+59.9	128.5	43 00.0	+60.0	130.0
44	51 48.2	+57.1	117.0	50 51.6	+58.1	119.2	49 51.2	+58.7	121.3	48 47.1	+59.2	123.2	47 39.7	+59.6	125.1	46 29.2	+59.8	126.8	45 15.9	+60.0	128.5	44 00.0	+60.0	130.0
45	52 45.3	+57.1	116.5	51 49.7	+57.9	118.8	50 49.9	+58.6	121.0	49 46.3	+59.2	123.0	48 39.3	+59.5	124.9	47 29.0	+59.9	126.7	46 15.9	+59.9	128.4	45 00.0	+60.0	130.0
46	53 42.4	+56.9	116.0	52 47.6	+57.8	118.4	51 48.																	

LATITUDE CONTRARY NAME

L.H.A. 50°, 310°

Table with columns for latitude (76° to 90°) and longitude (Hc, d, Z) and a Dec. column. Each latitude column contains three sub-columns of data. The Dec. column shows values from 0 to 90.

LATITUDE SAME NAME

L.H.A. 130°, 230°

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	17 55.7	+54.6	124.1	16 48.0	+55.3	124.6	15 39.5	+55.9	125.1	14 30.1	+56.6	125.5	13 20.1	+57.1	125.9	12 09.3	+57.7	126.3	10 58.0	+58.2	126.6	9 46.2	+58.5	126.9
1	18 50.3	+54.5	123.6	17 43.3	+55.3	124.2	16 35.4	+56.0	124.7	15 26.7	+56.6	125.2	14 17.2	+57.1	125.6	13 07.0	+57.7	126.0	11 56.2	+58.1	126.4	10 44.7	+58.6	126.7
2	19 44.8	+54.5	123.2	18 38.6	+55.2	123.8	17 31.4	+56.0	124.3	16 23.3	+56.5	124.8	15 14.3	+57.2	125.3	14 04.7	+57.6	125.7	12 54.3	+58.1	126.1	11 43.3	+58.5	126.5
3	20 39.3	+54.4	122.8	19 33.8	+55.2	123.4	18 27.3	+55.8	123.9	17 19.8	+56.5	124.5	16 11.5	+57.0	125.0	15 02.3	+57.6	125.4	13 52.4	+58.0	125.8	12 41.8	+58.4	126.2
4	21 33.7	+54.3	122.3	20 29.0	+55.0	123.0	19 23.1	+55.9	123.6	18 16.3	+56.5	124.1	17 08.5	+57.1	124.7	15 59.9	+57.6	125.1	14 50.4	+58.1	125.6	13 40.2	+58.5	126.0
5	22 28.0	+54.2	121.8	21 24.0	+55.1	122.5	20 19.0	+55.7	123.2	19 12.8	+56.4	123.8	18 05.6	+57.0	124.3	16 57.5	+57.5	124.8	15 48.5	+58.0	125.3	14 38.7	+58.5	125.8
6	23 22.2	+54.2	121.4	22 19.1	+54.9	122.1	21 14.7	+55.7	122.8	20 09.2	+56.4	123.4	19 02.6	+57.0	124.0	17 55.0	+57.6	124.5	16 46.5	+58.0	125.1	15 37.2	+58.4	125.5
7	24 16.4	+54.0	120.9	23 14.0	+54.9	121.7	22 10.4	+55.6	122.4	21 05.6	+56.3	123.0	19 59.6	+56.9	123.7	18 52.6	+57.5	124.3	17 44.5	+58.0	124.8	16 35.6	+58.5	125.3
8	25 10.4	+54.0	120.4	24 08.9	+54.8	121.2	23 06.0	+55.6	122.0	22 01.9	+56.3	122.7	20 56.5	+56.9	123.3	19 50.1	+57.4	123.9	18 42.5	+58.0	124.5	17 34.1	+58.4	125.1
9	26 04.4	+53.9	119.9	25 03.7	+54.8	120.8	24 01.6	+55.5	121.6	22 58.2	+56.2	122.3	21 53.4	+56.9	123.0	20 47.5	+57.5	123.6	19 40.5	+58.0	124.3	18 32.5	+58.4	124.8
10	26 58.3	+53.7	119.5	25 58.5	+54.6	120.3	24 57.1	+55.5	121.1	23 54.4	+56.1	121.9	22 50.3	+56.8	122.6	21 45.0	+57.4	123.3	20 38.5	+57.9	124.0	19 30.9	+58.3	124.6
11	27 52.0	+53.7	119.0	26 53.1	+54.5	119.9	25 52.6	+55.3	120.7	24 50.5	+56.1	121.5	23 47.1	+56.8	122.3	22 42.4	+57.3	123.0	21 36.4	+57.9	123.7	20 29.2	+58.4	124.3
12	28 45.7	+53.5	118.4	27 47.6	+54.5	119.4	26 47.9	+55.3	120.3	25 46.6	+56.1	121.1	24 43.9	+56.7	121.9	23 39.7	+57.3	122.7	22 34.3	+57.8	123.4	21 27.6	+58.3	124.1
13	29 39.2	+53.4	117.9	28 42.1	+54.3	118.9	27 43.2	+55.2	119.8	26 42.7	+56.0	120.7	25 40.6	+56.7	121.6	24 37.0	+57.3	122.4	23 32.1	+57.9	123.1	22 25.9	+58.3	123.8
14	30 32.6	+53.3	117.4	29 36.4	+54.3	118.4	28 38.4	+55.1	119.4	27 38.7	+55.9	120.3	26 37.3	+56.6	121.2	25 34.3	+57.3	122.0	24 30.0	+57.7	122.8	23 24.2	+58.3	123.6
15	31 25.9	+53.2	116.9	30 30.7	+54.1	117.9	29 33.5	+55.0	118.9	28 34.6	+55.8	119.9	27 33.9	+56.5	120.8	26 31.6	+57.1	121.7	25 27.7	+57.5	122.5	24 22.5	+58.3	123.3
16	32 19.1	+53.0	116.3	31 24.8	+54.0	117.4	30 28.5	+55.0	118.5	29 30.4	+55.7	119.5	28 30.4	+56.5	120.5	27 28.7	+57.2	121.4	26 25.5	+57.7	122.2	25 20.8	+58.2	123.1
17	33 12.1	+52.8	115.8	32 18.8	+53.9	116.9	31 23.5	+54.8	118.0	30 26.1	+55.7	119.1	29 26.9	+56.4	120.1	28 25.9	+57.1	121.0	27 23.2	+57.7	121.9	26 19.0	+58.2	122.8
18	34 04.9	+52.7	115.2	33 12.7	+53.8	116.4	32 18.3	+54.7	117.5	31 21.8	+55.5	118.6	30 23.3	+56.3	119.7	29 23.0	+57.0	120.7	28 20.9	+57.6	121.6	27 17.2	+58.2	122.5
19	34 57.6	+52.5	114.6	34 06.5	+53.6	115.9	33 13.0	+54.6	117.1	32 17.3	+55.5	118.2	31 19.6	+56.3	119.3	30 20.0	+57.0	120.3	29 18.5	+57.6	121.3	28 15.4	+58.1	122.2
20	35 50.1	+52.4	114.0	35 00.1	+53.4	115.3	34 07.6	+54.4	116.6	33 12.8	+55.4	117.7	32 15.9	+56.2	118.9	31 17.0	+56.9	120.0	30 16.1	+57.6	121.0	29 13.5	+58.1	122.0
21	36 42.5	+52.2	113.4	35 53.5	+53.3	114.8	35 02.0	+54.4	116.0	34 08.2	+55.2	117.3	33 12.1	+56.1	118.5	32 13.9	+56.8	119.6	31 13.7	+57.5	120.6	30 11.6	+58.0	121.7
22	37 34.7	+51.9	112.8	36 46.8	+53.1	114.2	35 56.4	+54.2	115.5	35 03.4	+55.2	116.8	34 08.2	+56.0	118.0	33 10.7	+56.8	119.2	32 11.2	+57.4	120.3	31 09.6	+58.0	121.4
23	38 26.6	+51.8	112.2	37 39.9	+53.0	113.6	36 50.6	+54.0	115.0	35 58.6	+55.0	116.3	35 04.2	+55.9	117.6	34 07.5	+56.7	118.8	33 08.6	+57.4	120.0	32 07.6	+58.0	121.1
24	39 18.4	+51.5	111.5	38 32.9	+52.8	113.0	37 44.6	+53.9	114.4	36 53.6	+54.9	115.8	36 00.1	+55.8	117.1	35 04.2	+56.6	118.4	34 06.0	+57.3	119.6	33 05.6	+57.9	120.8
25	40 09.9	+51.3	110.8	39 25.7	+52.5	112.4	38 38.5	+53.7	113.9	37 48.5	+54.8	115.3	36 55.9	+55.7	116.7	36 00.8	+56.5	118.0	35 03.3	+57.2	119.3	34 03.5	+57.9	120.5
26	41 01.2	+51.0	110.2	40 18.2	+52.4	111.8	39 32.2	+53.6	113.3	38 43.3	+54.6	114.8	37 51.6	+55.6	116.2	36 57.3	+56.5	117.6	36 00.5	+57.2	118.9	35 01.4	+57.8	120.1
27	41 52.2	+50.8	109.5	41 10.6	+52.1	111.1	40 25.8	+53.4	112.7	39 37.9	+54.5	114.3	38 47.2	+55.5	115.7	37 53.8	+56.3	117.2	36 57.7	+57.1	118.5	35 59.2	+57.8	119.8
28	42 43.0	+50.5	108.7	42 02.7	+51.9	110.5	41 19.2	+53.1	112.1	40 32.4	+54.3	113.7	39 42.7	+55.3	115.2	38 50.1	+56.2	116.7	37 54.8	+57.1	118.1	36 57.0	+57.7	119.5
29	43 33.5	+50.2	108.0	42 54.6	+51.7	109.8	42 12.3	+53.0	111.5	41 26.7	+54.2	113.2	40 38.0	+55.2	114.7	39 46.3	+56.2	116.3	38 51.9	+56.9	117.7	37 54.7	+57.7	119.1
30	44 23.7	+49.9	107.2	43 46.3	+51.4	109.1	43 05.3	+52.8	110.9	42 20.9	+54.0	112.6	41 33.2	+55.1	114.2	40 42.5	+56.0	115.8	39 48.8	+56.9	117.3	38 52.4	+57.6	118.8
31	45 13.6	+49.6	106.5	44 37.3	+51.1	108.4	43 58.1	+52.5	110.2	43 14.9	+53.8	112.0	42 28.3	+54.9	113.7	41 38.5	+55.9	115.3	40 45.7	+56.7	116.9	39 50.0	+57.5	118.4
32	46 03.2	+49.2	105.6	45 28.8	+50.8	107.6	44 50.6	+52.3	109.5	44 08.7	+53.5	111.4	43 23.2	+54.7	113.1	42 34.4	+55.8	114.8	41 42.4	+56.7	116.5	40 47.5	+57.4	118.0
33	46 52.4	+48.8	104.8	46 19.6	+50.5	106.9	45 42.9	+52.0	108.8	45 02.7	+53.2	110.7	44 17.9	+54.6	112.6	43 30.2	+55.6	114.3	42 39.1	+56.6	116.0	41 44.9	+57.4	117.6
34	47 41.2	+48.5	104.0	47 10.1	+50.2	106.1	46 34.9	+51.7	108.1	45 55.6	+53.1	110.1	45 12.5	+54.4	112.0	44 25.8	+55.5	113.8	43 35.7	+56.4	115.6	42 42.3	+57.2	117.3
35	48 29.7	+48.0	103.1	48 00.3	+49.8	105.3	47 26.6	+51.4	107.4	46 48.7	+52.9	109.4	46 06.9	+54.2	111.4	45 21.3	+55.3	113.3	44 32.1	+56.3	115.1	43 39.5	+57.2	116.8
36	49 17.7	+47.6	102.2	48 50.1	+49.4	104.4	48 18.0	+51.1	106.6	47 41.6	+52.6	108.7	47 01.1	+54.0	110.8	46 16.6	+55.2	112.7	45 28.4	+56.2	114.6	44 36.7	+57.1	116.4
37	50 05.3	+47.1	101.2	49 39.5	+49.1	103.5	49 09.1	+50.8	105.8	48 34.2	+52.4	108.0	47 55.1	+53.7	110.1	47 11.8	+55.0	112.2	46 24.6	+56.1	114.1	45 33.8	+57.0	116.0
38	50 52.4	+46.6	100.3	50 28.2	+48.6	102.6	49 59.9	+50.4	105.0	49 26.6	+52.0	107.2	48 48.8	+53.5	109.4	48 06.8	+54.8	111.6	47 20.7	+55.9	113.6	46 30.8	+56.9	115.5
39	51 39.0	+46.1	99.2	51 17.2	+48.1	101.7	50 50.3	+50.1	104.1	50 18.6	+51.8	106.5	49 42.3	+53.3	108.7	49 01.6	+54.6	110.9	48 16.6	+55.8	113.0	47 27.7	+56.7	115.1
40	52 25.1	+45.5	98.2	52 05.3	+47.7	100.8	51 40.4	+49.6	103.2	51 10.4	+51.4	105.7	50 35.6	+53.0	108.0	49 56.2	+54.3	110.3	49 12.4	+55.6	112.5	48 24.4	+56.7	114.6
41	53 10.6	+44.9	97.1	52 53.0	+47.1	99.8	52 30.0	+49.2	102.3	52 01.8	+51.0	104.8	51 28.6	+52.6	107.3	50 50.5	+54.2	109.6	50 08.0	+55.4	111.9	49 21.1	+56.5	114.1
42	53 55.5	+44.3	96.0	53 40.1	+46.6	98.7	53 19.2	+48.7	101.4	52 52.8	+50.6	104.0	52 21.2	+52.4	106.5	51 44.7	+53.9	109.0	51 03.4	+55.2	111.3	50 17.6	+56.3	113.6
43	54 39.8	+43.5	94.9	54 26.7	+46.0	97.6	54 07.9	+48.2	100.4	53 43.4	+50.3	103.1	53 13.6	+52.0	105.7	52 38.6	+53.6	108.2	51 58.6	+55.0	110.7	51 13.9	+56.2	113.0
44	55 23.3	+42.9	93.7	55 12.7	+45.3	96.5	54 56.1	+47.6	99.4	54 33.7	+49.7	102.1	54 05.6	+51.7	104.9	53 32.2	+53.3	107.5	52 53.6	+54.8	110.0	52 10.1	+56.0	112.5
45	56 06.2	+42.0	92.4	55 58.0	+44.7	95.4	55 43.7	+47.1	98.3	55 23.4	+49.3	101.2	54 57.3	+51.2	104.0	54 25.5	+53.0	106.7	53 48.4	+54.5	109.3	53 06.1	+55.9	111.9
46	56 48.2	+41.3	91.1	56 42.7																				

LATITUDE CONTRARY NAME

L.H.A. 52°, 308°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
17 55.7 -54.6 124.1	16 48.0 -55.3 124.6	15 39.5 -56.1 125.1	14 30.1 -56.6 125.5	13 20.1 -57.2 125.9	12 09.3 -57.6 126.3	10 58.0 -58.1 126.6	9 46.2 -58.5 126.9	8 34.7 -58.8 127.1	7 23.0 -59.1 127.3	6 11.2 -59.4 127.5	5 0.0 -59.7 127.7	4 48.2 -60.0 127.9	3 36.4 -60.3 128.1	2 24.6 -60.6 128.3	1 12.8 -60.9 128.5	0 0.0 -61.2 128.7	0 0.0 -61.5 128.9	0 0.0 -61.8 129.1	0 0.0 -62.1 129.3	0 0.0 -62.4 129.5	0 0.0 -62.7 129.7	0 0.0 -63.0 129.9	0 0.0 -63.3 130.1	0 0.0 -63.6 130.3	0 0.0 -63.9 130.5	0 0.0 -64.2 130.7	0 0.0 -64.5 130.9	0 0.0 -64.8 131.1	0 0.0 -65.1 131.3	0 0.0 -65.4 131.5	0 0.0 -65.7 131.7	0 0.0 -66.0 131.9	0 0.0 -66.3 132.1	0 0.0 -66.6 132.3	0 0.0 -66.9 132.5	0 0.0 -67.2 132.7	0 0.0 -67.5 132.9	0 0.0 -67.8 133.1	0 0.0 -68.1 133.3	0 0.0 -68.4 133.5	0 0.0 -68.7 133.7	0 0.0 -69.0 133.9	0 0.0 -69.3 134.1	0 0.0 -69.6 134.3	0 0.0 -69.9 134.5	0 0.0 -70.2 134.7	0 0.0 -70.5 134.9	0 0.0 -70.8 135.1	0 0.0 -71.1 135.3	0 0.0 -71.4 135.5	0 0.0 -71.7 135.7	0 0.0 -72.0 135.9	0 0.0 -72.3 136.1	0 0.0 -72.6 136.3	0 0.0 -72.9 136.5	0 0.0 -73.2 136.7	0 0.0 -73.5 136.9	0 0.0 -73.8 137.1	0 0.0 -74.1 137.3	0 0.0 -74.4 137.5	0 0.0 -74.7 137.7	0 0.0 -75.0 137.9	0 0.0 -75.3 138.1	0 0.0 -75.6 138.3	0 0.0 -75.9 138.5	0 0.0 -76.2 138.7	0 0.0 -76.5 138.9	0 0.0 -76.8 139.1	0 0.0 -77.1 139.3	0 0.0 -77.4 139.5	0 0.0 -77.7 139.7	0 0.0 -78.0 139.9	0 0.0 -78.3 140.1	0 0.0 -78.6 140.3	0 0.0 -78.9 140.5	0 0.0 -79.2 140.7	0 0.0 -79.5 140.9	0 0.0 -79.8 141.1	0 0.0 -80.1 141.3	0 0.0 -80.4 141.5	0 0.0 -80.7 141.7	0 0.0 -81.0 141.9	0 0.0 -81.3 142.1	0 0.0 -81.6 142.3	0 0.0 -81.9 142.5	0 0.0 -82.2 142.7	0 0.0 -82.5 142.9	0 0.0 -82.8 143.1	0 0.0 -83.1 143.3	0 0.0 -83.4 143.5	0 0.0 -83.7 143.7	0 0.0 -84.0 143.9	0 0.0 -84.3 144.1	0 0.0 -84.6 144.3	0 0.0 -84.9 144.5	0 0.0 -85.2 144.7	0 0.0 -85.5 144.9	0 0.0 -85.8 145.1	0 0.0 -86.1 145.3	0 0.0 -86.4 145.5	0 0.0 -86.7 145.7	0 0.0 -87.0 145.9	0 0.0 -87.3 146.1	0 0.0 -87.6 146.3	0 0.0 -87.9 146.5	0 0.0 -88.2 146.7	0 0.0 -88.5 146.9	0 0.0 -88.8 147.1	0 0.0 -89.1 147.3	0 0.0 -89.4 147.5	0 0.0 -89.7 147.7	0 0.0 -90.0 147.9	0 0.0 -90.3 148.1	0 0.0 -90.6 148.3	0 0.0 -90.9 148.5	0 0.0 -91.2 148.7	0 0.0 -91.5 148.9	0 0.0 -91.8 149.1	0 0.0 -92.1 149.3	0 0.0 -92.4 149.5	0 0.0 -92.7 149.7	0 0.0 -93.0 149.9	0 0.0 -93.3 150.1	0 0.0 -93.6 150.3	0 0.0 -93.9 150.5	0 0.0 -94.2 150.7	0 0.0 -94.5 150.9	0 0.0 -94.8 151.1	0 0.0 -95.1 151.3	0 0.0 -95.4 151.5	0 0.0 -95.7 151.7	0 0.0 -96.0 151.9	0 0.0 -96.3 152.1	0 0.0 -96.6 152.3	0 0.0 -96.9 152.5	0 0.0 -97.2 152.7	0 0.0 -97.5 152.9	0 0.0 -97.8 153.1	0 0.0 -98.1 153.3	0 0.0 -98.4 153.5	0 0.0 -98.7 153.7	0 0.0 -99.0 153.9	0 0.0 -99.3 154.1	0 0.0 -99.6 154.3	0 0.0 -99.9 154.5	0 0.0 -100.2 154.7	0 0.0 -100.5 154.9	0 0.0 -100.8 155.1	0 0.0 -101.1 155.3	0 0.0 -101.4 155.5	0 0.0 -101.7 155.7	0 0.0 -102.0 155.9	0 0.0 -102.3 156.1	0 0.0 -102.6 156.3	0 0.0 -102.9 156.5	0 0.0 -103.2 156.7	0 0.0 -103.5 156.9	0 0.0 -103.8 157.1	0 0.0 -104.1 157.3	0 0.0 -104.4 157.5	0 0.0 -104.7 157.7	0 0.0 -105.0 157.9	0 0.0 -105.3 158.1	0 0.0 -105.6 158.3	0 0.0 -105.9 158.5	0 0.0 -106.2 158.7	0 0.0 -106.5 158.9	0 0.0 -106.8 159.1	0 0.0 -107.1 159.3	0 0.0 -107.4 159.5	0 0.0 -107.7 159.7	0 0.0 -108.0 159.9	0 0.0 -108.3 160.1	0 0.0 -108.6 160.3	0 0.0 -108.9 160.5	0 0.0 -109.2 160.7	0 0.0 -109.5 160.9	0 0.0 -109.8 161.1	0 0.0 -110.1 161.3	0 0.0 -110.4 161.5	0 0.0 -110.7 161.7	0 0.0 -111.0 161.9	0 0.0 -111.3 162.1	0 0.0 -111.6 162.3	0 0.0 -111.9 162.5	0 0.0 -112.2 162.7	0 0.0 -112.5 162.9	0 0.0 -112.8 163.1	0 0.0 -113.1 163.3	0 0.0 -113.4 163.5	0 0.0 -113.7 163.7	0 0.0 -114.0 163.9	0 0.0 -114.3 164.1	0 0.0 -114.6 164.3	0 0.0 -114.9 164.5	0 0.0 -115.2 164.7	0 0.0 -115.5 164.9	0 0.0 -115.8 165.1	0 0.0 -116.1 165.3	0 0.0 -116.4 165.5	0 0.0 -116.7 165.7	0 0.0 -117.0 165.9	0 0.0 -117.3 166.1	0 0.0 -117.6 166.3	0 0.0 -117.9 166.5	0 0.0 -118.2 166.7	0 0.0 -118.5 166.9	0 0.0 -118.8 167.1	0 0.0 -119.1 167.3	0 0.0 -119.4 167.5	0 0.0 -119.7 167.7	0 0.0 -120.0 167.9	0 0.0 -120.3 168.1	0 0.0 -120.6 168.3	0 0.0 -120.9 168.5	0 0.0 -121.2 168.7	0 0.0 -121.5 168.9	0 0.0 -121.8 169.1	0 0.0 -122.1 169.3	0 0.0 -122.4 169.5	0 0.0 -122.7 169.7	0 0.0 -123.0 169.9	0 0.0 -123.3 170.1	0 0.0 -123.6 170.3	0 0.0 -123.9 170.5	0 0.0 -124.2 170.7	0 0.0 -124.5 170.9	0 0.0 -124.8 171.1	0 0.0 -125.1 171.3	0 0.0 -125.4 171.5	0 0.0 -125.7 171.7	0 0.0 -126.0 171.9	0 0.0 -126.3 172.1	0 0.0 -126.6 172.3	0 0.0 -126.9 172.5	0 0.0 -127.2 172.7	0 0.0 -127.5 172.9	0 0.0 -127.8 173.1	0 0.0 -128.1 173.3	0 0.0 -128.4 173.5	0 0.0 -128.7 173.7	0 0.0 -129.0 173.9	0 0.0 -129.3 174.1	0 0.0 -129.6 174.3	0 0.0 -129.9 174.5	0 0.0 -130.2 174.7	0 0.0 -130.5 174.9	0 0.0 -130.8 175.1	0 0.0 -131.1 175.3	0 0.0 -131.4 175.5	0 0.0 -131.7 175.7	0 0.0 -132.0 175.9	0 0.0 -132.3 176.1	0 0.0 -132.6 176.3	0 0.0 -132.9 176.5	0 0.0 -133.2 176.7	0 0.0 -133.5 176.9	0 0.0 -133.8 177.1	0 0.0 -134.1 177.3	0 0.0 -134.4 177.5	0 0.0 -134.7 177.7	0 0.0 -135.0 177.9	0 0.0 -135.3 178.1	0 0.0 -135.6 178.3	0 0.0 -135.9 178.5	0 0.0 -136.2 178.7	0 0.0 -136.5 178.9	0 0.0 -136.8 179.1	0 0.0 -137.1 179.3	0 0.0 -137.4 179.5	0 0.0 -137.7 179.7	0 0.0 -138.0 179.9	0 0.0 -138.3 180.1	0 0.0 -138.6 180.3	0 0.0 -138.9 180.5	0 0.0 -139.2 180.7	0 0.0 -139.5 180.9	0 0.0 -139.8 181.1	0 0.0 -140.1 181.3	0 0.0 -140.4 181.5	0 0.0 -140.7 181.7	0 0.0 -141.0 181.9	0 0.0 -141.3 182.1	0 0.0 -141.6 182.3	0 0.0 -141.9 182.5	0 0.0 -142.2 182.7	0 0.0 -142.5 182.9	0 0.0 -142.8 183.1	0 0.0 -143.1 183.3	0 0.0 -143.4 183.5	0 0.0 -143.7 183.7	0 0.0 -144.0 183.9	0 0.0 -144.3 184.1	0 0.0 -144.6 184.3	0 0.0 -144.9 184.5	0 0.0 -145.2 184.7	0 0.0 -145.5 184.9	0 0.0 -145.8 185.1	0 0.0 -146.1 185.3	0 0.0 -146.4 185.5	0 0.0 -146.7 185.7	0 0.0 -147.0 185.9	0 0.0 -147.3 186.1	0 0.0 -147.6 186.3	0 0.0 -147.9 186.5	0 0.0 -148.2 186.7	0 0.0 -148.5 186.9	0 0.0 -148.8 187.1	0 0.0 -149.1 187.3	0 0.0 -149.4 187.5	0 0.0 -149.7 187.7	0 0.0 -150.0 187.9	0 0.0 -150.3 188.1	0 0.0 -150.6 188.3	0 0.0 -150.9 188.5	0 0.0 -151.2 188.7	0 0.0 -151.5 188.9	0 0.0 -151.8 189.1	0 0.0 -152.1 189.3	0 0.0 -152.4 189.5	0 0.0 -152.7 189.7	0 0.0 -153.0 189.9	0 0.0 -153.3 190.1	0 0.0 -153.6 190.3	0 0.0 -153.9 190.5	0 0.0 -154.2 190.7	0 0.0 -154.5 190.9	0 0.0 -154.8 191.1	0 0.0 -155.1 191.3	0 0.0 -155.4 191.5	0 0.0 -155.7 191.7	0 0.0 -156.0 191.9	0 0.0 -156.3 192.1	0 0.0 -156.6 192.3	0 0.0 -156.9 192.5	0 0.0 -157.2 192.7	0 0.0 -157.5 192.9	0 0.0 -157.8 193.1	0 0.0 -158.1 193.3	0 0.0 -158.4 193.5	0 0.0 -158.7 193.7	0 0.0 -159.0 193.9	0 0.0 -159.3 194.1	0 0.0 -159.6 194.3	0 0.0 -159.9 194.5	0 0.0 -160.2 194.7	0 0.0 -160.5 194.9	0 0.0 -160.8 195.1	0 0.0 -161.1 195.3	0 0.0 -161.4 195.5	0 0.0 -161.7 195.7	0 0.0 -162.0 195.9	0 0.0 -162.3 196.1	0 0.0 -162.6 196.3	0 0.0 -162.9 196.5	0 0.0 -163.2 196.7	0 0.0 -163.5 196.9	0 0.0 -163.8 197.1	0 0.0 -164.1 197.3	0 0.0 -164.4 197.5	0 0.0 -164.7 197.7	0 0.0 -165.0 197.9	0 0.0 -165.3 198.1	0 0.0 -165.6 198.3	0 0.0 -165.9 198.5	0 0.0 -166.2 198.7	0 0.0 -166.5 198.9	0 0.0 -166.8 199.1	0 0.0 -167.1 199.3	0 0.0 -167.4 199.5	0 0.0 -167.7 199.7	0 0.0 -168.0 199.9	0 0.0 -168.3 200.1	0 0.0 -168.6 200.3	0 0.0 -168.9 200.5	0 0.0 -169.2 200.7	0 0.0 -169.5 200.9	0 0.0 -169.8 201.1	0 0.0 -170.1 201.3	0 0.0 -170.4 201.5	0 0.0 -170.7 201.7	0 0.0 -171.0 201.9	0 0.0 -171.3 202.1	0 0.0 -171.6 202.3	0 0.0 -171.9 202.5	0 0.0 -172.2 202.7	0 0.0 -172.5 202.9	0 0.0 -172.8 203.1	0 0.0 -173.1 203.3	0 0.0 -173.4 203.5	0 0.0 -173.7 203.7	0 0.0 -174.0 203.9	0 0.0 -174.3 204.1	0 0.0 -174.6 204.3	0 0.0 -174.9 204.5	0 0.0 -175.2 204.7	0 0.0 -175.5 204.9	0 0.0 -175.8 205.1	0 0.0 -176.1 205.3	0 0.0 -176.4 205.5	0 0.0 -176.7 205.7	0 0.0 -177.0 205.9	0 0.0 -177.3 206.1	0 0.0 -177.6 206.3	0 0.0 -177.9 206.5	0 0.0 -178.2 206.7	0 0.0 -178.5 206.9	0 0.0 -178.8 207.1	0 0.0 -179.1 207.3	0 0.0 -179.4 207.5	0 0.0 -179.7 207.7	0 0.0 -180.0 207.9	0 0.0 -180.3 208.1	0 0.0 -180.6 208.3	0 0.0 -180.9 208.5	0 0.0 -181.2 208.7	0 0.0 -181.5 208.9	0 0.0 -181.8 209.1	0 0.0 -182.1 209.3	0 0.0 -182.4 209.5	0 0.0 -182.7 209.7	0 0.0 -183.0 209.9	0 0.0 -183.3 210.1	0 0.0 -183.6 210.3	0 0.0 -183.9 210.5	0 0.0 -184.2 210.7	0 0.0 -184.5 210.9	0 0.0 -184.8 211.1	0 0.0 -185.1 211.3	0 0.0 -185.4 211.5	0 0.0 -185.7 211.7	0 0.0 -186.0 211.9	0 0.0 -186.3 212.1	0 0.0 -186.6 212.3	0 0.0 -186.9 212.5	0 0.0 -187.2 212.7	0 0.0 -187.5 212.9	0 0.0 -187.8 213.1	0 0.0 -188.1 213.3	0 0.0 -188.4 213.5	0 0.0 -188.7 213.7	0 0.0 -189.0 213.9	0 0.0 -189.3 214.1	0 0.0 -189.6 214.3	0 0.0 -189.9 214.5	0 0.0 -190.2 214.7	0 0.0 -190.5 214.9	0 0.0 -190.8 215.1	0 0.0 -191.1 215.3	0 0.0 -191.4 215.5	0 0.0 -191.7 215.7	0 0.0 -192.0 215.9	0 0.0 -192.3 216.1	0 0.0 -192.6 216.3	0 0.0 -192.9 216.5	0 0.0 -193.2 216.7	0 0.0 -193.5 216.9	0 0.0 -193.8 217.1	0 0.0 -194.1 217.3	0 0.0 -194.4 217.5	0 0.0 -194.7 217.7	0 0.0 -195.0 217.9	0 0.0 -195.3 218.1	0 0.0 -195.6 218.3	0 0.0 -195.9 218.5	0 0.0 -196.2 218.7	0 0.0 -196.5 218.9	0 0.0 -196.8 219.1	0 0.0 -197.1 219.3	0 0.0 -197.4 219.5	0 0.0 -197.7 219.7	0 0.0 -198.0 219.9	0 0.0 -198.3 220.1	0 0.0 -198.6 220.3	0 0.0 -198.9 220.5	0 0.0 -199.2 220.7	0 0.0 -199.5 220.9	0 0.0 -199.8 221.1	0 0.0 -200.1 221.3	0 0.0 -200.4 221.5	0 0.0 -200.7 221.7	0 0.0 -201.0 221.9	0 0.0 -201.3 222.1	0 0.0 -201.6 222.3	0 0.0 -201.9 222.5	0 0.0 -202.2 222.7	0 0.0 -202.5 222.9	0 0.0 -202.8 223.1	0 0.0 -203.1 223.3	0 0.0 -203.4 223.5	0 0.0 -203.7 223.7	0 0.0 -204.0 223.9	0 0.0 -204.3 224.1	0 0.0 -204.6 224.3	0 0.0 -204.9 224.5	0 0.0 -205.2 224.7	0 0.0 -205.5 224.9	0 0.0 -205.8 225.1	0 0.0 -206.1 225.3	0 0.0 -206.4 225.5	0 0.0 -206.7 225.7	0 0.0 -207.0 225.9	0 0.0 -207.3 226.1	0 0.0 -207.6 226.3	0 0.0 -207.9 226.5	0 0.0 -208.2 226.7	0 0.0 -208.5 226.9	0 0.0 -208.8 227.1	0 0.0 -209.1 227.3	0 0.0 -209.4 227.5	0 0.0 -209.7 227.7	0 0.0 -210.0 227.9	0 0.0 -210.3 228.1	0 0.0 -210.6 228.3	0 0.0 -210.9 228.5	0 0.0 -211.2 228.7	0 0.0 -211.5 228.9	0 0.0 -211.8 229.1	0 0.0 -212.1 229.3	0 0.0 -212.4 229.5	0 0.0 -212.7 229.7	0 0.0 -213.0 229.9	0 0.0 -213.3 230.1	0 0.0 -213.6 230.3	0 0.0 -213.9 230.5	0 0.0 -214.2 230.7	0 0.0 -214.5 230.9	0 0.0 -214.8 231.1	0 0.0 -215.1 231.3	0 0.0 -215.4 231.5	0 0.0 -215.7 231.7	0 0.0 -216.0 231.9	0 0.0 -216.3 232.1	0 0.0 -216.6 232.3	0 0.0 -216.9 232.5	0 0.0 -217.2 232.7	0 0.0 -217.5 232.9	0 0.0 -217.8 233.1	0 0.0 -218.1 233.3	0 0.0 -218.4 233.5	0 0.0 -218.7 233.7	0 0.0 -219.0 233.9	0 0.0 -219.3 234.1	0 0.0 -219.6 234.3	0 0.0 -219.9 234.5	0 0.0 -220.2 234.7	0 0.0 -220.5 234.9	0 0.0 -2

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	8 33.9	+58.9	127.2	7 21.3	+59.1	127.4	6 08.2	+59.5	127.6	4 54.9	+59.7	127.7	3 41.4	+59.8	127.8	2 27.7	+59.9	127.9	1 13.9	+59.9	128.0	0 00.0	+60.0	128.0
1	9 32.8	+58.9	127.0	8 20.4	+59.2	127.2	7 07.7	+59.4	127.4	5 54.6	+59.6	127.6	4 41.2	+59.8	127.8	3 27.6	+59.9	127.9	2 13.8	+60.0	128.0	1 00.0	+60.0	128.0
2	10 31.7	+58.8	126.8	9 19.6	+59.2	127.1	8 07.1	+59.4	127.3	6 54.2	+59.6	127.5	5 41.0	+59.8	127.7	4 27.5	+59.9	127.8	3 13.8	+60.0	127.9	2 00.0	+60.0	128.0
3	11 30.5	+58.9	126.6	10 18.8	+59.1	126.9	9 06.5	+59.4	127.2	7 53.8	+59.7	127.4	6 40.8	+59.8	127.6	5 27.4	+59.9	127.8	4 13.8	+60.0	127.9	3 00.0	+60.0	128.0
4	12 29.4	+58.8	126.4	11 17.9	+59.2	126.7	10 05.9	+59.4	127.0	8 53.5	+59.6	127.3	7 40.6	+59.8	127.5	6 27.3	+59.9	127.7	5 13.8	+60.0	127.9	4 00.0	+60.0	128.0
5	13 28.2	+58.9	126.2	12 17.1	+59.1	126.5	11 05.3	+59.5	126.9	9 53.1	+59.6	127.2	8 40.4	+59.7	127.4	7 27.2	+59.9	127.7	6 13.8	+59.9	127.8	5 00.0	+60.0	128.0
6	14 27.1	+58.8	126.0	13 16.2	+59.2	126.4	12 04.8	+59.4	126.7	10 52.7	+59.6	127.1	9 40.1	+59.8	127.3	8 27.1	+59.9	127.6	7 13.7	+60.0	127.8	6 00.0	+60.0	128.0
7	15 25.9	+58.8	125.8	14 15.4	+59.1	126.2	13 04.2	+59.4	126.6	11 52.3	+59.6	126.9	10 39.9	+59.8	127.3	9 27.0	+59.9	127.5	8 13.7	+60.0	127.8	7 00.0	+60.0	128.0
8	16 24.7	+58.8	125.6	15 14.5	+59.1	126.0	14 03.6	+59.4	126.4	12 51.9	+59.7	126.8	11 39.7	+59.8	127.2	10 26.9	+59.9	127.5	9 13.7	+60.0	127.8	8 00.0	+60.0	128.0
9	17 23.5	+58.8	125.4	16 13.6	+59.1	125.8	15 03.0	+59.3	126.3	13 51.6	+59.6	126.7	12 39.5	+59.8	127.1	11 26.9	+59.9	127.4	10 13.7	+59.9	127.7	9 00.0	+60.0	128.0
10	18 22.3	+58.7	125.1	17 12.7	+59.1	125.7	16 02.3	+59.4	126.2	14 51.2	+59.6	126.6	13 39.3	+59.8	127.0	12 26.8	+59.9	127.4	11 13.6	+60.0	127.7	10 00.0	+60.0	128.0
11	19 21.0	+58.8	124.9	18 11.8	+59.1	125.5	17 01.7	+59.4	126.0	15 50.8	+59.6	126.5	14 39.1	+59.8	126.9	13 26.7	+59.9	127.3	12 13.6	+60.0	127.7	11 00.0	+60.0	128.0
12	20 19.8	+58.7	124.7	19 10.9	+59.1	125.3	18 01.1	+59.4	125.9	16 50.4	+59.6	126.4	15 38.9	+59.7	126.8	14 26.6	+59.9	127.3	13 13.6	+60.0	127.6	12 00.0	+60.0	128.0
13	21 18.5	+58.7	124.5	20 10.0	+59.1	125.1	19 00.5	+59.4	125.7	17 50.0	+59.6	126.2	16 38.6	+59.8	126.7	15 26.5	+59.9	127.2	14 13.6	+59.9	127.6	13 00.0	+60.0	128.0
14	22 17.2	+58.8	124.3	21 09.1	+59.1	124.9	19 59.9	+59.3	125.5	18 49.6	+59.6	126.1	17 38.4	+59.8	126.6	16 26.4	+59.9	127.1	15 13.5	+60.0	127.6	14 00.0	+60.0	128.0
15	23 16.0	+58.6	124.1	22 08.2	+59.0	124.7	20 59.2	+59.4	125.4	19 49.2	+59.6	126.0	18 38.2	+59.8	126.6	17 26.3	+59.9	127.1	16 13.5	+60.0	127.6	15 00.0	+60.0	128.0
16	24 14.6	+58.7	123.8	23 07.2	+59.0	124.5	21 58.6	+59.3	125.2	20 48.8	+59.6	125.9	19 38.0	+59.7	126.5	18 26.2	+59.9	127.0	17 13.5	+60.0	127.5	16 00.0	+60.0	128.0
17	25 13.3	+58.6	123.6	24 06.2	+59.1	124.4	22 57.9	+59.3	125.1	21 48.4	+59.5	125.7	20 37.7	+59.8	126.4	19 26.1	+59.9	127.0	18 13.5	+59.9	127.5	17 00.0	+60.0	128.0
18	26 11.9	+58.7	123.4	25 05.3	+59.0	124.2	23 57.2	+59.3	124.9	22 47.9	+59.6	125.6	21 37.5	+59.8	126.3	20 26.0	+59.9	126.9	19 13.4	+60.0	127.5	18 00.0	+60.0	128.0
19	27 10.6	+58.6	123.1	26 04.3	+58.9	124.0	24 56.5	+59.3	124.7	23 47.5	+59.6	125.5	22 37.3	+59.7	126.2	21 25.9	+59.9	126.8	20 13.4	+60.0	127.4	19 00.0	+60.0	128.0
20	28 09.2	+58.5	122.9	27 03.2	+59.0	123.8	25 55.8	+59.3	124.6	24 47.1	+59.5	125.4	23 37.0	+59.8	126.1	22 25.8	+59.9	126.8	21 13.4	+60.0	127.4	20 00.0	+60.0	128.0
21	29 07.7	+58.6	122.6	28 02.2	+59.0	123.5	26 55.1	+59.3	124.4	25 46.6	+59.6	125.2	24 36.8	+59.7	126.0	23 25.7	+59.8	126.7	22 13.4	+59.9	127.4	21 00.0	+60.0	128.0
22	30 06.3	+58.5	122.4	29 01.2	+58.9	123.3	27 54.4	+59.3	124.2	26 46.2	+59.5	125.1	25 36.5	+59.8	125.9	24 25.5	+59.9	126.6	23 13.3	+60.0	127.3	22 00.0	+60.0	128.0
23	31 04.8	+58.4	122.1	30 00.1	+58.9	123.1	28 53.7	+59.3	124.1	27 45.7	+59.6	124.9	26 36.3	+59.7	125.8	25 25.4	+59.9	126.6	24 13.3	+60.0	127.3	23 00.0	+60.0	128.0
24	32 03.2	+58.5	121.9	30 59.0	+58.9	122.9	29 53.0	+59.2	123.9	28 45.3	+59.5	124.8	27 36.0	+59.7	125.7	26 25.3	+59.9	126.5	25 13.3	+60.0	127.3	24 00.0	+60.0	128.0
25	33 01.7	+58.4	121.6	31 57.9	+58.8	122.7	30 52.2	+59.2	123.7	29 44.8	+59.5	124.7	28 35.7	+59.8	125.6	27 25.2	+59.9	126.4	26 13.3	+60.0	127.2	25 00.0	+60.0	128.0
26	34 00.1	+58.4	121.3	32 56.7	+58.9	122.4	31 51.4	+59.2	123.5	30 44.3	+59.5	124.5	29 35.5	+59.7	125.5	28 25.1	+59.9	126.4	27 13.2	+60.0	127.2	26 00.0	+60.0	128.0
27	34 58.5	+58.3	121.0	33 55.6	+58.8	122.2	32 50.6	+59.2	123.3	31 43.8	+59.5	124.4	30 35.2	+59.7	125.4	29 25.0	+59.9	126.3	28 13.2	+60.0	127.2	27 00.0	+60.0	128.0
28	35 56.8	+58.3	120.7	34 54.4	+58.7	122.0	33 49.8	+59.2	123.1	32 43.3	+59.5	124.2	31 43.9	+59.7	125.2	30 24.9	+59.8	126.2	29 13.2	+59.9	127.1	28 00.0	+60.0	128.0
29	36 55.1	+58.2	120.5	35 53.1	+58.8	121.7	34 49.0	+59.1	122.9	33 42.8	+59.4	124.1	32 34.6	+59.8	125.1	31 24.7	+59.9	126.1	30 13.1	+60.0	127.1	29 00.0	+60.0	128.0
30	37 53.3	+58.2	120.1	36 51.9	+58.7	121.5	35 48.1	+59.2	122.7	34 42.2	+59.5	123.9	33 34.4	+59.7	125.0	32 24.6	+59.9	126.1	31 13.1	+60.0	127.1	30 00.0	+60.0	128.0
31	38 51.5	+58.2	119.8	37 50.6	+58.7	121.2	36 47.3	+59.1	122.5	35 41.7	+59.4	123.7	34 34.1	+59.7	124.9	33 24.5	+59.8	126.0	32 13.1	+59.9	127.0	31 00.0	+60.0	128.0
32	39 49.7	+58.1	119.5	38 49.3	+58.6	120.9	37 46.4	+59.1	122.3	36 41.1	+59.5	123.6	35 33.8	+59.6	124.8	34 24.3	+59.9	125.9	33 13.0	+60.0	127.0	32 00.0	+60.0	128.0
33	40 47.8	+58.0	119.2	39 47.9	+58.6	120.7	38 45.5	+59.0	122.1	37 40.6	+59.4	123.4	36 33.4	+59.7	124.6	35 24.2	+59.9	125.8	34 13.0	+60.0	126.9	33 00.0	+60.0	128.0
34	41 45.8	+58.0	118.9	40 46.5	+58.6	120.4	39 44.5	+59.0	121.8	38 40.0	+59.4	123.2	37 33.1	+59.7	124.5	36 24.1	+59.8	125.7	35 13.0	+59.9	126.9	34 00.0	+60.0	128.0
35	42 43.8	+57.9	118.5	41 45.1	+58.5	120.1	40 43.5	+59.0	121.6	39 39.4	+59.4	123.0	38 32.8	+59.7	124.4	37 23.9	+59.9	125.7	36 12.9	+60.0	126.9	35 00.0	+60.0	128.0
36	43 41.7	+57.9	118.1	42 43.6	+58.4	119.8	41 42.5	+59.0	121.4	40 38.8	+59.3	122.8	39 32.5	+59.6	124.2	38 23.8	+59.8	125.6	37 12.9	+60.0	126.8	36 00.0	+60.0	128.0
37	44 39.6	+57.7	117.8	43 42.0	+58.5	119.5	42 41.5	+58.9	121.1	41 38.1	+59.4	122.6	40 32.1	+59.6	124.1	39 23.6	+59.9	125.5	38 12.9	+59.9	126.8	37 00.0	+60.0	128.0
38	45 37.3	+57.7	117.4	44 40.4	+58.3	119.2	43 40.4	+58.9	120.8	42 37.5	+59.3	122.4	41 31.7	+59.7	124.0	40 23.5	+59.8	125.4	39 12.8	+60.0	126.7	38 00.0	+60.0	128.0
39	46 35.0	+57.6	117.0	45 38.8	+58.3	118.8	44 39.3	+58.9	120.6	43 36.8	+59.3	122.2	42 31.4	+59.6	123.8	41 23.3	+59.9	125.3	40 12.8	+60.0	126.7	39 00.0	+60.0	128.0
40	47 32.6	+57.5	116.6	46 37.1	+58.2	118.5	45 38.2	+58.8	120.3	44 36.1	+59.3	122.0	43 31.0	+59.6	123.7	42 23.2	+59.8	125.2	41 12.8	+59.9	126.6	40 00.0	+60.0	128.0
41	48 30.1	+57.4	116.2	47 35.0	+58.2	118.1	46 37.0	+58.8	120.0	45 35.4	+59.2	121.8	44 30.6	+59.6	123.5	43 23.0	+59.8	125.1	42 12.7	+60.0	126.6	41 00.0	+60.0	128.0
42	49 27.5	+57.3	115.7	48 33.5	+58.1	117.8	47 35.8	+58.7	119.7	46 34.6	+59.2	121.6	45 30.2	+59.6	123.3	44 22.8	+59.8	125.0	43 12.7	+59.9	126.5	42 00.0	+60.0	128.0
43	50 24.8	+57.2	115.3	49 31.6	+58.0	117.4	48 34.5	+58.7	119.4	47 33.8	+59.2	121.3	46 29.8	+59.5	123.2	45 22.6	+59.8	124.9	44 12.6	+60.0	126.5	43 00.0	+60.0	128.0
44	51 22.0	+57.1	114.8	50 29.6	+58.0	117.0	49 33.2	+58.6	119.1	48 33.0	+59.2	121.1	47 29.3	+59.6	123.0	46 22.4	+59.8	124.8	45 12.6	+59.9	126.4	44 00.0	+60.0	128.0
45	52 19.1	+56.9	114.3	51 27.6	+57.8	116.6	50 31.8	+58.6	118.8	49 32.2	+59.1	120.8	48 28.9	+59.5	122.8	47 22.2	+59.8	124.6	46 12.5	+59.9	126.4	45 00.0	+60.0	128.0
46	53 16.0	+56.8	113.8	52 25.4	+57.7	116.2	51 30.4	+																

LATITUDE CONTRARY NAME

L.H.A. 52°, 308°

Table with columns for latitude (76° to 90°) and longitude (Dec. 0 to 90). Each cell contains three values: Hc, d, and Z. The table is organized into 15 columns for latitude and one for Dec. values.

LATITUDE SAME NAME

L.H.A. 128°, 232°

54°, 306° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	17 05.5	+54.3	122.2	16 01.1	+55.1	122.7	14 55.9	+55.8	123.1	13 49.9	+56.4	123.6	12 43.2	+57.0	124.0	11 35.8	+57.6	124.3	10 27.9	+58.0	124.6	9 19.4	+58.5	124.9
1	17 59.8	+54.3	121.7	16 56.2	+55.0	122.3	15 51.7	+55.7	122.8	14 46.3	+56.4	123.2	13 40.2	+57.0	123.6	12 33.4	+57.5	124.0	11 25.9	+58.0	124.4	10 17.9	+58.4	124.7
2	18 54.1	+54.2	121.3	17 51.2	+55.0	121.8	16 47.4	+55.8	122.4	15 42.7	+56.4	122.9	14 37.2	+57.0	123.3	13 30.9	+57.5	123.7	12 23.9	+58.0	124.1	11 16.3	+58.4	124.5
3	19 48.3	+54.1	120.8	18 46.2	+55.0	121.4	17 43.2	+55.6	122.0	16 39.1	+56.3	122.5	15 34.2	+56.9	123.0	14 28.4	+57.5	123.4	13 21.9	+58.0	123.9	12 14.7	+58.4	124.2
4	20 42.4	+54.1	120.4	19 41.2	+54.8	121.0	18 38.8	+55.6	121.6	17 35.4	+56.3	122.2	16 31.1	+56.9	122.7	15 25.9	+57.5	123.2	14 19.9	+58.0	123.6	13 13.1	+58.4	124.0
5	21 36.5	+54.0	119.9	20 36.0	+54.8	120.6	19 34.4	+55.6	121.2	18 31.7	+56.3	121.8	17 28.0	+56.9	122.3	16 23.4	+57.4	122.9	15 17.9	+57.9	123.3	14 11.5	+58.4	123.8
6	22 30.5	+53.9	119.4	21 30.8	+54.8	120.1	20 30.0	+55.5	120.8	19 28.0	+56.2	121.4	18 24.9	+56.8	122.0	17 20.8	+57.4	122.5	16 15.8	+57.9	122.8	15 09.9	+58.4	123.5
7	23 24.4	+53.8	119.0	22 25.6	+54.6	119.7	21 25.5	+55.4	120.4	20 24.2	+56.2	121.0	19 21.7	+56.8	121.7	18 18.2	+57.4	122.2	17 13.7	+57.9	122.8	16 08.3	+58.3	123.3
8	24 18.2	+53.7	118.5	23 20.2	+54.6	119.2	22 20.9	+55.4	120.0	21 20.4	+56.1	120.7	20 18.5	+56.8	121.3	19 15.6	+57.4	121.9	18 11.6	+57.9	122.5	17 06.6	+58.4	123.0
9	25 11.9	+53.6	118.0	24 14.8	+54.5	118.8	23 16.3	+55.3	119.6	22 16.5	+56.0	120.3	21 15.3	+56.7	121.0	20 13.0	+57.3	121.6	19 09.5	+57.8	122.2	18 05.0	+58.3	122.8
10	26 05.5	+53.5	117.5	25 09.3	+54.5	118.3	24 11.6	+55.3	119.1	23 12.5	+56.0	119.9	22 12.0	+56.7	120.6	21 10.3	+57.3	121.3	20 07.3	+57.9	121.9	19 03.3	+58.3	122.6
11	26 59.0	+53.4	117.0	26 03.8	+54.3	117.9	25 06.9	+55.2	118.7	24 08.5	+55.9	119.5	23 08.7	+56.6	120.3	22 07.6	+57.2	121.0	21 05.2	+57.8	121.7	20 01.6	+58.3	122.3
12	27 52.4	+53.3	116.5	26 58.1	+54.2	117.4	26 02.1	+55.0	118.3	25 04.4	+55.9	119.1	24 05.3	+56.6	119.9	23 04.8	+57.2	120.7	22 03.0	+57.7	121.4	20 59.9	+58.2	122.0
13	28 45.7	+53.2	115.9	27 52.3	+54.1	116.9	26 57.1	+55.0	117.8	26 00.3	+55.8	118.7	25 01.9	+56.5	119.5	24 02.0	+57.2	120.3	23 00.7	+57.7	121.1	21 58.1	+58.2	121.8
14	29 38.9	+53.0	115.4	28 46.4	+54.1	116.4	27 52.1	+55.0	117.4	26 56.1	+55.7	118.3	25 58.4	+56.5	119.2	24 59.2	+57.1	120.0	23 58.4	+57.7	120.8	22 56.3	+58.3	121.5
15	30 31.9	+52.9	114.9	29 40.5	+53.9	115.9	28 47.1	+54.8	116.9	27 51.8	+55.7	117.9	26 54.9	+56.4	118.8	25 56.3	+57.0	119.7	24 56.1	+57.7	120.5	23 54.6	+58.1	121.3
16	31 24.8	+52.8	114.3	30 34.4	+53.8	115.4	29 41.9	+54.7	116.5	28 47.5	+55.5	117.5	27 51.3	+56.3	118.4	26 53.3	+57.0	119.3	25 53.8	+57.6	120.2	24 52.7	+58.2	121.0
17	32 17.6	+52.6	113.8	31 28.2	+53.6	114.9	30 36.6	+54.6	116.0	29 43.0	+55.5	117.0	28 47.6	+56.3	118.0	27 50.3	+57.0	119.0	26 51.4	+57.6	119.9	25 50.9	+58.1	120.7
18	33 10.2	+52.4	113.2	32 21.8	+53.5	114.4	31 31.2	+54.5	115.5	30 38.5	+55.4	116.6	29 43.9	+56.1	117.6	28 47.3	+56.9	118.6	27 49.0	+57.5	119.5	26 49.0	+58.1	120.4
19	34 02.6	+52.3	112.6	33 15.3	+53.4	113.8	32 25.7	+54.4	115.0	31 33.9	+55.3	116.1	30 40.0	+56.2	117.2	29 44.2	+56.8	118.2	28 46.5	+57.5	119.2	27 47.1	+58.0	120.2
20	34 54.9	+52.1	112.0	34 08.7	+53.2	113.3	33 20.1	+54.3	114.5	32 29.2	+55.2	115.7	31 36.2	+56.0	116.8	30 41.0	+56.8	117.9	29 44.0	+57.4	118.9	28 45.1	+58.0	119.9
21	35 47.0	+51.9	111.4	35 01.9	+53.1	112.7	34 14.4	+54.1	114.0	33 24.4	+55.1	115.2	32 32.2	+55.9	116.4	31 37.8	+56.7	117.5	30 41.4	+57.4	118.6	29 43.1	+58.0	119.6
22	36 38.9	+51.8	110.8	35 55.0	+52.9	112.1	35 08.5	+54.0	113.5	34 19.5	+55.0	114.7	33 28.1	+55.9	115.9	32 34.5	+56.7	117.1	31 38.8	+57.3	118.2	30 41.1	+57.9	119.3
23	37 30.7	+51.5	110.1	36 47.9	+52.8	111.6	36 02.5	+53.8	112.9	35 14.5	+54.8	114.2	34 24.0	+55.7	115.5	33 31.2	+56.5	116.7	32 36.1	+57.3	117.9	31 39.0	+57.9	119.0
24	38 22.2	+51.2	109.5	37 40.7	+52.5	111.0	36 56.3	+53.7	112.4	36 09.3	+54.7	113.7	35 19.7	+55.7	115.1	34 27.7	+56.5	116.3	33 33.4	+57.2	117.5	32 36.9	+57.8	118.7
25	39 13.4	+51.1	108.8	38 33.2	+52.4	110.3	37 50.0	+53.6	111.8	37 04.0	+54.6	113.2	36 15.4	+55.5	114.6	35 24.2	+56.4	115.9	34 30.6	+57.1	117.2	33 34.7	+57.8	118.3
26	40 04.5	+50.8	108.1	39 25.6	+52.1	109.7	38 43.6	+53.3	111.2	37 58.6	+54.5	112.7	37 10.9	+55.5	114.1	36 20.6	+56.3	115.5	35 27.7	+57.1	116.8	34 32.5	+57.7	118.0
27	40 55.3	+50.5	107.4	40 17.5	+51.9	109.1	39 36.9	+53.2	110.7	38 53.1	+54.3	112.2	38 06.4	+55.3	113.6	37 16.9	+56.2	115.0	36 24.8	+57.0	116.4	35 30.2	+57.7	117.7
28	41 45.8	+50.3	106.7	41 09.6	+51.7	108.4	40 30.1	+53.0	110.0	39 47.4	+54.1	111.6	39 01.7	+55.2	113.1	38 13.1	+56.1	114.6	37 21.8	+56.9	116.0	36 27.9	+57.6	117.3
29	42 36.1	+50.0	106.0	42 01.3	+51.4	107.7	41 23.1	+52.7	109.4	40 41.5	+54.0	111.1	39 56.9	+55.0	112.6	39 09.2	+56.0	114.2	38 18.7	+56.9	115.6	37 25.5	+57.6	117.0
30	43 26.1	+49.7	105.2	42 52.7	+51.2	107.0	42 15.8	+52.6	108.8	41 35.5	+53.8	110.5	40 51.9	+54.9	112.1	40 05.2	+55.9	113.7	39 15.6	+56.7	115.2	38 23.1	+57.5	116.6
31	44 15.8	+49.3	104.5	43 43.9	+50.9	106.3	43 08.4	+52.3	108.1	42 29.3	+53.6	109.9	41 46.8	+54.7	111.6	41 01.1	+55.7	113.2	40 12.3	+56.6	114.8	39 20.6	+57.4	116.3
32	45 05.1	+49.0	103.7	44 34.3	+50.6	105.6	44 00.7	+52.1	107.5	43 22.9	+53.4	109.3	42 41.5	+54.6	111.0	41 56.8	+55.7	112.7	41 08.9	+56.6	114.3	40 18.0	+57.3	115.9
33	45 54.1	+48.7	102.8	45 25.4	+50.3	104.8	44 52.8	+51.8	106.8	44 16.3	+53.2	108.6	43 36.1	+54.4	110.5	42 52.5	+55.5	112.2	42 05.5	+56.4	113.9	41 15.3	+57.3	115.5
34	46 42.8	+48.2	102.0	46 15.7	+50.0	104.0	45 44.6	+51.5	106.0	45 09.5	+52.9	108.0	44 30.5	+54.2	109.9	43 48.0	+55.3	111.7	43 01.9	+56.3	113.4	42 12.6	+57.2	115.1
35	47 31.0	+47.8	101.1	47 05.7	+49.6	103.2	46 36.1	+51.2	105.3	46 02.4	+52.7	107.3	45 24.7	+54.1	109.3	44 43.3	+55.2	111.1	43 58.2	+56.2	113.0	43 09.8	+57.0	114.7
36	48 18.8	+47.4	100.2	47 55.3	+49.2	102.4	47 27.3	+51.0	104.5	46 55.1	+52.5	106.6	46 18.8	+53.8	108.6	45 38.5	+55.0	110.6	44 54.4	+56.1	112.5	44 06.8	+57.0	114.3
37	49 06.2	+47.0	99.3	48 44.5	+48.9	101.5	48 18.3	+50.6	103.7	47 47.6	+52.1	105.9	47 12.6	+53.6	108.0	46 33.5	+54.8	110.0	45 50.5	+55.9	112.0	45 03.8	+56.9	113.8
38	49 53.2	+46.4	98.3	49 33.4	+48.4	100.7	49 08.9	+50.2	102.9	48 39.7	+51.9	105.2	48 06.2	+53.3	107.3	47 28.3	+54.7	109.4	46 46.4	+55.8	111.4	46 00.7	+56.8	113.4
39	50 39.6	+46.0	97.3	50 21.8	+48.0	99.7	49 59.1	+49.8	102.1	49 31.6	+51.6	104.4	48 59.5	+53.1	106.6	48 23.0	+54.4	108.8	47 42.2	+55.7	110.9	46 57.5	+56.6	112.9
40	51 25.6	+45.3	96.3	51 09.8	+47.5	98.8	50 48.9	+49.5	101.2	50 23.2	+51.2	103.6	49 52.6	+52.8	105.9	49 17.4	+54.2	108.2	48 37.9	+55.4	110.3	47 54.1	+56.5	112.4
41	52 10.9	+44.8	95.3	51 57.3	+47.0	97.8	51 38.4	+49.0	100.3	51 14.4	+50.8	102.8	50 45.4	+52.5	105.2	50 11.6	+54.0	107.5	49 33.3	+55.3	109.7	48 50.6	+56.4	111.9
42	52 55.7	+44.2	94.2	52 44.3	+46.4	96.8	52 27.4	+48.6	99.4	52 05.2	+50.5	101.9	51 37.9	+52.2	104.4	51 05.6	+53.8	106.8	50 28.6	+55.1	109.1	49 47.0	+56.2	111.4
43	53 39.9	+43.5	93.0	53 30.9	+45.9	95.7	53 16.0	+48.0	98.4	52 55.7	+50.1	101.0	52 30.1	+51.9	103.6	51 59.4	+53.4	106.1	51 23.7	+54.8	108.5	50 43.2	+56.1	110.8
44	54 23.4	+42.8	91.9	54 16.6	+45.3	94.6	54 04.0	+47.6	97.4	53 45.8	+49.6	100.1	53 22.0	+51.5	102.8	52 52.8	+53.2	105.3	52 18.5	+54.7	107.9	51 39.3	+55.9	110.3
45	55 06.2	+42.1	90.6	55 01.9	+44.6	93.5	54 51.6	+46.9	96.3	54 35.4	+49.1	99.1	54 13.5	+51.1	101.9	53 46.0	+52.9	104.6	53 13.2	+54.4	107.2	52 35.2	+55.7	109.7
46	55 48.3	+41.2	89.4	55 46.5	+43.9	9																		

LATITUDE CONTRARY NAME

L.H.A. 54°, 306°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
17 05.5	-54.4	122.2	16 01.1	-55.1	122.7	14 55.9	-55.8	123.1	13 49.9	-56.5	123.6	12 43.2	-57.0	124.0	11 35.8	-57.5	124.3	10 27.9	-58.0	124.6	9 19.4	-58.4	124.9	0	1	
16 11.1	-54.5	122.6	15 06.0	-55.2	123.1	14 00.1	-55.9	123.5	12 53.4	-56.4	123.9	11 46.2	-57.1	124.3	10 38.3	-57.6	124.6	9 29.9	-58.1	124.9	8 21.0	-58.5	125.2	0	2	
15 16.6	-54.5	123.1	14 10.8	-55.2	123.5	13 04.2	-55.9	123.9	11 57.0	-56.6	124.3	10 49.1	-57.1	124.6	9 40.7	-57.6	124.9	8 31.8	-58.0	125.2	7 22.5	-58.4	125.4	0	3	
14 22.1	-54.5	123.5	13 15.6	-55.3	123.9	12 08.3	-55.9	124.3	11 00.4	-56.5	124.6	9 52.0	-57.1	124.9	8 43.1	-57.6	125.2	7 33.8	-58.1	125.4	6 24.1	-58.5	125.6	0	4	
13 27.6	-54.6	123.9	12 20.3	-55.3	124.3	11 12.4	-56.0	124.6	10 03.9	-56.6	124.9	8 54.9	-57.1	125.2	7 45.5	-57.6	125.5	6 35.7	-58.1	125.7	5 25.6	-58.5	125.8	0	5	
12 33.0	-54.6	124.3	11 25.0	-55.3	124.7	10 16.4	-56.0	125.0	9 07.3	-56.5	125.3	7 57.8	-57.1	125.5	6 47.9	-57.6	125.7	5 37.6	-58.1	125.9	4 27.1	-58.5	126.1	0	6	
11 38.4	-54.7	124.8	10 29.7	-55.4	125.1	9 20.4	-56.0	125.4	8 10.8	-56.6	125.6	7 00.7	-57.2	125.8	5 50.3	-57.7	126.0	4 39.5	-58.0	126.2	3 28.6	-58.5	126.3	0	7	
10 43.7	-54.7	125.2	9 34.3	-55.4	125.5	8 24.4	-56.0	125.7	7 14.2	-56.6	126.0	6 03.5	-57.1	126.1	4 52.6	-57.6	126.3	3 41.5	-58.1	126.4	2 30.1	-58.4	126.5	0	8	
9 49.0	-54.7	125.6	8 38.9	-55.4	125.9	7 28.4	-56.0	126.1	6 17.6	-56.7	126.3	5 06.4	-57.2	126.5	3 55.0	-57.7	126.6	2 43.4	-58.1	126.7	1 31.7	-58.5	126.7	0	9	
8 54.3	-54.7	126.0	7 43.5	-55.4	126.3	6 32.4	-56.1	126.5	5 20.9	-56.6	126.6	4 09.2	-57.1	126.8	2 57.3	-57.6	126.9	1 45.3	-58.1	126.9	0 33.2	-58.5	127.0	0	10	
7 59.6	-54.8	126.4	6 48.1	-55.4	126.6	5 36.3	-56.0	126.8	4 24.3	-56.6	127.0	3 12.1	-57.2	127.1	1 59.7	-57.7	127.1	0 47.2	-58.1	127.2	0 25.3	+58.5	52.8	0	11	
7 04.8	-54.8	126.8	5 52.7	-55.4	127.0	4 40.3	-56.1	127.2	3 27.7	-56.7	127.3	2 14.9	-57.2	127.4	1 02.0	-57.6	127.4	0 20.9	+58.1	52.6	1 23.8	+58.5	52.6	0	12	
6 10.0	-54.8	127.3	4 57.2	-55.5	127.4	3 44.2	-56.1	127.5	2 31.0	-56.6	127.6	1 17.7	-57.2	127.7	0 04.4	-57.7	127.7	0 53.3	+58.1	52.3	2 22.3	+58.5	52.4	0	13	
5 15.2	-54.9	127.7	4 01.7	-55.5	127.8	2 48.1	-56.1	127.9	1 34.4	-56.7	127.9	0 20.5	-57.1	128.0	0 53.3	+57.7	52.0	2 07.1	+58.1	52.1	3 20.8	+58.5	52.2	0	14	
4 20.3	-54.8	128.1	3 06.2	-55.5	128.2	1 52.0	-56.1	128.2	0 37.7	-56.7	128.3	0 36.6	+57.2	51.7	1 51.0	+57.6	51.8	3 05.2	+58.1	51.8	4 19.3	+58.4	51.9	0	15	
3 25.5	-54.9	128.5	2 10.7	-55.5	128.6	0 55.9	-56.1	128.6	0 00.2	+56.1	51.0	1 19.0	+56.6	51.4	1 33.8	+57.2	51.4	2 48.6	+57.7	51.5	5 17.7	+58.5	51.7	0	16	
2 30.6	-54.8	128.9	1 15.2	-55.5	128.9	0 56.3	+56.1	50.7	0 15.6	+56.7	51.1	2 31.0	+57.2	51.1	3 46.3	+57.6	51.2	5 01.4	+58.0	51.3	6 17.2	+58.5	51.5	0	17	
1 35.8	-54.9	129.3	0 19.7	-55.5	129.3	1 52.4	+56.1	50.3	2 12.3	+56.6	50.7	3 28.2	+57.1	50.8	4 43.9	+57.6	50.9	5 59.4	+58.1	51.1	7 14.7	+58.5	51.3	0	18	
0 40.9	-54.9	129.7	0 35.8	+55.5	50.3	2 48.5	+56.1	50.0	3 08.9	+56.7	50.4	4 25.3	+57.2	50.5	5 41.5	+57.7	50.6	6 57.5	+58.1	50.8	8 13.2	+58.4	51.0	0	19	
0 14.0	+54.9	49.9	1 31.3	+55.5	49.9	2 48.5	+56.1	50.0	4 05.6	+56.6	50.1	5 22.5	+57.1	50.2	6 39.2	+57.6	50.4	7 55.6	+58.0	50.6	9 11.6	+58.4	50.8	0	20	
1 08.9	+54.8	49.5	2 26.8	+55.5	49.5	3 44.6	+56.0	49.6	5 02.2	+56.6	49.7	6 19.6	+57.2	49.9	7 36.8	+57.6	50.1	8 53.6	+58.1	50.3	10 10.0	+58.5	50.6	0	21	
2 03.7	+54.9	49.1	3 22.3	+55.4	49.2	4 40.6	+56.1	49.3	5 58.8	+56.6	49.4	7 16.8	+57.1	49.6	8 34.4	+57.6	49.8	9 51.7	+58.0	50.0	11 08.5	+58.4	50.3	0	22	
2 58.6	+54.8	48.7	4 17.7	+55.5	48.8	5 36.7	+56.1	48.9	6 55.4	+56.6	49.1	8 13.9	+57.1	49.3	9 32.0	+57.6	49.5	10 49.7	+58.0	49.8	12 06.9	+58.4	50.1	0	23	
3 53.4	+54.9	48.3	5 13.2	+55.5	48.4	6 32.8	+56.0	48.6	7 52.0	+56.6	48.7	9 11.0	+57.1	49.0	10 29.6	+57.5	49.2	11 47.7	+58.0	49.5	13 05.3	+58.4	49.9	0	24	
4 48.3	+54.8	47.9	6 08.7	+55.4	48.0	7 28.8	+56.0	48.2	8 48.6	+56.6	48.4	10 08.1	+57.1	48.7	11 27.1	+57.6	48.9	12 45.7	+58.0	49.3	14 03.7	+58.4	49.6	0	25	
5 43.1	+54.8	47.5	7 04.1	+55.4	47.6	8 24.8	+56.0	47.8	9 45.2	+56.5	48.1	11 05.2	+57.0	48.3	12 24.7	+57.5	48.7	13 43.7	+58.0	49.0	15 02.1	+58.4	49.4	0	26	
6 37.9	+54.8	47.1	7 59.5	+55.4	47.2	9 20.8	+56.0	47.5	10 41.7	+56.6	47.7	12 02.2	+57.1	48.0	13 22.2	+57.5	48.4	14 41.7	+58.0	48.7	16 00.5	+58.3	49.2	0	27	
7 32.7	+54.8	46.6	8 54.9	+55.4	46.9	10 16.8	+56.0	47.1	11 38.3	+56.5	47.4	12 59.3	+57.0	47.7	14 19.7	+57.5	48.1	15 39.6	+57.9	48.5	16 58.8	+58.4	48.9	0	28	
8 27.5	+54.7	46.2	9 50.3	+55.4	46.5	11 12.8	+55.9	46.7	12 34.8	+56.4	47.0	14 56.3	+57.0	47.4	16 17.2	+57.5	47.8	16 37.5	+58.0	48.2	17 57.2	+58.3	48.7	0	29	
9 22.2	+54.7	45.8	10 45.7	+55.3	46.1	12 08.7	+55.9	46.4	13 31.2	+56.5	46.7	15 53.3	+56.9	47.1	16 14.7	+57.4	47.5	17 35.5	+58.0	47.9	18 55.5	+58.3	48.4	0	30	
10 16.9	+54.7	45.4	11 41.0	+55.3	45.7	13 04.6	+55.8	46.0	14 27.7	+56.4	46.3	15 50.2	+57.0	46.7	16 47.2	+56.9	46.4	18 09.5	+57.4	46.9	20 52.1	+58.2	47.9	0	31	
11 11.6	+54.6	45.0	12 36.3	+55.2	45.3	14 00.4	+55.9	45.6	15 24.1	+56.4	46.0	16 47.2	+56.9	46.4	17 44.1	+56.8	46.1	19 06.9	+57.4	46.6	21 20.9	+57.9	47.1	0	32	
12 06.2	+54.7	44.6	13 31.5	+55.2	44.9	14 56.3	+55.8	45.2	16 20.5	+56.3	45.6	17 44.1	+56.8	46.1	18 40.9	+56.8	45.7	20 04.3	+57.3	46.3	21 26.9	+57.7	46.8	0	33	
13 00.9	+54.5	44.1	14 26.7	+55.2	44.5	15 52.1	+55.7	44.9	17 16.8	+56.3	45.3	18 40.9	+56.8	45.7	19 37.7	+56.8	45.4	20 04.3	+57.3	45.9	22 24.6	+57.6	46.5	0	34	
13 55.4	+54.5	43.7	15 21.9	+55.1	44.1	16 47.8	+55.7	44.5	18 13.1	+56.3	44.9	19 37.7	+56.8	45.4	20 34.5	+56.8	45.1	21 58.9	+57.2	45.6	23 22.4	+57.7	46.2	0	35	
14 49.9	+54.5	43.3	16 17.0	+55.1	43.7	17 43.5	+55.7	44.1	19 09.4	+56.2	44.6	20 34.5	+56.8	45.1	21 31.3	+56.7	44.7	22 56.1	+57.2	45.3	24 20.1	+57.7	45.9	0	36	
15 44.4	+54.4	42.8	17 12.1	+55.0	43.2	18 39.2	+55.6	43.7	20 05.6	+56.2	44.2	21 31.3	+56.7	44.7	22 28.0	+56.6	44.4	23 53.3	+57.2	45.0	25 17.8	+57.6	45.6	0	37	
16 38.8	+54.4	42.4	18 07.1	+55.0	42.8	19 34.8	+55.6	43.3	21 01.8	+56.1	43.8	22 28.0	+56.6	44.4	23 24.6	+56.7	44.0	24 50.5	+57.1	44.6	26 15.4	+57.6	45.3	0	38	
17 33.2	+54.3	42.0	19 02.1	+54.9	42.4	20 30.4	+55.5	42.9	21 57.9	+56.1	43.4	22 54.9	+56.0	43.0	24 21.3	+56.5	43.6	25 47.6	+57.1	44.3	27 13.0	+57.6	45.0	0	39	
18 27.5	+54.2	41.5	19 57.0	+54.9	42.0	21 25.9	+55.4	42.5	22 50.0	+55.9	42.6	23 50.0	+55.9	42.6	25 17.8	+56.5	43.3	26 44.7	+57.0	43.9	28 10.6	+57.5	44.7	0	40	
19 21.7	+54.2	41.1	20 51.9	+54.8	41.5	22 21.3	+55.4	42.1	24 45.9	+55.9	42.3	26 14.3	+56.5	42.9	27 14.3	+56.5	42.9	28 31.7	+57.0	43.6	29 08.1	+57.5	44.3	0	41	
20 15.9	+54.1	40.6	21 46.7	+54.7	41.1	23 16.7	+55.3	41.7	25 41.8	+55.9	42.0	27 10.8	+56.3	42.5	28 41.7	+56.9	43.2	29 38.7	+57.6	43.9	30 05.6	+57.4	44.0	0	42	
21 10.0	+54.0	40.1	22 41.4	+54.6	40.7	24 12.0	+55.3	41.2	26 37.7	+55.7	41.4	28 07.1	+56.3	42.1	29 35.6	+56.9	42.9	30 56.7	+57.6	43.5	31 03.0	+57.3	43.7	0	43	
22 04.0	+54.0	39.7	23 36.0	+54.6	40.2	25 07.3	+55.1	40.8	27 33.4	+55.7	41.0	29 03.4	+56.3	41.7	30 32.5	+56.7	42.5	31 00.3	+57.3	43.3	32 29.1	+57.9	44.5	0	44	
22 58.0	+53.8	39.2	24 30.6	+54.5	39.8	26 02.4	+55.1	40.4	28 29.1	+55.6	40.6	29 59.7	+56.2	41.3	31 29.2	+56.8	42.1	32 57.6	+57.3	43.0	33 00.3	+57.3	43.3	0	45	
23 51.8	+53.8	38.7	25 25.1	+54.4	39.3	26 57.5	+55.0	39.9	29 24.7	+55.5	40.2	30 55.9	+56.0	40.9	32 26.0	+56.6	41.7	33 54.9	+57.2	42.6	34 52.1	+57.1	42.6	0	46	
24 45.6	+53.6	38.2	26 19.5	+54.2	38.8	27 52.5	+54.9	39.5	30 20.2	+55.4	39.7	31 51.9	+													

54°, 306° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	8 10.5	+58.8	125.2	7 01.2	+59.1	125.4	5 51.5	+59.4	125.6	4 41.5	+59.7	125.7	3 31.3	+59.8	125.9	2 21.0	+59.9	125.9	1 10.5	+60.0	126.0	0 00.0	+60.0	126.0
1	9 09.3	+58.8	125.0	8 00.3	+59.1	125.2	6 50.9	+59.4	125.4	5 41.2	+59.6	125.6	4 31.1	+59.8	125.8	3 20.9	+59.9	125.9	2 10.5	+60.0	126.0	1 00.0	+60.0	126.0
2	10 08.1	+58.8	124.8	8 59.4	+59.1	125.1	7 50.3	+59.4	125.3	6 40.8	+59.6	125.5	5 30.9	+59.8	125.7	4 20.8	+59.9	125.8	3 10.5	+60.0	125.9	2 00.0	+60.0	126.0
3	11 06.9	+58.8	124.6	9 58.5	+59.2	124.9	8 49.7	+59.4	125.2	7 40.4	+59.6	125.4	6 30.7	+59.8	125.6	5 20.7	+59.9	125.8	4 10.5	+59.9	125.9	3 00.0	+60.0	126.0
4	12 05.7	+58.8	124.4	10 57.7	+59.1	124.7	9 49.1	+59.4	125.0	8 40.0	+59.6	125.3	7 30.5	+59.8	125.5	6 20.6	+59.9	125.8	5 10.4	+60.0	125.9	4 00.0	+60.0	126.0
5	13 04.5	+58.8	124.2	11 56.8	+59.1	124.5	10 48.5	+59.3	124.9	9 39.6	+59.6	125.2	8 30.3	+59.7	125.4	7 20.5	+59.9	125.6	6 10.4	+60.0	125.8	5 00.0	+60.0	126.0
6	14 03.3	+58.7	124.0	12 55.9	+59.1	124.4	11 47.8	+59.4	124.7	10 39.2	+59.6	125.0	9 30.0	+59.8	125.3	8 20.4	+59.9	125.6	7 10.4	+60.0	125.8	6 00.0	+60.0	126.0
7	15 02.0	+58.8	123.8	13 55.0	+59.1	124.2	12 47.2	+59.4	124.6	11 38.2	+59.6	124.9	10 29.8	+59.8	125.2	9 20.3	+59.9	125.5	8 10.4	+59.9	125.8	7 00.0	+60.0	126.0
8	16 00.8	+58.7	123.5	14 54.1	+59.0	124.0	13 46.6	+59.3	124.4	12 38.4	+59.6	124.8	11 29.6	+59.8	125.2	10 20.2	+59.9	125.5	9 10.3	+60.0	125.8	8 00.0	+60.0	126.0
9	16 59.5	+58.7	123.3	15 53.1	+59.1	123.8	14 45.9	+59.4	124.3	13 38.0	+59.6	124.7	12 29.4	+59.7	125.1	11 20.1	+59.9	125.4	10 10.3	+60.0	125.7	9 00.0	+60.0	126.0
10	17 58.2	+58.7	123.1	16 52.2	+59.1	123.6	15 45.3	+59.4	124.1	14 37.6	+59.6	124.6	13 29.1	+59.8	125.0	12 20.0	+59.9	125.4	11 10.3	+60.0	125.7	10 00.0	+60.0	126.0
11	18 56.9	+58.7	122.9	17 51.3	+59.0	123.5	16 44.7	+59.3	124.0	15 37.2	+59.6	124.5	14 28.9	+59.8	124.9	13 19.9	+59.9	125.3	12 10.3	+59.9	125.7	11 00.0	+60.0	126.0
12	19 55.6	+58.7	122.7	18 50.3	+59.1	123.3	17 44.0	+59.4	123.8	16 36.8	+59.6	124.3	15 28.7	+59.8	124.8	14 19.8	+59.9	125.2	13 10.2	+60.0	125.6	12 00.0	+60.0	126.0
13	20 54.3	+58.7	122.5	19 49.4	+59.0	123.1	18 43.4	+59.3	123.7	17 36.4	+59.5	124.2	16 28.5	+59.7	124.7	15 19.7	+59.9	125.2	14 10.2	+60.0	125.6	13 00.0	+60.0	126.0
14	21 53.0	+58.6	122.2	20 48.4	+59.0	122.9	19 42.7	+59.3	123.5	18 35.9	+59.6	124.1	17 35.9	+59.8	124.6	16 19.6	+59.9	125.1	15 10.2	+60.0	125.6	14 00.0	+60.0	126.0
15	22 51.6	+58.6	122.0	21 47.4	+59.0	122.7	20 42.0	+59.3	123.3	19 35.5	+59.6	124.0	18 28.0	+59.7	124.5	17 19.5	+59.9	125.1	16 10.2	+59.9	125.5	15 00.0	+60.0	126.0
16	23 50.2	+58.6	121.8	22 46.4	+59.0	122.5	21 41.3	+59.3	123.2	20 35.1	+59.5	123.8	19 27.7	+59.8	124.4	18 19.4	+59.9	125.0	17 10.1	+60.0	125.5	16 00.0	+60.0	126.0
17	24 48.8	+58.6	121.5	23 45.4	+59.0	122.3	22 40.6	+59.3	123.0	21 34.6	+59.6	123.7	20 27.5	+59.8	124.3	19 19.3	+59.9	124.9	18 10.1	+60.0	125.5	17 00.0	+60.0	126.0
18	25 47.4	+58.6	121.3	24 44.4	+58.9	122.1	23 39.9	+59.3	122.9	22 34.2	+59.5	123.6	21 27.3	+59.7	124.2	20 19.2	+59.9	124.9	19 10.1	+59.9	125.5	18 00.0	+60.0	126.0
19	26 46.0	+58.5	121.0	25 43.3	+58.9	121.9	24 39.2	+59.3	122.7	23 33.7	+59.6	123.4	22 27.0	+59.7	124.1	21 19.1	+59.9	124.8	20 10.0	+60.0	125.4	19 00.0	+60.0	126.0
20	27 44.5	+58.5	120.8	26 42.2	+59.0	121.7	25 38.5	+59.2	122.5	24 33.3	+59.5	123.3	23 26.7	+59.8	124.0	22 19.0	+59.9	124.7	21 10.0	+60.0	125.4	20 00.0	+60.0	126.0
21	28 43.0	+58.5	120.5	27 41.2	+58.9	121.5	26 37.7	+59.3	122.3	25 32.8	+59.5	123.2	24 26.5	+59.7	123.9	23 18.9	+59.8	124.7	22 10.0	+60.0	125.4	21 00.0	+60.0	126.0
22	29 41.5	+58.4	120.3	28 40.1	+58.8	121.3	27 37.0	+59.2	122.2	26 32.3	+59.6	123.0	25 26.2	+59.8	123.8	24 18.7	+59.9	124.6	23 10.0	+59.9	125.3	22 00.0	+60.0	126.0
23	30 39.9	+58.4	120.0	29 38.9	+58.9	121.0	28 36.2	+59.2	122.0	27 31.9	+59.5	122.9	26 26.0	+59.7	123.7	25 18.6	+59.9	124.5	24 09.9	+60.0	125.3	23 00.0	+60.0	126.0
24	31 38.3	+58.4	119.8	30 37.8	+58.8	120.8	29 35.4	+59.2	121.8	28 31.4	+59.5	122.7	27 25.7	+59.7	123.6	26 18.5	+59.9	124.5	25 09.9	+60.0	125.3	24 00.0	+60.0	126.0
25	32 36.7	+58.3	119.5	31 36.6	+58.8	120.6	30 34.6	+59.2	121.6	29 30.9	+59.5	122.6	28 25.4	+59.7	123.5	27 18.4	+59.9	124.4	26 09.9	+59.9	125.2	25 00.0	+60.0	126.0
26	33 35.0	+58.3	119.2	32 35.4	+58.8	120.3	31 33.8	+59.2	121.4	30 30.4	+59.4	122.4	29 25.1	+59.8	123.4	28 18.3	+59.8	124.3	27 09.8	+60.0	125.2	26 00.0	+60.0	126.0
27	34 33.3	+58.3	118.9	33 34.2	+58.8	120.1	32 33.0	+59.2	121.2	31 29.8	+59.5	122.3	30 24.9	+59.7	123.3	29 18.1	+59.9	124.2	28 09.8	+60.0	125.2	27 00.0	+60.0	126.0
28	35 31.6	+58.2	118.6	34 33.0	+58.7	119.9	33 32.2	+59.1	121.0	32 32.8	+59.5	122.1	31 24.6	+59.7	123.2	30 18.0	+59.9	124.2	29 09.8	+60.0	125.1	28 00.0	+60.0	126.0
29	36 29.8	+58.2	118.3	35 31.7	+58.7	119.6	34 31.3	+59.1	120.8	33 28.9	+59.4	122.0	32 24.3	+59.7	123.1	31 17.9	+59.8	124.1	30 09.8	+59.9	125.1	29 00.0	+60.0	126.0
30	37 28.0	+58.1	118.0	36 30.4	+58.6	119.3	35 30.4	+59.1	120.6	34 28.2	+59.4	121.8	33 24.0	+59.6	122.9	32 17.7	+59.9	124.0	31 09.7	+60.0	125.0	30 00.0	+60.0	126.0
31	38 26.1	+58.1	117.7	37 29.0	+58.6	119.1	36 29.5	+59.1	120.4	35 27.6	+59.5	121.6	34 23.6	+59.7	122.8	33 17.6	+59.9	123.9	32 09.7	+60.0	125.0	31 00.0	+60.0	126.0
32	39 24.2	+58.0	117.4	38 27.6	+58.6	118.8	37 28.6	+59.0	120.2	36 27.1	+59.4	121.5	35 23.3	+59.7	122.7	34 17.5	+59.8	123.9	33 09.7	+59.9	125.0	32 00.0	+60.0	126.0
33	40 22.2	+57.9	117.1	39 26.2	+58.6	118.5	38 27.6	+59.0	119.9	37 26.5	+59.3	121.3	36 23.0	+59.7	122.6	35 17.3	+59.9	123.8	34 09.6	+60.0	124.9	33 00.0	+60.0	126.0
34	41 20.1	+57.9	116.7	40 24.8	+58.5	118.3	39 26.6	+59.0	119.7	38 25.8	+59.4	121.1	37 22.7	+59.6	122.4	36 17.2	+59.8	123.7	35 09.6	+60.0	124.9	34 00.0	+60.0	126.0
35	42 18.0	+57.9	116.4	41 23.3	+58.4	118.0	40 25.6	+58.9	119.5	39 25.2	+59.4	120.9	38 22.3	+59.7	122.3	37 17.0	+59.9	123.6	36 09.6	+59.9	124.8	35 00.0	+60.0	126.0
36	43 15.9	+57.7	116.0	42 21.7	+58.4	117.7	41 24.5	+59.0	119.2	40 24.6	+59.3	120.7	39 22.0	+59.6	122.2	38 16.9	+59.8	123.5	37 09.5	+60.0	124.8	36 00.0	+60.0	126.0
37	44 13.6	+57.7	115.6	43 20.1	+58.3	117.3	42 23.5	+58.9	119.0	41 23.9	+59.3	120.5	40 21.6	+59.6	122.0	39 16.7	+59.9	123.4	38 09.5	+59.9	124.7	37 00.0	+60.0	126.0
38	45 11.3	+57.6	115.2	44 18.4	+58.3	117.0	43 22.4	+58.8	118.7	42 23.2	+59.3	120.3	41 21.2	+59.6	121.9	40 16.6	+59.8	123.3	39 09.4	+60.0	124.7	38 00.0	+60.0	126.0
39	46 08.9	+57.5	114.8	45 16.7	+58.3	116.7	44 21.2	+58.8	118.4	43 22.5	+59.3	120.1	42 20.8	+59.6	121.7	41 16.4	+59.8	123.2	40 09.4	+60.0	124.7	39 00.0	+60.0	126.0
40	47 06.4	+57.4	114.4	46 15.0	+58.1	116.3	45 20.0	+58.8	118.2	44 21.8	+59.2	119.9	43 20.4	+59.6	121.6	42 16.2	+59.8	123.1	41 09.4	+59.9	124.6	40 00.0	+60.0	126.0
41	48 03.8	+57.3	114.0	47 13.1	+58.1	116.0	46 18.8	+58.7	117.9	45 21.0	+59.2	119.7	44 20.0	+59.6	121.4	43 16.0	+59.9	123.0	42 09.3	+60.0	124.6	41 00.0	+60.0	126.0
42	49 01.1	+57.3	113.5	48 11.2	+58.0	115.6	47 17.5	+58.7	117.6	46 20.2	+59.2	119.4	45 19.6	+59.5	121.2	44 15.9	+59.8	122.9	43 09.3	+59.9	124.5	42 00.0	+60.0	126.0
43	49 58.4	+57.1	113.1	49 09.2	+58.0	115.2	48 16.2	+58.6	117.3	47 19.4	+59.1	119.2	46 19.1	+59.6	121.1	45 15.7	+59.8	122.8	44 09.2	+60.0	124.4	43 00.0	+60.0	126.0
44	50 55.5	+56.9	112.6	50 07.2	+57.8	114.8	49 14.8	+58.6	116.9	48 18.5	+59.2	119.0	47 18.7	+59.5	120.9	46 15.5	+59.8	122.7	45 09.2	+59.9	124.4	44 00.0	+60.0	126.0
45	51 52.4	+56.9	112.1	51 05.0	+57.8	114.4	50 13.4	+58.5	116.6	49 17.7	+59.0	118.7	48 18.2	+59.5	120.7	47 15.3	+59.8	122.6	46 09.1	+60.0	124.3	45 00.0	+60.0	126.0
46	52 49.3	+56.7	111.6	52 02.8	+57.7	114.0	51 11.9	+58.4	116.3</															

LATITUDE CONTRARY NAME

L.H.A. 54°, 306°

Table with columns for latitude (76° to 90°) and longitude (Dec. 0 to 90). Each cell contains three values: Hc, d, and Z. The table is organized into 15-degree latitude bands, with each band containing 15-degree longitude increments.

LATITUDE SAME NAME

L.H.A. 126°, 234°

56°, 304° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	16 14.2	+54.1	120.3	15 13.2	+54.9	120.8	14 11.4	+55.6	121.2	13 08.8	+56.3	121.6	12 05.5	+56.9	122.0	11 01.6	+57.4	122.4	9 57.0	+58.0	122.7	8 52.0	+58.4	123.0
1	17 08.3	+54.0	119.8	16 08.1	+54.8	120.4	15 07.0	+55.6	120.8	14 05.1	+56.2	121.3	13 02.4	+56.8	121.7	12 00.4	+57.4	122.1	10 55.0	+57.9	122.4	9 50.4	+58.3	122.7
2	18 02.3	+54.0	119.4	17 02.9	+54.8	119.9	16 02.6	+55.5	120.4	15 01.3	+56.2	120.9	13 59.2	+56.9	121.4	12 56.4	+57.4	121.8	11 52.9	+57.9	122.1	10 48.7	+58.4	122.5
3	18 56.3	+53.8	118.9	17 57.7	+54.7	119.5	16 58.1	+55.5	120.1	15 57.5	+56.2	120.6	14 56.1	+56.8	121.0	13 53.8	+57.4	121.5	12 50.8	+57.9	121.9	11 47.1	+58.3	122.3
4	19 50.1	+53.9	118.5	18 52.4	+54.7	119.1	17 53.6	+55.4	119.7	16 53.7	+56.1	120.2	15 52.9	+56.7	120.7	14 51.2	+57.3	121.2	13 48.7	+57.8	121.6	12 45.4	+58.3	122.0
5	20 44.0	+53.7	118.0	19 47.1	+54.6	118.6	18 49.0	+55.4	119.2	17 49.8	+56.1	119.8	16 49.6	+56.8	120.4	15 48.5	+57.3	120.9	14 46.5	+57.9	121.3	13 43.7	+58.3	121.8
6	21 37.7	+53.7	117.5	20 41.7	+54.5	118.2	19 44.4	+55.3	118.8	18 45.9	+56.1	119.5	17 46.4	+56.7	120.0	15 45.8	+57.3	120.6	14 44.4	+57.8	121.1	14 42.0	+58.3	121.5
7	22 31.4	+53.6	117.0	21 36.2	+54.4	117.7	20 39.7	+55.2	118.4	19 42.0	+55.9	119.1	18 43.1	+56.6	119.7	17 43.1	+57.3	120.2	16 42.2	+57.8	120.8	15 40.3	+58.3	121.3
8	23 25.0	+53.4	116.5	22 30.6	+54.4	117.3	21 34.9	+55.2	118.0	20 37.9	+56.0	118.7	19 39.7	+56.7	119.3	18 40.4	+57.2	119.9	17 40.0	+57.8	120.5	16 38.6	+58.3	121.0
9	24 18.4	+53.4	116.0	23 25.0	+54.3	116.8	22 30.1	+55.2	117.6	21 33.9	+55.9	118.3	20 36.4	+56.5	119.0	19 37.6	+57.2	119.6	18 37.8	+57.7	120.2	17 36.9	+58.2	120.8
10	25 11.8	+53.3	115.5	24 19.3	+54.2	116.4	23 25.3	+55.0	117.2	22 29.8	+55.8	117.9	21 32.9	+56.6	118.6	20 34.8	+57.2	119.3	19 35.5	+57.8	119.9	18 35.1	+58.2	120.5
11	26 05.1	+53.2	115.0	25 13.5	+54.1	115.9	24 20.3	+55.0	116.7	23 25.6	+55.8	117.5	22 29.5	+56.5	118.3	21 32.0	+57.1	119.0	20 33.3	+57.7	119.6	19 33.3	+58.2	120.3
12	26 58.3	+53.0	114.5	26 07.6	+54.0	115.4	25 15.3	+54.9	116.3	24 21.4	+55.7	117.1	23 26.0	+56.4	117.9	22 29.1	+57.1	118.6	21 31.0	+57.6	119.3	20 31.5	+58.2	120.0
13	27 51.3	+53.0	114.0	27 01.6	+54.0	114.9	26 10.2	+54.8	115.8	25 17.1	+55.6	116.7	24 22.4	+56.4	117.5	23 26.2	+57.1	118.3	22 28.6	+57.7	119.0	21 29.7	+58.2	119.8
14	28 44.3	+52.8	113.4	27 55.6	+53.8	114.4	27 05.0	+54.7	115.4	26 12.7	+55.6	116.3	25 18.8	+56.3	117.1	24 23.3	+56.9	118.0	23 26.3	+57.5	118.7	22 27.9	+58.1	119.5
15	29 37.1	+52.6	112.9	28 49.4	+53.7	113.9	27 59.7	+54.7	114.9	27 08.3	+55.5	115.9	26 15.1	+56.2	116.8	25 20.2	+57.0	117.6	24 23.8	+57.6	118.4	23 26.0	+58.1	119.2
16	30 29.7	+52.6	112.4	29 43.1	+53.5	113.4	28 54.4	+54.5	114.4	28 03.8	+55.4	115.4	27 11.3	+56.2	116.4	26 17.2	+56.9	117.3	25 21.4	+57.5	118.1	24 24.1	+58.0	118.9
17	31 22.3	+52.4	111.8	30 36.6	+53.5	112.9	29 48.9	+54.4	114.0	28 59.2	+55.3	115.0	28 07.5	+56.2	116.0	27 14.1	+56.8	116.9	26 18.9	+57.5	117.8	25 22.1	+58.1	118.7
18	32 14.7	+52.2	111.2	31 30.1	+53.3	112.4	30 43.3	+54.4	113.5	29 54.5	+55.2	114.6	29 03.7	+56.0	115.6	28 10.9	+56.8	116.6	27 16.4	+57.4	117.5	26 20.2	+58.0	118.4
19	33 06.9	+52.0	110.6	32 23.4	+53.2	111.8	31 37.7	+54.2	113.0	30 49.7	+55.2	114.1	29 59.7	+56.0	115.2	29 07.7	+56.7	116.2	28 13.8	+57.4	117.2	27 18.2	+57.9	118.1
20	33 58.9	+51.9	110.0	33 16.6	+53.0	111.3	32 31.9	+54.0	112.5	31 44.9	+55.0	113.6	30 55.7	+55.9	114.7	30 04.4	+56.7	115.8	29 11.2	+57.3	116.8	28 16.1	+58.0	117.8
21	34 50.8	+51.7	109.4	34 09.6	+52.9	110.7	33 25.9	+54.0	112.0	32 39.9	+54.9	113.2	31 51.6	+55.8	114.3	31 01.1	+56.6	115.4	30 08.5	+57.3	116.5	29 14.1	+57.8	117.5
22	35 42.5	+51.5	108.8	35 02.5	+52.7	110.1	34 19.9	+53.8	111.4	33 34.8	+54.8	112.7	32 47.4	+55.7	113.9	31 57.7	+56.5	115.0	31 05.8	+57.2	116.1	30 11.9	+57.9	117.2
23	36 34.0	+51.3	108.2	35 55.2	+52.5	109.6	35 13.7	+53.6	110.9	34 29.6	+54.7	112.2	33 43.1	+55.6	113.4	32 54.2	+56.4	114.6	32 03.0	+57.2	115.8	31 09.8	+57.8	116.9
24	37 25.3	+51.0	107.5	36 47.7	+52.4	109.0	36 07.3	+53.6	110.3	35 24.3	+54.6	111.7	34 38.7	+55.5	113.0	33 50.6	+56.4	114.2	33 00.2	+57.1	115.4	32 07.6	+57.7	116.6
25	38 16.3	+50.9	106.9	37 40.1	+52.1	108.3	37 00.9	+53.3	109.8	36 18.9	+54.4	111.2	35 34.2	+55.4	112.5	34 47.0	+56.2	113.8	33 57.3	+57.0	115.1	33 05.3	+57.7	116.3
26	39 07.2	+50.6	106.2	38 32.2	+51.9	107.7	37 54.2	+53.2	109.2	37 13.3	+54.3	110.7	36 29.6	+55.3	112.0	35 43.2	+56.2	113.4	34 54.3	+57.0	114.7	34 03.7	+57.7	116.9
27	39 57.8	+50.3	105.5	39 24.1	+51.8	107.1	38 47.4	+53.0	108.6	38 07.6	+54.1	110.1	37 24.9	+55.1	111.6	36 39.4	+56.1	113.0	35 51.3	+56.9	114.3	35 00.7	+57.6	116.6
28	40 48.1	+50.1	104.8	40 15.9	+51.5	106.4	39 40.4	+52.7	108.0	39 01.7	+54.0	109.6	38 20.0	+55.1	111.1	37 35.5	+56.0	112.5	36 48.2	+56.8	113.9	35 58.3	+57.5	116.2
29	41 38.2	+49.7	104.0	41 07.4	+51.2	105.7	40 33.1	+52.6	107.4	39 55.7	+53.8	109.0	39 15.1	+54.9	110.6	38 31.5	+55.8	112.1	37 45.0	+56.7	113.5	36 55.8	+57.5	116.9
30	42 27.9	+49.5	103.3	41 58.6	+51.0	105.0	41 25.7	+52.4	106.7	40 49.5	+53.6	108.4	40 10.0	+54.7	110.0	39 27.3	+55.8	111.6	38 41.7	+56.6	113.1	37 53.3	+57.4	114.5
31	43 17.1	+49.2	102.5	42 49.6	+50.7	104.3	42 18.1	+52.1	106.4	41 43.1	+53.4	107.8	41 04.7	+54.6	109.5	40 23.1	+55.6	111.1	39 38.3	+56.6	112.7	38 50.7	+57.3	114.2
32	44 06.6	+48.8	101.7	43 40.3	+50.4	103.6	43 10.2	+51.9	105.1	42 36.5	+53.3	107.2	41 59.3	+54.4	108.9	41 18.7	+55.5	110.6	40 34.9	+56.4	112.2	39 48.0	+57.2	113.8
33	44 55.4	+48.5	100.9	44 30.7	+50.1	102.8	44 02.1	+51.7	104.7	43 29.8	+53.0	106.6	42 53.7	+54.3	108.4	42 14.2	+55.3	110.1	41 31.3	+56.3	111.8	40 45.2	+57.2	113.4
34	45 43.9	+48.0	100.1	45 20.8	+49.8	102.1	44 53.8	+51.3	104.0	44 22.8	+52.8	105.9	43 48.0	+54.0	107.8	43 09.5	+55.3	109.6	42 27.6	+56.2	111.3	41 42.4	+57.1	113.0
35	46 31.9	+47.7	99.2	46 10.6	+49.5	101.3	45 45.1	+51.1	103.3	45 15.6	+52.5	105.3	44 42.0	+53.9	107.2	44 04.8	+55.0	109.0	43 23.8	+56.1	110.8	42 39.5	+56.9	112.6
36	47 19.6	+47.3	98.3	47 00.1	+49.1	100.4	46 36.2	+50.8	102.5	46 08.1	+52.3	104.6	45 35.9	+53.7	106.5	44 59.8	+54.9	108.5	44 19.9	+56.0	110.3	43 36.4	+56.9	112.1
37	48 06.9	+46.8	97.4	47 49.2	+48.7	99.6	47 27.0	+50.4	101.7	47 00.4	+52.0	103.8	46 29.6	+53.4	105.9	45 54.7	+54.7	107.9	45 15.9	+55.8	109.8	44 33.3	+56.8	111.7
38	48 53.7	+46.3	96.4	48 37.9	+48.2	98.7	48 17.4	+50.1	100.9	47 52.4	+51.7	103.3	47 23.0	+53.2	105.2	46 49.4	+54.5	107.3	46 11.7	+55.6	109.3	45 30.1	+56.7	111.2
39	49 40.0	+45.8	95.5	49 26.1	+47.9	97.8	49 07.5	+49.7	100.1	48 44.1	+51.4	102.1	48 16.2	+52.9	104.5	47 43.9	+54.3	106.7	47 07.3	+55.6	108.8	46 26.8	+56.5	110.8
40	50 25.8	+45.3	94.5	50 14.0	+47.4	96.9	49 57.2	+49.3	99.2	49 35.5	+51.1	101.6	49 09.1	+52.7	103.8	48 38.2	+54.1	106.0	48 02.9	+55.3	108.2	47 23.3	+56.4	110.3
41	51 11.1	+44.7	93.4	51 01.4	+46.8	95.9	50 46.5	+48.9	98.3	50 26.6	+50.7	100.7	50 01.8	+52.4	103.1	49 32.3	+53.8	105.4	48 58.2	+55.1	107.6	48 19.7	+56.3	109.8
42	51 55.8	+44.1	92.4	51 48.2	+46.4	94.9	51 35.4	+48.4	97.4	51 17.3	+50.3	99.9	50 54.2	+52.0	102.3	50 26.1	+53.6	104.7	49 53.3	+55.0	107.0	49 16.0	+56.1	109.2
43	52 39.9	+43.5	91.2	52 34.6	+45.8	93.9	52 23.8	+48.0	96.5	52 07.6	+50.0	99.0	51 46.2	+51.8	101.5	51 19.7	+53.4	104.0	50 48.3	+54.7	106.4	50 12.1	+56.0	108.7
44	53 23.4	+42.8	90.1	53 20.4	+45.2	92.8	53 11.8	+47.4	95.5	52 57.6	+49.5	98.2	52 38.0	+51.3	100.7	52 13.1	+53.0	103.2	51 43.0	+54.5	105.7	51 08.1	+55.8	108.1
45	54 06.2	+42.1	88.9	54 05.6	+44.5	91.7	53 59.2	+46.9	94.4	53 47.1	+49.0	97.1	53 29.3	+51.0	99.8	53 06.1	+52.7	102.5	52 37.5	+54.3	105.0	52 03.9	+55.6	107.5
46	54 48.3	+41.3	87.7	54 50.1	+43.9	90.5	54 4																	

LATITUDE CONTRARY NAME

L.H.A. 56°, 304°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
16 14.2	-54.2	120.3	15 13.2	-54.9	120.8	14 11.4	-55.7	121.2	13 08.8	-56.3	121.6	12 05.5	-56.9	122.0	11 01.6	-57.5	122.4	9 57.0	-57.9	122.7	8 52.0	-58.4	123.0	0		
15 20.0	-54.2	120.7	14 18.3	-55.0	121.2	13 15.7	-55.6	121.6	12 12.5	-56.3	122.0	11 08.6	-56.9	122.3	10 04.1	-57.5	122.7	8 59.1	-58.0	122.9	7 53.6	-58.4	123.2	1		
14 25.8	-54.2	121.2	13 23.3	-55.0	121.6	12 20.1	-55.7	122.0	11 16.2	-56.4	122.3	10 11.7	-57.0	122.7	9 06.6	-57.4	123.0	8 01.1	-57.9	123.2	6 55.2	-58.4	123.4	2		
13 31.6	-54.3	121.6	12 28.3	-55.0	122.0	11 24.4	-55.8	122.4	10 19.8	-56.4	122.7	9 14.7	-56.9	123.0	8 09.2	-57.5	123.2	7 03.2	-58.0	123.5	5 96.8	-58.4	123.7	3		
12 37.3	-54.4	122.1	11 33.3	-55.1	122.4	10 28.6	-55.7	122.7	9 23.4	-56.4	123.0	8 17.8	-57.0	123.3	7 11.7	-57.5	123.5	6 05.2	-58.0	123.7	4 98.4	-58.4	123.9	4		
11 42.9	-54.3	122.5	10 38.2	-55.1	122.8	9 32.9	-55.8	123.1	8 27.0	-56.4	123.4	7 20.8	-57.0	123.6	6 14.2	-57.5	123.8	5 07.2	-57.9	124.0	4 00.0	-58.4	124.1	5		
10 48.6	-54.5	122.9	9 43.1	-55.2	123.2	8 37.1	-55.8	123.5	7 30.6	-56.4	123.7	6 23.8	-57.0	123.9	5 16.7	-57.6	124.1	4 09.3	-58.0	124.2	3 01.6	-58.4	124.3	6		
9 54.1	-54.4	123.4	8 47.9	-55.1	123.6	7 41.3	-55.9	123.9	6 34.2	-56.4	124.1	5 26.8	-57.0	124.2	4 19.1	-57.5	124.4	3 11.3	-58.0	124.5	2 03.2	-58.4	124.6	7		
8 59.7	-54.5	123.8	7 52.8	-55.2	124.0	6 45.4	-55.8	124.2	5 37.8	-56.5	124.4	4 29.8	-57.0	124.6	3 21.6	-57.5	124.7	2 13.3	-58.0	124.8	1 04.8	-58.4	124.8	8		
8 05.2	-54.5	124.2	6 57.6	-55.2	124.4	5 49.6	-55.9	124.6	4 41.3	-56.5	124.8	3 32.8	-57.0	124.9	2 24.1	-57.5	125.0	1 15.3	-58.0	125.0	0 06.4	-58.4	125.0	9		
7 10.7	-54.5	124.6	6 02.4	-55.2	124.8	4 53.7	-55.9	125.0	3 44.8	-56.4	125.1	2 35.8	-57.1	125.2	1 26.6	-57.6	125.2	0 17.3	-58.0	125.3	0 52.0	+58.4	54.7	10		
6 16.2	-54.5	125.0	5 07.2	-55.3	125.2	3 57.8	-55.8	125.3	2 48.4	-56.5	125.4	1 38.7	-57.0	125.5	0 29.0	-57.5	125.5	0 40.7	+58.0	54.5	1 50.4	+58.4	54.5	11		
5 21.7	-54.6	125.5	4 11.9	-55.2	125.6	3 02.0	-55.9	125.7	1 51.9	-56.5	125.8	0 41.7	-57.0	125.8	0 28.5	+57.6	54.2	1 38.7	+58.0	54.2	2 48.8	+58.4	54.3	12		
4 27.1	-54.6	125.9	3 16.7	-55.3	126.0	2 06.1	-55.9	126.1	0 55.4	-56.5	126.1	0 15.3	+57.1	53.9	1 26.1	+57.5	53.9	2 36.7	+58.0	54.0	3 47.2	+58.4	54.1	13		
3 32.5	-54.6	126.3	2 21.4	-55.3	126.4	1 10.2	-55.9	126.4	0 01.1	+56.5	53.6	1 12.4	+57.0	53.6	2 23.6	+57.5	53.6	3 34.7	+58.0	53.7	4 45.6	+58.4	53.8	14		
2 37.9	-54.6	126.7	1 26.1	-55.2	126.8	0 14.3	-55.9	126.8	0 57.6	+56.5	53.2	2 09.4	+57.0	53.3	3 21.1	+57.6	53.3	4 32.7	+58.0	53.4	5 44.0	+58.4	53.6	15		
1 43.3	-54.6	127.1	0 30.9	-55.3	127.2	0 41.6	+55.9	52.8	1 54.1	+56.4	52.9	3 06.4	+57.1	52.9	4 18.7	+57.5	53.1	5 30.7	+57.9	53.2	6 42.4	+58.4	53.4	16		
0 48.7	-54.6	127.5	0 24.4	+55.3	52.5	1 37.5	+55.9	52.5	2 50.5	+56.5	52.5	4 03.5	+57.0	52.6	5 16.2	+57.5	52.8	6 28.6	+58.0	52.9	7 40.8	+58.4	53.1	17		
0 05.9	+54.6	52.0	1 19.7	+55.2	52.1	2 33.4	+55.9	52.1	3 47.0	+56.5	52.2	5 00.5	+57.0	52.3	6 13.7	+57.5	52.5	7 26.6	+58.0	52.7	8 39.2	+58.4	52.9	18		
1 00.5	+54.6	51.6	2 14.9	+55.3	51.7	3 29.3	+55.9	51.8	4 43.5	+56.4	51.9	5 57.5	+57.0	52.0	7 11.2	+57.5	52.2	8 24.6	+57.9	52.4	9 37.6	+58.3	52.7	19		
1 55.1	+54.6	51.2	3 10.2	+55.2	51.3	4 25.2	+55.8	51.4	5 39.9	+56.5	51.5	6 54.5	+56.9	51.7	8 08.7	+57.5	51.9	9 22.5	+58.0	52.1	10 35.9	+58.4	52.4	20		
2 49.7	+54.5	50.8	4 05.4	+55.3	50.9	5 21.0	+55.9	51.0	6 36.4	+56.4	51.2	7 51.4	+57.0	51.4	9 06.2	+57.4	51.6	10 20.5	+57.9	51.9	11 34.3	+58.3	52.2	21		
3 44.2	+54.6	50.4	5 00.7	+55.2	50.5	6 16.9	+55.8	50.7	7 32.8	+56.4	50.8	8 48.4	+57.0	51.1	10 03.6	+57.5	51.3	11 18.4	+57.9	51.6	12 32.6	+58.3	51.9	22		
4 38.8	+54.6	50.0	5 55.9	+55.2	50.1	7 12.7	+55.8	50.3	8 29.2	+56.4	50.5	9 45.4	+56.9	50.7	11 01.1	+57.4	51.0	12 16.3	+57.9	51.4	13 30.9	+58.4	51.7	23		
5 33.4	+54.5	49.5	6 51.1	+55.2	49.7	8 08.5	+55.8	49.9	9 25.6	+56.4	50.2	10 42.3	+56.9	50.4	11 58.5	+57.4	50.7	13 14.2	+57.9	51.1	14 29.3	+58.3	51.5	24		
6 27.9	+54.5	49.1	7 46.3	+55.2	49.3	9 04.3	+55.8	49.5	10 22.0	+56.4	49.8	11 39.2	+56.9	50.1	12 55.9	+57.4	50.4	14 12.1	+57.8	50.8	15 27.6	+58.2	51.2	25		
7 22.4	+54.5	48.7	8 41.5	+55.1	48.9	10 00.1	+55.8	49.2	11 18.4	+56.3	49.5	12 36.1	+56.9	49.8	13 53.3	+57.4	50.1	15 09.9	+57.9	50.5	16 25.8	+58.3	51.0	26		
8 16.9	+54.5	48.3	9 36.6	+55.1	48.5	10 55.9	+55.7	48.8	12 14.7	+56.3	49.1	13 33.0	+56.8	49.4	14 50.7	+57.3	49.8	16 07.8	+57.8	50.3	17 24.1	+58.2	50.7	27		
9 11.4	+54.4	47.9	10 31.7	+55.1	48.1	11 51.6	+55.7	48.4	13 11.0	+56.3	48.7	14 29.8	+56.8	49.1	15 48.0	+57.4	49.5	17 05.6	+57.8	50.0	18 22.3	+58.3	50.5	28		
10 05.8	+54.4	47.4	11 26.8	+55.0	47.7	12 47.3	+55.6	48.0	14 07.3	+56.2	48.4	15 26.6	+56.8	48.8	16 45.4	+57.3	49.2	18 03.4	+57.7	49.7	19 20.6	+58.2	50.2	29		
11 00.2	+54.4	47.0	12 21.8	+55.0	47.3	13 42.9	+55.7	47.6	15 03.5	+56.2	48.0	16 23.4	+56.8	48.5	17 42.7	+57.2	48.9	19 01.1	+57.8	49.4	20 18.8	+58.2	50.0	30		
11 54.6	+54.3	46.6	13 16.8	+55.0	46.9	14 38.6	+55.6	47.3	15 59.7	+56.2	47.7	17 20.2	+56.7	48.1	18 39.9	+57.3	48.6	19 58.9	+57.7	49.1	21 17.0	+58.1	49.7	31		
12 48.9	+54.3	46.1	14 11.8	+55.0	46.5	15 34.2	+55.5	46.9	16 55.9	+56.1	47.3	18 16.9	+56.7	47.8	19 37.2	+57.2	48.3	20 56.6	+57.7	48.8	22 15.1	+58.1	49.4	32		
13 43.2	+54.3	45.7	15 06.8	+54.8	46.1	16 29.7	+55.5	46.5	17 52.0	+56.1	46.9	19 13.6	+56.6	47.4	20 34.4	+57.1	48.0	21 54.3	+57.6	48.5	23 13.2	+58.1	49.2	33		
14 37.5	+54.1	45.3	16 01.6	+54.9	45.7	17 25.2	+55.5	46.1	18 48.1	+56.1	46.6	20 10.2	+56.6	47.1	21 31.5	+57.1	47.6	22 51.9	+57.6	48.2	24 11.3	+58.1	48.9	34		
15 31.6	+54.2	44.8	16 56.5	+54.8	45.2	18 20.7	+55.4	45.7	19 44.1	+56.0	46.2	21 06.8	+56.6	46.7	22 28.6	+57.1	47.3	23 49.5	+57.6	47.9	25 09.4	+58.1	48.6	35		
16 25.8	+54.1	44.4	17 51.3	+54.7	44.8	19 16.1	+55.3	45.3	20 40.1	+56.0	45.8	22 03.4	+56.5	46.4	23 25.7	+57.1	47.0	24 47.1	+57.6	47.6	26 07.5	+58.0	48.3	36		
17 19.9	+54.0	43.9	18 46.0	+54.6	44.4	20 11.4	+55.3	44.9	21 36.1	+55.8	45.4	22 59.9	+56.4	46.0	24 22.8	+57.0	46.6	25 44.7	+57.5	47.3	27 05.5	+57.9	48.0	37		
18 13.9	+53.9	43.5	19 40.6	+54.6	43.9	21 06.7	+55.2	44.5	22 31.9	+55.9	45.0	23 56.3	+56.4	45.6	25 19.8	+56.9	46.3	26 42.2	+57.4	47.0	28 03.4	+58.0	47.8	38		
19 07.8	+53.9	43.0	20 35.2	+54.6	43.5	22 01.9	+55.2	44.0	23 27.8	+55.7	44.6	24 52.7	+56.4	45.3	26 16.7	+56.9	45.9	27 39.6	+57.4	46.7	29 01.4	+57.9	47.5	39		
20 01.7	+53.8	42.5	21 29.8	+54.4	43.0	22 57.1	+55.1	43.6	24 23.5	+55.7	44.2	25 49.1	+56.3	44.9	27 13.6	+56.8	45.6	28 37.0	+57.4	46.3	29 59.3	+57.8	47.2	40		
20 55.5	+53.7	42.1	22 24.2	+54.4	42.6	23 52.2	+55.0	43.2	25 19.2	+55.7	43.8	26 45.4	+56.2	44.5	28 10.4	+56.8	45.2	29 34.4	+57.3	46.0	30 57.1	+57.8	46.9	41		
21 49.2	+53.7	41.6	23 18.6	+54.3	42.1	24 47.2	+54.9	42.7	26 14.9	+55.5	43.4	27 41.6	+56.1	44.1	29 07.2	+56.7	44.8	30 31.7	+57.3	45.7	31 54.9	+57.8	46.5	42		
22 42.9	+53.5	41.1	24 12.9	+54.2	41.7	25 42.1	+54.9	42.3	27 10.4	+55.5	43.0	28 37.7	+56.1	43.7	30 03.9	+56.7	44.5	31 29.0	+57.2	45.3	32 52.7	+57.7	46.2	43		
23 36.4	+53.5	40.6	25 07.1	+54.2	41.2	26 37.0	+54.8	41.8	28 05.9	+55.4	42.5	29 33.8	+56.0	43.3	31 00.6	+56.6	44.1	32 26.2	+57.1	45.0	33 50.4	+57.6	45.9	44		
24 29.9	+53.4	40.1	26 01.3	+54.0	40.7	27 31.8	+54.7	41.4	29 01.3	+55.3	42.1	30 29.8	+56.0	42.9	31 57.2	+56.5	43.7	33 23.3	+57.1	44.6	34 48.0	+57.6	45.6	45		
25 23.3	+53.2	39.6	26 55.3	+53.9	40.2	28 26.5	+54.5	40.9	29 56.6	+55.3	41.7	31 25.8	+55.8	42.4	32 53.7	+56.4	43.3	34 20.4	+57.0	44.2	35 45.6	+57.6	45.2	46		
26 16.5	+53.2	39.1	27 49.2	+53.9	39.7	29 21.0	+54.5	40.4	30 51.9	+55.1	41.2	32 21.6	+55.7	42.0	33 50.1											

56°, 304° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	7 46.5	+58.7	123.2	6 40.6	+59.1	123.4	5 34.3	+59.4	123.6	4 27.8	+59.6	123.7	3 21.1	+59.7	123.9	2 14.1	+59.9	123.9	1 07.1	+60.0	124.0	0 00.0	+60.0	124.0
1	8 45.2	+58.8	123.0	7 39.7	+59.1	123.2	6 33.7	+59.4	123.4	5 27.4	+59.6	123.6	4 20.8	+59.8	123.8	3 14.0	+59.9	123.9	2 07.1	+59.9	124.0	1 00.0	+60.0	124.0
2	9 44.0	+58.7	122.8	8 38.8	+59.0	123.1	7 33.1	+59.3	123.3	6 27.0	+59.6	123.5	5 20.6	+59.8	123.7	4 13.9	+59.9	123.8	3 07.0	+60.0	123.9	2 00.0	+60.0	124.0
3	10 42.7	+58.8	122.6	9 37.8	+59.1	122.9	8 32.4	+59.4	123.2	7 26.6	+59.6	123.4	6 20.4	+59.7	123.6	5 13.8	+59.9	123.8	4 07.0	+60.0	123.9	3 00.0	+60.0	124.0
4	11 41.5	+58.7	122.4	10 36.9	+59.1	122.7	9 31.8	+59.4	123.0	8 26.2	+59.6	123.3	7 20.1	+59.8	123.5	6 13.7	+59.9	123.7	5 07.0	+60.0	123.9	4 00.0	+60.0	124.0
5	12 40.2	+58.7	122.2	11 36.0	+59.0	122.5	10 31.2	+59.3	122.9	9 25.8	+59.6	123.2	8 19.9	+59.8	123.4	7 13.6	+59.9	123.6	6 07.0	+59.9	123.8	5 00.0	+60.0	124.0
6	13 38.9	+58.7	122.0	12 35.0	+59.1	122.4	11 30.5	+59.3	122.7	10 25.4	+59.5	123.0	9 19.7	+59.8	123.3	8 13.5	+59.9	123.6	7 06.9	+60.0	123.8	6 00.0	+60.0	124.0
7	14 37.6	+58.7	121.7	13 34.1	+59.0	122.2	12 29.8	+59.4	122.6	11 24.9	+59.6	122.9	10 19.5	+59.7	123.2	9 13.4	+59.9	123.5	8 06.9	+60.0	123.8	7 00.0	+60.0	124.0
8	15 36.3	+58.7	121.5	14 33.1	+59.1	122.0	13 29.2	+59.3	122.4	12 24.5	+59.6	122.8	11 19.2	+59.8	123.1	10 13.3	+59.9	123.5	9 06.9	+60.0	123.8	8 00.0	+60.0	124.0
9	16 35.0	+58.6	121.3	15 32.2	+59.0	121.8	14 28.5	+59.4	122.3	13 24.1	+59.6	122.7	12 19.0	+59.7	123.1	11 13.2	+59.9	123.4	10 06.9	+59.9	123.7	9 00.0	+60.0	124.0
10	17 33.6	+58.7	121.1	16 31.2	+59.0	121.6	15 27.9	+59.3	122.1	14 23.7	+59.6	122.6	13 18.7	+59.8	123.0	12 13.1	+59.9	123.3	11 06.8	+60.0	123.7	10 00.0	+60.0	124.0
11	18 32.3	+58.6	120.9	17 30.2	+59.0	121.4	16 27.2	+59.3	121.9	15 23.3	+59.5	122.4	14 18.5	+59.8	122.9	13 13.0	+59.9	123.3	12 06.8	+60.0	123.7	11 00.0	+60.0	124.0
12	19 30.9	+58.6	120.6	18 29.2	+59.0	121.2	17 26.5	+59.3	121.8	16 22.8	+59.6	122.3	15 18.3	+59.7	122.8	14 12.9	+59.9	123.2	13 06.8	+60.0	123.6	12 00.0	+60.0	124.0
13	20 29.5	+58.6	120.4	19 28.2	+59.0	121.0	18 25.8	+59.3	121.6	17 22.4	+59.5	122.2	16 18.0	+59.8	122.7	15 12.8	+59.9	123.2	14 06.8	+59.9	123.6	13 00.0	+60.0	124.0
14	21 28.1	+58.6	120.2	20 27.2	+59.0	120.8	19 25.1	+59.3	121.5	18 21.5	+59.6	122.1	17 17.8	+59.7	122.6	16 12.7	+59.9	123.1	15 06.7	+60.0	123.6	14 00.0	+60.0	124.0
15	22 26.7	+58.6	120.0	21 26.2	+58.9	120.6	20 24.4	+59.3	121.3	19 21.5	+59.5	121.9	18 17.5	+59.8	122.5	17 12.6	+59.9	123.0	16 06.7	+60.0	123.5	15 00.0	+60.0	124.0
16	23 25.3	+58.5	119.7	22 25.1	+58.9	120.4	21 23.7	+59.3	121.1	20 21.0	+59.6	121.8	19 17.3	+59.7	122.4	18 12.5	+59.8	123.0	17 06.7	+60.0	123.5	16 00.0	+60.0	124.0
17	24 23.8	+58.5	119.5	23 24.1	+58.9	120.2	22 23.0	+59.2	121.0	21 20.6	+59.5	121.7	20 17.0	+59.8	122.3	19 12.3	+59.9	122.9	18 06.7	+59.9	123.5	17 00.0	+60.0	124.0
18	25 22.3	+58.5	119.2	24 23.0	+58.9	120.0	23 22.2	+59.3	120.8	22 20.1	+59.5	121.5	21 16.8	+59.7	122.2	20 12.2	+59.9	122.8	19 06.6	+60.0	123.4	18 00.0	+60.0	124.0
19	26 20.8	+58.5	119.0	25 21.9	+58.9	119.8	24 21.5	+59.2	120.6	23 19.6	+59.6	121.4	22 16.5	+59.7	122.1	21 12.1	+59.9	122.8	20 06.6	+60.0	123.4	19 00.0	+60.0	124.0
20	27 19.3	+58.4	118.7	26 20.8	+58.9	119.6	25 20.7	+59.2	120.5	24 19.2	+59.5	121.3	23 16.2	+59.8	122.0	22 12.0	+59.9	122.7	21 06.6	+59.9	123.4	20 00.0	+60.0	124.0
21	28 17.7	+58.4	118.5	27 19.7	+58.8	119.4	26 19.9	+59.3	120.3	25 18.7	+59.5	121.1	24 16.0	+59.7	121.9	23 11.9	+59.9	122.6	22 06.5	+60.0	123.3	21 00.0	+60.0	124.0
22	29 16.1	+58.4	118.2	28 18.5	+58.8	119.2	27 19.2	+59.2	120.1	26 18.5	+59.5	121.0	25 15.7	+59.7	121.8	24 11.8	+59.8	122.6	23 06.5	+60.0	123.3	22 00.0	+60.0	124.0
23	30 14.5	+58.4	118.0	29 17.3	+58.8	119.0	28 18.4	+59.1	119.9	27 17.7	+59.5	120.8	26 15.4	+59.7	121.7	25 11.6	+59.9	122.5	24 06.5	+59.9	123.3	23 00.0	+60.0	124.0
24	31 12.9	+58.3	117.7	30 16.1	+58.8	118.7	29 17.5	+59.2	119.7	28 17.2	+59.4	120.7	27 15.1	+59.7	121.6	26 11.5	+59.9	122.4	25 06.4	+60.0	123.2	24 00.0	+60.0	124.0
25	32 11.2	+58.2	117.4	31 14.9	+58.8	118.5	30 16.7	+59.2	119.5	29 16.6	+59.5	120.5	28 14.8	+59.7	121.5	27 11.4	+59.9	122.4	26 06.4	+60.0	123.2	25 00.0	+60.0	124.0
26	33 09.4	+58.3	117.1	32 13.7	+58.7	118.3	31 15.9	+59.1	119.3	30 16.1	+59.5	120.4	29 14.5	+59.7	121.4	28 11.3	+59.8	122.3	27 06.4	+60.0	123.2	26 00.0	+60.0	124.0
27	34 07.7	+58.2	116.8	33 12.4	+58.7	118.0	32 15.0	+59.1	119.1	31 15.6	+59.4	120.2	30 14.2	+59.7	121.2	29 11.1	+59.9	122.2	28 06.4	+59.9	123.1	27 00.0	+60.0	124.0
28	35 05.9	+58.1	116.5	34 11.1	+58.7	117.8	33 14.1	+59.1	118.9	32 15.0	+59.4	120.1	31 13.9	+59.7	121.1	30 11.0	+59.9	122.1	29 06.3	+60.0	123.1	28 00.0	+60.0	124.0
29	36 04.0	+58.1	116.2	35 09.8	+58.6	117.5	34 13.2	+59.1	118.7	33 14.4	+59.5	119.9	32 13.6	+59.7	121.0	31 10.9	+59.8	122.1	30 06.3	+60.0	123.1	29 00.0	+60.0	124.0
30	37 02.1	+58.1	115.9	36 08.4	+58.6	117.2	35 12.3	+59.0	118.5	34 13.9	+59.4	119.7	33 13.3	+59.7	120.9	32 10.7	+59.9	122.0	31 06.3	+59.9	123.0	30 00.0	+60.0	124.0
31	38 00.2	+58.0	115.6	37 07.0	+58.6	117.0	36 11.3	+59.0	118.3	35 13.3	+59.4	119.6	34 13.0	+59.6	120.8	33 10.6	+59.8	121.9	32 06.2	+60.0	123.0	31 00.0	+60.0	124.0
32	38 58.2	+57.9	115.3	38 05.6	+58.5	116.7	37 10.3	+59.0	118.1	36 12.7	+59.3	119.4	35 12.6	+59.7	120.6	34 10.4	+59.9	121.8	33 06.2	+59.9	122.9	32 00.0	+60.0	124.0
33	39 56.1	+57.9	114.9	39 04.1	+58.5	116.4	38 09.3	+59.0	117.8	37 12.0	+59.4	119.2	36 12.3	+59.7	120.5	35 10.3	+59.8	121.7	34 06.1	+60.0	122.9	33 00.0	+60.0	124.0
34	40 54.0	+57.8	114.6	40 02.6	+58.4	116.1	39 08.3	+59.0	117.6	38 11.4	+59.3	119.0	37 12.0	+59.6	120.4	36 10.1	+59.9	121.6	35 06.1	+60.0	122.9	34 00.0	+60.0	124.0
35	41 51.8	+57.7	114.2	41 01.0	+58.4	115.8	40 07.3	+58.9	117.4	39 10.7	+59.4	118.8	38 11.6	+59.6	120.2	37 10.0	+59.8	121.5	36 06.1	+59.9	122.8	35 00.0	+60.0	124.0
36	42 49.5	+57.7	113.9	41 59.4	+58.3	115.5	41 06.2	+58.9	117.1	40 10.1	+59.3	118.6	39 11.2	+59.6	120.1	38 09.8	+59.9	121.5	37 06.0	+60.0	122.8	36 00.0	+60.0	124.0
37	43 47.2	+57.6	113.5	42 57.7	+58.3	115.2	42 05.1	+58.8	116.9	41 09.4	+59.2	118.4	40 10.8	+59.6	119.9	39 09.7	+59.8	121.4	38 06.0	+60.0	122.7	37 00.0	+60.0	124.0
38	44 44.8	+57.5	113.1	43 56.0	+58.2	114.9	43 03.9	+58.8	116.6	42 08.6	+59.3	118.2	41 10.4	+59.6	119.8	40 09.5	+59.8	121.3	39 06.0	+59.9	122.7	38 00.0	+60.0	124.0
39	45 42.3	+57.5	112.7	44 54.2	+58.2	114.5	44 02.7	+58.8	116.3	43 07.9	+59.2	118.0	42 10.0	+59.6	119.6	41 09.3	+59.8	121.2	40 05.9	+60.0	122.6	39 00.0	+60.0	124.0
40	46 39.8	+57.3	112.3	45 52.4	+58.1	114.2	45 01.5	+58.7	116.0	44 07.1	+59.2	117.8	43 09.6	+59.6	119.5	42 09.1	+59.9	121.1	41 05.9	+59.9	122.6	40 00.0	+60.0	124.0
41	47 37.1	+57.2	111.8	46 50.5	+58.0	113.8	46 00.2	+58.7	115.7	45 06.3	+59.2	117.6	44 09.2	+59.5	119.3	43 09.0	+59.8	121.0	42 05.8	+60.0	122.5	41 00.0	+60.0	124.0
42	48 34.3	+57.1	111.4	47 48.5	+58.0	113.5	46 58.9	+58.6	115.4	46 05.5	+59.2	117.3	45 08.7	+59.6	119.1	44 08.8	+59.8	120.8	43 05.8	+59.9	122.5	42 00.0	+60.0	124.0
43	49 31.4	+57.0	110.9	48 46.5	+57.9	113.1	47 57.5	+58.5	115.1	47 04.7	+59.1	117.1	46 08.3	+59.5	119.0	45 08.6	+59.8	120.7	44 05.7	+60.0	122.4	43 00.0	+60.0	124.0
44	50 28.4	+56.9	110.4	49 44.4	+57.7	112.7	48 56.0	+58.6	114.8	48 03.8	+59.1	116.8	47 07.8	+59.5	118.8	46 08.4	+59.7	120.6	45 05.7	+59.9	122.4	44 00.0	+60.0	124.0
45	51 25.3	+56.8	109.9	50 42.1	+57.7	112.2	49 54.6	+58.4	114.5	49 02.9	+59.0	116.6	48 02.3	+59.5	118.6	47 08.1	+59.8	120.5	46 05.6	+60.0	122.3	45 00.0	+60.0	124.0
46	52 22.1	+56.6	109.4	51 39.8	+57.6	111.8	50 53.0	+58.4																

LATITUDE CONTRARY NAME

L.H.A. 56°, 304°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
7 46.5	-58.8	123.2	6 40.6	-59.1	123.4	5 34.3	-59.3	123.6	4 27.8	-59.6	123.7	3 21.1	-59.8	123.9	2 14.1	-59.9	123.9	1 07.1	-60.0	124.0	0 00.0	+60.0	56.0	0		
6 47.7	-58.7	123.4	5 41.5	-59.1	123.6	4 35.0	-59.4	123.7	3 28.2	-59.6	123.9	2 21.3	-59.8	123.9	1 14.2	-59.9	124.0	0 07.1	-60.0	124.0	1 00.0	+60.0	56.0	1		
5 49.0	-58.8	123.6	4 42.4	-59.1	123.8	3 35.6	-59.4	123.9	2 28.6	-59.6	124.0	1 21.5	-59.8	124.0	0 14.3	-59.9	124.1	0 05.9	+59.9	56.0	2 00.0	+60.0	56.0	2		
4 50.2	-58.8	123.8	3 43.3	-59.1	123.9	2 36.2	-59.3	124.0	1 29.0	-59.6	124.1	0 21.7	-59.7	124.1	0 04.6	+59.9	55.9	1 52.8	+60.0	55.9	3 00.0	+60.0	56.0	3		
3 51.4	-58.8	124.0	2 44.2	-59.1	124.1	1 36.9	-59.4	124.2	0 29.4	-59.6	124.2	0 03.8	+59.8	55.8	1 45.5	+59.9	55.8	2 52.8	+60.0	55.9	4 00.0	+60.0	56.0	4		
2 52.6	-58.7	124.2	1 45.1	-59.1	124.3	0 37.5	-59.4	124.3	0 30.2	+59.6	55.7	1 37.8	+59.8	55.7	2 45.4	+59.9	55.8	3 52.8	+60.0	55.9	5 00.0	+60.0	56.0	5		
1 53.9	-58.8	124.4	0 46.0	-59.1	124.5	0 21.9	+59.4	55.5	1 29.8	+59.6	55.6	2 37.6	+59.8	55.6	3 45.3	+59.9	55.7	4 52.8	+60.0	55.8	6 00.0	+60.0	56.0	6		
0 55.1	-58.8	124.6	0 13.1	+59.1	55.4	1 21.3	+59.3	55.4	2 29.4	+59.6	55.5	3 37.4	+59.7	55.5	4 45.2	+59.9	55.7	5 52.7	+60.0	55.8	7 00.0	+60.0	56.0	7		
0 03.7	+58.8	55.2	0 12.2	+59.1	55.2	1 20.6	+59.4	55.3	2 29.0	+59.6	55.5	3 37.1	+59.8	55.5	4 45.1	+59.9	55.6	5 52.7	+60.0	55.8	8 00.0	+60.0	56.0	8		
1 02.5	+58.8	55.0	2 11.3	+59.1	55.0	3 20.0	+59.4	55.1	4 28.6	+59.6	55.2	5 36.9	+59.8	55.4	6 45.0	+59.9	55.5	7 52.7	+60.0	55.8	9 00.0	+60.0	56.0	9		
2 01.3	+58.7	54.8	3 10.4	+59.1	54.9	4 19.4	+59.4	55.0	5 28.2	+59.6	55.1	6 36.7	+59.7	55.3	7 44.9	+59.9	55.5	8 52.7	+60.0	55.7	10 00.0	+60.0	56.0	10		
3 00.0	+58.8	54.6	4 09.5	+59.1	54.7	5 18.8	+59.3	54.8	6 27.8	+59.6	55.0	7 36.4	+59.8	55.2	8 44.8	+59.9	55.4	9 52.6	+60.0	55.7	11 00.0	+60.0	56.0	11		
3 58.8	+58.8	54.4	5 08.6	+59.1	54.5	6 18.1	+59.4	54.7	7 27.4	+59.5	54.9	8 36.2	+59.8	55.1	9 44.7	+59.9	55.4	10 52.6	+60.0	55.7	12 00.0	+60.0	56.0	12		
4 57.6	+58.8	54.2	6 07.7	+59.1	54.3	7 17.5	+59.4	54.5	8 26.9	+59.6	54.8	9 36.0	+59.8	55.0	10 44.6	+59.9	55.3	11 52.6	+60.0	55.6	13 00.0	+60.0	56.0	13		
5 56.4	+58.7	54.0	7 06.8	+59.1	54.2	8 16.9	+59.3	54.4	9 26.5	+59.6	54.6	10 35.8	+59.7	54.9	11 44.4	+59.9	55.2	12 52.5	+60.0	55.6	14 00.0	+60.0	56.0	14		
6 55.1	+58.8	53.8	8 05.9	+59.0	54.0	9 16.2	+59.4	54.2	10 26.1	+59.6	54.5	11 35.5	+59.8	54.8	12 44.3	+59.9	55.2	13 52.5	+60.0	55.6	15 00.0	+60.0	56.0	15		
7 53.9	+58.7	53.6	9 04.9	+59.1	53.8	10 15.6	+59.3	54.1	11 25.7	+59.6	54.4	12 35.3	+59.7	54.7	13 44.2	+59.9	55.1	14 52.5	+60.0	55.5	16 00.0	+60.0	56.0	16		
8 52.6	+58.8	53.4	10 04.0	+59.1	53.6	11 14.9	+59.4	53.9	12 25.3	+59.6	54.3	13 35.0	+59.8	54.6	14 44.1	+59.9	55.1	15 52.5	+60.0	55.5	17 00.0	+60.0	56.0	17		
9 51.4	+58.7	53.2	11 03.1	+59.1	53.5	12 14.3	+59.3	53.8	13 24.9	+59.5	54.2	14 34.8	+59.8	54.6	15 44.0	+59.9	55.0	16 52.4	+60.0	55.5	18 00.0	+60.0	56.0	18		
10 50.1	+58.8	52.9	12 02.2	+59.0	53.3	13 13.6	+59.4	53.6	14 24.4	+59.6	54.0	15 34.6	+59.7	54.5	16 43.9	+59.9	54.9	17 52.4	+60.0	55.4	19 00.0	+60.0	56.0	19		
11 48.9	+58.7	52.7	13 01.2	+59.1	53.1	14 13.0	+59.3	53.5	15 24.0	+59.6	53.9	16 34.3	+59.8	54.4	17 43.8	+59.9	54.9	18 52.4	+60.0	55.4	20 00.0	+60.0	56.0	20		
12 47.6	+58.7	52.5	14 00.2	+59.0	52.9	15 12.3	+59.3	53.3	16 23.6	+59.5	53.8	17 34.1	+59.7	54.3	18 43.7	+59.9	54.8	19 52.4	+60.0	55.4	21 00.0	+60.0	56.0	21		
13 46.3	+58.7	52.3	14 59.3	+59.0	52.7	16 11.6	+59.3	53.2	17 23.1	+59.6	53.7	18 33.8	+59.8	54.2	19 43.6	+59.9	54.7	20 52.3	+60.0	55.4	22 00.0	+60.0	56.0	22		
14 45.0	+58.7	52.1	15 58.3	+59.1	52.5	17 10.9	+59.3	53.0	18 22.7	+59.6	53.5	19 33.6	+59.7	54.1	20 43.5	+59.8	54.7	21 52.3	+60.0	55.3	23 00.0	+60.0	56.0	23		
15 43.7	+58.7	51.9	16 57.4	+59.0	52.4	18 10.2	+59.3	52.9	19 22.3	+59.5	53.4	20 33.3	+59.8	54.0	21 43.3	+59.9	54.6	22 52.3	+60.0	55.3	24 00.0	+60.0	56.0	24		
16 42.4	+58.6	51.7	17 56.4	+59.0	52.2	19 09.5	+59.3	52.7	20 21.8	+59.5	53.3	21 33.1	+59.7	53.9	22 43.2	+59.9	54.5	23 52.2	+60.0	55.2	25 00.0	+60.0	56.0	25		
17 41.0	+58.7	51.5	18 55.4	+59.0	52.0	20 08.8	+59.3	52.5	21 21.3	+59.6	53.1	22 32.8	+59.7	53.8	23 43.1	+59.9	54.5	24 52.2	+60.0	55.2	26 00.0	+60.0	56.0	26		
18 39.7	+58.6	51.2	19 54.4	+58.9	51.8	21 08.1	+59.3	52.4	22 20.9	+59.5	53.0	23 32.5	+59.8	53.7	24 43.0	+59.9	54.4	25 52.2	+60.0	55.2	27 00.0	+60.0	56.0	27		
19 38.3	+58.6	51.0	20 53.3	+59.0	51.6	22 07.4	+59.3	52.2	23 20.4	+59.5	52.9	24 32.3	+59.7	53.6	25 42.9	+59.8	54.3	26 52.1	+60.0	55.1	28 00.0	+60.0	56.0	28		
20 36.9	+58.6	50.8	21 52.3	+59.0	51.4	23 06.7	+59.2	52.0	24 19.9	+59.5	52.7	25 32.0	+59.7	53.5	26 42.7	+59.9	54.3	27 52.1	+60.0	55.1	29 00.0	+60.0	56.0	29		
21 35.5	+58.6	50.5	22 51.3	+58.9	51.2	24 05.9	+59.3	51.9	25 19.4	+59.5	52.6	26 31.7	+59.7	53.4	27 42.6	+59.9	54.2	28 52.1	+60.0	55.1	30 00.0	+60.0	56.0	30		
22 34.1	+58.5	50.3	23 50.2	+58.9	51.0	25 05.2	+59.2	51.7	26 18.9	+59.5	52.4	27 31.4	+59.7	53.3	28 42.5	+59.9	54.1	29 52.1	+60.0	55.0	31 00.0	+60.0	56.0	31		
23 32.6	+58.6	50.1	24 49.1	+58.9	50.8	26 04.4	+59.2	51.5	27 18.4	+59.5	52.3	28 31.1	+59.7	53.1	29 42.4	+59.8	54.0	30 52.0	+60.0	55.0	32 00.0	+60.0	56.0	32		
24 31.2	+58.5	49.8	25 48.0	+58.9	50.6	27 03.6	+59.2	51.3	28 17.9	+59.5	52.2	29 30.8	+59.7	53.0	30 42.2	+59.9	54.0	31 52.0	+60.0	55.0	33 00.0	+60.0	56.0	33		
25 29.7	+58.5	49.6	26 46.9	+58.8	50.3	28 02.8	+59.2	51.1	29 17.4	+59.5	52.0	30 30.5	+59.7	52.9	31 42.1	+59.8	53.9	32 51.9	+60.0	54.9	34 00.0	+60.0	56.0	34		
26 28.2	+58.4	49.3	27 45.7	+58.9	50.1	29 02.0	+59.2	51.0	30 16.9	+59.4	51.9	31 30.2	+59.7	52.8	32 41.9	+59.9	53.8	33 51.9	+60.0	54.9	35 00.0	+60.0	56.0	35		
27 26.6	+58.5	49.1	28 44.6	+58.8	49.9	30 01.2	+59.1	50.8	31 16.3	+59.5	51.7	32 29.9	+59.7	52.7	33 41.8	+59.9	53.7	34 51.9	+60.0	54.8	36 00.0	+60.0	56.0	36		
28 25.1	+58.4	48.8	29 43.5	+58.8	49.7	31 00.3	+59.2	50.6	32 15.8	+59.4	51.5	33 29.6	+59.7	52.6	34 41.7	+59.8	53.6	35 51.8	+60.0	54.8	37 00.0	+60.0	56.0	37		
29 23.5	+58.3	48.6	30 42.2	+58.8	49.4	31 59.5	+59.1	50.4	33 15.2	+59.4	51.4	34 29.3	+59.6	52.4	35 41.5	+59.8	53.6	36 51.8	+60.0	54.7	38 00.0	+60.0	56.0	38		
30 21.8	+58.4	48.3	31 41.0	+58.7	49.2	32 58.6	+59.1	50.2	34 14.6	+59.4	51.2	35 28.9	+59.7	52.3	36 41.3	+59.9	53.5	37 51.8	+60.0	54.7	39 00.0	+60.0	56.0	39		
31 20.2	+58.3	48.0	32 39.7	+58.7	49.0	33 57.7	+59.1	50.0	35 14.0	+59.4	51.0	36 28.6	+59.6	52.2	37 41.2	+59.8	53.4	38 51.7	+60.0	54.6	40 00.0	+60.0	56.0	40		
32 18.5	+58.3	47.8	33 38.4	+58.7	48.7	34 56.8	+59.0	49.8	36 13.4	+59.4	50.9	37 28.2	+59.7	52.0	38 41.0	+59.9	53.3	39 51.7	+60.0	54.6	41 00.0	+60.0	56.0	41		
33 16.8	+58.2	47.5	34 37.1	+58.7	48.5	35 55.8	+59.1	49.5	37 12.8	+59.4	50.7	38 27.9	+59.6	51.9	39 40.9	+59.8	53.2	40 51.6	+60.0	54.5	42 00.0	+60.0	56.0	42		
34 15.0	+58.2	47.2	35 35.8	+58.6	48.2	36 54.9	+59.0	49.3	38 12.2	+59.3	50.5	39 27.5	+59.6	51.7	40 40.7	+59.8	53.1	41 51.6	+60.0	54.5	43 00.0	+60.0	56.0	43		
35 13.2	+58.1	46.9	36 34.4	+58.6	48.0	37 53.9	+58.9	49.1	39 11.5	+59.3	50.3	40 27.1	+59.6	51.6	41 40.5	+59.8	53.0	42 51.5	+60.0	54.4	44 00.0	+60.0	56.0	44		
36 11.3	+58.1	46.6	37 33.0	+58.5	47.7	38 52.8	+59.0	48.9	40 10.8	+59.3	50.1	41 26.7	+59.6	51.4	42 40.3	+59.8	52.9	43 51.5	+60.0	54.4	45 00.0	+60.0	56.0	45		
37 09.4	+58.1	46.3	38 31.5	+58.5	47.4	39 51.8	+58.9	48.6	41 10.1	+59.3	49.9	42 26.3	+59.6	51.3	43 40.1	+59.8	52.8	44 51.4	+60.0	54.3	46 00.0	+60.0	56.0	46		
38 07.5	+57.9	45.9	39 30.0	+58.5	47.1	40 50.7	+58.9	48.4	42 09.4	+59.3	49.7	43 25.9	+59.5	51.1	44 39.9	+59.8	52.7	45 51								

58°, 302° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	15 21.9	+53.8	118.4	14 24.3	+54.7	118.9	13 26.0	+55.4	119.3	12 26.8	+56.1	119.7	11 27.0	+56.7	120.1	10 26.5	+57.4	120.4	9 25.5	+57.8	120.7	8 23.9	+58.3	121.0
1	16 15.7	+53.8	118.0	15 19.0	+54.6	118.5	14 21.4	+55.4	118.9	13 22.9	+56.1	119.4	12 23.7	+56.8	119.8	11 23.9	+57.3	120.1	10 23.3	+57.9	120.5	9 22.2	+58.3	120.8
2	17 09.5	+53.8	117.5	16 13.6	+54.6	118.0	15 16.8	+55.3	118.5	14 19.0	+56.1	119.0	13 20.5	+56.7	119.4	12 21.2	+57.2	119.8	11 21.2	+57.8	120.2	10 20.5	+58.3	120.5
3	18 03.3	+53.6	117.0	17 08.2	+54.5	117.6	16 12.1	+55.3	118.1	15 15.1	+56.0	118.6	14 17.2	+56.6	119.1	13 18.4	+57.3	119.5	12 19.0	+57.8	119.9	11 18.8	+58.3	120.3
4	18 56.9	+53.6	116.6	18 02.7	+54.5	117.2	17 07.4	+55.3	117.7	16 11.1	+56.0	118.2	15 13.8	+56.7	118.7	14 15.7	+57.2	119.2	13 16.8	+57.7	119.6	12 17.1	+58.2	120.0
5	19 50.5	+53.5	116.1	18 57.2	+54.4	116.7	18 02.7	+55.2	117.3	17 07.1	+55.9	117.9	16 10.5	+56.6	118.4	15 12.9	+57.3	118.9	14 14.5	+57.8	119.4	13 15.3	+58.3	119.8
6	20 44.0	+53.5	115.6	19 51.6	+54.3	116.3	18 57.9	+55.1	116.9	18 03.0	+55.9	117.5	17 07.1	+56.6	118.1	16 10.2	+57.1	118.6	15 12.3	+57.7	119.1	14 13.6	+58.2	119.5
7	21 37.5	+53.3	115.1	20 45.9	+54.2	115.8	19 53.0	+55.1	116.5	18 58.9	+55.8	117.1	18 03.7	+56.5	117.7	17 07.3	+57.2	118.3	16 10.0	+57.7	118.8	15 11.8	+58.2	119.3
8	22 30.8	+53.3	114.6	21 40.1	+54.2	115.4	20 48.1	+55.0	116.1	19 54.7	+55.8	116.7	19 00.2	+56.5	117.4	18 04.5	+57.1	117.9	17 07.7	+57.7	118.5	16 10.0	+58.2	119.0
9	23 24.1	+53.2	114.1	22 34.3	+54.1	114.9	21 43.1	+55.0	115.6	20 50.5	+55.8	116.3	19 56.7	+56.4	117.0	19 01.6	+57.1	117.6	18 05.4	+57.7	118.2	17 08.2	+58.1	118.8
10	24 17.3	+53.0	113.6	23 28.4	+54.0	114.4	22 38.1	+54.8	115.2	21 46.3	+55.6	115.9	20 53.1	+56.4	116.6	19 58.7	+57.1	117.3	19 03.1	+57.6	117.9	18 06.3	+58.2	118.5
11	25 10.3	+53.0	113.1	24 22.4	+53.9	113.9	23 32.9	+54.8	114.8	22 41.9	+55.7	115.5	21 49.5	+56.4	116.3	20 55.8	+57.0	117.0	20 00.7	+57.6	117.6	19 04.5	+58.1	118.3
12	26 03.3	+52.8	112.6	25 16.3	+53.9	113.5	24 27.7	+54.8	114.3	23 37.6	+55.5	115.1	22 45.9	+56.3	115.9	21 52.8	+56.9	116.6	20 58.3	+57.6	117.3	20 02.6	+58.1	118.0
13	26 56.1	+52.7	112.0	26 10.2	+53.7	113.0	25 22.5	+54.6	113.9	24 33.1	+55.5	114.7	23 42.2	+56.2	115.5	22 49.7	+57.0	116.3	21 55.9	+57.5	117.0	21 00.7	+58.1	117.7
14	27 48.8	+52.6	111.5	27 03.9	+53.6	112.5	26 17.1	+54.6	113.4	25 28.6	+55.4	114.3	24 38.4	+56.2	115.1	23 46.7	+56.9	115.9	22 53.4	+57.5	116.7	21 58.8	+58.0	117.5
15	28 41.4	+52.5	111.0	27 57.5	+53.5	112.0	27 11.7	+54.4	112.9	26 24.0	+55.3	113.9	25 34.6	+56.1	114.8	24 43.6	+56.8	115.6	23 50.9	+57.5	116.4	22 56.8	+58.0	117.2
16	29 33.9	+52.3	110.4	28 51.0	+53.4	111.5	28 06.1	+54.4	112.5	27 19.3	+55.3	113.4	26 30.7	+56.1	114.4	25 40.4	+56.8	115.2	24 48.4	+57.4	116.1	23 54.8	+58.0	116.9
17	30 26.2	+52.2	109.8	29 44.4	+53.2	110.9	29 00.5	+54.2	112.0	28 14.6	+55.2	113.0	27 26.8	+56.0	114.0	26 37.2	+56.7	114.9	25 45.8	+57.4	115.8	24 52.8	+58.0	116.6
18	31 18.4	+52.0	109.3	30 37.6	+53.2	110.4	29 54.7	+54.2	111.5	29 09.8	+55.0	112.5	28 22.8	+55.9	113.5	27 33.9	+56.7	114.5	26 43.2	+57.3	115.4	25 50.8	+57.9	116.3
19	32 10.4	+51.8	108.7	31 30.8	+52.9	109.9	30 48.9	+54.0	111.0	30 04.8	+55.0	112.1	29 18.7	+55.8	113.1	28 30.6	+56.6	114.1	27 40.5	+57.3	115.1	26 48.7	+57.9	116.0
20	33 02.2	+51.7	108.1	32 23.7	+52.9	109.3	31 42.9	+53.9	110.5	30 59.8	+54.9	111.6	30 14.5	+55.8	112.7	29 27.2	+56.5	113.8	28 37.8	+57.3	114.8	27 46.6	+57.9	115.8
21	33 53.9	+51.5	107.5	33 16.6	+52.7	108.7	32 36.8	+53.8	110.0	31 54.7	+54.8	111.1	31 10.3	+55.6	112.3	30 23.7	+56.5	113.4	29 35.1	+57.1	114.4	28 44.5	+57.8	115.4
22	34 45.4	+51.3	106.9	34 09.3	+52.6	108.2	33 30.6	+53.6	109.4	32 49.5	+54.6	110.7	32 05.9	+55.6	111.8	31 20.2	+56.4	113.0	30 32.2	+57.2	114.1	29 42.3	+57.7	115.1
23	35 36.7	+51.1	106.2	35 01.8	+52.3	107.6	34 24.2	+53.5	108.9	33 44.1	+54.5	110.2	33 01.5	+55.5	111.4	32 16.6	+56.3	112.6	31 29.4	+57.0	113.7	30 40.0	+57.7	114.8
24	36 27.8	+50.8	105.6	35 54.1	+52.2	107.0	35 17.7	+53.4	108.3	34 38.6	+54.4	109.7	33 57.0	+55.4	110.9	33 12.9	+56.2	112.2	32 26.4	+57.0	113.4	31 37.7	+57.7	114.5
25	37 18.6	+50.7	104.9	36 46.3	+51.9	106.4	36 11.1	+53.1	107.8	35 33.0	+54.3	109.1	34 52.4	+55.2	110.5	34 09.1	+56.2	111.8	33 23.4	+57.0	113.0	32 35.4	+57.6	114.2
26	38 09.3	+50.4	104.2	37 38.2	+51.8	105.7	37 04.2	+53.0	107.2	36 27.3	+54.1	108.6	35 47.6	+55.2	110.0	35 05.3	+56.0	111.3	34 20.4	+56.8	112.6	33 33.0	+57.6	113.9
27	38 59.7	+50.1	103.5	38 30.0	+51.6	105.1	37 57.2	+52.8	106.6	37 21.4	+54.0	108.1	36 42.8	+55.0	109.5	36 01.3	+56.0	110.9	35 17.2	+56.8	112.2	34 30.6	+57.5	113.5
28	39 49.8	+49.9	102.8	39 21.6	+51.3	104.4	38 50.0	+52.7	106.0	38 15.4	+53.8	107.5	37 37.8	+54.9	109.0	36 57.3	+55.9	110.4	36 14.0	+56.7	111.8	35 28.1	+57.4	113.2
29	40 39.7	+49.6	102.1	40 12.9	+51.0	103.8	39 42.7	+52.4	105.4	39 09.2	+53.7	107.0	38 32.7	+54.8	108.5	37 53.2	+55.7	110.0	37 10.7	+56.6	111.4	36 25.5	+57.4	112.8
30	41 29.3	+49.3	101.4	41 03.9	+50.9	103.1	40 35.1	+52.2	104.7	40 02.9	+53.5	106.4	39 27.5	+54.6	108.0	38 48.9	+55.6	109.5	38 07.3	+56.6	111.0	37 22.9	+57.3	112.4
31	42 18.6	+49.0	100.6	41 54.8	+50.5	102.4	41 27.3	+52.0	104.1	40 56.4	+53.3	105.8	40 22.1	+54.4	107.4	39 44.5	+55.5	109.0	39 03.9	+56.4	110.6	38 20.2	+57.3	112.1
32	43 07.6	+48.7	99.8	42 45.7	+50.3	101.6	42 19.3	+51.7	103.4	41 49.7	+53.0	105.2	41 16.5	+54.3	106.9	40 40.0	+55.4	108.5	40 00.3	+56.3	110.1	39 17.5	+57.1	111.7
33	43 56.3	+48.3	99.0	43 35.6	+50.0	100.9	43 11.0	+51.5	102.7	42 42.7	+52.9	104.5	42 10.8	+54.1	106.3	41 35.4	+55.2	108.0	40 56.6	+56.2	109.7	40 14.6	+57.1	111.3
34	44 44.6	+48.0	98.2	44 25.6	+49.6	100.1	44 02.5	+51.2	102.0	43 35.6	+52.7	103.9	43 04.9	+54.0	105.7	42 30.6	+55.1	107.5	41 52.8	+56.1	109.2	41 11.7	+57.0	110.9
35	45 32.6	+47.5	97.3	45 15.2	+49.3	99.3	44 53.7	+51.0	101.3	44 28.3	+52.4	103.2	43 58.9	+53.7	105.1	43 25.7	+54.9	107.0	42 48.9	+56.0	108.7	42 08.7	+56.9	110.5
36	46 20.1	+47.2	96.4	46 04.5	+49.0	98.5	45 44.7	+50.6	100.5	45 20.7	+52.1	102.5	44 52.6	+53.5	104.5	44 20.6	+54.8	106.4	43 44.9	+55.9	108.2	43 05.6	+56.8	110.0
37	47 07.3	+46.7	95.5	46 53.5	+48.5	97.7	46 35.3	+50.3	99.8	46 12.8	+51.9	101.8	45 46.1	+53.3	103.8	45 15.4	+54.6	105.8	44 40.8	+55.7	107.7	44 02.4	+56.7	109.6
38	47 54.0	+46.2	94.6	47 42.0	+48.2	96.8	47 25.6	+49.9	99.0	47 04.7	+51.6	101.1	46 39.4	+53.1	103.2	46 10.0	+54.4	105.2	45 36.5	+55.5	107.2	44 59.1	+56.5	109.1
39	48 40.2	+45.8	93.6	48 30.2	+47.8	95.9	48 15.5	+49.6	98.1	47 56.3	+51.2	100.3	47 32.5	+52.8	102.5	47 04.4	+54.2	104.6	46 32.0	+55.4	106.7	45 55.6	+56.5	108.6
40	49 26.0	+45.5	92.7	49 18.0	+47.2	95.0	49 05.1	+49.2	97.3	48 47.5	+51.0	99.6	48 25.3	+52.5	101.8	47 58.6	+53.9	104.0	47 27.4	+55.2	106.1	46 52.1	+56.3	108.2
41	50 11.2	+44.7	91.6	50 05.2	+46.8	94.0	49 54.3	+48.8	96.4	49 38.5	+50.6	98.8	49 17.8	+52.3	101.1	48 52.5	+53.7	103.3	48 22.6	+55.1	105.5	47 48.4	+56.2	107.6
42	50 55.9	+44.4	90.6	50 52.0	+46.3	93.0	50 43.1	+48.3	95.5	50 29.1	+50.2	97.9	50 10.1	+51.9	100.3	49 46.2	+53.5	102.6	49 17.7	+54.8	104.9	48 44.6	+56.0	107.1
43	51 40.0	+43.4	89.5	51 38.3	+45.8	92.0	51 31.4	+47.9	94.6	51 19.3	+49.9	97.0	51 02.0	+51.7	99.5	50 39.7	+53.2	101.9	50 12.5	+54.7	104.3	49 40.6	+55.9	106.6
44	52 23.4	+42.8	88.4	52 24.1	+45.2	91.0	52 19.3	+47.4	93.6	52 09.2	+49.4	96.1	51 53.7	+51.2	98.7	51 32.9	+53.0	101.2	51 07.2	+54.4	103.6	50 36.5	+55.7	106.0
45	53 06.2	+42.2	87.2	53 09.3	+44.5	89.9	53 06.7	+46.8	92.6	52 58.6	+48.9	95.2	52 44.9	+50.9	97.8	52 25.9	+52.6	100.4	52 01.6	+54.1	102.9	51 32.2	+55.5	105.4
46	53 48.4	+41.3	86.0	53 53.8	+43.9	88.8	53 53.5	+46.3																

LATITUDE CONTRARY NAME

L.H.A. 58°, 302°

Table with columns for latitude (60° to 74°), longitude (Hc, d, Z), and Dec. (0 to 90). Each latitude column contains three sub-columns for Hc, d, and Z. The Dec. column is on the far right.

LATITUDE SAME NAME

L.H.A. 122°, 238°

Table with columns for Dec., 76°, 78°, 80°, 82°, 84°, 86°, 88°, 90°. Each column contains three sub-columns (Hc, d, Z) and rows of numerical data.

LATITUDE CONTRARY NAME

L.H.A. 58°, 302°

Table with columns for latitude (76° to 90°) and longitude (Dec. 0 to 90). Each cell contains three values (Hc, d, Z) for a specific latitude and longitude intersection.

LATITUDE SAME NAME

L.H.A. 122°, 238°

60°, 300° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	14 28.7	+53.6	116.6	13 34.6	+54.4	117.0	12 39.7	+55.2	117.4	11 44.0	+56.0	117.8	10 47.7	+56.6	118.2	9 50.8	+57.2	118.5	8 53.3	+57.7	118.8	7 55.3	+58.2	119.0
1	15 22.3	+53.6	116.1	14 29.0	+54.5	116.6	13 34.9	+55.2	117.0	12 40.0	+55.9	117.4	11 44.3	+56.6	117.8	10 48.0	+57.2	118.2	9 51.0	+57.8	118.5	8 53.5	+58.2	118.8
2	16 15.9	+53.5	115.6	15 23.5	+54.3	116.1	14 30.1	+55.2	116.6	13 35.9	+55.9	117.1	12 40.9	+56.6	117.5	11 45.2	+57.2	117.9	10 48.8	+57.7	118.2	9 51.7	+58.2	118.5
3	17 09.4	+53.4	115.2	16 17.8	+54.4	115.7	15 25.3	+55.1	116.2	14 31.8	+55.9	116.7	13 37.5	+56.6	117.1	12 42.4	+57.1	117.6	11 46.5	+57.7	117.9	10 49.9	+58.2	118.3
4	18 02.8	+53.4	114.7	17 12.2	+54.2	115.3	16 20.4	+55.1	115.8	15 27.7	+55.8	116.3	14 34.1	+56.5	116.8	13 39.5	+57.2	117.2	12 44.2	+57.7	117.7	11 48.1	+58.2	118.0
5	18 56.2	+53.3	114.2	18 06.4	+54.2	114.8	17 15.5	+55.1	115.4	16 23.5	+55.8	115.9	15 30.6	+56.5	116.4	14 36.7	+57.1	116.9	13 41.9	+57.7	117.4	12 46.3	+58.2	117.8
6	19 49.5	+53.2	113.7	19 00.6	+54.2	114.4	18 10.6	+54.9	115.0	17 19.3	+55.8	115.6	16 27.1	+56.4	116.1	15 33.8	+57.1	116.6	14 39.6	+57.6	117.1	13 44.5	+58.1	117.5
7	20 42.7	+53.2	113.2	19 54.8	+54.0	113.9	19 05.5	+54.9	114.5	18 15.1	+55.7	115.2	17 23.5	+56.4	115.7	16 30.9	+57.0	116.3	15 37.2	+57.6	116.8	14 42.6	+58.2	117.3
8	21 35.9	+53.0	112.7	20 48.8	+54.0	113.4	20 00.4	+54.9	114.1	19 10.8	+55.6	114.8	18 19.9	+56.4	115.4	17 27.9	+57.0	116.0	16 34.8	+57.6	116.5	15 40.8	+58.1	117.0
9	22 28.9	+53.0	112.2	21 42.8	+53.9	113.0	20 55.3	+54.8	113.7	20 06.4	+55.6	114.4	19 16.3	+56.3	115.0	18 24.9	+57.0	115.6	17 32.4	+57.6	116.2	16 38.9	+58.1	116.8
10	23 21.9	+52.8	111.7	22 36.7	+53.9	112.5	21 50.1	+54.7	113.3	21 02.0	+55.5	114.0	20 12.6	+56.3	114.7	19 21.9	+57.0	115.3	18 30.0	+57.6	115.9	17 37.0	+58.1	116.5
11	24 14.7	+52.8	111.2	23 30.6	+53.7	112.0	22 44.8	+54.6	112.8	21 57.5	+55.5	113.6	21 08.9	+56.2	114.3	20 18.9	+56.9	115.0	19 27.6	+57.5	115.6	18 35.1	+58.0	116.2
12	25 07.5	+52.6	110.7	24 24.3	+53.6	111.5	23 39.4	+54.6	112.4	22 53.0	+55.4	113.2	22 05.1	+56.2	113.9	21 15.8	+56.8	114.6	20 25.1	+57.5	115.3	19 33.1	+58.1	116.0
13	26 00.1	+52.5	110.1	25 17.9	+53.6	111.0	24 34.0	+54.5	111.9	23 48.4	+55.4	112.7	23 01.3	+56.1	113.5	22 12.6	+56.9	114.3	21 22.6	+57.4	115.0	20 31.2	+58.0	115.7
14	26 52.6	+52.4	109.6	26 11.5	+53.4	110.5	25 28.5	+54.4	111.4	24 43.5	+55.2	112.3	23 07.4	+56.1	113.1	23 09.5	+56.7	113.9	22 20.0	+57.4	114.7	21 29.2	+57.9	115.4
15	27 45.0	+52.3	109.0	27 04.9	+53.3	110.0	26 22.9	+54.3	111.0	25 39.0	+55.2	111.9	24 53.5	+56.0	112.8	24 06.2	+56.8	113.6	23 17.4	+57.4	114.4	22 27.1	+58.0	115.2
16	28 37.3	+52.1	108.5	27 58.2	+53.2	109.5	27 17.2	+54.2	110.5	26 34.2	+55.1	111.4	25 49.5	+55.9	112.4	25 03.0	+56.6	113.2	24 14.8	+57.4	114.1	23 25.1	+57.9	114.9
17	29 29.4	+52.0	107.9	28 51.4	+53.1	109.0	28 11.4	+54.1	110.0	27 29.3	+55.1	111.0	26 45.4	+55.9	112.0	25 59.6	+56.7	112.9	25 12.2	+57.2	113.7	24 23.0	+57.9	114.6
18	30 21.4	+51.8	107.3	29 44.5	+53.0	108.5	29 05.5	+54.0	109.5	28 24.4	+54.9	110.5	27 41.3	+55.8	111.5	26 56.3	+56.5	112.5	26 09.4	+57.3	113.4	25 20.9	+57.8	114.3
19	31 13.2	+51.7	106.8	30 37.5	+52.8	107.9	29 59.5	+53.8	109.0	29 19.3	+54.8	110.1	28 37.1	+55.7	111.1	27 52.8	+56.5	112.1	27 06.7	+57.2	113.1	26 18.7	+57.9	114.0
20	32 04.9	+51.5	106.2	31 30.3	+52.6	107.4	30 53.3	+53.8	108.5	30 14.1	+54.8	109.6	29 32.8	+55.6	110.7	28 49.3	+56.5	111.7	28 03.9	+57.1	112.7	27 16.6	+57.7	113.7
21	32 56.4	+51.3	105.6	32 22.9	+52.5	106.8	31 47.1	+53.6	108.0	31 08.9	+54.6	109.1	30 28.4	+55.5	110.3	29 45.8	+56.3	111.4	29 01.0	+57.1	112.4	28 14.3	+57.8	113.4
22	33 47.7	+51.1	104.9	33 15.4	+52.4	106.2	32 40.7	+53.5	107.5	32 03.5	+54.5	108.7	31 23.9	+55.5	109.8	30 42.1	+56.3	111.0	30 58.1	+57.1	112.0	29 12.1	+57.7	113.1
23	34 38.8	+50.9	104.3	34 07.8	+52.2	105.6	33 34.2	+53.3	106.9	32 58.0	+54.4	108.2	32 19.4	+55.3	109.4	31 38.4	+56.2	110.6	30 55.2	+56.9	111.7	30 09.8	+57.6	112.8
24	35 29.7	+50.7	103.7	35 00.0	+52.0	105.0	34 27.5	+53.2	106.4	33 52.4	+54.3	107.7	33 14.7	+55.3	108.9	32 34.6	+56.2	110.1	31 52.1	+57.0	111.3	31 07.4	+57.6	112.5
25	36 20.4	+50.5	103.0	35 52.0	+51.8	104.4	35 20.7	+53.0	105.8	34 46.7	+54.1	107.1	34 10.0	+55.1	108.4	33 30.8	+56.0	109.7	32 49.1	+56.8	110.9	32 05.0	+57.5	112.1
26	37 10.9	+50.2	102.3	36 43.8	+51.6	103.8	36 13.7	+52.9	105.2	35 40.8	+54.0	106.6	35 05.1	+55.1	108.0	34 26.8	+55.9	109.3	33 45.9	+56.8	110.6	33 02.5	+57.5	111.8
27	38 01.1	+50.0	101.6	37 35.4	+51.4	103.3	37 06.6	+52.6	104.6	36 34.8	+53.8	106.1	36 00.2	+54.9	107.5	35 22.7	+55.9	108.8	34 42.7	+56.7	110.2	34 00.0	+57.5	111.4
28	38 51.1	+49.8	100.9	38 26.8	+51.1	102.5	37 59.2	+52.5	104.0	37 28.6	+53.7	105.5	36 55.1	+54.7	107.0	36 18.6	+55.7	108.4	35 39.4	+56.6	109.8	34 57.5	+57.3	111.1
29	39 40.9	+49.4	100.2	39 17.9	+51.0	101.8	38 51.7	+52.3	103.4	38 22.3	+53.5	105.0	37 49.8	+54.7	106.5	37 14.3	+55.7	107.9	36 36.0	+56.5	109.4	35 54.8	+57.3	110.7
30	40 30.3	+49.2	99.5	40 08.9	+50.6	101.1	39 44.0	+52.1	102.8	39 15.8	+53.4	104.4	38 44.5	+54.5	105.9	38 10.0	+55.5	107.5	37 32.5	+56.4	108.9	36 52.1	+57.3	110.4
31	41 19.5	+48.9	98.7	40 59.5	+50.5	100.4	40 36.1	+51.8	102.1	40 09.2	+53.1	103.8	39 39.0	+54.3	105.4	39 05.5	+55.4	107.0	38 28.9	+56.4	108.5	37 49.4	+57.1	110.0
32	42 08.4	+48.5	97.9	41 50.0	+50.1	99.7	41 27.9	+51.6	101.5	41 02.3	+53.0	103.2	40 33.3	+54.2	104.8	40 00.9	+55.3	106.5	39 20.3	+56.2	108.1	38 46.5	+57.1	109.6
33	42 56.9	+48.2	97.1	42 40.1	+49.8	99.0	42 19.5	+51.4	100.8	41 55.3	+52.7	102.5	41 27.5	+54.0	104.3	40 56.2	+55.1	106.0	40 21.5	+56.1	107.6	39 43.6	+57.0	109.2
34	43 45.1	+47.8	96.3	43 29.9	+49.6	98.2	43 10.9	+51.1	100.1	42 48.0	+52.6	101.9	42 21.5	+53.8	103.7	41 51.3	+55.0	105.4	41 17.6	+56.0	107.1	40 40.6	+56.9	108.8
35	44 32.9	+47.5	95.5	44 19.5	+49.2	97.4	44 02.0	+50.8	99.3	43 40.6	+52.2	101.2	43 15.3	+53.6	103.1	42 46.3	+54.8	104.9	42 13.6	+55.9	107.1	41 37.5	+56.8	108.4
36	45 20.4	+47.1	94.6	45 08.7	+48.8	96.6	44 52.8	+50.5	98.6	44 32.8	+52.1	100.5	44 08.9	+53.4	102.5	43 41.1	+54.6	104.3	43 09.5	+55.7	106.2	42 34.3	+56.7	107.9
37	46 07.5	+46.6	93.7	45 57.5	+48.5	95.8	45 43.3	+50.2	97.8	45 24.9	+51.7	99.8	45 02.3	+53.2	101.8	44 35.7	+54.5	103.8	44 05.2	+55.7	105.7	43 31.0	+56.6	107.5
38	46 54.1	+46.2	92.8	46 46.0	+48.1	94.9	46 33.5	+49.8	97.0	46 16.6	+51.5	99.1	45 55.5	+52.9	101.2	45 30.2	+54.3	103.2	45 00.9	+55.4	105.1	44 27.6	+56.5	107.0
39	47 40.3	+45.7	91.9	47 34.1	+47.7	94.0	47 23.3	+49.5	96.2	47 08.1	+51.2	98.4	46 48.4	+52.8	100.5	46 24.5	+54.1	102.6	45 56.3	+55.3	104.6	45 24.1	+56.4	106.6
40	48 26.0	+45.2	90.9	48 21.8	+47.2	93.1	48 12.8	+49.2	95.4	47 59.3	+50.8	97.6	47 41.2	+52.4	99.8	47 18.6	+53.8	101.9	46 51.6	+55.1	104.0	46 20.5	+56.2	106.1
41	49 11.2	+44.7	89.9	49 09.0	+46.8	92.2	49 02.0	+48.7	94.5	48 50.1	+50.5	96.8	48 33.3	+52.1	99.1	48 12.4	+53.6	101.3	47 46.7	+55.0	103.4	47 16.7	+56.1	105.6
42	49 55.9	+44.1	88.9	49 55.8	+46.2	91.2	49 50.7	+48.3	93.6	49 40.6	+50.2	96.0	49 25.7	+51.9	98.3	49 06.0	+53.4	100.6	48 41.7	+54.7	102.8	48 12.8	+55.9	105.0
43	50 40.0	+43.5	87.8	50 42.0	+45.8	90.2	50 39.0	+47.8	92.7	50 30.8	+49.7	95.1	50 17.6	+51.5	97.5	49 59.4	+53.1	99.9	49 36.4	+54.6	102.2	49 08.7	+55.8	104.5
44	51 23.5	+42.9	86.7	51 27.8	+45.1	89.2	51 26.8	+47.3	91.7	51 20.5	+49.4	94.2	51 09.1	+51.2	96.7	50 52.5	+52.9	99.2	50 31.0	+54.3	101.6	50 04.5	+55.6	103.9
45	52 06.4	+42.2	85.6	52 12.9	+44.6	88.1	52 14.1	+46.8	90.7	52 09.9	+48.9	93.3	52 00.3	+50.8	95.9	51 45.4	+52.5	98.4	51 25.3	+54.0	100.9	51 00.1	+55.4	103.3
46	52 48.6	+41.5	84.4	52 57.5	+44.0	87.0	53 00.9	+46.3	89.7	53 05														

LATITUDE CONTRARY NAME

L.H.A. 60°, 300°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
14 28.7	-53.7	116.6	13 34.6	-54.6	117.0	12 39.7	-55.3	117.4	11 44.0	-56.0	117.8	10 47.7	-56.6	118.2	9 50.8	-57.2	118.5	8 53.3	-57.8	118.8	7 55.3	-58.2	119.0	6 57.1	-58.3	119.3	5 58.8	-58.2	119.5	4 59.9	-57.8	119.6	3 58.3	-58.4	119.8	2 56.2	-58.5	120.0	1 53.7	-58.4	120.2	0 51.2	-58.3	120.4	0 48.8	-58.2	120.6	0 46.3	-58.1	120.8	0 43.8	-58.0	121.0	0 41.3	-57.9	121.2	0 38.8	-57.8	121.4	0 36.3	-57.7	121.6	0 33.8	-57.6	121.8	0 31.3	-57.5	122.0	0 28.8	-57.4	122.2	0 26.3	-57.3	122.4	0 23.8	-57.2	122.6	0 21.3	-57.1	122.8	0 18.8	-57.0	123.0	0 16.3	-56.9	123.2	0 13.8	-56.8	123.4	0 11.3	-56.7	123.6	0 8.8	-56.6	123.8	0 6.3	-56.5	124.0	0 3.8	-56.4	124.2	0 1.3	-56.3	124.4	0 0.0	-56.2	124.6	0 0.0	-56.1	124.8	0 0.0	-56.0	125.0	0 0.0	-55.9	125.2	0 0.0	-55.8	125.4	0 0.0	-55.7	125.6	0 0.0	-55.6	125.8	0 0.0	-55.5	126.0	0 0.0	-55.4	126.2	0 0.0	-55.3	126.4	0 0.0	-55.2	126.6	0 0.0	-55.1	126.8	0 0.0	-55.0	127.0	0 0.0	-54.9	127.2	0 0.0	-54.8	127.4	0 0.0	-54.7	127.6	0 0.0	-54.6	127.8	0 0.0	-54.5	128.0	0 0.0	-54.4	128.2	0 0.0	-54.3	128.4	0 0.0	-54.2	128.6	0 0.0	-54.1	128.8	0 0.0	-54.0	129.0	0 0.0	-53.9	129.2	0 0.0	-53.8	129.4	0 0.0	-53.7	129.6	0 0.0	-53.6	129.8	0 0.0	-53.5	130.0	0 0.0	-53.4	130.2	0 0.0	-53.3	130.4	0 0.0	-53.2	130.6	0 0.0	-53.1	130.8	0 0.0	-53.0	131.0	0 0.0	-52.9	131.2	0 0.0	-52.8	131.4	0 0.0	-52.7	131.6	0 0.0	-52.6	131.8	0 0.0	-52.5	132.0	0 0.0	-52.4	132.2	0 0.0	-52.3	132.4	0 0.0	-52.2	132.6	0 0.0	-52.1	132.8	0 0.0	-52.0	133.0	0 0.0	-51.9	133.2	0 0.0	-51.8	133.4	0 0.0	-51.7	133.6	0 0.0	-51.6	133.8	0 0.0	-51.5	134.0	0 0.0	-51.4	134.2	0 0.0	-51.3	134.4	0 0.0	-51.2	134.6	0 0.0	-51.1	134.8	0 0.0	-51.0	135.0	0 0.0	-50.9	135.2	0 0.0	-50.8	135.4	0 0.0	-50.7	135.6	0 0.0	-50.6	135.8	0 0.0	-50.5	136.0	0 0.0	-50.4	136.2	0 0.0	-50.3	136.4	0 0.0	-50.2	136.6	0 0.0	-50.1	136.8	0 0.0	-50.0	137.0	0 0.0	-49.9	137.2	0 0.0	-49.8	137.4	0 0.0	-49.7	137.6	0 0.0	-49.6	137.8	0 0.0	-49.5	138.0	0 0.0	-49.4	138.2	0 0.0	-49.3	138.4	0 0.0	-49.2	138.6	0 0.0	-49.1	138.8	0 0.0	-49.0	139.0	0 0.0	-48.9	139.2	0 0.0	-48.8	139.4	0 0.0	-48.7	139.6	0 0.0	-48.6	139.8	0 0.0	-48.5	140.0	0 0.0	-48.4	140.2	0 0.0	-48.3	140.4	0 0.0	-48.2	140.6	0 0.0	-48.1	140.8	0 0.0	-48.0	141.0	0 0.0	-47.9	141.2	0 0.0	-47.8	141.4	0 0.0	-47.7	141.6	0 0.0	-47.6	141.8	0 0.0	-47.5	142.0	0 0.0	-47.4	142.2	0 0.0	-47.3	142.4	0 0.0	-47.2	142.6	0 0.0	-47.1	142.8	0 0.0	-47.0	143.0	0 0.0	-46.9	143.2	0 0.0	-46.8	143.4	0 0.0	-46.7	143.6	0 0.0	-46.6	143.8	0 0.0	-46.5	144.0	0 0.0	-46.4	144.2	0 0.0	-46.3	144.4	0 0.0	-46.2	144.6	0 0.0	-46.1	144.8	0 0.0	-46.0	145.0	0 0.0	-45.9	145.2	0 0.0	-45.8	145.4	0 0.0	-45.7	145.6	0 0.0	-45.6	145.8	0 0.0	-45.5	146.0	0 0.0	-45.4	146.2	0 0.0	-45.3	146.4	0 0.0	-45.2	146.6	0 0.0	-45.1	146.8	0 0.0	-45.0	147.0	0 0.0	-44.9	147.2	0 0.0	-44.8	147.4	0 0.0	-44.7	147.6	0 0.0	-44.6	147.8	0 0.0	-44.5	148.0	0 0.0	-44.4	148.2	0 0.0	-44.3	148.4	0 0.0	-44.2	148.6	0 0.0	-44.1	148.8	0 0.0	-44.0	149.0	0 0.0	-43.9	149.2	0 0.0	-43.8	149.4	0 0.0	-43.7	149.6	0 0.0	-43.6	149.8	0 0.0	-43.5	150.0	0 0.0	-43.4	150.2	0 0.0	-43.3	150.4	0 0.0	-43.2	150.6	0 0.0	-43.1	150.8	0 0.0	-43.0	151.0	0 0.0	-42.9	151.2	0 0.0	-42.8	151.4	0 0.0	-42.7	151.6	0 0.0	-42.6	151.8	0 0.0	-42.5	152.0	0 0.0	-42.4	152.2	0 0.0	-42.3	152.4	0 0.0	-42.2	152.6	0 0.0	-42.1	152.8	0 0.0	-42.0	153.0	0 0.0	-41.9	153.2	0 0.0	-41.8	153.4	0 0.0	-41.7	153.6	0 0.0	-41.6	153.8	0 0.0	-41.5	154.0	0 0.0	-41.4	154.2	0 0.0	-41.3	154.4	0 0.0	-41.2	154.6	0 0.0	-41.1	154.8	0 0.0	-41.0	155.0	0 0.0	-40.9	155.2	0 0.0	-40.8	155.4	0 0.0	-40.7	155.6	0 0.0	-40.6	155.8	0 0.0	-40.5	156.0	0 0.0	-40.4	156.2	0 0.0	-40.3	156.4	0 0.0	-40.2	156.6	0 0.0	-40.1	156.8	0 0.0	-40.0	157.0	0 0.0	-39.9	157.2	0 0.0	-39.8	157.4	0 0.0	-39.7	157.6	0 0.0	-39.6	157.8	0 0.0	-39.5	158.0	0 0.0	-39.4	158.2	0 0.0	-39.3	158.4	0 0.0	-39.2	158.6	0 0.0	-39.1	158.8	0 0.0	-39.0	159.0	0 0.0	-38.9	159.2	0 0.0	-38.8	159.4	0 0.0	-38.7	159.6	0 0.0	-38.6	159.8	0 0.0	-38.5	160.0	0 0.0	-38.4	160.2	0 0.0	-38.3	160.4	0 0.0	-38.2	160.6	0 0.0	-38.1	160.8	0 0.0	-38.0	161.0	0 0.0	-37.9	161.2	0 0.0	-37.8	161.4	0 0.0	-37.7	161.6	0 0.0	-37.6	161.8	0 0.0	-37.5	162.0	0 0.0	-37.4	162.2	0 0.0	-37.3	162.4	0 0.0	-37.2	162.6	0 0.0	-37.1	162.8	0 0.0	-37.0	163.0	0 0.0	-36.9	163.2	0 0.0	-36.8	163.4	0 0.0	-36.7	163.6	0 0.0	-36.6	163.8	0 0.0	-36.5	164.0	0 0.0	-36.4	164.2	0 0.0	-36.3	164.4	0 0.0	-36.2	164.6	0 0.0	-36.1	164.8	0 0.0	-36.0	165.0	0 0.0	-35.9	165.2	0 0.0	-35.8	165.4	0 0.0	-35.7	165.6	0 0.0	-35.6	165.8	0 0.0	-35.5	166.0	0 0.0	-35.4	166.2	0 0.0	-35.3	166.4	0 0.0	-35.2	166.6	0 0.0	-35.1	166.8	0 0.0	-35.0	167.0	0 0.0	-34.9	167.2	0 0.0	-34.8	167.4	0 0.0	-34.7	167.6	0 0.0	-34.6	167.8	0 0.0	-34.5	168.0	0 0.0	-34.4	168.2	0 0.0	-34.3	168.4	0 0.0	-34.2	168.6	0 0.0	-34.1	168.8	0 0.0	-34.0	169.0	0 0.0	-33.9	169.2	0 0.0	-33.8	169.4	0 0.0	-33.7	169.6	0 0.0	-33.6	169.8	0 0.0	-33.5	170.0	0 0.0	-33.4	170.2	0 0.0	-33.3	170.4	0 0.0	-33.2	170.6	0 0.0	-33.1	170.8	0 0.0	-33.0	171.0	0 0.0	-32.9	171.2	0 0.0	-32.8	171.4	0 0.0	-32.7	171.6	0 0.0	-32.6	171.8	0 0.0	-32.5	172.0	0 0.0	-32.4	172.2	0 0.0	-32.3	172.4	0 0.0	-32.2	172.6	0 0.0	-32.1	172.8	0 0.0	-32.0	173.0	0 0.0	-31.9	173.2	0 0.0	-31.8	173.4	0 0.0	-31.7	173.6	0 0.0	-31.6	173.8	0 0.0	-31.5	174.0	0 0.0	-31.4	174.2	0 0.0	-31.3	174.4	0 0.0	-31.2	174.6	0 0.0	-31.1	174.8	0 0.0	-31.0	175.0	0 0.0	-30.9	175.2	0 0.0	-30.8	175.4	0 0.0	-30.7	175.6	0 0.0	-30.6	175.8	0 0.0	-30.5	176.0	0 0.0	-30.4	176.2	0 0.0	-30.3	176.4	0 0.0	-30.2	176.6	0 0.0	-30.1	176.8	0 0.0	-30.0	177.0	0 0.0	-29.9	177.2	0 0.0	-29.8	177.4	0 0.0	-29.7	177.6	0 0.0	-29.6	177.8	0 0.0	-29.5	178.0	0 0.0	-29.4	178.2	0 0.0	-29.3	178.4	0 0.0	-29.2	178.6	0 0.0	-29.1	178.8	0 0.0	-29.0	179.0	0 0.0	-28.9	179.2	0 0.0	-28.8	179.4	0 0.0	-28.7	179.6	0 0.0	-28.6	179.8	0 0.0	-28.5	180.0	0 0.0	-28.4	180.2	0 0.0	-28.3	180.4	0 0.0	-28.2	180.6	0 0.0	-28.1	180.8	0 0.0	-28.0	181.0	0 0.0	-27.9	181.2	0 0.0	-27.8	181.4	0 0.0	-27.7	181.6	0 0.0	-27.6	181.8	0 0.0	-27.5	182.0	0 0.0	-27.4	182.2	0 0.0	-27.3	182.4	0 0.0	-27.2	182.6	0 0.0	-27.1	182.8	0 0.0	-27.0	183.0	0 0.0	-26.9	183.2	0 0.0	-26.8	183.4	0 0.0	-26.7	183.6	0 0.0	-26.6	183.8	0 0.0	-26.5	184.0	0 0.0	-26.4	184.2	0 0.0	-26.3	184.4	0 0.0	-26.2	184.6	0 0.0	-26.1	184.8	0 0.0	-26.0	185.0	0 0.0	-25.9	185.2	0 0.0	-25.8	185.4	0 0.0	-25.7	185.6	0 0.0	-25.6	185.8	0 0.0	-25.5	186.0	0 0.0	-25.4	186.2	0 0.0	-25.3	186.4	0 0.0	-25.2	186.6	0 0.0	-25.1	186.8	0 0.0	-25.0	187.0	0 0.0	-24.9	187.2	0 0.0	-24.8	187.4	0 0.0	-24.7	187.6	0 0.0	-24.6	187.8	0 0.0	-24.5	188.0	0 0.0	-24.4	188.2	0 0.0	-24.3	188.4	0 0.0	-24.2	188.6	0 0.0	-24.1	188.8	0 0.0	-24.0	189.0	0 0.0	-23.9	189.2	0 0.0	-23.8	189.4	0 0.0	-23.7	189.6	0 0.0	-23.6	189.8	0 0.0	-23.5	190.0	0 0.0	-23.4	190.2	0 0.0	-23.3	190.4	0 0.0	-23.2	190.6	0 0.0	-23.1	190.8	0 0.0	-23.0	191.0	0 0.0	-22.9	191.2	0 0.0	-22.8	191.4	0 0.0	-22.7	191.6	0 0.0	-22.6	191.8	0 0.0	-22.5	192.0	0 0.0	-22.4	192.2	0 0.0	-22.3	192.4	0 0.0	-22.2	192.6	0 0.0	-22.1	192.8	0 0.0	-22.0	193.0	0 0.0	-21.9	193.2	0 0.0	-21.8	193.4	0 0.0	-21.7	193.6	0 0.0	-21.6	193.8	0 0.0	-21.5	194.0	0 0.0	-21.4	194.2	0 0.0	-21.3	194.4	0 0.0	-21.2	194.6	0 0.0	-21.1	194.8	0 0.0	-21.0	195.0	0 0.0	-20.9	195.2	0 0.0	-20.8	195.4	0 0.0	-20.7	195.6	0 0.0	-20.6	195.8	0 0.0	-20.5	196.0	0 0.0	-20.4	196.2	0 0.0	-20.3	196.4	0 0.0	-20.2	196.6	0 0.0	-20.1	196.8	0 0.0	-20.0	197.0	0 0.0	-19.9	197.2	0 0.0	-19.8	197.4	0 0.0	-19.7	197.6	0 0.0	-19.6	197.8	0 0.0	-19.5	198.0	0 0.0	-19.4	198.2	0 0.0	-19.3	198.4	0 0.0	-19.2	198.6	0 0.0	-19.1	198.8	0 0.0	-19.0	199.0	0 0.0	-18.9	199.2	0 0.0	-18.8	199.4	0 0.0	-18

60°, 300° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	6 56.9	+58.6	119.3	5 58.0	+59.0	119.5	4 58.9	+59.3	119.6	3 59.4	+59.6	119.8	2 59.8	+59.7	119.9	1 59.9	+59.9	119.9	1 00.0	+60.0	120.0	0 00.0	+60.0	120.0
1	7 55.5	+58.6	119.0	6 57.0	+59.0	119.3	5 58.2	+59.3	119.5	4 59.0	+59.5	119.6	3 59.5	+59.8	119.8	2 59.8	+59.9	119.9	2 00.0	+59.9	120.0	1 00.0	+60.0	120.0
2	8 54.1	+58.7	118.8	7 56.0	+59.0	119.1	6 57.5	+59.3	119.3	5 58.5	+59.6	119.5	4 59.3	+59.7	119.7	3 59.7	+59.9	119.8	2 59.9	+60.0	119.9	2 00.0	+60.0	120.0
3	9 52.8	+58.6	118.6	8 55.0	+59.0	118.9	7 56.8	+59.3	119.2	6 58.1	+59.5	119.4	5 59.0	+59.8	119.6	4 59.6	+59.9	119.8	3 59.9	+60.0	119.9	3 00.0	+60.0	120.0
4	10 51.4	+58.6	118.4	9 54.0	+59.0	118.7	8 56.1	+59.3	119.0	7 57.6	+59.6	119.3	6 58.8	+59.7	119.5	5 59.5	+59.9	119.7	4 59.9	+60.0	119.9	4 00.0	+60.0	120.0
5	11 50.0	+58.6	118.2	10 53.0	+59.0	118.5	9 55.4	+59.3	118.9	8 57.2	+59.5	119.1	7 58.5	+59.8	119.4	6 59.4	+59.9	119.6	5 59.9	+59.9	119.8	5 00.0	+60.0	120.0
6	12 48.6	+58.6	118.0	11 52.0	+59.0	118.3	10 54.7	+59.3	118.7	9 56.7	+59.6	119.0	8 58.3	+59.7	119.3	7 59.3	+59.9	119.6	6 59.8	+60.0	119.8	6 00.0	+60.0	120.0
7	13 47.2	+58.6	117.7	12 51.0	+58.9	118.2	11 54.0	+59.3	118.5	10 56.3	+59.5	118.9	9 58.0	+59.7	119.2	8 59.2	+59.8	119.5	7 59.8	+60.0	119.8	7 00.0	+60.0	120.0
8	14 45.8	+58.6	117.5	13 49.9	+59.0	118.0	12 53.3	+59.2	118.4	11 55.8	+59.6	118.8	10 57.7	+59.8	119.1	9 59.0	+59.9	119.5	8 59.8	+59.9	119.7	8 00.0	+60.0	120.0
9	15 44.4	+58.5	117.3	14 48.9	+58.9	117.8	13 52.5	+59.3	118.2	12 55.4	+59.5	118.6	11 57.5	+59.7	119.0	10 58.9	+59.9	119.4	9 59.7	+60.0	119.7	9 00.0	+60.0	120.0
10	16 42.9	+58.5	117.1	15 47.8	+59.0	117.6	14 51.8	+59.3	118.1	13 54.9	+59.6	118.5	12 57.2	+59.8	118.9	11 58.8	+59.9	119.3	10 59.7	+60.0	119.7	10 00.0	+60.0	120.0
11	17 41.4	+58.6	116.8	16 46.8	+58.9	117.4	15 51.1	+59.2	117.9	14 54.5	+59.5	118.4	13 57.0	+59.7	118.8	12 58.7	+59.9	119.3	11 59.7	+60.0	119.6	11 00.0	+60.0	120.0
12	18 40.0	+58.5	116.6	17 45.7	+58.9	117.2	16 50.3	+59.3	117.7	15 54.0	+59.5	118.3	14 56.7	+59.7	118.7	13 58.6	+59.9	119.2	12 59.7	+59.9	119.6	12 00.0	+60.0	120.0
13	19 38.5	+58.5	116.4	18 44.6	+58.9	117.0	17 49.6	+59.2	117.6	16 53.5	+59.5	118.1	15 56.4	+59.8	118.6	14 58.5	+59.8	119.1	13 59.6	+60.0	119.6	13 00.0	+60.0	120.0
14	20 37.0	+58.4	116.1	19 43.5	+58.9	116.8	18 48.8	+59.3	117.4	17 53.0	+59.5	118.0	16 56.2	+59.7	118.6	15 58.3	+59.9	119.1	14 59.6	+60.0	119.6	14 00.0	+60.0	120.0
15	21 35.4	+58.5	115.9	20 42.4	+58.8	116.6	19 48.1	+59.2	117.2	18 52.5	+59.5	117.7	17 55.9	+59.7	118.5	16 58.2	+59.9	119.0	15 59.6	+59.9	119.5	15 00.0	+60.0	120.0
16	22 33.9	+58.4	115.6	21 41.2	+58.9	116.4	20 47.3	+59.2	117.1	19 52.0	+59.6	117.9	18 55.6	+59.8	118.4	17 58.1	+59.9	118.9	16 59.5	+60.0	119.5	16 00.0	+60.0	120.0
17	23 32.3	+58.4	115.4	22 40.1	+58.8	116.2	21 46.5	+59.2	116.9	20 51.6	+59.4	117.6	19 55.4	+59.7	118.2	18 58.0	+59.9	118.9	17 59.5	+60.0	119.5	17 00.0	+60.0	120.0
18	24 30.7	+58.4	115.1	23 38.9	+58.9	116.0	22 45.7	+59.2	116.7	21 51.0	+59.5	117.5	20 55.1	+59.7	118.1	19 57.9	+59.8	118.8	18 59.5	+59.9	119.4	18 00.0	+60.0	120.0
19	25 29.1	+58.3	114.9	24 37.8	+58.8	115.7	23 44.9	+59.2	116.5	22 50.5	+59.5	117.3	21 54.8	+59.7	118.0	20 57.7	+59.9	118.7	19 59.4	+60.0	119.4	19 00.0	+60.0	120.0
20	26 27.4	+58.3	114.6	25 36.6	+58.7	115.5	24 44.1	+59.1	116.4	23 50.0	+59.5	117.2	22 54.5	+59.7	117.9	21 57.6	+59.9	118.7	20 59.4	+60.0	119.4	20 00.0	+60.0	120.0
21	27 25.7	+58.3	114.4	26 35.3	+58.8	115.3	25 43.2	+59.2	116.2	24 49.5	+59.5	117.0	23 54.2	+59.7	117.8	22 57.5	+59.9	118.6	21 59.4	+60.0	119.3	21 00.0	+60.0	120.0
22	28 24.0	+58.3	114.1	27 34.1	+58.7	115.1	26 42.4	+59.1	116.0	25 49.0	+59.4	116.9	24 53.9	+59.7	117.7	23 57.4	+59.8	118.5	22 59.4	+59.9	119.3	22 00.0	+60.0	120.0
23	29 22.3	+58.2	113.8	28 32.8	+58.8	114.8	27 41.5	+59.1	115.8	26 48.4	+59.5	116.7	25 53.6	+59.7	117.6	24 57.2	+59.8	118.4	23 59.3	+60.0	119.2	23 00.0	+60.0	120.0
24	30 20.5	+58.2	113.5	29 31.6	+58.6	114.6	28 40.6	+59.1	115.6	27 47.9	+59.4	116.6	26 53.3	+59.7	117.5	25 57.1	+59.8	118.2	24 59.3	+60.0	119.2	24 00.0	+60.0	120.0
25	31 18.7	+58.1	113.3	30 30.2	+58.7	114.4	29 39.7	+59.1	115.4	28 47.3	+59.4	116.4	27 53.0	+59.7	117.4	26 56.9	+59.9	118.3	25 59.3	+59.9	119.2	25 00.0	+60.0	120.0
26	32 16.8	+58.2	113.0	31 28.9	+58.6	114.1	30 38.8	+59.1	115.2	29 46.7	+59.4	116.3	28 52.7	+59.6	117.3	27 56.8	+59.9	118.2	26 59.2	+60.0	119.1	26 00.0	+60.0	120.0
27	33 15.0	+58.0	112.7	32 27.5	+58.6	113.9	31 37.9	+59.0	115.0	30 46.1	+59.4	116.1	29 52.3	+59.7	117.1	28 56.7	+59.8	118.1	27 59.2	+59.9	119.1	27 00.0	+60.0	120.0
28	34 13.0	+58.0	112.4	33 26.1	+58.6	113.6	32 36.9	+59.1	114.8	31 45.5	+59.4	115.9	30 52.0	+59.7	117.0	29 56.5	+59.9	118.1	28 59.1	+60.0	119.1	28 00.0	+60.0	120.0
29	35 11.0	+58.0	112.1	34 24.7	+58.5	113.3	33 36.0	+59.0	114.6	32 44.9	+59.4	115.8	31 51.7	+59.6	116.9	30 56.4	+59.8	118.0	29 59.1	+60.0	119.0	29 00.0	+60.0	120.0
30	36 09.0	+57.9	111.7	35 23.2	+58.5	113.1	34 35.0	+58.9	114.4	33 44.3	+59.3	115.6	32 51.3	+59.7	116.8	31 56.2	+59.9	117.9	30 59.1	+59.9	119.0	30 00.0	+60.0	120.0
31	37 06.9	+57.9	111.4	36 21.7	+58.5	112.8	35 33.9	+59.0	114.1	34 43.6	+59.4	115.4	33 51.0	+59.6	116.6	32 56.1	+59.8	117.8	31 59.0	+60.0	118.9	31 00.0	+60.0	120.0
32	38 04.8	+57.8	111.1	37 20.2	+58.4	112.5	36 32.9	+58.9	113.9	35 43.0	+59.3	115.2	34 50.6	+59.6	116.5	33 55.9	+59.9	117.7	32 59.0	+60.0	118.9	32 00.0	+60.0	120.0
33	39 02.6	+57.7	110.7	38 18.6	+58.4	112.2	37 31.8	+58.9	113.7	36 42.3	+59.3	115.0	35 50.2	+59.7	116.4	34 55.8	+59.8	117.6	33 59.0	+59.9	118.8	33 00.0	+60.0	120.0
34	40 00.3	+57.7	110.4	39 17.0	+58.3	111.9	38 30.7	+58.9	113.4	37 41.6	+59.3	114.9	36 49.9	+59.6	116.2	35 55.6	+59.8	117.5	34 58.9	+60.0	118.8	34 00.0	+60.0	120.0
35	40 58.0	+57.6	110.0	40 15.3	+58.3	111.6	39 29.6	+58.8	113.2	38 40.9	+59.3	114.7	37 49.5	+59.6	116.1	36 55.4	+59.8	117.5	35 58.9	+59.9	118.8	35 00.0	+60.0	120.0
36	41 55.6	+57.6	109.7	41 13.6	+58.2	111.3	40 28.4	+58.8	112.9	39 40.2	+59.2	114.5	38 49.1	+59.6	115.9	37 55.2	+59.9	117.4	36 58.8	+60.0	118.7	36 00.0	+60.0	120.0
37	42 53.2	+57.4	109.3	42 11.8	+58.2	111.0	41 27.2	+58.8	112.7	40 39.4	+59.3	114.3	39 48.7	+59.5	115.8	38 55.1	+59.8	117.3	37 58.8	+59.9	118.7	37 00.0	+60.0	120.0
38	43 50.6	+57.4	108.9	43 10.0	+58.1	110.7	42 26.0	+58.7	112.4	41 38.7	+59.2	114.0	40 48.2	+59.6	115.6	39 54.9	+59.8	117.2	38 58.7	+60.0	118.6	38 00.0	+60.0	120.0
39	44 48.0	+57.3	108.5	44 08.1	+58.1	110.3	43 24.7	+58.7	112.1	42 37.9	+59.1	113.8	41 47.8	+59.6	115.5	40 54.7	+59.8	117.1	39 58.7	+60.0	118.6	39 00.0	+60.0	120.0
40	45 45.3	+57.1	108.0	45 06.2	+58.0	110.0	44 23.4	+58.6	111.8	43 37.0	+59.2	113.6	42 47.4	+59.5	115.3	41 54.5	+59.8	116.9	40 58.7	+59.9	118.5	40 00.0	+60.0	120.0
41	46 42.4	+57.1	107.6	46 04.2	+57.9	109.6	45 22.0	+58.6	111.5	44 36.2	+59.1	113.4	43 46.9	+59.5	115.1	42 54.3	+59.8	116.8	41 58.6	+60.0	118.5	41 00.0	+60.0	120.0
42	47 39.5	+57.0	107.2	47 02.1	+57.8	109.2	46 20.6	+58.5	111.2	45 35.3	+59.1	113.1	44 46.4	+59.5	115.0	43 54.1	+59.8	116.7	42 58.6	+59.9	118.4	42 00.0	+60.0	120.0
43	48 36.5	+56.8	106.7	47 59.9	+57.7	108.8	47 19.1	+58.5	110.9	46 34.4	+59.0	112.9	45 45.9	+59.5	114.8	44 53.9	+59.8	116.6	43 58.5	+59.9	118.3	43 00.0	+60.0	120.0
44	49 33.3	+56.8	106.2	48 57.6	+57.7	108.4	48 17.6	+58.4	110.6	47 33.4	+59.1	112.6	46 45.4	+59.5	114.6	45 53.7	+59.7	116.5	44 58.4	+60.0	118.3	44 00.0	+60.0	120.0
45	50 30.1	+56.5	105.7	49 55.3	+57.5	108.0	49 16.0	+58.4	110.2	48 32.5	+59.0	112.3	47 44.9	+59.4	114.4	46 53.4	+59.8	116.4	45 58.4	+59.9	118.2	45 00.0	+60.0	120.0
46	51 26.6	+56.5	105.2	50 52.8	+57.5	107.5	50 14.4	+58.3	109.8</															

LATITUDE CONTRARY NAME

L.H.A. 60°, 300°

Table with columns for latitude (76° to 90°), Hc, d, Z, and Dec. Each latitude column contains a list of Hc, d, Z values. The Dec column shows values from 0 to 90.

LATITUDE SAME NAME

L.H.A. 120°, 240°

Table with columns for Dec. (0-90) and latitude (60-74). Each cell contains three values (Hc, d, Z) for each degree of latitude.

LATITUDE CONTRARY NAME

L.H.A. 62°, 298°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
13 34.6	-53.5	114.7	12 44.0	-54.4	115.1	11 52.6	-55.1	115.5	11 00.5	-55.9	115.9	10 07.7	-56.5	116.2	9 14.4	-57.1	116.5	8 20.5	-57.7	116.8	7 26.1	-58.2	117.1	0
12 41.1	-53.5	115.2	11 49.6	-54.3	115.6	10 57.5	-55.2	115.9	10 04.6	-55.8	116.3	9 11.2	-56.5	116.6	8 17.3	-57.2	116.9	7 22.8	-57.7	117.1	6 27.9	-58.1	117.3	1
11 47.6	-53.6	115.7	10 55.3	-54.5	116.0	10 02.3	-55.2	116.3	9 08.8	-55.9	116.6	8 14.7	-56.6	116.9	7 20.1	-57.1	117.2	6 25.1	-57.7	117.4	5 29.8	-58.2	117.6	2
10 54.0	-53.6	116.1	10 00.8	-54.4	116.4	9 07.1	-55.2	116.7	8 12.9	-56.0	117.0	7 18.1	-56.5	117.3	6 23.0	-57.2	117.5	5 27.4	-57.7	117.7	4 31.6	-58.2	117.8	3
10 00.4	-53.7	116.6	9 06.4	-54.5	116.9	8 11.9	-55.2	117.1	7 16.9	-55.9	117.4	6 21.6	-56.6	117.6	5 25.8	-57.2	117.8	4 29.7	-57.7	117.9	3 33.4	-58.2	118.1	4
9 06.7	-53.7	117.0	8 11.9	-54.5	117.3	7 16.7	-55.3	117.5	6 21.0	-55.9	117.7	5 25.0	-56.6	117.9	4 28.6	-57.2	118.1	3 32.0	-57.7	118.2	2 35.2	-58.2	118.3	5
8 13.0	-53.7	117.5	7 17.4	-54.5	117.7	6 21.4	-55.2	117.9	5 25.1	-56.0	118.1	4 28.4	-56.6	118.3	3 31.4	-57.2	118.4	2 34.3	-57.7	118.5	1 37.0	-58.2	118.5	6
7 19.3	-53.7	117.9	6 22.9	-54.5	118.1	5 26.2	-55.3	118.3	4 29.1	-56.0	118.5	3 31.8	-56.6	118.6	2 34.2	-57.2	118.7	1 36.6	-57.7	118.8	0 38.8	-58.2	118.8	7
6 25.6	-53.8	118.4	5 28.4	-54.6	118.6	4 30.9	-55.3	118.7	3 33.1	-56.0	118.8	2 35.2	-56.7	118.9	1 37.0	-57.2	119.0	0 38.9	-57.8	119.0	0 19.4	+58.2	61.0	8
5 31.8	-53.8	118.8	4 33.8	-54.6	119.0	3 35.6	-55.3	119.1	2 37.1	-56.0	119.2	1 38.5	-56.6	119.3	0 39.8	-57.1	119.3	0 18.9	+57.7	60.7	1 17.6	+58.2	60.7	9
4 38.0	-53.8	119.3	3 39.2	-54.5	119.4	2 40.3	-55.4	119.5	1 41.1	-56.0	119.6	0 41.9	-56.6	119.6	0 17.3	+57.2	60.4	1 16.6	+57.7	60.4	2 15.8	+58.2	60.5	10
3 44.2	-53.8	119.7	2 44.7	-54.6	119.8	1 44.9	-55.3	119.9	0 45.1	-56.0	119.9	0 14.7	+56.6	60.1	1 14.5	+57.2	60.1	2 14.3	+57.7	60.2	3 14.0	+58.1	60.2	11
2 50.4	-53.8	120.1	1 50.1	-54.6	120.2	0 49.6	-55.3	120.3	0 10.9	+56.0	59.7	1 11.3	+56.7	59.8	2 11.7	+57.2	59.8	3 12.0	+57.7	59.9	4 12.1	+58.2	60.0	12
1 56.6	-53.8	120.6	0 55.1	-54.6	120.6	0 05.7	+55.3	59.4	1 06.9	+55.9	59.4	2 08.0	+56.6	59.4	3 08.9	+57.2	59.5	4 09.7	+57.8	59.6	5 10.3	+58.2	59.7	13
1 02.8	-53.9	121.0	0 00.9	-54.6	121.0	1 01.0	+55.3	59.0	2 02.8	+56.0	59.0	3 04.6	+56.6	59.1	4 06.1	+57.2	59.2	5 07.5	+57.7	59.3	6 08.5	+58.2	59.5	14
0 08.9	-53.8	121.5	0 53.7	+54.6	58.5	1 56.3	+55.4	58.6	2 58.8	+56.0	58.7	4 01.2	+56.6	58.8	5 03.3	+57.2	58.9	6 05.2	+57.6	59.1	7 06.7	+58.1	59.3	15
0 44.9	+53.9	58.1	1 48.3	+54.6	58.1	2 51.7	+55.3	58.2	3 54.8	+56.0	58.3	4 57.8	+56.6	58.4	5 59.5	+57.1	58.6	6 59.5	+57.7	58.8	8 04.8	+58.2	59.0	16
1 38.8	+53.8	57.6	2 42.9	+54.6	57.7	3 47.0	+55.3	57.8	4 50.8	+56.0	57.9	5 54.4	+56.5	58.1	6 57.6	+57.2	58.3	8 00.5	+57.7	58.5	9 03.0	+58.1	58.8	17
2 32.6	+53.8	57.2	3 37.5	+54.6	57.3	4 42.3	+55.2	57.4	5 46.8	+55.9	57.6	6 50.9	+56.6	57.8	7 54.8	+57.1	58.0	8 58.2	+57.7	58.2	10 01.1	+58.2	58.5	18
3 26.4	+53.8	56.8	4 32.1	+54.5	56.9	5 37.5	+55.3	57.0	6 42.7	+55.9	57.2	7 47.5	+56.6	57.4	8 51.9	+57.1	57.7	9 55.9	+57.6	57.9	10 59.3	+58.1	58.3	19
4 20.2	+53.8	56.3	5 26.6	+54.6	56.5	6 32.8	+55.3	56.6	7 38.6	+55.9	56.8	8 44.1	+56.5	57.1	9 49.0	+57.1	57.4	10 53.5	+57.6	57.7	11 57.4	+58.1	58.0	20
5 14.0	+53.8	55.9	6 21.2	+54.5	56.0	7 28.1	+55.2	56.2	8 34.5	+55.9	56.5	9 40.6	+56.5	56.7	10 46.1	+57.1	57.0	11 51.1	+57.6	57.4	12 55.5	+58.1	57.8	21
6 07.8	+53.7	55.4	7 15.7	+54.5	55.6	8 23.3	+55.2	55.8	9 30.4	+55.9	56.1	10 37.1	+56.5	56.4	11 43.2	+57.1	56.7	12 48.7	+57.6	57.1	13 53.6	+58.1	57.5	22
7 01.5	+53.7	55.0	8 10.2	+54.5	55.2	9 18.5	+55.2	55.4	10 26.3	+55.8	55.7	11 33.6	+56.5	56.1	12 40.3	+57.0	56.4	13 46.3	+57.6	56.8	14 51.7	+58.0	57.2	23
7 55.2	+53.7	54.5	9 10.4	+54.4	54.8	10 13.7	+55.1	55.0	11 22.1	+55.9	55.4	12 30.1	+56.4	55.7	13 37.0	+57.1	56.1	14 43.9	+57.6	56.5	15 49.7	+58.1	57.0	24
8 48.9	+53.7	54.1	9 59.1	+54.4	54.3	11 08.8	+55.1	54.6	12 18.0	+55.7	55.0	13 26.5	+56.4	55.4	14 34.4	+56.9	55.8	15 41.5	+57.5	56.2	16 47.8	+58.0	56.7	25
9 42.6	+53.6	53.6	10 53.5	+54.4	53.9	12 03.9	+55.1	54.2	13 13.7	+55.8	54.6	14 22.9	+56.4	55.0	15 31.3	+57.0	55.4	16 39.0	+57.5	55.9	17 45.8	+58.0	56.4	26
10 36.2	+53.6	53.2	11 47.9	+54.3	53.5	12 59.0	+55.1	53.8	14 09.5	+55.7	54.2	15 19.3	+56.3	54.7	16 28.3	+56.9	55.1	17 36.5	+57.5	55.6	18 43.8	+58.0	56.2	27
11 29.8	+53.6	52.7	12 42.2	+54.3	53.1	13 54.1	+55.0	53.4	15 05.2	+55.7	53.8	16 15.6	+56.3	54.3	17 25.2	+56.9	54.8	18 34.0	+57.4	55.3	19 41.8	+57.9	55.9	28
12 23.4	+53.5	52.2	13 36.5	+54.3	52.6	14 49.1	+54.9	53.0	16 00.9	+55.6	53.5	17 11.9	+56.3	53.9	18 22.1	+56.9	54.5	19 31.4	+57.4	55.0	20 39.7	+57.9	55.6	29
13 16.9	+53.4	51.8	14 30.8	+54.2	52.2	15 44.0	+54.9	52.6	16 56.5	+55.6	53.1	18 08.2	+56.2	53.6	19 19.0	+56.8	54.1	20 28.8	+57.4	54.7	21 37.6	+57.9	55.3	30
14 10.3	+53.4	51.3	15 25.0	+54.1	51.7	16 38.9	+54.9	52.2	17 52.1	+55.6	52.7	19 04.4	+56.2	53.2	20 15.8	+56.8	53.8	21 26.2	+57.4	54.4	22 35.5	+57.9	55.1	31
15 03.7	+53.3	50.8	16 19.1	+54.1	51.3	17 33.8	+54.8	51.8	18 47.7	+55.4	52.3	20 00.6	+56.2	52.8	21 12.6	+56.8	53.4	22 23.6	+57.3	54.1	23 33.4	+57.8	54.8	32
15 57.0	+53.3	50.4	17 13.2	+54.0	50.8	18 28.6	+54.7	51.3	19 43.1	+55.5	51.9	20 56.8	+56.0	52.5	22 09.4	+56.7	53.1	23 20.9	+57.2	53.8	24 31.2	+57.8	54.5	33
16 50.3	+53.2	49.9	18 07.2	+54.0	50.4	19 23.3	+54.7	50.9	20 38.6	+55.3	51.5	21 52.8	+56.1	52.1	23 06.1	+56.6	52.7	24 18.1	+57.3	53.4	25 29.0	+57.8	54.2	34
17 43.5	+53.1	49.4	19 01.2	+53.9	49.9	20 18.0	+54.6	50.5	21 33.9	+55.4	51.1	22 48.9	+55.9	51.7	24 02.7	+56.6	52.4	25 15.4	+57.1	53.1	26 26.8	+57.7	53.9	35
18 36.6	+53.1	48.9	19 55.1	+53.8	49.4	21 12.6	+54.6	50.0	22 29.3	+55.2	50.6	23 44.8	+56.0	51.3	24 59.3	+56.5	52.0	26 12.5	+57.2	52.8	27 24.5	+57.7	53.6	36
19 29.7	+53.0	48.4	20 48.9	+53.7	48.9	22 07.2	+54.5	49.6	23 24.5	+55.2	50.2	24 40.8	+55.8	50.9	25 55.8	+56.5	51.6	27 09.7	+57.1	52.4	28 22.2	+57.6	53.3	37
20 22.7	+52.8	47.9	21 42.6	+53.7	48.5	23 01.7	+54.4	49.1	24 19.7	+55.1	49.8	25 36.6	+55.8	50.5	26 52.3	+56.5	51.3	28 06.8	+57.0	52.1	29 19.8	+57.6	52.9	38
21 15.5	+52.8	47.4	22 36.3	+53.6	48.0	23 56.1	+54.3	48.7	25 14.8	+55.0	49.3	26 32.4	+55.7	50.1	27 48.8	+56.3	50.9	29 03.8	+57.0	51.7	30 17.4	+57.5	52.6	39
22 08.3	+52.7	46.9	23 29.8	+53.5	47.5	24 50.4	+54.2	48.2	26 09.8	+55.0	48.9	27 28.1	+55.6	49.7	28 45.1	+56.3	50.5	30 00.8	+56.9	51.4	31 14.9	+57.5	52.3	40
23 01.0	+52.6	46.4	24 23.3	+53.4	47.0	25 44.6	+54.1	47.7	27 04.8	+54.8	48.5	28 23.7	+55.6	49.2	29 41.4	+56.2	50.1	30 57.7	+56.8	51.0	32 12.4	+57.5	52.0	41
23 53.6	+52.5	45.9	25 16.7	+53.3	46.5	26 38.7	+54.1	47.2	27 59.6	+54.8	48.0	29 19.3	+55.5	48.8	30 37.6	+56.2	49.7	31 54.5	+56.8	50.6	33 09.9	+57.3	51.6	42
24 46.1	+52.4	45.3	26 10.0	+53.1	46.0	27 32.8	+53.9	46.7	28 54.4	+54.7	47.5	30 14.8	+55.4	48.4	31 33.8	+56.0	49.3	32 51.3	+56.7	50.2	34 07.2	+57.4	51.3	43
25 38.5	+52.2	44.8	27 03.1	+53.1	45.5	28 26.7	+53.8	46.2	29 49.1	+54.5	47.1	31 10.2	+55.2	47.9	32 29.8	+56.0	48.9	33 48.0	+56.7	49.8	35 04.6	+57.2	50.9	44
26 30.7	+52.2	44.2	27 56.2	+52.9	45.0	29 20.5	+53.7	45.7	30 43.6	+54.5	46.6	32 05.4	+55.2	47.5	33 25.8	+55.9	48.4	34 44.7	+56.5	49.4	36 01.8	+57.2	50.5	45
27 22.9	+52.0	43.7	28 49.1	+52.8	44.4	30 14.2	+53.6	45.2	31 38.1	+54.3	46.1	33 00.6	+55.1	47.0	34 21.7	+55.8	48.0	35 41.2	+56.5	49.0	36 59.0	+57.1	50.2	46
28 14.9	+51.8	43.1	29 41.9	+52.7	43.9	31 07.8	+53.4	44.7	32 32.4	+54.3	45.6	33 55.7	+55.0	46.5	35 17.5	+55.7	47.5	36 37.7	+56.4	48.6	37			

Table with columns for Dec. (0-90), latitude (76-90), and three columns of data (Hc, d, Z) for each latitude. The table is a grid of astronomical data.

LATITUDE CONTRARY NAME

L.H.A. 62°, 298°

Table with columns for latitude (76° to 90°), longitude (Hc, d, Z), and Dec. (0 to 90). Each cell contains numerical values representing celestial coordinates.

LATITUDE SAME NAME

L.H.A. 118°, 242°

64°, 296° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	12 39.7	+53.2	112.9	11 52.6	+54.1	113.3	11 04.8	+54.9	113.7	10 16.3	+55.6	114.0	9 27.1	+56.4	114.3	8 37.4	+57.0	114.6	7 47.1	+57.6	114.9	6 56.4	+58.1	115.1
1	13 32.9	+53.2	112.4	12 46.7	+54.1	112.9	11 59.7	+54.9	113.3	11 11.9	+55.7	113.6	10 23.5	+56.4	114.0	9 34.4	+57.0	114.3	8 44.7	+57.6	114.6	7 54.5	+58.1	114.9
2	14 26.1	+53.1	111.9	13 40.8	+54.0	112.4	12 54.6	+54.9	112.8	12 07.6	+55.6	113.3	11 19.9	+56.3	113.6	10 31.4	+57.0	114.0	9 42.3	+57.6	114.3	8 52.6	+58.1	114.6
3	15 19.2	+53.1	111.5	14 34.8	+54.0	112.0	13 49.5	+54.8	112.4	13 03.2	+55.6	112.9	12 16.2	+56.3	113.3	11 28.4	+56.9	113.7	10 39.9	+57.5	114.0	9 50.7	+58.0	114.4
4	16 12.3	+52.9	111.0	15 28.8	+53.9	111.5	14 44.3	+54.7	112.0	13 58.8	+55.6	112.5	13 12.5	+56.3	112.9	12 25.3	+57.0	113.4	11 37.4	+57.5	113.7	10 48.7	+58.1	114.1
5	17 05.2	+53.0	110.5	16 22.7	+53.8	111.1	15 39.0	+54.8	111.6	14 54.4	+55.5	112.1	14 08.8	+56.2	112.6	13 22.3	+56.9	113.0	12 34.9	+57.5	113.5	11 46.8	+58.0	113.8
6	17 58.2	+52.8	110.0	17 16.5	+53.8	110.6	16 33.8	+54.6	111.2	15 49.9	+55.5	111.7	15 05.0	+56.3	112.2	14 19.2	+56.9	112.7	13 24.2	+57.5	113.2	12 44.8	+58.1	113.6
7	18 51.0	+52.8	109.5	18 10.3	+53.8	110.1	17 28.4	+54.7	110.7	16 45.4	+55.4	111.3	16 01.3	+56.1	111.9	15 16.1	+56.8	112.4	14 29.9	+57.5	112.9	13 42.9	+58.0	113.3
8	19 43.8	+52.6	109.0	19 04.1	+53.6	109.7	18 23.1	+54.5	110.3	17 40.8	+55.4	110.9	16 57.4	+56.2	111.5	16 12.9	+56.9	112.0	15 27.4	+57.4	112.6	14 40.9	+58.0	113.1
9	20 36.4	+52.6	108.5	19 57.7	+53.6	109.2	19 17.6	+54.5	109.9	18 36.2	+55.3	110.5	17 53.6	+56.1	111.1	17 09.8	+56.8	111.7	16 24.8	+57.5	112.3	15 38.9	+57.9	112.8
10	21 29.0	+52.5	108.0	20 51.3	+53.5	108.7	20 12.1	+54.4	109.4	19 31.5	+55.3	110.1	18 49.7	+56.0	110.7	18 06.6	+56.7	111.4	17 22.3	+57.3	112.0	16 36.8	+58.0	112.5
11	22 21.5	+52.4	107.4	21 44.8	+53.4	108.2	21 06.5	+54.4	109.0	20 26.8	+55.2	109.7	19 45.7	+56.0	110.4	19 03.3	+56.7	111.0	18 19.6	+57.4	111.7	17 34.8	+57.9	112.3
12	23 13.9	+52.3	106.9	22 38.3	+53.3	107.7	22 00.9	+54.2	108.5	21 22.0	+55.2	109.3	20 41.7	+56.0	110.0	20 00.0	+56.7	110.7	19 17.0	+57.3	111.3	18 32.7	+57.9	112.0
13	24 06.2	+52.2	106.4	23 31.5	+53.2	107.2	22 55.1	+54.2	108.0	22 17.2	+55.1	108.8	21 37.7	+55.9	109.6	20 56.7	+56.6	110.3	20 14.3	+57.3	111.0	19 30.6	+57.9	111.7
14	24 58.4	+52.0	105.8	24 24.7	+53.1	106.7	23 49.3	+54.1	107.6	23 12.3	+55.0	108.4	22 33.6	+55.8	109.2	21 53.3	+56.6	110.0	21 11.6	+57.3	110.7	20 28.5	+57.8	111.4
15	25 50.4	+51.9	105.3	25 17.8	+53.0	106.2	24 43.4	+54.1	107.1	24 07.3	+54.9	108.0	23 29.4	+55.8	108.8	22 49.9	+56.6	109.6	22 08.9	+57.2	110.4	21 26.3	+57.8	111.1
16	26 42.3	+51.8	104.7	26 10.8	+52.9	105.7	25 37.5	+53.9	106.6	25 02.2	+54.9	107.5	24 25.2	+55.7	108.4	23 46.5	+56.5	109.2	23 06.1	+57.2	110.1	22 24.1	+57.8	110.9
17	27 34.1	+51.7	104.2	27 03.7	+52.8	105.2	26 31.4	+53.8	106.1	25 57.1	+54.7	107.1	25 20.9	+55.7	108.0	24 43.0	+56.4	108.9	24 03.5	+57.1	109.7	23 21.9	+57.8	110.6
18	28 25.8	+51.5	103.6	27 56.5	+52.7	104.6	27 25.2	+53.7	105.6	26 51.8	+54.7	106.6	26 16.6	+55.5	107.6	25 39.4	+56.4	108.5	25 00.4	+57.1	109.4	24 19.7	+57.7	110.3
19	29 17.3	+51.3	103.0	28 49.2	+52.5	104.1	28 18.9	+53.6	105.1	27 46.5	+54.6	106.2	27 12.1	+55.5	107.2	26 35.8	+56.3	108.1	25 57.5	+57.0	109.1	25 17.4	+57.7	110.0
20	30 08.6	+51.2	102.4	29 41.7	+52.4	103.5	29 12.5	+53.5	104.6	28 41.1	+54.5	105.7	28 07.6	+55.4	106.7	27 32.1	+56.2	107.7	26 54.5	+57.0	108.7	26 15.1	+57.6	109.7
21	30 59.8	+51.0	101.8	30 34.1	+52.2	103.0	30 06.0	+53.3	104.1	29 35.6	+54.4	105.2	29 03.0	+55.4	106.3	28 28.3	+56.2	107.3	27 51.5	+57.0	108.4	27 12.7	+57.7	109.3
22	31 50.8	+50.8	101.2	31 26.3	+52.0	102.4	30 59.3	+53.2	103.6	30 30.0	+54.3	104.7	29 58.4	+55.2	105.8	29 24.5	+56.1	106.9	28 48.5	+56.8	108.0	28 10.4	+57.5	109.0
23	32 41.6	+50.6	100.6	32 18.3	+52.0	101.8	31 52.5	+53.1	103.0	31 24.3	+54.1	104.2	30 53.6	+55.1	105.4	30 20.6	+56.0	106.5	29 45.3	+56.9	107.6	29 07.9	+57.5	108.7
24	33 32.2	+50.5	99.9	33 10.3	+51.7	101.2	32 45.6	+53.0	102.5	32 18.4	+54.1	103.7	31 48.7	+55.1	104.9	31 16.6	+56.0	106.1	30 42.2	+56.7	107.3	30 05.4	+57.5	108.4
25	34 22.7	+50.2	99.3	34 02.0	+51.5	100.6	33 38.6	+52.7	101.9	33 12.5	+53.9	103.2	32 43.8	+54.9	104.5	32 12.6	+55.8	105.7	31 38.9	+56.7	106.9	31 02.9	+57.4	108.0
26	35 12.9	+50.0	98.6	34 53.5	+51.4	100.0	34 31.3	+52.6	101.3	34 06.4	+53.7	102.7	33 38.7	+54.8	104.0	33 08.4	+55.8	105.3	32 35.6	+56.6	106.5	32 00.3	+57.3	107.7
27	36 02.9	+49.7	97.9	35 44.9	+51.1	99.3	35 23.9	+52.5	100.8	35 00.1	+53.7	102.1	34 33.5	+54.7	103.5	34 04.2	+55.7	104.8	33 32.2	+56.5	106.1	32 57.6	+57.3	107.4
28	36 52.6	+49.5	97.2	36 36.0	+51.0	98.7	36 16.4	+52.2	100.2	35 53.8	+53.4	101.6	35 28.2	+54.6	103.0	34 59.9	+55.5	104.4	34 28.7	+56.5	105.7	33 54.9	+57.3	107.0
29	37 42.1	+49.3	96.5	37 27.0	+50.7	98.0	37 08.6	+52.1	99.5	36 47.2	+53.3	101.0	36 22.8	+54.4	102.5	35 55.4	+55.5	103.9	35 25.2	+56.3	105.3	34 52.2	+57.1	106.6
30	38 31.4	+49.0	95.8	38 17.7	+50.4	97.4	38 00.7	+51.8	98.9	37 40.5	+53.1	100.4	37 17.2	+54.3	101.9	36 50.9	+55.3	103.4	36 21.5	+56.3	104.9	35 49.3	+57.1	106.3
31	39 20.4	+48.7	95.0	39 08.1	+50.3	96.7	38 52.5	+51.7	98.3	38 33.6	+53.0	99.9	38 11.5	+54.1	101.4	37 46.2	+55.2	102.9	37 17.8	+56.2	104.4	36 46.4	+57.1	105.9
32	40 09.1	+48.3	94.3	39 58.4	+50.9	96.0	39 44.2	+51.4	97.6	39 26.6	+52.7	99.2	39 05.6	+54.0	100.9	38 41.4	+55.1	102.4	38 14.0	+56.1	104.0	37 43.5	+56.9	105.5
33	40 57.4	+48.1	93.5	40 48.3	+49.7	95.2	40 35.6	+51.2	96.9	40 19.3	+52.6	98.6	39 59.6	+53.8	100.3	39 36.5	+54.9	101.9	39 10.1	+55.9	103.5	38 40.4	+56.9	105.1
34	41 45.5	+47.7	92.7	41 38.0	+49.4	94.5	41 26.8	+50.9	96.2	41 11.9	+52.3	98.0	40 53.4	+53.7	99.7	40 31.4	+54.8	101.4	40 06.0	+55.9	103.1	39 37.3	+56.7	104.7
35	42 33.2	+47.4	91.9	42 27.4	+49.0	93.7	42 17.7	+50.6	95.5	42 04.2	+52.1	97.3	41 47.1	+53.4	99.1	41 26.2	+54.7	100.9	41 01.9	+55.7	102.6	40 34.0	+56.7	104.3
36	43 20.6	+46.9	91.0	43 16.4	+48.7	92.9	43 08.3	+50.4	94.8	42 56.3	+51.9	96.7	42 40.5	+53.2	98.5	42 20.9	+54.5	100.3	41 57.6	+55.6	102.1	41 30.7	+56.6	103.8
37	44 07.5	+46.6	90.2	44 05.7	+48.4	92.1	43 58.7	+50.0	94.1	43 48.2	+51.6	96.0	43 33.7	+53.1	97.9	43 15.4	+54.3	99.7	42 53.2	+55.4	101.6	42 27.3	+56.4	103.4
38	44 54.1	+46.2	89.3	44 53.5	+48.0	91.3	44 48.7	+49.8	93.3	44 39.8	+51.3	95.3	44 26.8	+52.7	97.2	44 09.7	+54.1	99.1	43 48.6	+55.3	101.0	43 23.7	+56.4	102.9
39	45 40.3	+45.7	88.4	45 41.5	+47.6	90.4	45 38.5	+49.4	92.5	45 31.1	+51.1	94.5	45 19.5	+52.6	96.5	45 03.8	+53.9	98.5	44 43.9	+55.2	100.5	44 20.1	+56.2	102.4
40	46 26.0	+45.3	87.5	46 29.1	+47.2	89.6	46 27.9	+49.0	91.7	46 22.2	+50.7	93.8	46 12.1	+52.3	95.9	45 57.7	+53.7	97.9	45 39.1	+55.0	99.9	45 16.3	+56.1	101.9
41	47 11.3	+44.7	86.5	47 16.3	+46.8	88.7	47 16.9	+48.6	90.8	47 12.9	+50.4	93.0	47 04.4	+52.0	95.1	46 51.4	+53.5	97.3	46 34.1	+54.7	99.4	46 12.4	+55.9	101.4
42	47 56.0	+44.3	85.5	48 03.1	+46.3	87.7	48 05.5	+48.3	90.0	48 03.3	+50.0	92.2	47 56.4	+51.7	94.4	47 44.9	+53.2	96.6	47 28.8	+54.6	98.8	47 08.3	+55.8	100.9
43	48 40.3	+43.6	84.5	48 49.4	+45.8	86.8	48 53.8	+47.8	89.1	48 53.3	+49.7	91.4	48 48.1	+51.4	93.6	48 38.1	+53.0	95.9	48 23.4	+54.4	98.2	48 04.1	+55.7	100.4
44	49 23.9	+43.1	83.4	49 35.2	+45.3	85.8	49 41.6	+47.3	88.1	49 43.0	+49.3	90.5	49 39.5	+51.1	92.8	49 31.1	+52.7	95.2	49 17.8	+54.2	97.5	48 59.8	+55.4	99.8
45	50 07.2	+42.5	82.4	50 20.5	+44.7	84.8	50 28.9	+46.9	87.2	50 32.3	+48.9	89.6	50 30.6	+50.7	90.0	50 23.8	+52.4	94.4	50 12.0	+54.0	96.8	49 55.2	+55.3	99.2
46	50 49.5	+41.9	81.3	51 05.2	+44.2	83.7	51 15.8	+46.3	86.2	51 12.2	+48.4	88.7	51 21.3	+50.4	9									

LATITUDE CONTRARY NAME

L.H.A. 64°, 296°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.				
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z	
12 39.7 - 53.3 112.9	11 52.6 - 54.2 113.3	11 04.8 - 55.0 113.7	10 16.3 - 55.8 114.0	9 27.1 - 56.4 114.3	8 37.4 - 57.1 114.6	7 47.1 - 57.6 114.9	6 56.4 - 58.1 115.1	6 00.0	5 11.6	4 12.9	3 24.2	2 36.5	1 48.8	0 61.1	0 73.4	0 85.7	0 98.0	1 10.3	2 22.6	3 34.9	4 47.2	5 59.5	6 71.8	7 84.1	8 96.4	9 108.7		
11 46.4 - 53.3 113.4	10 58.4 - 54.2 113.7	10 09.8 - 55.0 114.1	9 20.5 - 55.7 114.4	8 30.7 - 56.4 114.7	7 40.3 - 57.0 115.0	6 49.5 - 57.6 115.2	5 58.3 - 58.1 115.4	5 07.0	4 15.7	3 24.4	2 33.1	1 41.8	0 50.5	0 59.2	0 67.9	0 76.6	0 85.3	0 94.0	1 02.7	2 11.4	3 20.1	4 28.8	5 37.5	6 46.2	7 54.9	8 63.6		
10 53.1 - 53.4 113.8	10 04.2 - 54.2 114.2	9 14.8 - 55.0 114.5	8 24.8 - 55.8 114.8	7 34.3 - 56.5 115.0	6 43.3 - 57.1 115.2	5 51.9 - 57.6 115.4	5 00.2 - 58.1 115.6	4 08.9	3 17.6	2 26.3	1 35.0	0 43.7	0 52.4	0 61.1	0 69.8	0 78.5	0 87.2	0 95.9	1 04.6	2 13.3	3 22.0	4 30.7	5 39.4	6 48.1	7 56.8	8 65.5		
9 59.7 - 53.4 114.3	9 10.0 - 54.2 114.6	8 19.8 - 55.1 114.9	7 29.0 - 55.8 115.1	6 37.8 - 56.4 115.4	5 46.2 - 57.0 115.6	4 54.3 - 57.6 115.7	4 02.1 - 58.2 115.9	3 10.8	2 19.5	1 28.2	0 36.9	0 45.6	0 54.3	0 63.0	0 71.7	0 80.4	0 89.1	0 97.8	1 06.5	2 15.2	3 23.9	4 32.6	5 41.3	6 50.0	7 58.7	8 67.4		
9 06.3 - 53.5 114.8	8 15.8 - 54.3 115.0	7 24.7 - 55.0 115.3	6 33.2 - 55.8 115.5	5 41.4 - 56.5 115.7	4 49.2 - 57.1 115.9	3 56.7 - 57.7 116.0	3 03.9 - 58.1 116.1	2 12.6	1 21.3	0 30.0	0 38.7	0 47.4	0 56.1	0 64.8	0 73.5	0 82.2	0 90.9	0 99.6	1 08.3	2 17.0	3 25.7	4 34.4	5 43.1	6 51.8	7 60.5	8 69.2		
8 12.8 - 53.4 115.2	7 21.5 - 54.3 115.5	6 29.7 - 55.1 115.7	5 37.4 - 55.8 115.9	4 44.9 - 56.5 116.0	3 52.1 - 57.1 116.2	2 59.0 - 57.6 116.3	2 05.8 - 58.1 116.4	1 14.5	0 23.2	0 31.9	0 40.6	0 49.3	0 58.0	0 66.7	0 75.4	0 84.1	0 92.8	1 01.5	1 10.2	2 18.9	3 27.6	4 36.3	5 45.0	6 53.7	7 62.4	8 71.1		
7 19.4 - 53.5 115.7	6 27.2 - 54.4 115.9	5 34.6 - 55.1 116.1	4 41.6 - 55.8 116.2	3 48.4 - 56.4 116.4	2 55.0 - 57.1 116.5	2 01.4 - 57.6 116.6	1 07.7 - 58.1 116.6	0 16.4	0 25.1	0 33.8	0 42.5	0 51.2	0 59.9	0 68.6	0 77.3	0 86.0	0 94.7	1 03.4	1 12.1	2 20.8	3 29.5	4 38.2	5 46.9	6 55.6	7 64.3	8 73.0		
6 25.9 - 53.6 116.1	5 32.8 - 54.3 116.3	4 39.5 - 55.2 116.5	3 45.8 - 55.8 116.6	2 52.0 - 56.5 116.7	1 57.9 - 57.1 116.8	1 03.8 - 57.1 116.8	0 09.6 - 58.2 116.9	0 18.3	0 27.0	0 35.7	0 44.4	0 53.1	0 61.8	0 70.5	0 79.2	0 87.9	0 96.6	1 05.3	1 14.0	2 22.7	3 31.4	4 40.1	5 48.8	6 57.5	7 66.2	8 74.9		
5 32.3 - 53.5 116.6	4 38.5 - 54.4 116.8	3 44.1 - 54.4 117.2	2 49.2 - 55.1 117.3	1 54.1 - 55.2 117.7	0 58.3 - 55.8 117.7	0 02.5 - 56.5 117.7	0 00.0	0 08.7	0 17.4	0 26.1	0 34.8	0 43.5	0 52.2	0 60.9	0 69.6	0 78.3	0 87.0	0 95.7	1 04.4	2 13.1	3 21.8	4 30.5	5 39.2	6 47.9	7 56.6	8 65.3		
4 38.8 - 53.6 117.0	3 44.1 - 54.4 117.2	2 49.2 - 55.1 117.3	1 54.1 - 55.2 117.7	0 58.3 - 55.8 117.7	0 02.5 - 56.5 117.7	0 00.0	0 08.7	0 17.4	0 26.1	0 34.8	0 43.5	0 52.2	0 60.9	0 69.6	0 78.3	0 87.0	0 95.7	1 04.4	1 13.1	2 21.8	3 30.5	4 39.2	5 47.9	6 56.6	7 65.3	8 74.0		
3 45.2 - 53.5 117.5	2 49.7 - 54.4 117.6	1 55.3 - 54.3 118.0	0 58.9 - 55.1 118.1	0 03.8 - 55.2 118.5	0 53.4 - 55.8 61.6	0 54.0 - 56.5 61.9	0 54.5 - 57.1 62.3	0 55.0 - 57.0 62.0	0 55.5 - 57.1 61.7	0 56.0 - 57.1 61.4	0 56.5 - 57.1 61.1	0 57.0 - 57.1 60.8	0 57.5 - 57.1 60.5	0 58.0 - 57.1 60.2	0 58.5 - 57.1 59.9	0 59.0 - 57.1 59.6	0 59.5 - 57.1 59.3	0 60.0 - 57.1 59.0	0 60.5 - 57.1 58.7	0 61.0 - 57.1 58.4	0 61.5 - 57.1 58.1	0 62.0 - 57.1 57.8	0 62.5 - 57.1 57.5	0 63.0 - 57.1 57.2	0 63.5 - 57.1 56.9	0 64.0 - 57.1 56.6		
2 51.7 - 53.6 117.9	1 55.3 - 54.3 118.0	1 01.0 - 54.4 118.4	0 06.6 - 54.4 118.9	0 07.8 - 54.4 119.3	0 14.6 - 55.1 61.1	0 21.4 - 55.8 60.8	0 28.2 - 56.5 60.5	0 35.0 - 57.1 60.2	0 41.8 - 57.1 59.9	0 48.6 - 57.1 59.6	0 55.4 - 57.1 59.3	0 62.2 - 57.1 59.0	0 69.0 - 57.1 58.7	0 75.8 - 57.1 58.4	0 82.6 - 57.1 58.1	0 89.4 - 57.1 57.8	0 96.2 - 57.1 57.5	1 03.0 - 57.1 57.2	1 09.8 - 57.1 56.9	1 16.6 - 57.1 56.6	1 23.4 - 57.1 56.3	1 30.2 - 57.1 56.0	1 37.0 - 57.1 55.7	1 43.8 - 57.1 55.4	1 50.6 - 57.1 55.1	1 57.4 - 57.1 54.8		
1 58.1 - 53.6 118.4	1 01.0 - 54.4 118.4	0 06.6 - 54.4 118.9	0 07.8 - 54.4 119.3	0 09.0 - 54.4 119.7	0 15.8 - 55.1 60.8	0 22.6 - 55.8 60.5	0 29.4 - 56.5 60.2	0 36.2 - 57.1 59.9	0 43.0 - 57.1 59.6	0 49.8 - 57.1 59.3	0 56.6 - 57.1 59.0	0 63.4 - 57.1 58.7	0 70.2 - 57.1 58.4	0 77.0 - 57.1 58.1	0 83.8 - 57.1 57.8	0 90.6 - 57.1 57.5	0 97.4 - 57.1 57.2	1 04.2 - 57.1 56.9	1 11.0 - 57.1 56.6	1 17.8 - 57.1 56.3	1 24.6 - 57.1 56.0	1 31.4 - 57.1 55.7	1 38.2 - 57.1 55.4	1 45.0 - 57.1 55.1	1 51.8 - 57.1 54.8	1 58.6 - 57.1 54.5		
1 04.5 - 53.6 118.8	0 06.6 - 54.4 118.9	0 07.8 - 54.4 119.3	0 09.0 - 54.4 119.7	0 10.2 - 54.4 120.1	0 17.0 - 55.1 60.8	0 23.8 - 55.8 60.5	0 30.6 - 56.5 60.2	0 37.4 - 57.1 59.9	0 44.2 - 57.1 59.6	0 51.0 - 57.1 59.3	0 57.8 - 57.1 59.0	0 64.6 - 57.1 58.7	0 71.4 - 57.1 58.4	0 78.2 - 57.1 58.1	0 85.0 - 57.1 57.8	0 91.8 - 57.1 57.5	0 98.6 - 57.1 57.2	1 05.4 - 57.1 56.9	1 12.2 - 57.1 56.6	1 19.0 - 57.1 56.3	1 25.8 - 57.1 56.0	1 32.6 - 57.1 55.7	1 39.4 - 57.1 55.4	1 46.2 - 57.1 55.1	1 53.0 - 57.1 54.8	1 59.8 - 57.1 54.5		
0 10.9 - 53.6 119.3	0 07.8 - 54.4 119.3	0 09.0 - 54.4 119.7	0 10.2 - 54.4 120.1	0 11.4 - 54.4 120.5	0 18.2 - 55.1 60.8	0 25.0 - 55.8 60.5	0 31.8 - 56.5 60.2	0 38.6 - 57.1 59.9	0 45.4 - 57.1 59.6	0 52.2 - 57.1 59.3	0 59.0 - 57.1 59.0	0 65.8 - 57.1 58.7	0 72.6 - 57.1 58.4	0 79.4 - 57.1 58.1	0 86.2 - 57.1 57.8	0 93.0 - 57.1 57.5	0 99.8 - 57.1 57.2	1 06.6 - 57.1 56.9	1 13.4 - 57.1 56.6	1 20.2 - 57.1 56.3	1 27.0 - 57.1 56.0	1 33.8 - 57.1 55.7	1 40.6 - 57.1 55.4	1 47.4 - 57.1 55.1	1 54.2 - 57.1 54.8	1 61.0 - 57.1 54.5		
0 42.7 + 53.6 60.3	1 42.2 + 54.4 60.3	2 41.6 + 55.2 60.4	3 40.9 + 55.8 60.5	4 40.0 + 56.4 60.6	5 38.8 + 57.0 60.7	6 37.3 + 57.6 60.6	7 35.4 + 58.1 60.9	8 33.2 + 58.0 60.6	9 31.9 + 58.1 60.4	10 30.0 + 57.0 60.1	11 28.9 + 57.0 59.8	12 27.9 + 57.0 59.5	13 26.9 + 57.0 59.2	14 25.9 + 57.0 58.9	15 24.9 + 57.0 58.6	16 23.9 + 57.0 58.3	17 22.9 + 57.0 58.0	18 21.9 + 57.0 57.7	19 20.9 + 57.0 57.4	20 19.9 + 57.0 57.1	21 18.9 + 57.0 56.8	22 17.9 + 57.0 56.5	23 16.9 + 57.0 56.2	24 15.9 + 57.0 55.9	25 14.9 + 57.0 55.6	26 13.9 + 57.0 55.3	27 12.9 + 57.0 55.0	
1 36.3 + 53.6 59.8	2 36.6 + 54.4 59.9	3 36.8 + 55.1 60.0	4 36.7 + 55.9 60.1	5 36.4 + 56.5 60.2	6 35.8 + 57.1 60.4	7 34.9 + 57.6 60.6	8 33.5 + 58.1 60.9	9 31.6 + 58.0 60.6	10 29.6 + 58.1 60.4	11 27.6 + 58.0 60.1	12 25.5 + 57.5 59.5	13 23.4 + 57.0 58.9	14 21.3 + 56.5 58.3	15 19.2 + 56.0 57.7	16 17.1 + 55.5 57.1	17 15.0 + 55.0 56.5	18 12.9 + 54.5 55.9	19 10.8 + 54.0 55.3	20 8.7 + 53.5 54.7	21 6.6 + 53.0 54.1	22 4.5 + 52.5 53.5	23 2.4 + 52.0 52.9	24 0.3 + 51.5 52.3	25 -1.8 + 51.0 51.7	26 -3.9 + 50.5 51.1	27 -6.0 + 50.0 50.5	28 -8.1 + 49.5 49.9	
2 29.9 + 53.6 59.4	3 31.0 + 54.4 59.4	4 31.9 + 55.1 59.6	5 32.6 + 55.7 59.7	6 32.9 + 56.4 59.9	7 32.9 + 57.0 60.1	8 32.5 + 57.5 60.4	9 31.6 + 58.0 60.6	10 29.6 + 58.1 60.4	11 27.6 + 58.0 60.1	12 25.5 + 57.5 59.5	13 23.4 + 57.0 58.9	14 21.3 + 56.5 58.3	15 19.2 + 56.0 57.7	16 17.1 + 55.5 57.1	17 15.0 + 55.0 56.5	18 12.9 + 54.5 55.9	19 10.8 + 54.0 55.3	20 8.7 + 53.5 54.7	21 6.6 + 53.0 54.1	22 4.5 + 52.5 53.5	23 2.4 + 52.0 52.9	24 0.3 + 51.5 52.3	25 -1.8 + 51.0 51.7	26 -3.9 + 50.5 51.1	27 -6.0 + 50.0 50.5	28 -8.1 + 49.5 49.9	29 -10.2 + 49.0 49.3	
3 23.5 + 53.6 58.9	4 25.4 + 54.3 59.0	5 27.0 + 55.1 59.2	6 28.3 + 55.8 59.3	7 29.3 + 56.5 59.6	8 29.9 + 57.0 59.8	9 30.0 + 57.6 60.1	10 29.6 + 58.1 60.4	11 27.6 + 58.0 60.1	12 25.5 + 57.5 59.5	13 23.4 + 57.0 58.9	14 21.3 + 56.5 58.3	15 19.2 + 56.0 57.7	16 17.1 + 55.5 57.1	17 15.0 + 55.0 56.5	18 12.9 + 54.5 55.9	19 10.8 + 54.0 55.3	20 8.7 + 53.5 54.7	21 6.6 + 53.0 54.1	22 4.5 + 52.5 53.5	23 2.4 + 52.0 52.9	24 0.3 + 51.5 52.3	25 -1.8 + 51.0 51.7	26 -3.9 + 50.5 51.1	27 -6.0 + 50.0 50.5	28 -8.1 + 49.5 49.9	29 -10.2 + 49.0 49.3		
4 17.1 + 53.5 58.5	5 19.7 + 54.4 58.6	6 22.1 + 55.1 58.8	7 24.1 + 55.8 59.0	8 25.8 + 56.4 59.2	9 26.9 + 57.0 59.5	10 27.0 + 57.6 60.1	11 27.7 + 58.0 60.1	12 27.7 + 58.0 60.1	13 27.7 + 58.0 60.1	14 27.7 + 58.0 60.1	15 27.7 + 58.0 60.1	16 27.7 + 58.0 60.1	17 27.7 + 58.0 60.1	18 27.7 + 58.0 60.1	19 27.7 + 58.0 60.1	20 27.7 + 58.0 60.1	21 27.7 + 58.0 60.1	22 27.7 + 58.0 60.1	23 27.7 + 58.0 60.1	24 27.7 + 58.0 60.1	25 27.7 + 58.0 60.1	26 27.7 + 58.0 60.1	27 27.7 + 58.0 60.1	28 27.7 + 58.0 60.1	29 27.7 + 58.0 60.1	30 27.7 + 58.0 60.1	31 27.7 + 58.0 60.1	32 27.7 + 58.0 60.1
5 10.6 + 53.5 58.0	6 14.1 + 54.3 58.2	7 17.2 + 55.0 58.4	8 19.9 + 55.7 58.6	9 22.2 + 56.4 58.9	10 23.9 + 57.0 59.2	11 25.2 + 57.5 59.5	12 25.7 + 57.5 59.5	13 25.7 + 57.5 59.5	14 25.7 + 57.5 59.5	15 25.7 + 57.5 59.5	16 25.7 + 57.5 59.5	17 25.7 + 57.5 59.5	18 25.7 + 57.5 59.5	19 25.7 + 57.5 59.5	20 25.7 + 57.5 59.5	21 25.7 + 57.5 59.5	22 25.7 + 57.5 59.5	23 25.7 + 57.5 59.5	24 25.7 + 57.5 59.5	25 25.7 + 57.5 59.5	26 25.7 + 57.5 59.5	27 25.7 + 57.5 59.5	28 25.7 + 57.5 59.5	29 25.7 + 57.5 59.5	30 25.7 + 57.5 59.5	31 25.7 + 57.5 59.5	32 25.7 + 57.5 59.5	33 25.7 + 57.5 59.5
6 04.1 + 53.6 57.5	7 08.4 + 54.3 57.7	8 12.2 + 55.1 58.0	9 15.6 + 55.8 58.2	10 18.6 + 56.3 58.5	11 20.9 + 57.0 59.2	12 22.7 + 57.5 59.5	13 23.8 + 58.0 59.6	14 24.1 + 58.0 59.6	15 24.1 + 58.0 59.6	16 24.1 + 58.0 59.6	17 24.1 + 58.0 59.6	18 24.1 + 58.0 59.6	19 24.1 + 58.0 59.6	20 24.1 + 58.0 59.6	21 24.1 + 58.0 59.6	22 24.1 + 58.0 59.6	23 24.1 + 58.0 59.6	24 24.1 + 58.0 59.6	25 24.1 + 58.0 59.6	26 24.1 + 58.0 59.6	27 24.1 + 58.0 59.6	28 24.1 + 58.0 59.6	29 24.1 + 58.0 59.6	30 24.1 + 58.0 59.6	31 24.1 + 58.0 59.6	32 24.1 + 58.0 59.6	33 24.1 + 58.0 59.6	34 24.1 + 58.0 59.6
6 57.7 + 53.4 57.1	8 02.7 + 54.2 57.3	9 07.3 + 55.0 57.6	10 11.4 + 55.7 57.9	11 14.9 + 56.4 58.2	12 17.9 + 56.9 58.5	13 20.2 + 57.5 58.9	14 21.8 + 58.0 59.3	15 22.7 + 58.0 59.6	16 23.1 + 58.0 59.6	17 23.1 + 58.0 59.6	18 23.1 + 58.0 59.6	19 23.1 + 58.0 59.6	20 23.1 + 58.0 59.6	21 23.1 + 58.0 59.6	22 23.1 + 58.0 59.6	23 23.1 + 58.0 59.6	24 23.1 + 58.0 59.6	25 23.1 + 58.0 59.6	26 23.1 + 58.0 59.6									

Table with columns for Dec., 76°, 78°, 80°, 82°, 84°, 86°, 88°, 90°. Each column contains three sub-columns (Hc, d, Z) and rows of numerical data.

LATITUDE CONTRARY NAME

L.H.A. 64°, 296°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
6 05.3	-58.6	115.3	5 13.8	-59.0	115.5	4 21.9	-59.2	115.7	3 29.9	-59.6	115.8	2 37.6	-59.8	115.9	1 45.1	-59.8	115.9	0 52.6	-60.0	116.0	0 00.0	+60.0	64.0	0		
5 06.7	-58.5	115.5	4 14.8	-58.9	115.7	3 22.7	-59.3	115.8	2 30.3	-59.5	115.9	1 37.8	-59.7	116.0	0 45.3	-59.9	116.0	0 07.4	+59.9	64.0	1 00.0	+60.0	64.0	1		
4 08.2	-58.6	115.8	3 15.9	-59.0	115.9	2 23.4	-59.2	116.0	1 30.8	-59.5	116.0	0 38.1	-59.7	116.1	0 14.6	+59.9	63.9	1 07.3	+60.0	64.0	2 00.0	+60.0	64.0	2		
3 09.6	-58.6	116.0	2 16.9	-58.9	116.1	1 24.2	-59.3	116.1	0 31.3	-59.5	116.2	0 21.6	+59.8	63.8	1 14.5	+59.9	63.9	2 07.3	+60.0	63.9	3 00.0	+60.0	64.0	3		
2 11.0	-58.5	116.2	1 18.0	-58.9	116.3	0 24.9	-59.3	116.3	0 28.2	+59.6	63.7	1 21.4	+59.7	63.7	2 14.4	+59.9	63.8	3 07.3	+60.0	63.9	4 00.0	+60.0	64.0	4		
1 12.5	-58.6	116.4	0 19.1	-59.0	116.4	0 34.4	+59.2	63.6	1 27.8	+59.5	63.6	2 21.1	+59.7	63.7	3 14.3	+59.9	63.7	4 07.3	+59.9	63.9	5 00.0	+60.0	64.0	5		
0 13.9	-58.6	116.6	0 39.9	+58.9	63.4	1 33.6	+59.3	63.4	2 27.3	+59.5	63.5	3 20.8	+59.8	63.6	4 14.2	+59.8	63.7	5 07.2	+60.0	63.8	6 00.0	+60.0	64.0	6		
0 44.7	+58.5	63.1	1 38.8	+59.0	63.2	2 32.9	+59.3	63.2	3 26.8	+59.6	63.3	4 20.6	+59.7	63.5	5 14.0	+59.9	63.6	6 07.2	+60.0	63.8	7 00.0	+60.0	64.0	7		
1 43.2	+58.6	62.9	2 37.8	+58.9	63.0	3 32.2	+59.2	63.1	4 26.4	+59.5	63.2	5 20.3	+59.7	63.4	6 13.9	+59.9	63.6	7 07.2	+59.9	63.8	8 00.0	+60.0	64.0	8		
2 41.8	+58.5	62.7	3 36.7	+58.9	62.8	4 31.4	+59.3	62.9	5 25.9	+59.5	63.1	6 20.0	+59.8	63.3	7 13.8	+59.9	63.5	8 07.1	+60.0	63.7	9 00.0	+60.0	64.0	9		
3 40.3	+58.6	62.5	4 35.6	+59.0	62.6	5 30.7	+59.2	62.8	6 25.4	+59.5	63.0	7 19.8	+59.7	63.2	8 13.7	+59.9	63.4	9 07.1	+60.0	63.7	10 00.0	+60.0	64.0	10		
4 38.9	+58.5	62.3	5 34.6	+58.9	62.4	6 29.9	+59.3	62.6	7 24.9	+59.5	62.8	8 19.5	+59.7	63.1	9 13.6	+59.8	63.4	10 07.1	+59.9	63.7	11 00.0	+60.0	64.0	11		
5 37.4	+58.6	62.1	6 33.5	+58.9	62.2	7 29.2	+59.2	62.5	8 24.4	+59.6	62.7	9 19.2	+59.7	63.0	10 13.4	+59.9	63.3	11 07.0	+60.0	63.6	12 00.0	+60.0	64.0	12		
6 36.0	+58.5	61.8	7 32.4	+59.0	62.1	8 28.4	+59.3	62.3	9 24.0	+59.5	62.5	10 18.9	+59.8	62.9	11 13.3	+59.9	63.2	12 07.0	+60.0	63.6	13 00.0	+60.0	64.0	13		
7 34.5	+58.6	61.6	8 31.4	+58.9	61.9	9 27.7	+59.2	62.1	10 23.5	+59.5	62.6	11 18.7	+59.7	62.8	12 13.2	+59.9	63.2	13 07.0	+60.0	63.6	14 00.0	+60.0	64.0	14		
8 33.1	+58.5	61.4	9 30.3	+58.9	61.7	10 26.9	+59.3	62.0	11 23.0	+59.5	62.3	12 18.4	+59.7	62.7	13 13.1	+59.8	63.1	14 07.0	+59.9	63.5	15 00.0	+60.0	64.0	15		
9 31.6	+58.5	61.2	10 29.2	+58.9	61.5	11 26.2	+59.2	61.8	12 22.5	+59.5	62.2	13 18.1	+59.7	62.6	14 12.9	+59.9	63.0	15 06.9	+60.0	63.5	16 00.0	+60.0	64.0	16		
10 30.1	+58.5	60.9	11 28.1	+58.9	61.3	12 25.4	+59.2	61.7	13 22.0	+59.5	62.1	14 17.8	+59.7	62.5	15 12.8	+59.9	63.0	16 06.9	+60.0	63.5	17 00.0	+60.0	64.0	17		
11 28.6	+58.5	60.7	12 27.0	+58.9	61.1	13 24.6	+59.2	61.5	14 21.5	+59.5	61.9	15 17.5	+59.8	62.4	16 12.7	+59.9	62.9	17 06.9	+59.9	63.4	18 00.0	+60.0	64.0	18		
12 27.1	+58.5	60.5	13 25.9	+58.8	60.9	14 23.8	+59.3	61.3	15 21.0	+59.5	61.8	16 17.3	+59.8	62.3	17 12.6	+59.8	62.8	18 06.8	+60.0	63.4	19 00.0	+60.0	64.0	19		
13 25.6	+58.5	60.3	14 24.7	+58.9	60.7	15 23.1	+59.2	61.2	16 20.5	+59.5	61.7	17 17.0	+59.7	62.2	18 12.4	+59.9	62.8	19 06.8	+60.0	63.4	20 00.0	+60.0	64.0	20		
14 24.1	+58.5	60.0	15 23.6	+58.9	60.5	16 22.3	+59.2	61.0	17 20.0	+59.5	61.5	18 16.7	+59.7	62.1	19 12.3	+59.9	62.7	20 06.8	+59.9	63.3	21 00.0	+60.0	64.0	21		
15 22.6	+58.4	59.8	16 22.5	+58.8	60.3	17 21.5	+59.1	60.8	18 19.5	+59.4	61.4	19 16.4	+59.7	62.0	20 12.2	+59.8	62.6	21 06.7	+60.0	63.3	22 00.0	+60.0	64.0	22		
16 21.0	+58.4	59.6	17 21.3	+58.8	60.1	18 20.6	+59.2	60.6	19 18.9	+59.5	61.2	20 16.1	+59.7	61.9	21 12.0	+59.9	62.5	22 06.7	+60.0	63.3	23 00.0	+60.0	64.0	23		
17 19.4	+58.4	59.3	18 20.1	+58.9	59.9	19 19.8	+59.2	60.5	20 18.4	+59.5	61.0	21 15.8	+59.7	61.8	22 11.9	+59.8	62.5	23 06.7	+59.9	63.2	24 00.0	+60.0	64.0	24		
18 17.8	+58.4	59.1	19 19.0	+58.8	59.7	20 19.0	+59.2	60.3	21 17.9	+59.4	61.0	22 15.5	+59.7	61.7	23 11.7	+59.9	62.4	24 06.6	+60.0	63.2	25 00.0	+60.0	64.0	25		
19 16.2	+58.4	58.8	20 17.8	+58.8	59.5	21 18.2	+59.1	60.1	22 17.3	+59.5	60.8	23 15.2	+59.6	61.6	24 11.6	+59.9	62.3	25 06.6	+59.9	63.1	26 00.0	+60.0	64.0	26		
20 14.6	+58.4	58.6	21 16.6	+58.7	59.2	22 17.3	+59.1	59.9	23 16.8	+59.4	60.7	24 14.8	+59.7	61.4	25 11.5	+59.8	62.3	26 06.5	+60.0	63.1	27 00.0	+60.0	64.0	27		
21 13.0	+58.3	58.4	22 15.3	+58.8	59.0	23 16.4	+59.2	59.8	24 16.2	+59.4	60.5	25 14.5	+59.7	61.3	26 11.3	+59.9	62.2	27 06.5	+60.0	63.1	28 00.0	+60.0	64.0	28		
22 11.3	+58.3	58.1	23 14.1	+58.7	58.8	24 15.6	+59.1	59.6	25 15.6	+59.4	60.4	26 14.2	+59.7	61.2	27 11.2	+59.8	62.1	28 06.5	+59.9	63.0	29 00.0	+60.0	64.0	29		
23 09.6	+58.3	57.8	24 12.8	+58.7	58.6	25 14.7	+59.1	59.4	26 15.0	+59.4	60.2	27 13.9	+59.6	61.1	28 11.0	+59.9	62.0	29 06.4	+60.0	63.0	30 00.0	+60.0	64.0	30		
24 07.9	+58.3	57.6	25 11.5	+58.7	58.4	26 13.8	+59.0	59.2	27 14.4	+59.4	60.1	28 13.5	+59.7	61.0	29 10.9	+59.8	61.9	30 06.4	+60.0	62.9	31 00.0	+60.0	64.0	31		
25 06.2	+58.2	57.3	26 10.2	+58.7	58.1	27 12.8	+59.1	59.0	28 13.8	+59.4	59.9	29 13.2	+59.6	60.9	30 10.7	+59.9	61.9	31 06.4	+59.9	62.9	32 00.0	+60.0	64.0	32		
26 04.4	+58.2	57.1	27 08.9	+58.7	57.9	28 11.9	+59.0	58.8	29 13.2	+59.4	59.7	30 12.8	+59.7	60.7	31 10.6	+59.8	61.8	32 06.3	+60.0	62.9	33 00.0	+60.0	64.0	33		
27 02.6	+58.2	56.8	28 07.6	+58.6	57.7	29 10.9	+59.1	58.6	30 12.6	+59.4	59.6	31 12.5	+59.6	60.6	32 10.4	+59.8	61.7	33 06.3	+59.9	62.8	34 00.0	+60.0	64.0	34		
28 00.8	+58.1	56.5	29 06.2	+58.6	57.4	30 10.0	+59.0	58.4	31 12.0	+59.3	59.4	32 12.1	+59.6	60.5	33 10.2	+59.9	61.6	34 06.2	+60.0	62.8	35 00.0	+60.0	64.0	35		
28 58.9	+58.1	56.2	30 04.8	+58.6	57.2	31 09.0	+58.9	58.2	32 11.3	+59.3	59.2	33 11.7	+59.6	60.3	34 10.1	+59.8	61.5	35 06.2	+59.9	62.7	36 00.0	+60.0	64.0	36		
29 57.0	+58.1	55.9	30 03.4	+58.5	56.9	32 07.9	+59.0	58.0	33 10.6	+59.4	59.1	34 11.3	+59.6	60.2	35 09.9	+59.8	61.4	36 06.1	+60.0	62.7	37 00.0	+60.0	64.0	37		
30 55.1	+58.0	55.6	32 01.9	+58.5	56.7	33 06.9	+58.9	57.7	34 10.0	+59.3	58.9	35 10.9	+59.6	60.1	36 09.7	+59.8	61.3	37 06.1	+60.0	62.6	38 00.0	+60.0	64.0	38		
31 53.1	+58.0	55.3	33 00.4	+58.5	56.4	34 05.8	+59.0	57.5	35 09.3	+59.3	58.7	36 10.5	+59.6	59.9	37 09.5	+59.8	61.2	38 06.1	+60.0	62.6	39 00.0	+60.0	64.0	39		
32 51.1	+57.9	55.0	33 58.9	+58.4	56.1	35 04.8	+58.8	57.3	36 08.6	+59.2	58.5	37 10.1	+59.6	59.8	38 09.3	+59.8	61.1	39 06.0	+60.0	62.5	40 00.0	+60.0	64.0	40		
33 49.0	+57.9	54.7	34 57.3	+58.4	55.9	36 03.6	+58.9	57.0	37 07.8	+59.3	58.3	38 09.7	+59.6	59.6	39 09.1	+59.8	61.0	40 06.0	+59.9	62.5	41 00.0	+60.0	64.0	41		
34 46.9	+57.8	54.4	35 55.7	+58.4	55.6	37 02.5	+58.8	56.8	38 07.1	+59.2	58.1	39 09.3	+59.5	59.5	40 08.9	+59.8	60.9	41 05.9	+59.9	62.4	42 00.0	+60.0	64.0	42		
35 44.7	+57.8	54.1	36 54.1	+58.3	55.3	38 01.3	+58.8	56.6	39 06.3	+59.2	57.9	40 08.8	+59.6	59.3	41 08.7	+59.8	60.8	42 05.8	+60.0	62.4	43 00.0	+60.0	64.0	43		
36 42.5	+57.7	53.8	37 52.4	+58.3	55.0	39 00.1	+58.8	56.3	40 05.5	+59.2	57.7	41 08.4	+59.5	59.1	42 08.5	+59.8	60.7	43 05.8	+59.9	62.3	44 00.0	+60.0	64.0	44		
37 40.2	+57.7	53.4	38 50.7	+58.2	54.7	39 58.9	+58.7	56.0	41 04.7	+59.1	57.5	42 07.9	+59.5	59.0	43 08.3	+59.8	60.6	44 05.7	+60.0	62.2	45 00.0	+60.0	64.0	45		
38 37.9	+57.6	53.1	39 48.9	+58.2	54.4	40 57.6	+58.7	55.8	42 03.8	+59.2	57.2	43 07.4	+59.5	58.8	44 08.1	+59.7	60.5	45 05.7	+59.9	62.2	46 00.0	+60.0	64.0	46		
39 35.5	+57.5	52.7	40 47.1	+58.1	54.1	41 56.3	+58.6	55.5	43 03.0	+59.1	57.0	44 06.9	+59.5	58.6	45 08.1	+59.8	60.3	46 05.								

Table with columns for Dec., 60°, 62°, 64°, 66°, 68°, 70°, 72°, 74°. Each column contains three sub-columns (Hc, d, Z) and rows of numerical data.

LATITUDE CONTRARY NAME

L.H.A. 66°, 294°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
11 44.0 -53.1 111.1			11 00.5 -54.0 111.5			10 16.3 -54.9 111.8			9 31.3 -55.5 112.1			8 45.8 -56.3 112.4			7 59.8 -57.0 112.7			7 13.2 -57.5 112.9			6 26.2 -58.0 113.2			0
10 50.9 -53.1 111.6			10 06.5 -54.0 111.9			9 21.4 -54.8 112.2			8 35.8 -55.7 112.5			7 49.5 -56.3 112.8			7 02.8 -56.9 113.0			6 15.7 -57.5 113.2			5 28.2 -58.1 113.4			1
9 57.8 -53.2 112.0			9 12.5 -54.1 112.3			8 26.6 -54.9 112.6			7 40.1 -55.6 112.9			6 53.2 -56.3 113.1			6 05.9 -57.0 113.3			5 18.2 -57.6 113.5			4 30.1 -58.0 113.7			2
9 04.6 -53.2 112.5			8 18.4 -54.1 112.8			7 31.7 -54.9 113.0			6 44.5 -55.6 113.3			5 56.9 -56.3 113.5			5 08.9 -57.0 113.7			4 20.6 -57.5 113.8			3 32.1 -58.1 113.9			3
8 11.4 -53.2 113.0			7 24.3 -54.1 113.2			6 36.8 -54.9 113.4			5 48.9 -55.7 113.6			5 00.6 -56.4 113.8			4 11.9 -56.9 114.0			3 23.1 -57.6 114.1			2 34.0 -58.1 114.2			4
7 18.2 -53.3 113.4			6 30.2 -54.1 113.7			5 41.9 -54.9 113.9			4 53.2 -55.7 114.0			4 04.2 -56.4 114.2			3 15.0 -57.0 114.3			2 25.5 -57.5 114.4			1 35.9 -58.0 114.4			5
6 24.9 -53.3 113.9			5 36.1 -54.2 114.1			4 47.0 -55.0 114.3			3 57.5 -55.7 114.4			3 07.8 -56.3 114.5			2 18.0 -57.0 114.6			1 28.0 -57.6 114.7			0 37.9 -58.1 114.7			6
5 31.6 -53.3 114.4			4 41.9 -54.1 114.5			3 52.0 -55.0 114.7			3 01.8 -55.7 114.8			2 11.5 -56.4 114.9			1 21.0 -57.0 114.9			0 30.4 -57.5 114.9			0 20.2 -58.1 65.1			7
4 38.3 -53.4 114.8			3 47.8 -54.2 115.0			2 57.0 -54.9 115.1			2 06.1 -55.7 115.1			1 15.1 -56.4 115.2			0 24.0 -57.0 115.2			0 27.1 -57.6 64.8			1 18.3 -58.0 64.8			8
3 44.9 -53.3 115.3			2 53.6 -54.2 115.4			2 02.1 -55.0 115.5			1 10.4 -55.7 115.5			0 18.7 -56.4 115.5			0 33.0 -57.0 64.5			1 24.7 -57.6 64.5			2 16.3 -58.1 64.6			9
2 51.6 -53.4 115.7			1 59.4 -54.2 115.8			1 07.1 -55.0 115.9			0 14.7 -55.7 115.9			0 37.7 -56.3 64.1			1 30.0 -57.0 64.2			2 22.3 -57.5 64.2			3 14.4 -58.0 64.3			10
1 58.2 -53.3 116.2			1 05.2 -54.2 116.2			0 12.1 -55.0 116.3			0 41.0 -55.7 63.7			1 34.0 -56.4 63.8			2 27.0 -57.0 63.8			3 19.8 -57.6 63.9			4 12.4 -58.1 64.1			11
1 04.9 -53.4 116.7			0 11.0 -54.2 116.7			0 42.9 -54.9 63.3			1 36.7 -55.7 63.4			2 30.4 -56.4 63.4			3 24.0 -57.0 63.5			4 17.4 -57.5 63.6			5 10.5 -58.0 63.8			12
0 11.5 -53.4 117.1			0 43.2 -54.2 62.9			1 37.8 -55.0 62.9			2 32.4 -55.7 63.0			3 26.8 -56.3 63.1			4 21.0 -56.9 63.2			5 14.9 -57.5 63.4			6 08.5 -58.1 63.5			13
0 41.9 -53.4 62.4			1 37.4 -54.2 62.5			2 32.8 -55.0 62.5			3 28.1 -55.6 62.6			4 23.1 -56.4 62.7			5 17.9 -57.0 62.9			6 12.4 -57.6 63.1			7 06.6 -58.0 63.3			14
1 35.3 -53.3 62.0			2 31.6 -54.2 62.0			3 27.8 -54.9 62.1			4 23.7 -55.7 62.3			5 19.5 -56.3 62.4			6 14.9 -57.0 62.6			7 10.0 -57.5 62.8			8 04.6 -58.0 63.0			15
2 28.6 -53.4 61.5			3 25.8 -54.1 61.6			4 22.7 -55.0 61.6			5 19.4 -55.7 61.9			6 15.8 -56.3 62.1			7 11.9 -56.9 62.3			8 07.5 -57.5 62.5			9 02.6 -58.0 62.8			16
3 22.0 -53.3 61.1			4 19.9 -54.2 61.2			5 17.7 -54.9 61.3			6 15.1 -55.6 61.5			7 12.1 -56.3 61.7			8 08.8 -56.9 61.9			9 05.0 -57.5 62.2			10 00.6 -58.0 62.5			17
4 15.3 -53.3 60.6			5 14.1 -54.1 60.7			6 12.6 -54.9 60.9			7 10.7 -55.6 61.1			8 08.4 -56.3 61.4			9 05.7 -56.9 61.6			10 02.5 -57.4 61.9			10 58.6 -58.0 62.3			18
5 08.6 -53.4 60.1			6 08.2 -54.2 60.3			7 07.5 -54.9 60.5			8 06.3 -55.6 60.7			9 04.7 -56.3 61.0			10 02.6 -56.9 61.3			10 59.9 -57.5 61.6			11 56.6 -58.0 62.0			19
6 02.0 -53.2 59.7			7 02.4 -54.1 59.9			8 02.4 -54.8 60.1			9 01.9 -55.6 60.4			10 01.0 -56.3 60.7			10 59.5 -56.9 61.0			11 57.4 -57.4 61.3			12 54.6 -58.0 61.7			20
6 55.2 -53.3 59.2			7 55.2 -54.0 59.4			8 57.2 -54.9 59.7			9 57.5 -55.6 60.0			10 57.3 -56.2 60.3			11 56.4 -56.8 60.7			12 54.8 -57.5 61.0			13 52.6 -57.9 61.5			21
7 48.5 -53.2 58.8			8 50.5 -54.1 59.0			9 52.1 -54.8 59.3			10 53.1 -55.5 59.6			11 53.5 -56.2 60.0			12 53.2 -56.9 60.3			13 52.3 -57.4 60.7			14 50.5 -57.9 61.2			22
8 41.7 -53.2 58.3			9 44.6 -54.0 58.6			10 46.9 -54.7 58.9			11 48.6 -55.5 59.2			12 49.7 -56.2 59.6			13 50.1 -56.7 60.0			14 49.7 -57.3 60.4			15 48.4 -57.9 60.9			23
9 34.9 -53.2 57.8			10 38.5 -53.9 58.1			11 41.6 -54.8 58.5			12 44.1 -55.6 58.8			13 45.9 -56.1 59.2			14 46.8 -56.8 59.7			15 47.0 -57.4 60.1			16 46.3 -57.9 60.7			24
10 28.1 -53.1 57.3			11 32.5 -54.0 57.7			12 36.4 -54.7 58.0			13 39.6 -55.4 58.4			14 42.0 -56.1 58.9			15 43.6 -56.8 59.3			16 44.4 -57.3 59.8			17 44.2 -57.8 60.4			25
11 21.2 -53.1 56.9			12 26.5 -53.8 57.2			13 31.1 -54.6 57.6			14 35.0 -55.4 58.0			15 38.1 -56.1 58.5			16 40.4 -56.7 59.0			17 41.7 -57.3 59.5			18 42.0 -57.9 60.1			26
12 14.3 -53.0 56.4			13 20.3 -53.9 56.8			14 25.7 -54.6 57.2			15 30.4 -55.3 57.6			16 34.2 -56.0 58.1			17 37.1 -56.6 58.7			18 39.0 -57.2 59.2			19 39.9 -57.8 59.8			27
13 07.3 -52.9 55.9			14 14.2 -53.7 56.3			15 20.3 -54.6 56.8			16 25.7 -55.3 57.2			17 30.2 -56.0 57.8			18 33.7 -56.6 58.3			19 36.2 -57.3 58.9			20 37.7 -57.7 59.5			28
14 00.2 -52.9 55.4			15 17.9 -53.5 55.9			16 14.9 -54.5 56.3			17 21.0 -55.2 56.8			18 26.2 -55.9 57.4			19 30.3 -56.6 58.0			20 33.5 -57.2 58.6			21 35.4 -57.8 59.2			29
14 53.1 -52.9 54.9			16 01.7 -53.6 55.4			17 09.4 -54.4 55.9			18 16.2 -55.2 56.4			19 22.1 -55.9 57.0			20 26.9 -56.6 57.6			21 30.7 -57.1 58.3			22 33.2 -57.7 58.9			30
15 46.0 -52.8 54.5			16 55.3 -53.6 54.9			18 03.8 -54.4 55.5			19 11.4 -55.1 56.0			20 18.0 -55.8 56.6			21 23.5 -56.5 57.2			22 27.8 -57.1 57.9			23 30.9 -57.7 58.6			31
16 38.8 -52.7 54.0			17 48.9 -53.6 54.5			18 58.2 -54.3 55.0			20 06.5 -55.1 55.6			21 13.8 -55.8 56.2			22 20.0 -56.4 56.9			23 24.9 -57.1 57.6			24 28.6 -57.6 58.3			32
17 31.5 -52.6 53.5			18 42.5 -53.4 54.0			19 52.5 -54.3 54.6			21 01.6 -55.0 55.2			22 09.6 -55.7 55.8			23 16.4 -56.4 56.5			24 22.0 -57.0 57.3			25 26.2 -57.6 58.0			33
18 24.1 -52.5 53.0			19 35.9 -53.3 53.5			20 46.8 -54.2 54.1			21 56.6 -55.0 54.7			23 05.3 -55.7 55.4			24 12.8 -56.4 56.1			25 19.0 -57.0 56.9			26 23.8 -57.6 57.7			34
19 16.6 -52.5 52.4			20 29.3 -53.3 53.0			21 41.0 -54.1 53.6			22 51.6 -54.8 54.3			24 01.0 -55.6 55.0			25 09.2 -56.2 55.8			26 16.0 -56.9 56.6			27 21.4 -57.5 57.4			35
20 09.1 -52.4 51.9			21 22.6 -53.2 52.5			22 35.1 -54.0 53.2			23 46.4 -54.8 53.9			24 56.6 -55.5 54.6			26 05.4 -56.3 55.4			27 12.9 -56.9 56.2			28 19.8 -57.5 57.1			36
21 01.5 -52.3 51.4			22 15.8 -53.1 52.0			23 29.1 -53.9 52.7			24 41.2 -54.7 53.4			25 52.1 -55.4 54.2			27 01.7 -56.1 55.0			28 09.8 -56.8 55.8			29 16.4 -57.4 56.8			37
21 53.8 -52.1 50.9			23 08.9 -53.1 51.5			24 23.0 -53.9 52.2			25 35.9 -54.7 53.0			26 47.6 -55.3 53.8			27 57.8 -56.1 54.6			29 06.6 -56.7 55.5			30 13.8 -57.3 56.4			38
22 45.9 -52.1 50.3			24 02.0 -52.9 51.0			25 16.9 -53.7 51.7			26 30.6 -54.5 52.5			27 42.9 -55.3 53.3			28 53.9 -56.0 54.2			30 03.3 -56.7 55.1			31 11.1 -57.4 56.1			39
23 38.0 -51.9 49.8			24 54.9 -52.8 50.5			26 10.6 -53.7 51.2			27 25.1 -54.4 52.0			28 38.2 -55.2 52.9			29 49.9 -55.9 53.8			31 00.0 -56.6 54.7			32 08.5 -57.2 55.7			40
24 29.9 -51.9 49.3			25 47.7 -52.7 50.0			27 04.3 -53.5 50.7			28 19.5 -54.4 51.6			29 33.4 -55.2 52.4			30 45.8 -55.9 53.4			31 56.6 -56.6 54.3			33 05.7 -57.2 55.4			41
25 21.8 -51.7 48.7			26 40.4 -52.6 49.4			27 57.8 -53.4 50.2			29 13.9 -54.2 51.1			30 28.6 -55.0 52.0			31 41.7 -55.8 52.9			32 53.2 -56.5 53.9			34 02.9 -57.1 55.0			42
26 13.5 -51.6 48.1			27 33.0 -52.4 48.9			28 51.2 -53.3 49.7			30 08.1 -54.1 50.6			31 23.6 -54.9 51.5			32 37.5 -55.6 52.5			33 49.7 -56.3 53.5			35 00.0 -57.1 54.7			43
27 05.1 -51.4 47.6			28 25.4 -52.3 48.4			29 44.5 -53.2 49.2			31 02.2 -54.1 50.1			32 18.5 -54.8 51.0			33 32.1 -55.6 52.0			34 46.0 -56.3 53.1			35 57.1 -57.0 54.3			44
27 56.5 -51.3 47.0			29 17.7 -52.2 47.8			30 37.7 -53.0 48.7			31 56.3 -53.8 49.6			33 13.3 -54.7 50.6			34 28.7 -55.5 51.6			35 42.3 -56.3 52.7			36 54.1 -56.9 53.9			45
28 47.8 -51.1 46.4			30 09.9 -52.0 47.2			31 30.7 -52.9 48.1			32 50.1 -53.8 49.0			34 08.0 -54.6 50.1			35 24.2 -55.3 51.1			36 38.6 -56.1 52.3			37 51.0 -56.8 53.5			46
29 38.9 -51.0 45.8			31 01.9 -51.9 46.6			32 23.6 -52.8 47.5			33 43.9 -53.6 48.5			35 02.6 -54.4 49.6			36 19.5 -55.3 50.7			37 34.7 -56.0 51.8			38 47.8 -56.			

Table with columns for Dec. (0-90) and latitude (76-90). Each cell contains three values (Hc, d, Z) for a specific latitude. The table is organized into a grid with 91 rows and 9 columns of data.

LATITUDE CONTRARY NAME

L.H.A. 66°, 294°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
5 38.8 - 58.5 113.4	4 40.3 - 58.5 113.6	3 41.8 - 58.5 113.8	2 43.3 - 58.5 114.0	1 44.8 - 58.5 114.3	0 46.3 - 58.6 114.5	4 51.1 - 58.9 113.5	3 52.2 - 58.9 113.7	2 53.3 - 58.9 113.9	1 54.4 - 59.0 114.1	0 55.4 - 58.9 114.3	4 03.0 - 59.2 113.7	3 03.8 - 59.3 113.8	2 04.5 - 59.2 114.0	1 05.3 - 59.2 114.2	0 06.1 - 59.3 114.3	3 14.7 - 59.5 113.8	2 15.2 - 59.5 113.9	1 15.7 - 59.5 114.0	0 16.2 - 59.5 114.2	2 26.2 - 59.7 113.9	1 26.5 - 59.7 114.0	0 26.8 - 59.8 114.1	1 27.1 - 59.8 114.2	0 27.4 - 59.8 114.3	0 27.7 - 59.8 114.4	0 28.0 - 59.8 114.5	0 28.3 - 59.8 114.6	0 28.6 - 59.8 114.7	0 28.9 - 59.8 114.8	0 29.2 - 59.8 114.9	0 29.5 - 59.8 115.0	0 29.8 - 59.8 115.1	0 30.1 - 59.8 115.2	0 30.4 - 59.8 115.3	0 30.7 - 59.8 115.4	0 31.0 - 59.8 115.5	0 31.3 - 59.8 115.6	0 31.6 - 59.8 115.7	0 31.9 - 59.8 115.8	0 32.2 - 59.8 115.9	0 32.5 - 59.8 116.0	0 32.8 - 59.8 116.1	0 33.1 - 59.8 116.2	0 33.4 - 59.8 116.3	0 33.7 - 59.8 116.4	0 34.0 - 59.8 116.5	0 34.3 - 59.8 116.6	0 34.6 - 59.8 116.7	0 34.9 - 59.8 116.8	0 35.2 - 59.8 116.9	0 35.5 - 59.8 117.0	0 35.8 - 59.8 117.1	0 36.1 - 59.8 117.2	0 36.4 - 59.8 117.3	0 36.7 - 59.8 117.4	0 37.0 - 59.8 117.5	0 37.3 - 59.8 117.6	0 37.6 - 59.8 117.7	0 37.9 - 59.8 117.8	0 38.2 - 59.8 117.9	0 38.5 - 59.8 118.0	0 38.8 - 59.8 118.1	0 39.1 - 59.8 118.2	0 39.4 - 59.8 118.3	0 39.7 - 59.8 118.4	0 40.0 - 59.8 118.5	0 40.3 - 59.8 118.6	0 40.6 - 59.8 118.7	0 40.9 - 59.8 118.8	0 41.2 - 59.8 118.9	0 41.5 - 59.8 119.0	0 41.8 - 59.8 119.1	0 42.1 - 59.8 119.2	0 42.4 - 59.8 119.3	0 42.7 - 59.8 119.4	0 43.0 - 59.8 119.5	0 43.3 - 59.8 119.6	0 43.6 - 59.8 119.7	0 43.9 - 59.8 119.8	0 44.2 - 59.8 119.9	0 44.5 - 59.8 120.0	0 44.8 - 59.8 120.1	0 45.1 - 59.8 120.2	0 45.4 - 59.8 120.3	0 45.7 - 59.8 120.4	0 46.0 - 59.8 120.5	0 46.3 - 59.8 120.6	0 46.6 - 59.8 120.7	0 46.9 - 59.8 120.8	0 47.2 - 59.8 120.9	0 47.5 - 59.8 121.0	0 47.8 - 59.8 121.1	0 48.1 - 59.8 121.2	0 48.4 - 59.8 121.3	0 48.7 - 59.8 121.4	0 49.0 - 59.8 121.5	0 49.3 - 59.8 121.6	0 49.6 - 59.8 121.7	0 49.9 - 59.8 121.8	0 50.2 - 59.8 121.9	0 50.5 - 59.8 122.0	0 50.8 - 59.8 122.1	0 51.1 - 59.8 122.2	0 51.4 - 59.8 122.3	0 51.7 - 59.8 122.4	0 52.0 - 59.8 122.5	0 52.3 - 59.8 122.6	0 52.6 - 59.8 122.7	0 52.9 - 59.8 122.8	0 53.2 - 59.8 122.9	0 53.5 - 59.8 123.0	0 53.8 - 59.8 123.1	0 54.1 - 59.8 123.2	0 54.4 - 59.8 123.3	0 54.7 - 59.8 123.4	0 55.0 - 59.8 123.5	0 55.3 - 59.8 123.6	0 55.6 - 59.8 123.7	0 55.9 - 59.8 123.8	0 56.2 - 59.8 123.9	0 56.5 - 59.8 124.0	0 56.8 - 59.8 124.1	0 57.1 - 59.8 124.2	0 57.4 - 59.8 124.3	0 57.7 - 59.8 124.4	0 58.0 - 59.8 124.5	0 58.3 - 59.8 124.6	0 58.6 - 59.8 124.7	0 58.9 - 59.8 124.8	0 59.2 - 59.8 124.9	0 59.5 - 59.8 125.0	0 59.8 - 59.8 125.1	0 60.1 - 59.8 125.2	0 60.4 - 59.8 125.3	0 60.7 - 59.8 125.4	0 61.0 - 59.8 125.5	0 61.3 - 59.8 125.6	0 61.6 - 59.8 125.7	0 61.9 - 59.8 125.8	0 62.2 - 59.8 125.9	0 62.5 - 59.8 126.0	0 62.8 - 59.8 126.1	0 63.1 - 59.8 126.2	0 63.4 - 59.8 126.3	0 63.7 - 59.8 126.4	0 64.0 - 59.8 126.5	0 64.3 - 59.8 126.6	0 64.6 - 59.8 126.7	0 64.9 - 59.8 126.8	0 65.2 - 59.8 126.9	0 65.5 - 59.8 127.0	0 65.8 - 59.8 127.1	0 66.1 - 59.8 127.2	0 66.4 - 59.8 127.3	0 66.7 - 59.8 127.4	0 67.0 - 59.8 127.5	0 67.3 - 59.8 127.6	0 67.6 - 59.8 127.7	0 67.9 - 59.8 127.8	0 68.2 - 59.8 127.9	0 68.5 - 59.8 128.0	0 68.8 - 59.8 128.1	0 69.1 - 59.8 128.2	0 69.4 - 59.8 128.3	0 69.7 - 59.8 128.4	0 70.0 - 59.8 128.5	0 70.3 - 59.8 128.6	0 70.6 - 59.8 128.7	0 70.9 - 59.8 128.8	0 71.2 - 59.8 128.9	0 71.5 - 59.8 129.0	0 71.8 - 59.8 129.1	0 72.1 - 59.8 129.2	0 72.4 - 59.8 129.3	0 72.7 - 59.8 129.4	0 73.0 - 59.8 129.5	0 73.3 - 59.8 129.6	0 73.6 - 59.8 129.7	0 73.9 - 59.8 129.8	0 74.2 - 59.8 129.9	0 74.5 - 59.8 130.0	0 74.8 - 59.8 130.1	0 75.1 - 59.8 130.2	0 75.4 - 59.8 130.3	0 75.7 - 59.8 130.4	0 76.0 - 59.8 130.5	0 76.3 - 59.8 130.6	0 76.6 - 59.8 130.7	0 76.9 - 59.8 130.8	0 77.2 - 59.8 130.9	0 77.5 - 59.8 131.0	0 77.8 - 59.8 131.1	0 78.1 - 59.8 131.2	0 78.4 - 59.8 131.3	0 78.7 - 59.8 131.4	0 79.0 - 59.8 131.5	0 79.3 - 59.8 131.6	0 79.6 - 59.8 131.7	0 79.9 - 59.8 131.8	0 80.2 - 59.8 131.9	0 80.5 - 59.8 132.0	0 80.8 - 59.8 132.1	0 81.1 - 59.8 132.2	0 81.4 - 59.8 132.3	0 81.7 - 59.8 132.4	0 82.0 - 59.8 132.5	0 82.3 - 59.8 132.6	0 82.6 - 59.8 132.7	0 82.9 - 59.8 132.8	0 83.2 - 59.8 132.9	0 83.5 - 59.8 133.0	0 83.8 - 59.8 133.1	0 84.1 - 59.8 133.2	0 84.4 - 59.8 133.3	0 84.7 - 59.8 133.4	0 85.0 - 59.8 133.5	0 85.3 - 59.8 133.6	0 85.6 - 59.8 133.7	0 85.9 - 59.8 133.8	0 86.2 - 59.8 133.9	0 86.5 - 59.8 134.0	0 86.8 - 59.8 134.1	0 87.1 - 59.8 134.2	0 87.4 - 59.8 134.3	0 87.7 - 59.8 134.4	0 88.0 - 59.8 134.5	0 88.3 - 59.8 134.6	0 88.6 - 59.8 134.7	0 88.9 - 59.8 134.8	0 89.2 - 59.8 134.9	0 89.5 - 59.8 135.0	0 89.8 - 59.8 135.1	0 90.1 - 59.8 135.2	0 90.4 - 59.8 135.3	0 90.7 - 59.8 135.4	0 91.0 - 59.8 135.5	0 91.3 - 59.8 135.6	0 91.6 - 59.8 135.7	0 91.9 - 59.8 135.8	0 92.2 - 59.8 135.9	0 92.5 - 59.8 136.0	0 92.8 - 59.8 136.1	0 93.1 - 59.8 136.2	0 93.4 - 59.8 136.3	0 93.7 - 59.8 136.4	0 94.0 - 59.8 136.5	0 94.3 - 59.8 136.6	0 94.6 - 59.8 136.7	0 94.9 - 59.8 136.8	0 95.2 - 59.8 136.9	0 95.5 - 59.8 137.0	0 95.8 - 59.8 137.1	0 96.1 - 59.8 137.2	0 96.4 - 59.8 137.3	0 96.7 - 59.8 137.4	0 97.0 - 59.8 137.5	0 97.3 - 59.8 137.6	0 97.6 - 59.8 137.7	0 97.9 - 59.8 137.8	0 98.2 - 59.8 137.9	0 98.5 - 59.8 138.0	0 98.8 - 59.8 138.1	0 99.1 - 59.8 138.2	0 99.4 - 59.8 138.3	0 99.7 - 59.8 138.4	0 100.0 - 59.8 138.5	0 100.3 - 59.8 138.6	0 100.6 - 59.8 138.7	0 100.9 - 59.8 138.8	0 101.2 - 59.8 138.9	0 101.5 - 59.8 139.0	0 101.8 - 59.8 139.1	0 102.1 - 59.8 139.2	0 102.4 - 59.8 139.3	0 102.7 - 59.8 139.4	0 103.0 - 59.8 139.5	0 103.3 - 59.8 139.6	0 103.6 - 59.8 139.7	0 103.9 - 59.8 139.8	0 104.2 - 59.8 139.9	0 104.5 - 59.8 140.0	0 104.8 - 59.8 140.1	0 105.1 - 59.8 140.2	0 105.4 - 59.8 140.3	0 105.7 - 59.8 140.4	0 106.0 - 59.8 140.5	0 106.3 - 59.8 140.6	0 106.6 - 59.8 140.7	0 106.9 - 59.8 140.8	0 107.2 - 59.8 140.9	0 107.5 - 59.8 141.0	0 107.8 - 59.8 141.1	0 108.1 - 59.8 141.2	0 108.4 - 59.8 141.3	0 108.7 - 59.8 141.4	0 109.0 - 59.8 141.5	0 109.3 - 59.8 141.6	0 109.6 - 59.8 141.7	0 109.9 - 59.8 141.8	0 110.2 - 59.8 141.9	0 110.5 - 59.8 142.0	0 110.8 - 59.8 142.1	0 111.1 - 59.8 142.2	0 111.4 - 59.8 142.3	0 111.7 - 59.8 142.4	0 112.0 - 59.8 142.5	0 112.3 - 59.8 142.6	0 112.6 - 59.8 142.7	0 112.9 - 59.8 142.8	0 113.2 - 59.8 142.9	0 113.5 - 59.8 143.0	0 113.8 - 59.8 143.1	0 114.1 - 59.8 143.2	0 114.4 - 59.8 143.3	0 114.7 - 59.8 143.4	0 115.0 - 59.8 143.5	0 115.3 - 59.8 143.6	0 115.6 - 59.8 143.7	0 115.9 - 59.8 143.8	0 116.2 - 59.8 143.9	0 116.5 - 59.8 144.0	0 116.8 - 59.8 144.1	0 117.1 - 59.8 144.2	0 117.4 - 59.8 144.3	0 117.7 - 59.8 144.4	0 118.0 - 59.8 144.5	0 118.3 - 59.8 144.6	0 118.6 - 59.8 144.7	0 118.9 - 59.8 144.8	0 119.2 - 59.8 144.9	0 119.5 - 59.8 145.0	0 119.8 - 59.8 145.1	0 120.1 - 59.8 145.2	0 120.4 - 59.8 145.3	0 120.7 - 59.8 145.4	0 121.0 - 59.8 145.5	0 121.3 - 59.8 145.6	0 121.6 - 59.8 145.7	0 121.9 - 59.8 145.8	0 122.2 - 59.8 145.9	0 122.5 - 59.8 146.0	0 122.8 - 59.8 146.1	0 123.1 - 59.8 146.2	0 123.4 - 59.8 146.3	0 123.7 - 59.8 146.4	0 124.0 - 59.8 146.5	0 124.3 - 59.8 146.6	0 124.6 - 59.8 146.7	0 124.9 - 59.8 146.8	0 125.2 - 59.8 146.9	0 125.5 - 59.8 147.0	0 125.8 - 59.8 147.1	0 126.1 - 59.8 147.2	0 126.4 - 59.8 147.3	0 126.7 - 59.8 147.4	0 127.0 - 59.8 147.5	0 127.3 - 59.8 147.6	0 127.6 - 59.8 147.7	0 127.9 - 59.8 147.8	0 128.2 - 59.8 147.9	0 128.5 - 59.8 148.0	0 128.8 - 59.8 148.1	0 129.1 - 59.8 148.2	0 129.4 - 59.8 148.3	0 129.7 - 59.8 148.4	0 130.0 - 59.8 148.5	0 130.3 - 59.8 148.6	0 130.6 - 59.8 148.7	0 130.9 - 59.8 148.8	0 131.2 - 59.8 148.9	0 131.5 - 59.8 149.0	0 131.8 - 59.8 149.1	0 132.1 - 59.8 149.2	0 132.4 - 59.8 149.3	0 132.7 - 59.8 149.4	0 133.0 - 59.8 149.5	0 133.3 - 59.8 149.6	0 133.6 - 59.8 149.7	0 133.9 - 59.8 149.8	0 134.2 - 59.8 149.9	0 134.5 - 59.8 150.0	0 134.8 - 59.8 150.1	0 135.1 - 59.8 150.2	0 135.4 - 59.8 150.3	0 135.7 - 59.8 150.4	0 136.0 - 59.8 150.5	0 136.3 - 59.8 150.6	0 136.6 - 59.8 150.7	0 136.9 - 59.8 150.8	0 137.2 - 59.8 150.9	0 137.5 - 59.8 151.0	0 137.8 - 59.8 151.1	0 138.1 - 59.8 151.2	0 138.4 - 59.8 151.3	0 138.7 - 59.8 151.4	0 139.0 - 59.8 151.5	0 139.3 - 59.8 151.6	0 139.6 - 59.8 151.7	0 139.9 - 59.8 151.8	0 140.2 - 59.8 151.9	0 140.5 - 59.8 152.0	0 140.8 - 59.8 152.1	0 141.1 - 59.8 152.2	0 141.4 - 59.8 152.3	0 141.7 - 59.8 152.4	0 142.0 - 59.8 152.5	0 142.3 - 59.8 152.6	0 142.6 - 59.8 152.7	0 142.9 - 59.8 152.8	0 143.2 - 59.8 152.9	0 143.5 - 59.8 153.0	0 143.8 - 59.8 153.1	0 144.1 - 59.8 153.2	0 144.4 - 59.8 153.3	0 144.7 - 59.8 153.4	0 145.0 - 59.8 153.5	0 145.3 - 59.8 153.6	0 145.6 - 59.8 153.7	0 145.9 - 59.8 153.8	0 146.2 - 59.8 153.9	0 146.5 - 59.8 154.0	0 146.8 - 59.8 154.1	0 147.1 - 59.8 154.2	0 147.4 - 59.8 154.3	0 147.7 - 59.8 154.4	0 148.0 - 59.8 154.5	0 148.3 - 59.8 154.6	0 148.6 - 59.8 154.7	0 148.9 - 59.8 154.8	0 149.2 - 59.8 154.9	0 149.5 - 59.8 155.0	0 149.8 - 59.8 155.1	0 150.1 - 59.8 155.2	0 150.4 - 59.8 155.3	0 150.7 - 59.8 155.4	0 151.0 - 59.8 155.5	0 151.3 - 59.8 155.6	0 151.6 - 59.8 155.7	0 151.9 - 59.8 155.8	0 152.2 - 59.8 155.9	0 152.5 - 59.8 156.0	0 152.8 - 59.8 156.1	0 153.1 - 59.8 156.2	0 153.4 - 59.8 156.3	0 153.7 - 59.8 156.4	0 154.0 - 59.8 156.5	0 154.3 - 59.8 156.6	0 154.6 - 59.8 156.7	0 154.9 - 59.8 156.8	0 155.2 - 59.8 156.9	0 155.5 - 59.8 157.0	0 155.8 - 59.8 157.1	0 156.1 - 59.8 157.2	0 156.4 - 59.8 157.3	0 156.7 - 59.8 157.4	0 157.0 - 59.8 157.5	0 157.3 - 59.8 157.6	0 157.6 - 59.8 157.7	0 157.9 - 59.8 157.8	0 158.2 - 59.8 157.9	0 158.5 - 59.8 158.0	0 158.8 - 59.8 158.1	0 159.1 - 59.8 158.2	0 159.4 - 59.8 158.3	0 159.7 - 59.8 158.4	0 160.0 - 59.8 158.5	0 160.3 - 59.8 158.6	0 160.6 - 59.8 158.7	0 160.9 - 59.8 158.8	0 161.2 - 59.8 158.9	0 161.5 - 59.8 159.0	0 161.8 - 59.8 159.1	0 162.1 - 59.8 159.2	0 162.4 - 59.8 159.3	0 162.7 - 59.8 159.4	0 163.0 - 59.8 159.5	0 163.3 - 59.8 159.6	0 163.6 - 59.8 159.7	0 163.9 - 59.8 159.8	0 164.2 - 59.8 159.9	0 164.5 - 59.8 160.0	0 164.8 - 59.8 160.1	0 165.1 - 59.8 160.2	0 165.4 - 59.8 160.3	0 165.7 - 59.8 160.4	0 166.0 - 59.8 160.5	0 166.3 - 59.8 160.6	0 166.6 - 59.8 160.7	0 166.9 - 59.8 160.8	0 167.2 - 59.8 160.9	0 167.5 - 59.8 161.0	0 167.8 - 59.8 161.1	0 168.1 - 59.8 161.2	0 168.4 - 59.8 161.3	0 168.7 - 59.8 161.4	0 169.0 - 59.8 161.5	0 169.3 - 59.8 161.6	0 169.6 - 59.8 161.7	0 169.9 - 59.8 161.8	0 170.2 - 59.8 161.9	0 170.5 - 59.8 162.0	0 170.8 - 59.8 162.1	0 171.1 - 59.8 162.2	0 171.4 - 59.8 162.3	0 171.7 - 59.8 162.4	0 172.0 - 59.8 162.5	0 172.3 - 59.8 162.6	0 172.6 - 59.8 1

68°, 292° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	10 47.7	+52.9	109.3	10 07.7	+53.8	109.6	9 27.1	+54.7	110.0	8 45.8	+55.5	110.3	8 04.0	+56.2	110.5	7 21.7	+56.8	110.8	6 38.8	+57.5	111.0	5 55.6	+58.0	111.2
1	11 40.6	+52.8	108.8	11 01.5	+53.8	109.2	10 21.8	+54.6	109.5	9 41.3	+55.4	109.9	9 00.2	+56.2	110.2	8 18.5	+56.8	110.5	7 36.3	+57.4	110.7	6 53.6	+58.0	111.0
2	12 33.4	+52.8	108.3	11 55.3	+53.7	108.7	11 16.4	+54.6	109.1	10 36.7	+55.4	109.5	9 56.4	+56.1	109.8	9 15.3	+56.8	110.1	8 33.7	+57.4	110.4	7 51.6	+57.9	110.7
3	13 26.2	+52.7	107.8	12 49.0	+53.7	108.3	12 11.0	+54.5	108.7	11 32.1	+55.4	109.1	10 52.5	+56.1	109.5	10 12.1	+56.8	109.8	9 31.1	+57.4	110.1	8 49.5	+58.0	110.4
4	14 18.9	+52.7	107.3	13 42.7	+53.6	107.8	13 05.5	+54.5	108.3	12 27.5	+55.3	108.7	11 48.6	+56.1	109.1	11 08.9	+56.8	109.5	10 28.5	+57.4	109.8	9 47.5	+57.9	110.2
5	15 11.6	+52.6	106.8	14 36.3	+53.6	107.4	14 00.0	+54.5	107.8	13 22.8	+55.3	108.3	12 44.7	+56.0	108.7	12 05.7	+56.8	109.2	11 25.9	+57.4	109.5	10 45.4	+57.9	109.9
6	16 04.2	+52.5	106.3	15 29.9	+53.5	106.9	14 54.5	+54.4	107.4	14 18.1	+55.2	107.9	13 40.7	+56.0	108.4	13 02.5	+56.7	108.8	12 23.3	+57.4	109.3	11 43.3	+58.0	109.7
7	16 56.7	+52.4	105.8	16 23.4	+53.4	106.4	15 48.9	+54.3	107.0	15 13.3	+55.2	107.5	14 36.7	+56.0	108.0	13 59.2	+56.7	108.5	13 20.7	+57.3	108.9	12 41.3	+57.8	109.4
8	17 49.1	+52.4	105.3	17 16.8	+53.4	105.9	16 43.2	+54.3	106.5	16 08.5	+55.2	107.1	15 32.7	+56.0	107.6	14 55.9	+56.6	108.2	14 18.0	+57.3	108.6	13 39.1	+57.9	109.1
9	18 41.5	+52.3	104.8	18 10.2	+53.3	105.5	17 37.5	+54.3	106.1	17 03.7	+55.1	106.7	16 28.7	+55.9	107.3	15 52.5	+56.7	107.8	15 15.3	+57.3	108.3	14 37.0	+57.9	108.8
10	19 33.8	+52.2	104.3	19 03.5	+53.2	105.0	18 31.8	+54.2	105.6	17 58.8	+55.1	106.3	17 24.6	+55.8	106.9	16 49.2	+56.5	107.5	16 12.6	+57.2	108.0	15 34.9	+57.8	108.6
11	20 26.0	+52.1	103.8	19 56.7	+53.1	104.5	19 26.0	+54.1	105.2	18 53.9	+55.0	105.8	18 20.4	+55.9	106.5	17 45.7	+56.6	107.1	17 09.8	+57.2	107.7	16 32.7	+57.8	108.3
12	21 18.1	+52.0	103.2	20 49.8	+53.1	104.0	20 20.1	+54.0	104.7	19 48.9	+54.9	105.4	19 16.3	+55.7	106.1	18 42.3	+56.5	106.8	18 07.0	+57.2	107.4	17 30.5	+57.8	108.0
13	22 10.1	+51.8	102.7	21 42.9	+52.9	103.5	21 14.1	+54.0	104.3	20 43.8	+54.9	105.0	20 12.0	+55.7	105.7	19 38.8	+56.5	106.4	19 04.2	+57.2	107.1	18 28.3	+57.8	107.7
14	23 01.9	+51.8	102.2	22 35.8	+52.9	103.0	22 08.0	+53.8	103.8	21 38.7	+54.8	104.6	21 07.7	+55.5	105.3	20 35.3	+56.4	106.0	20 01.4	+57.1	106.8	19 26.1	+57.7	107.4
15	23 53.7	+51.7	101.6	23 28.7	+52.7	102.5	23 01.9	+53.8	103.3	22 33.5	+54.7	104.1	22 03.4	+55.6	104.9	21 31.7	+56.4	105.7	20 58.5	+57.1	106.4	20 23.8	+57.8	107.2
16	24 45.4	+51.5	101.0	24 21.4	+52.7	101.9	23 55.7	+53.7	102.8	23 28.2	+54.7	103.7	22 59.0	+55.5	104.5	22 28.1	+56.3	105.3	21 55.6	+57.1	106.1	21 21.6	+57.6	106.9
17	25 36.9	+51.4	100.5	25 14.1	+52.5	101.4	24 49.4	+53.6	102.3	24 22.9	+54.5	103.2	23 54.5	+55.5	104.1	23 24.4	+56.3	104.9	22 52.7	+57.0	105.8	22 19.2	+57.7	106.6
18	26 28.3	+51.2	99.9	26 06.6	+52.5	100.9	25 43.0	+53.5	101.8	25 17.4	+54.5	102.8	24 50.0	+55.4	103.7	24 20.7	+56.2	104.6	23 49.7	+56.9	105.4	23 16.9	+57.6	106.3
19	27 19.5	+51.2	99.3	26 59.1	+52.2	100.3	26 36.5	+53.4	101.3	26 11.9	+54.4	102.3	25 45.4	+55.3	103.3	25 16.9	+56.2	104.2	24 46.6	+56.9	105.1	24 14.5	+57.6	106.0
20	28 10.7	+50.9	98.7	27 51.3	+52.2	99.8	27 29.9	+53.3	100.8	27 06.3	+54.3	101.8	26 40.7	+55.2	102.8	26 13.1	+56.1	103.8	25 43.5	+56.9	104.7	25 12.1	+57.5	105.7
21	29 01.6	+50.8	98.1	28 43.5	+52.0	99.2	28 23.2	+53.1	100.3	28 00.6	+54.2	101.3	27 35.9	+55.2	102.4	27 09.2	+56.0	103.4	26 40.4	+56.8	104.4	26 09.6	+57.5	105.3
22	29 52.4	+50.6	97.5	29 35.5	+51.9	98.7	29 16.3	+53.0	99.8	28 54.8	+54.1	100.9	28 31.1	+55.1	101.9	28 05.2	+56.0	103.0	27 37.2	+56.7	104.0	27 07.1	+57.5	105.0
23	30 43.0	+50.5	96.9	30 27.4	+51.7	98.1	30 09.3	+52.9	99.2	29 48.9	+54.0	100.4	29 26.2	+54.9	101.5	29 01.2	+55.8	102.6	28 33.9	+56.7	103.6	28 04.6	+57.4	104.7
24	31 33.5	+50.2	96.3	31 19.1	+51.5	97.5	31 02.2	+52.8	98.7	30 42.9	+53.8	99.9	30 21.1	+54.9	101.0	29 57.0	+55.8	102.2	29 30.6	+56.6	103.3	29 02.0	+57.3	104.4
25	32 23.7	+50.0	95.6	32 10.6	+51.4	96.9	31 55.0	+52.6	98.1	31 36.7	+53.8	99.3	31 16.0	+54.8	100.5	30 52.8	+55.7	101.7	30 27.2	+56.6	102.9	29 59.3	+57.3	104.0
26	33 13.7	+49.9	95.0	33 02.0	+51.2	96.3	32 47.6	+52.4	97.5	32 30.5	+53.6	98.8	32 10.8	+54.6	100.1	31 48.5	+55.7	101.3	31 23.8	+56.5	102.5	30 56.6	+57.3	103.7
27	34 03.6	+49.6	94.3	33 03.2	+51.0	95.6	33 40.0	+52.3	97.0	33 24.1	+53.4	98.3	33 05.4	+54.6	99.6	32 44.2	+55.5	100.9	32 20.3	+56.4	102.1	31 53.9	+57.2	103.3
28	34 53.2	+49.4	93.6	34 44.2	+50.8	95.0	34 32.3	+52.1	96.4	34 17.5	+53.3	97.7	34 00.0	+54.4	99.1	33 39.7	+55.4	100.4	33 16.7	+56.3	101.7	32 51.1	+57.1	103.0
29	35 42.6	+49.1	92.9	35 35.0	+50.5	94.3	35 24.4	+51.9	95.8	35 10.8	+53.2	97.2	34 54.4	+54.3	98.6	34 35.1	+55.3	99.9	34 13.0	+56.2	101.3	33 42.1	+57.0	102.6
30	36 31.7	+48.9	92.2	36 25.5	+50.4	93.7	36 16.3	+51.7	95.2	36 04.0	+53.0	96.6	35 48.7	+54.1	98.0	35 30.4	+55.2	99.5	35 09.3	+56.1	100.9	34 45.2	+57.0	102.2
31	37 20.6	+48.6	91.5	37 15.9	+50.1	93.0	37 08.0	+51.5	94.5	36 57.0	+52.8	96.0	36 42.8	+54.0	97.5	36 25.6	+55.1	99.0	36 05.4	+56.1	100.4	35 42.2	+56.9	101.8
32	38 09.2	+48.3	90.7	38 06.0	+49.9	92.3	37 59.5	+51.3	93.9	37 59.5	+51.3	93.9	37 36.8	+53.9	97.0	37 20.7	+55.0	98.5	37 01.5	+55.9	100.0	36 39.1	+56.9	101.5
33	38 57.5	+48.0	90.0	38 55.9	+49.5	91.6	38 50.8	+51.1	93.2	38 42.4	+52.4	94.8	38 30.7	+53.7	96.4	38 15.7	+54.8	98.0	37 57.4	+55.9	99.5	37 36.0	+56.7	101.1
34	39 45.5	+47.7	89.2	39 45.4	+49.4	90.9	39 41.9	+50.8	92.5	39 34.8	+52.3	94.2	39 24.4	+53.5	95.8	39 10.5	+54.7	97.5	38 53.3	+55.7	99.1	38 32.7	+56.7	100.6
35	40 33.2	+47.4	88.4	40 34.8	+49.0	90.1	40 32.7	+50.6	91.8	40 27.1	+52.0	93.5	40 17.9	+53.3	95.2	40 05.2	+54.5	96.9	39 49.0	+55.6	98.6	39 29.4	+56.5	100.2
36	41 20.6	+47.0	87.6	41 23.8	+48.7	89.4	41 23.3	+50.3	91.1	41 19.1	+51.7	92.9	41 11.2	+53.1	94.6	40 59.7	+54.4	96.4	40 44.6	+55.5	98.1	40 25.9	+56.5	99.8
37	42 07.6	+46.7	86.8	42 12.5	+48.4	88.6	42 13.6	+50.0	90.4	42 10.8	+51.6	92.2	42 04.3	+52.9	94.0	41 54.1	+54.2	95.8	41 40.1	+55.3	97.6	41 22.4	+56.4	99.3
38	42 54.3	+46.2	85.9	43 00.9	+48.0	87.8	43 03.6	+49.7	89.6	43 02.4	+51.2	91.5	42 57.2	+52.8	93.4	42 48.3	+54.0	95.2	42 35.4	+55.2	97.1	42 18.8	+56.2	98.9
39	43 40.5	+45.9	85.0	43 48.9	+47.7	86.9	43 53.3	+49.4	88.9	43 53.6	+51.0	90.8	43 50.0	+52.4	92.7	43 42.3	+53.8	94.6	43 30.6	+55.0	96.5	43 15.0	+56.1	98.4
40	44 26.4	+45.4	84.1	44 36.6	+47.2	86.1	44 42.7	+49.0	88.1	44 44.2	+50.7	90.1	44 42.4	+52.2	92.0	44 36.1	+53.6	94.0	44 25.6	+54.9	96.0	44 11.1	+56.0	97.9
41	45 11.8	+44.9	83.2	45 23.8	+46.9	85.2	45 31.7	+48.7	87.3	45 35.3	+50.4	89.3	45 34.6	+52.0	91.3	45 29.7	+53.4	93.4	45 20.5	+54.7	95.4	45 07.1	+55.9	97.4
42	45 56.7	+44.5	82.3	46 10.7	+46.5	84.3	46 20.4	+48.3	86.4	46 25.7	+50.0	88.5	46 26.6	+51.7	90.6	46 23.1	+53.2	92.7	46 15.2	+54.5	94.8	46 03.0	+55.7	96.9
43	46 41.2	+44.0	81.3	46 57.2	+45.9	83.4	47 08.7	+47.9	85.6	47 15.7	+49.8	87.7	47 18.3	+51.4	89.9	47 16.3	+52.9	92.0	47 09.7	+54.3	94.2	46 58.7	+55.5	96.3
44	47 25.2	+43.4	80.3	47 43.1	+45.5	82.5	47 56.6	+47.5	84.7	48 05.5	+49.3	86.9	48 09.7	+51.0	89.1	48 09.2	+52.6	91.3	48 04.0	+54.1	93.6	47 54.2	+55.4	95.8
45	48 08.6	+42.9	79.3	48 28.6	+45.0	81.5	48 44.1	+47.0	83.7	48 54.4	+48.9	86.0	49 00.7	+50.7	88.3	49 01.8	+52.4	90.6	48 58.1	+53.9	92.9	48 49.6	+55.2	95.2
46	48 51.5	+42.2	78.2	49 13.6	+44.5	80.5	49 31.1	+46.5	82.8	49 43.7	+48.5	85.1	49 51.4	+50.4	87.5	49 54.2	+52.1	89.9	49 52.0	+53.6	92.2			

LATITUDE CONTRARY NAME

L.H.A. 68°, 292°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
10 47.7 - 52.9 109.3			10 07.7 - 53.8 109.6			9 27.1 - 54.7 110.0			8 45.8 - 55.4 110.3			8 04.0 - 56.2 110.5			7 21.7 - 56.9 110.8			6 38.8 - 57.4 111.0			5 55.6 - 58.0 111.2			0		
9 54.8 - 53.0 109.8			9 13.9 - 53.9 110.1			8 32.4 - 54.7 110.4			7 50.4 - 55.5 110.6			7 07.8 - 56.2 110.9			6 24.8 - 56.9 111.1			5 41.4 - 57.5 111.3			4 57.6 - 58.0 111.5			1		
9 01.8 - 52.9 110.2			8 20.0 - 53.8 110.5			7 37.7 - 54.7 110.8			6 54.9 - 55.5 111.0			6 11.6 - 56.2 111.2			5 27.9 - 56.8 111.4			4 43.9 - 57.4 111.6			3 59.6 - 58.0 111.7			2		
8 08.9 - 53.1 110.7			7 26.2 - 54.0 111.0			6 43.0 - 54.8 111.2			5 59.4 - 55.6 111.4			5 15.4 - 56.3 111.6			4 31.1 - 56.9 111.8			3 46.5 - 57.5 111.9			3 01.6 - 58.0 112.0			3		
7 15.8 - 53.0 111.2			6 32.2 - 53.9 111.4			5 48.2 - 54.8 111.6			5 03.8 - 55.5 111.8			4 19.1 - 56.2 111.9			3 34.2 - 56.9 112.1			2 49.0 - 57.5 112.2			2 03.6 - 58.0 112.3			4		
6 22.8 - 53.1 111.7			5 38.3 - 54.0 111.9			4 53.4 - 54.7 112.0			4 08.3 - 55.5 112.2			3 22.9 - 56.3 112.3			2 37.3 - 56.9 112.4			1 51.5 - 57.5 112.5			1 05.6 - 58.0 112.5			5		
5 29.7 - 53.1 112.1			4 44.3 - 54.0 112.3			3 58.7 - 54.8 112.4			3 12.8 - 55.6 112.5			2 26.6 - 56.2 112.6			1 40.4 - 56.9 112.7			0 54.0 - 57.5 112.7			0 07.6 - 58.0 112.8			6		
4 36.6 - 53.2 112.6			3 50.3 - 54.0 112.7			3 03.9 - 54.8 112.8			2 17.2 - 55.6 112.9			1 30.4 - 56.3 113.0			0 43.5 - 56.9 113.0			0 03.5 + 57.4 67.0			0 50.4 + 58.0 67.0			7		
3 43.4 - 53.1 113.1			2 56.3 - 54.0 113.2			2 09.1 - 54.9 113.2			1 21.6 - 55.5 113.3			0 34.1 - 56.2 113.3			0 13.4 + 56.9 66.7			0 00.9 + 57.5 66.7			1 48.4 + 58.0 66.7			8		
2 50.3 - 53.1 113.5			2 02.3 - 54.0 113.6			1 14.2 - 54.8 113.7			0 26.1 - 55.6 113.7			0 22.1 + 56.3 66.3			1 10.3 + 56.9 66.3			1 58.4 + 57.5 66.4			2 46.4 + 58.0 66.5			9		
1 57.2 - 53.2 114.0			1 08.3 - 54.0 114.0			0 19.4 - 54.8 114.1			0 29.5 + 55.6 65.9			1 18.4 + 56.3 66.0			2 07.2 + 56.9 66.0			2 55.9 + 57.5 66.1			3 44.4 + 58.0 66.2			10		
1 04.0 - 53.2 114.5			0 14.3 - 54.0 114.5			0 35.4 + 54.8 65.5			1 25.1 + 55.5 65.6			2 14.7 + 56.2 65.6			3 04.1 + 56.9 65.7			3 53.4 + 57.5 65.8			4 42.4 + 58.0 66.0			11		
0 10.8 - 53.1 114.9			0 39.7 + 54.0 65.1			1 30.2 + 54.8 65.1			2 20.6 + 55.6 65.2			3 10.9 + 56.3 65.3			4 01.0 + 56.9 65.4			4 50.9 + 57.4 65.5			5 40.4 + 58.0 65.7			12		
0 42.3 + 53.2 64.6			1 33.7 + 54.0 64.7			2 25.0 + 54.8 64.7			3 16.2 + 55.6 64.8			4 07.2 + 56.2 64.9			4 57.9 + 56.9 65.1			5 48.3 + 57.5 65.2			6 38.4 + 58.0 65.4			13		
1 35.5 + 53.1 64.2			2 27.7 + 54.0 64.2			3 19.8 + 54.8 64.3			4 11.8 + 55.5 64.4			5 03.4 + 56.2 64.6			5 54.8 + 56.8 64.7			6 45.8 + 57.4 65.0			7 36.4 + 57.9 65.2			14		
2 28.6 + 53.2 63.7			3 21.7 + 54.0 63.8			4 14.6 + 54.8 63.9			5 07.3 + 55.5 64.1			5 59.6 + 56.3 64.2			6 51.6 + 56.9 64.4			7 43.2 + 57.4 64.7			8 34.3 + 58.0 64.9			15		
3 21.8 + 53.1 63.2			4 15.7 + 54.0 63.3			5 09.4 + 54.8 63.5			6 02.8 + 55.5 63.7			6 55.9 + 56.2 63.9			7 48.5 + 56.8 64.1			8 40.6 + 57.5 64.4			9 32.3 + 57.9 64.7			16		
4 14.9 + 53.1 62.8			5 09.7 + 54.0 62.9			6 04.2 + 54.7 63.1			6 58.3 + 55.5 63.3			7 52.1 + 56.1 63.5			8 45.3 + 56.8 63.8			9 38.1 + 57.4 64.1			10 30.2 + 58.0 64.4			17		
5 08.0 + 53.1 62.3			6 03.7 + 53.9 62.5			6 58.9 + 54.8 62.7			7 53.8 + 55.5 62.9			8 48.2 + 56.2 63.2			9 42.1 + 56.8 63.5			10 35.5 + 57.4 63.8			11 28.2 + 57.9 64.1			18		
6 01.1 + 53.1 61.8			6 57.6 + 53.9 62.0			7 53.7 + 54.7 62.3			8 49.3 + 55.4 62.5			9 44.7 + 55.5 62.1			10 38.9 + 56.8 63.1			11 32.9 + 57.3 63.5			12 26.1 + 57.9 63.9			19		
6 54.2 + 53.0 61.4			7 51.5 + 53.9 61.6			8 48.4 + 54.6 61.8			9 44.7 + 55.5 62.1			10 40.5 + 56.2 62.5			11 35.7 + 56.8 62.8			12 30.2 + 57.4 63.2			13 24.0 + 57.9 63.6			20		
7 47.2 + 53.0 60.9			8 45.4 + 53.8 61.1			9 43.0 + 54.7 61.4			10 40.2 + 55.3 61.7			11 36.7 + 56.0 62.1			12 32.5 + 56.7 62.5			13 27.6 + 57.3 62.9			14 21.9 + 57.8 63.3			21		
8 40.2 + 53.0 60.4			9 39.2 + 53.9 60.7			10 37.7 + 54.6 61.0			11 35.5 + 55.4 61.4			12 32.7 + 56.1 61.7			13 29.2 + 56.7 62.1			14 24.9 + 57.3 62.6			15 19.7 + 57.9 63.0			22		
9 33.2 + 52.9 59.9			10 33.1 + 53.7 60.2			11 32.3 + 54.6 60.6			12 30.9 + 55.3 61.0			13 28.8 + 56.0 61.4			14 25.9 + 56.7 61.8			15 22.2 + 57.3 62.3			16 17.6 + 57.8 62.8			23		
10 26.1 + 52.9 59.5			11 26.8 + 53.8 59.8			12 26.9 + 54.5 60.2			13 26.2 + 55.3 60.6			14 24.8 + 56.0 61.0			15 22.6 + 56.6 61.5			16 19.5 + 57.2 62.0			17 15.4 + 57.8 62.5			24		
11 19.0 + 52.9 59.0			12 20.6 + 53.7 59.3			13 21.4 + 54.5 59.7			14 21.5 + 55.3 60.2			15 20.8 + 56.0 60.6			16 19.2 + 56.7 61.1			17 16.7 + 57.2 61.6			18 13.2 + 57.8 62.2			25		
12 11.9 + 52.8 58.5			13 14.3 + 53.6 58.9			14 15.9 + 54.4 59.3			15 16.8 + 55.2 59.8			16 16.8 + 55.9 60.2			17 15.9 + 56.5 60.8			18 13.9 + 57.2 61.3			19 11.0 + 57.7 61.9			26		
13 04.7 + 52.7 58.0			14 07.9 + 53.6 58.4			15 10.3 + 54.4 58.9			16 12.0 + 55.1 59.3			17 12.7 + 55.9 59.9			18 12.4 + 56.6 60.4			19 11.1 + 57.2 61.0			20 08.7 + 57.7 61.6			27		
13 57.4 + 52.7 57.5			15 01.5 + 53.5 58.0			16 04.7 + 54.4 58.4			17 07.1 + 55.1 58.9			18 08.6 + 55.8 59.5			19 09.0 + 56.5 60.1			20 08.3 + 57.1 60.7			21 06.4 + 57.7 61.3			28		
14 50.1 + 52.6 57.0			15 55.0 + 53.5 57.5			16 59.1 + 54.3 58.0			18 02.2 + 55.1 58.5			19 04.4 + 55.8 59.1			20 05.5 + 56.4 59.7			21 05.4 + 57.1 60.4			22 04.1 + 57.7 61.1			29		
15 42.7 + 52.6 56.5			16 48.5 + 53.4 57.0			17 53.4 + 54.2 57.5			18 57.3 + 55.0 58.1			20 00.2 + 55.7 58.7			21 01.9 + 56.4 59.3			22 02.5 + 57.0 60.0			23 01.8 + 57.6 60.8			30		
16 35.3 + 52.4 56.0			17 41.9 + 53.3 56.5			18 47.6 + 54.1 57.1			19 52.3 + 54.9 57.7			20 55.9 + 55.6 58.3			21 58.3 + 56.4 59.0			22 59.5 + 57.0 59.7			23 59.4 + 57.6 60.4			31		
17 27.7 + 52.4 55.5			18 35.2 + 53.3 56.1			19 41.7 + 54.1 56.6			20 47.2 + 54.9 57.3			21 51.5 + 55.7 57.9			22 54.7 + 56.3 58.6			23 56.5 + 57.0 59.4			24 57.0 + 57.5 60.1			32		
18 20.1 + 52.4 55.0			19 28.5 + 53.2 55.6			20 35.8 + 54.0 56.2			21 42.1 + 54.8 56.8			22 47.2 + 55.5 57.5			23 51.0 + 56.2 58.2			24 53.5 + 56.9 59.0			25 54.5 + 57.5 59.8			33		
19 12.5 + 52.2 54.5			20 21.7 + 53.1 55.1			21 29.8 + 54.0 55.7			22 36.9 + 54.7 56.4			23 42.7 + 55.5 57.1			24 47.2 + 56.2 57.9			25 50.4 + 56.8 58.7			26 52.0 + 57.5 59.5			34		
20 04.7 + 52.1 54.0			21 14.8 + 53.0 54.6			22 23.8 + 53.8 55.2			23 31.6 + 54.7 55.9			24 38.2 + 55.4 56.7			25 43.4 + 56.2 57.5			26 47.2 + 56.8 58.3			27 49.5 + 57.4 59.2			35		
20 56.8 + 52.1 53.4			22 07.8 + 52.9 54.1			23 17.6 + 53.8 54.8			24 26.3 + 54.5 55.5			25 33.6 + 55.3 56.3			26 39.6 + 56.0 57.1			27 44.0 + 56.8 57.9			28 46.9 + 57.4 58.9			36		
21 48.9 + 51.9 52.9			23 00.7 + 52.8 53.6			24 11.4 + 53.6 54.3			25 20.8 + 54.5 55.0			26 28.9 + 55.3 55.8			27 35.6 + 56.0 56.7			28 40.8 + 56.7 57.6			29 44.3 + 57.3 58.5			37		
22 40.8 + 51.8 52.4			23 53.5 + 52.7 53.0			25 05.0 + 53.6 53.8			26 15.3 + 54.4 54.6			27 24.2 + 55.2 55.4			28 31.6 + 55.9 56.3			29 37.5 + 56.6 57.2			30 41.6 + 57.3 58.2			38		
23 32.6 + 51.7 51.8			24 46.2 + 52.6 52.5			25 58.6 + 53.5 53.3			27 09.7 + 54.3 54.1			28 19.4 + 55.1 54.9			29 27.5 + 55.9 55.8			30 34.1 + 56.5 56.8			31 38.9 + 57.2 57.8			39		
24 24.3 + 51.6 51.3			25 38.8 + 52.5 52.0			26 52.1 + 53.3 52.8			28 04.0 + 54.2 53.6			29 14.5 + 55.0 54.5			30 23.4 + 55.7 55.4			31 30.6 + 56.5 56.4			32 36.1 + 57.1 57.5			40		
25 15.9 + 51.4 50.7			26 31.3 + 52.4 51.4			27 45.4 + 53.3 52.3			28 58.2 + 54.1 53.1			30 09.5 + 54.8 54.0			31 19.1 + 55.7 55.0			32 27.1 + 56.4 56.0			33 33.2 + 57.1 57.1			41		
26 07.3 + 51.4 50.1			27 23.7 + 52.2 50.9			28 38.7 + 53.1 51.7			29 52.3 + 53.9 52.6			31 04.3 + 54.8 53.6			32 14.8 + 55.6 54.6			33 23.5 + 56.3 55.6			34 30.3 + 57.0 56.7			42		
26 58.7 + 51.1 49.5			28 15.9 + 52.1 50.3			29 31.8 + 53.0 51.2			30 46.2 + 53.9 52.1			31 59.1 + 54.7 53.1			33 10.4 + 55.4 54.1			34 19.8 + 56.2 55.2			35 27.3 + 56.9 56.4			43		
27 49.8 + 51.0 49.0			29 08.0 + 51.9 49.8			30 24.8 + 52.8 50.7			31 40.1 + 53.7 51.6			32 53.8 + 54.6 52.6			34 05.8 + 55.4 53.7			35 16.0 + 56.2 54.8			36 24.2 + 56.9 56.0			44		
28 40.8 + 50.9 48.4			29 59.9 + 51.8 49.2			31 17.6 + 52.7 50.1			32 33.8 + 53.6 51.1			33 48.4 + 54.4 52.1			35 01.2 + 55.3 53.2			36 12.2 + 56.0 54.3			37 21.1 + 56.8 55.6			45		
29 31.7 + 50.7 47.8			30 51.7 + 51.7 48.6			32 10.3 + 52.6																				

68°, 292° L.H.A.

LATITUDE SAME NAME

Table with columns for Dec., 76°, 78°, 80°, 82°, 84°, 86°, 88°, 90°. Each column contains three sub-columns (Hc, d, Z) and rows of numerical data.

68°, 292° L.H.A.

LATITUDE SAME NAME

LATITUDE CONTRARY NAME

L.H.A. 68°, 292°

Table with columns for latitude (76° to 90°) and Dec. (0 to 90). Each latitude column contains three sub-columns: Hc, d, and Z. The Dec. column is on the far right. The table lists celestial coordinates for various stars.

LATITUDE SAME NAME

L.H.A. 112°, 248°

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	9 50.8	+52.7	107.5	9 14.4	+53.7	107.8	8 37.4	+54.5	108.1	7 59.8	+55.3	108.4	7 21.7	+56.1	108.6	6 43.1	+56.7	108.9	6 04.0	+57.4	109.1	5 24.6	+57.9	109.3
1	10 43.5	+52.7	107.0	10 08.1	+53.6	107.4	9 31.9	+54.5	107.7	8 55.1	+55.3	108.0	8 17.8	+56.0	108.3	7 39.8	+56.8	108.6	7 01.4	+57.4	108.8	6 22.5	+57.9	109.0
2	11 36.2	+52.6	106.5	11 01.7	+53.5	106.9	10 26.4	+54.5	107.3	9 50.4	+55.3	107.6	9 13.8	+56.1	107.9	8 36.6	+56.7	108.2	7 58.8	+57.3	108.5	7 20.2	+57.9	108.8
3	12 28.8	+52.6	106.0	11 55.2	+53.6	106.4	11 20.9	+54.4	106.8	10 45.7	+55.3	107.2	10 09.9	+56.0	107.6	9 33.3	+56.7	107.9	8 56.1	+57.4	108.2	8 18.3	+57.9	108.5
4	13 21.4	+52.5	105.5	12 48.8	+53.5	106.0	12 15.3	+54.4	106.4	11 41.0	+55.2	106.8	11 05.9	+56.0	107.2	10 30.0	+56.7	107.6	9 53.5	+57.3	107.9	9 16.2	+57.9	108.2
5	14 13.9	+52.4	105.0	13 42.3	+53.4	105.5	13 09.7	+54.3	105.0	12 36.2	+55.2	106.4	12 01.9	+55.9	106.8	11 26.7	+56.7	107.2	10 50.8	+57.3	107.6	10 14.1	+57.9	108.0
6	15 06.3	+52.4	104.5	14 35.7	+53.4	105.0	14 04.0	+54.3	105.5	13 31.4	+55.2	106.0	12 57.8	+56.0	106.5	12 23.4	+56.6	106.9	11 48.1	+57.3	107.3	11 12.0	+57.9	107.7
7	15 58.7	+52.3	104.0	15 29.1	+53.3	104.6	14 58.3	+54.3	105.1	14 26.6	+55.1	105.6	13 53.8	+55.9	106.1	13 20.0	+56.7	106.6	12 45.4	+57.3	107.0	12 09.9	+57.8	107.4
8	16 51.0	+52.3	103.5	16 22.4	+53.2	104.1	15 52.6	+54.2	104.7	15 21.7	+55.0	105.2	14 49.7	+55.8	105.7	14 16.7	+56.5	106.2	13 42.7	+57.2	106.7	13 07.7	+57.8	107.2
9	17 43.3	+52.1	103.0	17 15.6	+53.2	103.6	16 46.8	+54.1	104.2	16 16.7	+55.0	104.8	15 45.5	+55.9	105.3	15 13.2	+56.6	105.9	14 39.9	+57.2	106.4	14 05.5	+57.9	106.9
10	18 35.4	+52.1	102.5	18 08.8	+53.1	103.1	17 40.9	+54.1	103.8	17 11.7	+55.0	104.4	16 41.4	+55.7	105.0	16 09.8	+56.5	105.5	15 37.1	+57.2	106.1	15 03.4	+57.7	106.6
11	19 27.5	+51.9	102.0	19 01.9	+53.0	102.6	18 35.0	+54.0	103.3	18 06.7	+54.9	103.9	17 37.1	+55.8	104.6	17 06.3	+56.5	105.2	16 34.3	+57.2	105.8	16 01.1	+57.8	106.3
12	20 19.4	+51.9	101.4	19 54.9	+53.0	102.1	19 29.0	+53.9	102.8	19 01.6	+54.9	103.5	18 32.9	+55.7	104.2	18 02.8	+56.5	104.8	17 31.5	+57.1	105.4	16 58.9	+57.8	106.0
13	21 11.3	+51.8	100.9	20 47.9	+52.8	101.6	20 22.9	+53.9	102.4	19 56.5	+54.7	103.1	19 28.6	+55.6	103.8	18 59.3	+56.4	104.5	18 28.6	+57.1	105.1	17 56.7	+57.7	105.8
14	22 03.1	+51.7	100.3	21 40.7	+52.8	101.1	21 16.8	+53.7	101.9	20 51.2	+54.8	102.7	20 24.2	+55.6	103.4	19 55.7	+56.3	104.1	19 25.7	+57.1	104.8	18 54.4	+57.7	105.5
15	22 54.8	+51.5	99.8	22 33.5	+52.7	100.6	22 10.5	+53.7	101.4	21 46.0	+54.6	102.2	21 19.8	+55.5	103.0	20 52.0	+56.3	103.7	20 52.0	+57.0	104.5	19 54.1	+57.6	105.2
16	23 46.3	+51.4	99.2	23 26.2	+52.5	100.1	23 04.2	+53.6	100.9	22 40.6	+54.6	101.8	22 15.3	+55.4	102.6	21 48.3	+56.3	103.4	21 19.8	+57.0	104.1	20 49.7	+57.7	104.9
17	24 37.7	+51.3	98.7	24 18.7	+52.5	99.6	23 57.8	+53.5	100.5	23 35.2	+54.5	101.3	23 10.7	+55.4	102.2	22 44.6	+56.2	103.0	22 16.8	+57.0	103.8	21 47.4	+57.6	104.6
18	25 29.0	+51.2	98.1	25 11.2	+52.3	99.1	24 51.3	+53.5	100.0	24 29.7	+54.4	100.9	24 06.1	+55.4	101.7	23 13.8	+56.9	103.5	23 13.8	+56.9	103.5	22 45.0	+57.5	104.3
19	26 20.2	+51.0	97.5	26 03.5	+52.2	98.5	25 44.8	+53.3	99.5	25 24.1	+54.3	100.4	25 01.5	+55.2	101.3	24 37.0	+56.1	102.2	24 10.7	+56.8	103.2	23 42.5	+57.6	104.0
20	27 11.2	+50.9	96.9	26 55.7	+52.1	97.9	26 38.1	+53.2	98.9	26 18.4	+54.2	99.9	25 56.7	+55.2	100.9	25 33.1	+56.0	101.8	25 07.5	+56.8	102.8	24 40.1	+57.5	103.7
21	28 02.1	+50.7	96.3	27 47.8	+51.9	97.4	27 31.3	+53.0	98.4	27 12.6	+54.1	99.4	26 51.9	+55.1	100.5	26 29.1	+56.0	101.4	26 04.3	+56.8	102.4	25 37.6	+57.4	103.3
22	28 52.8	+50.5	95.7	28 39.7	+51.8	96.8	28 24.3	+53.0	97.9	28 06.7	+54.1	99.0	27 42.0	+55.0	100.0	27 25.1	+55.9	101.0	27 01.1	+56.7	102.0	26 35.0	+57.4	103.0
23	29 43.3	+50.4	95.1	29 31.3	+51.6	96.2	29 17.3	+52.8	97.4	29 00.8	+53.9	98.5	28 27.8	+54.9	99.6	28 21.0	+55.8	100.6	28 21.0	+55.8	100.6	27 32.4	+57.4	102.7
24	30 33.7	+50.2	94.5	30 23.1	+51.5	95.6	30 10.1	+52.7	96.8	29 54.7	+53.8	98.0	29 36.9	+54.8	99.1	29 16.8	+55.7	100.2	28 54.4	+56.6	101.3	28 29.8	+57.3	102.4
25	31 23.9	+50.0	93.8	31 14.6	+51.3	95.1	31 02.8	+52.5	96.3	30 48.5	+53.6	97.4	30 31.7	+54.7	98.6	30 12.5	+55.7	99.8	29 51.0	+56.5	100.9	29 27.1	+57.3	102.0
26	32 13.9	+49.8	93.2	32 05.9	+51.1	94.4	31 55.3	+52.4	95.7	31 42.1	+53.6	96.9	31 26.4	+54.6	98.1	31 08.2	+55.5	99.3	30 47.5	+56.4	100.5	30 24.4	+57.2	101.7
27	33 03.7	+49.6	92.5	32 57.0	+51.0	93.8	32 47.7	+52.2	95.1	32 35.7	+53.4	96.4	32 21.0	+54.5	97.7	32 03.7	+55.5	98.9	31 43.9	+56.4	100.1	31 21.6	+57.1	101.3
28	33 53.3	+49.3	91.8	33 48.0	+50.7	93.2	33 39.9	+52.1	94.5	33 29.1	+53.2	95.8	33 15.5	+54.4	97.2	32 59.2	+55.4	98.4	32 40.3	+56.2	99.7	32 18.7	+57.1	101.0
29	34 42.6	+49.1	91.2	34 38.7	+50.6	92.5	34 32.0	+51.8	93.9	34 22.3	+53.1	95.3	34 09.9	+54.2	96.6	33 54.6	+55.2	98.0	33 36.5	+56.2	99.3	33 15.8	+57.0	100.6
30	35 31.7	+48.9	90.5	35 29.3	+50.3	91.9	35 23.8	+51.7	93.3	35 15.4	+53.0	94.7	35 04.1	+54.1	96.1	34 49.8	+55.2	97.5	34 32.7	+56.1	98.9	34 12.8	+56.9	100.2
31	36 20.6	+48.6	89.7	36 19.0	+50.1	91.2	36 15.5	+51.5	92.7	36 08.4	+52.7	94.1	35 58.2	+53.9	95.6	35 45.0	+55.0	97.0	35 28.8	+56.0	98.5	35 09.7	+56.9	99.8
32	37 09.2	+48.3	89.0	37 09.7	+49.8	90.5	37 07.0	+51.3	92.0	37 01.1	+52.6	93.5	36 52.1	+53.8	95.0	36 40.0	+54.9	96.5	36 24.8	+55.9	98.0	36 06.6	+56.8	99.5
33	37 57.5	+48.1	88.3	37 59.5	+49.6	89.8	37 58.3	+51.0	91.4	37 53.7	+52.4	92.9	37 45.9	+53.7	94.5	37 34.9	+54.8	96.0	37 20.7	+55.8	97.6	37 03.4	+56.7	99.1
34	38 45.6	+47.7	87.5	38 49.1	+49.3	89.1	38 49.3	+50.8	90.7	38 46.1	+52.2	92.3	38 39.6	+53.5	93.9	38 29.7	+54.6	95.5	38 16.5	+55.7	97.1	38 00.1	+56.6	98.6
35	39 33.3	+47.4	86.7	39 38.4	+49.1	88.4	39 40.1	+50.6	90.0	39 38.3	+52.0	91.7	39 33.1	+53.2	93.3	39 24.3	+54.5	95.0	39 12.2	+55.6	96.6	38 56.7	+56.6	98.2
36	40 20.7	+47.1	85.9	40 27.5	+48.7	87.6	40 30.7	+50.3	89.3	40 30.3	+51.7	91.0	40 26.3	+53.1	92.7	40 18.8	+54.4	94.0	40 07.8	+55.4	95.1	39 53.3	+56.4	97.8
37	41 07.8	+46.7	85.1	41 16.2	+48.4	86.8	41 21.0	+50.0	88.6	41 22.0	+51.6	90.4	41 19.4	+52.9	92.1	41 13.2	+54.1	93.9	41 03.2	+55.3	95.6	40 49.7	+56.3	97.3
38	41 54.5	+46.3	84.3	42 04.6	+48.1	86.1	42 11.0	+49.7	87.9	42 13.6	+51.2	89.7	42 12.3	+52.7	91.5	42 07.3	+54.0	93.3	42 08.5	+55.2	95.0	41 46.0	+56.2	96.9
39	42 40.8	+46.0	83.4	42 52.7	+47.7	85.2	43 00.7	+49.4	87.1	43 04.8	+51.0	89.0	43 05.0	+52.5	90.8	43 01.3	+53.8	92.7	42 53.7	+55.0	94.6	42 42.2	+56.1	96.4
40	43 26.8	+45.5	82.5	43 40.4	+47.4	84.4	43 50.1	+49.1	86.3	43 55.8	+50.7	88.2	43 57.5	+52.2	90.2	43 55.1	+53.6	92.1	43 48.7	+54.8	94.0	43 38.3	+56.0	95.9
41	44 12.3	+45.1	81.6	44 27.8	+46.9	83.6	44 39.2	+48.7	85.5	44 46.5	+50.4	87.5	44 49.7	+51.9	89.5	44 48.7	+53.4	91.5	44 43.5	+54.7	93.5	44 34.3	+55.8	95.4
42	44 57.4	+44.6	80.7	45 14.7	+46.6	82.7	45 27.9	+48.4	84.7	45 36.9	+50.1	86.7	45 41.6	+51.7	88.8	45 42.1	+53.1	90.8	45 38.2	+54.5	92.9	45 30.1	+55.7	94.9
43	45 42.0	+44.2	79.7	46 01.3	+46.1	81.8	46 16.3	+48.0	83.8	46 27.0	+49.8	85.9	46 33.3	+51.4	88.0	46 35.2	+52.9	90.1	46 32.7	+54.3	92.3	46 25.8	+55.5	94.4
44	46 26.2	+43.6	78.8	46 47.4	+45.7	80.8	47 04.3	+47.6	83.0	47 16.8	+49.4	85.1	47 24.7	+51.1	87.3	47 28.1	+52.7	89.5	47 27.0	+54.1	91.6	47 21.3	+55.3	93.8
45	47 09.8	+43.1	77.8	47 33.1	+45.1	79.9	47 51.9	+47.1	82.1	48 06.2	+49.0	84.3	48 15.8	+50.8	86.5	48 20.8	+52.4	88.7	48 21.1	+53.8	91.0	48 16.6	+55.2	93.3
46	47 52.9	+42.5	76.7	48 18.2	+44.7	78.9	48 39.0	+46.7	81.1	48 55.2	+48.6	83.4	49 06.6	+50.4	85.6	49 16.2	+52.1	88.0	49 14.9	+53.6	90.3	49 11.8	+55.0	92.6

LATITUDE CONTRARY NAME

L.H.A. 70°, 290°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
9 50.8	-52.8	107.5	9 14.4	-53.7	107.8	8 37.4	-54.6	108.1	7 59.8	-55.4	108.4	7 21.7	-56.1	108.6	6 43.1	-56.8	108.9	6 04.0	-57.4	109.1	5 24.6	-58.0	109.3	0		
8 58.0	-52.8	108.0	8 20.7	-53.7	108.3	7 42.8	-54.6	108.5	7 04.4	-55.4	108.8	6 25.6	-56.1	109.0	5 46.3	-56.8	109.2	5 06.6	-57.4	109.4	4 26.6	-57.9	109.5	0		
8 05.2	-52.8	108.5	7 27.0	-53.8	108.7	6 48.2	-54.6	109.0	6 09.0	-55.4	109.2	5 29.5	-56.2	109.4	4 49.5	-56.8	109.5	4 09.2	-57.4	109.7	3 28.7	-58.0	109.8	0		
7 12.4	-52.8	108.9	6 33.2	-53.7	109.2	5 53.6	-54.6	109.4	5 13.6	-55.4	109.6	4 33.3	-56.1	109.7	3 52.7	-56.8	109.9	3 11.8	-57.4	110.0	2 30.7	-57.9	110.1	0		
6 19.6	-52.9	109.4	5 39.5	-53.8	109.6	4 59.0	-54.6	109.8	4 18.2	-55.4	109.9	3 37.2	-56.2	110.1	2 55.9	-56.8	110.2	2 14.4	-57.4	110.3	1 32.8	-58.0	110.3	0		
5 26.7	-52.9	109.9	4 45.7	-53.8	110.1	4 04.4	-54.7	110.2	3 22.8	-55.4	110.3	2 41.0	-56.1	110.4	1 59.1	-56.8	110.5	1 17.0	-57.4	110.6	0 34.8	-57.9	110.6	0		
4 33.8	-53.0	110.4	3 51.9	-53.9	110.5	3 09.7	-54.6	110.6	2 27.4	-55.5	110.7	1 44.9	-56.2	110.8	1 02.3	-56.8	110.8	0 19.6	-57.4	110.8	0			0 23.1	-58.0	69.2
3 40.8	-52.9	110.8	2 58.0	-53.8	110.9	2 15.1	-54.7	111.0	1 31.9	-55.4	111.1	0 48.7	-56.1	111.1	0 05.5	-56.9	111.1	0			0 37.8	+57.4	68.9	1 21.1	+57.9	68.9
2 47.9	-53.0	111.3	2 04.2	-53.8	111.4	1 20.4	-54.7	111.4	0 36.5	-55.4	111.5	0 07.4	+56.2	68.5	0 51.4	+56.8	68.5	1 35.2	+57.4	68.6	2 19.0	+58.0	68.6	2 19.0	+58.0	68.6
1 54.9	-52.9	111.8	1 10.4	-53.9	111.8	0 25.7	-54.6	111.9	0 18.9	+55.5	68.1	1 03.6	+56.2	68.2	1 48.2	+56.8	68.2	2 32.6	+57.5	68.3	3 17.0	+57.9	68.4	3 17.0	+57.9	68.4
1 02.0	-53.0	112.2	0 16.5	-53.8	112.3	0 28.9	+54.7	67.7	1 14.4	+55.4	67.8	1 59.8	+56.1	67.8	2 45.0	+56.8	67.9	3 30.1	+57.4	68.0	4 14.9	+57.9	68.1	4 14.9	+57.9	68.1
0 09.0	-52.9	112.7	0 03.7	+53.9	67.3	1 23.6	+54.7	67.3	2 09.8	+55.5	67.4	2 55.9	+56.1	67.5	3 41.8	+56.8	67.6	4 27.5	+57.4	67.7	5 12.8	+57.9	67.9	5 12.8	+57.9	67.9
0 43.9	+53.0	66.8	1 31.2	+53.8	66.9	2 18.3	+54.6	66.9	3 05.3	+55.4	67.0	3 52.0	+56.2	67.1	4 38.6	+56.8	67.2	5 24.9	+57.3	67.4	6 10.8	+57.9	67.6	6 10.8	+57.9	67.6
1 36.9	+53.0	66.3	2 25.0	+53.8	66.4	3 12.9	+54.7	66.5	4 00.7	+55.4	66.6	4 48.2	+56.1	66.8	5 35.4	+56.8	66.9	6 22.2	+57.4	67.1	7 08.7	+57.9	67.3	7 08.7	+57.9	67.3
2 29.9	+52.9	65.9	3 18.8	+53.8	66.0	4 07.6	+54.6	66.1	4 56.1	+55.4	66.2	5 44.3	+56.1	66.4	6 32.2	+56.7	66.6	7 19.6	+57.4	66.8	8 06.6	+57.9	67.1	8 06.6	+57.9	67.1
3 22.8	+52.9	65.4	4 12.6	+53.9	65.5	5 02.2	+54.7	65.7	5 51.5	+55.4	65.8	6 40.4	+56.1	66.0	7 28.9	+56.8	66.3	8 17.0	+57.3	66.5	9 04.5	+57.9	66.8	9 04.5	+57.9	66.8
4 15.7	+53.0	64.9	5 06.5	+53.7	65.1	5 56.9	+54.6	65.3	6 46.9	+55.4	65.5	7 36.5	+56.1	65.7	8 25.7	+56.7	65.9	9 14.3	+57.4	66.2	10 02.4	+57.9	66.5	10 02.4	+57.9	66.5
5 08.7	+52.8	64.5	6 00.2	+53.8	64.6	6 51.5	+54.5	64.8	7 42.3	+55.3	65.1	8 32.6	+56.1	65.3	9 22.4	+56.7	65.6	10 11.7	+57.3	65.9	11 00.3	+57.9	66.3	11 00.3	+57.9	66.3
6 01.5	+52.9	64.0	6 54.0	+53.7	64.2	7 46.0	+54.6	64.4	8 37.6	+55.3	64.7	9 28.7	+56.0	65.0	10 19.1	+56.7	65.3	11 09.0	+57.3	65.6	11 58.2	+57.8	66.0	11 58.2	+57.8	66.0
6 54.4	+52.9	63.5	7 47.7	+53.7	63.7	8 40.6	+54.5	64.0	9 32.9	+55.3	64.3	10 24.7	+56.0	64.6	11 15.8	+56.7	65.0	12 06.3	+57.3	65.3	12 56.0	+57.8	65.7	12 56.0	+57.8	65.7
7 47.3	+52.8	63.0	8 41.4	+53.7	63.3	9 35.1	+54.5	63.6	10 28.2	+55.3	63.9	11 20.7	+56.0	64.2	12 12.5	+56.7	64.6	13 03.6	+57.2	65.0	13 53.8	+57.9	65.5	13 53.8	+57.9	65.5
8 40.1	+52.7	62.6	9 35.1	+53.7	62.8	10 29.6	+54.5	63.2	11 23.5	+55.2	63.5	12 16.7	+56.0	63.9	13 09.2	+56.6	64.3	14 00.8	+57.3	64.7	14 51.7	+57.8	65.2	14 51.7	+57.8	65.2
9 32.8	+52.8	62.1	10 28.8	+53.6	62.4	11 24.1	+54.4	62.7	12 18.7	+55.2	63.1	13 12.7	+55.9	63.5	14 05.8	+56.6	63.9	14 58.1	+57.2	64.4	15 49.5	+57.7	64.9	15 49.5	+57.7	64.9
10 25.6	+52.7	61.6	11 22.4	+53.5	61.9	12 18.5	+54.4	62.3	13 13.9	+55.2	62.7	14 08.6	+55.9	63.1	15 02.4	+56.5	63.6	15 55.3	+57.2	64.1	16 47.2	+57.8	64.6	16 47.2	+57.8	64.6
11 18.3	+52.6	61.1	12 15.9	+53.5	61.5	13 12.9	+54.3	61.9	14 09.1	+55.1	62.3	15 04.5	+55.8	62.8	15 58.9	+56.6	63.2	16 52.5	+57.1	63.8	17 45.0	+57.7	64.3	17 45.0	+57.7	64.3
12 10.9	+52.6	60.6	13 09.4	+53.5	61.0	14 07.2	+54.3	61.4	15 04.2	+55.1	61.9	16 00.3	+55.8	62.4	16 55.5	+56.5	62.9	17 49.6	+57.2	63.5	18 42.7	+57.7	64.1	18 42.7	+57.7	64.1
13 03.5	+52.5	60.1	14 02.9	+53.4	60.5	15 01.5	+54.3	61.0	15 59.3	+55.0	61.5	16 56.1	+55.8	62.0	17 52.0	+56.4	62.5	18 46.8	+57.0	63.1	19 40.4	+57.6	63.8	19 40.4	+57.6	63.8
13 56.0	+52.5	59.6	14 56.3	+53.4	60.1	15 55.8	+54.2	60.5	16 54.3	+55.0	61.1	17 51.9	+55.7	61.6	18 48.4	+56.4	62.2	19 43.8	+57.1	62.8	20 38.1	+57.6	63.5	20 38.1	+57.6	63.5
14 48.5	+52.4	59.1	15 49.7	+53.2	59.6	16 50.0	+54.1	60.1	17 49.3	+54.9	60.6	18 47.6	+55.7	61.2	19 44.8	+56.4	61.8	20 40.9	+57.0	62.5	21 35.7	+57.6	63.2	21 35.7	+57.6	63.2
15 40.9	+52.3	58.6	16 42.9	+53.3	59.6	17 44.1	+54.1	59.6	18 44.2	+54.9	60.2	19 43.3	+55.6	60.8	20 41.2	+56.3	61.5	21 37.9	+57.0	62.1	22 33.3	+57.6	62.9	22 33.3	+57.6	62.9
16 33.2	+52.3	58.1	17 36.2	+53.1	58.6	18 38.2	+54.0	59.2	19 39.1	+54.8	59.8	20 38.9	+55.6	60.4	21 37.5	+56.3	61.1	22 34.9	+56.9	61.8	23 30.9	+57.5	62.6	23 30.9	+57.5	62.6
17 25.5	+52.2	57.6	18 29.3	+53.1	58.1	19 32.2	+53.9	58.7	20 33.9	+54.7	59.3	21 34.5	+55.5	60.0	22 33.8	+56.2	60.7	23 31.8	+56.9	61.5	24 28.4	+57.5	62.3	24 28.4	+57.5	62.3
18 17.7	+52.1	57.1	19 22.4	+53.0	57.6	20 26.1	+53.8	58.3	21 28.6	+54.7	58.9	22 30.0	+55.4	59.6	23 30.0	+56.2	60.3	24 28.7	+56.9	61.1	25 25.9	+57.5	61.9	25 25.9	+57.5	61.9
19 09.8	+52.0	56.5	20 15.4	+52.9	57.1	21 19.9	+53.8	57.8	22 23.3	+54.6	58.5	23 25.4	+55.4	59.2	24 26.2	+56.1	60.0	25 25.6	+56.7	60.8	26 23.4	+57.4	61.6	26 23.4	+57.4	61.6
20 01.8	+51.9	56.0	21 08.3	+52.8	56.6	22 13.7	+53.7	57.3	23 17.9	+54.5	58.0	24 20.8	+55.3	58.8	25 24.0	+56.1	59.6	26 22.3	+56.8	60.4	27 20.8	+57.4	61.3	27 20.8	+57.4	61.3
20 53.7	+51.8	55.5	22 01.1	+52.7	56.1	23 07.4	+53.6	56.8	24 12.4	+54.5	57.6	25 16.1	+55.2	58.3	26 18.4	+55.9	59.2	27 19.1	+56.7	60.0	28 18.2	+57.3	61.0	28 18.2	+57.3	61.0
21 45.5	+51.7	54.9	22 53.8	+52.7	55.6	24 01.0	+53.5	56.3	25 06.9	+54.3	57.1	26 11.3	+55.2	57.9	27 14.3	+55.9	58.8	28 15.8	+56.6	59.7	29 15.5	+57.3	60.6	29 15.5	+57.3	60.6
22 37.2	+51.6	54.4	23 46.5	+52.5	55.1	24 54.5	+53.4	55.8	26 01.2	+54.3	56.6	27 06.5	+55.0	57.5	28 10.2	+55.9	58.4	29 12.4	+56.5	59.3	30 12.8	+57.2	60.3	30 12.8	+57.2	60.3
23 28.8	+51.4	53.8	24 39.0	+52.4	54.6	25 47.9	+53.3	55.3	26 55.5	+54.1	56.2	28 01.5	+55.0	57.0	29 06.1	+55.7	57.9	30 08.9	+56.5	58.9	31 10.0	+57.1	59.9	31 10.0	+57.1	59.9
24 20.2	+51.4	53.3	25 31.4	+52.3	54.1	26 41.2	+53.2	54.8	27 49.6	+54.1	55.7	28 56.5	+54.9	56.6	30 01.8	+55.7	57.5	31 05.4	+56.4	58.5	32 07.1	+57.1	59.6	32 07.1	+57.1	59.6
25 11.6	+51.2	52.7	26 23.7	+52.1	53.5	27 34.4	+53.1	54.3	28 43.7	+53.9	55.2	29 51.4	+54.8	56.1	30 57.5	+55.6	57.1	32 01.8	+56.3	58.1	33 04.2	+57.1	59.2	33 04.2	+57.1	59.2
26 02.8	+51.1	52.1	27 15.8	+52.0	52.9	28 27.5	+52.9	53.8	29 37.6	+53.8	54.7	30 46.2	+54.7	55.6	31 53.1	+55.5	56.6	32 58.1	+56.3	57.7	34 01.3	+56.9	58.8	34 01.3	+56.9	58.8
26 53.9	+50.9	51.5	28 07.8	+51.9	52.4	29 20.4	+52.8	53.2	30 31.4	+53.8	54.2	31 40.9	+54.5	55.1	32 48.6	+55.4	56.2	33 54.4	+56.1	57.3	34 58.2	+56.9	58.5	34 58.2	+56.9	58.5
27 44.8	+50.8	50.9	28 59.7	+51.7	51.8	30 13.2	+52.7	52.7	31 25.2	+53.5	53.6	32 35.4	+54.5	54.7	33 44.0	+55.2	55.7	34 50.5	+56.1	56.9	35 55.1	+56.8	58.1	35 55.1	+56.8	58.1
28 35.6	+50.6	50.3	29 51.4	+51.6	51.2																					

Table with columns for Dec., Latitude (76° to 90°), and three columns of values (Hc, d, Z) for each latitude. The table contains 100 rows of data, one for each degree of latitude from 0 to 90.

LATITUDE CONTRARY NAME

L.H.A. 70°, 290°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.			
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z
4 44.8	-58.4	109.5	4 04.7	-58.9	109.6	3 24.3	-59.2	109.7	2 43.7	-59.5	109.8	2 02.9	-59.7	109.9	1 22.0	-59.8	110.0	0 41.0	-59.9	110.0	0 00.0	+60.0	70.0	0 00.0	+60.0	70.0	0
3 46.4	-58.5	109.7	3 05.8	-58.8	109.8	2 25.1	-59.2	109.9	1 44.2	-59.5	110.0	1 03.2	-59.7	110.0	0 22.2	-59.8	110.0	0 18.9	+60.0	70.0	1 00.0	+60.0	70.0	1 00.0	+60.0	70.0	1
2 47.9	-58.4	109.9	2 07.0	-58.9	110.0	1 25.9	-59.2	110.0	0 44.7	-59.5	110.1	0 03.5	-59.7	110.1	0 37.7	+59.9	69.9	1 18.9	+60.0	69.9	2 00.0	+60.0	70.0	2 00.0	+60.0	70.0	2
1 49.5	-58.4	110.1	1 08.1	-58.8	110.2	0 26.7	-59.2	110.2	0 14.8	-59.4	69.8	0 56.2	+59.7	69.8	1 37.6	+59.9	69.8	2 18.9	+59.9	69.9	3 00.0	+60.0	70.0	3 00.0	+60.0	70.0	3
0 51.1	-58.5	110.4	0 09.3	-58.8	110.4	0 32.5	+59.2	69.6	1 14.2	+59.5	69.7	1 55.9	+59.7	69.7	2 37.5	+59.8	69.8	3 18.8	+60.0	69.9	4 00.0	+60.0	70.0	4 00.0	+60.0	70.0	4
0 07.4	+58.4	69.4	0 49.5	+58.9	69.4	1 31.7	+59.2	69.5	2 13.7	+59.5	69.5	2 55.6	+59.7	69.6	3 37.3	+59.9	69.7	4 18.8	+60.0	69.8	5 00.0	+60.0	70.0	5 00.0	+60.0	70.0	5
1 05.9	+58.4	69.2	1 48.4	+58.8	69.2	2 30.9	+59.2	69.3	3 13.2	+59.5	69.4	3 55.3	+59.7	69.5	4 37.2	+59.9	69.7	5 18.8	+59.9	69.8	6 00.0	+60.0	70.0	6 00.0	+60.0	70.0	6
2 04.2	+58.4	69.0	2 47.2	+58.9	69.0	3 30.1	+59.2	69.1	4 12.7	+59.5	69.3	4 55.0	+59.7	69.4	5 37.1	+59.8	69.6	6 18.7	+60.0	69.8	7 00.0	+60.0	70.0	7 00.0	+60.0	70.0	7
3 02.6	+58.5	68.7	3 46.1	+58.8	68.8	4 29.3	+59.2	69.0	5 12.2	+59.5	69.1	5 54.7	+59.8	69.3	6 36.9	+59.9	69.5	7 18.7	+60.0	69.7	8 00.0	+60.0	70.0	8 00.0	+60.0	70.0	8
4 01.1	+58.4	68.5	4 44.9	+58.8	68.6	5 28.5	+59.1	68.8	6 11.6	+59.5	69.0	6 54.5	+59.7	69.2	7 36.8	+59.9	69.5	8 18.7	+59.9	69.7	9 00.0	+60.0	70.0	9 00.0	+60.0	70.0	9
4 59.5	+58.4	68.3	5 43.7	+58.9	68.4	6 27.6	+59.2	68.6	7 11.1	+59.5	68.9	7 54.2	+59.7	69.1	8 36.7	+59.8	69.4	9 18.6	+60.0	69.7	10 00.0	+60.0	70.0	10 00.0	+60.0	70.0	10
5 57.9	+58.4	68.0	6 42.6	+58.8	68.2	7 26.8	+59.2	68.5	8 10.6	+59.5	68.7	8 53.9	+59.7	69.0	9 36.5	+59.9	69.3	10 18.6	+60.0	69.6	11 00.0	+60.0	70.0	11 00.0	+60.0	70.0	11
6 56.3	+58.4	67.8	7 41.4	+58.8	68.0	8 26.0	+59.2	68.3	9 10.1	+59.4	68.6	9 53.6	+59.7	68.9	10 36.4	+59.9	69.3	11 18.6	+59.9	69.6	12 00.0	+60.0	70.0	12 00.0	+60.0	70.0	12
7 54.7	+58.4	67.6	8 40.2	+58.8	67.8	9 25.2	+59.2	68.1	10 09.5	+59.5	68.5	10 53.3	+59.7	68.8	11 36.3	+59.8	69.2	12 18.5	+60.0	69.6	13 00.0	+60.0	70.0	13 00.0	+60.0	70.0	13
8 53.1	+58.4	67.3	9 39.0	+58.8	67.6	10 24.4	+59.1	68.0	11 09.0	+59.5	68.3	11 53.0	+59.7	68.7	12 36.1	+59.9	69.1	13 18.5	+60.0	69.5	14 00.0	+60.0	70.0	14 00.0	+60.0	70.0	14
9 51.5	+58.4	67.1	10 37.8	+58.8	67.4	11 23.5	+59.2	67.8	12 08.5	+59.4	68.2	12 52.7	+59.6	68.6	13 36.0	+59.9	69.0	14 18.5	+59.9	69.5	15 00.0	+60.0	70.0	15 00.0	+60.0	70.0	15
10 49.9	+58.3	66.9	11 36.6	+58.8	67.2	12 22.7	+59.1	67.6	13 07.9	+59.5	68.1	13 52.3	+59.7	68.5	14 35.9	+59.8	69.0	15 18.4	+60.0	69.5	16 00.0	+60.0	70.0	16 00.0	+60.0	70.0	16
11 48.2	+58.4	66.6	12 35.4	+58.8	67.0	13 21.8	+59.2	67.5	14 07.4	+59.4	67.9	14 52.0	+59.7	68.4	15 35.7	+59.9	68.9	16 18.4	+60.0	69.4	17 00.0	+60.0	70.0	17 00.0	+60.0	70.0	17
12 46.6	+58.3	66.4	13 34.2	+58.8	66.8	14 21.0	+59.1	67.3	15 06.8	+59.5	67.8	15 51.7	+59.7	68.3	16 35.6	+59.8	68.8	17 18.4	+59.9	69.4	18 00.0	+60.0	70.0	18 00.0	+60.0	70.0	18
13 44.9	+58.3	66.2	14 33.0	+58.7	66.6	15 20.1	+59.1	67.1	16 06.3	+59.4	67.6	16 51.4	+59.7	68.2	17 35.4	+59.9	68.8	18 18.3	+60.0	69.4	19 00.0	+60.0	70.0	19 00.0	+60.0	70.0	19
14 43.2	+58.4	65.9	15 31.7	+58.8	66.4	16 19.2	+59.2	66.9	17 05.7	+59.5	67.5	17 51.1	+59.7	68.1	18 35.3	+59.9	68.7	19 18.3	+60.0	69.3	20 00.0	+60.0	70.0	20 00.0	+60.0	70.0	20
15 41.6	+58.3	65.7	16 30.5	+58.7	66.2	17 18.4	+59.1	66.8	18 05.2	+59.4	67.4	18 50.8	+59.6	68.0	19 35.2	+59.8	68.6	20 18.3	+59.9	69.3	21 00.0	+60.0	70.0	21 00.0	+60.0	70.0	21
16 39.9	+58.2	65.4	17 29.2	+58.7	66.0	18 17.5	+59.1	66.6	19 04.6	+59.4	67.2	19 50.4	+59.7	67.9	20 35.0	+59.9	68.5	21 18.2	+60.0	69.3	22 00.0	+60.0	70.0	22 00.0	+60.0	70.0	22
17 38.1	+58.3	65.2	18 27.9	+58.7	65.8	19 16.6	+59.1	66.4	20 04.0	+59.4	67.1	20 50.1	+59.7	67.7	21 34.9	+59.8	68.5	22 18.2	+59.9	69.2	23 00.0	+60.0	70.0	23 00.0	+60.0	70.0	23
18 36.4	+58.2	64.9	19 26.6	+58.7	65.6	20 15.7	+59.1	66.2	21 03.4	+59.4	66.9	21 49.8	+59.6	67.6	22 34.7	+59.9	68.4	23 18.1	+60.0	69.2	24 00.0	+60.0	70.0	24 00.0	+60.0	70.0	24
19 34.6	+58.2	64.7	20 25.3	+58.7	65.3	21 14.8	+59.0	66.0	22 02.8	+59.4	66.8	22 49.4	+59.7	67.5	23 34.6	+59.8	68.3	24 18.1	+60.0	69.1	25 00.0	+60.0	70.0	25 00.0	+60.0	70.0	25
20 32.8	+58.2	64.4	21 24.0	+58.7	65.1	22 13.8	+59.1	65.8	23 02.2	+59.4	66.6	23 49.1	+59.6	67.4	24 34.4	+59.8	68.2	25 18.1	+59.9	69.1	26 00.0	+60.0	70.0	26 00.0	+60.0	70.0	26
21 31.0	+58.2	64.2	22 22.7	+58.6	64.9	23 12.9	+59.0	65.6	24 01.6	+59.4	66.4	24 48.7	+59.7	67.3	25 34.3	+59.8	68.2	26 18.0	+60.0	69.1	27 00.0	+60.0	70.0	27 00.0	+60.0	70.0	27
22 29.2	+58.1	63.9	23 21.3	+58.6	64.7	24 11.9	+59.0	65.5	25 01.0	+59.3	66.3	25 48.4	+59.6	67.2	26 34.1	+59.8	68.1	27 18.0	+59.9	69.0	28 00.0	+60.0	70.0	28 00.0	+60.0	70.0	28
23 27.3	+58.2	63.6	24 19.9	+58.6	64.4	25 10.9	+59.0	65.3	26 00.3	+59.4	66.1	26 48.0	+59.7	67.0	27 33.9	+59.9	68.0	28 17.9	+60.0	69.0	29 00.0	+60.0	70.0	29 00.0	+60.0	70.0	29
24 25.5	+58.0	63.4	25 18.5	+58.6	64.2	26 09.9	+59.0	65.1	26 59.7	+59.3	66.0	27 47.7	+59.6	66.9	28 33.8	+59.8	67.9	29 17.9	+60.0	68.9	30 00.0	+60.0	70.0	30 00.0	+60.0	70.0	30
25 23.5	+58.1	63.1	26 17.1	+58.5	63.9	27 08.9	+59.0	64.9	27 59.0	+59.4	65.8	28 47.3	+59.6	66.8	29 33.6	+59.8	67.8	30 17.9	+59.9	68.9	31 00.0	+60.0	70.0	31 00.0	+60.0	70.0	31
26 21.6	+58.0	62.8	27 15.6	+58.5	63.7	28 07.9	+59.0	64.6	28 58.4	+59.3	65.6	29 46.9	+59.6	66.7	30 33.4	+59.8	67.7	31 17.8	+60.0	68.8	32 00.0	+60.0	70.0	32 00.0	+60.0	70.0	32
27 19.6	+58.0	62.5	28 14.1	+58.5	63.4	29 06.9	+58.9	64.4	29 57.7	+59.3	65.5	30 46.5	+59.6	66.5	31 33.2	+59.9	67.6	32 17.8	+59.9	68.8	33 00.0	+60.0	70.0	33 00.0	+60.0	70.0	33
28 17.6	+57.9	62.2	29 12.6	+58.5	63.2	30 05.8	+58.9	64.2	30 57.0	+59.3	65.3	31 46.1	+59.6	66.4	32 33.1	+59.8	67.6	33 17.7	+60.0	68.8	34 00.0	+60.0	70.0	34 00.0	+60.0	70.0	34
29 15.5	+58.0	61.9	30 11.1	+58.4	62.9	31 04.7	+58.9	64.0	31 56.3	+59.3	65.1	32 45.7	+59.6	66.3	33 32.9	+59.8	67.5	34 17.7	+59.9	68.7	35 00.0	+60.0	70.0	35 00.0	+60.0	70.0	35
30 13.5	+57.8	61.6	31 09.5	+58.4	62.7	32 03.6	+58.9	63.8	32 55.6	+59.2	64.9	33 45.3	+59.6	66.1	34 32.7	+59.8	67.4	35 17.6	+60.0	68.7	36 00.0	+60.0	70.0	36 00.0	+60.0	70.0	36
31 11.3	+57.8	61.3	32 07.9	+58.4	62.4	33 02.5	+58.8	63.5	33 54.8	+59.2	64.7	34 44.9	+59.5	66.0	35 32.5	+59.8	67.3	36 17.6	+59.9	68.6	37 00.0	+60.0	70.0	37 00.0	+60.0	70.0	37
32 09.1	+57.8	61.0	33 06.3	+58.3	62.1	34 01.3	+58.8	63.3	34 54.1	+59.2	64.5	35 44.4	+59.6	65.8	36 32.3	+59.8	67.2	37 17.5	+60.0	68.6	38 00.0	+60.0	70.0	38 00.0	+60.0	70.0	38
33 06.9	+57.7	60.7	34 04.6	+58.3	61.8	35 00.1	+58.8	63.1	35 53.3	+59.2	64.3	36 44.0	+59.5	65.7	37 32.1	+59.8	67.1	38 17.5	+59.9	68.5	39 00.0	+60.0	70.0	39 00.0	+60.0	70.0	39
34 04.6	+57.7	60.4	35 02.9	+58.2	61.6	35 58.9	+58.7	62.8	36 52.5	+59.2	64.1	37 43.5	+59.6	65.5	38 31.9	+59.8	67.0	39 17.4	+60.0	68.5	40 00.0	+60.0	70.0	40 00.0	+60.0	70.0	40

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	8 53.3	+52.6	105.7	8 20.5	+53.5	106.0	7 47.1	+54.4	106.3	7 13.2	+55.3	106.5	6 38.8	+56.0	106.8	6 04.0	+56.7	107.0	5 28.8	+57.3	107.2	4 53.2	+57.9	107.3
1	9 45.9	+52.5	105.2	9 14.0	+53.5	105.6	8 41.5	+54.4	105.9	8 08.5	+55.2	106.1	7 34.8	+56.0	106.4	7 00.7	+56.7	106.6	6 26.1	+57.3	106.9	5 51.1	+57.8	107.1
2	10 38.4	+52.4	104.7	10 07.5	+53.5	105.1	9 35.9	+54.4	105.4	9 03.7	+55.2	105.7	8 30.8	+56.0	106.0	7 57.4	+56.7	106.3	7 23.4	+57.3	106.6	6 48.9	+57.9	106.8
3	11 30.9	+52.4	104.2	11 01.0	+53.4	104.6	10 30.3	+54.3	105.0	9 58.9	+55.1	105.3	9 26.8	+55.9	105.7	8 54.1	+56.6	106.0	8 20.7	+57.3	106.3	7 46.8	+57.9	106.5
4	12 23.3	+52.4	103.7	11 54.4	+53.3	104.2	11 24.6	+54.3	104.6	10 54.0	+55.2	104.9	10 22.7	+55.9	105.3	9 50.7	+56.6	105.7	9 18.0	+57.3	106.0	8 44.7	+57.8	106.3
5	13 15.7	+52.3	103.2	12 47.7	+53.4	103.7	12 18.9	+54.2	104.1	11 49.2	+55.1	104.5	11 18.6	+55.9	104.9	10 47.3	+56.6	105.3	10 15.3	+57.2	105.7	9 42.5	+57.8	106.0
6	14 08.0	+52.3	102.7	13 41.1	+53.2	103.2	13 13.1	+54.2	103.7	12 44.3	+55.0	104.1	12 14.5	+55.9	104.6	11 43.9	+56.6	105.0	11 12.5	+57.2	105.4	10 40.3	+57.8	105.7
7	15 00.3	+52.2	102.2	14 34.3	+53.2	102.7	14 07.3	+54.2	103.2	13 39.3	+55.1	103.7	13 10.4	+55.8	104.2	12 40.5	+56.6	104.6	12 09.7	+57.3	105.1	11 38.1	+57.9	105.5
8	15 52.5	+52.1	101.7	15 27.5	+53.2	102.3	15 01.5	+54.1	102.8	14 34.4	+54.9	103.3	14 06.2	+55.8	103.8	13 37.1	+56.5	104.3	13 07.0	+57.2	104.8	12 36.0	+57.7	105.2
9	16 44.6	+52.0	101.2	16 20.7	+53.0	101.8	15 55.6	+54.0	102.4	15 29.3	+55.0	102.9	15 02.0	+55.7	103.4	14 33.6	+56.5	103.9	14 04.2	+57.1	104.4	13 33.7	+57.8	104.9
10	17 36.6	+52.0	100.7	17 13.7	+53.0	101.3	16 49.6	+54.0	101.9	16 24.3	+54.8	102.5	15 57.7	+55.7	103.1	15 30.1	+56.4	103.6	15 01.3	+57.2	104.1	14 31.5	+57.8	104.6
11	18 28.6	+51.9	100.2	18 06.7	+53.0	100.8	17 43.6	+53.9	101.4	17 19.1	+54.9	102.1	16 53.4	+55.7	102.7	16 26.5	+56.5	103.2	15 58.5	+57.1	103.8	15 29.3	+57.7	104.4
12	19 20.5	+51.7	99.6	18 59.7	+52.8	100.3	18 37.5	+53.8	101.0	18 14.0	+54.7	101.6	17 49.1	+55.6	102.3	17 23.0	+56.4	102.9	16 55.6	+57.1	103.5	16 27.0	+57.7	104.1
13	20 12.2	+51.7	99.1	19 52.5	+52.8	99.8	19 31.3	+53.8	100.5	19 08.7	+54.7	101.2	18 44.7	+55.6	101.9	18 19.4	+56.3	102.5	17 52.7	+57.0	103.2	17 24.7	+57.7	103.8
14	21 03.9	+51.6	98.5	20 45.3	+52.7	99.3	20 25.1	+53.7	100.0	20 03.4	+54.7	100.8	19 40.3	+55.5	101.5	19 15.7	+56.3	102.2	18 49.7	+57.0	102.8	18 22.4	+57.6	103.5
15	21 55.5	+51.4	98.0	21 38.0	+52.5	98.8	21 18.8	+53.6	99.6	20 58.1	+54.6	100.3	20 35.8	+55.5	101.1	20 12.0	+56.3	101.8	19 46.7	+57.0	102.5	19 20.0	+57.6	103.2
16	22 46.9	+51.4	97.4	22 30.5	+52.5	98.3	22 12.4	+53.6	99.1	21 52.7	+54.5	99.9	21 31.3	+55.4	100.7	21 08.3	+56.2	101.4	20 43.7	+56.9	102.2	20 17.6	+57.6	102.9
17	23 38.3	+51.2	96.9	23 23.0	+52.4	97.7	23 06.0	+53.4	98.6	22 47.2	+54.4	99.4	22 26.7	+55.3	100.3	22 04.5	+56.1	101.1	21 40.6	+56.9	101.8	21 15.2	+57.6	102.6
18	24 29.5	+51.1	96.3	24 15.4	+52.2	97.2	23 59.4	+53.3	98.1	23 41.6	+54.3	99.0	23 22.0	+55.2	99.8	23 00.6	+56.1	100.7	22 37.5	+56.9	101.5	22 12.8	+57.5	102.3
19	25 20.6	+51.0	95.7	25 07.6	+52.2	96.7	24 52.7	+53.3	97.6	24 35.9	+54.3	98.5	24 17.2	+55.2	99.4	23 56.7	+56.1	100.3	23 34.4	+56.8	101.2	23 10.3	+57.5	102.0
20	26 11.6	+50.8	95.1	25 59.8	+52.0	96.1	25 46.0	+53.1	97.1	25 30.2	+54.1	98.0	25 12.4	+55.2	99.0	24 52.8	+56.0	99.9	24 31.2	+56.8	100.8	24 07.8	+57.5	101.7
21	27 02.4	+50.6	94.5	26 51.8	+51.9	95.6	26 39.1	+53.0	96.6	26 24.3	+54.1	97.6	26 07.6	+55.0	98.5	25 48.7	+56.0	99.5	25 28.0	+56.7	100.4	25 05.3	+57.4	101.4
22	27 53.0	+50.5	93.9	27 43.7	+51.7	95.0	27 32.1	+52.9	96.0	27 18.4	+54.0	97.1	27 02.6	+54.9	98.1	26 44.7	+55.8	99.1	26 24.7	+56.6	100.1	26 02.7	+57.3	101.0
23	28 43.5	+50.3	93.3	28 35.4	+51.6	94.4	28 25.0	+52.8	95.5	28 12.4	+53.8	96.6	27 57.5	+54.9	97.6	27 40.5	+55.8	98.7	27 21.3	+56.5	99.7	27 00.0	+57.4	100.7
24	29 33.8	+50.2	92.7	29 27.0	+51.4	93.8	29 17.8	+52.6	95.0	29 06.2	+53.8	96.1	28 52.4	+54.7	97.2	28 36.3	+55.7	98.3	28 17.9	+56.5	99.3	27 57.4	+57.2	100.4
25	30 24.0	+49.9	92.1	30 18.4	+51.3	93.2	30 10.4	+52.5	94.4	30 00.0	+53.6	95.6	29 47.1	+54.7	96.7	29 32.0	+55.6	97.8	29 14.4	+56.5	99.0	28 54.6	+57.3	100.0
26	31 13.9	+49.8	91.4	31 09.7	+51.1	92.6	31 02.9	+52.3	93.8	30 53.6	+53.5	95.0	30 41.8	+54.6	96.2	30 27.6	+55.5	97.4	30 10.9	+56.4	98.6	29 51.9	+57.1	99.7
27	32 03.7	+49.6	90.8	32 00.8	+50.9	92.0	31 55.2	+52.2	93.3	31 47.1	+53.3	94.5	31 36.4	+54.4	95.7	31 23.1	+55.4	97.0	31 07.3	+56.3	98.2	30 49.0	+57.1	99.4
28	32 53.3	+49.3	90.1	32 51.7	+50.7	91.4	32 47.4	+52.0	92.7	32 40.4	+53.3	94.0	32 30.8	+54.3	95.2	32 18.5	+55.3	96.5	32 03.6	+56.2	97.8	31 46.1	+57.1	99.0
29	33 42.6	+49.1	89.4	33 42.4	+50.5	90.8	33 39.4	+51.9	92.1	33 33.7	+53.0	93.4	33 25.1	+54.2	94.7	33 13.8	+55.3	96.0	32 59.8	+56.2	97.3	32 43.2	+56.9	98.6
30	34 31.7	+48.9	88.7	34 32.9	+50.4	90.1	34 31.3	+51.6	91.5	34 26.7	+52.9	92.9	34 19.3	+54.1	94.2	34 09.1	+55.1	95.6	33 56.0	+56.1	96.9	33 40.1	+57.0	98.3
31	35 20.6	+48.6	88.0	35 23.3	+50.0	89.4	35 22.9	+51.5	90.9	35 19.6	+52.8	92.3	35 13.4	+53.9	93.7	35 04.2	+55.0	95.1	34 52.1	+55.9	96.5	34 37.1	+56.8	97.9
32	36 09.2	+48.4	87.3	36 13.3	+49.9	88.8	36 14.4	+51.3	90.2	36 12.4	+52.5	91.7	36 07.3	+53.8	93.2	35 59.2	+54.9	94.6	35 48.0	+55.9	96.0	35 33.9	+56.8	97.5
33	36 57.6	+48.1	86.6	37 03.2	+49.6	88.1	37 05.7	+51.0	89.6	37 04.9	+52.4	91.1	37 01.1	+53.6	92.6	36 54.1	+54.7	94.1	36 43.9	+55.8	95.6	36 30.7	+56.6	97.1
34	37 45.7	+47.7	85.8	37 52.8	+49.3	87.4	37 56.7	+50.8	88.9	37 57.3	+52.2	90.5	37 54.7	+53.4	92.0	37 48.8	+54.6	93.6	37 39.7	+55.6	95.1	37 27.3	+56.6	96.7
35	38 33.4	+47.5	85.0	38 42.1	+49.1	86.6	38 47.5	+50.6	88.2	38 49.5	+52.0	89.8	38 48.1	+53.3	91.5	38 43.4	+54.5	93.1	38 35.3	+55.6	94.7	38 23.9	+56.5	96.2
36	39 20.9	+47.2	84.3	39 31.2	+48.8	85.9	39 38.1	+50.3	87.5	39 41.5	+51.7	89.2	39 41.4	+53.1	90.9	39 37.9	+54.3	92.5	39 30.9	+55.4	94.2	39 20.4	+56.4	95.8
37	40 08.1	+46.8	83.5	40 20.0	+48.5	85.1	40 28.4	+50.1	86.8	40 33.2	+51.6	88.5	40 34.5	+52.9	90.3	40 32.2	+54.1	92.0	40 26.3	+55.3	93.7	40 16.8	+56.3	95.4
38	40 54.9	+46.4	82.6	41 08.5	+48.1	84.4	41 18.5	+49.7	86.1	41 24.8	+51.2	87.9	41 27.4	+52.7	89.6	41 26.3	+54.0	91.4	41 21.6	+55.1	93.2	41 13.1	+56.2	94.9
39	41 41.3	+46.1	81.8	41 56.6	+47.8	83.6	42 08.2	+49.5	85.4	42 16.0	+51.1	87.2	42 20.1	+52.4	89.0	42 20.3	+53.8	90.8	42 16.7	+55.0	92.6	42 09.3	+56.1	94.4
40	42 27.4	+45.7	80.9	42 44.4	+47.5	82.7	42 57.7	+49.1	84.6	43 07.1	+50.7	86.5	43 12.5	+52.3	88.3	43 14.1	+53.6	90.2	43 11.7	+54.8	92.1	43 05.4	+55.9	94.0
41	43 13.1	+45.2	80.0	43 31.9	+47.1	81.9	43 46.8	+48.8	83.8	43 57.8	+50.5	85.7	44 04.8	+51.9	87.6	44 07.7	+53.3	89.6	44 06.5	+54.7	91.5	44 01.3	+55.8	93.5
42	43 58.3	+44.8	79.1	44 19.0	+46.7	81.0	44 35.6	+48.5	83.0	44 48.3	+50.1	85.0	44 56.7	+51.7	86.9	45 01.0	+53.2	88.9	45 01.2	+54.4	90.9	44 57.1	+55.6	92.9
43	44 43.1	+44.4	78.2	45 05.7	+46.2	80.2	45 24.1	+48.1	82.2	45 38.4	+49.8	84.2	45 48.4	+51.5	86.2	45 54.2	+52.9	88.3	45 55.6	+54.2	90.3	45 52.7	+55.6	92.4
44	45 27.5	+43.8	77.2	45 51.9	+45.8	79.3	46 12.2	+47.7	81.3	46 28.2	+49.5	83.4	46 39.9	+51.1	85.5	46 47.1	+52.7	87.6	46 49.9	+54.1	89.7	46 48.3	+55.3	91.9
45	46 11.3	+43.4	76.3	46 37.7	+45.4	78.3	46 59.9	+47.3	80.4	47 17.7	+49.1	82.5	47 31.0	+50.8	84.7	47 39.8	+52.4	86.9	47 44.0	+53.8	89.1	47 43.6	+56.2	91.3
46	46 54.7	+42.8	75.3	47 23.1	+44.8	77.4	47 47.2	+46.8	79.5	48 06.8	+48.7	81.7	48 21.8	+50.5	83.9	48 32.2	+52.1	86.2	48 37.8	+53.7	88.4	48 38.8	+54.9	90.7
47	47 37.5	+42.2	74.2																					

LATITUDE CONTRARY NAME

L.H.A. 72°, 288°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
8 53.3	-52.6	105.7	8 20.5	-53.6	106.0	7 47.1	-54.4	106.3	7 13.2	-55.2	106.5	6 38.8	-56.0	106.8	6 04.0	-56.7	107.0	5 28.8	-57.4	107.2	4 53.2	-57.9	107.3	0		
8 00.7	-52.7	106.2	7 26.9	-53.5	106.5	6 52.7	-54.5	106.7	6 18.0	-55.3	106.9	5 42.8	-56.0	107.1	5 07.3	-56.7	107.3	4 31.4	-57.3	107.5	3 55.3	-57.9	107.6	1		
7 08.0	-52.6	106.7	6 33.4	-53.7	106.9	5 58.2	-54.5	107.1	5 22.7	-55.3	107.3	4 46.8	-56.0	107.5	4 10.6	-56.7	107.6	3 34.1	-57.3	107.8	2 57.4	-57.9	107.9	2		
6 15.4	-52.7	107.2	5 39.7	-53.6	107.4	5 03.7	-54.5	107.5	4 27.4	-55.3	107.7	3 50.8	-56.1	107.8	3 13.9	-56.8	108.0	2 36.8	-57.4	108.1	1 59.5	-57.9	108.1	3		
5 22.7	-52.8	107.6	4 46.1	-53.6	107.8	4 09.2	-54.5	108.0	3 32.1	-55.3	108.1	2 54.7	-56.0	108.2	2 17.1	-56.7	108.3	1 39.4	-57.3	108.4	1 01.6	-57.9	108.4	4		
4 29.9	-52.7	108.1	3 52.5	-53.7	108.3	3 14.7	-54.5	108.4	2 36.8	-55.3	108.5	1 58.7	-56.1	108.6	1 20.4	-56.7	108.6	0 42.1	-57.4	108.6	0 03.7	-57.9	108.7	5		
3 37.2	-52.8	108.6	2 58.8	-53.7	108.7	2 20.2	-54.5	108.8	1 41.5	-55.4	108.9	1 02.6	-56.1	108.9	0 23.7	-56.8	108.9	0 15.3	-57.3	111.1	0 54.2	-57.9	111.1	6		
2 44.4	-52.7	109.1	2 05.1	-53.7	109.2	1 25.7	-54.6	109.2	0 46.1	-55.3	109.3	0 06.5	-56.0	109.3	0 23.1	-56.7	109.3	1 12.6	-57.4	70.8	1 52.1	-57.9	70.8	7		
1 51.7	-52.8	109.6	1 11.4	-53.6	109.6	0 31.1	-54.5	109.6	0 09.2	-55.3	109.6	0 29.8	-56.1	70.4	1 29.8	-56.7	70.4	2 10.0	-57.3	70.5	2 50.0	-57.9	70.6	8		
0 58.9	-52.8	110.0	0 17.8	-53.7	110.1	0 23.4	-54.5	69.9	1 04.5	-55.4	70.0	1 45.6	-56.0	70.0	2 26.5	-56.8	70.1	3 07.3	-57.4	70.2	3 47.9	-57.9	70.3	9		
0 06.1	-52.8	110.5	0 35.9	-53.7	69.5	1 17.9	-54.6	69.5	1 59.9	-55.3	69.6	2 41.6	-56.1	69.7	3 23.3	-56.7	69.8	4 04.7	-57.3	69.9	4 45.8	-57.9	70.0	10		
0 46.7	-52.7	69.0	1 29.6	-53.7	69.1	2 12.5	-54.5	69.1	2 55.2	-55.3	69.2	3 37.7	-56.0	69.3	4 20.0	-56.7	69.4	5 02.0	-57.3	69.6	5 43.7	-57.9	69.8	11		
1 39.4	-52.8	68.5	2 23.3	-53.7	68.6	3 07.0	-54.5	68.7	3 50.5	-55.3	68.8	4 33.7	-56.1	68.9	5 16.7	-56.7	69.1	5 59.3	-57.3	69.3	6 41.6	-57.8	69.5	12		
2 32.2	-52.8	68.1	3 17.0	-53.6	68.2	4 01.5	-54.5	68.3	4 45.8	-55.3	68.4	5 29.8	-56.0	68.6	6 13.4	-56.7	68.8	6 56.6	-57.3	69.0	7 39.4	-57.9	69.2	13		
3 25.0	-52.7	67.6	4 10.6	-53.7	67.7	4 56.0	-54.5	67.9	5 41.1	-55.2	68.0	6 25.8	-56.0	68.2	7 10.1	-56.7	68.4	7 53.9	-57.3	68.7	8 37.3	-57.8	69.0	14		
4 17.7	-52.8	67.1	5 04.3	-53.6	67.3	5 50.5	-54.5	67.4	6 36.3	-55.3	67.6	7 21.8	-56.0	67.9	8 06.8	-56.6	68.1	8 51.2	-57.3	68.4	9 35.1	-57.9	68.7	15		
5 10.5	-52.7	66.6	5 57.9	-53.6	66.8	6 45.0	-54.4	67.0	7 31.6	-55.2	67.2	8 17.8	-55.9	67.5	9 03.4	-56.7	67.8	9 48.5	-57.3	68.1	10 33.0	-57.8	68.4	16		
6 03.2	-52.6	66.1	6 51.5	-53.6	66.4	7 39.4	-54.4	66.6	8 26.8	-55.2	66.8	9 13.7	-56.0	67.1	10 00.1	-56.6	67.4	10 45.8	-57.2	67.8	11 30.8	-57.8	68.2	17		
6 55.8	-52.7	65.7	7 45.1	-53.5	65.9	8 33.8	-54.4	66.2	9 22.0	-55.2	66.5	10 09.7	-55.9	66.8	10 56.7	-56.6	67.1	11 43.0	-57.2	67.5	12 28.6	-57.8	67.9	18		
7 48.5	-52.6	65.2	8 38.6	-53.5	65.4	9 28.2	-54.4	65.7	10 17.2	-55.2	66.1	11 05.6	-55.9	66.4	11 53.3	-56.6	66.8	12 40.2	-57.2	67.2	13 26.4	-57.7	67.6	19		
8 41.1	-52.6	64.7	9 32.1	-53.5	65.0	10 22.6	-54.3	65.3	11 12.4	-55.1	65.7	12 01.5	-55.9	66.0	12 49.9	-56.5	66.4	13 37.4	-57.2	66.9	14 24.1	-57.8	67.3	20		
9 33.7	-52.5	64.2	10 25.6	-53.5	64.5	11 16.9	-54.3	64.9	12 07.5	-55.1	65.3	12 57.4	-55.8	65.7	13 46.4	-56.5	66.1	14 34.6	-57.2	66.6	15 21.9	-57.7	67.0	21		
10 26.2	-52.5	63.7	11 19.1	-53.4	64.1	12 11.2	-54.2	64.4	13 02.6	-55.0	64.8	13 53.2	-55.8	65.3	14 42.9	-56.5	65.7	15 31.8	-57.1	66.2	16 19.6	-57.7	66.8	22		
11 18.7	-52.5	63.2	12 12.5	-53.3	63.6	13 05.4	-54.2	64.0	13 57.6	-55.0	64.4	14 49.0	-55.7	64.9	15 39.4	-56.5	65.4	16 28.9	-57.1	65.9	17 17.3	-57.7	66.5	23		
12 11.2	-52.4	62.7	13 05.8	-53.3	63.1	13 59.6	-54.2	63.6	14 52.6	-55.0	64.0	15 44.7	-55.8	64.5	16 35.9	-56.4	65.0	17 26.0	-57.1	65.6	18 15.0	-57.7	66.2	24		
13 03.6	-52.3	62.2	13 59.1	-53.2	62.7	14 53.8	-54.1	63.1	15 47.5	-54.9	63.2	16 40.5	-55.6	64.1	17 32.3	-56.4	64.7	18 23.1	-57.0	65.3	19 12.7	-57.6	65.9	25		
13 55.9	-52.3	61.7	14 52.3	-53.2	62.2	15 47.9	-54.0	62.7	16 42.6	-54.8	63.2	17 36.1	-55.7	63.7	18 28.7	-56.3	64.3	19 20.1	-57.0	64.9	20 10.3	-57.6	65.6	26		
14 48.2	-52.2	61.2	15 45.5	-53.1	61.7	16 41.9	-54.0	62.2	17 37.4	-54.8	62.8	18 31.8	-55.5	63.3	19 25.0	-56.3	64.0	20 17.1	-56.9	64.6	21 07.9	-57.6	65.3	27		
15 40.4	-52.1	60.7	16 38.6	-53.1	61.2	17 35.9	-54.0	61.8	18 32.2	-54.7	62.3	19 27.3	-55.6	62.9	20 21.3	-56.3	63.6	21 14.0	-57.0	64.3	22 05.5	-57.5	65.0	28		
16 32.5	-52.1	60.2	17 31.7	-53.0	60.7	18 29.9	-53.8	61.3	19 26.9	-54.7	61.9	20 22.9	-55.4	62.5	21 17.6	-56.2	63.2	22 11.0	-56.8	63.9	23 03.0	-57.5	65.7	29		
17 24.6	-52.0	59.7	18 24.7	-52.9	60.2	19 23.7	-53.8	60.8	20 21.6	-54.6	61.5	21 18.3	-55.4	62.1	22 13.8	-56.1	62.8	23 07.8	-56.9	63.6	24 00.5	-57.4	64.4	30		
18 16.6	-51.9	59.2	19 17.6	-52.8	59.7	20 17.5	-53.7	60.4	21 16.2	-54.6	61.0	22 13.7	-55.4	61.7	23 09.9	-56.1	62.5	24 04.7	-56.8	63.2	24 57.9	-57.5	64.1	31		
19 08.5	-51.8	58.6	20 10.4	-52.7	59.2	21 11.2	-53.6	59.9	22 10.8	-54.5	60.6	23 09.1	-55.3	61.3	24 06.0	-56.0	62.1	25 01.5	-56.7	62.9	25 55.4	-57.3	63.7	32		
20 00.3	-51.7	58.1	21 03.1	-52.7	58.7	22 04.8	-53.6	59.4	23 05.3	-54.4	60.1	24 04.4	-55.2	60.9	25 02.0	-56.0	61.7	25 58.2	-56.7	62.5	26 52.7	-57.4	63.4	33		
20 52.0	-51.6	57.5	21 55.8	-52.5	58.2	22 58.4	-53.4	58.9	23 59.7	-53.3	59.7	24 59.6	-55.1	60.4	25 58.0	-55.9	61.3	26 54.9	-56.6	62.2	27 50.1	-57.2	63.1	34		
21 43.6	-51.4	57.0	22 48.3	-52.5	57.7	23 51.8	-53.4	58.4	24 54.0	-54.2	59.2	25 54.7	-55.1	60.0	26 53.9	-55.8	60.9	27 51.5	-56.5	61.8	28 47.3	-57.3	62.7	35		
22 35.0	-51.4	56.4	23 40.8	-52.3	57.2	24 45.2	-53.2	57.9	25 48.2	-54.1	58.7	26 49.8	-54.9	59.6	27 49.7	-55.8	60.5	28 48.0	-56.5	61.4	29 44.6	-57.1	62.4	36		
23 26.4	-51.3	55.9	24 33.1	-52.2	56.6	25 38.4	-53.2	57.4	26 42.3	-54.1	58.2	27 44.7	-54.9	59.1	28 45.5	-55.7	60.0	29 44.5	-56.5	61.0	30 41.7	-57.1	62.0	37		
24 17.7	-51.1	55.3	25 25.3	-52.1	56.1	26 31.6	-53.0	56.9	27 36.4	-53.9	57.7	28 39.6	-54.8	58.7	29 41.2	-55.6	59.6	30 41.0	-56.3	60.6	31 38.8	-57.1	61.7	38		
25 08.8	-51.0	54.7	26 17.4	-52.0	55.5	27 24.6	-52.9	56.4	28 30.3	-53.8	57.3	29 34.4	-54.7	58.2	30 36.8	-55.5	59.2	31 37.3	-56.3	60.2	32 35.9	-57.0	61.3	39		
25 59.8	-50.8	54.2	27 09.4	-51.8	55.0	28 17.5	-52.8	55.8	29 24.1	-53.7	56.7	30 29.1	-54.5	57.7	31 32.3	-55.4	58.7	32 33.6	-56.2	59.8	33 32.9	-56.9	60.9	40		
26 50.6	-50.7	53.6	28 01.2	-51.7	54.4	29 10.3	-52.6	55.3	30 17.8	-53.6	56.2	31 23.6	-54.5	57.2	32 27.7	-55.3	58.3	33 29.8	-56.1	59.4	34 29.8	-56.9	60.6	41		
27 41.3	-50.5	53.0	28 52.9	-51.5	53.8	30 02.9	-52.6	54.7	31 11.4	-53.4	55.7	32 18.1	-54.4	56.7	33 23.0	-55.2	57.8	34 25.9	-56.0	59.0	35 26.7	-56.7	60.2	42		
28 31.8	-50.4	52.3	29 44.4	-51.4	53.2	30 55.5	-52.3	54.2	32 04.8	-53.4	55.2	33 12.5	-54.2	56.2	34 18.2	-55.1	57.4	35 21.9	-55.9	58.5	36 23.4	-56.7	59.8	43		
29 22.2	-50.2	51.7	30 35.8	-51.2	52.6	31 47.8	-52.2	53.6	32 58.2	-53.1	54.6	34 06.7	-54.1	55.7	35 13.6	-55.0	56.9	36 17.8	-55.8	58.1	37 20.1	-56.6	59.4	44		
30 12.4	-50.0	51.1	31 27.0	-51.0	52.0	32 40.0	-52.1	53.0	33 51.3	-53.0	54.1	35 00.8	-53.9	55.2	36 08.3	-54.8	56.4	37 13.6	-55.7	57.6	38 16.7	-56.5	58.9	45		
31 02.4	-49.8	50.5	32 18.0	-50.9	51.4	33 32.1	-																			

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	4 17.2	+58.4	107.5	3 41.0	+58.8	107.6	3 04.6	+59.1	107.7	2 27.9	+59.5	107.8	1 51.1	+59.7	107.9	1 14.1	+59.9	108.0	0 37.1	+59.9	108.0	0 00.0	+60.0	108.0
1	5 15.6	+58.4	107.3	4 39.8	+58.8	107.4	4 03.7	+59.2	107.6	3 27.4	+59.4	107.7	2 50.8	+59.7	107.8	2 14.0	+59.8	107.9	1 37.0	+60.0	108.0	1 00.0	+60.0	108.0
2	6 14.0	+58.4	107.0	5 38.6	+58.8	107.2	5 02.9	+59.2	107.4	4 26.8	+59.5	107.6	3 50.5	+59.7	107.7	3 13.8	+59.9	107.8	2 37.0	+60.0	107.9	2 00.0	+60.0	108.0
3	7 12.4	+58.3	106.8	6 37.4	+58.8	107.0	6 02.1	+59.1	107.2	5 26.3	+59.5	107.4	4 50.2	+59.7	107.6	4 13.7	+59.9	107.8	3 37.0	+59.9	107.9	3 00.0	+60.0	108.0
4	8 10.7	+58.4	106.6	7 36.2	+58.8	106.8	7 01.2	+59.2	107.1	6 25.8	+59.4	107.3	5 49.9	+59.7	107.5	5 13.6	+59.8	107.7	4 36.9	+60.0	107.9	4 00.0	+60.0	108.0
5	9 09.1	+58.3	106.3	8 35.0	+58.8	106.6	8 00.4	+59.2	106.9	7 25.2	+59.5	107.2	6 49.6	+59.7	107.4	6 13.4	+59.9	107.6	5 36.9	+60.0	107.8	5 00.0	+60.0	108.0
6	10 07.4	+58.3	106.1	9 33.8	+58.8	106.4	8 59.6	+59.1	106.7	8 24.7	+59.5	107.0	7 49.3	+59.7	107.3	7 13.3	+59.9	107.6	6 36.9	+59.9	107.8	6 00.0	+60.0	108.0
7	11 05.7	+58.4	105.9	10 32.6	+58.8	106.2	9 58.7	+59.2	106.6	9 24.2	+59.4	106.9	8 49.0	+59.7	107.2	8 13.2	+59.8	107.5	7 36.8	+60.0	107.8	7 00.0	+60.0	108.0
8	12 04.1	+58.3	105.6	11 31.4	+58.7	106.0	10 57.9	+59.1	106.4	10 23.6	+59.5	106.8	9 48.7	+59.6	107.1	9 13.0	+59.9	107.4	8 36.8	+60.0	107.7	8 00.0	+60.0	108.0
9	13 02.4	+58.3	105.4	12 30.1	+58.8	105.8	11 57.0	+59.1	106.2	11 23.1	+59.4	106.6	10 48.3	+59.7	107.0	10 12.9	+59.9	107.3	9 36.8	+59.9	107.7	9 00.0	+60.0	108.0
10	14 00.7	+58.3	105.1	13 28.9	+58.7	105.6	12 56.1	+59.2	106.1	12 22.5	+59.5	106.5	11 48.0	+59.7	106.9	11 12.8	+59.8	107.3	10 36.7	+60.0	107.7	10 00.0	+60.0	108.0
11	14 59.0	+58.2	104.9	14 27.6	+58.7	105.4	13 55.3	+59.1	105.9	13 22.0	+59.4	106.3	12 47.7	+59.7	106.8	12 12.6	+59.9	107.2	11 36.7	+60.0	107.6	11 00.0	+60.0	108.0
12	15 57.2	+58.3	104.6	15 26.3	+58.8	105.2	14 54.4	+59.1	105.7	14 21.4	+59.4	106.2	13 47.4	+59.7	106.7	13 12.5	+59.9	107.1	12 36.7	+59.9	107.5	12 00.0	+60.0	108.0
13	16 55.5	+58.2	104.4	16 25.1	+58.7	105.0	15 53.5	+59.1	105.5	15 20.8	+59.5	106.1	14 47.1	+59.7	106.6	14 12.4	+59.8	107.1	13 36.6	+60.0	107.6	13 00.0	+60.0	108.0
14	17 53.7	+58.2	104.1	17 23.8	+58.7	104.8	16 52.6	+59.1	105.3	16 20.3	+59.4	105.9	15 46.8	+59.7	106.5	15 12.2	+59.9	107.0	14 36.6	+60.0	107.5	14 00.0	+60.0	108.0
15	18 51.9	+58.2	103.9	18 22.5	+58.6	104.5	17 51.7	+59.1	105.2	17 19.7	+59.4	105.8	16 45.6	+59.6	106.4	16 12.1	+59.8	106.9	15 36.6	+59.9	107.5	15 00.0	+60.0	108.0
16	19 50.1	+58.2	103.6	19 21.1	+58.7	104.3	18 50.8	+59.1	105.0	18 19.1	+59.4	105.6	17 46.1	+59.7	106.3	17 11.9	+59.9	106.9	16 36.5	+60.0	107.4	16 00.0	+60.0	108.0
17	20 48.3	+58.1	103.4	20 19.8	+58.6	104.1	19 49.9	+59.0	104.8	19 18.5	+59.4	105.5	18 45.8	+59.7	106.1	18 11.8	+59.8	106.8	17 36.5	+60.0	107.4	17 00.0	+60.0	108.0
18	21 46.4	+58.1	103.1	21 18.4	+58.7	103.9	20 48.9	+59.1	104.6	20 17.9	+59.4	105.3	19 45.5	+59.6	106.0	19 11.6	+59.9	106.7	18 36.5	+59.9	107.4	18 00.0	+60.0	108.0
19	22 44.5	+58.1	102.8	22 17.1	+58.6	103.6	21 48.0	+59.0	104.4	21 17.3	+59.4	105.2	20 45.1	+59.7	105.9	20 11.5	+59.8	106.6	19 36.4	+60.0	107.3	19 00.0	+60.0	108.0
20	23 42.6	+58.1	102.6	23 15.7	+58.5	103.4	22 47.0	+59.0	104.2	22 16.7	+59.4	105.0	21 44.8	+59.6	105.8	21 11.3	+59.9	106.6	20 36.4	+59.9	107.3	20 00.0	+60.0	108.0
21	24 40.7	+58.0	102.3	24 14.2	+58.6	103.2	23 46.0	+59.0	104.0	23 16.1	+59.3	104.9	22 44.4	+59.7	105.7	22 11.2	+59.8	106.5	21 36.3	+60.0	107.3	21 00.0	+60.0	108.0
22	25 38.7	+58.0	102.0	25 12.8	+58.5	102.9	24 45.0	+59.0	103.8	24 15.4	+59.4	104.7	23 44.1	+59.6	105.6	23 11.0	+59.9	106.4	22 36.3	+60.0	107.2	22 00.0	+60.0	108.0
23	26 36.7	+58.0	101.7	26 11.3	+58.6	102.7	25 44.0	+59.0	103.6	25 14.8	+59.4	104.6	24 43.7	+59.7	105.5	24 10.9	+59.8	106.3	23 36.3	+59.9	107.2	23 00.0	+60.0	108.0
24	27 34.7	+57.9	101.4	27 09.9	+58.4	102.4	26 43.0	+59.0	103.4	26 14.2	+59.3	104.4	25 43.4	+59.6	105.3	25 10.7	+59.8	106.2	24 36.2	+60.0	107.1	24 00.0	+60.0	108.0
25	28 32.6	+57.9	101.1	28 08.3	+58.5	102.2	27 42.0	+58.9	103.2	27 13.5	+59.3	104.2	26 43.0	+59.6	105.2	26 10.5	+59.9	106.2	25 36.2	+59.9	107.1	25 00.0	+60.0	108.0
26	29 30.5	+57.8	100.8	29 06.0	+58.4	101.9	28 40.9	+58.9	103.0	28 12.8	+59.3	104.1	27 42.6	+59.6	105.1	27 10.4	+59.8	106.1	26 36.1	+60.0	107.1	26 00.0	+60.0	108.0
27	30 28.3	+57.8	100.5	30 05.2	+58.4	101.7	29 39.8	+58.9	102.8	29 12.1	+59.3	103.9	28 42.2	+59.6	105.0	28 10.2	+59.8	106.0	27 36.1	+60.0	107.0	27 00.0	+60.0	108.0
28	31 26.1	+57.8	100.2	31 03.6	+58.4	101.4	30 38.7	+58.9	102.6	30 11.4	+59.3	103.7	29 41.8	+59.6	104.8	29 10.0	+59.9	105.9	28 36.1	+59.9	107.0	28 00.0	+60.0	108.0
29	32 23.9	+57.7	99.9	32 02.0	+58.3	101.1	31 37.6	+58.8	102.3	31 10.7	+59.3	103.5	30 41.4	+59.6	104.7	30 09.9	+59.8	105.8	29 36.0	+60.0	106.9	29 00.0	+60.0	108.0
30	33 21.6	+57.6	99.6	33 00.3	+58.3	100.8	32 36.4	+58.8	102.1	32 10.0	+59.2	103.3	31 41.0	+59.6	104.6	31 09.7	+59.8	105.7	30 36.0	+59.9	106.9	30 00.0	+60.0	108.0
31	34 19.2	+57.6	99.2	33 58.6	+58.2	100.6	33 35.2	+58.8	101.9	33 09.2	+59.3	103.2	32 40.6	+59.6	104.4	32 09.5	+59.8	105.6	31 35.9	+60.0	106.8	31 00.0	+60.0	108.0
32	35 16.8	+57.6	98.9	34 56.8	+58.3	100.3	34 34.0	+58.8	101.6	34 08.5	+59.2	103.0	33 40.2	+59.6	104.3	33 09.3	+59.8	105.6	32 35.9	+59.9	106.8	32 00.0	+60.0	108.0
33	36 14.4	+57.4	98.5	35 55.1	+58.1	100.0	35 32.8	+58.7	101.4	35 07.7	+59.2	102.8	34 39.8	+59.5	104.1	34 09.1	+59.8	105.5	33 35.8	+60.0	106.7	33 00.0	+60.0	108.0
34	37 11.8	+57.4	98.2	36 53.2	+58.1	99.7	36 31.5	+58.7	101.1	36 06.9	+59.2	102.6	35 39.3	+59.6	104.0	35 08.9	+59.8	105.4	34 35.8	+59.9	106.7	34 00.0	+60.0	108.0
35	38 09.2	+57.4	97.8	37 51.3	+58.1	99.4	37 30.2	+58.7	100.9	37 06.1	+59.1	102.4	36 38.9	+59.5	103.8	36 08.7	+59.8	105.3	35 35.7	+60.0	106.6	35 00.0	+60.0	108.0
36	39 06.6	+57.2	97.4	38 49.4	+58.0	99.0	38 28.9	+58.6	100.6	38 05.2	+59.2	102.2	37 38.4	+59.5	103.7	37 08.5	+59.8	105.2	36 35.7	+59.9	106.6	36 00.0	+60.0	108.0
37	40 03.8	+57.2	97.0	39 47.4	+57.9	98.7	39 27.5	+58.6	100.3	39 04.4	+59.1	101.9	38 37.9	+59.5	103.5	38 08.3	+59.8	105.0	37 35.6	+60.0	106.5	37 00.0	+60.0	108.0
38	41 01.0	+57.1	96.6	40 45.3	+57.9	98.4	40 26.1	+58.6	100.0	40 03.5	+59.0	101.7	39 37.4	+59.5	103.3	39 08.1	+59.8	104.9	38 35.6	+59.9	106.5	38 00.0	+60.0	108.0
39	41 58.1	+57.0	96.2	41 43.2	+57.9	98.0	41 24.7	+58.5	99.8	41 02.5	+59.1	101.5	40 36.9	+59.5	103.2	40 07.9	+59.7	104.8	39 35.5	+60.0	106.4	39 00.0	+60.0	108.0
40	42 55.1	+56.9	95.8	42 41.1	+57.7	97.7	42 23.2	+58.4	99.5	42 01.6	+59.0	101.3	41 36.4	+59.4	103.0	41 07.6	+59.8	104.7	40 35.5	+59.9	106.4	40 00.0	+60.0	108.0
41	43 52.0	+56.9	95.4	43 38.8	+57.7	97.3	43 21.6	+58.5	99.2	43 00.6	+59.0	101.0	42 35.8	+59.5	102.8	42 07.4	+59.8	104.6	41 35.4	+60.0	106.3	41 00.0	+60.0	108.0
42	44 48.9	+56.7	94.9	44 36.5	+57.6	96.9	44 20.1	+58.3	98.8	43 59.6	+59.0	100.8	43 35.3	+59.4	102.6	43 07.2	+59.7	104.5	42 35.4	+59.9	106.3	42 00.0	+60.0	108.0
43	45 45.6	+56.5	94.5	45 34.4	+57.5	96.5	45 18.4	+58.3	98.5	44 58.6	+59.0	100.5	44 34.7	+59.4	102.4	44 06.9	+59.7	104.3	43 35.3	+59.9	106.2	43 00.0	+60.0	108.0
44	46 42.1	+56.5	94.0	46 31.6	+57.4	96.1	46 16.7	+58.2	98.2	45 57.5	+58.9	100.2	45 34.1	+59.4	102.2	45 06.6	+59.8	104.2	44 35.2	+60.0	106.1	44 00.0	+60.0	108.0
45	47 38.6	+56.3	93.5	47 29.0	+57.3	95.7	47 14.9	+58.2	97.8	46 56.4	+58.8	99.9	46 33.5	+59.4	102.0	46 06.4	+59.7	104.1	45 35.2	+59.9	106.1	45 00.0	+60.0	108.0
46	48 34.9	+56.2	93.0	48 26.3	+57.3	95.2	48 13.1	+58.1	97.5	47 35.2	+58.9	99.7	47 32.9											

LATITUDE CONTRARY NAME

L.H.A. 72°, 288°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
4 17.2	-58.3	107.5	3 41.0	-58.8	107.6	3 04.6	-59.2	107.7	2 27.9	-59.5	107.8	1 51.1	-59.7	107.9	1 14.1	-59.9	108.0	0 37.1	-60.0	108.0	0 00.0	+60.0	72.0	0		
3 18.9	-58.4	107.7	2 42.2	-58.8	107.8	2 05.4	-59.2	107.9	1 28.4	-59.5	108.0	0 51.4	-59.7	108.0	0 14.2	-59.8	108.0	0 22.9	+60.0	72.0	1 00.0	+60.0	72.0	1		
2 20.5	-58.4	108.0	1 43.4	-58.8	108.0	1 06.2	-59.2	108.1	0 28.9	-59.4	108.1	0 08.3	+59.7	71.9	0 45.6	+59.9	71.9	1 22.9	+59.9	71.9	2 00.0	+60.0	72.0	2		
1 22.1	-58.4	108.2	0 44.6	-58.8	108.2	0 07.0	-59.1	108.2	0 30.5	+59.5	71.8	1 08.0	+59.7	71.8	1 45.5	+59.9	71.8	2 22.8	+60.0	71.9	3 00.0	+60.0	72.0	3		
0 23.7	-58.4	108.4	0 14.2	+58.8	71.6	0 52.1	+59.2	71.6	1 30.0	+59.5	71.6	2 07.7	+59.8	71.7	2 45.4	+59.8	71.8	3 22.8	+60.0	71.9	4 00.0	+60.0	72.0	4		
0 34.7	+58.4	71.3	1 13.0	+58.9	71.4	1 51.3	+59.2	71.4	2 29.5	+59.4	71.5	3 07.5	+59.7	71.6	3 45.2	+59.9	71.7	4 22.8	+59.9	71.8	5 00.0	+60.0	72.0	5		
1 33.1	+58.4	71.1	2 11.9	+58.8	71.2	2 50.5	+59.2	71.3	3 28.9	+59.5	71.4	4 07.2	+59.7	71.5	4 45.1	+59.9	71.6	5 22.7	+60.0	71.8	6 00.0	+60.0	72.0	6		
2 31.5	+58.4	70.9	3 10.7	+58.8	71.0	3 49.7	+59.1	71.1	4 28.4	+59.5	71.2	5 06.9	+59.7	71.4	5 45.0	+59.8	71.6	6 22.7	+60.0	71.8	7 00.0	+60.0	72.0	7		
3 29.9	+58.3	70.7	4 09.5	+58.8	70.8	4 48.8	+59.2	70.9	5 27.9	+59.4	71.1	6 06.6	+59.7	71.3	6 44.8	+59.9	71.5	7 22.7	+59.9	71.7	8 00.0	+60.0	72.0	8		
4 28.2	+58.4	70.4	5 08.3	+58.8	70.6	5 48.0	+59.2	70.8	6 27.3	+59.5	71.0	7 06.3	+59.6	71.2	7 44.7	+59.9	71.4	8 22.6	+60.0	71.7	9 00.0	+60.0	72.0	9		
5 26.6	+58.4	70.2	6 07.1	+58.8	70.4	6 47.2	+59.1	70.6	7 26.8	+59.5	70.8	8 05.9	+59.7	71.1	8 44.6	+59.8	71.4	9 22.6	+60.0	71.7	10 00.0	+60.0	72.0	10		
6 25.0	+58.4	70.0	7 05.9	+58.8	70.2	7 46.3	+59.2	70.4	8 26.3	+59.4	70.7	9 05.6	+59.7	71.0	9 44.4	+59.9	71.3	10 22.6	+59.9	71.6	11 00.0	+60.0	72.0	11		
7 23.4	+58.3	69.7	8 04.7	+58.8	70.0	8 45.5	+59.1	70.3	9 25.7	+59.5	70.6	10 05.3	+59.7	70.9	10 44.3	+59.8	71.2	11 22.5	+60.0	71.6	12 00.0	+60.0	72.0	12		
8 21.7	+58.4	69.5	9 03.5	+58.8	69.8	9 44.6	+59.2	70.1	10 25.2	+59.4	70.4	11 05.0	+59.7	70.8	11 44.1	+59.9	71.2	12 22.5	+60.0	71.6	13 00.0	+60.0	72.0	13		
9 20.1	+58.3	69.3	10 02.3	+58.7	69.6	10 43.8	+59.1	69.9	11 24.6	+59.5	70.3	12 04.7	+59.7	70.7	12 44.0	+59.9	71.1	13 22.5	+59.9	71.5	14 00.0	+60.0	72.0	14		
10 18.4	+58.3	69.0	11 01.0	+58.8	69.4	11 42.9	+59.2	69.8	12 24.1	+59.4	70.2	13 04.4	+59.7	70.6	13 43.9	+59.8	71.0	14 22.4	+60.0	71.5	15 00.0	+60.0	72.0	15		
11 16.7	+58.4	68.8	11 59.8	+58.8	69.2	12 42.1	+59.1	69.6	13 23.5	+59.5	70.0	14 04.1	+59.7	70.5	14 43.7	+59.9	71.0	15 22.4	+59.9	71.5	16 00.0	+60.0	72.0	16		
12 15.1	+58.3	68.5	12 58.6	+58.7	69.0	13 41.2	+59.1	69.4	14 23.0	+59.4	69.9	15 03.8	+59.7	70.4	15 43.6	+59.8	70.9	16 22.3	+60.0	71.4	17 00.0	+60.0	72.0	17		
13 13.4	+58.3	68.3	13 57.3	+58.7	68.8	14 40.3	+59.1	69.2	15 22.4	+59.4	69.7	16 03.5	+59.6	70.3	16 43.4	+59.9	70.8	17 22.3	+60.0	71.4	18 00.0	+60.0	72.0	18		
14 11.7	+58.2	68.1	14 56.0	+58.8	68.5	15 39.4	+59.2	69.1	16 21.8	+59.5	69.6	17 03.1	+59.7	70.2	17 43.3	+59.9	70.7	18 22.3	+59.9	71.4	19 00.0	+60.0	72.0	19		
15 09.9	+58.3	67.8	15 54.8	+58.7	68.3	16 38.6	+59.1	68.9	17 21.3	+59.4	69.4	18 02.8	+59.7	70.0	18 43.2	+59.8	70.7	19 22.2	+60.0	71.3	20 00.0	+60.0	72.0	20		
16 08.2	+58.2	67.6	16 53.5	+58.7	68.1	17 37.7	+59.0	68.7	18 20.7	+59.4	69.3	19 02.5	+59.6	69.9	19 43.0	+59.9	70.6	20 22.2	+60.0	71.3	21 00.0	+60.0	72.0	21		
17 06.4	+58.3	67.3	17 52.2	+58.7	67.9	18 36.7	+59.1	68.5	19 20.1	+59.4	69.1	20 02.1	+59.7	69.8	20 42.9	+59.8	70.5	21 22.2	+59.9	71.2	22 00.0	+60.0	72.0	22		
18 04.7	+58.2	67.1	18 50.9	+58.6	67.7	19 35.8	+59.1	68.3	20 19.5	+59.4	69.0	21 01.8	+59.7	69.7	21 42.7	+59.8	70.4	22 22.1	+60.0	71.2	23 00.0	+60.0	72.0	23		
19 02.9	+58.2	66.8	19 49.5	+58.7	67.5	20 34.9	+59.0	68.1	21 18.9	+59.4	68.8	22 01.5	+59.6	69.6	22 42.5	+59.9	70.4	23 22.1	+59.9	71.2	24 00.0	+60.0	72.0	24		
20 01.1	+58.1	66.5	20 48.2	+58.6	67.2	21 33.9	+59.1	67.9	22 18.3	+59.3	68.7	23 01.1	+59.7	69.5	23 42.4	+59.8	70.3	24 22.0	+60.0	71.1	25 00.0	+60.0	72.0	25		
20 59.2	+58.2	66.3	21 46.8	+58.6	67.0	22 33.0	+59.0	67.8	23 17.6	+59.4	68.5	24 00.8	+59.6	69.4	24 42.2	+59.9	70.2	25 22.0	+60.0	71.1	26 00.0	+60.0	72.0	26		
21 57.4	+58.1	66.0	22 45.4	+58.6	66.8	23 32.0	+59.0	67.6	24 17.0	+59.4	68.4	25 00.4	+59.6	69.2	25 42.1	+59.8	70.1	26 22.0	+59.9	71.0	27 00.0	+60.0	72.0	27		
22 55.5	+58.1	65.7	23 44.0	+58.6	66.5	24 31.0	+59.0	67.4	25 16.4	+59.3	68.2	26 00.0	+59.7	69.1	26 41.9	+59.8	70.0	27 21.9	+60.0	71.0	28 00.0	+60.0	72.0	28		
23 53.6	+58.0	65.5	24 42.6	+58.5	66.3	25 30.0	+59.0	67.2	26 15.7	+59.4	68.1	26 59.7	+59.6	69.0	27 41.7	+59.9	70.0	28 21.9	+59.9	71.0	29 00.0	+60.0	72.0	29		
24 51.6	+58.0	65.2	25 41.1	+58.6	66.1	26 29.0	+58.9	67.0	27 15.1	+59.3	67.9	27 59.3	+59.6	68.9	28 41.6	+59.8	69.9	29 21.8	+60.0	70.9	30 00.0	+60.0	72.0	30		
25 49.6	+58.0	64.9	26 39.7	+58.5	65.8	27 27.9	+59.0	66.7	28 14.4	+59.3	67.7	28 58.9	+59.6	68.7	29 41.4	+59.8	69.8	30 21.8	+59.9	70.9	31 00.0	+60.0	72.0	31		
26 47.6	+58.0	64.6	27 38.2	+58.4	65.6	28 26.9	+58.9	66.5	29 13.7	+59.3	67.5	29 58.5	+59.6	68.6	30 41.2	+59.8	69.7	31 21.7	+60.0	70.8	32 00.0	+60.0	72.0	32		
27 45.6	+57.9	64.3	28 36.6	+58.5	65.3	29 25.8	+58.9	66.3	30 13.0	+59.3	67.4	30 58.1	+59.6	68.5	31 41.0	+59.9	69.6	32 21.7	+60.0	70.8	33 00.0	+60.0	72.0	33		
28 43.5	+57.9	64.0	29 35.0	+58.5	65.0	30 24.7	+58.9	66.1	31 12.3	+59.2	67.2	31 57.7	+59.6	68.3	32 40.9	+59.8	69.5	33 21.7	+59.9	70.7	34 00.0	+60.0	72.0	34		
29 41.4	+57.8	63.7	30 33.5	+58.4	64.8	31 23.6	+58.8	65.9	32 11.5	+59.3	67.0	32 57.3	+59.6	68.2	33 40.7	+59.8	69.4	34 21.6	+60.0	70.7	35 00.0	+60.0	72.0	35		
30 39.2	+57.8	63.4	31 31.9	+58.3	64.5	32 22.4	+58.9	65.6	33 10.0	+59.2	66.8	33 56.9	+59.5	68.1	34 40.5	+59.8	69.3	35 21.6	+59.9	70.6	36 00.0	+60.0	72.0	36		
31 37.0	+57.7	63.1	32 30.3	+58.3	64.2	33 21.3	+58.8	65.4	34 10.0	+59.3	66.6	34 56.4	+59.6	67.9	35 40.3	+59.8	69.2	36 21.5	+60.0	70.6	37 00.0	+60.0	72.0	37		
32 34.7	+57.7	62.8	33 28.8	+58.3	64.0	34 20.1	+58.7	65.2	35 09.3	+59.2	66.4	35 56.0	+59.5	67.8	36 40.1	+59.8	69.1	37 21.5	+59.9	70.5	38 00.0	+60.0	72.0	38		
33 32.4	+57.7	62.5	34 26.8	+58.2	63.7	35 18.8	+58.8	64.9	36 08.5	+59.1	66.2	36 55.5	+59.5	67.6	37 39.9	+59.7	69.0	38 21.4	+59.9	70.5	39 00.0	+60.0	72.0	39		
34 30.1	+57.6	62.1	35 25.0	+58.2	63.4	36 17.6	+58.7	64.7	37 07.6	+59.2	66.0	37 55.0	+59.5	67.4	38 39.6	+59.8	68.9	39 21.3	+60.0	70.4	40 00.0	+60.0	72.0	40		
35 27.7	+57.5	61.8	36 23.2	+58.1	63.1	37 16.3	+58.6	64.4	38 06.8	+59.1	65.8	38 54.5	+59.5	67.3	39 39.4	+59.8	68.8	40 21.3	+59.9	70.4	41 00.0	+60.0	72.0	41		
36 25.2	+57.5	61.4	37 21.3	+58.1	62.8	38 15.0	+58.6	64.2	39 05.9	+59.1	65.6	39 54.0	+59.5	67.1	40 39.2	+59.8	68.7	41 21.2	+60.0	70.3	42 00.0	+60.0	72.0	42		
37 22.7	+57.4	61.1	38 19.4	+58.1	62.4	39 13.6	+58.6	63.9	40 05.0	+59.1	65.4	40 53.5	+59.5	66.9	41 39.0	+59.7	68.6	42 21.2	+59.9	70.3	43 00.0	+60.0	72.0	43		
38 20.1	+57.3	60.7	39 17.5	+58.0	62.1	40 12.2	+58.6	63.6	41 04.1	+59.1	65.2	41 53.0	+59.5	66.8	42 38.7	+59.8	68.4	43 21.1	+60.0	70.2	44 00.0	+60.0	72.0	44		
39 17.4	+57.2	60.3	40 15.5	+57.9	61.8	41 10.8	+58.5	63.3	42 03.2	+59.0	64.9	42 52.5	+59.4	66.6	43 38.5	+59.7	68.3	44 21.1	+59.9	70.1	45 00.0	+60.0	72.0	45		
40 14.6	+57.2	59.9	41 13.4	+57.8	61.4	42 09.3	+58.5	63.0	43 02.2	+59.0	64.7	43 51.9	+59.4	66.4	44 38.2	+59.8	68.2	45 21.0	+59.9	70.1	46 00.0	+60.0	72.0	46		
41 11.8	+57.1	59.5	42 11.2	+57.8	61.1	43 07.8	+58.4	62.7	44 01.2	+58.9	64.4	44 51.3	+59.4	66.2	45 30.0	+59.7	68.1	46 20.9								

74°, 286° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	7 55.3	+52.4	103.9	7 26.1	+53.4	104.2	6 56.4	+54.3	104.5	6 26.2	+55.2	104.7	5 55.6	+55.9	104.9	5 24.6	+56.6	105.1	4 53.2	+57.2	105.3	4 21.4	+57.9	105.4
1	8 47.7	+52.4	103.5	8 19.5	+53.4	103.7	7 50.7	+54.3	104.0	7 21.4	+55.1	104.3	6 51.5	+55.9	104.5	6 21.2	+56.6	104.7	5 50.4	+57.3	105.0	5 19.3	+57.8	105.1
2	9 40.1	+52.4	103.0	9 12.9	+53.3	103.3	8 45.0	+54.3	103.6	8 16.5	+55.1	103.9	7 47.4	+55.9	104.2	7 17.8	+56.6	104.4	6 47.7	+57.2	104.7	6 17.1	+57.8	104.9
3	10 32.5	+52.3	102.5	10 06.2	+53.3	102.8	9 39.3	+54.2	103.2	9 11.6	+55.1	103.5	8 43.3	+55.9	103.8	8 14.4	+56.6	104.1	7 44.9	+57.3	104.4	7 14.9	+57.9	104.6
4	11 24.8	+52.3	102.0	10 59.5	+53.3	102.4	10 33.5	+54.2	102.7	10 06.7	+55.0	103.1	9 39.2	+55.8	103.4	9 11.0	+56.6	103.7	8 42.2	+57.2	104.0	8 12.8	+57.8	104.3
5	12 17.1	+52.2	101.5	11 52.8	+53.2	101.9	11 27.7	+54.1	102.3	11 01.7	+55.1	102.7	10 35.0	+55.8	103.0	10 07.6	+56.5	103.4	9 39.4	+57.2	103.7	9 10.6	+57.7	104.1
6	13 09.3	+52.2	101.0	12 46.0	+53.2	101.4	12 21.8	+54.1	101.8	11 56.8	+54.9	102.3	11 30.8	+55.8	102.7	11 04.1	+56.5	103.1	10 36.6	+57.2	103.4	10 08.3	+57.8	103.8
7	14 01.5	+52.0	100.5	13 39.2	+53.1	100.9	13 15.9	+54.1	101.4	12 51.7	+55.0	101.9	12 26.6	+55.8	102.3	12 00.6	+56.5	102.7	11 33.8	+57.1	103.1	11 06.1	+57.8	103.5
8	14 53.5	+52.1	99.9	14 32.3	+53.0	100.5	14 10.0	+54.0	101.0	13 46.7	+54.9	101.4	13 22.4	+55.7	101.9	12 57.1	+56.5	102.4	12 30.9	+57.2	102.8	12 03.9	+57.7	103.2
9	15 45.6	+51.9	99.4	15 25.3	+53.0	100.0	15 04.0	+54.0	100.5	14 41.6	+54.8	101.0	14 18.1	+55.7	101.5	13 53.6	+56.4	102.0	13 28.1	+57.1	102.5	13 01.6	+57.8	103.0
10	16 37.5	+51.9	98.9	16 18.3	+53.0	99.5	15 58.0	+53.9	100.1	15 36.4	+54.9	100.6	15 13.8	+55.6	101.2	14 50.0	+56.4	101.7	14 25.2	+57.1	102.2	13 59.4	+57.7	102.7
11	17 29.4	+51.8	98.4	17 11.3	+52.8	99.0	16 51.9	+53.8	99.6	16 31.3	+54.7	100.2	16 09.4	+55.6	100.8	15 46.4	+56.4	101.3	15 22.3	+57.1	101.9	14 57.1	+57.7	102.4
12	18 21.2	+51.6	97.8	18 04.1	+52.8	98.5	17 45.7	+53.8	99.1	17 26.0	+54.7	99.8	17 05.0	+55.6	100.4	16 42.8	+56.3	101.0	16 19.4	+57.0	101.6	15 54.8	+57.6	102.1
13	19 12.8	+51.6	97.3	18 56.9	+52.7	98.0	18 39.5	+53.7	98.7	18 20.7	+54.7	99.3	18 00.6	+55.5	100.0	17 39.1	+56.3	100.6	17 16.4	+57.0	101.2	16 52.4	+57.7	101.8
14	20 04.4	+51.5	96.8	19 49.6	+52.6	97.5	19 33.2	+53.6	98.2	19 15.4	+54.5	98.9	18 56.1	+55.5	99.6	18 35.4	+56.3	100.2	18 13.4	+57.0	100.9	17 50.1	+57.6	101.5
15	20 55.9	+51.4	96.2	20 42.2	+52.5	97.0	20 26.8	+53.6	97.7	20 09.9	+54.5	98.5	19 51.6	+55.4	99.2	19 31.7	+56.2	99.9	19 10.4	+56.9	100.6	18 47.7	+57.6	101.2
16	21 47.3	+51.3	95.7	21 34.7	+52.4	96.5	21 20.4	+53.4	97.2	21 04.4	+54.5	98.0	20 47.0	+55.3	98.8	20 27.9	+56.2	99.5	20 07.3	+56.9	100.2	19 45.3	+57.5	100.9
17	22 38.6	+51.2	95.1	22 27.1	+52.3	95.9	22 13.8	+53.4	96.7	21 58.9	+54.4	97.6	21 42.3	+55.3	98.3	21 24.1	+56.1	99.1	21 04.2	+56.9	99.9	20 42.8	+57.6	100.6
18	23 29.8	+51.0	94.5	23 19.4	+52.2	95.4	23 07.2	+53.3	96.3	22 57.3	+54.2	97.1	22 37.6	+55.2	97.9	22 20.2	+56.0	98.7	22 01.1	+56.8	99.6	21 40.4	+57.5	100.3
19	24 20.8	+50.9	94.0	24 11.6	+52.1	94.9	24 00.5	+53.2	95.8	23 47.5	+53.2	96.6	23 32.8	+55.1	97.5	23 16.2	+56.0	98.4	22 57.9	+56.8	99.2	22 37.9	+57.4	100.0
20	25 11.7	+50.8	93.4	25 03.7	+51.9	94.3	24 53.7	+53.1	95.2	24 41.8	+54.1	96.2	24 27.9	+55.1	97.1	24 12.2	+56.0	98.0	23 54.7	+56.7	98.9	23 35.3	+57.4	99.7
21	26 02.5	+50.6	92.8	25 55.6	+51.9	93.8	25 46.8	+52.9	94.7	25 35.9	+54.0	95.7	25 23.0	+55.0	96.6	25 08.2	+55.8	97.6	24 51.4	+56.7	98.5	24 32.7	+57.4	99.4
22	26 53.1	+50.5	92.2	26 47.5	+51.7	93.2	26 39.7	+52.9	94.2	26 29.5	+53.9	95.2	26 18.0	+54.9	96.2	26 04.0	+55.8	97.2	25 48.1	+56.6	98.1	25 30.1	+57.3	99.1
23	27 43.6	+50.3	91.6	27 39.2	+51.5	92.6	27 32.6	+52.7	93.7	27 23.8	+53.8	94.7	27 12.9	+54.8	95.7	26 59.8	+55.8	96.8	26 44.7	+56.5	97.8	26 27.4	+57.3	98.8
24	28 33.9	+50.1	91.0	28 30.7	+51.4	92.0	28 25.3	+52.6	93.1	28 17.6	+53.7	94.2	28 07.7	+54.7	95.3	27 55.6	+55.6	96.3	27 41.2	+56.5	97.4	27 24.7	+57.3	98.4
25	29 24.0	+50.0	90.3	29 22.1	+51.3	91.5	29 17.9	+52.5	92.6	29 11.3	+53.6	93.7	29 02.4	+54.6	94.8	28 51.2	+55.6	95.9	28 37.7	+56.4	97.0	28 22.0	+57.2	98.1
26	30 14.0	+49.7	89.7	30 13.4	+51.1	90.9	30 10.4	+52.3	92.0	30 04.9	+53.5	93.2	29 57.0	+54.6	94.3	29 46.8	+55.5	95.5	29 34.1	+56.4	96.6	29 19.2	+57.1	97.7
27	31 03.7	+49.6	89.0	31 04.5	+50.9	90.2	31 02.7	+52.1	91.5	30 58.4	+53.3	92.7	30 51.6	+54.4	93.9	30 42.3	+55.4	95.0	30 30.5	+56.3	96.2	30 16.3	+57.1	97.4
28	31 53.3	+49.3	88.4	31 55.4	+50.7	89.6	31 54.8	+52.0	90.9	31 51.7	+53.2	92.1	31 46.0	+54.3	93.4	31 37.7	+55.3	94.6	31 26.8	+56.2	95.8	31 13.4	+57.0	97.0
29	32 42.6	+49.2	87.7	32 46.1	+50.5	89.0	32 46.8	+51.9	90.3	32 44.9	+53.1	91.6	32 30.3	+54.1	92.9	32 33.0	+55.2	94.1	32 23.0	+56.1	95.4	32 10.4	+56.9	96.7
30	33 31.8	+48.9	87.0	33 36.6	+50.3	88.4	33 38.7	+51.6	89.7	33 38.0	+52.8	91.0	33 34.4	+54.1	92.3	33 28.2	+55.0	93.7	33 19.1	+56.0	95.0	33 07.3	+56.9	96.3
31	34 20.7	+48.6	86.3	34 26.9	+50.1	87.7	34 30.3	+51.5	89.1	34 30.8	+52.8	90.4	34 28.5	+53.9	91.3	34 23.2	+55.0	93.2	34 15.1	+56.0	94.5	34 04.2	+56.8	95.9
32	35 09.3	+48.5	85.6	35 17.0	+49.9	87.0	35 21.8	+51.3	88.4	35 23.6	+52.5	89.9	35 22.4	+53.7	91.3	35 18.2	+54.9	92.7	35 11.1	+55.8	94.1	35 01.0	+56.8	95.5
33	35 57.8	+48.1	84.9	36 06.9	+49.7	86.3	36 13.1	+51.0	87.8	36 16.1	+52.4	89.3	36 16.1	+53.6	90.7	36 13.1	+54.7	92.2	36 06.9	+55.8	93.7	35 57.8	+56.6	95.1
34	36 45.9	+47.8	84.1	36 56.6	+49.4	85.6	37 04.1	+50.9	87.1	37 08.5	+52.2	88.7	37 09.7	+53.5	90.2	37 07.8	+54.6	91.7	37 02.7	+55.6	93.2	36 54.4	+56.6	94.7
35	37 33.7	+47.6	83.4	37 46.0	+49.1	84.9	37 55.0	+50.6	86.5	38 00.7	+52.0	88.0	38 03.2	+53.3	89.6	38 02.4	+54.4	91.2	37 58.3	+55.5	92.7	37 51.0	+56.5	94.3
36	38 21.3	+47.3	82.6	38 35.1	+48.8	84.2	38 45.6	+50.3	85.8	38 52.7	+51.8	87.4	38 56.5	+52.1	89.0	38 56.8	+54.3	90.6	38 53.8	+55.4	92.2	38 47.5	+56.3	93.9
37	39 08.6	+46.9	81.8	39 23.9	+48.6	83.4	39 35.9	+50.1	85.1	39 45.5	+51.5	86.7	39 49.6	+52.9	88.2	39 51.1	+54.2	90.1	39 49.2	+55.3	91.7	39 43.8	+56.3	93.4
38	39 55.5	+46.6	81.0	40 12.5	+48.2	82.7	40 26.0	+49.9	84.4	40 36.0	+51.3	86.1	40 42.5	+52.6	87.8	40 45.3	+53.9	89.5	40 44.5	+55.1	91.2	40 40.1	+56.2	93.0
39	40 42.1	+46.2	80.2	41 00.7	+48.0	81.9	41 15.9	+49.5	83.6	41 27.3	+51.1	85.4	41 35.1	+52.5	87.2	41 39.2	+53.8	88.9	41 39.6	+55.0	90.7	41 36.3	+56.0	92.5
40	41 28.3	+45.8	79.3	41 48.7	+47.5	81.1	42 05.4	+49.2	82.9	42 18.4	+50.8	84.7	42 27.6	+52.3	86.5	42 33.0	+53.6	88.3	42 34.6	+54.8	90.2	42 32.3	+55.9	92.0
41	42 14.1	+45.5	78.5	42 36.2	+47.3	80.3	42 54.6	+48.9	82.1	43 09.2	+50.5	84.0	43 19.9	+52.0	85.8	43 26.6	+53.4	87.7	43 29.4	+54.7	89.6	43 28.2	+55.8	91.5
42	42 59.6	+45.0	77.6	43 23.5	+46.8	79.4	43 43.5	+48.6	81.3	43 59.7	+50.2	83.2	44 11.9	+51.7	85.1	44 20.0	+53.2	87.1	44 24.1	+54.5	89.0	44 24.2	+55.7	91.0
43	43 44.6	+44.5	76.7	44 10.3	+46.4	78.6	44 32.1	+48.2	80.5	44 49.9	+49.9	82.4	45 03.6	+51.5	84.4	45 13.2	+52.9	86.4	45 18.6	+54.2	88.4	45 19.7	+55.5	90.5
44	44 29.1	+44.1	75.7	44 56.7	+46.0	77.7	45 20.3	+47.8	79.6	45 39.8	+49.6	81.7	45 55.1	+51.2	83.7	46 06.1	+52.7	85.8	46 12.8	+54.1	87.8	46 15.2	+55.3	89.9
45	45 13.2	+43.7	74.8	45 42.7	+45.6	76.8	46 08.1	+47.5	78.8	46 29.4	+49.2	80.8	46 56.8	+50.9	82.9	47 06.9	+53.5	85.1	47 06.9	+53.9	87.2	47 10.5	+55.2	89.4
46	45 56.9	+43.0	73.8	46 28.3	+45.1	75.8	46 55.6	+46.7	77.9	47 18.6	+48.8	80.0	47 37.2	+50.5	82.2	47 51.3	+52.1	84.3	48 00.8	+53.6	86.6	48 05.7	+55.0	88.8
47	46 39.9	+42.6	72.8	47 13.4	+44.6	74.9	47 42.6	+46.5	77															

LATITUDE CONTRARY NAME

L.H.A. 74°, 286°

Table with columns for latitude (60° to 74°) and longitude (Dec. 0 to 90). Each cell contains three values (Hc, d, Z) for a specific latitude and longitude intersection.

LATITUDE SAME NAME

L.H.A. 106°, 254°

74°, 286° L.H.A.

LATITUDE SAME NAME

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	3 49.4	+58.4	105.5	3 17.1	+58.8	105.7	2 44.6	+59.2	105.8	2 11.9	+59.5	105.9	1 39.1	+59.7	105.9	1 06.1	+59.9	106.0	0 33.1	+59.9	106.0	0 00.0	+60.0	106.0
1	4 47.8	+58.3	105.3	4 15.9	+58.8	105.5	3 43.8	+59.1	105.6	3 11.4	+59.4	105.7	2 38.8	+59.7	105.8	2 06.0	+59.8	105.9	1 33.0	+60.0	106.0	1 00.0	+60.0	106.0
2	5 46.1	+58.3	105.1	5 14.7	+58.8	105.3	4 42.9	+59.2	105.4	4 10.8	+59.5	105.6	3 38.5	+59.6	105.7	3 05.8	+59.9	105.8	2 33.0	+60.0	105.9	2 00.0	+60.0	106.0
3	6 44.4	+58.4	104.8	6 13.5	+58.7	105.1	5 42.1	+59.1	105.3	5 10.3	+59.4	105.4	4 38.1	+59.7	105.6	4 05.7	+59.9	105.8	3 33.0	+59.9	105.9	3 00.0	+60.0	106.0
4	7 42.8	+58.3	104.6	7 12.2	+58.8	104.9	6 41.2	+59.2	105.1	6 09.7	+59.5	105.3	5 37.8	+59.7	105.5	5 05.6	+59.8	105.7	4 32.9	+60.0	105.9	4 00.0	+60.0	106.0
5	8 41.1	+58.3	104.4	8 11.0	+58.8	104.7	7 40.4	+59.1	104.9	7 09.2	+59.4	105.2	6 37.5	+59.7	105.4	6 05.4	+59.9	105.6	5 32.9	+60.0	105.8	5 00.0	+60.0	106.0
6	9 39.4	+58.3	104.1	9 09.8	+58.7	104.5	8 39.5	+59.1	104.8	8 08.6	+59.5	105.0	7 37.2	+59.7	105.3	7 05.3	+59.9	105.6	6 32.9	+59.9	105.8	6 00.0	+60.0	106.0
7	10 37.7	+58.3	103.9	10 08.5	+58.8	104.2	9 38.6	+59.2	104.6	9 08.1	+59.4	104.9	8 36.9	+59.7	105.2	8 05.2	+59.8	105.5	7 32.8	+60.0	105.8	7 00.0	+60.0	106.0
8	11 36.0	+58.3	103.7	11 07.3	+58.7	104.0	10 37.8	+59.1	104.4	10 07.5	+59.5	104.8	9 36.6	+59.7	105.1	9 05.0	+59.9	105.4	8 32.8	+60.0	105.7	8 00.0	+60.0	106.0
9	12 34.3	+58.2	103.4	12 06.0	+58.7	103.8	11 36.9	+59.1	104.2	11 07.0	+59.4	104.6	10 36.3	+59.7	105.0	10 04.9	+59.8	105.4	9 32.8	+59.9	105.7	9 00.0	+60.0	106.0
10	13 32.5	+58.3	103.2	13 04.7	+58.7	103.6	12 36.0	+59.1	104.1	12 06.4	+59.4	104.5	11 36.0	+59.7	104.9	11 04.7	+59.9	105.3	10 32.7	+60.0	105.7	10 00.0	+60.0	106.0
11	14 30.8	+58.2	102.9	14 03.4	+58.8	103.4	13 35.1	+59.1	103.9	13 05.8	+59.5	104.3	12 35.7	+59.6	104.8	12 04.6	+59.9	105.2	11 32.7	+60.0	105.6	11 00.0	+60.0	106.0
12	15 29.0	+58.2	102.7	15 02.2	+58.8	103.2	14 34.2	+59.1	103.7	14 05.3	+59.4	104.2	13 35.3	+59.7	104.7	13 04.5	+59.8	105.1	12 32.7	+59.9	105.6	12 00.0	+60.0	106.0
13	16 27.2	+58.2	102.4	16 00.8	+58.7	103.0	15 33.3	+59.1	103.5	15 04.7	+59.4	104.1	14 35.0	+59.7	104.6	14 04.3	+59.9	105.1	13 32.6	+60.0	105.5	13 00.0	+60.0	106.0
14	17 25.4	+58.2	102.2	16 59.5	+58.7	102.8	16 32.4	+59.1	103.4	16 04.1	+59.4	103.9	15 34.7	+59.7	104.5	15 04.2	+59.8	105.0	14 32.6	+60.0	105.5	14 00.0	+60.0	106.0
15	18 23.6	+58.2	101.9	17 58.2	+58.7	102.5	17 31.5	+59.1	103.2	17 03.5	+59.4	103.8	16 34.4	+59.6	104.4	16 04.0	+59.9	104.9	15 32.6	+59.9	105.5	15 00.0	+60.0	106.0
16	19 21.8	+58.1	101.6	18 56.9	+58.6	102.3	18 30.6	+59.0	103.0	18 02.9	+59.4	103.6	17 34.0	+59.7	104.3	17 03.9	+59.8	104.9	16 32.5	+60.0	105.4	16 00.0	+60.0	106.0
17	20 19.9	+58.1	101.4	19 55.5	+58.6	102.1	19 29.6	+59.1	102.8	19 02.3	+59.4	103.5	18 33.7	+59.7	104.1	18 03.7	+59.9	104.8	17 32.5	+59.9	105.4	17 00.0	+60.0	106.0
18	21 18.0	+58.1	101.1	20 54.1	+58.6	101.9	20 28.7	+59.0	102.6	20 01.7	+59.4	103.3	19 33.4	+59.6	104.0	19 03.6	+59.8	104.7	18 32.4	+60.0	105.4	18 00.0	+60.0	106.0
19	22 16.1	+58.1	100.8	21 52.7	+58.6	101.6	21 27.7	+59.0	102.4	21 01.1	+59.4	103.0	20 33.0	+59.7	103.9	20 03.4	+59.9	104.6	19 32.4	+60.0	105.3	19 00.0	+60.0	106.0
20	23 14.2	+58.0	100.6	22 51.3	+58.6	101.4	22 26.7	+59.0	102.2	22 00.5	+59.4	103.0	21 32.7	+59.6	103.8	21 03.3	+59.8	104.6	20 32.4	+59.9	105.3	20 00.0	+60.0	106.0
21	24 12.2	+58.0	100.3	23 49.9	+58.5	101.2	23 25.7	+59.0	102.0	22 59.9	+59.3	102.9	22 32.3	+59.6	103.7	22 03.1	+59.9	104.5	21 32.3	+60.0	105.3	21 00.0	+60.0	106.0
22	25 10.2	+58.0	100.0	24 48.4	+58.5	100.9	24 24.7	+59.0	101.8	23 59.2	+59.4	102.7	23 31.9	+59.7	103.6	23 03.0	+59.8	104.4	22 32.3	+59.9	105.2	22 00.0	+60.0	106.0
23	26 08.2	+57.9	99.7	25 46.9	+58.5	100.7	25 23.7	+58.9	101.6	24 58.6	+59.3	102.5	24 31.6	+59.6	103.4	24 02.8	+59.8	104.3	23 32.2	+60.0	105.2	23 00.0	+60.0	106.0
24	27 06.1	+57.9	99.4	26 45.4	+58.5	100.4	26 22.6	+59.0	101.4	25 57.9	+59.3	102.4	25 31.2	+59.6	103.3	25 02.6	+59.9	104.2	24 32.2	+60.0	105.2	24 00.0	+60.0	106.0
25	28 04.0	+57.9	99.1	27 43.9	+58.4	100.2	27 21.6	+58.9	101.2	26 57.2	+59.3	102.2	26 30.8	+59.7	103.2	26 02.5	+59.8	104.2	25 32.2	+59.9	105.1	25 00.0	+60.0	106.0
26	29 01.9	+57.8	98.8	28 42.3	+58.4	99.9	28 20.5	+58.9	101.0	27 56.5	+59.3	102.0	27 30.5	+59.6	103.1	27 02.3	+59.8	104.1	26 32.1	+60.0	105.0	26 00.0	+60.0	106.0
27	29 59.7	+57.8	98.5	29 40.7	+58.4	99.7	29 19.4	+58.9	100.8	28 55.8	+59.3	101.9	28 30.1	+59.6	102.9	28 02.1	+59.8	104.0	27 32.1	+59.9	105.0	27 00.0	+60.0	106.0
28	30 57.5	+57.7	98.2	30 39.1	+58.3	99.4	30 18.3	+58.8	100.6	29 55.1	+59.3	101.7	29 29.7	+59.6	102.8	29 01.9	+59.9	103.9	28 32.0	+60.0	105.0	28 00.0	+60.0	106.0
29	31 55.2	+57.7	97.9	31 37.4	+58.3	99.1	31 17.1	+58.9	100.3	30 54.4	+59.3	101.5	30 29.3	+59.5	102.7	30 01.8	+59.8	103.8	29 32.0	+59.9	104.9	29 00.0	+60.0	106.0
30	32 52.9	+57.6	97.6	32 35.7	+58.3	98.8	32 16.0	+58.8	100.1	31 53.7	+59.2	101.3	31 28.8	+59.6	102.5	31 01.6	+59.8	103.7	30 31.9	+60.0	104.9	30 00.0	+60.0	106.0
31	33 50.5	+57.6	97.2	33 34.0	+58.2	98.6	33 14.8	+58.8	99.9	32 52.9	+59.2	101.1	32 28.4	+59.6	102.4	32 01.4	+59.8	103.6	31 31.9	+60.0	104.8	31 00.0	+60.0	106.0
32	34 48.1	+57.5	96.9	34 32.2	+58.2	98.3	34 32.2	+58.7	99.6	33 52.1	+59.2	101.0	33 52.1	+59.6	102.3	33 01.2	+59.8	103.5	33 31.9	+59.9	104.8	32 00.0	+60.0	106.0
33	35 45.6	+57.4	96.5	35 30.4	+58.2	98.0	35 12.3	+58.7	99.4	34 51.3	+59.2	100.8	34 27.6	+59.5	102.1	34 01.0	+59.8	103.4	33 31.8	+60.0	104.7	33 00.0	+60.0	106.0
34	36 43.0	+57.4	96.2	36 28.6	+58.0	97.7	36 11.0	+58.7	99.1	35 50.5	+59.2	100.6	35 27.1	+59.5	102.0	35 00.8	+59.8	103.3	34 31.8	+59.9	104.7	34 00.0	+60.0	106.0
35	37 40.4	+57.3	95.8	37 26.6	+58.1	97.4	37 09.7	+58.7	98.9	36 49.7	+59.1	100.3	36 26.6	+59.6	101.8	36 00.6	+59.8	103.2	35 31.7	+60.0	104.6	35 00.0	+60.0	106.0
36	38 37.7	+57.3	95.4	38 24.7	+58.0	97.0	38 08.4	+58.6	98.6	37 48.8	+59.2	100.1	37 26.2	+59.5	101.6	37 00.4	+59.8	103.1	36 31.7	+59.9	104.6	36 00.0	+60.0	106.0
37	39 35.0	+57.1	95.1	39 22.7	+57.9	96.7	39 07.0	+58.6	98.3	38 48.0	+59.1	99.9	38 25.7	+59.5	101.5	38 00.2	+59.8	103.0	37 31.6	+59.9	104.5	37 00.0	+60.0	106.0
38	40 32.1	+57.1	94.7	40 20.6	+57.9	96.4	40 05.6	+58.5	98.0	39 47.1	+59.0	99.7	39 25.2	+59.5	101.3	39 00.0	+59.7	102.9	38 31.5	+60.0	104.5	38 00.0	+60.0	106.0
39	41 29.2	+57.0	94.3	41 18.5	+57.8	96.0	41 04.1	+58.5	97.8	40 46.1	+59.1	99.5	40 24.7	+59.4	101.2	39 59.7	+59.8	102.8	39 31.5	+59.9	104.4	39 00.0	+60.0	106.0
40	42 26.2	+56.9	93.8	42 16.3	+57.7	95.7	42 02.6	+58.4	97.5	41 45.2	+59.0	99.2	41 24.1	+59.5	101.0	40 59.5	+59.8	102.7	40 31.4	+60.0	104.4	40 00.0	+60.0	106.0
41	43 23.1	+56.8	93.4	43 14.0	+57.7	95.3	43 01.0	+58.4	97.1	42 44.2	+59.0	99.0	42 23.6	+59.4	100.8	41 59.3	+59.7	102.6	41 31.4	+59.9	104.3	41 00.0	+60.0	106.0
42	44 19.9	+56.7	93.0	44 11.7	+57.6	94.9	43 59.4	+58.3	96.8	43 43.2	+58.9	98.7	43 23.0	+59.4	100.6	42 59.0	+59.8	102.4	42 31.3	+59.9	104.2	42 00.0	+60.0	106.0
43	45 16.6	+56.5	92.5	45 09.3	+57.5	94.5	44 57.7	+58.3	96.5	44 42.1	+58.9	98.5	44 22.4	+59.4	100.4	43 58.8	+59.7	102.3	43 31.2	+60.0	104.2	43 00.0	+60.0	106.0
44	46 13.1	+56.5	92.0	46 06.8	+57.4	94.1	45 56.0	+58.2	96.2	45 41.0	+58.9	98.2	45 21.8	+59.4	100.2	44 58.5	+59.7	102.2	44 31.2	+59.9	104.1	44 00.0	+60.0	106.0
45	47 09.6	+56.3	91.5	47 04.2	+57.3	93.7	46 49.4	+58.2	95.8	46 39.9	+58.8	97.9	46 12.1	+59.3	100.0	45 58.2	+59.7	102.1	45 31.1	+59.9	104.1	45 00.0	+60.0	106.0
46	48 05.9	+56.2	91.0	48 01.5	+57.2	93.2	47 52.4	+58.1	95.4	47 38.7	+58.8	97.6	47 20.5	+59.4	99.8	46 57.9	+59.							

LATITUDE CONTRARY NAME

L.H.A. 74°, 286°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
3 49.4	-58.3	105.5	3 17.1	-58.8	105.7	2 44.6	-59.1	105.8	2 11.9	-59.5	105.9	1 39.1	-59.7	105.9	1 06.1	-59.9	106.0	0 33.1	-60.0	106.0	0 00.0	+60.0	74.0	0		
2 51.1	-58.4	105.8	2 18.3	-58.8	105.9	1 45.5	-59.2	105.9	1 12.4	-59.4	106.0	0 39.4	-59.7	106.0	0 06.2	-59.8	106.0	0 26.9	+60.0	74.0	1 00.0	+60.0	74.0	1		
1 52.7	-58.3	106.0	1 19.5	-58.7	106.1	0 46.3	-59.2	106.1	0 13.0	-59.5	106.1	0 20.3	+59.7	73.9	0 53.6	+59.9	73.9	1 26.9	+59.9	73.9	2 00.0	+60.0	74.0	2		
0 54.4	-58.4	106.2	0 20.8	-58.8	106.3	0 12.9	+59.1	73.7	0 46.5	+59.4	73.7	1 20.0	+59.7	73.8	1 53.5	+59.9	73.8	2 26.8	+60.0	73.9	3 00.0	+60.0	74.0	3		
0 04.0	+58.4	73.5	0 38.0	+58.8	73.5	1 12.0	+59.2	73.6	1 45.9	+59.5	73.6	2 19.7	+59.7	73.7	2 53.4	+59.8	73.8	3 26.8	+60.0	73.9	4 00.0	+60.0	74.0	4		
1 02.4	+58.3	73.3	1 36.8	+58.8	73.3	2 11.2	+59.1	73.4	2 45.4	+59.5	73.5	3 19.4	+59.7	73.6	3 53.2	+59.9	73.7	4 26.8	+59.9	73.8	5 00.0	+60.0	74.0	5		
2 00.7	+58.4	73.1	2 35.6	+58.8	73.1	3 10.3	+59.2	73.2	3 44.9	+59.4	73.3	4 19.1	+59.7	73.5	4 53.1	+59.8	73.6	5 26.7	+60.0	73.8	6 00.0	+60.0	74.0	6		
2 59.1	+58.3	72.8	3 34.4	+58.8	72.9	4 09.5	+59.1	73.1	4 44.3	+59.5	73.2	5 18.8	+59.7	73.4	5 52.9	+59.9	73.6	6 26.7	+60.0	73.8	7 00.0	+60.0	74.0	7		
3 57.4	+58.4	72.6	4 33.2	+58.8	72.7	5 08.6	+59.2	72.9	5 43.8	+59.4	73.1	6 18.5	+59.7	73.3	6 52.8	+59.9	73.5	7 26.7	+59.9	73.7	8 00.0	+60.0	74.0	8		
4 55.8	+58.3	72.4	5 32.0	+58.7	72.5	6 07.8	+59.1	72.7	6 43.2	+59.5	72.9	7 18.2	+59.7	73.2	7 52.7	+59.8	73.4	8 26.6	+60.0	73.7	9 00.0	+60.0	74.0	9		
5 54.1	+58.3	72.1	6 30.7	+58.8	72.3	7 06.9	+59.2	72.6	7 42.7	+59.4	72.8	8 17.9	+59.7	73.1	8 52.5	+59.9	73.4	9 26.6	+60.0	73.7	10 00.0	+60.0	74.0	10		
6 52.4	+58.4	71.9	7 29.5	+58.8	72.1	8 06.1	+59.1	72.4	8 42.1	+59.5	72.7	9 17.6	+59.7	73.0	9 52.4	+59.9	73.3	10 26.6	+59.9	73.6	11 00.0	+60.0	74.0	11		
7 50.8	+58.3	71.6	8 28.3	+58.7	71.9	9 05.2	+59.2	72.2	9 41.6	+59.4	72.5	10 17.3	+59.6	72.9	10 52.3	+59.8	73.2	11 26.5	+60.0	73.6	12 00.0	+60.0	74.0	12		
8 49.1	+58.3	71.4	9 27.0	+58.8	71.7	10 04.4	+59.1	72.0	10 41.0	+59.4	72.4	11 16.9	+59.7	72.8	11 52.1	+59.9	73.2	12 26.5	+59.9	73.6	13 00.0	+60.0	74.0	13		
9 47.4	+58.3	71.2	10 25.8	+58.7	71.5	11 03.5	+59.1	71.9	11 40.4	+59.5	72.3	12 16.6	+59.7	72.7	12 52.0	+59.8	73.1	13 26.4	+60.0	73.5	14 00.0	+60.0	74.0	14		
10 45.7	+58.3	70.9	11 24.5	+58.8	71.3	12 02.6	+59.1	71.7	12 39.9	+59.4	72.1	13 16.3	+59.7	72.6	13 51.8	+59.9	73.0	14 26.4	+60.0	73.5	15 00.0	+60.0	74.0	15		
11 44.0	+58.3	70.7	12 23.3	+58.7	71.1	13 01.7	+59.1	71.5	13 39.3	+59.4	72.0	14 16.0	+59.7	72.4	14 51.7	+59.8	72.9	15 26.4	+59.9	73.5	16 00.0	+60.0	74.0	16		
12 42.3	+58.2	70.4	13 22.0	+58.7	70.9	14 00.8	+59.1	71.3	14 38.7	+59.5	71.8	15 15.7	+59.6	72.3	15 51.5	+59.9	72.9	16 26.3	+60.0	73.4	17 00.0	+60.0	74.0	17		
13 40.5	+58.3	70.2	14 20.7	+58.7	70.7	14 59.9	+59.1	71.2	15 38.2	+59.4	71.7	16 15.3	+59.7	72.2	16 51.4	+59.8	72.8	17 26.3	+60.0	73.4	18 00.0	+60.0	74.0	18		
14 38.8	+58.2	70.0	15 19.4	+58.7	70.5	15 59.0	+59.1	71.0	16 37.6	+59.4	71.5	17 15.0	+59.7	72.1	17 51.2	+59.9	72.7	18 26.3	+59.9	73.3	19 00.0	+60.0	74.0	19		
15 37.0	+58.2	69.7	16 18.1	+58.7	70.2	16 58.1	+59.1	70.8	17 37.0	+59.4	71.4	18 14.7	+59.6	72.0	18 51.1	+59.8	72.6	19 26.2	+60.0	73.3	20 00.0	+60.0	74.0	20		
16 35.2	+58.2	69.5	17 16.8	+58.6	70.0	17 57.2	+59.1	70.6	18 36.4	+59.4	71.2	19 14.3	+59.7	71.9	19 50.9	+59.9	72.6	20 26.2	+60.0	73.3	21 00.0	+60.0	74.0	21		
17 33.4	+58.2	69.2	18 15.4	+58.7	69.8	18 56.3	+59.0	70.4	19 35.8	+59.4	71.1	20 14.0	+59.6	71.8	20 50.8	+59.8	72.5	21 26.2	+59.9	73.2	22 00.0	+60.0	74.0	22		
18 31.6	+58.1	68.9	19 14.1	+58.6	69.6	19 55.3	+59.0	70.2	20 35.2	+59.4	70.9	21 13.6	+59.7	71.7	21 50.6	+59.9	72.4	22 26.1	+60.0	73.2	23 00.0	+60.0	74.0	23		
19 29.7	+58.2	68.7	20 12.7	+58.6	69.4	20 54.3	+59.1	70.1	21 34.6	+59.3	70.8	22 13.3	+59.6	71.6	22 50.5	+59.8	72.3	23 26.1	+59.9	73.2	24 00.0	+60.0	74.0	24		
20 27.9	+58.1	68.4	21 11.3	+58.6	69.1	21 53.4	+59.0	69.9	22 33.9	+59.4	70.6	23 12.9	+59.7	71.4	23 50.3	+59.9	72.3	24 26.0	+60.0	73.1	25 00.0	+60.0	74.0	25		
21 26.0	+58.1	68.2	22 09.9	+58.6	68.9	22 52.4	+59.0	69.7	23 33.3	+59.3	70.5	24 12.6	+59.6	71.3	24 50.2	+59.8	72.2	25 26.0	+59.9	73.1	26 00.0	+60.0	74.0	26		
22 24.1	+58.0	67.9	23 08.5	+58.6	68.7	23 51.4	+59.0	69.5	24 32.6	+59.4	70.3	25 12.2	+59.6	71.2	25 50.0	+59.8	72.1	26 25.9	+60.0	73.0	27 00.0	+60.0	74.0	27		
23 22.1	+58.1	67.6	24 07.1	+58.5	68.4	24 50.4	+58.9	69.3	25 32.0	+59.3	70.2	26 11.8	+59.6	71.1	26 49.8	+59.9	72.0	27 25.9	+60.0	73.0	28 00.0	+60.0	74.0	28		
24 20.2	+58.0	67.3	25 05.6	+58.5	68.2	25 49.3	+59.0	69.1	26 31.3	+59.3	70.0	27 11.4	+59.7	70.9	27 49.7	+59.8	71.9	28 25.9	+59.9	72.9	29 00.0	+60.0	74.0	29		
25 18.2	+57.9	67.0	26 04.1	+58.5	67.9	26 48.3	+58.9	68.9	27 30.6	+59.3	69.8	28 11.1	+59.6	70.8	28 49.5	+59.8	71.8	29 25.8	+60.0	72.9	30 00.0	+60.0	74.0	30		
26 16.1	+58.0	66.8	27 02.6	+58.4	67.7	27 47.2	+58.9	68.6	28 29.9	+59.3	69.6	29 10.7	+59.6	70.7	29 49.3	+59.8	71.8	30 25.8	+59.9	72.9	31 00.0	+60.0	74.0	31		
27 14.1	+57.8	66.5	28 01.0	+58.5	67.4	28 46.1	+58.9	68.4	29 29.2	+59.3	69.5	30 10.3	+59.5	70.6	30 49.1	+59.8	71.7	31 25.7	+60.0	72.8	32 00.0	+60.0	74.0	32		
28 11.9	+57.9	66.2	28 59.5	+58.4	67.2	29 45.0	+58.9	68.2	30 28.5	+59.3	69.3	31 09.8	+59.6	70.4	31 48.9	+59.8	71.6	32 25.7	+59.9	72.8	33 00.0	+60.0	74.0	33		
29 09.8	+57.8	65.9	29 57.9	+58.3	66.9	30 43.9	+58.8	68.0	31 27.8	+59.2	69.1	32 09.4	+59.6	70.3	32 48.7	+59.9	71.5	33 25.6	+60.0	72.7	34 00.0	+60.0	74.0	34		
30 07.6	+57.8	65.6	30 56.2	+58.4	66.6	31 42.7	+58.9	67.8	32 27.0	+59.3	68.9	33 09.0	+59.6	70.1	33 48.6	+59.8	71.4	34 25.6	+59.9	72.7	35 00.0	+60.0	74.0	35		
31 05.4	+57.7	65.3	31 54.6	+58.3	66.4	32 41.6	+58.8	67.5	33 26.3	+59.2	68.7	34 08.6	+59.5	70.0	34 48.4	+59.8	71.3	35 25.5	+60.0	72.6	36 00.0	+60.0	74.0	36		
32 03.1	+57.7	64.9	32 52.9	+58.2	66.1	33 40.4	+58.7	67.3	34 25.5	+59.2	68.5	35 08.1	+59.6	69.8	35 48.2	+59.7	71.2	36 25.5	+59.9	72.6	37 00.0	+60.0	74.0	37		
33 00.8	+57.6	64.6	33 51.1	+58.2	65.8	34 39.1	+58.8	67.0	35 24.7	+59.1	68.3	36 07.7	+59.5	69.7	36 47.9	+59.8	71.1	37 25.4	+60.0	72.5	38 00.0	+60.0	74.0	38		
33 58.4	+57.6	64.3	34 49.4	+58.2	65.5	35 37.9	+58.7	66.8	36 23.8	+59.2	68.1	37 07.2	+59.5	69.5	37 47.7	+59.8	71.0	38 25.4	+59.9	72.5	39 00.0	+60.0	74.0	39		
34 56.0	+57.5	63.9	35 47.5	+58.1	65.2	36 36.6	+58.6	66.5	37 23.0	+59.1	67.9	38 06.7	+59.5	69.4	38 47.5	+59.8	70.9	39 25.3	+60.0	72.4	40 00.0	+60.0	74.0	40		
35 53.5	+57.4	63.6	36 45.6	+58.1	64.9	37 35.2	+58.6	66.3	38 22.1	+59.1	67.7	39 06.2	+59.5	69.2	39 47.3	+59.8	70.8	40 25.3	+59.9	72.4	41 00.0	+60.0	74.0	41		
36 50.9	+57.4	63.2	37 43.7	+58.0	64.6	38 33.9	+58.6	66.0	39 21.2	+59.1	67.5	40 05.7	+59.5	69.0	40 47.1	+59.7	70.6	41 25.2	+59.9	72.3	42 00.0	+60.0	74.0	42		
37 48.3	+57.3	62.8	38 41.7	+58.0	64.3	39 32.5	+58.5	65.7	40 20.3	+59.1	67.3	41 05.2	+59.4	68.9	41 46.8	+59.8	70.5	42 25.1	+60.0	72.2	43 00.0	+60.0	74.0	43		
38 45.6	+57.2	62.5	39 39.7	+57.9	63.9	40 31.0	+58.5	65.4	41 19.4	+59.0	67.0	42 04.6	+59.5	68.7	42 46.6	+59.7	70.4	43 25.1	+59.9	72.2	44 00.0	+60.0	74.0	44		
39 42.8	+57.2	62.1	40 37.6	+57.9	63.6	41 29.5	+58.5	65.2	42 18.4	+59.0	66.8	43 04.1	+59.4	68.5	43 46.3	+59.7	70.3	44 25.0								

76°, 284° L.H.A.

LATITUDE SAME NAME

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	6 56.9	+52.3	102.2	6 31.3	+53.3	102.4	6 05.3	+54.2	102.6	5 38.8	+55.1	102.8	5 12.0	+55.8	103.0	4 44.8	+56.5	103.2	4 17.2	+57.3	103.3	3 49.4	+57.8	103.5
1	7 49.2	+52.3	101.7	7 24.6	+53.3	102.0	6 59.5	+54.2	102.2	6 33.9	+55.0	102.4	6 07.8	+55.9	102.6	5 41.3	+56.6	102.9	5 14.5	+57.2	103.0	4 47.2	+57.8	103.2
2	8 41.5	+52.2	101.2	8 17.9	+53.2	101.5	7 53.7	+54.2	101.8	7 28.9	+55.1	102.0	7 03.7	+55.8	102.3	6 37.9	+56.5	102.5	6 11.7	+57.2	102.7	5 45.0	+57.8	102.9
3	9 33.7	+52.3	100.7	9 11.1	+53.2	101.0	8 47.9	+54.1	101.3	8 24.0	+55.0	101.6	7 59.5	+55.8	101.9	7 34.4	+56.6	102.2	7 08.9	+57.2	102.4	6 42.8	+57.8	102.7
4	10 26.0	+52.1	100.2	10 04.3	+53.2	100.6	9 42.0	+54.1	100.9	9 19.0	+55.0	101.2	8 55.3	+55.8	101.5	8 31.0	+56.5	101.8	8 06.1	+57.1	102.1	7 40.6	+57.7	102.4
5	11 18.1	+52.1	99.7	10 57.5	+53.1	100.1	10 36.1	+54.1	100.5	10 14.0	+54.9	100.8	9 51.1	+55.7	101.2	9 27.5	+56.5	101.5	9 03.2	+57.2	101.8	8 38.3	+57.8	102.1
6	12 10.2	+52.1	99.2	11 50.6	+53.1	99.6	11 30.2	+54.0	100.0	11 08.9	+54.9	100.4	10 46.8	+55.8	100.8	10 24.0	+56.5	101.2	10 00.4	+57.1	101.5	9 36.1	+57.7	101.8
7	13 02.3	+52.0	98.7	12 43.7	+53.0	99.1	12 24.2	+54.0	99.6	12 03.8	+54.9	100.0	11 42.6	+55.7	100.4	11 20.5	+56.4	100.8	10 57.5	+57.2	101.2	10 33.8	+57.8	101.6
8	13 54.3	+51.9	98.2	13 36.7	+53.0	98.7	13 18.2	+53.9	99.1	12 58.7	+54.8	99.6	12 38.3	+55.6	100.0	12 16.9	+56.4	100.5	11 54.7	+57.1	100.9	11 31.6	+57.7	101.3
9	14 46.2	+51.9	97.6	14 29.7	+52.9	98.2	14 12.1	+53.9	98.7	13 53.5	+54.8	99.2	13 33.9	+55.6	99.6	13 13.3	+56.4	100.1	12 51.8	+57.0	100.6	12 29.3	+57.7	101.0
10	15 38.1	+51.8	97.1	15 22.6	+52.9	97.7	15 06.0	+53.9	98.2	14 48.3	+54.8	98.7	14 29.5	+55.6	99.3	14 09.7	+56.4	99.8	13 48.8	+57.1	100.3	13 27.0	+57.7	100.7
11	16 29.9	+51.7	96.6	16 15.5	+52.8	97.2	15 59.9	+53.7	97.8	15 43.1	+54.7	98.3	15 25.1	+55.6	98.9	15 06.1	+56.3	99.4	14 45.9	+57.0	99.9	14 24.7	+57.6	100.5
12	17 21.6	+51.6	96.1	17 08.3	+52.7	96.7	16 53.6	+53.6	97.3	16 37.8	+54.6	97.9	16 20.7	+55.5	98.5	16 02.4	+56.3	99.1	15 42.9	+57.0	99.6	15 22.3	+57.6	100.2
13	18 13.2	+51.6	95.5	18 01.0	+52.6	96.2	17 47.4	+53.6	96.8	17 47.4	+53.6	96.8	17 32.4	+54.6	97.5	17 16.2	+55.5	98.1	16 58.7	+56.2	98.7	16 39.9	+57.0	99.3
14	19 04.8	+51.4	95.0	18 53.6	+52.5	95.7	18 41.0	+53.6	96.4	18 27.0	+54.5	97.0	18 11.7	+55.4	97.7	17 54.9	+56.3	98.3	17 54.9	+56.3	98.3	17 36.9	+56.9	99.0
15	19 56.2	+51.3	94.5	19 46.1	+52.5	95.2	19 34.1	+53.5	95.9	19 21.5	+54.5	96.6	19 07.1	+55.3	97.3	18 51.2	+56.1	98.0	18 33.8	+56.9	98.6	18 15.1	+57.5	99.6
16	20 47.5	+51.3	93.9	20 38.6	+52.4	94.7	20 28.1	+53.4	95.4	20 16.0	+54.4	96.1	20 02.4	+55.3	96.9	19 47.3	+56.1	97.6	19 30.7	+56.9	98.3	19 12.7	+57.5	99.0
17	21 38.8	+51.1	93.3	21 31.0	+52.2	94.1	21 21.5	+53.3	94.9	21 10.4	+54.3	95.7	20 57.7	+55.3	96.5	20 43.4	+56.1	97.2	20 27.6	+56.8	98.0	20 10.2	+57.5	98.7
18	22 29.9	+51.0	92.8	22 23.2	+52.2	93.6	22 14.8	+53.3	94.4	22 04.7	+54.3	95.2	21 53.0	+55.1	96.0	21 39.5	+56.0	96.8	21 24.4	+56.8	97.6	21 07.7	+57.5	98.4
19	23 20.9	+50.9	92.2	23 15.4	+52.0	93.1	23 08.1	+53.1	93.9	22 59.0	+54.1	94.8	22 48.1	+55.1	95.6	22 35.5	+56.0	96.4	22 21.2	+56.7	97.3	22 05.2	+57.4	98.1
20	24 11.8	+50.7	91.6	24 07.4	+52.0	92.5	24 01.2	+53.1	93.4	23 53.1	+54.1	94.3	23 43.2	+55.1	95.2	23 31.5	+55.9	96.1	23 17.9	+56.7	96.9	23 02.6	+57.4	97.8
21	25 02.5	+50.6	91.0	24 59.4	+52.0	92.0	24 54.3	+52.9	92.9	24 47.2	+54.0	93.8	24 38.3	+54.9	94.7	24 27.4	+55.8	95.7	24 14.6	+56.7	96.6	24 00.0	+57.4	97.4
22	25 53.1	+50.5	90.4	25 51.2	+51.7	91.4	25 47.2	+52.8	92.4	25 41.2	+53.9	93.3	25 33.2	+54.9	94.3	25 23.2	+55.8	95.2	25 11.3	+56.6	96.2	24 57.4	+57.3	97.1
23	26 43.6	+50.3	89.8	26 42.9	+51.5	90.8	26 40.0	+52.7	91.9	26 35.1	+53.8	92.9	26 28.1	+54.8	93.8	26 19.0	+55.7	94.8	26 07.9	+56.5	95.8	25 54.7	+57.2	96.8
24	27 33.9	+50.1	89.2	27 34.4	+51.4	90.3	27 32.7	+52.6	91.3	27 28.9	+53.7	92.4	27 22.9	+54.7	93.4	27 14.7	+55.6	94.4	27 04.4	+56.4	95.4	26 51.9	+57.2	96.5
25	28 24.0	+50.0	88.6	28 25.8	+51.2	89.7	28 25.3	+52.5	90.8	28 22.6	+53.5	91.9	28 17.6	+54.6	92.9	28 10.3	+55.6	94.0	28 00.8	+56.4	95.1	27 49.1	+57.2	96.1
26	29 14.0	+49.7	88.0	29 17.0	+51.1	89.1	29 17.8	+52.3	90.2	29 16.1	+53.5	91.3	29 12.2	+54.5	92.5	29 05.9	+55.4	93.6	28 57.2	+56.4	94.7	28 46.3	+57.1	95.8
27	30 03.7	+49.6	87.3	30 08.1	+50.9	88.5	30 10.1	+52.1	89.7	30 09.6	+53.3	90.8	30 06.7	+54.4	92.0	30 01.3	+55.4	93.1	29 53.6	+56.2	94.3	29 43.4	+57.1	95.4
28	30 53.3	+49.4	86.7	30 59.0	+50.8	87.9	31 02.2	+52.0	89.1	31 02.2	+52.0	89.1	31 01.1	+54.2	91.5	30 56.7	+55.3	92.7	30 49.8	+56.2	93.9	30 40.5	+57.0	95.1
29	31 42.7	+49.2	86.0	31 49.8	+50.5	87.2	31 54.2	+51.9	88.5	31 56.1	+53.0	89.7	31 55.3	+54.2	91.0	31 52.0	+55.2	92.2	31 46.0	+56.1	93.5	31 37.5	+56.9	94.7
30	32 31.9	+49.0	85.3	32 40.3	+50.4	86.6	32 46.1	+51.7	87.9	32 49.1	+52.9	89.2	32 49.5	+54.0	90.5	32 47.2	+55.0	91.8	32 42.1	+56.0	93.0	32 34.4	+56.9	94.3
31	33 20.9	+48.7	84.6	33 30.7	+50.1	86.0	33 37.8	+51.4	87.3	33 42.0	+52.8	88.6	33 43.5	+53.9	90.0	33 42.2	+55.0	91.3	33 38.1	+56.0	92.6	33 31.3	+56.8	93.9
32	34 09.6	+48.5	83.9	34 20.8	+50.0	85.3	34 29.2	+51.3	86.7	34 34.8	+52.6	88.0	34 37.4	+53.8	89.4	34 37.2	+54.8	90.8	34 34.1	+55.8	92.2	34 28.1	+56.7	93.6
33	34 58.1	+48.2	83.2	35 10.8	+49.7	84.6	35 20.5	+51.1	86.0	35 27.4	+52.4	87.5	35 31.2	+53.6	88.9	35 32.0	+54.8	90.3	35 29.9	+55.7	91.7	35 24.8	+56.6	93.2
34	35 46.3	+48.0	82.5	36 00.5	+49.4	83.9	36 11.6	+50.9	85.4	36 19.8	+52.2	86.9	36 24.8	+53.5	88.3	36 26.8	+54.6	89.8	36 25.6	+55.7	91.3	36 21.4	+56.6	92.8
35	36 34.3	+47.6	81.8	36 49.9	+49.2	83.2	37 02.5	+50.7	84.7	37 12.0	+52.0	86.2	37 18.3	+53.2	87.8	37 21.4	+54.4	89.3	37 21.3	+55.5	90.8	37 18.0	+56.4	92.3
36	37 21.9	+47.4	81.0	37 39.1	+49.0	82.5	37 53.2	+50.4	84.1	38 04.0	+51.8	85.6	38 11.5	+53.1	87.2	38 15.8	+54.3	88.8	38 16.8	+55.4	90.3	38 14.4	+56.4	91.9
37	38 09.3	+47.1	80.2	38 28.1	+48.8	81.8	38 43.6	+50.2	83.4	38 55.8	+51.6	85.0	39 04.6	+53.0	86.6	39 10.1	+54.2	88.2	39 12.2	+55.2	89.8	39 10.8	+56.3	91.5
38	38 56.4	+46.7	79.4	39 16.7	+48.4	81.0	39 33.8	+49.9	82.7	39 47.4	+51.4	84.3	39 57.6	+52.7	86.0	40 04.3	+53.9	87.6	40 04.3	+54.9	89.3	40 07.1	+56.1	91.0
39	39 43.1	+46.4	78.6	40 05.1	+48.0	80.3	40 23.7	+49.6	81.9	40 38.8	+51.1	83.6	40 50.3	+52.5	85.3	40 58.2	+53.8	87.1	41 02.5	+55.0	88.8	41 03.2	+56.1	90.6
40	40 29.5	+46.0	77.8	40 53.1	+47.8	79.5	41 13.3	+49.3	81.2	41 29.9	+50.8	82.9	41 42.8	+52.3	84.7	41 52.0	+53.7	86.5	41 57.5	+54.9	88.3	41 59.3	+55.9	90.1
41	41 15.5	+45.6	76.9	41 40.9	+47.3	78.7	42 02.6	+49.1	80.4	42 20.7	+50.6	82.2	42 35.1	+52.1	84.0	42 45.7	+53.4	85.9	42 52.4	+54.6	87.7	42 55.2	+55.8	89.6
42	42 01.1	+45.3	76.1	42 28.2	+47.0	77.8	42 51.7	+48.7	79.6	43 11.3	+50.3	81.5	43 27.2	+51.8	83.4	43 39.1	+53.2	85.3	43 47.0	+54.5	87.2	43 51.0	+55.6	89.1
43	42 46.4	+44.8	75.2	43 15.2	+46.7	77.0	43 40.4	+48.3	78.8	44 01.6	+50.0	80.7	44 19.0	+51.5	82.7	44 32.3	+53.0	84.6	44 41.5	+54.3	86.6	44 46.6	+55.5	88.6
44	43 31.2	+44.3	74.3	44 01.9	+46.2	76.1	44 28.7	+48.0	78.0	44 51.6	+49.7	80.0	45 10.5	+51.3	81.9	45 25.3	+52.7	83.9	45 35.8	+54.1	86.0	45 42.1	+55.4	88.0
45	44 15.5	+43.9	73.3	44 48.1	+45.8	75.2	45 16.7	+47.6	77.2	45 41.3	+49.3	79.2	46 01.8	+51.0	81.2	46 18.0	+52.5	83.3	46 29.9	+53.9	85.3	46 37.5	+55.1	87.5
46	44 59.4	+43.5	72.4	45 33.9	+45.3	74.3	46 04.3	+47.2	76.3	46 30.6	+49.0	78.3	46 52.8	+50.6	80.4	47 10.5	+52.2	82.6	47 23.8	+53.7	84.7	47 32.6	+55.0	86.9
47	45 42.9	+42.8	71.4	46 19.2	+44.8	73.4	46 51.5	+46.7	75.4	47 19.6	+48.6	77.5												

LATITUDE CONTRARY NAME

L.H.A. 76°, 284°

Table with columns for latitude (60° to 74°) and longitude (Hc, d, Z) and a Dec. column. Each latitude column contains 20 rows of data. The Dec. column contains values from 0 to 90.

LATITUDE SAME NAME

L.H.A. 104°, 256°

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	3 21.3	+58.3	103.6	2 53.0	+58.7	103.7	2 24.5	+59.1	103.8	1 55.8	+59.4	103.9	1 26.9	+59.7	103.9	0 58.0	+59.9	104.0	0 29.0	+60.0	104.0	0 00.0	+60.0	104.0
1	4 19.6	+58.3	103.4	3 51.7	+58.8	103.5	3 23.6	+59.1	103.6	2 55.2	+59.5	103.7	2 26.6	+59.7	103.8	1 57.9	+59.8	103.9	1 29.0	+60.0	104.0	1 00.0	+60.0	104.0
2	5 17.9	+58.3	103.1	4 50.5	+58.8	103.3	4 22.7	+59.2	103.5	3 54.7	+59.4	103.6	3 26.3	+59.7	103.7	2 57.7	+59.9	103.8	2 29.0	+60.0	104.0	2 00.0	+60.0	104.0
3	6 16.2	+58.3	102.9	5 49.3	+58.7	103.1	5 21.9	+59.1	103.3	4 54.1	+59.5	103.5	4 26.0	+59.7	103.6	3 57.6	+59.9	103.8	3 28.9	+60.0	103.9	3 00.0	+60.0	104.0
4	7 14.5	+58.3	102.7	6 48.0	+58.8	102.9	6 21.0	+59.1	103.1	5 53.6	+59.4	103.3	5 25.7	+59.7	103.5	4 57.5	+59.8	103.7	4 28.9	+60.0	103.9	4 00.0	+60.0	104.0
5	8 12.8	+58.3	102.4	7 46.8	+58.7	102.7	7 20.1	+59.2	102.9	6 53.0	+59.4	103.2	6 25.4	+59.7	103.4	5 57.3	+59.9	103.6	5 28.9	+59.9	103.8	5 00.0	+60.0	104.0
6	9 11.1	+58.3	102.2	8 45.5	+58.7	102.5	8 19.3	+59.1	102.8	7 52.4	+59.5	103.1	7 25.1	+59.7	103.3	6 57.2	+59.8	103.6	6 28.8	+60.0	103.8	6 00.0	+60.0	104.0
7	10 09.4	+58.3	101.9	9 44.2	+58.8	102.3	9 18.4	+59.1	102.6	8 51.9	+59.4	102.9	8 24.8	+59.6	103.2	7 57.0	+59.9	103.5	7 28.8	+59.9	103.8	7 00.0	+60.0	104.0
8	11 07.7	+58.2	101.7	10 43.0	+58.7	102.1	10 17.5	+59.1	102.4	9 51.3	+59.4	102.8	9 24.4	+59.7	103.1	8 56.9	+59.9	103.4	8 28.7	+60.0	103.7	8 00.0	+60.0	104.0
9	12 05.9	+58.3	101.4	11 41.7	+58.7	101.9	11 16.6	+59.1	102.3	10 50.7	+59.5	102.6	10 24.1	+59.7	103.0	9 56.8	+59.8	103.4	9 28.7	+60.0	103.7	9 00.0	+60.0	104.0
10	13 04.2	+58.2	101.2	12 40.4	+58.7	101.6	12 15.7	+59.1	102.1	11 50.2	+59.4	102.5	11 23.8	+59.7	102.9	10 56.6	+59.9	103.3	10 28.7	+59.9	103.6	10 00.0	+60.0	104.0
11	14 02.4	+58.2	100.9	13 39.1	+58.7	101.4	13 14.8	+59.1	101.9	12 49.6	+59.4	102.4	12 23.5	+59.7	102.8	11 56.5	+59.8	103.2	11 28.6	+60.0	103.6	11 00.0	+60.0	104.0
12	15 00.6	+58.2	100.7	14 37.8	+58.6	101.2	14 13.9	+59.1	101.7	13 49.0	+59.4	102.2	13 23.2	+59.6	102.7	12 56.3	+59.9	103.1	12 28.6	+60.0	103.6	12 00.0	+60.0	104.0
13	15 58.8	+58.2	100.4	15 36.4	+58.7	101.0	15 13.0	+59.1	101.5	14 48.4	+59.4	102.1	14 22.8	+59.7	102.6	13 56.2	+59.8	103.1	13 28.6	+59.9	103.5	13 00.0	+60.0	104.0
14	16 57.0	+58.1	100.2	16 35.1	+58.7	100.8	16 12.1	+59.0	101.4	15 47.8	+59.4	101.9	15 22.5	+59.7	102.5	14 56.0	+59.9	103.0	14 28.5	+60.0	103.5	14 00.0	+60.0	104.0
15	17 55.1	+58.1	99.9	17 33.8	+58.6	100.6	17 11.1	+59.0	101.2	16 47.2	+59.4	101.8	16 22.2	+59.6	102.4	15 55.9	+59.8	102.9	15 28.5	+60.0	103.5	15 00.0	+60.0	104.0
16	18 53.2	+58.2	99.7	18 32.4	+58.6	100.3	18 10.2	+59.0	101.0	17 46.6	+59.4	101.6	17 21.8	+59.7	102.2	16 55.7	+59.9	102.8	16 28.5	+59.9	103.4	16 00.0	+60.0	104.0
17	19 51.4	+58.0	99.4	19 31.0	+58.6	100.1	19 09.2	+59.1	100.8	18 46.0	+59.4	101.3	18 21.5	+59.6	102.1	17 55.6	+59.8	102.8	17 28.4	+60.0	103.4	17 00.0	+60.0	104.0
18	20 49.4	+58.1	99.1	20 29.6	+58.6	99.9	20 08.3	+59.0	100.6	19 45.4	+59.4	101.3	19 21.1	+59.7	102.0	18 54.4	+59.9	102.7	18 28.4	+59.9	103.4	18 00.0	+60.0	104.0
19	21 47.5	+58.0	98.9	21 28.2	+58.6	99.7	21 07.3	+59.0	100.4	20 44.8	+59.4	101.2	20 20.8	+59.6	101.9	19 55.3	+59.8	102.6	19 28.3	+60.0	103.3	19 00.0	+60.0	104.0
20	22 45.5	+58.1	98.6	22 26.8	+58.5	99.4	22 06.3	+59.0	100.2	21 44.2	+59.3	101.0	21 20.4	+59.7	101.8	20 55.1	+59.9	102.5	20 28.3	+60.0	103.3	20 00.0	+60.0	104.0
21	23 43.6	+57.9	98.3	23 25.3	+58.5	99.2	23 05.3	+59.0	100.0	22 43.5	+59.4	100.9	22 20.1	+59.6	101.7	21 55.0	+59.8	102.5	21 28.3	+59.9	103.2	21 00.0	+60.0	104.0
22	24 41.5	+58.0	98.0	24 23.8	+58.5	98.9	24 04.3	+58.9	99.8	23 42.9	+59.3	100.7	23 19.7	+59.6	101.6	22 54.8	+59.8	102.4	22 28.2	+60.0	103.2	22 00.0	+60.0	104.0
23	25 39.5	+57.9	97.7	25 22.3	+58.5	98.7	25 03.2	+59.0	99.6	24 42.2	+59.3	100.5	24 29.3	+59.7	101.4	23 54.6	+59.9	102.3	23 28.2	+59.9	103.2	23 00.0	+60.0	104.0
24	26 37.4	+57.9	97.5	26 20.8	+58.4	98.4	26 02.2	+58.9	99.4	25 41.5	+59.3	100.4	25 19.0	+59.6	101.3	24 54.5	+59.8	102.2	24 28.1	+60.0	103.1	24 00.0	+60.0	104.0
25	27 35.3	+57.8	97.2	27 19.2	+58.5	98.2	27 01.1	+58.9	99.2	26 40.8	+59.4	100.2	26 18.6	+59.6	101.2	25 54.3	+59.8	102.1	25 28.1	+60.0	103.1	25 00.0	+60.0	104.0
26	28 33.1	+57.8	96.9	28 17.7	+58.3	97.9	28 00.0	+58.9	99.0	27 40.2	+59.2	100.0	27 18.2	+59.6	101.1	26 54.1	+59.9	102.1	26 28.1	+59.9	103.0	26 00.0	+60.0	104.0
27	29 30.9	+57.8	96.6	29 16.0	+58.4	97.7	28 58.9	+58.8	98.8	28 39.4	+59.3	99.9	28 17.8	+59.6	100.9	27 54.0	+59.8	102.0	27 28.0	+60.0	103.0	27 00.0	+60.0	104.0
28	30 28.7	+57.7	96.2	30 14.4	+58.3	97.4	29 57.7	+58.9	98.6	29 38.7	+59.3	99.7	29 17.4	+59.6	100.8	28 53.8	+59.8	101.9	28 28.0	+59.9	103.0	28 00.0	+60.0	104.0
29	31 26.4	+57.6	95.9	31 12.7	+58.3	97.1	30 56.6	+58.8	98.3	30 38.0	+59.2	99.5	30 17.0	+59.6	100.7	29 53.6	+59.8	101.8	29 27.9	+60.0	102.9	29 00.0	+60.0	104.0
30	32 24.0	+57.6	95.6	32 11.0	+58.3	96.9	31 55.4	+58.8	98.1	31 37.2	+59.3	99.3	31 16.6	+59.5	100.5	30 53.4	+59.8	101.7	30 27.9	+59.9	102.9	30 00.0	+60.0	104.0
31	33 21.6	+57.6	95.3	33 09.3	+58.2	96.6	32 54.2	+58.8	97.9	32 36.5	+59.2	99.1	32 16.1	+59.6	100.4	31 53.2	+59.8	101.6	31 27.8	+60.0	102.8	31 00.0	+60.0	104.0
32	34 19.2	+57.5	94.9	34 07.5	+58.1	96.3	33 53.0	+58.7	97.6	33 35.7	+59.2	98.9	33 15.7	+59.5	100.2	32 53.0	+59.8	101.5	32 27.8	+59.9	102.8	32 00.0	+60.0	104.0
33	35 16.7	+57.4	94.6	35 05.6	+58.2	96.0	34 51.7	+58.7	97.4	34 34.9	+59.2	98.7	34 15.2	+59.6	100.1	33 52.8	+59.8	101.4	33 27.7	+60.0	102.7	33 00.0	+60.0	104.0
34	36 14.1	+57.4	94.2	36 03.8	+58.0	95.7	35 50.4	+58.7	97.1	35 34.1	+59.1	98.5	35 14.8	+59.5	99.9	34 52.6	+59.8	101.3	34 27.7	+59.9	102.7	34 00.0	+60.0	104.0
35	37 11.5	+57.3	93.9	37 01.8	+58.1	95.4	36 49.1	+58.6	96.9	36 33.2	+59.2	98.3	36 14.3	+59.5	99.8	35 52.4	+59.8	101.2	35 27.6	+60.0	102.6	35 00.0	+60.0	104.0
36	38 08.8	+57.2	93.5	37 59.9	+57.9	95.0	37 47.7	+58.6	96.6	37 47.7	+59.1	98.1	37 13.8	+59.5	99.6	36 52.2	+59.8	101.1	36 27.6	+59.9	102.6	36 00.0	+60.0	104.0
37	39 06.0	+57.2	93.1	38 57.8	+58.0	94.7	38 46.3	+58.6	96.3	38 31.5	+59.0	97.9	38 13.3	+59.5	99.5	37 52.0	+59.8	101.0	37 27.5	+60.0	102.5	37 00.0	+60.0	104.0
38	40 03.2	+57.0	92.7	39 55.8	+57.8	94.4	39 44.9	+58.5	96.0	39 30.5	+59.1	97.7	39 12.8	+59.5	99.3	38 51.8	+59.7	100.9	38 27.5	+59.9	102.5	38 00.0	+60.0	104.0
39	41 00.2	+57.0	92.3	40 53.6	+57.8	94.0	40 43.4	+58.5	95.7	40 29.6	+59.0	97.4	40 12.3	+59.5	99.1	39 51.5	+59.8	100.8	39 27.4	+60.0	102.4	39 00.0	+60.0	104.0
40	41 57.2	+56.9	91.9	41 51.4	+57.7	93.7	41 41.9	+58.4	95.4	41 28.6	+59.0	97.2	41 11.8	+59.4	99.0	40 51.3	+59.8	100.7	40 27.4	+59.9	102.4	40 00.0	+60.0	104.0
41	42 54.1	+56.8	91.4	42 49.1	+57.7	93.3	42 40.3	+58.4	95.1	42 27.6	+59.0	97.0	42 11.2	+59.4	98.8	41 51.1	+59.7	100.5	41 51.1	+59.9	102.3	41 00.0	+60.0	104.0
42	43 50.9	+56.7	91.0	43 46.8	+57.6	92.9	43 38.7	+58.3	94.8	43 26.6	+58.9	96.7	43 10.6	+59.4	98.6	42 50.8	+59.8	100.4	42 27.2	+60.0	102.2	42 00.0	+60.0	104.0
43	44 47.6	+56.5	90.5	44 44.4	+57.4	92.5	44 37.0	+58.3	94.5	44 25.5	+58.9	96.5	44 10.0	+59.4	98.4	43 50.6	+59.7	100.3	43 27.2	+59.9	102.2	43 00.0	+60.0	104.0
44	45 44.1	+56.5	90.1	45 41.8	+57.4	92.1	45 35.3	+58.2	94.2	45 24.4	+58.9	96.2	45 09.4	+59.4	98.2	44 50.3	+59.7	100.2	44 27.1	+59.9	102.1	44 00.0	+60.0	104.0
45	46 40.4	+56.3	89.6	46 39.2	+57.3	91.7	46 33.5	+58.1	93.8	46 23.3	+58.8	95.9	46 08.8	+59.3	98.0	45 50.0	+59.7	100.0	45 27.0	+60.0	102.0	45 00.0	+60.0	104.0
46	47 36.9	+56.2	89.1	47 36.5	+57.2	91.3	47 31.6	+58.1	93.4	47 22.1	+58.8	95.6	47 22.1	+59.4	97.8	46 49.7	+59.7	99.9	46 49.7	+59.9	102.0			

LATITUDE CONTRARY NAME

L.H.A. 76°, 284°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
3 21.3 -58.3 103.6	2 53.0 -58.8 103.7	2 24.5 -59.2 103.8	1 55.8 -59.5 103.9	0 56.3 -59.4 104.0	0 26.2 -59.2 104.1	0 03.1 +59.5 75.9	1 02.6 +59.4 75.7	2 02.0 +59.5 75.6	2 31.8 +59.7 75.7	3 01.5 +59.4 75.5	4 31.2 +59.7 75.5	5 30.9 +59.7 75.4	6 30.6 +59.7 75.3	7 30.3 +59.6 75.2	8 30.0 +59.5 75.1	9 29.7 +59.4 75.0	10 29.4 +59.3 74.9	11 29.1 +59.2 74.8	12 28.8 +59.1 74.7	13 28.5 +59.0 74.6	14 28.2 +58.9 74.5	15 27.9 +58.8 74.4	16 27.6 +58.7 74.3	17 27.3 +58.6 74.2	18 27.0 +58.5 74.1	19 26.7 +58.4 74.0	20 26.4 +58.3 73.9	21 26.1 +58.2 73.8	22 25.8 +58.1 73.7	23 25.5 +58.0 73.6	24 25.2 +57.9 73.5	25 24.9 +57.8 73.4	26 24.6 +57.7 73.3	27 24.3 +57.6 73.2	28 24.0 +57.5 73.1	29 23.7 +57.4 73.0	30 23.4 +57.3 72.9	31 23.1 +57.2 72.8	32 22.8 +57.1 72.7	33 22.5 +57.0 72.6	34 22.2 +56.9 72.5	35 21.9 +56.8 72.4	36 21.6 +56.7 72.3	37 21.3 +56.6 72.2	38 21.0 +56.5 72.1	39 20.7 +56.4 72.0	40 20.4 +56.3 71.9	41 20.1 +56.2 71.8	42 19.8 +56.1 71.7	43 19.5 +56.0 71.6	44 19.2 +55.9 71.5	45 18.9 +55.8 71.4	46 18.6 +55.7 71.3	47 18.3 +55.6 71.2	48 18.0 +55.5 71.1	49 17.7 +55.4 71.0	50 17.4 +55.3 70.9	51 17.1 +55.2 70.8	52 16.8 +55.1 70.7	53 16.5 +55.0 70.6	54 16.2 +54.9 70.5	55 15.9 +54.8 70.4	56 15.6 +54.7 70.3	57 15.3 +54.6 70.2	58 15.0 +54.5 70.1	59 14.7 +54.4 70.0	60 14.4 +54.3 69.9	61 14.1 +54.2 69.8	62 13.8 +54.1 69.7	63 13.5 +54.0 69.6	64 13.2 +53.9 69.5	65 12.9 +53.8 69.4	66 12.6 +53.7 69.3	67 12.3 +53.6 69.2	68 12.0 +53.5 69.1	69 11.7 +53.4 69.0	70 11.4 +53.3 68.9	71 11.1 +53.2 68.8	72 10.8 +53.1 68.7	73 10.5 +53.0 68.6	74 10.2 +52.9 68.5	75 9.9 +52.8 68.4	76 9.6 +52.7 68.3	77 9.3 +52.6 68.2	78 9.0 +52.5 68.1	79 8.7 +52.4 68.0	80 8.4 +52.3 67.9	81 8.1 +52.2 67.8	82 7.8 +52.1 67.7	83 7.5 +52.0 67.6	84 7.2 +51.9 67.5	85 6.9 +51.8 67.4	86 6.6 +51.7 67.3	87 6.3 +51.6 67.2	88 6.0 +51.5 67.1	89 5.7 +51.4 67.0	90 5.4 +51.3 66.9	91 5.1 +51.2 66.8	92 4.8 +51.1 66.7	93 4.5 +51.0 66.6	94 4.2 +50.9 66.5	95 3.9 +50.8 66.4	96 3.6 +50.7 66.3	97 3.3 +50.6 66.2	98 3.0 +50.5 66.1	99 2.7 +50.4 66.0	100 2.4 +50.3 65.9	101 2.1 +50.2 65.8	102 1.8 +50.1 65.7	103 1.5 +50.0 65.6	104 1.2 +49.9 65.5	105 0.9 +49.8 65.4	106 0.6 +49.7 65.3	107 0.3 +49.6 65.2	108 0.0 +49.5 65.1	109 -0.3 +49.4 65.0	110 -0.6 +49.3 64.9	111 -0.9 +49.2 64.8	112 -1.2 +49.1 64.7	113 -1.5 +49.0 64.6	114 -1.8 +48.9 64.5	115 -2.1 +48.8 64.4	116 -2.4 +48.7 64.3	117 -2.7 +48.6 64.2	118 -3.0 +48.5 64.1	119 -3.3 +48.4 64.0	120 -3.6 +48.3 63.9	121 -3.9 +48.2 63.8	122 -4.2 +48.1 63.7	123 -4.5 +48.0 63.6	124 -4.8 +47.9 63.5	125 -5.1 +47.8 63.4	126 -5.4 +47.7 63.3	127 -5.7 +47.6 63.2	128 -6.0 +47.5 63.1	129 -6.3 +47.4 63.0	130 -6.6 +47.3 62.9	131 -6.9 +47.2 62.8	132 -7.2 +47.1 62.7	133 -7.5 +47.0 62.6	134 -7.8 +46.9 62.5	135 -8.1 +46.8 62.4	136 -8.4 +46.7 62.3	137 -8.7 +46.6 62.2	138 -9.0 +46.5 62.1	139 -9.3 +46.4 62.0	140 -9.6 +46.3 61.9	141 -9.9 +46.2 61.8	142 -10.2 +46.1 61.7	143 -10.5 +46.0 61.6	144 -10.8 +45.9 61.5	145 -11.1 +45.8 61.4	146 -11.4 +45.7 61.3	147 -11.7 +45.6 61.2	148 -12.0 +45.5 61.1	149 -12.3 +45.4 61.0	150 -12.6 +45.3 60.9	151 -12.9 +45.2 60.8	152 -13.2 +45.1 60.7	153 -13.5 +45.0 60.6	154 -13.8 +44.9 60.5	155 -14.1 +44.8 60.4	156 -14.4 +44.7 60.3	157 -14.7 +44.6 60.2	158 -15.0 +44.5 60.1	159 -15.3 +44.4 60.0	160 -15.6 +44.3 59.9	161 -15.9 +44.2 59.8	162 -16.2 +44.1 59.7	163 -16.5 +44.0 59.6	164 -16.8 +43.9 59.5	165 -17.1 +43.8 59.4	166 -17.4 +43.7 59.3	167 -17.7 +43.6 59.2	168 -18.0 +43.5 59.1	169 -18.3 +43.4 59.0	170 -18.6 +43.3 58.9	171 -18.9 +43.2 58.8	172 -19.2 +43.1 58.7	173 -19.5 +43.0 58.6	174 -19.8 +42.9 58.5	175 -20.1 +42.8 58.4	176 -20.4 +42.7 58.3	177 -20.7 +42.6 58.2	178 -21.0 +42.5 58.1	179 -21.3 +42.4 58.0	180 -21.6 +42.3 57.9	181 -21.9 +42.2 57.8	182 -22.2 +42.1 57.7	183 -22.5 +42.0 57.6	184 -22.8 +41.9 57.5	185 -23.1 +41.8 57.4	186 -23.4 +41.7 57.3	187 -23.7 +41.6 57.2	188 -24.0 +41.5 57.1	189 -24.3 +41.4 57.0	190 -24.6 +41.3 56.9	191 -24.9 +41.2 56.8	192 -25.2 +41.1 56.7	193 -25.5 +41.0 56.6	194 -25.8 +40.9 56.5	195 -26.1 +40.8 56.4	196 -26.4 +40.7 56.3	197 -26.7 +40.6 56.2	198 -27.0 +40.5 56.1	199 -27.3 +40.4 56.0	200 -27.6 +40.3 55.9	201 -27.9 +40.2 55.8	202 -28.2 +40.1 55.7	203 -28.5 +40.0 55.6	204 -28.8 +39.9 55.5	205 -29.1 +39.8 55.4	206 -29.4 +39.7 55.3	207 -29.7 +39.6 55.2	208 -30.0 +39.5 55.1	209 -30.3 +39.4 55.0	210 -30.6 +39.3 54.9	211 -30.9 +39.2 54.8	212 -31.2 +39.1 54.7	213 -31.5 +39.0 54.6	214 -31.8 +38.9 54.5	215 -32.1 +38.8 54.4	216 -32.4 +38.7 54.3	217 -32.7 +38.6 54.2	218 -33.0 +38.5 54.1	219 -33.3 +38.4 54.0	220 -33.6 +38.3 53.9	221 -33.9 +38.2 53.8	222 -34.2 +38.1 53.7	223 -34.5 +38.0 53.6	224 -34.8 +37.9 53.5	225 -35.1 +37.8 53.4	226 -35.4 +37.7 53.3	227 -35.7 +37.6 53.2	228 -36.0 +37.5 53.1	229 -36.3 +37.4 53.0	230 -36.6 +37.3 52.9	231 -36.9 +37.2 52.8	232 -37.2 +37.1 52.7	233 -37.5 +37.0 52.6	234 -37.8 +36.9 52.5	235 -38.1 +36.8 52.4	236 -38.4 +36.7 52.3	237 -38.7 +36.6 52.2	238 -39.0 +36.5 52.1	239 -39.3 +36.4 52.0	240 -39.6 +36.3 51.9	241 -39.9 +36.2 51.8	242 -40.2 +36.1 51.7	243 -40.5 +36.0 51.6	244 -40.8 +35.9 51.5	245 -41.1 +35.8 51.4	246 -41.4 +35.7 51.3	247 -41.7 +35.6 51.2	248 -42.0 +35.5 51.1	249 -42.3 +35.4 51.0	250 -42.6 +35.3 50.9	251 -42.9 +35.2 50.8	252 -43.2 +35.1 50.7	253 -43.5 +35.0 50.6	254 -43.8 +34.9 50.5	255 -44.1 +34.8 50.4	256 -44.4 +34.7 50.3	257 -44.7 +34.6 50.2	258 -45.0 +34.5 50.1	259 -45.3 +34.4 50.0	260 -45.6 +34.3 49.9	261 -45.9 +34.2 49.8	262 -46.2 +34.1 49.7	263 -46.5 +34.0 49.6	264 -46.8 +33.9 49.5	265 -47.1 +33.8 49.4	266 -47.4 +33.7 49.3	267 -47.7 +33.6 49.2	268 -48.0 +33.5 49.1	269 -48.3 +33.4 49.0	270 -48.6 +33.3 48.9	271 -48.9 +33.2 48.8	272 -49.2 +33.1 48.7	273 -49.5 +33.0 48.6	274 -49.8 +32.9 48.5	275 -50.1 +32.8 48.4	276 -50.4 +32.7 48.3	277 -50.7 +32.6 48.2	278 -51.0 +32.5 48.1	279 -51.3 +32.4 48.0	280 -51.6 +32.3 47.9	281 -51.9 +32.2 47.8	282 -52.2 +32.1 47.7	283 -52.5 +32.0 47.6	284 -52.8 +31.9 47.5	285 -53.1 +31.8 47.4	286 -53.4 +31.7 47.3	287 -53.7 +31.6 47.2	288 -54.0 +31.5 47.1	289 -54.3 +31.4 47.0	290 -54.6 +31.3 46.9	291 -54.9 +31.2 46.8	292 -55.2 +31.1 46.7	293 -55.5 +31.0 46.6	294 -55.8 +30.9 46.5	295 -56.1 +30.8 46.4	296 -56.4 +30.7 46.3	297 -56.7 +30.6 46.2	298 -57.0 +30.5 46.1	299 -57.3 +30.4 46.0	300 -57.6 +30.3 45.9	301 -57.9 +30.2 45.8	302 -58.2 +30.1 45.7	303 -58.5 +30.0 45.6	304 -58.8 +29.9 45.5	305 -59.1 +29.8 45.4	306 -59.4 +29.7 45.3	307 -59.7 +29.6 45.2	308 -60.0 +29.5 45.1	309 -60.3 +29.4 45.0	310 -60.6 +29.3 44.9	311 -60.9 +29.2 44.8	312 -61.2 +29.1 44.7	313 -61.5 +29.0 44.6	314 -61.8 +28.9 44.5	315 -62.1 +28.8 44.4	316 -62.4 +28.7 44.3	317 -62.7 +28.6 44.2	318 -63.0 +28.5 44.1	319 -63.3 +28.4 44.0	320 -63.6 +28.3 43.9	321 -63.9 +28.2 43.8	322 -64.2 +28.1 43.7	323 -64.5 +28.0 43.6	324 -64.8 +27.9 43.5	325 -65.1 +27.8 43.4	326 -65.4 +27.7 43.3	327 -65.7 +27.6 43.2	328 -66.0 +27.5 43.1	329 -66.3 +27.4 43.0	330 -66.6 +27.3 42.9	331 -66.9 +27.2 42.8	332 -67.2 +27.1 42.7	333 -67.5 +27.0 42.6	334 -67.8 +26.9 42.5	335 -68.1 +26.8 42.4	336 -68.4 +26.7 42.3	337 -68.7 +26.6 42.2	338 -69.0 +26.5 42.1	339 -69.3 +26.4 42.0	340 -69.6 +26.3 41.9	341 -69.9 +26.2 41.8	342 -70.2 +26.1 41.7	343 -70.5 +26.0 41.6	344 -70.8 +25.9 41.5	345 -71.1 +25.8 41.4	346 -71.4 +25.7 41.3	347 -71.7 +25.6 41.2	348 -72.0 +25.5 41.1	349 -72.3 +25.4 41.0	350 -72.6 +25.3 40.9	351 -72.9 +25.2 40.8	352 -73.2 +25.1 40.7	353 -73.5 +25.0 40.6	354 -73.8 +24.9 40.5	355 -74.1 +24.8 40.4	356 -74.4 +24.7 40.3	357 -74.7 +24.6 40.2	358 -75.0 +24.5 40.1	359 -75.3 +24.4 40.0	360 -75.6 +24.3 39.9	361 -75.9 +24.2 39.8	362 -76.2 +24.1 39.7	363 -76.5 +24.0 39.6	364 -76.8 +23.9 39.5	365 -77.1 +23.8 39.4	366 -77.4 +23.7 39.3	367 -77.7 +23.6 39.2	368 -78.0 +23.5 39.1	369 -78.3 +23.4 39.0	370 -78.6 +23.3 38.9	371 -78.9 +23.2 38.8	372 -79.2 +23.1 38.7	373 -79.5 +23.0 38.6	374 -79.8 +22.9 38.5	375 -80.1 +22.8 38.4	376 -80.4 +22.7 38.3	377 -80.7 +22.6 38.2	378 -81.0 +22.5 38.1	379 -81.3 +22.4 38.0	380 -81.6 +22.3 37.9	381 -81.9 +22.2 37.8	382 -82.2 +22.1 37.7	383 -82.5 +22.0 37.6	384 -82.8 +21.9 37.5	385 -83.1 +21.8 37.4	386 -83.4 +21.7 37.3	387 -83.7 +21.6 37.2	388 -84.0 +21.5 37.1	389 -84.3 +21.4 37.0	390 -84.6 +21.3 36.9	391 -84.9 +21.2 36.8	392 -85.2 +21.1 36.7	393 -85.5 +21.0 36.6	394 -85.8 +20.9 36.5	395 -86.1 +20.8 36.4	396 -86.4 +20.7 36.3	397 -86.7 +20.6 36.2	398 -87.0 +20.5 36.1	399 -87.3 +20.4 36.0	400 -87.6 +20.3 35.9	401 -87.9 +20.2 35.8	402 -88.2 +20.1 35.7	403 -88.5 +20.0 35.6	404 -88.8 +19.9 35.5	405 -89.1 +19.8 35.4	406 -89.4 +19.7 35.3	407 -89.7 +19.6 35.2	408 -90.0 +19.5 35.1	409 -90.3 +19.4 35.0	410 -90.6 +19.3 34.9	411 -90.9 +19.2 34.8	412 -91.2 +19.1 34.7	413 -91.5 +19.0 34.6	414 -91.8 +18.9 34.5	415 -92.1 +18.8 34.4	416 -92.4 +18.7 34.3	417 -92.7 +18.6 34.2	418 -93.0 +18.5 34.1	419 -93.3 +18.4 34.0	420 -93.6 +18.3 33.9	421 -93.9 +18.2 33.8	422 -94.2 +18.1 33.7	423 -94.5 +18.0 33.6	424 -94.8 +17.9 33.5	425 -95.1 +17.8 33.4	426 -95.4 +17.7 33.3	427 -95.7 +17.6 33.2	428 -96.0 +17.5 33.1	429 -96.3 +17.4 33.0	430 -96.6 +17.3 32.9	431 -96.9 +17.2 32.8	432 -97.2 +17.1 32.7	433 -97.5 +17.0 32.6	434 -97.8 +16.9 32.5	435 -98.1 +16.8 32.4	436 -98.4 +16.7 32.3	437 -98.7 +16.6 32.2	438 -99.0 +16.5 32.1	439 -99.3 +16.4 32.0	440 -99.6 +16.3 31.9	441 -99.9 +16.2 31.8	442 -100.2 +16.1 31.7	443 -100.5 +16.0 31.6	444 -100.8 +15.9 31.5	445 -101.1 +15.8 31.4	446 -101.4 +15.7 31.3	447 -101.7 +15.6 31.2	448 -102.0 +15.5 31.1	449 -102.3 +15.4 31.0	450 -102.6 +15.3 30.9	451 -102.9 +15.2 30.8	452 -103.2 +15.1 30.7	453 -103.5 +15.0 30.6	454 -103.8 +14.9 30.5	455 -104.1 +14.8 30.4	456 -104.4 +14.7 30.3	457 -104.7 +14.6 30.2	458 -105.0 +14.5 30.1	459 -105.3 +14.4 30.0	460 -105.6 +14.3 29.9	461 -105.9 +14.2 29.8	462 -106.2 +14.1 29.7	463 -106.5 +14.0 29.6	464 -106.8 +13.9 29.5	465 -107.1 +13.8 29.4	466 -107.4 +13.7 29.3	467 -107.7 +13.6 29.2	468 -108.0 +13.5 29.1	469 -108.3 +13.4 29.0	470 -108.6 +13.3 28.9	471 -108.9 +13.2 28.8	472 -109.2 +13.1 28.7	473 -109.5 +13.0 28.6	474 -109.8 +12.9 28.5	475 -110.1 +12.8 28.4	476 -110.4 +12.7 28.3	477 -110.7 +12.6 28.2	478 -111.0 +12.5 28.1	479 -111.3 +12.4 28.0	480 -111.6 +12.3 27.9	481 -111.9 +12.2 27.8	482 -112.2 +12.1 27.7	483 -112.5 +12.0 27.6	484 -112.8 +11.9 27.5	485 -113.1 +11.8 27.4	486 -113.4 +11.7 27.3	487 -113.7 +11.6 27.2	488 -114.0 +11.5 27.1	489 -114.3 +11.4 27.0	490 -114.6 +11.3 26.9	491 -114.9 +11.2 26.8	492 -115.2 +11.1 26.7	493 -115.5 +11.0 26.6	494 -115.8 +10.9 26.5	495 -116.1 +10.8 26.4	496 -116.4 +10.7 26.3	497 -116.7 +10.6 26.2	498 -117.0 +10.5 26.1	499 -117.3 +10.4 26.0	500 -117.6 +10.3 25.9	501 -117.9 +10.2 25.8	502 -118.2 +10.1 25.7	503 -118.5 +10.0 25.6	504 -118.8 +9.9 25.5	505 -119.1 +9.8 25.4	506 -119.4 +9.7 25.3	507 -119.7 +9.6 25.2	508 -120.0 +9.5 25.1	509 -120.3 +9.4 25.0	510 -120.6 +9.3 24.9	511 -120.9 +9.2 24.8	512 -121.2 +9.1 24.7	513 -121.5 +9.0 24.6	514 -121.8 +8.9 24.5	515 -122.1 +8.8 24.4	516 -122.4 +8.7 24.3	517 -122.7 +8.

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	5 58.0	+52.3	100.4	5 36.1	+53.2	100.6	5 13.8	+54.1	100.8	4 51.1	+55.0	101.0	4 28.0	+55.8	101.1	4 04.7	+56.5	101.3	3 41.0	+57.2	101.4	3 17.1	+57.8	101.5
1	6 50.3	+52.2	99.9	6 29.3	+53.2	100.2	6 07.9	+54.1	100.4	5 46.1	+54.9	100.6	5 23.8	+55.8	100.8	5 01.2	+56.5	101.0	4 38.2	+57.2	101.1	4 14.9	+57.7	101.3
2	7 42.5	+52.1	99.4	7 22.5	+53.2	99.7	7 02.0	+54.1	99.9	6 41.0	+55.0	100.2	6 19.6	+55.8	100.4	5 57.7	+56.5	100.6	5 35.4	+57.1	100.8	5 12.6	+57.8	101.0
3	8 34.6	+52.1	98.9	8 15.7	+53.1	99.2	7 56.1	+54.1	99.5	7 36.0	+55.0	99.8	7 15.4	+55.7	100.0	6 54.2	+56.5	100.3	6 32.5	+57.2	100.5	6 10.4	+57.8	100.7
4	9 26.7	+52.1	98.4	9 08.8	+53.1	98.8	8 50.2	+54.0	99.1	8 31.0	+54.9	99.4	8 11.1	+55.7	99.7	7 50.7	+56.4	99.9	7 29.7	+57.1	100.2	7 08.2	+57.7	100.5
5	10 18.8	+52.1	97.9	10 01.9	+53.1	98.3	9 44.2	+54.0	98.6	9 25.9	+54.9	99.0	9 06.8	+55.7	99.3	8 47.1	+56.5	99.6	8 26.8	+57.1	99.9	8 05.9	+57.7	100.2
6	11 10.9	+52.0	97.4	10 55.0	+53.0	97.8	10 38.2	+54.0	98.2	10 20.8	+54.8	98.6	10 02.5	+55.7	98.9	9 43.6	+56.4	99.3	9 23.9	+57.1	99.6	9 03.6	+57.7	99.9
7	12 02.9	+51.9	96.9	11 48.0	+52.9	97.3	11 32.2	+53.9	97.7	11 15.6	+54.8	98.1	10 58.2	+55.7	98.5	10 40.0	+56.4	98.9	10 21.0	+57.1	99.3	10 01.3	+57.7	99.6
8	12 54.8	+51.9	96.4	12 40.9	+52.9	96.9	12 26.1	+53.9	97.3	12 10.4	+54.8	97.7	11 53.9	+55.6	98.2	11 36.4	+56.4	98.6	11 18.1	+57.1	99.0	10 59.0	+57.7	99.4
9	13 46.7	+51.8	95.9	13 33.8	+52.9	96.4	13 20.0	+53.9	96.8	13 05.2	+54.8	97.3	12 49.5	+55.6	97.8	12 32.8	+56.4	98.2	12 15.2	+57.0	98.6	11 56.7	+57.7	99.1
10	14 38.5	+51.7	95.4	14 26.7	+52.8	95.9	14 13.9	+53.7	96.4	14 00.7	+54.7	96.9	13 45.1	+55.5	97.4	13 29.2	+56.3	97.9	13 12.2	+57.1	98.3	12 54.4	+57.6	98.8
11	15 30.2	+51.6	94.8	15 19.5	+52.7	95.4	15 07.6	+53.8	95.9	14 54.7	+54.6	96.5	14 40.6	+55.5	97.0	14 25.5	+56.3	97.5	14 09.3	+57.0	98.0	13 52.0	+57.7	98.5
12	16 21.8	+51.6	94.3	16 12.2	+52.7	94.9	16 01.4	+53.6	95.5	15 43.9	+54.6	96.0	15 31.6	+55.4	96.2	15 21.8	+56.2	97.1	15 06.3	+56.9	97.7	14 49.7	+57.6	98.2
13	17 13.4	+51.5	93.8	17 04.9	+52.6	94.4	16 55.0	+53.6	95.0	16 43.9	+54.6	95.6	16 31.6	+55.4	96.2	16 18.0	+56.2	96.8	16 03.2	+57.0	97.4	15 47.3	+57.6	97.9
14	18 04.9	+51.4	93.2	17 57.5	+52.5	93.9	17 48.6	+53.6	94.5	17 38.5	+54.5	95.2	17 27.0	+55.4	95.8	17 14.2	+56.2	96.4	17 00.2	+56.9	97.0	16 44.9	+57.5	97.6
15	18 56.3	+51.3	92.7	18 50.0	+52.4	93.4	18 42.2	+53.4	94.1	18 33.0	+54.4	94.7	18 22.4	+55.3	95.4	18 10.4	+56.2	96.1	17 57.1	+56.9	96.7	17 42.4	+57.5	97.3
16	19 47.6	+51.2	92.1	19 42.4	+52.3	92.9	19 35.6	+53.4	93.6	19 27.4	+54.4	94.3	19 17.7	+55.3	95.0	19 06.6	+56.0	95.7	18 54.0	+56.8	96.4	18 39.9	+57.6	97.0
17	20 38.8	+51.1	91.6	20 34.7	+52.3	92.3	20 29.0	+53.3	93.1	20 21.8	+54.3	93.8	20 13.0	+55.2	94.6	20 02.6	+56.1	95.3	19 50.8	+56.8	96.0	19 37.5	+57.4	96.7
18	21 29.9	+51.0	91.0	21 27.0	+52.1	91.8	21 22.3	+53.2	92.6	21 16.1	+54.2	93.2	21 08.2	+55.1	94.2	20 58.7	+56.0	94.9	20 47.6	+56.7	95.7	20 34.9	+57.5	96.4
19	22 20.9	+50.9	90.5	22 19.1	+52.0	91.3	22 15.5	+53.2	92.1	22 10.3	+54.1	92.9	22 03.3	+55.1	93.7	21 54.7	+55.9	94.5	21 44.3	+56.8	95.3	21 32.4	+57.4	96.1
20	23 11.8	+50.7	89.9	23 11.1	+51.9	90.7	23 08.7	+53.0	91.6	23 04.4	+54.1	92.5	22 58.4	+55.0	93.3	22 50.6	+55.9	94.1	22 41.1	+56.6	95.0	22 29.8	+57.3	95.8
21	24 02.5	+50.6	89.3	24 03.0	+51.8	90.2	24 01.7	+52.9	91.1	23 58.5	+54.0	92.0	23 53.4	+54.9	92.9	23 46.5	+55.8	93.7	23 37.7	+56.6	94.6	23 27.1	+57.4	95.5
22	24 53.1	+50.5	88.7	24 54.8	+51.7	89.6	24 54.6	+52.8	90.6	24 52.5	+53.8	91.5	24 48.3	+54.9	92.4	24 42.3	+55.8	93.3	24 34.3	+56.6	94.3	24 24.5	+57.3	95.2
23	25 43.6	+50.3	88.1	25 46.5	+51.6	89.1	25 47.4	+52.7	90.0	25 46.3	+53.8	91.0	25 43.2	+54.8	92.0	25 38.1	+55.6	92.9	25 30.9	+56.5	93.9	25 21.8	+57.2	94.8
24	26 33.9	+50.2	87.5	26 38.1	+51.4	88.5	26 40.1	+52.6	89.5	26 40.1	+53.7	90.5	26 38.0	+54.7	91.5	26 33.7	+55.6	92.5	26 27.4	+56.5	93.5	26 19.0	+57.2	94.5
25	27 24.1	+49.9	86.9	27 29.5	+51.2	87.9	27 32.7	+52.5	89.0	27 33.8	+53.5	90.0	27 32.7	+54.5	91.1	27 29.3	+55.6	92.1	27 23.9	+56.3	93.1	27 16.2	+57.2	94.2
26	28 14.0	+49.9	86.3	28 20.7	+51.1	87.3	28 25.2	+52.3	88.4	28 27.3	+53.5	89.5	28 27.2	+54.5	90.6	28 24.9	+55.4	91.7	28 20.2	+56.4	92.8	28 13.4	+57.0	93.8
27	29 03.9	+49.6	85.6	29 11.8	+51.0	86.7	29 17.5	+52.2	87.9	29 20.8	+53.3	89.0	29 21.7	+54.4	90.1	29 20.3	+55.4	91.2	29 16.6	+56.2	92.4	29 10.4	+57.1	93.5
28	29 53.5	+49.4	85.0	30 02.8	+50.8	86.1	30 09.7	+52.0	87.3	30 14.1	+53.2	88.5	30 16.1	+54.3	89.6	30 15.7	+55.3	90.8	30 12.8	+56.2	92.0	30 07.5	+57.0	93.1
29	30 42.9	+49.3	84.3	30 53.6	+50.6	85.5	31 01.7	+51.9	86.7	31 07.3	+53.1	87.9	31 10.4	+54.2	89.1	31 11.0	+55.1	90.3	31 09.0	+56.1	91.5	31 04.5	+56.9	92.8
30	31 32.2	+49.0	83.7	31 44.2	+50.4	84.9	31 53.6	+51.7	86.1	32 00.4	+52.9	87.4	32 04.6	+54.0	88.6	32 06.1	+55.1	89.9	32 05.1	+56.0	91.1	32 01.4	+56.8	92.4
31	32 21.2	+48.8	83.0	32 34.6	+50.2	84.2	32 45.3	+51.5	85.5	32 53.3	+52.7	86.8	32 58.6	+53.9	88.1	33 01.2	+55.0	89.4	33 01.1	+55.9	90.7	32 58.2	+56.8	92.0
32	33 10.0	+48.6	82.3	33 24.8	+50.0	83.6	33 36.8	+51.3	84.9	33 46.0	+52.6	86.2	33 52.5	+53.8	87.6	33 56.2	+54.8	88.9	33 57.0	+55.8	90.3	33 55.0	+56.7	91.6
33	33 58.6	+48.3	81.6	34 14.8	+49.7	82.9	34 28.1	+51.2	84.3	34 38.6	+52.5	85.7	34 46.3	+53.6	87.0	34 51.0	+54.7	88.4	34 52.8	+55.8	89.8	34 51.7	+56.7	91.2
34	34 46.9	+48.1	80.9	35 04.5	+49.6	82.3	35 19.3	+50.9	83.7	35 31.1	+52.2	85.1	35 39.9	+53.5	86.5	35 45.7	+54.6	87.9	35 48.6	+55.6	89.4	35 48.4	+56.5	90.8
35	35 35.0	+47.8	80.1	35 54.1	+49.3	81.6	36 10.2	+50.7	83.0	36 23.3	+52.1	84.5	36 33.4	+53.3	85.9	36 40.3	+54.5	87.4	36 44.2	+55.5	88.9	36 44.9	+56.5	90.4
36	36 22.8	+47.5	79.4	36 43.4	+49.0	80.9	37 00.9	+50.5	82.3	37 15.4	+51.9	83.8	37 26.7	+53.1	85.4	37 34.8	+54.3	86.9	37 39.7	+55.4	88.4	37 41.4	+56.3	90.0
37	37 10.3	+47.2	78.6	37 32.4	+48.8	80.1	37 51.4	+50.3	81.7	38 07.3	+51.6	83.2	38 19.8	+52.8	84.8	38 29.1	+54.2	86.4	38 35.1	+55.3	87.9	38 37.7	+56.3	89.5
38	37 57.5	+46.9	77.9	38 21.2	+48.5	79.4	38 41.7	+50.0	81.0	38 58.9	+51.4	82.6	39 12.8	+53.0	84.2	39 23.3	+54.0	85.8	39 30.4	+55.1	87.4	39 34.0	+56.1	89.1
39	38 44.4	+46.6	77.1	39 09.7	+48.2	78.6	39 31.7	+49.7	80.2	39 50.3	+51.2	81.9	40 05.6	+52.5	83.6	40 17.3	+53.8	85.2	40 25.5	+55.0	86.9	40 30.1	+56.1	88.6
40	39 31.0	+46.2	76.2	39 57.9	+47.9	77.9	40 21.4	+49.5	79.5	40 41.5	+51.0	81.2	40 58.1	+52.4	82.9	41 11.1	+53.7	84.6	41 20.5	+54.8	86.4	41 26.2	+55.9	88.2
41	40 17.2	+45.9	75.4	40 45.8	+47.5	77.1	41 10.9	+49.2	78.8	41 32.5	+50.7	80.5	41 50.5	+52.1	82.3	42 04.8	+53.4	84.1	42 15.3	+54.7	85.9	42 22.1	+55.8	87.7
42	41 03.1	+45.5	74.6	41 33.3	+47.2	76.3	42 00.1	+48.8	78.0	42 23.2	+50.4	79.8	42 42.6	+51.9	81.6	42 58.2	+53.3	83.4	43 10.0	+54.5	85.3	43 17.9	+55.7	87.2
43	41 48.6	+45.0	73.7	42 20.5	+46.9	75.4	42 48.9	+48.5	77.2	43 13.6	+50.1	79.0	43 34.5	+51.6	80.9	43 51.5	+53.0	82.8	44 04.5	+54.4	84.7	44 13.6	+55.5	86.7
44	42 33.6	+44.7	72.8	43 07.4	+46.4	74.6	43 37.4	+48.2	76.4	44 03.7	+49.8	78.3	44 26.1	+51.4	80.2	44 44.5	+52.8	82.1	44 58.9	+54.1	84.1	45 09.1	+55.3	86.1
45	43 18.3	+44.2	71.9	43 53.8	+46.0	73.7	44 25.6	+47.8	75.6	44 53.5	+49.5	77.5	45 17.5	+51.0	79.5	45 37.3	+52.6	81.5	45 53.0	+54.0	83.5	46 04.4	+55.2	85.6
46	44 02.5	+43.7	71.0	44 39.8	+45.6	72.8	45 13.4	+47.4	74.7	45 43.0	+49.1	76.7	46 08.5	+50.8	78.7	46 29.9	+52.3	80.8	46 47.0	+53.7	82.9	46 59.6	+55.1	85.0
47	44 46.2	+43.3	70.0	45 25.4	+45.2	71.9	46 00.8	+47.0	73.9	46 32.1	+48.8	75.9	46 59.3	+50.5	77.9	47 22.2	+5							

LATITUDE CONTRARY NAME

L.H.A. 78°, 282°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
5 58.0	-52.2	100.4	5 36.1	-53.3	100.6	5 13.8	-54.2	100.8	4 51.1	-55.1	101.0	4 28.0	-55.8	101.1	4 04.7	-56.6	101.3	3 41.0	-57.2	101.4	3 17.1	-57.8	101.5	0		
5 05.8	-52.3	100.9	4 42.8	-53.2	101.1	4 19.6	-54.2	101.2	3 56.0	-55.0	101.4	3 32.2	-55.8	101.5	3 08.1	-56.5	101.6	2 43.8	-57.2	101.7	2 19.3	-57.7	101.8	1		
4 13.5	-52.3	101.4	3 49.6	-53.3	101.6	3 25.4	-54.2	101.7	3 01.0	-55.0	101.8	2 36.4	-55.8	101.9	2 11.6	-56.5	102.0	1 46.6	-57.1	102.0	1 21.6	-57.8	102.1	2		
3 21.2	-52.3	101.9	2 56.3	-53.3	102.0	2 31.2	-54.2	102.1	2 06.0	-55.1	102.2	1 40.6	-55.8	102.3	1 15.1	-56.6	102.3	0 49.5	-57.2	102.3	0 23.8	-57.8	102.4	3		
2 28.9	-52.4	102.4	2 03.0	-53.3	102.5	1 37.0	-54.2	102.5	1 10.9	-55.0	102.6	0 44.8	-55.9	102.6	0 18.5	-56.5	102.6	0 07.7	+57.2	77.4	0 34.0	+57.8	77.4	4		
1 36.5	-52.3	102.9	1 09.7	-53.3	102.9	0 42.8	-54.2	103.0	0 15.9	-55.1	103.0	0 11.1	+55.8	77.0	0 38.0	+56.6	77.0	1 04.9	+57.2	77.1	1 31.8	+57.7	77.1	5		
0 44.2	-52.3	103.4	0 16.4	-53.3	103.4	0 11.4	+54.2	76.6	0 39.2	+55.0	76.6	1 06.9	+55.8	76.6	1 34.6	+56.5	76.7	2 02.1	+57.2	76.8	2 29.5	+57.8	76.8	6		
0 08.1	+52.4	76.1	0 36.9	+53.3	76.1	1 05.6	+54.2	76.2	1 34.2	+55.0	76.2	2 02.7	+55.8	76.3	2 31.1	+56.5	76.4	2 59.3	+57.2	76.5	3 27.3	+57.8	76.6	7		
1 00.5	+52.3	75.6	1 30.2	+53.3	75.7	1 59.8	+54.2	75.7	2 29.2	+55.1	75.8	2 58.5	+55.9	75.9	3 27.6	+56.6	76.0	3 56.5	+57.2	76.1	4 25.1	+57.7	76.3	8		
1 52.8	+52.3	75.2	2 23.5	+53.2	75.2	2 54.0	+54.1	75.3	3 24.3	+55.0	75.4	3 54.4	+55.8	75.5	4 24.2	+56.5	75.7	4 53.7	+57.1	75.8	5 22.8	+57.8	76.0	9		
2 45.1	+52.3	74.7	3 16.7	+53.3	74.8	3 48.1	+54.2	74.9	4 19.3	+55.0	75.0	4 50.2	+55.7	75.2	5 20.7	+56.5	75.4	5 50.8	+57.2	75.5	6 20.6	+57.7	75.7	10		
3 37.4	+52.3	74.2	4 10.0	+53.3	74.3	4 42.3	+54.2	74.5	5 14.3	+55.0	74.6	5 45.9	+55.8	74.8	6 17.2	+56.5	75.0	6 48.0	+57.1	75.2	7 18.3	+57.8	75.5	11		
4 29.7	+52.3	73.7	5 03.3	+53.2	73.8	5 36.5	+54.1	74.0	6 09.3	+55.0	74.2	6 41.7	+55.8	74.4	7 13.7	+56.5	74.7	7 45.1	+57.2	74.9	8 16.1	+57.7	75.2	12		
5 22.0	+52.2	73.2	5 56.5	+53.2	73.4	6 30.6	+54.1	73.6	7 04.3	+54.9	73.8	7 37.5	+55.7	74.1	8 10.2	+56.4	74.3	8 42.3	+57.1	74.6	9 13.8	+57.7	74.9	13		
6 14.2	+52.2	72.7	6 49.7	+53.2	72.9	7 24.7	+54.1	73.2	7 59.2	+55.0	73.4	8 33.2	+55.7	73.7	9 06.6	+56.5	74.0	9 39.4	+57.1	74.3	10 11.5	+57.7	74.6	14		
7 06.4	+52.2	72.2	7 42.9	+53.1	72.4	8 18.8	+54.1	72.7	8 54.2	+54.9	73.0	9 28.9	+55.7	73.3	10 03.1	+56.4	73.6	10 36.5	+57.1	74.0	11 09.2	+57.7	74.4	15		
7 58.6	+52.2	71.7	8 36.0	+53.2	72.0	9 12.9	+54.0	72.3	9 49.1	+54.9	72.6	10 24.6	+55.7	72.9	10 59.5	+56.4	73.3	11 33.6	+57.0	73.7	12 06.9	+57.7	74.1	16		
8 50.8	+52.1	71.2	9 29.2	+53.0	71.5	10 06.9	+54.0	71.8	10 44.0	+54.8	72.2	11 20.3	+55.6	72.6	11 55.9	+56.3	73.0	12 30.6	+57.1	73.4	13 04.6	+57.6	73.8	17		
9 42.9	+52.1	70.7	10 22.2	+53.1	71.0	11 00.9	+53.9	71.4	11 38.8	+54.8	71.8	12 15.9	+55.6	72.2	12 52.2	+56.4	72.6	13 27.7	+57.0	73.0	14 02.2	+57.6	73.5	18		
10 35.0	+52.0	70.2	11 15.3	+53.0	70.6	11 54.8	+53.9	70.9	12 33.6	+54.8	71.4	13 11.5	+55.6	71.8	13 48.6	+56.3	72.2	14 24.7	+57.0	72.7	14 59.8	+57.6	73.2	19		
11 27.0	+52.0	69.7	12 08.3	+52.9	70.1	12 48.7	+53.9	70.5	13 28.4	+54.7	70.9	14 07.1	+55.5	71.4	14 44.9	+56.3	71.9	15 21.7	+56.9	72.4	15 57.4	+57.6	72.9	20		
12 19.0	+51.9	69.2	13 01.2	+52.9	69.6	13 42.6	+53.8	70.0	14 23.1	+54.7	70.5	15 02.6	+55.5	71.0	15 41.2	+56.2	71.5	16 18.6	+57.0	72.1	16 55.0	+57.6	72.6	21		
13 10.9	+51.8	68.7	13 54.1	+52.8	69.1	14 36.4	+53.8	69.6	15 17.8	+54.6	70.1	15 58.1	+55.5	70.6	16 37.4	+56.2	71.2	17 15.6	+56.9	71.7	17 52.6	+57.5	72.4	22		
14 02.7	+51.8	68.1	14 46.9	+52.8	68.6	15 30.2	+53.7	69.1	16 12.4	+54.6	69.7	16 53.6	+55.4	70.2	17 33.6	+56.2	70.8	18 12.5	+56.8	71.4	18 50.1	+57.5	72.1	23		
14 54.5	+51.7	67.6	15 39.7	+52.7	68.1	16 23.9	+53.6	68.7	17 07.0	+54.5	69.2	17 49.0	+55.3	69.8	18 29.8	+56.1	70.4	19 09.3	+56.9	71.1	19 47.6	+57.5	71.7	24		
15 46.2	+51.7	67.1	16 32.4	+52.6	67.6	17 17.5	+53.6	68.2	18 01.5	+54.5	68.8	18 44.3	+55.3	69.4	19 25.9	+56.1	70.1	20 06.2	+56.8	70.7	20 45.1	+57.4	71.4	25		
16 37.9	+51.5	66.6	17 25.0	+52.6	67.1	18 11.1	+53.5	67.7	18 56.0	+54.4	68.3	19 39.6	+55.2	69.0	20 29.0	+56.0	69.7	21 10.3	+56.7	70.4	21 42.5	+57.4	71.1	26		
17 29.4	+51.5	66.0	18 17.6	+52.5	66.6	19 04.6	+53.4	67.2	19 50.4	+54.3	67.9	20 34.9	+55.2	68.6	21 18.0	+56.0	69.3	21 59.7	+56.7	70.0	22 39.9	+57.4	70.8	27		
18 20.9	+51.4	65.5	19 10.1	+52.4	66.1	19 58.0	+53.4	66.8	20 44.7	+54.3	67.4	21 30.1	+55.1	68.2	22 14.0	+55.9	68.9	22 56.4	+56.6	69.7	23 37.3	+57.3	70.5	28		
19 12.3	+51.2	64.9	20 02.5	+52.3	65.6	20 51.4	+53.3	66.3	21 39.0	+54.2	67.0	22 20.5	+55.0	67.7	23 09.9	+55.8	68.5	23 53.0	+56.6	69.3	24 34.6	+57.3	70.2	29		
20 03.5	+51.2	64.4	20 54.8	+52.2	65.1	21 44.7	+53.1	65.8	22 33.2	+54.1	66.5	23 20.2	+55.0	67.3	24 05.7	+55.8	68.1	24 49.6	+56.6	69.0	25 31.9	+57.2	69.8	30		
20 54.7	+51.1	63.8	21 47.0	+52.0	64.0	22 37.8	+53.1	65.3	23 27.3	+54.0	66.1	24 15.2	+54.9	66.9	25 01.5	+55.8	67.7	25 42.2	+56.5	68.6	26 29.1	+57.2	69.5	31		
21 45.8	+50.9	63.3	22 39.9	+52.0	64.0	23 30.9	+53.0	64.8	24 21.3	+53.9	65.6	25 10.1	+54.8	66.4	25 57.3	+55.6	67.3	26 46.7	+56.4	68.2	27 26.3	+57.1	69.2	32		
22 36.7	+50.8	62.7	23 31.0	+51.9	63.5	24 23.9	+52.9	64.3	25 15.2	+53.9	65.1	26 04.9	+54.8	66.0	26 52.9	+55.6	66.9	27 39.1	+56.4	67.8	28 20.4	+57.1	68.8	33		
23 27.5	+50.7	62.1	24 22.9	+51.8	62.9	25 16.8	+52.8	63.7	26 09.1	+53.7	64.6	26 59.7	+54.6	65.5	27 48.5	+55.5	66.5	28 35.5	+56.3	67.4	29 23.5	+57.0	68.5	34		
24 18.2	+50.6	61.5	25 14.7	+51.6	62.4	26 09.6	+52.6	63.2	27 02.8	+53.6	64.1	27 54.3	+54.6	65.1	28 44.0	+55.4	66.0	29 31.8	+56.2	67.1	30 17.5	+57.0	68.1	35		
25 08.8	+50.4	60.9	26 06.3	+51.5	61.8	27 02.2	+52.5	62.7	27 56.4	+53.5	63.6	28 48.9	+54.4	64.6	29 39.4	+55.4	65.6	30 28.0	+56.2	66.7	31 14.5	+56.9	67.8	36		
25 59.2	+50.3	60.3	26 57.8	+51.3	61.2	27 54.7	+52.4	62.1	28 49.9	+53.4	63.1	29 43.3	+54.4	64.1	30 34.8	+55.2	65.1	31 24.2	+56.0	66.2	32 11.4	+56.9	67.4	37		
26 49.5	+50.1	59.7	27 49.1	+51.2	60.6	28 47.1	+52.3	61.6	29 43.3	+53.3	62.6	30 37.7	+54.2	63.6	31 30.0	+55.1	64.7	32 20.2	+56.0	65.8	33 08.3	+56.7	67.0	38		
27 39.6	+49.9	59.1	28 40.3	+51.1	60.0	29 39.4	+52.1	61.0	30 36.6	+53.1	62.0	31 31.9	+54.1	63.1	32 25.1	+55.1	64.2	33 16.2	+55.9	65.4	34 05.0	+56.7	66.6	39		
28 29.5	+49.8	58.5	29 31.4	+50.9	59.4	30 31.5	+52.0	60.4	31 29.7	+53.0	61.5	32 26.0	+54.0	62.6	33 20.2	+54.9	63.8	34 12.1	+55.8	65.0	35 01.7	+56.6	66.2	40		
29 19.3	+49.6	57.9	30 22.3	+50.7	58.8	31 23.5	+51.8	59.9	32 22.7	+52.9	60.9	33 20.0	+53.8	62.1	34 15.1	+54.8	63.3	35 07.9	+55.7	64.5	35 58.3	+56.6	65.8	41		
29 08.9	+49.3	57.2	31 13.0	+50.5	58.2	32 15.3	+51.6	59.3	33 15.6	+52.7	60.4	34 13.8	+53.8	61.5	35 09.9	+54.7	62.8	36 03.6	+55.6	64.1	36 54.9	+56.4	65.4	42		
30 58.2	+49.2	56.5	32 03.5	+50.3	57.6	33 06.9	+51.4	58.7	34 08.3	+52.5	59.8	35 07.6	+53.5	61.0	36 04.6	+54.5	62.3	36 59.2	+55.5	63.6	37 51.3	+56.3	65.0	43		
31 47.4	+49.0	55.9	32 53.8	+50.2	56.9	33 58.3	+51.3	58.0	35 00.8	+52.4	59.2	36 01.1	+53.4	60.5	37 01.9	+54.4	61.7	37 54.7	+55.3	63.1	38 47.6	+56.3	64.5	44		
32 36.4	+48.7	55.2	33 44.0	+49.9	56.3	34 49.6	+51.1	57.4	35 53.2	+52.1	58.6	36 54.5	+53.3	59.9	37 53.5	+54.3	61.2	38 50.0	+55.3	62.6	39 43.9	+56.1	64.1	45		
33 25.1	+48.5	54.5	34 33.9	+49.7	55.6	35 40.7	+50.8	56.8	36 45.3	+52.0	58.0	37 47.8	+53.1	59.3	38 47.8	+54.1	60.7	39 45.3	+55.1	62.1	40 40.0	+56.1	63.6	46		
34 13.6	+48.3	53.8	35 23.6	+49.4	54.9	36 31.5	+50.6	56.1	37 37.3	+51.8	57.4	38 40.9	+52.8	58.7	39 41.9	+54.0	60.1	40 40.4	+54							

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	2 53.0	+58.3	101.7	2 28.7	+58.7	101.7	2 04.1	+59.2	101.8	1 39.5	+59.4	101.9	1 14.7	+59.7	101.9	0 49.9	+59.8	102.0	0 24.9	+60.0	102.0	0 00.0	+60.0	102.0
1	3 51.3	+58.3	101.4	3 27.4	+58.7	101.5	3 03.3	+59.1	101.7	2 38.9	+59.5	101.8	2 14.4	+59.7	101.8	1 49.7	+59.9	101.9	1 24.9	+60.0	102.0	1 00.0	+60.0	102.0
2	4 49.6	+58.2	101.2	4 26.1	+58.8	101.3	4 02.4	+59.1	101.5	3 38.4	+59.4	101.6	3 14.1	+59.7	101.7	2 49.6	+59.8	101.8	2 24.9	+59.9	101.9	2 00.0	+60.0	102.0
3	5 47.8	+58.3	100.9	5 24.9	+58.7	101.1	5 01.5	+59.1	101.3	4 37.8	+59.4	101.5	4 13.8	+59.7	101.6	3 49.4	+59.9	101.8	3 24.8	+60.0	101.9	3 00.0	+60.0	102.0
4	6 46.1	+58.3	100.7	6 23.6	+58.7	100.9	6 00.6	+59.2	101.1	5 37.2	+59.5	101.1	5 13.5	+59.6	101.5	4 49.3	+59.9	101.7	4 24.8	+60.0	101.9	4 00.0	+60.0	102.0
5	7 44.4	+58.2	100.5	7 22.3	+58.8	100.7	6 59.8	+59.1	101.0	6 36.7	+59.4	101.2	6 13.1	+59.7	101.4	5 49.2	+59.8	101.6	5 24.8	+59.9	101.8	5 00.0	+60.0	102.0
6	8 42.6	+58.3	100.2	8 21.1	+58.7	100.5	7 58.9	+59.1	100.8	7 36.1	+59.4	101.1	7 12.8	+59.7	101.3	6 49.0	+59.9	101.6	6 24.7	+60.0	101.8	6 00.0	+60.0	102.0
7	9 40.9	+58.2	100.0	9 19.8	+58.7	100.3	8 58.0	+59.1	100.6	8 35.5	+59.5	100.9	8 12.5	+59.7	101.2	7 48.9	+59.8	101.5	7 24.7	+60.0	101.8	7 00.0	+60.0	102.0
8	10 39.1	+58.3	99.7	10 18.5	+58.7	100.1	9 57.1	+59.1	100.4	9 35.0	+59.4	100.8	9 12.2	+59.7	101.1	8 48.7	+59.9	101.4	8 24.7	+59.9	101.7	8 00.0	+60.0	102.0
9	11 37.4	+58.2	99.5	11 17.2	+58.7	99.9	10 56.2	+59.1	100.3	10 34.4	+59.4	100.6	10 11.9	+59.6	101.0	9 48.6	+59.8	101.4	9 24.6	+60.0	101.7	9 00.0	+60.0	102.0
10	12 35.6	+58.2	99.2	12 15.9	+58.6	99.7	11 55.3	+59.1	100.1	11 33.8	+59.4	100.5	11 11.5	+59.7	100.9	10 48.4	+59.9	101.3	10 24.6	+60.0	101.6	10 00.0	+60.0	102.0
11	13 33.8	+58.2	99.0	13 14.5	+58.7	99.5	12 54.4	+59.0	99.9	12 33.2	+59.4	100.2	12 11.2	+59.7	100.8	11 48.3	+59.9	101.2	11 24.6	+59.9	101.6	11 00.0	+60.0	102.0
12	14 32.0	+58.1	98.7	14 13.2	+58.7	99.2	13 53.4	+59.1	99.7	13 32.6	+59.4	100.0	13 10.9	+59.6	100.7	12 48.2	+59.8	101.1	12 24.5	+60.0	101.6	12 00.0	+60.0	102.0
13	15 30.1	+58.2	98.5	15 11.9	+58.6	99.0	14 52.5	+59.1	99.6	14 32.0	+59.4	100.1	14 10.5	+59.7	100.6	13 48.0	+59.9	101.1	13 24.5	+59.9	101.5	13 00.0	+60.0	102.0
14	16 28.3	+58.1	98.2	16 10.5	+58.7	98.8	15 51.6	+59.0	99.4	15 31.4	+59.4	99.9	15 10.2	+59.7	100.5	14 47.9	+59.8	101.0	14 24.4	+60.0	101.5	14 00.0	+60.0	102.0
15	17 26.4	+58.1	98.0	17 09.2	+58.6	98.6	16 50.6	+59.1	99.2	16 30.8	+59.4	99.8	16 09.9	+59.6	100.4	15 47.7	+59.9	100.9	15 24.4	+60.0	101.5	15 00.0	+60.0	102.0
16	18 24.5	+58.1	97.7	18 07.8	+58.6	98.4	17 49.7	+59.0	99.0	17 30.2	+59.4	99.6	17 09.5	+59.7	100.2	16 47.6	+59.8	100.8	16 24.4	+59.9	101.4	16 00.0	+60.0	102.0
17	19 22.6	+58.1	97.4	19 06.4	+58.6	98.1	18 48.7	+59.0	98.8	18 29.6	+59.4	99.5	18 09.2	+59.6	100.1	17 47.4	+59.8	100.8	17 24.3	+60.0	101.4	17 00.0	+60.0	102.0
18	20 20.7	+58.1	97.2	20 05.0	+58.5	97.9	19 47.7	+59.0	98.6	19 29.0	+59.4	99.3	19 08.8	+59.7	100.0	18 47.2	+59.9	100.7	18 24.3	+60.0	101.4	18 00.0	+60.0	102.0
19	21 18.8	+58.0	96.9	21 03.5	+58.6	97.7	20 46.7	+59.0	98.4	20 28.4	+59.3	99.2	20 08.5	+59.6	99.9	19 47.1	+59.8	100.6	19 24.3	+59.9	101.3	19 00.0	+60.0	102.0
20	22 16.8	+58.0	96.6	22 02.1	+58.5	97.4	21 45.7	+59.0	98.2	21 27.1	+59.4	99.0	21 08.1	+59.6	99.8	20 46.9	+59.9	100.5	20 24.2	+60.0	101.3	20 00.0	+60.0	102.0
21	23 14.8	+57.9	96.4	23 00.6	+58.5	97.2	22 44.7	+59.0	98.0	22 27.1	+59.3	98.9	22 07.7	+59.7	99.7	21 46.8	+59.8	100.5	21 24.2	+59.9	101.2	21 00.0	+60.0	102.0
22	24 12.7	+58.0	96.1	23 59.1	+58.5	97.0	23 43.7	+58.9	97.8	23 26.4	+59.3	98.7	23 07.4	+59.6	99.5	22 46.6	+59.8	100.4	22 24.1	+60.0	101.2	22 00.0	+60.0	102.0
23	25 10.7	+57.8	95.8	24 57.8	+58.5	96.7	24 42.6	+58.9	97.6	24 25.7	+59.4	98.5	24 07.0	+59.6	99.4	23 46.4	+59.9	100.3	23 24.1	+59.9	101.2	23 00.0	+60.0	102.0
24	26 08.5	+57.9	95.5	25 56.1	+58.4	96.5	25 41.5	+59.0	97.4	25 25.1	+59.3	98.4	25 06.6	+59.6	99.3	24 46.3	+59.8	100.2	24 24.0	+60.0	101.1	24 00.0	+60.0	102.0
25	27 06.4	+57.8	95.2	26 54.5	+58.4	96.2	26 40.5	+58.9	97.2	26 24.4	+59.3	98.2	26 06.2	+59.6	99.2	25 46.1	+59.8	100.1	25 24.0	+60.0	101.1	25 00.0	+60.0	102.0
26	28 04.2	+57.8	94.9	27 52.9	+58.4	96.0	27 39.4	+58.8	97.0	27 23.7	+59.2	98.0	27 05.8	+59.6	99.0	26 45.9	+59.8	100.1	26 24.0	+59.9	101.0	26 00.0	+60.0	102.0
27	29 02.0	+57.8	94.6	28 51.3	+58.3	95.7	28 38.2	+58.9	96.8	28 22.9	+59.3	97.9	28 05.4	+59.6	98.9	27 45.7	+59.9	100.0	27 23.9	+60.0	101.0	27 00.0	+60.0	102.0
28	29 59.8	+57.6	94.3	29 49.6	+58.3	95.4	29 37.1	+58.8	96.6	29 22.2	+59.3	97.7	29 05.0	+59.6	98.8	28 45.6	+59.8	99.9	28 23.9	+59.9	100.9	28 00.0	+60.0	102.0
29	30 57.4	+57.7	94.0	30 47.9	+58.3	95.1	30 35.9	+58.8	96.3	30 21.5	+59.2	97.5	30 04.6	+59.6	98.7	29 45.4	+59.8	99.8	29 23.8	+60.0	100.9	29 00.0	+60.0	102.0
30	31 55.1	+57.6	93.6	31 46.2	+58.2	94.9	31 34.7	+58.8	96.1	31 20.7	+59.2	97.3	31 04.2	+59.6	98.5	30 45.2	+59.8	99.7	30 23.8	+59.9	100.9	30 00.0	+60.0	102.0
31	32 52.7	+57.5	93.3	32 44.4	+58.2	94.6	32 33.5	+58.8	95.9	32 19.9	+59.2	97.1	32 03.8	+59.5	98.4	31 45.0	+59.8	99.6	31 23.7	+60.0	100.8	31 00.0	+60.0	102.0
32	33 50.2	+57.5	93.0	33 42.6	+58.2	94.3	33 32.3	+58.7	95.6	33 19.1	+59.2	96.9	33 03.3	+59.6	98.2	32 44.8	+59.8	99.5	32 23.7	+59.9	100.8	32 00.0	+60.0	102.0
33	34 47.7	+57.4	92.6	34 40.8	+58.1	94.0	34 31.0	+58.7	95.4	34 18.3	+59.2	96.7	34 02.9	+59.5	98.1	33 44.6	+59.8	99.4	33 23.6	+60.0	100.7	33 00.0	+60.0	102.0
34	35 45.1	+57.4	92.3	35 38.9	+58.1	93.7	35 29.7	+58.6	95.1	35 17.5	+59.2	96.5	35 02.4	+59.5	97.9	34 44.4	+59.8	99.3	34 23.6	+59.9	100.7	34 00.0	+60.0	102.0
35	36 42.5	+57.3	91.9	36 37.0	+58.0	93.4	36 28.3	+58.7	94.9	36 16.7	+59.1	96.3	36 01.9	+59.5	97.8	35 44.2	+59.8	99.2	35 23.5	+60.0	100.6	35 00.0	+60.0	102.0
36	37 39.8	+57.2	91.5	37 35.0	+58.0	93.1	37 27.0	+58.6	94.6	37 15.8	+59.1	96.1	37 01.4	+59.5	97.6	36 44.0	+59.8	99.1	36 23.5	+59.9	100.6	36 00.0	+60.0	102.0
37	38 37.0	+57.2	91.1	38 33.0	+57.9	92.7	38 25.6	+58.5	94.3	38 14.9	+59.1	95.9	38 00.9	+59.5	97.5	37 43.8	+59.7	99.0	37 23.4	+60.0	100.5	37 00.0	+60.0	102.0
38	39 34.2	+57.0	90.7	39 30.9	+57.8	92.4	39 24.1	+58.5	94.0	39 14.0	+59.0	95.6	39 00.4	+59.5	97.3	38 43.5	+59.8	98.9	38 23.4	+59.9	100.5	38 00.0	+60.0	102.0
39	40 31.2	+57.0	90.3	40 28.7	+57.8	92.0	40 22.6	+58.5	93.8	40 13.0	+59.0	95.4	39 59.9	+59.4	97.1	39 43.3	+59.8	98.8	39 23.3	+60.0	100.4	39 00.0	+60.0	102.0
40	41 28.2	+56.9	89.9	41 26.5	+57.7	91.7	41 21.1	+58.4	93.5	41 12.0	+59.0	95.2	40 59.3	+59.5	96.9	40 43.1	+59.7	98.7	40 23.3	+59.9	100.3	40 00.0	+60.0	102.0
41	42 25.1	+56.8	89.5	42 24.2	+57.6	91.3	42 19.5	+58.4	93.1	42 11.0	+59.0	95.0	41 58.8	+59.4	96.8	41 42.8	+59.8	98.5	41 23.2	+59.9	100.3	41 00.0	+60.0	102.0
42	43 21.9	+56.6	89.1	43 21.8	+57.6	90.9	43 17.9	+58.3	92.8	43 10.0	+58.9	94.7	42 58.2	+59.4	96.6	42 42.6	+59.7	98.4	42 23.1	+60.0	100.2	42 00.0	+60.0	102.0
43	44 18.5	+56.6	88.6	44 19.4	+57.5	90.6	44 16.2	+58.3	92.5	44 08.9	+58.9	94.4	43 57.6	+59.4	96.4	43 42.3	+59.7	98.3	43 23.1	+59.9	100.2	43 00.0	+60.0	102.0
44	45 15.1	+56.4	88.1	45 16.9	+57.4	90.2	45 14.5	+58.2	92.2	45 07.8	+58.9	94.2	44 57.0	+59.3	96.2	44 42.0	+59.7	98.1	44 23.0	+59.9	100.1	44 00.0	+60.0	102.0
45	46 11.5	+56.4	87.6	46 14.3	+57.3	89.7	46 12.7	+58.1	91.8	46 06.7	+58.8	93.9	45 56.3	+59.3	96.0	45 41.7	+59.7	98.0	45 22.9	+60.0	100.0	45 00.0	+60.0	102.0
46	47 07.9	+56.2	87.1	47 11.6	+57.2	89.3	47 10.8	+58.1	91.5	47 05.5	+58.7	93.6	46 55.7	+59.3	95.8	46 41.4	+59.7	97.9	46 22.9	+59.9	100.0	46 00.0	+60.0	102.0
47	48 04.4	+56.0	86.6	48																				

LATITUDE CONTRARY NAME

L.H.A. 78°, 282°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.			
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z
2 53.0	-58.3	101.7	2 28.7	-58.8	101.7	2 04.1	-59.1	101.8	1 39.5	-59.5	101.9	1 14.7	-59.7	101.9	0 49.9	-59.9	102.0	0 24.9	-59.9	102.0	0 00.0	+60.0	78.0	0 00.0	+60.0	78.0	0
1 54.7	-58.3	101.9	1 29.9	-58.7	101.9	1 05.0	-59.1	102.0	0 40.0	-59.4	102.0	0 15.0	-59.7	102.0	0 10.0	+59.9	78.0	0 35.0	+60.0	78.0	1 00.0	+60.0	78.0	1 00.0	+60.0	78.0	1
0 56.4	-58.3	102.1	0 31.2	-58.8	102.2	0 05.9	-59.1	102.2	0 19.4	+59.4	77.8	0 44.7	+59.6	77.9	1 09.9	+59.8	77.9	1 35.0	+60.0	77.9	2 00.0	+60.0	78.0	2 00.0	+60.0	78.0	2
0 01.9	+58.3	77.6	0 27.6	+58.7	77.6	0 53.2	+59.2	77.7	1 18.8	+59.5	77.8	1 44.3	+59.7	77.8	2 09.7	+59.9	77.8	2 35.0	+59.9	77.9	3 00.0	+60.0	78.0	3 00.0	+60.0	78.0	3
1 00.2	+58.3	77.4	1 26.3	+58.8	77.4	1 52.4	+59.1	77.5	2 18.3	+59.4	77.6	2 44.0	+59.7	77.7	3 09.6	+59.8	77.8	3 34.9	+60.0	77.9	4 00.0	+60.0	78.0	4 00.0	+60.0	78.0	4
1 58.5	+58.3	77.2	2 25.1	+58.7	77.2	2 51.5	+59.1	77.3	3 17.7	+59.5	77.4	3 43.7	+59.7	77.6	4 09.4	+59.9	77.7	4 34.9	+59.9	77.8	5 00.0	+60.0	78.0	5 00.0	+60.0	78.0	5
2 56.8	+58.3	76.9	3 23.8	+58.8	77.0	3 50.6	+59.1	77.2	4 17.2	+59.4	77.3	4 43.4	+59.7	77.4	5 09.3	+59.9	77.6	5 34.8	+60.0	77.8	6 00.0	+60.0	78.0	6 00.0	+60.0	78.0	6
3 55.1	+58.3	76.7	4 22.6	+58.7	76.8	4 49.7	+59.2	77.0	5 16.6	+59.4	77.2	5 43.1	+59.7	77.3	6 09.2	+59.8	77.5	6 34.8	+60.0	77.8	7 00.0	+60.0	78.0	7 00.0	+60.0	78.0	7
4 53.4	+58.2	76.4	5 21.3	+58.7	76.6	5 48.9	+59.1	76.8	6 16.0	+59.5	77.0	6 42.8	+59.6	77.2	7 09.0	+59.9	77.5	7 34.8	+59.9	77.7	8 00.0	+60.0	78.0	8 00.0	+60.0	78.0	8
5 51.6	+58.3	76.2	6 20.0	+58.8	76.4	6 48.0	+59.1	76.6	7 15.5	+59.4	76.9	7 42.4	+59.7	77.1	8 08.9	+59.8	77.4	8 34.7	+60.0	77.7	9 00.0	+60.0	78.0	9 00.0	+60.0	78.0	9
6 49.9	+58.3	76.0	7 18.8	+58.7	76.2	7 47.1	+59.1	76.5	8 14.9	+59.4	76.7	8 42.1	+59.7	77.0	9 08.7	+59.9	77.3	9 34.7	+60.0	77.7	10 00.0	+60.0	78.0	10 00.0	+60.0	78.0	10
7 48.2	+58.2	75.7	8 17.5	+58.7	76.0	8 46.2	+59.1	76.3	9 14.3	+59.4	76.6	9 41.8	+59.7	76.9	10 08.6	+59.8	77.3	10 34.7	+59.9	77.6	11 00.0	+60.0	78.0	11 00.0	+60.0	78.0	11
8 46.4	+58.3	75.5	9 16.2	+58.7	75.8	9 45.3	+59.1	76.1	10 13.7	+59.5	76.5	10 41.5	+59.6	76.8	11 08.4	+59.9	77.2	11 34.6	+60.0	77.6	12 00.0	+60.0	78.0	12 00.0	+60.0	78.0	12
9 44.7	+58.2	75.2	10 14.4	+58.7	75.6	10 44.4	+59.1	75.9	11 13.2	+59.4	76.3	11 41.1	+59.7	76.7	12 08.3	+59.8	77.1	12 34.6	+60.0	77.6	13 00.0	+60.0	78.0	13 00.0	+60.0	78.0	13
10 42.9	+58.3	75.0	11 13.6	+58.7	75.4	11 43.5	+59.1	75.8	12 12.6	+59.4	76.2	12 40.8	+59.7	76.6	13 08.1	+59.9	77.1	13 34.6	+59.9	77.5	14 00.0	+60.0	78.0	14 00.0	+60.0	78.0	14
11 41.2	+58.2	74.8	12 12.3	+58.7	75.2	12 42.6	+59.1	75.6	13 12.0	+59.4	76.0	13 40.5	+59.6	76.5	14 08.0	+59.9	77.0	14 34.5	+60.0	77.5	15 00.0	+60.0	78.0	15 00.0	+60.0	78.0	15
12 39.4	+58.2	74.5	13 11.0	+58.6	75.0	13 41.7	+59.0	75.4	14 11.4	+59.4	75.9	14 40.1	+59.7	76.4	15 07.9	+59.8	76.9	15 34.5	+59.9	77.4	16 00.0	+60.0	78.0	16 00.0	+60.0	78.0	16
13 37.6	+58.2	74.3	14 09.6	+58.7	74.7	14 40.7	+59.1	75.2	15 10.8	+59.4	75.7	15 39.8	+59.7	76.3	16 07.7	+59.8	76.8	16 34.4	+60.0	77.4	17 00.0	+60.0	78.0	17 00.0	+60.0	78.0	17
14 35.8	+58.1	74.0	15 08.3	+58.7	74.5	15 39.8	+59.1	75.1	16 10.2	+59.4	75.6	16 39.5	+59.6	76.2	17 07.5	+59.9	76.8	17 34.4	+60.0	77.4	18 00.0	+60.0	78.0	18 00.0	+60.0	78.0	18
15 33.9	+58.2	73.8	16 07.0	+58.6	74.3	16 38.9	+59.0	74.9	17 09.6	+59.4	75.5	17 39.1	+59.7	76.1	18 07.4	+59.8	76.7	18 34.4	+59.9	77.3	19 00.0	+60.0	78.0	19 00.0	+60.0	78.0	19
16 32.1	+58.1	73.5	17 05.6	+58.6	74.1	17 37.9	+59.0	74.7	18 09.0	+59.4	75.3	18 38.8	+59.6	75.9	19 07.2	+59.9	76.6	19 34.3	+60.0	77.3	20 00.0	+60.0	78.0	20 00.0	+60.0	78.0	20
17 30.2	+58.1	73.2	18 04.2	+58.6	73.9	18 36.9	+59.1	74.5	19 08.4	+59.3	75.2	19 38.4	+59.7	75.8	20 07.1	+59.8	76.5	20 34.3	+59.9	77.3	21 00.0	+60.0	78.0	21 00.0	+60.0	78.0	21
18 28.3	+58.1	73.0	19 02.8	+58.6	73.6	19 36.0	+59.0	74.3	20 07.7	+59.4	75.0	20 38.1	+59.6	75.7	21 06.9	+59.9	76.5	21 34.2	+60.0	77.2	22 00.0	+60.0	78.0	22 00.0	+60.0	78.0	22
19 26.4	+58.1	72.7	20 01.4	+58.6	73.4	20 35.0	+59.0	74.1	21 07.1	+59.3	74.8	21 37.7	+59.6	75.6	22 06.8	+59.8	76.4	22 34.2	+60.0	77.2	23 00.0	+60.0	78.0	23 00.0	+60.0	78.0	23
20 24.5	+58.0	72.4	21 00.0	+58.5	73.2	21 34.0	+59.0	73.9	22 06.4	+59.4	74.7	22 37.3	+59.7	75.5	23 06.6	+59.8	76.3	23 34.2	+59.9	77.1	24 00.0	+60.0	78.0	24 00.0	+60.0	78.0	24
21 22.5	+58.0	72.2	21 58.5	+58.5	72.9	22 33.0	+58.9	73.7	23 05.8	+59.3	74.5	23 37.0	+59.6	75.4	24 06.4	+59.9	76.2	24 34.1	+60.0	77.1	25 00.0	+60.0	78.0	25 00.0	+60.0	78.0	25
22 20.5	+58.0	71.9	22 57.0	+58.6	72.7	23 31.9	+59.0	73.5	24 05.1	+59.3	74.2	24 36.6	+59.6	75.2	25 06.3	+59.8	76.1	25 34.1	+59.9	77.1	26 00.0	+60.0	78.0	26 00.0	+60.0	78.0	26
23 18.5	+58.0	71.6	23 55.6	+58.4	72.5	24 30.9	+58.9	73.3	25 04.4	+59.4	74.0	25 36.2	+59.6	75.1	26 06.1	+59.8	76.1	26 34.0	+60.0	77.0	27 00.0	+60.0	78.0	27 00.0	+60.0	78.0	27
24 16.5	+57.9	71.3	24 54.0	+58.5	72.2	25 29.8	+58.9	73.1	26 03.8	+59.3	74.0	26 35.8	+59.6	75.0	27 05.9	+59.8	76.0	27 34.0	+59.9	77.0	28 00.0	+60.0	78.0	28 00.0	+60.0	78.0	28
25 14.4	+57.9	71.1	25 52.5	+58.4	72.0	26 28.7	+58.9	72.9	27 03.1	+59.2	73.9	27 35.4	+59.6	74.9	28 07.7	+59.9	75.9	28 33.9	+60.0	76.9	29 00.0	+60.0	78.0	29 00.0	+60.0	78.0	29
26 12.3	+57.9	70.8	26 50.9	+58.4	71.7	27 27.6	+58.9	72.7	28 02.3	+59.3	73.7	28 35.0	+59.6	74.7	29 05.6	+59.8	75.8	29 33.9	+60.0	76.9	30 00.0	+60.0	78.0	30 00.0	+60.0	78.0	30
27 10.2	+57.8	70.5	27 49.3	+58.4	71.4	28 26.5	+58.9	72.5	29 01.6	+59.3	73.5	29 34.6	+59.6	74.6	30 05.4	+59.8	75.7	30 33.9	+59.9	76.8	31 00.0	+60.0	78.0	31 00.0	+60.0	78.0	31
28 08.0	+57.8	70.2	28 47.7	+58.4	71.2	29 25.4	+58.8	72.2	30 00.9	+59.2	73.3	30 34.2	+59.6	74.5	31 05.2	+59.8	75.6	31 33.8	+60.0	76.8	32 00.0	+60.0	78.0	32 00.0	+60.0	78.0	32
29 05.8	+57.7	69.9	29 46.1	+58.3	70.9	30 24.2	+58.8	72.0	31 00.1	+59.3	73.1	31 33.8	+59.5	74.3	32 05.0	+59.8	75.5	32 33.8	+59.9	76.7	33 00.0	+60.0	78.0	33 00.0	+60.0	78.0	33
30 03.5	+57.7	69.5	30 44.4	+58.3	70.6	31 23.0	+58.8	71.8	31 59.4	+59.2	73.0	32 33.3	+59.6	74.2	33 04.8	+59.8	75.4	33 33.7	+60.0	76.7	34 00.0	+60.0	78.0	34 00.0	+60.0	78.0	34
31 01.2	+57.6	69.2	31 42.7	+58.2	70.4	32 21.8	+58.8	71.5	32 58.6	+59.2	72.8	33 32.9	+59.5	74.0	34 04.6	+59.8	75.3	34 33.7	+59.9	76.6	35 00.0	+60.0	78.0	35 00.0	+60.0	78.0	35
31 58.8	+57.6	68.9	32 40.9	+58.2	70.1	33 20.6	+58.7	71.3	33 57.8	+59.1	72.6	34 32.4	+59.5	73.9	35 04.4	+59.8	75.2	35 33.6	+60.0	76.6	36 00.0	+60.0	78.0	36 00.0	+60.0	78.0	36
32 56.4	+57.6	68.6	33 39.1	+58.2	69.8	34 19.3	+58.7	71.1	34 56.9	+59.2	72.4	35 31.9	+59.6	73.7	36 04.2	+59.8	75.1	36 33.6	+59.9	76.5	37 00.0	+60.0	78.0	37 00.0	+60.0	78.0	37
33 54.0	+57.5	68.2	34 37.3	+58.1	69.5	35 18.0	+58.7	70.8	35 56.1	+59.1	72.2	36 31.5	+59.5	73.6	37 04.0	+59.7	75.0	37 33.5	+59.9	76.5	38 00.0	+60.0	78.0	38 00.0	+60.0	78.0	38
34 51.5	+57.4	67.9	35 35.4	+58.0	69.2	36 16.7	+58.6	70.6	36 55.2	+59.2	72.0	37 31.0	+59.5	73.4	38 03.7	+59.8	74.9	38 33.4	+60.0	76.4	39 00.0	+60.0	78.0	39 00.0	+60.0	78.0	39
35 48.9	+57.3	67.5	36 33.4	+58.1	68.9	37 15.3	+58.6	70.3	37 54.4	+59.0	71.7	38 30.5	+59.4	73.2	39 03.5	+59.8	74.8	39 33.4	+59.9	76.4	40 00.0	+60.0	78.0	40 00.0	+60.0	78.0	40

Table with columns for Dec. (0-90) and latitude (60°, 62°, 64°, 66°, 68°, 70°, 72°, 74°). Each cell contains three values (Hc, d, Z) for that specific latitude and declination.

LATITUDE CONTRARY NAME

L.H.A. 80°, 280°

Table with columns for latitude (60° to 74°), Hc, d, Z, and Dec. Each latitude column contains 20 rows of data. The Dec. column is on the far right, ranging from 0 to 90.

LATITUDE SAME NAME

L.H.A. 100°, 260°

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	224.5	+58.2	99.7	204.1	+58.8	99.8	143.7	+59.1	99.9	123.1	+59.4	99.9	102.4	+59.7	99.9	041.6	+59.9	100.0	020.8	+60.0	100.0	000.0	+60.0	100.0
1	322.7	+58.3	99.5	302.9	+58.7	99.6	242.8	+59.1	99.7	222.5	+59.5	99.8	202.1	+59.7	99.8	141.5	+59.9	99.9	120.8	+60.0	100.0	100.0	+60.0	100.0
2	421.0	+58.3	99.2	401.6	+58.7	99.4	341.9	+59.1	99.5	322.0	+59.4	99.6	301.8	+59.6	99.7	241.4	+59.8	99.8	220.8	+59.9	99.9	200.0	+60.0	100.0
3	519.3	+58.2	99.0	500.3	+58.7	99.2	441.0	+59.1	99.3	421.4	+59.4	99.5	401.4	+59.7	99.6	341.2	+59.9	99.8	320.7	+60.0	99.9	300.0	+60.0	100.0
4	617.5	+58.3	98.7	599.0	+58.7	99.0	540.1	+59.1	99.2	520.8	+59.4	99.4	501.1	+59.7	99.5	441.1	+59.8	99.7	420.7	+60.0	99.9	400.0	+60.0	100.0
5	715.8	+58.2	98.5	697.7	+58.7	98.8	639.2	+59.1	99.0	620.2	+59.5	99.2	600.8	+59.7	99.4	540.9	+59.9	99.6	520.7	+59.9	99.8	500.0	+60.0	100.0
6	814.0	+58.2	98.3	796.4	+58.7	98.5	738.3	+59.1	98.8	719.7	+59.4	99.1	700.5	+59.7	99.3	640.8	+59.8	99.6	620.6	+60.0	99.8	600.0	+60.0	100.0
7	912.2	+58.2	98.0	895.1	+58.7	98.3	837.4	+59.1	98.6	819.1	+59.4	98.9	800.2	+59.6	99.2	740.6	+59.9	99.5	720.6	+59.9	99.8	700.0	+60.0	100.0
8	1010.4	+58.3	97.8	993.8	+58.7	98.1	936.5	+59.1	98.5	918.5	+59.4	98.8	899.8	+59.7	99.1	840.5	+59.9	99.4	820.5	+60.0	99.7	800.0	+60.0	100.0
9	1108.7	+58.2	97.5	1092.5	+58.7	97.9	1035.6	+59.1	98.3	1017.9	+59.4	98.7	999.5	+59.7	99.0	940.4	+59.8	99.4	920.5	+60.0	99.7	900.0	+60.0	100.0
10	1206.9	+58.1	97.3	1191.2	+58.7	97.7	1134.7	+59.1	98.1	1117.3	+59.5	98.5	1099.2	+59.6	98.9	1040.2	+59.9	99.3	1020.5	+59.9	99.6	1000.0	+60.0	100.0
11	1305.0	+58.2	97.0	1289.9	+58.6	97.5	1233.8	+59.0	97.9	1216.8	+59.4	98.4	1198.8	+59.7	98.8	1140.1	+59.8	99.2	1120.4	+60.0	99.6	1100.0	+60.0	100.0
12	1403.2	+58.2	96.8	1388.5	+58.7	97.3	1332.8	+59.1	97.8	1316.2	+59.4	98.2	1298.5	+59.7	98.7	1239.9	+59.9	99.1	1220.4	+60.0	99.6	1200.0	+60.0	100.0
13	1501.4	+58.1	96.5	1487.2	+58.6	97.1	1431.9	+59.0	97.6	1415.6	+59.3	98.1	1398.2	+59.6	98.6	1339.8	+59.8	99.1	1320.4	+59.9	99.5	1300.0	+60.0	100.0
14	1599.5	+58.1	96.3	1585.8	+58.6	96.8	1530.9	+59.1	97.4	1514.9	+59.4	97.9	1487.8	+59.7	98.5	1429.6	+59.9	99.0	1410.3	+60.0	99.5	1400.0	+60.0	100.0
15	1697.6	+58.1	96.0	1684.4	+58.6	96.6	1630.0	+59.0	97.2	1614.3	+59.4	97.8	1587.5	+59.6	98.4	1532.5	+59.8	98.9	1513.3	+60.0	99.5	1500.0	+60.0	100.0
16	1795.7	+58.1	95.7	1783.0	+58.6	96.4	1729.0	+59.0	97.0	1713.7	+59.4	97.6	1686.7	+59.7	98.2	1631.7	+59.9	98.8	1612.3	+60.0	99.4	1600.0	+60.0	100.0
17	1893.8	+58.0	95.5	1881.6	+58.6	96.2	1828.0	+59.1	96.8	1813.1	+59.4	97.5	1770.8	+59.6	98.1	1716.7	+59.8	98.8	1700.0	+60.0	99.4	1700.0	+60.0	100.0
18	1991.8	+58.1	95.2	1980.2	+58.5	95.9	1927.1	+59.0	96.6	1912.5	+59.3	97.3	1869.6	+59.7	98.0	1812.5	+59.8	98.7	1800.0	+60.0	99.4	1800.0	+60.0	100.0
19	2089.9	+58.0	94.9	2078.7	+58.6	95.7	2026.1	+58.9	96.4	2011.8	+59.4	97.2	1966.1	+59.6	97.9	1908.8	+59.8	98.6	1900.0	+60.0	99.3	1900.0	+60.0	100.0
20	2187.9	+58.0	94.7	2177.3	+58.5	95.5	2125.0	+59.0	96.2	2111.2	+59.3	97.0	2057.5	+59.6	97.8	2003.7	+59.8	98.5	2000.0	+60.0	99.3	2000.0	+60.0	100.0
21	2285.9	+57.9	94.4	2275.8	+58.5	95.2	2224.0	+59.0	96.0	2210.5	+59.4	96.9	2155.3	+59.7	97.7	2101.5	+59.8	98.5	2100.0	+60.0	99.2	2100.0	+60.0	100.0
22	2383.8	+57.9	94.1	2374.3	+58.5	95.0	2323.0	+58.9	95.8	2309.9	+59.3	96.7	2255.0	+59.6	97.5	2201.3	+59.8	98.2	2200.0	+60.0	99.2	2200.0	+60.0	100.0
23	2481.7	+57.9	93.8	2472.8	+58.4	94.7	2421.9	+58.9	95.6	2409.2	+59.3	96.5	2354.6	+59.6	97.4	2301.2	+59.8	98.3	2300.0	+60.0	99.2	2300.0	+60.0	100.0
24	2579.6	+57.9	93.5	2571.2	+58.4	94.5	2520.8	+58.9	95.4	2508.5	+59.3	96.4	2499.2	+59.6	97.3	2445.2	+59.8	98.2	2440.0	+60.0	99.1	2440.0	+60.0	100.0
25	2677.5	+57.8	93.2	2669.6	+58.4	94.2	2619.7	+58.9	95.2	2607.8	+59.3	96.2	2553.8	+59.6	97.2	2500.0	+59.8	98.1	2500.0	+60.0	99.1	2500.0	+60.0	100.0
26	2775.3	+57.8	92.9	2767.8	+58.4	94.0	2718.6	+58.9	95.0	2707.1	+59.3	96.0	2637.8	+59.6	97.0	2584.5	+59.8	98.0	2580.0	+60.0	99.0	2580.0	+60.0	100.0
27	2873.0	+57.8	92.6	2866.4	+58.3	93.7	2817.5	+58.8	94.8	2806.4	+59.2	95.9	2730.0	+59.6	96.9	2676.7	+59.8	98.0	2670.0	+60.0	99.0	2670.0	+60.0	100.0
28	2970.8	+57.7	92.3	2964.7	+58.3	93.4	2916.3	+58.9	94.6	2905.6	+59.3	95.7	2828.2	+59.6	96.8	2773.3	+59.8	97.9	2770.0	+60.0	99.0	2770.0	+60.0	100.0
29	3068.5	+57.6	92.0	3063.0	+58.3	93.2	3015.2	+58.8	94.3	3004.9	+59.2	95.5	2922.2	+59.6	96.6	2849.7	+59.8	97.8	2840.0	+60.0	99.0	2840.0	+60.0	100.0
30	3166.1	+57.6	91.7	3161.3	+58.2	92.9	3114.0	+58.7	94.1	3104.1	+59.2	95.3	3018.5	+59.5	96.5	3003.9	+59.8	97.7	3000.0	+60.0	99.0	3000.0	+60.0	100.0
31	3263.7	+57.5	91.3	3258.9	+58.2	92.6	3212.7	+58.8	93.9	3203.3	+59.2	95.1	3113.3	+59.6	96.4	3100.0	+59.8	97.6	3100.0	+60.0	99.0	3100.0	+60.0	100.0
32	3361.2	+57.5	91.0	3356.7	+58.2	92.3	3311.5	+58.7	93.6	3302.5	+59.2	94.9	3218.0	+59.5	96.2	3205.0	+59.8	97.5	3200.0	+60.0	99.0	3200.0	+60.0	100.0
33	3458.7	+57.4	90.7	3454.9	+58.1	92.0	3410.2	+58.7	93.4	3401.7	+59.2	94.7	3324.0	+59.5	96.1	3311.3	+59.8	97.4	3310.0	+60.0	99.0	3310.0	+60.0	100.0
34	3556.1	+57.4	90.3	3552.4	+58.0	91.7	3508.9	+58.7	93.1	3500.9	+59.1	94.5	3436.9	+59.6	95.9	3424.0	+59.8	97.3	3420.0	+60.0	99.0	3420.0	+60.0	100.0
35	3653.5	+57.3	89.9	3650.0	+57.9	91.4	3606.6	+58.6	92.9	3600.0	+59.1	94.3	3549.5	+59.5	95.8	3536.9	+59.8	97.2	3530.0	+60.0	99.0	3530.0	+60.0	100.0
36	3750.8	+57.2	89.6	3747.5	+57.9	91.1	3704.2	+58.6	92.6	3699.1	+59.1	94.1	3662.0	+59.5	95.6	3649.5	+59.8	97.1	3640.0	+60.0	99.0	3640.0	+60.0	100.0
37	3848.0	+57.1	89.2	3845.0	+57.9	90.8	3804.8	+58.5	92.3	3798.2	+59.1	93.9	3774.8	+59.4	95.4	3762.0	+59.7	97.0	3760.0	+60.0	99.0	3760.0	+60.0	100.0
38	3945.1	+57.1	88.8	3942.0	+57.9	90.4	3903.3	+58.5	92.0	3897.3	+59.1	93.7	3871.4	+59.5	95.3	3859.0	+59.8	96.9	3850.0	+60.0	99.0	3850.0	+60.0	100.0
39	4042.2	+57.0	88.4	4039.0	+57.7	90.1	4001.8	+58.5	91.8	3996.4	+59.0	93.4	3947.4	+59.5	95.1	3935.0	+59.8	96.8	3930.0	+60.0	99.0	3930.0	+60.0	100.0
40	4039.2	+56.8	88.0	4036.0	+57.8	89.7	4000.3	+58.4	91.5	4000.0	+59.0	93.2	4024.0	+59.4	94.9	4012.0	+59.7	96.6	4010.0	+60.0	99.0	4010.0	+60.0	100.0
41	4136.0	+56.8	87.6	4132.8	+57.8	89.4	4100.0	+58.4	91.2	4100.0	+59.0	93.0	4146.3	+59.4	94.8	4134.5	+59.8	96.5	4130.0	+60.0	99.0	4130.0	+60.0	100.0
42	4232.8	+56.7	87.1	4229.6	+57.6	89.0	4200.0	+58.4	90.9	4200.0	+59.0	92.7	4245.7	+59.4	94.6	4234.0	+59.7	96.4	4230.0	+60.0	99.0	4230.0	+60.0	100.0
43	4329.5	+56.6	86.7	4326.3	+57.5	88.6	4300.0	+58.4	90.5	4300.0	+59.0	92.5	4341.5	+59.4	94.4	4330.0	+59.7	96.3	4320.0	+60.0	99.0	4320.0	+60.0	100.0
44	4426.1	+56.5	86.2	4423.0	+57.3	88.2	4400.0	+58.4	90.2	4400.0	+59.0	92.2	4444.5	+59.3	94.2	4433.0	+59.7	96.1	4430.0	+60.0	99.0	4430.0	+60.0	100.0
45	4522.6	+56.3	85.7	4519.3	+57.4	87.8	4500.0	+58.4	89.8	4500.0	+59.0	91.6	4543.8	+59.4	94.0	4533.0	+59.7	96.0	4530.0	+60.0	99.0	4530.0	+60.0	100.0
46	4619.0	+56.2	85.2	4615.6	+57.2	87.4	4600.0	+58.4	89.5	4600.0	+59.0	91.4	4643.2	+59.3	93.7	4633.1	+59.7	95.9	4630.0	+60.0	99.0	4630.0	+60.0	100.0
47	4715.1	+56.1	84.7	4711.7	+57.1	86.9	4700.0	+58.4	89.1	4700.0	+59.0	91.3	4742.5	+59.3	93.5	4732.8	+59.7	95.7	4730.0	+60.0	99.0	4730.0	+60.0	100.0
48	4811.2	+56.0	84.2	4807.8	+56.9	86.5	4800.0	+58.4	88.7	4800.0	+59.0	91.0	4841.8	+59.2	93.3	4832.5	+59.7	95.6	4830.0	+60.0	99.0	4830.0	+60.0	100.0
49	4907.1	+55.7	83.6	4903.7	+56.9	86.																		

LATITUDE CONTRARY NAME

L.H.A. 80°, 280°

Table with columns for latitude (76° to 90°) and longitude (Hc, d, Z) and a Dec. column. Each latitude row contains 12 columns of data for Hc, d, Z at 2-degree intervals.

LATITUDE SAME NAME

L.H.A. 100°, 260°

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	3 59.4	+52.1	96.9	3 44.8	+53.1	97.1	3 29.9	+54.0	97.2	3 14.7	+54.9	97.3	2 59.3	+55.7	97.4	2 43.7	+56.4	97.5	2 27.9	+57.1	97.6	2 11.9	+57.7	97.7
1	4 51.5	+52.0	96.4	4 37.9	+53.0	96.6	4 23.9	+54.0	96.8	4 09.6	+54.9	96.9	3 55.0	+55.7	97.1	3 40.1	+56.5	97.2	3 25.0	+57.1	97.3	3 09.6	+57.7	97.4
2	5 43.5	+52.1	95.9	5 30.9	+53.1	96.1	5 17.9	+54.0	96.3	5 04.5	+54.9	96.5	4 50.7	+55.7	96.7	4 36.6	+56.4	96.8	4 22.1	+57.1	97.0	4 07.3	+57.7	97.1
3	6 35.6	+52.0	95.4	6 24.0	+53.0	95.7	6 11.9	+53.9	95.9	5 59.4	+54.8	96.1	5 46.4	+55.7	96.3	5 33.0	+56.4	96.5	5 19.2	+57.1	96.7	5 05.0	+57.7	96.9
4	7 27.6	+51.9	94.9	7 17.0	+53.0	95.2	7 05.8	+54.0	95.4	6 54.2	+54.8	95.7	6 42.1	+55.6	95.9	6 29.4	+56.4	96.2	6 16.3	+57.1	96.4	6 02.7	+57.7	96.6
5	8 19.5	+52.0	94.4	8 10.0	+52.9	94.7	7 59.8	+53.9	95.0	7 49.0	+54.8	95.3	7 37.7	+55.6	95.6	7 25.8	+56.4	95.8	7 13.4	+57.1	96.1	7 00.4	+57.7	96.3
6	9 11.5	+51.9	93.9	9 02.9	+52.9	94.2	8 53.7	+53.9	94.6	8 43.8	+54.8	94.9	8 33.3	+55.6	95.2	8 22.2	+56.4	95.5	8 10.5	+57.0	95.8	7 58.1	+57.7	96.0
7	10 03.4	+51.8	93.4	9 55.8	+52.9	93.8	9 47.6	+53.8	94.1	9 38.6	+54.8	94.5	9 28.9	+55.6	94.8	9 18.6	+56.3	95.1	9 07.5	+57.0	95.4	8 55.8	+57.6	95.8
8	10 55.2	+51.8	92.9	10 48.7	+52.8	93.3	10 41.4	+53.8	93.7	10 33.4	+54.7	94.0	10 24.5	+55.6	94.4	10 14.9	+56.3	94.8	10 04.5	+57.1	95.1	9 53.4	+57.7	95.5
9	11 47.0	+51.7	92.4	11 41.5	+52.8	92.8	11 35.2	+53.8	93.2	11 28.1	+54.7	93.6	11 20.1	+55.5	94.0	11 11.2	+56.3	94.4	11 01.6	+57.0	94.8	10 51.1	+57.6	95.2
10	12 38.7	+51.7	91.9	12 34.3	+52.8	92.3	12 29.0	+53.7	92.8	12 22.8	+54.6	93.2	12 15.6	+55.5	93.6	12 07.5	+56.3	94.1	11 58.6	+56.9	94.5	11 48.7	+57.6	94.9
11	13 30.4	+51.6	91.4	13 27.1	+52.6	91.8	13 22.7	+53.7	92.3	13 17.4	+54.6	92.8	13 11.1	+55.4	93.2	13 03.8	+56.2	93.7	12 55.5	+57.0	94.2	12 46.3	+57.6	94.6
12	14 22.0	+51.5	90.8	14 19.7	+52.6	91.3	14 16.4	+53.6	91.8	14 12.0	+54.6	92.4	14 06.5	+55.5	92.9	14 00.0	+56.2	93.4	13 52.5	+56.9	93.9	13 43.9	+57.6	94.3
13	15 13.5	+51.5	90.3	15 12.3	+52.6	90.8	15 10.0	+53.6	91.4	15 06.6	+54.5	91.9	15 02.0	+55.3	92.5	14 56.2	+56.2	93.0	14 49.4	+56.9	93.5	14 41.5	+57.5	94.1
14	16 05.0	+51.4	89.8	16 04.9	+52.5	90.3	16 03.6	+53.5	90.9	16 01.1	+54.4	91.5	15 57.3	+55.4	92.1	15 52.4	+56.2	92.6	15 46.3	+56.9	93.2	15 39.0	+57.6	93.8
15	16 56.4	+51.3	89.2	16 57.4	+52.4	89.8	16 57.1	+53.4	90.4	16 55.5	+54.4	91.1	16 52.7	+55.3	91.7	16 48.6	+56.1	92.3	16 43.2	+56.8	92.9	16 36.5	+57.5	93.5
16	17 47.7	+51.2	88.7	17 49.8	+52.3	89.3	17 50.5	+53.4	90.0	17 49.9	+54.3	90.6	17 48.0	+55.2	91.3	17 44.7	+56.0	91.9	17 40.0	+56.8	92.5	17 34.1	+57.4	93.2
17	18 38.9	+51.1	88.1	18 42.1	+52.2	88.8	18 43.9	+53.2	89.5	18 44.2	+54.3	90.2	18 43.2	+55.2	90.8	18 40.7	+56.0	91.5	18 36.8	+56.8	92.2	18 31.1	+57.5	92.9
18	19 30.0	+51.0	87.6	19 34.3	+52.1	88.3	19 37.1	+53.3	89.0	19 38.5	+54.2	89.7	19 38.4	+55.1	90.4	19 36.6	+56.0	91.1	19 33.6	+56.7	91.8	19 29.0	+57.4	92.6
19	20 21.0	+50.9	87.0	20 26.4	+52.1	87.8	20 30.4	+53.1	88.5	20 32.7	+54.1	89.3	20 33.5	+55.0	90.0	20 32.7	+55.9	90.8	20 30.3	+56.7	91.5	20 26.4	+57.4	92.2
20	21 11.9	+50.7	86.4	21 18.5	+51.9	87.2	21 23.5	+53.0	88.0	21 26.8	+54.1	88.8	21 28.5	+55.0	89.6	21 28.6	+55.9	90.4	21 27.0	+56.7	91.2	21 23.8	+57.3	91.9
21	22 02.6	+50.7	85.9	22 10.4	+51.9	86.7	22 16.5	+53.0	87.5	22 20.9	+54.0	88.3	22 23.5	+55.0	89.1	22 24.5	+55.8	90.0	22 23.7	+56.6	90.8	22 21.1	+57.3	91.6
22	22 53.3	+50.5	85.3	23 02.3	+51.7	86.1	23 09.5	+52.8	87.0	23 14.9	+53.8	87.8	23 18.5	+54.8	88.7	23 20.3	+55.7	89.6	23 20.3	+56.5	90.4	23 18.4	+57.3	91.3
23	23 43.8	+50.4	84.7	23 54.3	+51.6	85.6	24 02.3	+52.7	86.5	24 07.8	+53.8	87.4	24 13.3	+54.8	88.3	24 16.0	+55.7	89.2	24 16.8	+56.5	90.1	24 15.7	+57.2	91.0
24	24 34.2	+50.3	84.1	24 45.6	+51.5	85.0	24 55.0	+52.7	86.0	25 02.5	+53.7	86.9	25 08.1	+54.7	87.8	25 11.7	+55.6	88.8	25 13.3	+56.4	89.7	25 12.9	+57.2	90.6
25	25 24.5	+50.1	83.5	25 37.1	+51.3	84.5	25 47.7	+52.5	85.4	25 56.2	+53.6	86.4	26 02.8	+54.6	87.4	26 07.3	+55.5	88.3	26 09.7	+56.4	89.3	26 10.1	+57.1	90.3
26	26 14.6	+49.9	82.9	26 28.4	+51.2	83.9	26 40.2	+52.3	84.9	26 49.8	+53.5	85.9	26 57.4	+54.5	86.9	27 02.8	+55.5	87.9	27 06.1	+56.3	88.9	27 07.2	+57.1	90.0
27	27 04.5	+49.8	82.3	27 19.6	+51.1	83.3	27 32.5	+52.3	84.3	27 43.3	+53.4	85.4	27 51.9	+54.4	86.4	27 58.3	+55.3	87.5	28 02.4	+56.3	88.5	28 04.3	+57.1	89.6
28	27 54.3	+49.6	81.7	28 10.7	+50.9	82.7	28 24.8	+52.1	83.8	28 36.7	+53.2	84.9	28 46.3	+54.3	85.9	28 53.6	+55.3	87.0	28 58.7	+56.1	88.2	29 01.4	+56.9	89.3
29	28 43.9	+49.5	81.0	29 01.6	+50.7	82.1	29 16.9	+52.0	83.2	29 29.9	+53.2	84.3	29 40.6	+54.2	85.5	29 48.9	+55.2	86.6	29 54.8	+56.1	87.7	29 58.3	+56.9	88.9
30	29 33.4	+49.2	80.4	29 52.3	+50.6	81.5	30 08.9	+51.8	82.6	30 23.1	+52.9	83.8	30 34.8	+54.1	85.0	30 44.1	+55.1	86.1	30 50.9	+56.0	87.3	30 55.2	+56.9	88.5
31	30 22.6	+49.0	79.7	30 42.9	+50.3	80.9	31 00.7	+51.6	82.0	31 16.0	+52.9	83.2	31 28.9	+54.0	84.5	31 39.2	+55.0	85.7	31 46.9	+56.0	86.9	31 52.1	+56.8	88.2
32	31 11.6	+48.9	79.0	31 33.2	+50.2	80.2	31 52.3	+51.5	81.5	32 08.9	+52.7	82.7	32 22.9	+53.8	83.9	32 34.2	+54.9	85.2	32 42.9	+55.8	86.5	32 48.9	+56.7	87.8
33	32 00.5	+48.8	78.3	32 23.4	+50.0	79.6	32 43.8	+51.3	80.8	33 01.6	+52.5	82.1	33 16.7	+53.7	83.4	33 29.1	+54.8	84.7	33 38.7	+55.8	86.1	33 45.6	+56.6	87.4
34	32 49.1	+48.3	77.7	33 13.4	+49.8	78.9	33 35.1	+51.1	80.2	33 54.1	+52.4	81.5	34 10.4	+53.6	82.9	34 23.9	+54.6	84.2	34 34.5	+55.6	85.6	34 42.2	+56.6	87.0
35	33 37.4	+48.1	76.9	34 03.2	+49.5	78.3	34 26.2	+50.9	79.6	34 46.5	+52.2	81.0	35 04.0	+53.4	82.3	35 18.5	+54.5	83.7	35 30.1	+55.6	85.2	35 38.8	+56.5	86.6
36	34 25.5	+47.9	76.2	34 52.7	+49.3	77.6	35 17.1	+50.8	78.9	35 38.7	+52.0	80.4	35 57.4	+53.2	81.8	36 13.0	+54.4	83.2	36 25.7	+55.4	84.7	36 35.3	+56.3	86.2
37	35 13.4	+47.6	75.5	35 42.0	+49.1	76.9	36 07.9	+50.4	78.3	36 30.7	+51.9	79.7	36 50.6	+53.1	81.2	37 07.4	+54.3	82.7	37 21.1	+55.3	84.2	37 31.6	+56.3	85.7
38	36 01.0	+47.3	74.7	36 31.1	+48.8	76.2	36 58.3	+50.3	77.6	37 22.6	+51.6	79.1	37 43.7	+52.9	80.6	38 01.7	+54.1	82.2	38 16.4	+55.2	83.7	38 27.9	+56.2	85.3
39	36 48.3	+47.0	74.0	37 19.9	+48.6	75.4	37 48.6	+50.0	76.9	38 14.2	+51.4	78.5	38 36.6	+52.7	80.0	38 55.8	+53.9	81.6	39 11.6	+55.1	83.2	39 24.1	+56.1	84.8
40	37 35.3	+46.7	73.2	38 08.5	+48.2	74.7	38 38.6	+49.7	76.2	39 05.6	+51.1	77.8	39 29.3	+52.5	79.4	39 49.7	+53.7	81.0	40 06.7	+54.9	82.7	40 20.2	+55.9	84.4
41	38 22.0	+46.3	72.4	38 56.7	+48.0	73.9	39 28.3	+49.5	75.5	39 56.7	+51.0	77.1	40 21.8	+52.3	78.8	40 43.4	+53.6	80.5	41 01.6	+54.8	82.2	41 16.1	+55.9	83.9
42	39 08.3	+46.0	71.6	39 44.7	+47.6	73.2	40 17.8	+49.2	74.8	40 47.7	+50.6	76.4	41 14.1	+52.1	78.1	41 37.0	+53.4	79.9	41 56.4	+54.6	81.6	42 12.0	+55.7	83.4
43	39 54.3	+45.7	70.8	40 32.3	+47.3	72.4	41 07.0	+48.9	74.0	41 38.3	+50.4	75.7	42 06.2	+51.8	77.5	42 30.4	+53.2	79.2	42 50.1	+54.4	81.1	43 07.7	+55.6	82.9
44	40 40.0	+45.2	69.9	41 19.6	+46.9	71.5	41 55.9	+48.6	73.2	42 28.7	+50.2	75.0	42 58.0	+51.6	76.8	43 23.6	+53.0	78.6	43 45.4	+54.3	80.5	44 03.3	+55.4	82.4
45	41 25.2	+44.9	69.0	42 06.5	+46.6	70.7	42 44.5	+48.2	72.4	43 18.9	+49.8	74.2	43 49.6	+51.3	76.1	44 16.6	+52.7	78.0	44 39.7	+54.0	79.9	44 58.7	+55.3	81.8
46	42 10.1	+44.6	68.1	42 53.1	+46.2	69.9	43 32.7	+47.8	71.6	44 08.7	+49.5	73.5	44 40.9	+51.1	75.3	45 09.3	+52.5	77.3	45 33.7	+53.9	79.3	45 54.0	+55.1	81.3
47	42 54.5	+44.0	67.2	43 39.3	+45.7	69.0	44 20.5	+47.5	70.8	44 58.2	+49.1	72.7	45 32.0	+50.7	74.6	46 01.8	+52.3	76.6	46 27.6	+53.6	78.6			

LATITUDE CONTRARY NAME

L.H.A. 82°, 278°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.	
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		
3 59.4 -52.1 96.9	3 44.8 -53.1 97.1	3 29.9 -54.1 97.2	3 14.7 -54.9 97.3	2 59.3 -55.7 97.4	2 43.7 -56.4 97.5	2 27.9 -57.1 97.6	2 11.9 -57.7 97.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3 07.3 -52.1 97.4	2 51.7 -53.1 97.5	2 35.8 -54.0 97.6	2 19.8 -54.9 97.7	2 03.6 -55.7 97.8	1 47.3 -56.5 97.9	1 30.8 -57.1 97.9	1 14.2 -57.7 98.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2 15.2 -52.1 97.9	1 58.6 -53.1 98.0	1 41.8 -54.1 98.1	1 24.9 -54.9 98.1	1 07.9 -55.7 98.2	0 50.8 -56.5 98.2	0 33.7 -57.2 98.2	0 16.5 -57.8 98.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 23.1 -52.1 98.4	1 05.5 -53.2 98.5	0 47.7 -54.0 98.5	0 30.0 -54.9 98.5	0 12.2 -55.8 98.5	0 05.7 -56.4 81.5	0 23.5 -57.1 81.5	0 41.3 -57.7 81.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0 31.0 -52.2 98.9	0 12.3 -53.1 98.9	0 06.3 +54.1 81.1	0 24.9 +55.0 81.1	0 43.6 +55.7 81.1	1 02.1 +56.5 81.1	1 20.6 +57.1 81.2	1 39.0 +57.7 81.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0 21.2 +52.1 80.6	0 40.8 +53.1 80.6	1 00.4 +54.0 80.6	1 19.9 +54.9 80.7	1 39.3 +55.7 80.7	1 58.6 +56.4 80.8	2 17.7 +57.1 80.9	2 36.7 +57.7 80.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 13.3 +52.1 80.1	1 33.9 +53.1 80.1	1 54.4 +54.1 80.2	2 14.8 +54.9 80.3	2 35.0 +55.7 80.3	2 55.0 +56.4 80.4	3 14.8 +57.1 80.5	3 34.4 +57.7 80.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 05.4 +52.1 79.6	2 27.0 +53.1 79.7	2 48.5 +54.0 79.8	3 09.7 +54.9 79.9	3 30.7 +55.7 80.0	3 51.4 +56.5 80.1	4 11.9 +57.1 80.2	4 32.1 +57.7 80.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 57.5 +52.1 79.1	3 20.1 +53.1 79.2	3 42.5 +54.0 79.3	4 04.6 +54.9 79.5	4 26.4 +55.7 79.6	4 47.9 +56.4 79.8	5 09.0 +57.1 79.9	5 29.8 +57.7 80.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 49.6 +52.1 78.6	4 13.2 +53.1 78.7	4 36.5 +54.0 78.9	4 59.5 +54.8 79.1	5 22.1 +55.6 79.2	5 44.3 +56.4 79.4	6 06.1 +57.1 79.6	6 27.5 +57.7 79.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 41.7 +52.1 78.1	5 06.3 +53.0 78.3	5 30.5 +54.0 78.4	5 54.3 +54.9 78.6	6 17.7 +55.7 78.9	6 40.7 +56.4 79.1	7 03.2 +57.1 79.3	7 25.2 +57.7 79.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 33.8 +52.0 77.6	5 59.3 +53.1 77.8	6 24.5 +53.9 78.0	6 49.2 +54.8 78.2	7 13.4 +55.6 78.5	7 37.1 +56.4 78.7	8 00.3 +57.0 79.0	8 22.9 +57.6 79.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 25.8 +52.0 77.1	6 52.4 +53.0 77.3	7 18.4 +54.0 77.6	7 44.0 +54.8 77.8	8 09.0 +55.7 78.1	8 33.5 +56.4 78.4	8 57.3 +57.1 78.7	9 20.5 +57.7 79.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7 17.8 +52.0 76.6	7 45.4 +52.9 76.9	8 12.4 +53.9 77.1	8 38.8 +54.8 77.4	9 04.7 +55.5 77.7	9 29.9 +56.3 78.0	9 54.4 +57.0 78.4	10 18.2 +57.6 78.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 09.8 +51.9 76.1	8 38.3 +53.0 76.4	9 06.3 +53.9 76.7	9 33.6 +54.8 77.0	10 00.2 +55.6 77.3	10 26.2 +56.3 77.7	10 51.4 +57.0 78.1	11 15.8 +57.7 78.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 01.7 +51.9 75.6	9 31.3 +52.9 75.9	10 00.2 +53.8 76.2	10 28.4 +54.7 76.6	10 55.8 +55.6 77.0	11 22.5 +56.3 77.3	11 48.4 +57.0 77.7	12 13.5 +57.6 78.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 53.6 +51.9 75.1	10 24.2 +52.8 75.4	10 54.0 +53.8 75.8	11 23.1 +54.7 76.2	11 51.4 +55.5 76.6	12 18.8 +56.3 77.0	12 45.4 +56.9 77.4	13 11.1 +57.5 77.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 45.5 +51.8 74.6	11 17.0 +52.8 74.9	11 47.8 +53.8 75.3	12 17.8 +54.6 75.8	12 46.9 +55.4 76.2	13 15.1 +56.2 76.6	13 42.3 +56.7 77.1	14 08.6 +57.6 77.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 37.3 +51.7 74.1	12 09.8 +52.8 74.5	12 41.6 +53.7 74.9	13 12.4 +54.6 75.3	13 42.3 +55.5 75.8	14 11.3 +56.2 76.3	14 39.3 +56.9 76.8	15 06.2 +57.5 77.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 29.0 +51.7 73.5	13 02.6 +52.7 74.0	13 35.3 +53.6 74.4	14 07.0 +54.6 74.9	14 37.8 +55.4 75.4	15 07.5 +56.2 75.9	15 36.2 +56.9 76.4	16 03.7 +57.6 77.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13 20.7 +51.6 73.0	13 55.3 +52.6 73.5	14 28.9 +53.6 74.0	15 01.6 +54.5 74.5	15 33.2 +55.3 75.0	16 03.7 +56.1 75.5	16 33.1 +56.8 76.1	17 01.3 +57.5 76.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14 12.3 +51.5 72.5	14 47.9 +52.6 73.0	15 22.5 +53.6 73.5	15 56.1 +54.4 74.0	16 28.5 +55.1 74.6	16 59.8 +56.1 75.2	17 29.9 +56.8 75.8	18 07.5 +57.4 76.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 03.8 +51.5 72.0	15 40.5 +52.5 72.5	16 16.1 +53.5 73.0	16 50.5 +54.4 73.6	17 23.8 +55.3 74.2	17 55.9 +56.0 74.8	18 26.7 +56.8 75.4	18 56.2 +57.4 76.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 55.3 +51.4 71.4	16 33.0 +52.4 72.0	17 09.6 +53.4 72.6	17 44.9 +54.3 73.2	18 19.1 +55.2 73.8	18 51.9 +56.0 74.4	19 23.5 +56.7 75.1	19 53.6 +57.4 75.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16 46.7 +51.3 70.9	17 25.4 +52.4 71.5	18 03.0 +53.3 72.1	18 39.3 +54.2 72.7	19 14.3 +55.1 73.4	19 47.9 +56.0 74.0	20 20.2 +56.7 74.8	20 51.0 +57.4 75.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 38.0 +51.2 70.3	18 17.8 +52.3 71.0	18 56.3 +53.3 71.6	19 33.5 +54.2 72.3	20 09.4 +55.1 72.9	20 43.9 +56.0 73.7	21 16.9 +56.7 74.4	21 48.4 +57.3 75.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18 29.2 +51.2 69.8	19 10.1 +52.1 70.4	19 49.6 +53.2 71.1	20 27.7 +54.2 71.8	21 04.5 +55.0 72.5	21 39.8 +55.8 73.3	22 13.6 +56.6 74.0	22 45.7 +57.3 74.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19 20.4 +51.0 69.2	20 02.2 +52.1 69.9	20 42.8 +53.1 70.6	21 21.9 +54.0 71.3	21 59.5 +55.0 72.1	22 35.6 +55.8 72.9	23 10.2 +56.5 73.7	23 43.0 +57.3 74.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20 11.4 +50.9 68.7	20 54.3 +52.0 69.4	21 35.9 +53.0 70.1	22 15.9 +54.0 70.9	22 54.5 +54.9 71.7	23 31.4 +55.8 72.5	24 06.7 +56.5 73.3	24 40.3 +57.2 74.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 02.3 +50.8 68.1	21 46.3 +51.9 68.8	22 28.9 +52.9 69.6	23 09.9 +53.9 70.4	23 49.4 +54.8 71.2	24 27.2 +55.6 72.1	25 03.2 +56.3 73.0	25 37.5 +57.2 73.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 53.1 +50.7 67.5	22 38.2 +51.8 68.3	23 21.8 +52.8 69.1	24 03.8 +53.8 69.9	24 44.2 +54.7 70.8	25 22.8 +55.6 71.7	25 59.7 +56.3 72.6	26 34.7 +57.1 73.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22 43.8 +50.6 67.0	23 30.0 +51.6 67.8	24 14.6 +52.7 68.6	24 57.6 +53.7 69.4	25 38.9 +54.6 70.3	26 18.4 +55.5 71.2	26 56.0 +56.4 72.2	27 31.8 +57.0 73.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23 34.4 +50.4 66.4	24 21.6 +51.6 67.2	25 07.3 +52.6 68.1	25 51.3 +53.6 68.9	26 33.5 +54.6 69.9	27 13.9 +55.5 70.8	27 52.4 +56.4 71.8	28 28.8 +57.0 72.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24 24.8 +50.3 65.8	25 13.2 +51.4 66.6	25 59.9 +52.5 67.5	26 44.9 +53.5 68.4	27 28.1 +54.4 69.4	28 09.4 +55.3 70.4	28 48.6 +56.2 71.4	29 25.8 +57.0 72.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25 15.1 +50.1 65.2	26 04.6 +51.3 66.0	26 52.4 +52.4 67.0	27 38.4 +53.4 67.9	28 22.5 +54.4 68.9	29 04.7 +55.3 69.9	29 44.8 +56.1 71.0	30 22.8 +56.9 72.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 05.2 +50.0 64.6	26 55.9 +51.1 65.5	27 44.8 +52.2 66.4	28 31.8 +53.3 67.4	29 16.9 +54.3 68.4	30 00.0 +55.1 69.5	30 40.9 +56.1 70.6	31 19.7 +56.8 71.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 55.2 +49.8 64.0	27 47.0 +51.0 64.9	28 37.0 +52.1 65.9	29 25.1 +53.1 66.9	30 11.2 +54.1 67.9	30 55.1 +55.1 69.0	31 37.0 +56.0 70.2	32 16.5 +56.7 71.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27 45.0 +49.6 63.3	28 38.0 +50.8 64.3	29 29.1 +51.9 65.3	30 18.2 +53.0 66.4	31 05.3 +54.0 67.4	31 50.2 +55.0 68.6	32 32.9 +55.9 69.8	33 13.2 +56.7 71.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28 34.6 +49.5 62.7	29 28.8 +50.6 63.7	30 21.0 +51.8 64																							

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	1 55.8	+58.2	97.8	1 39.5	+58.7	97.8	1 23.1	+59.1	97.9	1 06.6	+59.4	97.9	0 50.0	+59.7	98.0	0 33.4	+59.8	98.0	0 16.7	+60.0	98.0	0 00.0	+60.0	98.0
1	2 54.0	+58.3	97.5	2 38.2	+58.7	97.6	2 22.2	+59.1	97.7	2 06.0	+59.4	97.8	1 49.7	+59.7	97.9	1 33.2	+59.9	97.9	1 16.7	+59.9	98.0	1 00.0	+60.0	98.0
2	3 52.3	+58.2	97.3	3 36.9	+58.7	97.4	3 21.3	+59.1	97.5	3 05.4	+59.5	97.6	2 49.4	+59.6	97.7	2 33.1	+59.8	97.8	2 16.6	+60.0	97.9	2 00.0	+60.0	98.0
3	4 50.5	+58.2	97.0	4 35.6	+58.7	97.2	4 20.4	+59.1	97.4	4 04.9	+59.4	97.5	3 49.0	+59.7	97.6	3 32.9	+59.9	97.8	3 16.6	+60.0	97.9	3 00.0	+60.0	98.0
4	5 48.7	+58.3	96.8	5 34.3	+58.7	97.0	5 19.5	+59.1	97.2	5 04.3	+59.4	97.4	4 48.7	+59.7	97.5	4 32.8	+59.9	97.7	4 16.6	+59.9	97.9	4 00.0	+60.0	98.0
5	6 47.0	+58.2	96.6	6 33.0	+58.7	96.8	6 18.6	+59.1	97.0	6 03.7	+59.4	97.2	5 48.4	+59.7	97.4	5 32.7	+59.8	97.6	5 16.5	+60.0	97.8	5 00.0	+60.0	98.0
6	7 45.2	+58.2	96.3	7 31.7	+58.7	96.6	7 17.7	+59.1	96.8	7 03.1	+59.5	97.0	6 48.1	+59.6	97.3	6 32.5	+59.9	97.6	6 16.5	+59.9	97.8	6 00.0	+60.0	98.0
7	8 43.4	+58.2	96.1	8 30.4	+58.7	96.4	8 16.8	+59.1	96.7	8 02.6	+59.4	97.1	7 47.7	+59.7	97.2	7 32.4	+59.8	97.5	7 16.4	+60.0	97.7	7 00.0	+60.0	98.0
8	9 41.6	+58.2	95.8	9 29.1	+58.7	96.2	9 15.9	+59.0	96.5	9 02.0	+59.4	96.8	8 47.4	+59.7	97.1	8 32.2	+59.9	97.4	8 16.4	+60.0	97.7	8 00.0	+60.0	98.0
9	10 39.8	+58.2	95.6	10 27.8	+58.6	95.9	10 14.9	+59.1	96.3	10 01.4	+59.4	96.7	9 47.1	+59.6	97.0	9 32.1	+59.8	97.4	9 16.4	+59.9	97.7	9 00.0	+60.0	98.0
10	11 38.0	+58.2	95.3	11 26.4	+58.7	95.7	11 14.0	+59.1	96.1	11 00.8	+59.4	96.5	10 46.7	+59.7	96.9	10 31.9	+59.9	97.3	10 16.3	+60.0	97.6	10 00.0	+60.0	98.0
11	12 36.2	+58.1	95.1	12 25.1	+58.6	95.5	12 13.1	+59.0	96.0	12 00.2	+59.4	96.4	11 46.4	+59.7	96.8	11 31.8	+59.8	97.2	11 16.3	+60.0	97.6	11 00.0	+60.0	98.0
12	13 34.3	+58.2	94.8	13 23.7	+58.7	95.3	13 12.1	+59.1	95.8	12 59.6	+59.4	96.2	12 46.1	+59.6	96.7	12 31.6	+59.9	97.1	12 16.3	+59.9	97.6	12 00.0	+60.0	98.0
13	14 32.5	+58.1	94.6	14 22.4	+58.6	95.1	14 11.2	+59.0	95.6	13 59.0	+59.4	96.1	13 45.7	+59.7	96.6	13 31.5	+59.8	97.1	13 16.2	+60.0	97.5	13 00.0	+60.0	98.0
14	15 30.6	+58.1	94.3	15 21.0	+58.6	94.9	15 10.2	+59.1	95.4	14 58.4	+59.4	95.9	14 45.4	+59.6	96.5	14 31.3	+59.9	97.0	14 16.2	+59.9	97.5	14 00.0	+60.0	98.0
15	16 28.7	+58.1	94.1	16 19.6	+58.6	94.6	16 09.3	+59.0	95.2	15 57.8	+59.3	95.8	15 45.0	+59.7	96.4	15 31.0	+59.8	96.9	15 16.1	+60.0	97.5	15 00.0	+60.0	98.0
16	17 26.8	+58.1	93.8	17 18.2	+58.6	94.4	17 08.3	+59.0	95.0	16 57.1	+59.4	95.6	16 44.7	+59.6	96.2	16 31.0	+59.9	96.8	16 16.1	+60.0	97.4	16 00.0	+60.0	98.0
17	18 24.9	+58.0	93.5	18 16.8	+58.5	94.2	18 07.3	+59.0	94.8	17 56.5	+59.4	95.5	17 44.3	+59.7	96.1	17 30.9	+59.8	96.8	17 16.1	+59.9	97.4	17 00.0	+60.0	98.0
18	19 22.9	+58.0	93.3	19 15.3	+58.6	94.0	19 06.3	+59.0	94.7	18 55.9	+59.3	95.3	18 44.0	+59.6	96.0	18 30.7	+59.8	96.7	18 16.0	+60.0	97.4	18 00.0	+60.0	98.0
19	20 20.9	+58.0	93.0	20 13.9	+58.5	93.7	20 05.3	+59.0	94.5	19 55.2	+59.4	95.2	19 43.6	+59.7	95.9	19 30.5	+59.9	96.6	19 16.0	+59.9	97.3	19 00.0	+60.0	98.0
20	21 18.9	+58.0	92.7	21 12.4	+58.5	93.5	21 04.3	+59.0	94.3	20 54.6	+59.3	95.0	20 43.3	+59.6	95.8	20 30.4	+59.8	96.5	20 16.9	+60.0	97.3	20 00.0	+60.0	98.0
21	22 16.9	+57.9	92.4	22 10.9	+58.5	93.3	22 03.3	+58.9	94.1	21 53.9	+59.3	94.9	21 42.9	+59.6	95.7	21 30.2	+59.8	96.5	21 15.9	+60.0	97.2	21 00.0	+60.0	98.0
22	23 14.8	+57.9	92.2	23 09.4	+58.5	93.0	23 02.2	+58.9	93.9	22 53.2	+59.4	94.7	22 42.5	+59.6	95.5	22 30.0	+59.9	96.4	22 15.9	+59.9	97.2	22 00.0	+60.0	98.0
23	24 12.7	+57.9	91.9	24 07.9	+58.4	92.8	24 01.1	+59.0	93.7	23 52.6	+59.3	94.5	23 42.1	+59.6	95.4	23 29.9	+59.8	96.3	23 15.8	+60.0	97.2	23 00.0	+60.0	98.0
24	25 10.6	+57.9	91.6	25 06.3	+58.4	92.5	25 00.1	+58.9	93.5	24 51.9	+59.3	94.4	24 41.7	+59.6	95.3	24 29.7	+59.8	96.2	24 15.8	+59.9	97.1	24 00.0	+60.0	98.0
25	26 08.5	+57.8	91.3	26 04.7	+58.4	92.3	25 59.0	+58.8	93.2	25 51.2	+59.3	94.2	25 41.3	+59.6	95.2	25 29.5	+59.9	96.1	25 15.7	+60.0	97.1	25 00.0	+60.0	98.0
26	27 06.3	+57.7	91.0	27 03.1	+58.4	92.0	26 57.8	+58.9	93.0	26 50.5	+59.2	94.0	26 40.9	+59.6	95.0	26 29.4	+59.8	96.0	26 15.7	+59.9	97.0	26 00.0	+60.0	98.0
27	28 04.0	+57.7	90.7	28 01.5	+58.3	91.7	27 56.7	+58.9	92.8	27 49.7	+59.3	93.9	27 40.5	+59.6	94.9	27 29.2	+59.8	96.0	27 15.6	+60.0	97.0	27 00.0	+60.0	98.0
28	29 01.7	+57.7	90.4	28 59.8	+58.3	91.5	28 55.6	+58.8	92.6	28 49.0	+59.2	93.7	28 40.1	+59.6	94.8	28 29.0	+59.8	95.9	28 15.6	+60.0	96.9	28 00.0	+60.0	98.0
29	29 59.4	+57.7	90.1	29 58.1	+58.3	91.2	29 54.4	+58.8	92.4	29 48.2	+59.3	93.5	29 39.7	+59.6	94.6	29 28.8	+59.8	95.8	29 15.6	+59.9	96.9	29 00.0	+60.0	98.0
30	30 57.1	+57.6	89.7	30 56.4	+58.2	90.9	30 53.2	+58.7	92.1	30 47.5	+59.2	93.3	30 39.3	+59.5	94.5	30 28.6	+59.8	95.7	30 15.5	+60.0	96.8	30 00.0	+60.0	98.0
31	31 54.7	+57.5	89.4	31 54.6	+58.2	90.6	31 51.9	+58.8	91.9	31 46.7	+59.2	93.1	31 38.8	+59.6	94.4	31 28.4	+59.8	95.6	31 15.5	+59.9	96.8	31 00.0	+60.0	98.0
32	32 52.2	+57.5	89.1	32 52.8	+58.1	90.4	32 50.7	+58.7	91.7	32 45.9	+59.2	92.9	32 38.4	+59.5	94.2	32 28.2	+59.8	95.5	32 15.4	+60.0	96.8	32 00.0	+60.0	98.0
33	33 49.7	+57.4	88.7	33 50.9	+58.1	90.1	33 49.4	+58.7	91.4	33 45.1	+59.1	92.7	33 37.9	+59.5	94.1	33 28.0	+59.8	95.4	33 15.4	+59.9	96.7	33 00.0	+60.0	98.0
34	34 47.1	+57.3	88.4	34 49.0	+58.1	89.8	34 48.1	+58.6	91.2	34 44.2	+59.2	92.5	34 37.4	+59.6	93.9	34 27.8	+59.8	95.3	34 15.3	+60.0	96.7	34 00.0	+60.0	98.0
35	35 44.4	+57.3	88.0	35 47.1	+58.0	89.5	35 46.7	+58.7	90.9	35 43.4	+59.1	92.3	35 37.0	+59.5	93.8	35 27.6	+59.8	95.2	35 15.3	+59.9	96.6	35 00.0	+60.0	98.0
36	36 41.7	+57.3	87.6	36 45.1	+58.0	89.1	36 45.4	+58.5	90.6	36 42.5	+59.1	92.1	36 36.5	+59.5	93.6	36 27.4	+59.7	95.1	36 15.2	+59.9	96.6	36 00.0	+60.0	98.0
37	37 39.0	+57.1	87.3	37 43.1	+57.9	88.8	37 43.9	+58.6	90.4	37 41.6	+59.0	91.9	37 36.0	+59.4	93.4	37 27.1	+59.8	95.0	37 15.1	+60.0	96.5	37 00.0	+60.0	98.0
38	38 36.1	+57.1	86.9	38 41.0	+57.8	88.5	38 42.5	+58.5	90.1	38 40.6	+59.1	91.7	38 35.4	+59.3	93.3	38 26.9	+59.8	94.9	38 15.1	+59.9	96.4	38 00.0	+60.0	98.0
39	39 33.2	+57.0	86.5	39 38.8	+57.8	88.1	39 41.0	+58.4	89.8	39 39.7	+59.0	91.5	39 34.9	+59.5	93.1	39 26.7	+59.7	94.8	39 15.0	+60.0	96.4	39 00.0	+60.0	98.0
40	40 30.2	+56.9	86.1	40 36.6	+57.7	87.8	40 39.4	+58.5	89.5	40 38.7	+59.0	91.2	40 34.4	+59.4	92.9	40 26.4	+59.8	94.6	40 15.0	+59.9	96.3	40 00.0	+60.0	98.0
41	41 27.1	+56.8	85.7	41 34.3	+57.7	87.4	41 37.9	+58.3	89.2	41 37.7	+58.9	91.0	41 33.8	+59.4	92.7	41 26.2	+59.7	94.5	41 14.9	+59.9	96.3	41 00.0	+60.0	98.0
42	42 23.9	+56.7	85.2	42 32.0	+57.5	87.0	42 36.2	+58.3	88.9	42 36.6	+59.0	90.7	42 33.2	+59.4	92.6	42 25.9	+59.8	94.4	42 14.8	+60.0	96.2	42 00.0	+60.0	98.0
43	43 20.6	+56.6	84.8	43 29.5	+57.5	86.7	43 34.5	+58.3	88.6	43 35.6	+58.8	90.5	43 32.6	+59.4	92.4	43 25.7	+59.7	94.3	43 14.8	+59.9	96.1	43 00.0	+60.0	98.0
44	44 17.2	+56.5	84.3	44 27.0	+57.4	86.3	44 32.8	+58.2	88.2	44 34.4	+58.9	90.2	44 32.0	+59.3	92.2	44 25.4	+59.7	94.1	44 14.7	+59.9	96.1	44 00.0	+60.0	98.0
45	45 13.7	+56.3	83.8	45 24.4	+57.4	85.9	45 31.0	+58.1	87.9	45 33.3	+58.8	89.9	45 31.3	+59.4	92.0	45 25.1	+59.7	94.0	45 14.6	+60.0	96.0	45 00.0	+60.0	98.0
46	46 10.0	+56.2	83.3	46 21.8	+57.2	85.4	46 29.1	+58.1	87.5	46 32.0	+58.8	89.6	46 30.7	+59.3	91.7	46 24.8	+59.7	93.8	46 14.6	+59.9	95.9	46 00.0	+60.0	98.0
47	47 06.2	+56.1	82.8	47 19.0	+57.1	85.0	47 27.2	+58.0	87.2	47 30.9	+58.7	89.3	47 30.0	+59.2	91.5	47 24.5	+59.7	93.7	47 14.5	+59.9	95.9	47 00.0</		

LATITUDE CONTRARY NAME

L.H.A. 82°, 278°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	
1 55.8 -58.3 97.8	0 40.8 -58.7 98.0	1 39.5 -58.7 97.8	1 39.5 -58.7 97.8	0 40.8 -58.7 98.0	1 39.5 -58.7 97.8	1 23.1 -59.1 97.9	0 24.0 -59.1 98.1	1 06.6 -59.4 97.9	1 06.6 -59.4 97.9	0 07.2 -59.5 98.1	1 06.6 -59.4 97.9	0 50.0 -59.7 98.0	0 09.7 +59.6 81.9	0 26.5 +59.8 82.0	0 43.3 +59.9 82.0	0 16.7 -60.0 98.0	0 00.0 +60.0 82.0	1 00.0 +60.0 82.0	2 00.0 +60.0 82.0	0 00.0 +60.0 82.0	1 00.0 +60.0 82.0	2 00.0 +60.0 82.0	0	
0 00.7 +58.3 81.8	1 16.7 +58.7 81.6	0 17.9 +58.8 81.8	0 17.9 +58.8 81.8	1 16.7 +58.7 81.6	0 17.9 +58.8 81.8	0 35.1 +59.1 81.8	1 34.2 +59.1 81.6	0 52.3 +59.4 81.8	0 52.3 +59.4 81.8	1 51.7 +59.4 81.7	0 52.3 +59.4 81.8	1 09.3 +59.7 81.8	2 09.0 +59.7 81.7	1 26.3 +59.9 81.9	2 26.2 +59.9 81.8	1 43.2 +60.0 81.9	2 00.0 +60.0 82.0	3 00.0 +60.0 82.0	4 00.0 +60.0 82.0	2 00.0 +60.0 82.0	3 00.0 +60.0 82.0	4 00.0 +60.0 82.0	1	
0 59.0 +58.2 81.5	2 15.4 +58.7 81.3	1 16.7 +58.8 81.8	1 16.7 +58.8 81.8	2 15.4 +58.7 81.3	1 16.7 +58.8 81.8	3 32.4 +59.1 81.3	4 31.5 +59.1 81.1	4 50.0 +59.4 81.4	4 50.0 +59.4 81.4	5 48.8 +59.4 81.1	4 50.0 +59.4 81.4	4 08.4 +59.6 81.5	5 08.0 +59.7 81.6	5 25.8 +59.8 81.6	6 25.6 +59.9 81.5	5 43.1 +60.0 81.8	5 00.0 +60.0 82.0	6 00.0 +60.0 82.0	7 00.0 +60.0 82.0	5 00.0 +60.0 82.0	6 00.0 +60.0 82.0	7 00.0 +60.0 82.0	2	
1 57.2 +58.3 81.3	3 14.1 +58.7 81.1	2 15.4 +58.7 81.3	2 15.4 +58.7 81.3	3 14.1 +58.7 81.1	2 15.4 +58.7 81.3	5 30.6 +59.1 80.9	6 29.7 +59.1 80.7	6 48.8 +59.4 81.0	6 48.8 +59.4 81.0	7 47.7 +59.7 81.3	6 48.8 +59.4 81.0	6 07.7 +59.7 81.3	7 07.4 +59.7 81.2	7 25.5 +59.8 81.5	8 25.3 +59.9 81.4	7 43.0 +60.0 81.7	8 00.0 +60.0 82.0	9 00.0 +60.0 82.0	10 00.0 +60.0 82.0	8 00.0 +60.0 82.0	9 00.0 +60.0 82.0	10 00.0 +60.0 82.0	3	
2 55.5 +58.2 81.0	4 12.8 +58.7 80.9	3 14.1 +58.7 81.1	3 14.1 +58.7 81.1	4 12.8 +58.7 80.9	3 14.1 +58.7 81.1	7 28.8 +59.1 80.6	8 27.9 +59.1 80.4	8 47.6 +59.5 80.7	8 47.6 +59.5 80.7	9 47.1 +59.4 80.5	8 47.6 +59.5 80.7	9 06.7 +59.7 81.0	10 06.4 +59.7 80.9	10 25.0 +59.8 81.3	11 24.9 +59.8 81.2	10 42.9 +60.0 81.6	10 00.0 +60.0 82.0	11 00.0 +60.0 82.0	12 00.0 +60.0 82.0	10 00.0 +60.0 82.0	11 00.0 +60.0 82.0	12 00.0 +60.0 82.0	4	
3 53.7 +58.3 80.8	5 11.5 +58.7 80.7	4 12.8 +58.7 80.9	4 12.8 +58.7 80.9	5 11.5 +58.7 80.7	4 12.8 +58.7 80.9	10 26.1 +59.1 80.0	11 25.2 +59.0 79.9	11 45.9 +59.4 80.4	11 45.9 +59.4 80.4	12 45.3 +59.4 80.1	11 45.9 +59.4 80.4	11 06.1 +59.6 80.8	12 05.7 +59.7 80.7	12 24.7 +59.8 81.1	13 24.6 +59.8 81.0	12 42.8 +60.0 81.5	12 00.0 +60.0 82.0	13 00.0 +60.0 82.0	14 00.0 +60.0 82.0	12 00.0 +60.0 82.0	13 00.0 +60.0 82.0	14 00.0 +60.0 82.0	5	
4 52.0 +58.2 80.6	6 10.2 +58.7 80.5	5 11.5 +58.7 80.7	5 11.5 +58.7 80.7	6 10.2 +58.7 80.5	5 11.5 +58.7 80.7	14 22.3 +59.1 79.3	15 21.4 +59.0 79.1	15 43.4 +59.4 79.7	15 43.4 +59.4 79.7	16 42.8 +59.4 79.5	15 43.4 +59.4 79.7	16 04.4 +59.6 80.2	17 04.0 +59.6 80.1	17 24.1 +59.9 80.8	18 24.0 +59.9 80.7	17 42.6 +60.0 81.4	14 00.0 +60.0 82.0	15 00.0 +60.0 82.0	16 00.0 +60.0 82.0	14 00.0 +60.0 82.0	15 00.0 +60.0 82.0	16 00.0 +60.0 82.0	6	
5 50.2 +58.2 80.3	7 08.9 +58.7 80.3	6 10.2 +58.7 80.5	6 10.2 +58.7 80.5	7 08.9 +58.7 80.3	6 10.2 +58.7 80.5	18 18.4 +59.0 78.6	19 17.4 +59.0 78.4	19 40.9 +59.3 79.2	19 40.9 +59.3 79.2	20 40.3 +59.3 78.9	19 40.9 +59.3 79.2	20 02.9 +59.7 79.8	21 02.6 +59.6 79.7	22 02.2 +59.6 79.5	23 02.3 +59.8 80.3	22 42.4 +60.0 81.1	17 00.0 +60.0 82.0	18 00.0 +60.0 82.0	19 00.0 +60.0 82.0	17 00.0 +60.0 82.0	18 00.0 +60.0 82.0	19 00.0 +60.0 82.0	7	
6 48.4 +58.3 80.1	8 07.6 +58.7 80.1	7 08.9 +58.7 80.3	7 08.9 +58.7 80.3	8 07.6 +58.7 80.1	7 08.9 +58.7 80.3	22 14.4 +58.9 77.8	23 13.3 +59.0 77.6	23 38.7 +59.3 78.4	23 38.7 +59.3 78.4	24 37.6 +59.3 78.3	23 38.7 +59.3 78.4	24 01.4 +59.6 79.3	25 01.0 +59.7 79.2	26 00.7 +59.5 79.0	27 00.2 +59.6 78.9	27 22.3 +59.8 79.9	18 00.0 +60.0 82.0	19 00.0 +60.0 82.0	20 00.0 +60.0 82.0	18 00.0 +60.0 82.0	19 00.0 +60.0 82.0	20 00.0 +60.0 82.0	8	
7 46.7 +58.2 79.8	9 06.3 +58.6 79.9	8 07.6 +58.7 80.1	8 07.6 +58.7 80.1	9 06.3 +58.6 79.9	8 07.6 +58.7 80.1	26 10.1 +58.8 77.0	27 08.9 +58.9 76.7	28 07.8 +58.8 76.5	28 07.8 +58.8 76.5	29 06.6 +58.9 76.3	28 07.8 +58.8 76.5	29 03.3 +59.6 79.9	30 02.9 +59.7 79.8	31 02.6 +59.6 79.5	32 02.3 +59.8 80.3	31 41.9 +59.8 80.7	20 00.0 +60.0 82.0	21 00.0 +60.0 82.0	22 00.0 +60.0 82.0	20 00.0 +60.0 82.0	21 00.0 +60.0 82.0	22 00.0 +60.0 82.0	9	
8 44.9 +58.2 79.6	10 04.9 +58.7 79.7	9 06.3 +58.6 79.9	9 06.3 +58.6 79.9	10 04.9 +58.7 79.7	9 06.3 +58.6 79.9	30 05.5 +58.7 76.1	31 04.2 +58.8 75.8	31 32.4 +59.2 77.0	31 32.4 +59.2 77.0	32 31.6 +59.2 76.8	30 05.5 +58.7 76.1	30 59.0 +59.6 78.5	31 58.1 +59.6 78.2	32 57.7 +59.5 78.1	34 20.9 +59.8 79.3	33 21.1 +59.8 79.4	21 00.0 +60.0 82.0	22 00.0 +60.0 82.0	23 00.0 +60.0 82.0	21 00.0 +60.0 82.0	22 00.0 +60.0 82.0	23 00.0 +60.0 82.0	10	
9 43.1 +58.2 79.3	11 03.6 +58.7 79.5	10 04.9 +58.7 79.7	10 04.9 +58.7 79.7	11 03.6 +58.7 79.5	10 04.9 +58.7 79.7	34 59.1 +58.7 74.9	35 57.8 +58.6 74.6	36 56.4 +58.6 74.3	36 56.4 +58.6 74.3	37 55.0 +58.5 74.1	34 59.1 +58.7 74.9	35 57.8 +58.6 74.6	36 55.7 +59.5 77.5	37 55.2 +59.5 77.3	39 19.8 +59.8 78.7	40 18.5 +59.7 78.1	22 00.0 +60.0 82.0	23 00.0 +60.0 82.0	24 00.0 +60.0 82.0	22 00.0 +60.0 82.0	23 00.0 +60.0 82.0	24 00.0 +60.0 82.0	11	
10 41.3 +58.2 79.1	12 02.3 +58.6 79.3	11 03.6 +58.7 79.5	11 03.6 +58.7 79.5	12 02.3 +58.6 79.3	11 03.6 +58.7 79.5	38 26.4 +59.0 75.6	39 25.4 +59.1 75.4	40 24.5 +59.0 75.1	40 24.5 +59.0 75.1	41 23.5 +58.9 74.9	38 26.4 +59.0 75.6	39 25.4 +59.1 75.4	40 24.5 +59.0 75.1	41 23.5 +58.9 74.9	42 22.4 +59.0 74.6	43 21.4 +58.9 74.4	23 00.0 +60.0 82.0	24 00.0 +60.0 82.0	25 00.0 +60.0 82.0	23 00.0 +60.0 82.0	24 00.0 +60.0 82.0	25 00.0 +60.0 82.0	12	
11 39.5 +58.1 78.8	13 00.9 +58.7 79.0	12 02.3 +58.6 79.3	12 02.3 +58.6 79.3	13 00.9 +58.7 79.0	12 02.3 +58.6 79.3	44 43.8 +58.2 71.9	45 42.0 +58.1 71.6	46 40.1 +58.0 71.2	46 40.1 +58.0 71.2	47 38.1 +58.0 70.8	44 43.8 +58.2 71.9	45 42.0 +58.1 71.6	46 40.1 +58.0 71.2	47 38.1 +58.0 70.8	48 36.1 +57.9 70.5	49 34.0 +57.8 70.1	24 00.0 +60.0 82.0	25 00.0 +60.0 82.0	26 00.0 +60.0 82.0	24 00.0 +60.0 82.0	25 00.0 +60.0 82.0	26 00.0 +60.0 82.0	13	
12 37.6 +58.2 78.6	14 58.2 +58.6 78.6	13 00.9 +58.7 79.0	13 00.9 +58.7 79.0	14 58.2 +58.6 78.6	13 00.9 +58.7 79.0	50 50.5 +58.4 73.2	51 48.9 +58.3 72.9	52 47.2 +58.3 72.6	52 47.2 +58.3 72.6	53 45.5 +58.3 72.3	50 50.5 +58.4 73.2	51 48.9 +58.3 72.9	52 47.2 +58.3 72.6	53 45.5 +58.3 72.3	54 43.8 +58.2 71.9	55 42.0 +58.1 71.6	25 00.0 +60.0 82.0	26 00.0 +60.0 82.0	27 00.0 +60.0 82.0	25 00.0 +60.0 82.0	26 00.0 +60.0 82.0	27 00.0 +60.0 82.0	14	
13 35.8 +58.1 78.3	15 56.8 +58.6 78.4	14 58.2 +58.6 78.6	14 58.2 +58.6 78.6	15 56.8 +58.6 78.4	14 58.2 +58.6 78.6	56 16.4 +57.0 66.7	57 15.4 +56.9 66.5	58 14.2 +56.8 66.3	58 14.2 +56.8 66.3	59 13.4 +56.8 66.0	56 16.4 +57.0 66.7	57 15.4 +56.9 66.5	58 14.2 +56.8 66.3	59 13.4 +56.8 66.0	60 12.1 +56.7 65.7	61 11.5 +56.6 65.4	26 00.0 +60.0 82.0	27 00.0 +60.0 82.0	28 00.0 +60.0 82.0	26 00.0 +60.0 82.0	27 00.0 +60.0 82.0	28 00.0 +60.0 82.0	15	
14 33.9 +58.2 78.1	16 55.4 +58.6 78.2	15 56.8 +58.6 78.4	15 56.8 +58.6 78.4	16 55.4 +58.6 78.2	15 56.8 +58.6 78.4	62 47.1 +57.2 66.2	63 44.3 +56.9 65.5	64 41.3 +56.6 64.8	64 41.3 +56.6 64.8	65 37.8 +56.5 64.0	62 47.1 +57.2 66.2	63 44.3 +56.9 65.5	64 41.3 +56.6 64.8	65 37.8 +56.5 64.0	66 34.0 +56.3 63.2	67 30.4 +56.1 62.6	27 00.0 +60.0 82.0	28 00.0 +60.0 82.0	29 00.0 +60.0 82.0	27 00.0 +60.0 82.0	28 00.0 +60.0 82.0	29 00.0 +60.0 82.0	16	
15 32.1 +58.1 77.8	17 54.0 +58.6 77.9	16 55.4 +58.6 78.2	16 55.4 +58.6 78.2	17 54.0 +58.6 77.9	16 55.4 +58.6 78.2	68 18.1 +52.8 55.9	69 16.6 +52.5 54.6	70 15.1 +52.4 53.1	70 15.1 +52.4 53.1	71 13.7 +52.1 51.7	68 18.1 +52.8 55.9	69 16.6 +52.5 54.6	70 15.1 +52.4 53.1	71 13.7 +52.1 51.7	72 10.4 +56.5 63.1	73 06.7 +55.8 61.9	28 00.0 +60.0 82.0	29 00.0 +60.0 82.0	30 00.0 +60.0 82.0	28 00.0 +60.0 82.0	29 00.0 +60.0 82.0	30 00.0 +60.0 82.0	17	
16 30.2 +58.1 77.6	18 52.6 +58.5 77.7	17 54.0 +58.6 77.9	17 54.0 +58.6 77.9	18 52.6 +58.5 77.7	17 54.0 +58.6 77.9	74 10.5 +45.8 43.9	75 10.5 +45.8 43.9	76 22.5 +39.8 35.8	76 22.5 +39.8 35.8	77 02.3 +37.1 32.6	74 10.5 +45.8 43.9	75 10.5 +45.8 43.9	76 22.5 +39.8 35.8	77 02.3 +37.1 32.6	78 00.5 +42.8 41.3	79 01.8 +41.3 37.9	29 00.0 +60.0 82.0	30 00.0 +60.0 82.0	31 00.0 +60.0 82.0	29 00.0 +60.0 82.0	30 00.0 +60.0 82.0	31 00.0 +60.0 82.0	18	
17 28.3 +58.0 77.3	19 51.1 +58.6 77.5	18 52.6 +58.5 77.7	18 52.6 +58.5 77.7	19 51.1 +58.6 77.5	18 52.6 +58.5 77.7	80 00.0 +5.4 0.0	81 00.0 +5.4 0.0	82 00.0 +5.4 0.0	82 00.0 +5.4 0.0	83 00.0 +5.4 0.0	17 28.3 +58.0 77.3	18 27.9 +58.0 77.1	19 27.9 +58.0 77.1	20 27.9 +58.0 77.1	21 27.9 +58.0 77.1	22 27.9 +58.0 77.1	80 00.0 +5.4 0.0	81 00.0 +5.4 0.0	82 00.0 +5.4 0.0	80 00.0 +5.4 0.0	81 00.0 +5.4 0.0	82 00.0 +5.4 0.0	19	
18 26.3 +58.1 77.0	20 49.7 +58.5 77.2	19 51.1 +58.6 77.5	19 51.1 +58.6 77.5	20 49.7 +58.5 77.2	19 51.1 +58.6 77.5	84 00.0 +3.4 0.0	85 00.0 +3.4 0.0	86 00.0 +3.4 0.0	86 00.0 +3.4 0.0	87 00.0 +3.4 0.0	18 26.3 +58.1 77.0	19 26.3 +58.1 77.0	20 26.3 +58.1 77.0	21 26.3 +58.1 77.0	22 26.3 +58.1 77.0	23 26.3 +58.1 77.0	83 00.0 +60.0 82.0	84 00.0 +60.0 82.0	85 00.0 +60.0 82.0	83 00.0 +60.0 82.0	84 00.0 +60.0 82.0	85 00.0 +60.0 82.0	20	
19 24.4 +58.0 76.8	21 48.2 +58.5 77.0	20 49.7 +58.5 77.2	20 49.7 +58.5 77.2	21 48.2 +58.5 77.0	20 49.7 +58.5 77.2	90 00.0 +0.0 0.0	91 00.0 +0.0 0.0	92 00.0 +0.0 0.0	92 00.0 +0.0 0.0	93 00.0 +0.0 0.0	19 24.4 +58.0 76.8	20 24.4 +58.0 76.8	21 24.4 +58.0 76.8	22 24.4 +58.0 76.8	23 24.4 +58.0 76.8	24 24.4 +58.0 76.8	86 00.0 +60.0 82.0	87 00.0 +60.0 82.0	88 00.0 +60.0 82.0	86 00.0 +60.0 82.0	87 00.0 +60.0 82.0	88 00.0 +60.0 82.0	21	
20 22.4 +58.0 76.5	22 46.7 +58.4 76.8	21 48.2 +58.5 77.0	21 48.2 +58.5 77.0	22 46.7 +58.4 76.8	21 48.2 +58.5 77.0	96 00.0 +0.0 0.0	97 00.0 +0.0 0.0	98 00.0 +0.0 0.0	98 00.0 +0.0 0.0	99 00.0 +0.0 0.0	20 22.4 +58.0 76.5	21 22.4 +58.0 76.5	22 22.4 +58.0 76.5	23 22.4 +58.0 76.5	24 22.4 +58.0 76.5	25 22.4 +58.0 76.5	89 00.0 +60.0 82.0	90 00.0 +60.0 82.0	91 00.0 +60.0 82.0	89 00.0 +60.0 82.0	90 00.0 +60.0 82.0	91 00.0 +60.0 82.0	22	
21 20.4																								

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	2 59.8	+52.0	95.2	2 48.8	+53.0	95.3	2 37.6	+54.0	95.4	2 26.2	+54.9	95.5	2 14.6	+55.7	95.6	2 02.9	+56.4	95.6	1 51.1	+57.1	95.7	1 39.1	+57.7	95.8
1	3 51.8	+52.0	94.7	3 41.8	+53.0	94.8	3 31.6	+53.9	95.0	3 21.1	+54.8	95.1	3 10.3	+55.7	95.2	2 59.3	+56.5	95.3	2 48.2	+57.0	95.4	2 36.8	+57.7	95.5
2	4 43.8	+52.0	94.2	4 34.8	+53.0	94.4	4 25.5	+54.0	94.5	4 15.9	+54.8	94.7	4 06.0	+55.6	94.8	3 55.8	+56.4	95.0	3 45.2	+57.1	95.1	3 34.5	+57.6	95.2
3	5 35.8	+51.9	93.7	5 27.8	+53.0	93.9	5 19.5	+53.9	94.1	5 10.7	+54.9	94.3	5 01.6	+55.7	94.4	4 52.2	+56.3	94.6	4 42.3	+57.1	94.8	4 32.1	+57.7	94.9
4	6 27.7	+52.0	93.2	6 20.8	+53.0	93.4	6 13.4	+53.9	93.6	6 05.6	+54.8	93.9	5 57.3	+55.6	94.1	5 48.5	+56.4	94.3	5 39.4	+57.1	94.5	5 29.8	+57.7	94.7
5	7 19.7	+51.9	92.7	7 13.8	+52.9	92.9	7 07.3	+53.9	93.2	7 00.4	+54.7	93.4	6 52.9	+55.6	93.7	6 44.9	+56.4	93.9	6 36.5	+57.0	94.2	6 27.5	+57.7	94.4
6	8 11.6	+51.8	92.2	8 06.7	+52.9	92.5	8 01.2	+53.9	92.8	7 55.1	+54.8	93.0	7 48.5	+55.6	93.3	7 41.3	+56.3	93.6	7 33.5	+57.0	93.9	7 25.2	+57.6	94.1
7	9 03.4	+51.8	91.7	8 59.6	+52.8	92.0	8 55.1	+53.8	92.3	8 49.9	+54.7	92.6	8 44.1	+55.5	92.9	8 37.6	+56.4	93.2	8 30.5	+57.1	93.5	8 22.8	+57.7	93.8
8	9 55.2	+51.8	91.2	9 52.4	+52.8	91.5	9 48.9	+53.8	91.9	9 44.6	+54.7	92.2	9 39.6	+55.6	92.5	9 34.0	+56.3	92.9	9 27.6	+57.0	93.2	9 20.5	+57.6	93.6
9	10 47.0	+51.7	90.7	10 45.2	+52.8	91.0	10 42.7	+53.7	91.4	10 39.3	+54.7	91.8	10 35.2	+55.5	92.2	10 30.3	+56.2	92.5	10 24.6	+57.0	92.9	10 18.1	+57.6	93.3
10	11 38.7	+51.7	90.1	11 38.0	+52.7	90.5	11 36.4	+53.7	91.0	11 34.0	+54.6	91.4	11 30.7	+55.5	91.8	11 26.5	+56.3	92.2	11 21.6	+56.9	92.6	11 15.7	+57.6	93.0
11	12 30.4	+51.6	89.6	12 30.7	+52.7	90.1	12 30.1	+53.7	90.5	12 28.6	+54.6	90.9	12 26.2	+55.4	91.4	12 22.8	+56.2	91.8	12 18.5	+57.0	92.3	12 13.3	+57.6	92.7
12	13 22.0	+51.5	89.1	13 23.4	+52.6	89.6	13 23.8	+53.6	90.0	13 23.2	+54.6	90.5	13 21.6	+55.4	91.0	13 19.0	+56.2	91.5	13 15.5	+56.9	91.9	13 10.9	+57.6	92.4
13	14 13.5	+51.5	88.6	14 16.0	+52.5	89.1	14 17.4	+53.6	89.6	14 17.8	+54.4	90.1	14 17.0	+55.4	90.6	14 15.2	+56.2	91.1	14 12.4	+56.9	91.6	14 08.5	+57.5	92.1
14	15 05.0	+51.4	88.0	15 08.5	+52.5	88.6	15 11.0	+53.5	89.1	15 12.2	+54.5	89.7	15 12.4	+55.3	90.2	15 11.4	+56.1	90.7	15 09.3	+56.8	91.3	15 06.0	+57.5	91.8
15	15 56.4	+51.3	87.5	16 01.0	+52.4	88.1	16 04.5	+53.4	88.6	16 06.7	+54.4	89.2	16 07.7	+55.3	89.8	16 07.5	+56.1	90.4	16 06.1	+56.9	91.0	16 03.5	+57.5	91.5
16	16 47.7	+51.2	87.0	16 53.4	+52.4	87.6	16 57.9	+53.4	88.2	17 01.1	+54.3	88.8	17 03.0	+55.2	89.4	17 03.6	+56.1	90.0	17 03.0	+56.8	90.6	17 01.0	+57.5	91.2
17	17 38.9	+51.2	86.4	17 45.8	+52.2	87.1	17 51.3	+53.3	87.7	17 55.4	+54.3	88.3	17 58.2	+55.2	89.0	17 59.7	+56.0	89.6	17 59.8	+56.7	90.3	17 58.5	+57.4	90.9
18	18 30.1	+51.0	85.9	18 38.0	+52.2	86.5	18 44.6	+53.2	87.2	18 49.7	+54.2	87.9	18 53.4	+55.1	88.6	18 55.7	+56.0	89.3	18 56.5	+56.8	89.9	18 55.9	+57.4	90.6
19	19 21.1	+50.9	85.3	19 30.2	+52.1	86.0	19 37.8	+53.1	86.7	19 43.9	+54.2	87.4	19 48.5	+55.1	88.2	19 51.7	+55.9	88.9	19 53.3	+56.6	89.6	19 53.3	+57.4	90.3
20	20 12.0	+50.9	84.7	20 22.3	+51.9	85.5	20 30.9	+53.1	86.2	20 38.1	+54.0	87.0	20 43.6	+55.0	87.7	20 47.6	+55.8	88.5	20 49.9	+56.7	89.2	20 50.7	+57.4	90.0
21	21 02.9	+50.7	84.2	21 14.2	+51.9	84.9	21 24.0	+53.0	85.7	21 32.1	+54.0	86.5	21 38.6	+54.9	87.3	21 43.4	+55.8	88.1	21 46.6	+56.6	88.9	21 48.1	+57.3	89.7
22	21 53.6	+50.6	83.6	22 06.1	+51.8	84.4	22 17.0	+52.8	85.2	22 26.1	+53.8	86.0	22 33.5	+54.8	86.9	22 39.2	+55.8	87.7	22 43.2	+56.5	88.5	22 45.4	+57.2	89.4
23	22 44.2	+50.5	83.0	22 57.9	+51.6	83.9	23 09.7	+52.8	84.7	23 20.0	+53.8	85.6	23 28.4	+54.8	86.4	23 35.0	+55.7	87.3	23 39.7	+56.5	88.2	23 42.6	+57.3	89.0
24	23 34.7	+50.3	82.4	23 49.5	+51.6	83.3	24 02.6	+52.7	84.2	24 13.8	+53.8	85.1	24 23.2	+54.7	86.0	24 30.7	+55.6	86.9	24 36.2	+56.5	87.8	24 39.9	+57.1	88.7
25	24 25.0	+50.2	81.8	24 41.1	+51.4	82.7	24 55.3	+52.5	83.7	25 07.6	+53.6	84.6	25 17.9	+54.6	85.5	25 26.3	+55.5	86.5	25 32.7	+56.3	87.4	25 37.0	+57.2	88.4
26	25 15.2	+50.0	81.2	25 32.5	+51.3	82.2	25 47.8	+52.5	83.1	26 01.2	+53.5	84.1	26 12.5	+54.6	85.1	26 21.8	+55.5	86.1	26 29.0	+56.4	87.0	26 34.2	+57.1	88.0
27	26 05.2	+49.9	80.6	26 23.8	+51.1	81.6	26 40.3	+52.3	82.6	26 54.7	+53.4	83.6	27 07.1	+54.4	84.6	27 17.3	+55.4	85.6	27 25.4	+56.2	86.7	27 31.3	+57.0	87.7
28	26 55.1	+49.7	80.0	27 14.9	+51.0	81.0	27 32.6	+52.2	82.0	27 48.1	+53.3	83.1	28 01.5	+54.4	84.1	28 12.7	+55.3	85.2	28 21.6	+56.2	86.3	28 28.3	+57.0	87.3
29	27 44.8	+49.6	79.4	28 05.9	+50.8	80.4	28 24.8	+52.0	81.5	28 41.4	+53.2	82.6	28 55.9	+54.2	83.6	29 08.0	+55.2	84.8	29 17.8	+56.1	85.9	29 25.3	+56.9	87.0
30	28 34.4	+49.3	78.7	28 56.7	+50.7	79.8	29 16.8	+51.9	80.9	29 34.6	+53.1	82.0	29 50.1	+54.1	83.2	30 03.2	+55.1	84.3	30 13.9	+56.1	85.5	30 22.2	+56.9	86.6
31	29 23.7	+49.2	78.1	29 47.4	+50.5	79.2	30 08.7	+51.7	80.3	30 27.7	+52.9	81.5	30 44.2	+54.0	82.7	30 58.3	+55.1	83.8	31 10.0	+56.0	85.0	31 19.1	+56.8	86.3
32	30 12.9	+49.0	77.4	30 37.9	+50.3	78.6	31 00.4	+51.6	79.7	31 20.6	+52.8	80.9	31 38.2	+53.9	82.1	31 53.4	+54.9	83.4	32 05.9	+55.9	84.6	32 15.9	+56.7	85.9
33	31 01.9	+48.7	76.7	31 28.2	+50.1	77.9	31 52.0	+51.4	79.1	32 13.4	+52.6	80.4	32 32.1	+53.8	81.6	32 48.3	+54.8	82.9	33 01.8	+55.8	84.2	33 12.6	+56.6	85.5
34	31 50.6	+48.6	76.1	32 18.3	+49.9	77.3	32 43.4	+51.2	78.5	33 06.0	+52.4	79.8	33 25.9	+53.6	81.1	33 43.1	+54.7	82.4	33 57.6	+55.6	83.7	34 09.2	+56.6	85.1
35	32 39.2	+48.3	75.4	33 08.2	+49.7	76.6	33 34.6	+51.1	77.9	33 58.4	+52.3	79.2	34 19.5	+53.5	80.6	34 37.8	+54.6	81.9	34 53.2	+55.5	83.3	35 05.8	+56.5	84.7
36	33 27.5	+48.0	74.7	33 57.9	+49.5	76.0	34 25.7	+50.8	77.3	34 50.7	+52.1	78.6	35 13.0	+53.3	80.0	35 32.4	+54.4	81.4	35 48.8	+55.5	82.8	36 02.3	+56.4	84.3
37	34 15.5	+47.8	73.9	34 47.4	+49.2	75.3	35 16.5	+50.6	76.6	35 42.8	+52.0	78.0	36 06.3	+53.2	79.4	36 26.8	+54.3	80.9	36 44.3	+55.3	82.4	36 58.7	+56.3	83.8
38	35 03.3	+47.5	73.2	35 36.6	+49.0	74.6	36 07.1	+50.4	76.0	36 34.8	+51.7	77.4	36 59.5	+52.9	78.9	37 21.1	+54.2	80.4	37 39.6	+55.3	81.9	37 55.0	+56.2	83.4
39	35 50.8	+47.3	72.5	36 25.6	+48.7	73.9	36 57.5	+50.2	75.3	37 26.5	+51.5	76.8	37 52.4	+52.8	78.3	38 15.3	+54.0	79.8	38 34.9	+55.1	81.4	38 51.2	+56.1	83.0
40	36 38.1	+46.9	71.7	37 14.3	+48.5	73.1	37 47.7	+49.9	74.6	38 18.0	+51.3	76.1	38 45.2	+52.7	77.7	39 09.3	+53.8	79.3	39 30.0	+54.9	80.9	39 47.3	+56.0	82.5
41	37 25.0	+46.6	70.9	38 02.8	+48.2	72.4	38 37.6	+49.7	73.9	39 09.3	+51.1	75.5	39 37.9	+52.4	77.0	40 03.1	+53.6	78.7	40 24.9	+54.9	80.3	40 43.3	+56.0	82.0
42	38 11.6	+46.3	70.1	38 51.0	+47.8	71.6	39 27.3	+49.3	73.2	40 00.4	+50.8	74.8	40 30.3	+52.2	76.4	40 56.7	+53.5	78.1	41 19.8	+54.6	79.8	41 39.2	+55.7	81.6
43	38 57.9	+46.0	69.3	39 38.8	+47.6	70.8	40 16.6	+49.1	72.4	40 51.2	+50.6	74.1	41 22.5	+51.9	75.8	41 50.2	+53.3	77.5	42 14.4	+54.5	79.3	42 34.9	+55.7	81.1
44	39 43.9	+45.6	68.5	40 26.4	+47.2	70.0	41 05.7	+48.8	71.7	41 41.8	+50.3	73.4	42 14.4	+51.8	75.1	42 43.5	+53.1	76.9	43 08.9	+54.4	78.7	43 30.6	+55.4	80.5
45	40 29.5	+45.2	67.6	41 13.6	+46.9	69.2	41 54.5	+48.5	70.9	42 32.1	+50.0	72.6	43 06.2	+51.4	74.4	43 36.6	+52.8	76.2	44 03.3	+54.1	78.1	44 26.0	+55.4	80.0
46	41 14.7	+44.8	66.8	42 00.5	+46.4	68.4	42 43.0	+48.1	70.1	43 22.1	+49.7	71.9	43 57.6	+51.2	73.7	44 29.4	+52.7	75.6	44 57.3	+53.9	77.5	45 21.4	+55.1	79.5
47	41 59.5	+44.3	65.9	42 46.9	+46.1	67.5	43 31.1	+47.8	69.3	44 11.8	+49.4	71.1	44 48.8	+50.9	73.0	45 22.1	+52.3	74.9	45 51.3	+53.8	76.9	46 1		

LATITUDE CONTRARY NAME

L.H.A. 84°, 276°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.			
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z				
2 59.8	-52.1	95.2	2 48.8	-53.1	95.3	2 37.6	-54.0	95.4	2 26.2	-54.9	95.5	2 14.6	-55.6	95.6	2 02.9	-56.4	95.6	1 51.1	-57.1	95.7	1 39.1	-57.7	95.8	0			0
2 07.7	-52.0	95.7	1 55.7	-53.0	95.8	1 43.6	-54.0	95.8	1 31.3	-54.8	95.9	1 19.0	-55.7	95.9	1 06.5	-56.4	96.0	0 54.0	-57.1	96.0	0 41.4	-57.7	96.0	0			1
1 15.7	-52.1	96.2	1 02.7	-53.1	96.2	0 49.6	-54.0	96.3	0 36.5	-54.9	96.3	0 23.3	-55.7	96.3	0 10.1	-56.4	96.3	0			0 03.1	-57.1	96.3	0 16.3	+57.7	96.3	1
0 23.6	-52.0	96.7	0 09.6	-53.0	96.7	0 04.4	+54.0	83.3	0 18.4	+54.9	83.3	0 32.4	+55.7	83.3	0 46.3	+56.5	83.3	1 00.2	+57.1	83.4	1 14.0	+57.7	83.4	1			
0 28.4	+52.1	82.8	0 43.4	+53.1	82.8	0 58.4	+54.0	82.9	1 13.3	+54.8	82.9	1 28.1	+55.6	82.9	1 42.8	+56.4	83.0	1 57.3	+57.1	83.1	2 11.7	+57.7	83.1	2			
1 20.5	+52.0	82.3	1 36.5	+53.1	82.4	1 52.4	+54.0	82.4	2 08.1	+54.9	82.5	2 23.7	+55.7	82.6	2 39.2	+56.4	82.7	2 54.4	+57.1	82.8	3 09.4	+57.7	82.9	3			
2 12.5	+52.1	81.8	2 29.6	+53.0	81.9	2 46.4	+54.0	82.0	3 03.0	+54.9	82.1	3 19.4	+55.7	82.2	3 35.6	+56.4	82.3	3 51.5	+57.1	82.4	4 07.1	+57.7	82.6	4			
3 04.6	+52.0	81.3	3 22.6	+53.0	81.4	3 40.4	+53.9	81.5	3 57.9	+54.8	81.7	4 15.1	+55.6	81.8	4 32.0	+56.4	82.0	4 48.6	+57.0	82.1	5 04.8	+57.7	82.3	5			
3 56.6	+52.0	80.8	4 15.6	+53.0	81.0	4 34.3	+54.0	81.1	4 52.7	+54.8	81.3	5 10.7	+55.7	81.4	5 28.4	+56.4	81.6	5 45.6	+57.1	81.8	6 02.5	+57.7	82.0	6			
4 48.6	+52.0	80.3	5 08.6	+53.0	80.5	5 28.3	+53.9	80.7	5 47.5	+54.8	80.9	6 06.4	+55.6	81.1	6 24.8	+56.3	81.3	6 42.7	+57.1	81.5	7 00.2	+57.6	81.8	7			
5 40.6	+52.0	79.8	6 01.6	+53.0	80.0	6 22.2	+53.9	80.2	6 42.3	+54.8	80.5	7 02.0	+55.6	80.7	7 21.1	+56.4	80.9	7 39.8	+57.0	81.2	7 57.8	+57.7	81.5	8			
6 32.6	+51.9	79.3	6 54.6	+52.9	79.5	7 16.1	+53.9	79.8	7 37.1	+54.8	80.0	7 57.6	+55.6	80.3	8 17.5	+56.3	80.6	8 36.8	+57.0	80.9	8 55.5	+57.6	81.2	9			
7 24.5	+51.9	78.8	7 47.5	+52.9	79.1	8 10.0	+53.8	79.3	8 31.9	+54.7	79.6	8 53.2	+55.5	79.9	9 13.8	+56.3	80.2	9 33.8	+57.0	80.6	9 53.1	+57.6	80.9	10			
8 16.4	+51.8	78.3	8 40.4	+52.9	78.6	9 03.8	+53.9	78.9	9 26.6	+54.7	79.2	9 48.7	+55.6	79.6	10 10.1	+56.3	79.9	10 30.8	+57.0	80.3	10 50.7	+57.6	80.6	11			
9 08.2	+51.8	77.8	9 33.3	+52.8	78.1	9 57.7	+53.7	78.4	10 21.3	+54.7	78.8	10 44.3	+55.5	79.2	11 06.4	+56.3	79.5	11 27.8	+57.0	79.9	11 48.3	+57.6	80.3	12			
10 00.0	+51.8	77.3	10 26.1	+52.8	77.6	10 51.4	+53.8	78.0	11 16.0	+54.6	78.4	11 39.8	+55.4	78.8	12 02.7	+56.2	79.2	12 24.8	+56.9	79.6	12 45.9	+57.6	80.1	13			
10 51.8	+51.7	76.8	11 18.9	+52.7	77.1	11 45.2	+53.7	77.5	12 10.6	+54.6	78.0	12 35.2	+55.5	78.4	12 58.9	+56.2	78.8	13 21.7	+56.9	79.3	13 43.5	+57.6	79.8	14			
11 43.5	+51.7	76.2	12 11.6	+52.7	76.7	12 38.9	+53.6	77.1	13 05.2	+54.6	77.5	13 30.7	+55.4	78.0	13 55.1	+56.2	78.5	14 18.6	+56.9	79.0	14 41.1	+57.5	79.5	15			
12 35.2	+51.6	75.7	13 04.3	+52.6	76.2	13 32.5	+53.6	76.6	13 59.8	+54.5	77.1	14 26.1	+55.3	77.6	14 51.3	+56.2	78.1	15 15.5	+56.9	78.6	15 38.6	+57.5	79.2	16			
13 28.8	+51.5	75.2	13 56.9	+52.6	75.7	14 26.1	+53.6	76.2	14 54.3	+54.5	76.7	15 21.4	+55.4	77.2	15 47.5	+56.1	77.7	16 12.4	+56.8	78.3	16 36.1	+57.5	78.9	17			
14 18.3	+51.5	74.7	14 49.5	+52.5	75.2	15 19.7	+53.5	75.7	15 48.8	+54.4	76.2	16 16.8	+55.2	76.8	16 43.6	+56.0	77.4	17 09.2	+56.8	78.0	17 33.6	+57.4	78.6	18			
15 09.8	+51.4	74.1	15 42.0	+52.5	74.7	16 13.2	+53.4	75.2	16 43.2	+54.4	75.8	17 12.0	+55.3	76.4	17 39.6	+56.1	77.0	18 06.0	+56.7	77.6	18 31.0	+57.4	78.3	19			
16 01.2	+51.3	73.6	16 34.5	+52.3	74.2	17 06.6	+53.4	74.8	17 37.6	+54.2	75.4	18 07.3	+55.1	76.0	18 35.7	+55.9	76.6	19 02.7	+56.8	77.3	19 28.4	+57.4	78.0	20			
16 52.5	+51.2	73.1	17 26.8	+52.3	73.7	18 00.0	+53.3	74.3	18 31.8	+54.3	74.9	19 02.4	+55.1	75.6	19 31.6	+56.0	76.2	19 59.5	+56.6	76.9	20 25.8	+57.4	77.7	21			
17 43.7	+51.1	72.5	18 19.1	+52.2	73.1	18 53.3	+53.2	73.8	19 26.1	+54.1	74.5	19 57.5	+55.1	75.1	20 27.6	+55.9	75.9	20 56.1	+56.7	76.6	21 23.2	+57.3	77.4	22			
18 34.8	+51.0	72.0	19 11.3	+52.1	72.6	19 46.5	+53.1	73.3	20 20.2	+54.1	74.0	20 52.6	+55.0	74.7	21 23.5	+55.8	75.5	21 52.8	+56.6	76.2	22 20.5	+57.3	77.0	23			
19 25.8	+51.0	71.4	20 03.4	+52.0	72.1	20 39.6	+53.0	72.8	21 14.3	+54.1	73.5	21 47.6	+54.9	74.3	22 19.3	+55.8	75.1	22 49.4	+56.5	75.9	23 17.8	+57.2	76.7	24			
20 16.8	+50.8	70.9	20 55.4	+51.9	71.6	21 32.6	+53.0	72.3	22 08.4	+53.9	73.1	22 42.5	+54.9	73.9	23 15.1	+55.7	74.7	23 45.9	+56.5	75.5	24 15.0	+57.3	76.4	25			
21 07.6	+50.7	70.3	21 47.3	+51.9	71.0	22 25.6	+52.9	71.8	23 02.3	+53.8	72.6	23 37.4	+54.7	73.4	24 10.8	+55.6	74.3	24 42.4	+56.4	75.1	25 12.3	+57.1	76.1	26			
21 58.3	+50.6	69.7	22 39.2	+51.6	70.5	23 18.5	+52.7	71.3	23 56.1	+53.8	72.1	24 32.1	+54.7	73.0	25 06.4	+55.6	73.9	25 38.8	+56.4	74.8	26 09.4	+57.1	75.7	27			
22 48.9	+50.4	69.1	23 30.8	+51.6	69.9	24 11.2	+52.7	70.8	24 49.9	+53.7	71.6	25 26.8	+54.7	72.5	26 02.0	+55.5	73.4	26 35.2	+56.3	74.4	27 06.5	+57.1	75.4	28			
23 39.3	+50.4	68.5	24 22.4	+51.5	69.4	25 03.9	+52.5	70.2	25 43.6	+53.5	71.1	26 21.5	+54.5	72.1	26 57.5	+55.4	73.0	27 31.5	+56.3	74.0	28 03.6	+57.0	75.0	29			
24 29.7	+50.1	67.9	25 13.9	+51.3	68.8	25 56.4	+52.4	69.7	26 37.1	+53.5	70.6	27 16.0	+54.4	71.6	27 52.9	+55.3	72.6	28 27.8	+56.2	73.6	29 00.6	+56.9	74.7	30			
25 19.8	+50.1	67.3	26 05.2	+51.2	68.2	26 48.8	+52.3	69.2	27 30.6	+53.3	70.1	28 10.4	+54.3	71.1	28 48.2	+55.3	72.1	29 24.0	+56.1	73.2	29 57.5	+56.9	74.3	31			
26 09.9	+49.8	66.7	26 56.4	+51.0	67.6	27 41.1	+52.2	68.6	28 23.9	+53.2	69.6	29 04.7	+54.2	70.6	29 43.5	+55.1	71.7	30 20.1	+56.0	72.8	30 54.4	+56.8	73.9	32			
26 99.7	+49.7	66.1	27 47.4	+50.9	67.1	28 33.3	+52.0	68.0	29 17.1	+53.1	69.1	29 58.9	+54.2	70.1	30 38.6	+55.1	71.2	31 16.1	+55.9	72.4	31 51.2	+56.8	73.6	33			
27 49.4	+49.6	65.5	28 38.3	+50.7	66.5	29 25.3	+51.8	67.5	30 10.2	+53.0	68.5	30 53.1	+54.0	69.6	31 33.7	+55.0	70.8	32 12.0	+55.9	72.0	32 48.0	+56.7	73.2	34			
28 39.0	+49.3	64.8	29 29.0	+50.6	65.8	30 17.1	+51.8	66.9	31 03.2	+52.8	68.0	31 47.1	+53.8	69.1	32 28.7	+54.8	70.3	33 07.9	+55.8	71.5	33 44.7	+56.6	72.8	35			
29 28.3	+49.2	64.2	30 19.6	+50.4	65.2	31 08.9	+51.5	66.3	31 56.0	+52.7	67.4	32 40.9	+53.8	68.6	33 23.5	+54.7	69.8	34 03.7	+55.6	71.1	34 41.3	+56.5	72.4	36			
30 17.5	+48.9	63.5	31 10.0	+50.1	64.6	32 00.4	+51.4	65.7	32 48.7	+52.5	66.9	33 34.7	+53.5	68.1	34 18.2	+54.7	69.3	34 59.3	+55.6	70.6	35 37.8	+56.4	72.0	37			
31 06.4	+48.7	62.8	32 00.1	+50.0	63.9	32 51.8	+51.2	65.1	33 41.2	+52.3	66.3	34 28.2	+53.5	67.5	35 12.9	+54.4	68.8	35 54.9	+55.5	70.2	36 34.2	+56.4	71.6	38			
31 55.1	+48.6	62.2	32 50.1	+49.8	63.3	33 43.0	+51.0	64.5	34 33.5	+52.2	65.7	35 21.7	+53.3	67.0	36 07.3	+54.4	68.3	36 50.4	+55.3	69.7	37 30.6	+56.3	71.1	39			
32 43.7	+48.2	61.5	33 39.9	+49.6	62.6	34 34.0	+50.8	63.8	35 25.7	+52.0	65.1	36 15.0	+53.1	66.4	37 01.7	+54.2	67.8	37 45.7	+55.2	69.2	38 26.9	+56.1	70.7	40			
33 31.9	+48.1	60.8	34 29.5	+49.3	61.9	35 24.8	+50.6	63.2	36 17.7	+51.8	64.5	37 08.1	+53.0	65.8	37 55.9	+54.1	67.2	38 40.9	+55.1	68.7	39 23.0	+56.1	70.2	41			
34 20.0	+47.7	60.0	35 18.8	+49.1	61.2	36 15.4	+50.3	62.5	37 09.5	+51.6	63.9	38 01.1	+52.8	65.2	38 50.0	+53.9	66.7	39 36.0	+55.0	68.2	40 19.1	+55.9	69.8	42			
35 07.7	+47.5	59.3	36 07.9	+48.8	60.5	37 05.7	+50.1	61.8	38 01.1	+51.4	63.2	38 53.9	+52.5	64.6	39 43.9	+53.7	66.1	40 31.0	+54.8	67.7							

Table with columns for Dec. (0-90) and latitude (76-90). Each cell contains three values (Hc, d, Z) for a specific latitude. The table is organized into 10-degree latitude bands, with each band containing 10 rows of data.

LATITUDE CONTRARY NAME

L.H.A. 84°, 276°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
1 26.9	-58.2	95.8	1 14.7	-58.7	95.9	1 02.4	-59.1	95.9	0 50.0	-59.4	95.9	0 37.6	-59.7	96.0	0 25.1	-59.9	96.0	0 12.5	-59.9	96.0	0 00.0	+60.0	84.0	0		
0 28.7	-58.2	96.1	0 16.0	-58.7	96.1	0 03.3	-59.1	96.1	0 09.4	+59.4	83.9	0 22.1	+59.7	83.9	0 34.8	+59.8	83.9	0 47.4	+60.0	84.0	1 00.0	+60.0	84.0	1		
0 29.5	+58.3	83.7	0 42.7	+58.7	83.7	0 55.8	+59.1	83.7	1 08.8	+59.5	83.8	1 21.8	+59.7	83.8	1 34.6	+59.9	83.9	1 47.4	+60.0	83.9	2 00.0	+60.0	84.0	2		
1 27.8	+58.2	83.5	1 41.4	+58.7	83.5	1 54.9	+59.1	83.6	2 08.3	+59.4	83.6	2 21.5	+59.6	83.7	2 34.5	+59.9	83.8	2 47.4	+59.9	83.9	3 00.0	+60.0	84.0	3		
2 26.0	+58.2	83.2	2 40.1	+58.7	83.3	2 54.0	+59.1	83.4	3 07.7	+59.4	83.5	3 21.1	+59.7	83.6	3 34.4	+59.8	83.7	3 47.3	+60.0	83.9	4 00.0	+60.0	84.0	4		
3 24.2	+58.3	83.0	3 38.8	+58.7	83.1	3 53.1	+59.1	83.2	4 07.1	+59.4	83.4	4 20.8	+59.7	83.5	4 34.2	+59.9	83.7	4 47.3	+59.9	83.8	5 00.0	+60.0	84.0	5		
4 22.5	+58.2	82.7	4 37.5	+58.7	82.9	4 52.2	+59.1	83.1	5 06.5	+59.4	83.2	5 20.5	+59.7	83.4	5 34.1	+59.8	83.6	5 47.2	+60.0	83.8	6 00.0	+60.0	84.0	6		
5 20.7	+58.2	82.5	5 36.2	+58.7	82.7	5 51.3	+59.1	82.9	6 05.9	+59.4	83.1	6 20.2	+59.6	83.3	6 33.9	+59.9	83.5	6 47.2	+60.0	83.8	7 00.0	+60.0	84.0	7		
6 18.9	+58.2	82.2	6 34.9	+58.7	82.5	6 50.4	+59.0	82.7	7 05.3	+59.5	82.9	7 19.8	+59.7	83.2	7 33.8	+59.8	83.5	7 47.2	+59.9	83.7	8 00.0	+60.0	84.0	8		
7 17.1	+58.2	82.0	7 33.6	+58.6	82.3	7 49.4	+59.1	82.5	8 04.8	+59.4	82.8	8 19.5	+59.7	83.1	8 33.6	+59.9	83.4	8 47.1	+60.0	83.7	9 00.0	+60.0	84.0	9		
8 15.3	+58.2	81.8	8 32.2	+58.7	82.0	8 48.5	+59.1	82.4	9 04.2	+59.4	82.7	9 19.2	+59.6	83.0	9 33.5	+59.8	83.3	9 47.1	+60.0	83.7	10 00.0	+60.0	84.0	10		
9 13.5	+58.2	81.5	9 30.9	+58.7	81.8	9 47.6	+59.1	82.2	10 03.6	+59.4	82.5	10 18.8	+59.7	82.9	10 33.3	+59.8	83.2	10 47.1	+59.9	83.6	11 00.0	+60.0	84.0	11		
10 11.7	+58.2	81.3	10 29.6	+58.6	81.6	10 46.7	+59.0	82.0	11 03.0	+59.4	82.4	11 18.5	+59.6	82.8	11 33.2	+59.8	83.2	11 47.0	+60.0	83.6	12 00.0	+60.0	84.0	12		
11 09.9	+58.1	81.0	11 28.2	+58.7	81.4	11 45.7	+59.1	81.8	12 02.4	+59.4	82.2	12 18.1	+59.7	82.7	12 33.0	+59.9	83.1	12 47.0	+59.9	83.5	13 00.0	+60.0	84.0	13		
12 08.0	+58.2	80.8	12 26.9	+58.6	81.2	12 44.8	+59.0	81.6	13 01.8	+59.4	82.1	13 17.8	+59.7	82.6	13 32.9	+59.8	83.0	13 46.9	+60.0	83.5	14 00.0	+60.0	84.0	14		
13 06.2	+58.1	80.5	13 25.5	+58.6	81.0	13 43.8	+59.1	81.5	14 01.2	+59.3	81.9	14 17.5	+59.6	82.4	14 32.7	+59.9	83.0	14 46.9	+60.0	83.5	15 00.0	+60.0	84.0	15		
14 04.3	+58.1	80.3	14 24.1	+58.6	80.8	14 42.9	+59.0	81.3	15 00.5	+59.4	81.8	15 17.1	+59.7	82.3	15 32.6	+59.8	82.9	15 46.9	+59.9	83.4	16 00.0	+60.0	84.0	16		
15 02.4	+58.1	80.0	15 22.7	+58.6	80.5	15 41.9	+59.0	81.1	15 59.9	+59.4	81.6	16 16.8	+59.6	82.2	16 32.4	+59.8	82.8	16 46.8	+60.0	83.4	17 00.0	+60.0	84.0	17		
16 00.5	+58.1	79.7	16 21.3	+58.6	80.3	16 40.9	+59.0	80.9	16 59.3	+59.4	81.5	17 16.4	+59.6	82.1	17 32.2	+59.9	82.7	17 46.8	+59.9	83.4	18 00.0	+60.0	84.0	18		
16 58.6	+58.1	79.5	17 19.9	+58.6	80.1	17 39.9	+59.0	80.7	17 58.7	+59.3	81.3	18 16.0	+59.7	82.0	18 32.1	+59.8	82.6	18 46.7	+60.0	83.3	19 00.0	+60.0	84.0	19		
17 56.7	+58.0	79.2	18 18.5	+58.5	79.9	18 38.9	+59.0	80.5	18 58.0	+59.4	81.2	19 15.7	+59.6	81.9	19 31.9	+59.9	82.6	19 46.7	+60.0	83.3	20 00.0	+60.0	84.0	20		
18 54.7	+58.0	78.9	19 17.0	+58.6	79.6	19 37.9	+59.0	80.3	19 57.4	+59.3	81.0	20 15.3	+59.6	81.8	20 31.8	+59.8	82.5	20 46.7	+59.9	83.2	21 00.0	+60.0	84.0	21		
19 52.7	+58.0	78.7	20 15.6	+58.5	79.4	20 36.9	+59.0	80.1	20 56.7	+59.3	80.9	21 14.9	+59.7	81.6	21 31.6	+59.8	82.4	21 46.6	+60.0	83.2	22 00.0	+60.0	84.0	22		
20 50.7	+58.0	78.4	21 14.1	+58.5	79.2	21 35.9	+58.9	79.9	21 56.0	+59.4	80.7	22 14.6	+59.6	81.5	22 31.4	+59.9	82.3	22 46.6	+59.9	83.2	23 00.0	+60.0	84.0	23		
21 48.7	+57.9	78.1	22 12.6	+58.4	78.9	22 34.8	+58.9	79.7	22 55.4	+59.3	80.6	23 14.2	+59.6	81.4	23 31.3	+59.8	82.3	23 46.5	+60.0	83.1	24 00.0	+60.0	84.0	24		
22 46.6	+57.9	77.8	23 11.0	+58.5	78.7	23 33.7	+59.0	79.5	23 54.7	+59.3	80.4	24 13.8	+59.6	81.3	24 31.1	+59.8	82.2	24 46.5	+60.0	83.1	25 00.0	+60.0	84.0	25		
23 44.5	+57.9	77.6	24 09.5	+58.4	78.4	24 32.7	+58.9	79.3	24 54.0	+59.3	80.2	25 13.4	+59.6	81.1	25 30.9	+59.8	82.1	25 46.5	+59.9	83.0	26 00.0	+60.0	84.0	26		
24 42.4	+57.8	77.3	25 07.9	+58.4	78.2	25 31.6	+58.8	79.1	25 53.3	+59.2	80.1	26 13.0	+59.6	81.0	26 30.7	+59.8	82.0	26 46.4	+60.0	83.0	27 00.0	+60.0	84.0	27		
25 40.2	+57.8	77.0	26 06.3	+58.4	77.9	26 30.4	+58.9	78.9	26 52.5	+59.3	79.9	27 12.6	+59.6	80.9	27 30.5	+59.9	81.9	27 46.4	+59.9	82.9	28 00.0	+60.0	84.0	28		
26 38.0	+57.8	76.7	27 04.7	+58.3	77.7	27 29.3	+58.8	78.7	27 51.8	+59.3	79.7	28 12.2	+59.6	80.8	28 30.4	+59.8	81.8	28 46.3	+60.0	82.9	29 00.0	+60.0	84.0	29		
27 35.8	+57.7	76.4	28 03.0	+58.4	77.4	28 28.1	+58.9	78.5	28 51.1	+59.2	79.5	29 11.8	+59.5	80.6	29 30.2	+59.8	81.7	29 46.3	+59.9	82.9	30 00.0	+60.0	84.0	30		
28 33.5	+57.7	76.1	29 01.4	+58.2	77.1	29 27.0	+58.8	78.2	29 50.3	+59.2	79.3	30 11.3	+59.6	80.5	30 30.0	+59.8	81.6	30 46.2	+60.0	82.8	31 00.0	+60.0	84.0	31		
29 31.2	+57.7	75.7	29 59.6	+58.3	76.9	30 25.8	+58.7	78.0	30 49.5	+59.2	79.2	31 10.9	+59.5	80.3	31 29.8	+59.8	81.5	31 46.2	+59.9	82.8	32 00.0	+60.0	84.0	32		
30 28.9	+57.6	75.4	30 57.9	+58.2	76.6	31 24.5	+58.8	77.8	31 48.7	+59.2	79.0	32 10.4	+59.6	80.2	32 29.6	+59.8	81.4	32 46.1	+60.0	82.7	33 00.0	+60.0	84.0	33		
31 26.5	+57.5	75.1	31 56.1	+58.2	76.3	32 23.3	+58.7	77.5	32 47.9	+59.2	78.8	33 10.0	+59.5	80.1	33 29.4	+59.8	81.3	33 46.1	+59.9	82.7	34 00.0	+60.0	84.0	34		
32 24.0	+57.5	74.8	32 54.3	+58.1	76.0	33 22.0	+58.7	77.3	33 47.1	+59.2	78.6	34 09.5	+59.5	79.9	34 29.2	+59.8	81.2	34 46.0	+60.0	82.6	35 00.0	+60.0	84.0	35		
33 21.5	+57.4	74.4	33 52.4	+58.1	75.7	34 20.7	+58.6	77.0	34 46.3	+59.1	78.4	35 09.0	+59.5	79.7	35 29.0	+59.7	81.1	35 46.0	+59.9	82.6	36 00.0	+60.0	84.0	36		
34 18.9	+57.4	74.1	34 50.5	+58.0	75.4	35 19.3	+58.7	76.8	35 45.4	+59.1	78.2	36 08.5	+59.5	79.6	36 28.7	+59.8	81.0	36 45.9	+59.9	82.5	37 00.0	+60.0	84.0	37		
35 16.3	+57.3	73.7	35 48.5	+58.0	75.1	36 18.0	+58.6	76.5	36 44.5	+59.1	78.0	37 08.0	+59.5	79.4	37 28.5	+59.8	80.9	37 45.8	+60.0	82.5	38 00.0	+60.0	84.0	38		
36 13.6	+57.2	73.4	36 46.5	+58.0	74.8	37 16.6	+58.5	76.2	37 43.6	+59.0	77.7	38 07.5	+59.5	79.3	38 28.3	+59.7	80.8	38 45.8	+59.9	82.4	39 00.0	+60.0	84.0	39		
37 10.8	+57.2	73.0	37 44.5	+57.8	74.5	38 15.1	+58.5	76.0	38 42.6	+59.1	77.5	39 07.0	+59.4	79.1	39 28.0	+59.8	80.7	39 45.7	+60.0	82.3	40 00.0	+60.0	84.0	40		
38 08.0	+57.1	72.6	38 42.3	+57.9	74.1	39 13.6	+58.5	75.7	39 41.7	+59.0	77.3	40 06.4	+59.5	78.9	40 27.8	+59.7	80.6	40 45.7	+59.9	82.3	41 00.0	+60.0	84.0	41		
39 05.1	+57.0	72.2	39 40.2	+57.7	73.8	40 12.1	+58.4	75.4	40 40.7	+59.0	77.0	41 05.9	+59.4	78.7	41 27.5	+59.8	80.5	41 45.6	+59.9	82.2	42 00.0	+60.0	84.0	42		
40 02.1	+56.9	71.8	40 37.9	+57.7	73.4	41 10.5	+58.4	75.1	41 39.7	+58.9	76.8	42 05.3	+59.4	78.6	42 27.3	+59.7	80.3	42 45.5	+60.0	82.2	43 00.0	+60.0	84.0	43		
40 59.0	+56.8	71.4	41 35.6	+57.7	73.1	42 08.9	+58.3	74.8	42 38.6	+58.9	76.5	43 04.7	+59.4	78.4	43 27.0	+59.7	80.2	43 45.5	+59.9	82.1	44 00.0	+60.0	84.0	44		
41 55.8	+56.7	71.0	42 33.3	+57.5	72.7	43 07.2	+58.3	74.5	43 37.5	+58.9	76.3	44 04.1	+59.3	78.2	44 26.7	+59.7	80.1	44 45.4	+59.9							

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	1 59.9	+52.0	93.5	1 52.6	+53.0	93.5	1 45.1	+54.0	93.6	1 37.6	+54.8	93.7	1 29.8	+55.7	93.7	1 22.0	+56.4	93.8	1 14.1	+57.1	93.8	1 06.1	+57.7	93.8
1	2 51.9	+52.0	93.0	2 45.6	+53.0	93.1	2 39.1	+53.9	93.2	2 32.4	+54.8	93.2	2 25.5	+55.6	93.3	2 18.4	+56.4	93.4	2 11.2	+57.1	93.5	2 03.8	+57.7	93.6
2	3 43.9	+51.9	92.5	3 38.6	+53.0	92.6	3 33.0	+54.0	92.7	3 27.2	+54.8	92.8	3 21.1	+55.7	93.0	3 14.8	+56.4	93.1	3 08.3	+57.0	93.2	3 01.5	+57.6	93.3
3	4 35.8	+52.0	92.0	4 31.6	+52.9	92.1	4 27.0	+53.9	92.3	4 22.0	+54.8	92.4	4 16.7	+55.6	92.6	4 11.2	+56.4	92.7	4 05.3	+57.1	92.9	3 59.1	+57.7	93.0
4	5 27.8	+51.9	91.5	5 24.5	+53.0	91.7	5 20.9	+53.9	91.8	5 16.8	+54.8	92.0	5 12.4	+55.6	92.2	5 07.6	+56.3	92.4	5 02.4	+57.0	92.6	4 56.8	+57.7	92.7
5	6 19.7	+51.9	91.0	6 17.5	+52.9	91.4	6 14.8	+53.8	91.4	6 11.6	+54.8	91.6	6 08.0	+55.6	91.8	6 03.9	+56.4	92.0	5 59.4	+57.1	92.3	5 54.5	+57.6	92.5
6	7 11.6	+51.8	90.5	7 10.4	+52.8	90.7	7 08.6	+53.9	91.0	7 06.4	+54.7	91.2	7 03.6	+55.6	91.5	7 00.3	+56.3	91.7	6 56.5	+57.0	91.9	6 52.1	+57.7	92.2
7	8 03.4	+51.8	89.9	8 02.3	+52.9	90.2	8 02.5	+53.8	90.5	8 01.1	+54.7	90.8	7 59.2	+55.5	91.1	7 56.6	+56.3	91.4	7 53.5	+57.0	91.6	7 49.8	+57.6	91.9
8	8 55.2	+51.8	89.4	8 56.1	+52.8	89.7	8 56.3	+53.8	90.1	8 55.8	+54.7	90.4	8 54.7	+55.5	90.7	8 52.9	+56.3	91.0	8 50.5	+57.0	91.3	8 47.4	+57.7	91.6
9	9 47.0	+51.7	88.9	9 48.9	+52.8	89.3	9 50.1	+53.7	89.6	9 50.5	+54.7	90.0	9 50.2	+55.5	90.3	9 49.2	+56.3	90.7	9 47.5	+57.0	91.0	9 45.1	+57.6	91.3
10	10 38.7	+51.7	88.4	10 41.7	+52.7	88.8	10 43.8	+53.7	89.2	10 45.2	+54.6	89.5	10 45.7	+55.5	89.9	10 45.5	+56.3	90.3	10 44.5	+56.9	90.7	10 42.7	+57.6	91.1
11	11 30.4	+51.6	87.9	11 34.4	+52.7	88.3	11 37.5	+53.7	88.7	11 39.8	+54.6	89.1	11 41.2	+55.5	89.5	11 41.8	+56.2	89.9	11 41.4	+57.0	90.4	11 40.3	+57.5	90.8
12	12 22.0	+51.6	87.4	12 27.1	+52.6	87.8	12 31.2	+53.6	88.2	12 34.4	+54.5	88.7	12 36.7	+55.4	89.1	12 38.0	+56.2	89.6	12 38.4	+56.9	90.0	12 37.8	+57.6	90.5
13	13 13.6	+51.5	86.8	13 19.7	+52.6	87.3	13 24.8	+53.6	87.8	13 28.9	+54.6	88.3	13 32.1	+55.3	88.7	13 34.2	+56.2	89.2	13 35.3	+56.9	89.7	13 35.4	+57.5	90.2
14	14 05.1	+51.4	86.3	14 12.3	+52.5	86.8	14 18.4	+53.5	87.3	14 23.5	+54.4	87.8	14 27.4	+55.4	88.4	14 30.4	+56.1	88.9	14 32.2	+56.9	89.4	14 32.9	+57.6	89.9
15	14 56.5	+51.3	85.8	15 04.8	+52.4	86.3	15 11.9	+53.5	86.9	15 17.9	+54.4	87.4	15 22.8	+55.3	88.0	15 26.5	+56.1	88.5	15 29.1	+56.8	89.1	15 30.5	+57.4	89.6
16	15 47.8	+51.3	85.2	15 57.2	+52.4	85.8	16 05.4	+53.4	86.4	16 12.3	+54.4	87.0	16 18.1	+55.2	87.5	16 22.6	+56.0	88.1	16 25.9	+56.8	88.7	16 27.9	+57.5	89.3
17	16 39.1	+51.2	84.7	16 49.6	+52.3	85.3	16 58.8	+53.3	85.9	17 06.7	+54.3	86.5	17 13.3	+55.2	87.1	17 18.6	+56.1	87.8	17 22.7	+56.8	88.4	17 25.4	+57.5	89.0
18	17 30.3	+51.1	84.2	17 41.9	+52.2	84.8	17 52.1	+53.2	85.4	18 01.0	+54.2	86.1	18 08.5	+55.1	86.7	18 14.7	+55.9	87.4	18 19.5	+56.7	88.0	18 22.9	+57.4	88.7
19	18 21.4	+51.0	83.6	18 34.1	+52.1	84.3	18 45.3	+53.2	84.9	18 55.2	+54.2	85.6	19 03.6	+55.1	86.3	19 10.6	+56.0	87.0	19 16.2	+56.7	87.7	19 20.3	+57.3	88.4
20	19 12.4	+50.9	83.1	19 26.2	+52.0	83.7	19 38.5	+53.1	84.5	19 49.4	+54.1	85.2	19 58.7	+55.0	85.9	20 06.6	+55.8	86.6	20 12.9	+56.6	87.4	20 17.6	+57.4	88.1
21	20 03.3	+50.8	82.5	20 18.2	+51.9	83.2	20 31.6	+53.0	84.0	20 43.5	+54.0	84.7	20 53.7	+55.0	85.5	21 02.4	+55.9	86.2	21 09.5	+56.6	87.0	21 15.0	+57.3	87.8
22	20 54.1	+50.6	81.9	21 10.1	+51.9	82.7	21 24.6	+53.0	83.5	21 37.5	+53.9	84.2	21 48.7	+54.9	85.0	21 58.3	+55.7	85.8	22 06.1	+56.6	86.6	22 12.3	+57.3	87.5
23	21 44.7	+50.6	81.3	22 02.0	+51.7	82.1	22 17.6	+52.8	82.9	22 31.4	+53.9	83.8	22 43.6	+54.8	84.6	22 54.0	+55.7	85.4	23 02.7	+56.5	86.3	23 09.6	+57.2	87.1
24	22 35.3	+50.4	80.8	22 53.7	+51.6	81.6	23 10.4	+52.7	82.4	23 25.3	+53.8	83.3	23 38.4	+54.8	84.2	23 49.7	+55.7	85.0	23 59.2	+56.4	85.9	24 06.8	+57.2	86.8
25	23 25.7	+50.3	80.2	23 45.3	+51.5	81.0	24 03.1	+52.6	81.9	24 19.1	+53.6	82.8	24 33.2	+54.6	83.7	24 45.4	+55.5	84.6	24 55.6	+56.4	85.5	25 04.0	+57.1	86.5
26	24 16.0	+50.2	79.6	24 36.8	+51.4	80.5	24 55.7	+52.5	81.4	25 12.7	+53.6	82.3	25 27.8	+54.6	83.3	25 40.9	+55.5	84.2	25 52.0	+56.4	85.2	26 01.1	+57.1	86.1
27	25 06.2	+50.0	79.0	25 28.2	+51.2	79.9	25 48.2	+52.4	80.9	26 06.3	+53.5	81.8	26 22.4	+54.5	82.8	26 36.4	+55.4	83.8	26 48.4	+56.3	84.8	26 58.2	+57.1	85.8
28	25 56.2	+49.8	78.4	26 19.4	+51.1	79.3	26 40.6	+52.3	80.3	26 59.8	+53.3	81.3	27 16.9	+54.4	82.3	27 31.8	+55.4	83.3	27 44.7	+56.2	84.4	27 53.7	+57.0	85.4
29	26 46.0	+49.7	77.7	27 10.5	+50.9	78.7	27 32.9	+52.1	79.8	27 53.1	+53.3	80.8	28 11.3	+54.3	81.8	28 27.2	+55.2	82.9	28 40.9	+56.1	84.0	28 52.3	+56.9	85.1
30	27 35.7	+49.5	77.1	28 01.4	+50.8	78.1	28 25.0	+52.0	79.2	28 46.4	+53.1	80.3	29 05.6	+54.1	81.4	29 22.4	+55.2	82.5	29 37.0	+56.1	83.6	29 42.7	+56.9	84.7
31	28 25.2	+49.3	76.5	28 52.2	+50.6	77.5	29 17.0	+51.8	78.6	29 39.5	+53.0	79.7	29 59.7	+54.1	80.9	30 17.6	+55.1	82.0	30 33.1	+56.0	83.2	30 46.1	+56.8	84.4
32	29 14.5	+49.2	75.8	29 42.8	+50.5	76.9	30 08.8	+51.7	78.0	30 32.5	+52.9	79.2	30 53.8	+54.0	80.4	31 12.7	+54.9	81.6	31 29.1	+55.9	82.8	31 42.9	+56.8	84.0
33	30 03.7	+48.9	75.2	30 33.3	+50.2	76.3	31 00.5	+51.5	77.5	31 25.4	+52.7	78.6	31 47.8	+53.8	79.8	32 07.6	+54.9	81.1	32 25.0	+55.8	82.3	32 39.7	+56.6	83.6
34	30 52.6	+48.7	74.5	31 23.5	+50.1	75.7	31 52.0	+51.4	76.9	32 18.1	+52.5	78.1	32 41.6	+53.7	79.3	33 02.5	+54.7	80.6	33 20.8	+55.7	81.9	33 36.3	+56.6	83.2
35	31 41.3	+48.5	73.8	32 13.6	+49.8	75.0	32 43.4	+51.1	76.2	33 10.6	+52.4	77.5	33 35.3	+53.5	78.8	33 57.2	+54.7	80.1	34 16.5	+55.6	81.4	34 32.9	+56.5	82.8
36	32 29.8	+48.3	73.1	33 03.4	+49.7	74.3	33 34.5	+51.0	75.6	34 03.0	+52.3	76.9	34 28.8	+53.4	78.3	34 51.9	+54.5	79.6	35 12.1	+55.5	81.0	35 29.4	+56.5	82.4
37	33 18.1	+48.0	72.4	33 53.1	+49.4	73.7	34 25.5	+50.8	75.0	34 55.3	+52.0	76.3	35 22.2	+53.3	77.7	35 46.4	+54.3	79.1	36 07.6	+55.4	80.5	36 25.9	+56.3	82.0
38	34 06.1	+47.8	71.7	34 42.5	+49.2	73.0	35 16.3	+50.5	74.3	35 47.3	+51.9	75.7	36 15.5	+53.1	77.1	36 40.7	+54.3	78.6	37 03.0	+55.3	80.0	37 22.2	+56.3	81.5
39	34 53.9	+47.5	70.9	35 31.7	+49.0	72.3	36 06.8	+50.4	73.7	36 39.2	+51.6	75.1	37 08.6	+52.9	76.5	37 35.0	+54.1	78.0	37 58.3	+55.2	79.6	38 18.5	+56.1	81.1
40	35 41.4	+47.2	70.2	36 20.7	+48.6	71.6	36 57.2	+50.1	73.0	37 30.8	+51.5	74.5	38 01.5	+52.7	75.9	38 29.1	+53.9	77.5	38 53.5	+55.0	79.1	39 14.6	+56.0	80.7
41	36 28.6	+46.9	69.4	37 09.3	+48.4	70.8	37 47.3	+49.8	72.3	38 22.3	+51.2	73.8	38 54.2	+52.5	75.3	39 23.0	+53.7	76.9	39 48.5	+54.9	78.5	40 10.6	+56.0	80.2
42	37 15.5	+46.6	68.7	37 57.7	+48.2	70.1	38 37.1	+49.6	71.6	39 13.5	+51.0	73.1	39 46.7	+52.4	74.7	40 16.7	+53.6	76.3	40 43.4	+54.7	78.0	41 06.6	+55.8	79.7
43	38 02.1	+46.2	67.9	38 45.9	+47.8	69.3	39 26.7	+49.3	70.9	40 04.5	+50.7	72.4	40 39.1	+52.1	74.1	41 10.3	+53.4	75.7	41 38.1	+54.6	77.5	42 02.4	+55.6	79.2
44	38 48.3	+46.0	67.0	39 33.7	+47.5	68.6	40 16.0	+49.0	70.1	40 55.2	+50.5	71.7	41 31.2	+51.8	73.4	42 03.7	+53.2	75.1	42 32.7	+54.4	76.9	42 58.0	+55.6	78.7
45	39 34.3	+45.6	66.2	40 21.2	+47.1	67.8	41 05.0	+48.8	69.4	41 45.7	+50.2	71.0	42 23.0	+51.7	72.7	42 56.9	+53.0	74.5	43 27.1	+54.2	76.3	43 53.6	+55.4	78.2
46	40 19.8	+45.2	65.4	41 08.3	+46.9	66.9	41 53.8	+48.3	68.6	42 35.9	+49.9	70.3	43 14.7	+51.3	72.0	43 49.9	+52.7	73.9	44 21.3	+54.1	75.7	44 49.0	+55.2	77.7
47	41 05.0	+44.8	64.5	41 55.2	+46.4	66.1	42 42.1	+48.1	67.8	43 25.8	+49.6	69.5	44 06.0	+51.1	71.3	44 42.6	+52.5	73.2	45 15.4	+53.8	75.1	45 44.2	+	

LATITUDE CONTRARY NAME

L.H.A. 86°, 274°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.								
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d	Z					
1	59.9	-52.0	93.5	1	52.6	-53.0	93.5	1	45.1	-53.9	93.6	1	37.6	-54.9	93.7	1	29.8	-55.6	93.7	1	22.0	-56.4	93.8	1	14.1	-57.1	93.8	1	06.1	-57.7	93.8	0
1	07.9	-52.0	94.0	0	59.6	-53.0	94.0	0	51.2	-54.0	94.0	0	42.7	-54.8	94.1	0	34.2	-55.7	94.1	0	25.6	-56.4	94.1	0	17.0	-57.0	94.1	0	08.4	-57.7	94.1	1
0	15.9	-52.0	94.5	0	06.6	-53.0	94.5	0	02.8	+53.9	85.5	0	12.1	+54.9	85.5	0	21.5	+55.6	85.5	0	30.8	+56.4	85.6	0	40.0	+57.1	85.6	0	49.3	+57.7	85.6	2
0	36.1	+52.0	85.0	0	46.4	+53.0	85.1	0	56.7	+54.0	85.1	1	07.0	+54.8	85.1	1	17.1	+55.7	85.2	1	27.2	+56.4	85.2	1	37.1	+57.1	85.3	1	47.0	+57.6	85.3	3
1	28.1	+52.0	84.5	1	39.4	+53.0	84.6	1	50.7	+53.9	84.7	2	01.8	+54.8	84.7	2	12.8	+55.6	84.8	2	23.6	+56.4	84.9	2	34.2	+57.1	85.0	2	44.6	+57.7	85.1	4
2	20.1	+52.0	84.0	2	32.4	+53.0	84.1	2	44.6	+54.0	84.2	3	56.6	+54.8	84.3	3	08.4	+55.6	84.4	3	20.0	+56.3	84.5	3	31.3	+57.0	84.7	3	42.3	+57.7	84.8	5
3	12.1	+51.9	83.5	3	25.4	+53.0	83.7	3	38.6	+53.9	83.8	4	51.4	+54.9	83.9	4	04.0	+55.7	84.0	4	16.3	+56.4	84.2	4	28.3	+57.1	84.3	4	40.0	+57.7	84.5	6
4	04.0	+52.0	83.0	4	18.4	+53.0	83.2	4	32.5	+53.9	83.3	5	46.3	+54.7	83.5	5	59.7	+55.6	83.7	5	12.7	+56.4	83.8	5	25.4	+57.0	84.0	5	37.7	+57.6	84.2	7
4	56.0	+51.9	82.5	5	11.4	+52.9	82.7	5	26.4	+53.9	82.9	6	41.0	+54.8	83.1	6	55.3	+55.6	83.3	6	09.1	+56.3	83.5	6	22.4	+57.1	83.7	6	35.3	+57.7	83.9	8
5	47.9	+51.9	82.0	6	04.3	+52.9	82.2	6	20.3	+53.9	82.5	7	35.8	+54.8	82.7	7	50.9	+55.6	82.9	7	05.4	+56.4	83.2	7	19.5	+57.0	83.4	7	33.0	+57.6	83.7	9
6	39.8	+51.9	81.5	6	57.2	+52.9	81.8	7	14.2	+53.8	82.0	8	30.6	+54.7	82.3	8	46.5	+55.5	82.5	8	01.8	+56.3	82.8	8	16.5	+57.0	83.1	8	30.6	+57.6	83.4	10
7	31.7	+51.8	81.0	7	50.1	+52.9	81.3	8	08.0	+53.8	81.6	9	25.3	+54.7	81.9	9	42.0	+55.5	82.2	9	58.1	+56.3	82.5	9	13.5	+57.0	82.8	9	28.2	+57.7	83.1	11
8	23.5	+51.8	80.5	8	43.0	+52.8	80.8	9	01.8	+53.8	81.1	10	20.0	+54.7	81.4	10	37.5	+55.6	81.8	10	54.4	+56.2	82.1	10	10.5	+57.0	82.5	10	25.9	+57.6	82.8	12
9	15.3	+51.8	80.0	9	35.8	+52.8	80.3	9	55.6	+53.8	80.7	10	14.7	+54.6	81.0	11	33.1	+55.4	81.4	11	50.6	+56.2	81.8	11	07.5	+56.9	82.1	11	23.5	+57.5	82.5	13
10	07.1	+51.7	79.5	10	28.6	+52.7	79.8	10	49.4	+53.7	80.2	11	09.3	+54.7	80.6	11	28.5	+55.5	81.0	11	46.9	+56.2	81.4	11	04.4	+56.9	81.8	11	21.0	+57.6	82.2	14
10	58.8	+51.6	79.0	11	21.3	+52.7	79.4	11	43.1	+53.6	79.8	12	04.0	+54.5	80.2	12	24.0	+55.4	80.6	12	43.1	+56.2	81.0	12	01.3	+56.9	81.5	12	18.6	+57.5	82.0	15
11	50.4	+51.6	78.5	12	14.0	+52.6	78.9	12	36.7	+53.6	79.3	13	58.5	+54.6	79.8	13	19.4	+55.4	80.2	13	39.3	+56.2	80.7	13	58.2	+56.9	81.2	13	16.1	+57.6	81.7	16
12	42.0	+51.5	77.9	13	06.6	+52.6	78.4	13	30.3	+53.6	78.8	14	53.1	+54.4	79.3	14	14.8	+55.3	79.8	14	35.5	+56.1	80.3	14	55.1	+56.9	80.8	14	15.3	+57.5	81.4	17
13	33.5	+51.5	77.4	13	59.2	+52.5	77.9	14	23.9	+53.5	78.4	15	47.5	+54.5	78.9	15	20.0	+55.3	79.4	15	41.6	+56.1	80.0	15	52.0	+56.8	80.5	15	11.2	+57.4	81.1	18
14	25.0	+51.4	76.9	14	51.7	+52.5	77.4	15	17.4	+53.5	77.9	16	40.4	+54.4	78.5	16	05.4	+55.3	79.0	16	27.7	+56.1	79.6	16	48.8	+56.8	80.2	16	08.6	+57.5	80.8	19
15	16.4	+51.3	76.3	15	44.2	+52.4	76.9	16	10.9	+53.3	77.4	17	36.4	+54.3	78.0	17	00.7	+55.2	78.6	17	23.8	+56.0	79.2	17	45.6	+56.7	79.8	17	06.1	+57.4	80.5	20
16	07.7	+51.3	75.8	16	36.6	+52.3	76.4	17	04.2	+53.4	77.0	18	30.7	+54.3	77.6	18	55.9	+55.1	78.2	18	19.8	+55.9	78.8	18	42.3	+56.7	79.5	18	03.5	+57.4	80.2	21
16	59.0	+51.1	75.3	17	28.9	+52.2	75.9	17	57.6	+53.2	76.5	18	25.0	+54.2	77.1	18	51.0	+55.1	77.8	18	15.7	+56.0	78.5	18	39.0	+56.7	79.2	18	00.9	+57.4	79.9	22
17	50.1	+51.1	74.7	18	21.1	+52.1	75.3	18	50.8	+53.2	76.0	19	19.2	+54.1	76.7	19	46.1	+55.1	77.4	19	11.7	+55.8	78.1	19	35.7	+56.7	78.8	19	58.3	+57.3	79.5	23
18	41.2	+50.9	74.2	19	13.2	+52.1	74.8	19	44.0	+53.1	75.5	20	13.3	+54.1	76.2	20	41.2	+55.1	76.9	20	07.5	+55.8	77.7	20	32.4	+56.5	78.4	20	55.6	+57.3	79.2	24
19	32.1	+50.9	73.6	20	05.3	+52.0	74.3	20	37.1	+53.0	75.0	21	07.4	+54.0	75.7	21	36.1	+54.9	76.5	21	30.3	+55.8	77.3	21	28.9	+56.6	78.1	21	52.9	+57.2	78.9	25
20	23.0	+50.7	73.0	20	57.3	+51.8	73.8	21	30.1	+52.9	74.5	22	01.4	+53.9	75.3	22	31.0	+54.9	76.1	22	59.1	+55.7	76.9	22	25.5	+56.5	77.7	22	50.1	+57.2	78.6	26
21	13.7	+50.6	72.5	21	49.1	+51.8	73.2	22	23.0	+52.8	74.0	23	55.3	+53.8	74.8	23	25.9	+54.7	75.6	23	54.8	+55.6	76.5	23	22.0	+56.4	77.4	23	47.3	+57.2	78.2	27
22	04.3	+50.6	71.9	22	40.9	+51.6	72.7	23	15.8	+52.7	73.5	24	49.1	+53.7	74.3	24	20.6	+54.7	75.2	24	50.4	+55.6	76.1	24	18.4	+56.4	77.0	24	44.5	+57.1	77.9	28
22	54.9	+50.3	71.3	23	32.5	+51.5	72.1	24	08.5	+52.6	73.0	25	42.8	+53.6	73.8	25	15.3	+54.6	74.7	25	46.0	+55.5	75.7	25	16.8	+56.3	76.6	25	41.6	+57.1	77.6	29
23	45.2	+50.3	70.7	24	24.0	+51.4	71.6	25	01.1	+52.5	72.4	26	36.4	+53.6	73.3	26	09.9	+54.5	74.3	26	45.1	+55.4	75.2	26	11.1	+56.2	76.2	26	38.7	+57.0	77.2	30
24	35.5	+50.1	70.1	25	15.4	+51.3	71.0	26	53.6	+52.4	71.9	27	30.0	+53.4	72.8	27	04.4	+54.4	73.8	27	36.9	+55.3	74.8	27	07.3	+56.2	75.8	27	35.7	+56.9	76.9	31
25	25.6	+49.9	69.5	26	06.7	+51.1	70.4	27	46.0	+52.2	71.4	28	23.4	+53.3	72.3	28	58.4	+54.3	73.3	28	32.2	+55.3	74.4	28	03.5	+56.1	75.4	28	32.6	+56.9	76.5	32
26	15.5	+49.8	68.9	27	57.8	+51.0	69.8	28	38.2	+52.1	70.8	29	16.7	+53.2	71.8	29	53.1	+54.3	72.8	29	27.5	+55.1	73.9	29	56.6	+56.1	75.0	29	56.8	+56.8	76.1	33
27	05.3	+49.6	68.3	28	48.8	+50.8	69.2	29	30.3	+52.0	70.2	30	09.9	+53.1	71.3	30	47.4	+54.1	72.4	30	22.6	+55.1	73.5	30	55.7	+55.9	74.6	30	56.3	+56.8	75.8	34
27	54.9	+49.4	67.6	29	39.6	+50.7	68.6	30	22.3	+51.8	69.7	31	03.0	+52.9	70.7	31	41.5	+53.9	71.9	31	17.7	+54.9	73.0	31	51.6	+55.9	74.2	31	23.1	+56.7	75.4	35
28	44.3	+49.3	67.0	30	30.3	+50.4	68.0	31	14.1	+51.7	69.1	32	55.9	+52.8	70.2	32	35.4	+53.9	71.3	32	12.6	+54.9	72.5	32	47.5	+55.7	73.7	32	19.8	+56.6	75.0	36
29	33.6	+49.0	66.3	30	20.7	+50.3	67.4	31	05.8	+51.5	68.5	32	48.7	+52.6	69.6	32	29.3	+53.7	70.8	32	09.3	+54.7	72.0	32	43.2	+55.7	73.3	32	16.4	+56.6	74.6	37
30	22.6	+48.9	65.7	31	11.0	+50.2	66.8	32	57.3	+51.3	67.9	33	41.3	+52.5	69.1	33	23.0	+53.6	70.3	33	02.2	+54.7	71.6	33	34.8	+55.6	72.9	33	13.0	+56.4	74.2	38
31	11.5	+48.6	65.0	32	02.0	+49.9	66.1	33	48.6	+51.2	67.3	34	33.8	+52.3	68.5	34	16.6	+53.4	69.7	34	06.9	+54.4	71.1	34	35.4	+55.5	72.4	34	09.4	+56.4	73.8	39
32	00.1	+48.4	64.3	32	51.1	+49.7	65.5	33	39.8	+50.9	66.7	34	26.1	+52.2	67.9	35	10.0	+53.3	69.2	35	05.3	+54.4	70.5	35	30.0	+55.3	71.9	35	05.8	+56.3	73.3	40
32	48.5	+48.2	63.6	33	40.8	+49.5	64.8	34	30.7	+50.8	66.0	35	18.3	+52.0	67.3	36	03.3	+53.1	68.6	36	04.7	+54.2	70.0	36	25.3	+55.3	71.4	36	02.1	+56.1	72.9	41
33	36.7	+47.9	62.9	34	30.3	+49.2	64.1	35	21.5	+50.5	65.4	36	10.3	+51.7																		

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	0 58.0	+58.2	93.9	0 49.9	+58.7	93.9	0 41.6	+59.1	93.9	0 33.4	+59.4	94.0	0 25.1	+59.6	94.0	0 16.7	+59.9	94.0	0 08.4	+59.9	94.0	0 00.0	+60.0	94.0
1	1 56.2	+58.3	93.6	1 48.6	+58.6	93.7	1 40.7	+59.1	93.8	1 32.8	+59.4	93.8	1 24.7	+59.7	93.9	1 16.6	+59.8	93.9	1 08.3	+60.0	94.0	1 00.0	+60.0	94.0
2	2 54.5	+58.2	93.4	2 47.2	+58.7	93.5	2 39.8	+59.1	93.6	2 32.2	+59.4	93.7	2 24.4	+59.7	93.8	2 16.4	+59.9	93.9	2 08.3	+60.0	93.9	2 00.0	+60.0	94.0
3	3 52.7	+58.2	93.2	3 45.9	+58.7	93.3	3 38.9	+59.1	93.4	3 31.6	+59.4	93.5	3 24.1	+59.7	93.7	3 16.3	+59.8	93.8	3 08.3	+59.9	93.9	3 00.0	+60.0	94.0
4	4 50.9	+58.2	92.9	4 44.6	+58.7	93.1	4 38.0	+59.1	93.2	4 31.0	+59.5	93.4	4 23.8	+59.6	93.6	4 16.1	+59.9	93.7	4 08.2	+60.0	93.9	4 00.0	+60.0	94.0
5	5 49.1	+58.2	92.7	5 43.3	+58.7	92.9	5 37.1	+59.1	93.1	5 30.5	+59.4	93.3	5 23.4	+59.7	93.5	5 16.0	+59.9	93.6	5 08.2	+60.0	93.8	5 00.0	+60.0	94.0
6	6 47.3	+58.2	92.4	6 42.0	+58.7	92.7	6 36.2	+59.1	92.9	6 29.9	+59.4	93.1	6 23.1	+59.7	93.3	6 15.9	+59.8	93.6	6 08.2	+59.9	93.8	6 00.0	+60.0	94.0
7	7 45.5	+58.2	92.2	7 40.7	+58.6	92.5	7 35.3	+59.0	92.7	7 29.3	+59.4	93.0	7 22.8	+59.6	93.2	7 15.7	+59.9	93.5	7 08.1	+60.0	93.7	7 00.0	+60.0	94.0
8	8 43.7	+58.2	91.9	8 39.3	+58.7	92.2	8 34.3	+59.1	92.5	8 28.7	+59.4	92.8	8 22.4	+59.7	93.1	8 15.6	+59.8	93.4	8 08.1	+59.9	93.7	8 00.0	+60.0	94.0
9	9 41.9	+58.2	91.7	9 38.0	+58.6	92.0	9 33.4	+59.1	92.4	9 28.1	+59.4	92.7	9 22.1	+59.7	93.0	9 15.4	+59.9	93.4	9 08.0	+60.0	93.7	9 00.0	+60.0	94.0
10	10 40.1	+58.1	91.4	10 36.6	+58.7	91.8	10 32.5	+59.0	92.2	10 27.5	+59.4	92.6	10 21.8	+59.6	92.9	10 15.3	+59.8	93.3	10 08.0	+60.0	93.6	10 00.0	+60.0	94.0
11	11 38.2	+58.2	91.2	11 35.3	+58.6	91.6	11 31.5	+59.1	92.0	11 26.9	+59.4	92.4	11 21.4	+59.7	92.8	11 15.1	+59.9	93.2	11 08.0	+59.9	93.6	11 00.0	+60.0	94.0
12	12 36.4	+58.1	90.9	12 33.9	+58.7	91.2	12 30.6	+59.0	91.8	12 26.3	+59.4	92.3	12 21.1	+59.6	92.7	12 15.0	+59.8	93.1	12 07.9	+60.0	93.6	12 00.0	+60.0	94.0
13	13 34.5	+58.1	90.7	13 32.6	+58.6	91.2	13 29.6	+59.1	91.6	13 25.7	+59.4	92.1	13 20.7	+59.6	92.6	13 14.8	+59.8	93.1	13 07.9	+59.9	93.5	13 00.0	+60.0	94.0
14	14 32.6	+58.1	90.4	14 31.2	+58.6	90.9	14 28.7	+59.0	91.5	14 25.1	+59.3	92.0	14 20.4	+59.6	92.5	14 14.6	+59.9	93.0	14 07.8	+60.0	93.5	14 00.0	+60.0	94.0
15	15 30.7	+58.1	90.2	15 29.8	+58.6	90.7	15 27.7	+59.0	91.3	15 24.4	+59.4	91.8	15 20.0	+59.7	92.4	15 14.5	+59.8	92.9	15 07.8	+60.0	93.5	15 00.0	+60.0	94.0
16	16 28.8	+58.0	89.9	16 28.4	+58.5	90.5	16 26.7	+59.0	91.1	16 23.8	+59.4	91.7	16 19.7	+59.6	92.3	16 14.3	+59.9	92.8	16 07.8	+59.9	93.4	16 00.0	+60.0	94.0
17	17 26.8	+58.1	89.6	17 26.9	+58.6	90.3	17 25.7	+59.0	90.9	17 23.2	+59.3	91.5	17 19.3	+59.6	92.1	17 14.2	+59.8	92.7	17 07.7	+60.0	93.4	17 00.0	+60.0	94.0
18	18 24.9	+58.0	89.4	18 25.5	+58.5	90.0	18 24.7	+59.0	90.7	18 22.5	+59.4	91.4	18 19.0	+59.7	92.0	18 14.0	+59.9	92.8	18 07.7	+60.0	93.3	18 00.0	+60.0	94.0
19	19 22.9	+58.0	89.1	19 24.0	+58.5	89.8	19 23.7	+59.0	90.5	19 21.9	+59.3	91.2	19 18.6	+59.6	91.9	19 13.9	+59.8	92.6	19 07.7	+59.9	93.3	19 00.0	+60.0	94.0
20	20 20.9	+57.9	88.8	20 22.5	+58.5	89.6	20 22.7	+58.9	90.3	20 21.2	+59.4	91.1	20 18.2	+59.7	91.8	20 13.8	+59.8	92.5	20 07.6	+60.0	93.3	20 00.0	+60.0	94.0
21	21 18.8	+58.0	88.6	21 21.0	+58.5	89.3	21 21.6	+59.0	90.1	21 20.6	+59.3	90.9	21 17.9	+59.6	91.7	21 13.5	+59.9	92.5	21 07.6	+59.9	93.2	21 00.0	+60.0	94.0
22	22 16.8	+57.9	88.3	22 19.5	+58.5	89.1	22 20.6	+58.9	89.9	22 19.9	+59.3	90.7	22 17.5	+59.6	91.6	22 13.4	+59.8	92.4	22 07.5	+60.0	93.2	22 00.0	+60.0	94.0
23	23 14.7	+57.9	88.0	23 18.0	+58.4	88.9	23 19.5	+58.9	89.7	23 19.2	+59.3	90.6	23 17.1	+59.6	91.4	23 13.2	+59.8	92.3	23 07.5	+59.9	93.2	23 00.0	+60.0	94.0
24	24 12.6	+57.8	87.7	24 16.4	+58.4	88.6	24 18.4	+58.9	89.5	24 18.5	+59.3	90.4	24 16.7	+59.6	91.3	24 13.0	+59.8	92.2	24 07.4	+60.0	93.1	24 00.0	+60.0	94.0
25	25 10.4	+57.8	87.4	25 14.8	+58.4	88.4	25 17.3	+58.9	89.3	25 17.8	+59.3	90.2	25 16.3	+59.6	91.2	25 12.8	+59.9	92.1	25 07.4	+60.0	93.1	25 00.0	+60.0	94.0
26	26 08.2	+57.8	87.1	26 13.2	+58.4	88.1	26 16.2	+58.8	89.1	26 17.1	+59.2	90.1	26 15.9	+59.6	91.1	26 12.7	+59.8	92.0	26 07.4	+59.9	93.0	26 00.0	+60.0	94.0
27	27 06.0	+57.7	86.8	27 11.6	+58.3	87.8	27 15.0	+58.8	88.9	27 16.3	+59.3	89.9	27 15.5	+59.6	90.9	27 12.5	+59.8	92.0	27 07.3	+60.0	93.0	27 00.0	+60.0	94.0
28	28 03.7	+57.7	86.5	28 09.9	+58.3	87.6	28 13.9	+58.8	88.6	28 15.6	+59.2	89.7	28 15.1	+59.5	90.8	28 12.3	+59.8	91.9	28 07.3	+59.9	92.9	28 00.0	+60.0	94.0
29	29 01.4	+57.7	86.2	29 08.2	+58.3	87.3	29 12.7	+58.8	88.4	29 14.8	+59.3	89.5	29 14.6	+59.6	90.7	29 12.1	+59.8	91.8	29 07.2	+60.0	92.9	29 00.0	+60.0	94.0
30	29 59.1	+57.6	85.9	30 06.5	+58.2	87.0	30 11.5	+58.8	88.2	30 14.1	+59.2	89.4	30 14.2	+59.5	90.5	30 11.9	+59.8	91.7	30 07.2	+59.9	92.8	30 00.0	+60.0	94.0
31	30 56.7	+57.5	85.5	31 04.7	+58.2	86.7	31 10.3	+58.7	88.0	31 13.3	+59.2	89.2	31 13.8	+59.6	90.4	31 11.7	+59.8	91.6	31 07.1	+60.0	92.8	31 00.0	+60.0	94.0
32	31 54.2	+57.5	85.2	32 02.9	+58.2	86.5	32 09.0	+58.7	87.7	32 12.5	+59.2	89.0	32 13.3	+59.6	90.2	32 11.5	+59.8	91.5	32 07.1	+59.9	92.7	32 00.0	+60.0	94.0
33	32 51.7	+57.4	84.9	33 01.1	+58.1	86.2	33 07.7	+58.7	87.5	33 11.7	+59.1	88.8	33 12.9	+59.5	90.1	33 11.3	+59.8	91.4	33 07.0	+60.0	92.7	33 00.0	+60.0	94.0
34	33 49.1	+57.4	84.5	33 59.2	+58.1	85.9	34 06.4	+58.7	87.2	34 10.8	+59.2	88.6	34 12.4	+59.5	89.9	34 11.1	+59.8	91.3	34 07.0	+59.9	92.7	34 00.0	+60.0	94.0
35	34 46.5	+57.4	84.2	34 57.3	+58.0	85.6	35 05.1	+58.6	87.0	35 10.0	+59.1	88.4	35 11.9	+59.5	89.8	35 10.9	+59.8	91.2	35 06.9	+60.0	92.6	35 00.0	+60.0	94.0
36	35 43.9	+57.2	83.8	35 55.3	+58.0	85.3	36 03.7	+58.6	86.7	36 09.1	+59.1	88.2	36 11.4	+59.5	89.6	36 10.7	+59.7	91.1	36 06.9	+59.9	92.5	36 00.0	+60.0	94.0
37	36 41.1	+57.2	83.4	36 53.3	+57.9	84.9	37 02.3	+58.5	86.4	37 08.2	+59.0	87.9	37 10.9	+59.5	89.5	37 10.4	+59.8	91.0	37 06.8	+59.9	92.5	37 00.0	+60.0	94.0
38	37 38.3	+57.1	83.1	37 51.2	+57.8	84.6	38 00.8	+58.5	86.2	38 07.2	+59.1	87.7	38 10.4	+59.4	89.3	38 10.2	+59.8	90.9	38 07.0	+60.0	92.4	38 00.0	+60.0	94.0
39	38 35.4	+57.0	82.7	38 49.0	+57.8	84.3	38 59.3	+58.5	85.9	39 06.3	+59.0	87.5	39 09.8	+59.5	89.1	39 10.0	+59.7	90.8	39 06.7	+59.9	92.4	39 00.0	+60.0	94.0
40	39 32.4	+57.0	82.3	39 46.8	+57.8	83.9	39 57.8	+58.4	85.6	40 05.3	+59.0	87.3	40 09.3	+59.4	88.9	40 09.7	+59.8	90.6	40 06.6	+60.0	92.3	40 00.0	+60.0	94.0
41	40 29.4	+56.8	81.9	40 44.6	+57.7	83.6	40 56.2	+58.4	85.3	41 04.3	+59.0	87.0	41 08.7	+59.4	88.8	41 09.5	+59.7	90.5	41 06.6	+59.9	92.3	41 00.0	+60.0	94.0
42	41 26.2	+56.8	81.4	41 42.3	+57.6	83.2	41 54.6	+58.3	85.0	42 03.3	+58.9	86.8	42 08.1	+59.4	88.6	42 09.2	+59.7	90.4	42 06.5	+59.9	92.2	42 00.0	+60.0	94.0
43	42 23.0	+56.6	81.0	42 39.9	+57.5	82.8	42 52.9	+58.3	84.7	43 02.2	+58.9	86.5	43 07.5	+59.4	88.4	43 08.9	+59.8	90.3	43 06.4	+60.0	92.1	43 00.0	+60.0	94.0
44	43 19.6	+56.6	80.6	43 37.4	+57.4	82.4	43 51.2	+58.2	84.3	44 01.1	+58.8	86.3	44 06.9	+59.3	88.2	44 08.7	+59.7	90.1	44 06.4	+59.9	92.1	44 00.0	+60.0	94.0
45	44 16.2	+56.4	80.1	44 34.8	+57.4	82.0	44 49.4	+58.2	84.0	44 59.9	+58.8	86.0	45 06.2	+59.4	88.0	45 08.4	+59.7	90.0	45 06.3	+59.9	92.0	45 00.0	+60.0	94.0
46	45 12.6	+56.3	79.6	45 32.2	+57.2	81.6	45 47.6	+58.1	83.6	45 58.7	+58.8	85.7	46 05.6	+59.3	87.8	46 08.1	+59.7	89.8	46 06.2	+59.9	91.9	46 00.0	+60.0	94.0
47	46 08.9	+56.2	79.1	46 29.4	+57.2	81.2	46 45.7	+58.0	83.3	46 57.5	+58.7	85.4	47 04.9	+59.3	87.5	47 07.8	+59.6	89.7	47 06.1	+59.9	91.9	47 00.0		

LATITUDE CONTRARY NAME

L.H.A. 86°, 274°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
0 58.0	-58.2	93.9	0 49.9	-58.7	93.9	0 41.6	-59.1	93.9	0 33.4	-59.4	94.0	0 25.1	-59.7	94.0	0 16.7	-59.8	94.0	0 08.4	-60.0	94.0	0 00.0	+60.0	86.0	0		
0 00.2	+58.2	85.9	0 08.8	+58.7	85.9	0 17.5	+59.0	85.9	0 26.0	+59.5	85.9	0 34.6	+59.7	85.9	0 43.1	+59.9	85.9	0 51.6	+60.0	86.0	1 00.0	+60.0	86.0	1		
0 58.4	+58.3	85.6	1 07.5	+58.7	85.7	1 16.5	+59.1	85.7	1 25.5	+59.4	85.8	1 34.3	+59.7	85.8	1 43.0	+59.8	85.9	1 51.6	+59.9	85.9	2 00.0	+60.0	86.0	2		
1 56.7	+58.2	85.4	2 06.2	+58.7	85.5	2 15.6	+59.1	85.5	2 24.9	+59.4	85.6	2 34.0	+59.6	85.7	2 42.8	+59.8	85.8	2 51.5	+60.0	85.9	3 00.0	+60.0	86.0	3		
2 54.9	+58.2	85.2	3 04.9	+58.7	85.3	3 14.7	+59.1	85.4	3 24.3	+59.4	85.5	3 33.6	+59.7	85.6	3 42.7	+59.8	85.7	3 51.5	+59.9	85.9	4 00.0	+60.0	86.0	4		
3 53.1	+58.2	84.9	4 03.6	+58.7	85.0	4 13.8	+59.1	85.2	4 23.7	+59.4	85.3	4 33.3	+59.7	85.5	4 42.5	+59.9	85.7	4 51.4	+60.0	85.8	5 00.0	+60.0	86.0	5		
4 51.3	+58.2	84.7	5 02.3	+58.7	84.8	5 12.9	+59.1	85.0	5 23.1	+59.4	85.2	5 33.0	+59.6	85.4	5 42.4	+59.8	85.6	5 51.4	+60.0	85.8	6 00.0	+60.0	86.0	6		
5 49.5	+58.2	84.4	6 01.0	+58.7	84.6	6 12.0	+59.1	84.8	6 22.5	+59.5	85.1	6 32.6	+59.7	85.3	6 42.2	+59.9	85.5	6 51.4	+59.9	85.8	7 00.0	+60.0	86.0	7		
6 47.7	+58.2	84.2	6 59.7	+58.6	84.4	7 11.1	+59.0	84.7	7 22.0	+59.4	84.9	7 32.3	+59.7	85.2	7 42.1	+59.9	85.4	7 51.3	+60.0	85.7	8 00.0	+60.0	86.0	8		
7 45.9	+58.2	83.9	7 58.3	+58.7	84.2	8 10.1	+59.1	84.5	8 21.4	+59.4	84.8	8 32.0	+59.6	85.1	8 42.0	+59.8	85.4	8 51.3	+60.0	85.7	9 00.0	+60.0	86.0	9		
8 44.1	+58.2	83.7	8 57.0	+58.7	84.0	9 09.2	+59.1	84.3	9 20.8	+59.4	84.6	9 31.6	+59.7	85.0	9 41.8	+59.9	85.3	9 51.3	+59.9	85.7	10 00.0	+60.0	86.0	10		
9 42.3	+58.2	83.4	9 55.7	+58.6	83.8	10 08.3	+59.0	84.1	10 20.2	+59.4	84.5	10 31.3	+59.7	84.9	10 41.7	+59.8	85.2	10 51.2	+60.0	85.6	11 00.0	+60.0	86.0	11		
10 40.5	+58.1	83.2	10 54.3	+58.6	83.6	11 07.3	+59.1	84.0	11 19.6	+59.4	84.4	11 31.0	+59.6	84.8	11 41.5	+59.8	85.2	11 51.2	+60.0	85.6	12 00.0	+60.0	86.0	12		
11 38.6	+58.2	82.9	11 52.9	+58.7	83.4	12 06.4	+59.0	83.8	12 19.0	+59.3	84.2	12 30.6	+59.7	84.6	12 41.4	+59.8	85.1	12 51.2	+59.9	85.5	13 00.0	+60.0	86.0	13		
12 36.8	+58.1	82.7	12 51.6	+58.6	83.1	13 05.4	+59.1	83.6	13 18.3	+59.4	84.1	13 30.3	+59.6	84.5	13 41.2	+59.8	85.0	13 51.1	+60.0	85.5	14 00.0	+60.0	86.0	14		
13 34.9	+58.1	82.4	13 50.2	+58.6	82.9	14 04.5	+59.0	83.4	14 17.7	+59.4	83.9	14 29.9	+59.7	84.4	14 41.0	+59.9	84.9	14 51.1	+59.9	85.5	15 00.0	+60.0	86.0	15		
14 33.0	+58.1	82.2	14 48.8	+58.6	82.7	15 03.5	+59.0	83.2	15 17.1	+59.4	83.8	15 29.6	+59.6	84.3	15 40.9	+59.8	84.9	15 51.0	+60.0	85.4	16 00.0	+60.0	86.0	16		
15 31.1	+58.1	81.9	15 47.4	+58.6	82.5	16 02.5	+59.0	83.0	16 16.5	+59.3	83.6	16 29.2	+59.7	84.2	16 40.7	+59.9	84.8	16 51.0	+60.0	85.4	17 00.0	+60.0	86.0	17		
16 29.2	+58.0	81.7	16 46.0	+58.6	82.2	17 01.5	+59.0	82.9	17 15.8	+59.4	83.5	17 28.9	+59.6	84.1	17 40.6	+59.8	84.7	17 51.0	+59.9	85.4	18 00.0	+60.0	86.0	18		
17 27.2	+58.1	81.4	17 44.6	+58.5	82.0	18 00.5	+59.0	82.7	18 15.2	+59.4	83.3	18 28.5	+59.6	84.0	18 40.4	+59.8	84.6	18 50.9	+60.0	85.3	19 00.0	+60.0	86.0	19		
18 25.3	+58.0	81.1	18 43.1	+58.5	81.8	18 59.5	+59.0	82.5	19 14.6	+59.3	83.2	19 28.1	+59.7	83.9	19 40.2	+59.9	84.6	19 50.9	+59.9	85.3	20 00.0	+60.0	86.0	20		
19 23.3	+58.0	80.9	19 41.6	+58.6	81.6	19 58.5	+59.0	82.3	20 13.9	+59.3	83.0	20 27.8	+59.6	83.7	20 40.1	+59.8	84.5	20 50.8	+60.0	85.2	21 00.0	+60.0	86.0	21		
20 21.3	+58.0	80.6	20 40.2	+58.5	81.3	20 57.5	+58.9	82.1	21 13.2	+59.4	82.8	21 27.4	+59.6	83.6	21 39.9	+59.8	84.4	21 50.8	+59.9	85.2	22 00.0	+60.0	86.0	22		
21 19.3	+57.9	80.3	21 38.7	+58.4	81.1	21 56.4	+59.0	81.9	22 12.6	+59.3	82.7	22 27.0	+59.6	83.5	22 39.7	+59.9	84.3	22 50.7	+60.0	85.2	23 00.0	+60.0	86.0	23		
22 17.2	+57.9	80.0	22 37.1	+58.3	80.8	22 55.4	+58.9	81.7	23 11.9	+59.3	82.5	23 26.6	+59.6	83.4	23 39.6	+59.8	84.2	23 50.7	+60.0	85.1	24 00.0	+60.0	86.0	24		
23 15.1	+57.9	79.7	23 35.6	+58.4	80.6	23 54.3	+58.9	81.5	24 11.2	+59.3	82.4	24 26.2	+59.6	83.2	24 39.4	+59.8	84.2	24 50.7	+59.9	85.1	25 00.0	+60.0	86.0	25		
24 13.0	+57.8	79.5	24 34.0	+58.4	80.3	24 53.2	+58.9	81.3	25 10.5	+59.3	82.2	25 25.8	+59.6	83.1	25 39.2	+59.8	84.1	25 50.6	+60.0	85.0	26 00.0	+60.0	86.0	26		
25 10.8	+57.8	79.2	25 32.4	+58.4	80.1	25 52.1	+58.9	81.0	26 09.8	+59.2	82.0	26 25.4	+59.6	83.0	26 39.0	+59.9	84.0	26 50.6	+59.9	85.0	27 00.0	+60.0	86.0	27		
26 08.6	+57.8	78.9	26 30.8	+58.4	79.8	26 51.0	+58.8	80.8	27 09.0	+59.3	81.8	27 25.0	+59.6	82.9	27 38.9	+59.8	83.9	27 50.5	+60.0	84.9	28 00.0	+60.0	86.0	28		
27 06.4	+57.7	78.6	27 29.2	+58.3	79.6	27 49.8	+58.8	80.6	28 08.3	+59.2	81.7	28 24.6	+59.6	82.7	28 38.7	+59.8	83.8	28 50.5	+59.9	84.9	29 00.0	+60.0	86.0	29		
28 04.1	+57.7	78.3	28 27.5	+58.3	79.3	28 48.6	+58.8	80.4	29 07.5	+59.3	81.5	29 24.2	+59.5	82.6	29 38.5	+59.8	83.7	29 50.4	+60.0	84.9	30 00.0	+60.0	86.0	30		
29 01.8	+57.7	77.9	29 25.8	+58.2	79.0	29 47.4	+58.8	80.2	30 06.8	+59.2	81.3	30 23.7	+59.6	82.5	30 38.3	+59.8	83.6	30 50.4	+59.9	84.8	31 00.0	+60.0	86.0	31		
29 59.5	+57.6	77.6	30 24.2	+58.2	78.8	30 46.2	+58.8	79.9	31 06.0	+59.2	81.1	31 23.3	+59.5	82.3	31 38.1	+59.8	83.5	31 50.3	+60.0	84.8	32 00.0	+60.0	86.0	32		
30 57.1	+57.5	77.3	31 22.2	+58.2	78.5	31 45.0	+58.7	79.7	32 05.2	+59.2	80.9	32 22.8	+59.6	82.2	32 37.9	+59.8	83.4	32 50.3	+59.9	84.7	33 00.0	+60.0	86.0	33		
31 54.6	+57.5	77.0	32 20.4	+58.2	78.2	32 43.7	+58.7	79.4	33 04.4	+59.1	80.7	33 22.4	+59.5	82.0	33 37.7	+59.8	83.3	33 50.2	+60.0	84.7	34 00.0	+60.0	86.0	34		
32 52.1	+57.5	76.6	33 18.6	+58.1	77.9	33 42.4	+58.7	79.2	34 03.5	+59.2	80.5	34 21.9	+59.5	81.9	34 37.5	+59.7	83.2	34 50.2	+59.9	84.6	35 00.0	+60.0	86.0	35		
33 49.6	+57.3	76.3	34 16.7	+58.0	77.6	34 41.1	+58.6	78.9	35 02.7	+59.1	80.3	35 21.4	+59.5	81.7	35 37.2	+59.8	83.1	35 50.1	+60.0	84.6	36 00.0	+60.0	86.0	36		
34 46.9	+57.4	75.9	35 14.7	+58.0	77.3	35 39.7	+58.6	78.7	36 01.8	+59.1	80.1	36 20.9	+59.5	81.6	36 37.0	+59.8	83.0	36 50.1	+59.9	84.5	37 00.0	+60.0	86.0	37		
35 44.3	+57.2	75.6	36 12.7	+58.0	77.0	36 38.3	+58.6	78.4	37 00.9	+59.1	79.9	37 20.4	+59.5	81.4	37 36.8	+59.8	82.9	37 50.0	+59.9	84.4	38 00.0	+60.0	86.0	38		
36 41.5	+57.2	75.2	37 10.7	+57.9	76.7	37 36.9	+58.5	78.1	38 00.0	+59.0	79.7	38 19.9	+59.4	81.2	38 36.6	+59.7	82.8	38 49.9	+60.0	84.4	39 00.0	+60.0	86.0	39		
37 38.7	+57.1	74.8	38 08.6	+57.8	76.3	38 35.4	+58.5	77.9	38 59.0	+59.0	79.4	39 19.3	+59.5	81.1	39 36.3	+59.8	82.7	39 49.9	+59.9	84.3	40 00.0	+60.0	86.0	40		
38 35.8	+57.0	74.4	39 06.4	+57.8	76.0	39 33.9	+58.4	77.6	39 58.0	+59.0	79.2	40 18.8	+59.4	80.9	40 36.1	+59.7	82.6	40 49.8	+60.0	84.3	41 00.0	+60.0	86.0	41		
39 32.8	+57.0	74.0	40 04.2	+57.8	75.6	40 32.3	+58.4	77.3	40 57.0	+59.0	79.0	41 18.2	+59.4	80.7	41 35.8	+59.7	82.4	41 49.8	+59.9	84.2	42 00.0	+60.0	86.0	42		
40 29.8	+56.8	73.6	41 02.0	+57.6	75.3	41 30.7	+58.4	77.0	41 56.0	+58.9	78.7	42 17.6	+59.4	80.5	42 35.5	+59.8	82.3	42 49.7	+59.9	84.1	43 00.0	+60.0	86.0	43		
41 26.6	+56.8	73.2	41 59.6	+57.6	74.9	42 29.1	+58.3	76.7	42 54.9	+58.9	78.5	43 17.0	+59.4	80.3	43 35.3	+59.7	82.2	43 49.6	+60.0	84.1	44 00.0	+60.0	86.0	44		
42 23.4	+56.6	72.8	42 57.2	+57.5	74.5	43 27.4	+58.2	76.3	43 53.8	+58.9	78.2	44 16.4	+59.3	80.1	44 35.0	+59.7	82.0	44 49.6	+59.							

Dec.	60°			62°			64°			66°			68°			70°			72°			74°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	1 00.0	+52.0	91.7	0 56.3	+53.0	91.8	0 52.6	+53.9	91.8	0 48.8	+54.8	91.8	0 44.9	+55.7	91.9	0 41.0	+56.4	91.9	0 37.1	+57.0	91.9	0 33.1	+57.6	91.9
1	1 52.0	+51.9	91.2	1 49.3	+53.0	91.3	1 46.5	+54.0	91.4	1 43.6	+54.8	91.4	1 40.6	+55.6	91.5	1 37.4	+56.4	91.5	1 34.1	+57.1	91.6	1 30.7	+57.7	91.6
2	2 43.9	+52.0	90.7	2 42.3	+52.9	90.8	2 40.5	+53.9	90.9	2 38.4	+54.8	91.0	2 36.2	+55.6	91.1	2 33.8	+56.4	91.2	2 31.2	+57.1	91.3	2 28.4	+57.7	91.4
3	3 35.9	+51.9	90.2	3 35.2	+53.0	90.4	3 34.4	+53.9	90.5	3 33.2	+54.8	90.6	3 31.8	+55.6	90.7	3 30.2	+56.3	90.9	3 28.3	+57.0	91.0	3 26.1	+57.7	91.1
4	4 27.8	+51.9	89.7	4 28.2	+52.9	89.9	4 28.3	+53.9	90.0	4 28.0	+54.8	90.2	4 27.4	+55.7	90.4	4 26.5	+56.4	90.5	4 25.3	+57.1	90.7	4 23.8	+57.6	90.8
5	5 19.7	+51.9	89.2	5 21.1	+52.9	89.4	5 22.2	+53.8	89.6	5 22.8	+54.8	89.8	5 23.1	+55.5	90.0	5 22.9	+56.3	90.2	5 22.4	+57.0	90.4	5 21.4	+57.7	90.5
6	6 11.6	+51.8	88.7	6 14.0	+52.9	88.9	6 16.0	+53.9	89.2	6 17.6	+54.7	89.4	6 18.6	+55.6	89.6	6 19.2	+56.4	89.8	6 19.4	+57.0	90.0	6 19.1	+57.6	90.3
7	7 03.4	+51.9	88.2	7 06.9	+52.9	88.5	7 09.9	+53.8	88.7	7 12.3	+54.7	89.0	7 14.2	+55.6	89.2	7 15.6	+56.3	89.5	7 16.4	+57.0	89.7	7 16.7	+57.7	90.0
8	7 55.3	+51.7	87.7	7 59.8	+52.8	88.0	8 03.7	+53.8	88.3	8 07.0	+54.7	88.6	8 09.8	+55.5	88.8	8 11.9	+56.3	89.1	8 13.4	+57.0	89.4	8 14.4	+57.6	89.7
9	8 47.0	+51.8	87.2	8 52.6	+52.8	87.5	8 57.5	+53.7	87.8	9 01.7	+54.7	88.1	9 05.3	+55.5	88.5	9 08.2	+56.3	88.8	9 10.4	+57.0	89.1	9 12.0	+57.6	89.4
10	9 38.8	+51.7	86.7	9 45.4	+52.7	87.0	9 51.2	+53.8	87.4	9 56.4	+54.6	87.7	10 00.8	+55.5	88.1	10 04.5	+56.2	88.4	10 07.4	+57.0	88.8	10 09.6	+57.6	89.1
11	10 30.5	+51.6	86.2	10 38.1	+52.7	86.5	10 45.0	+53.7	86.9	10 51.0	+54.6	87.3	10 56.3	+55.4	87.7	11 00.7	+56.3	88.1	11 04.4	+57.0	88.5	11 07.2	+57.6	88.9
12	11 22.1	+51.6	85.6	11 30.8	+52.7	86.1	11 38.7	+53.6	86.5	11 45.6	+54.6	86.9	11 51.7	+55.5	87.3	11 57.0	+56.2	87.7	12 01.3	+56.9	88.1	12 04.8	+57.5	88.6
13	12 13.7	+51.6	85.1	12 23.5	+52.6	85.6	12 32.3	+53.6	86.0	12 40.2	+54.5	86.4	12 47.2	+55.3	86.9	12 53.2	+56.1	87.4	12 58.2	+56.9	87.8	13 02.3	+57.6	88.3
14	13 05.3	+51.4	84.6	13 16.1	+52.5	85.1	13 25.9	+53.5	85.5	13 34.7	+54.5	86.0	13 42.5	+55.4	86.5	13 49.3	+56.2	87.0	13 55.1	+56.9	87.5	13 59.9	+57.5	88.0
15	13 56.7	+51.4	84.1	14 08.6	+52.5	84.6	14 19.4	+53.5	85.1	14 29.2	+54.4	85.6	14 37.9	+55.3	86.1	14 45.5	+56.1	86.6	14 52.0	+56.8	87.2	14 57.4	+57.5	87.7
16	14 48.1	+51.4	83.5	15 01.1	+52.4	84.1	15 12.9	+53.4	84.6	15 23.6	+54.4	85.2	15 33.2	+55.3	85.7	15 41.6	+56.1	86.3	15 48.8	+56.8	86.8	15 54.9	+57.5	87.4
17	15 39.5	+51.2	83.0	15 53.5	+52.3	83.6	16 06.3	+53.4	84.1	16 18.0	+54.3	84.7	16 28.5	+55.2	85.3	16 37.7	+56.0	85.9	16 45.6	+56.8	86.5	16 52.4	+57.4	87.1
18	16 30.7	+51.2	82.5	16 45.8	+52.3	83.1	16 59.7	+53.3	83.7	17 12.3	+54.3	84.3	17 23.7	+55.1	84.9	17 33.7	+56.0	85.5	17 42.4	+56.8	86.2	17 49.8	+57.4	86.8
19	17 21.9	+51.0	81.9	17 38.1	+52.2	82.5	17 53.0	+53.2	83.2	18 06.6	+54.2	83.8	18 18.8	+55.1	84.5	18 29.7	+55.9	85.1	18 39.2	+56.7	85.8	18 47.2	+57.4	86.5
20	18 12.9	+51.0	81.4	18 30.3	+52.1	82.0	18 46.2	+53.2	82.7	19 00.8	+54.1	83.4	19 13.9	+55.1	84.1	19 25.6	+55.9	84.8	19 35.9	+56.6	85.5	19 44.6	+57.4	86.2
21	19 03.9	+50.9	80.8	19 22.4	+52.0	81.5	19 39.4	+53.1	82.2	19 54.9	+54.1	82.9	20 09.0	+55.0	83.6	20 21.5	+55.9	84.4	20 32.5	+56.6	85.1	20 42.0	+57.3	85.9
22	19 54.8	+50.8	80.2	20 14.4	+51.9	81.0	20 32.5	+53.0	81.7	20 49.0	+54.0	82.5	21 04.0	+54.9	83.2	21 17.4	+55.8	84.0	21 29.2	+56.5	84.8	21 39.3	+57.3	85.5
23	20 45.6	+50.6	79.7	21 05.3	+51.8	80.4	21 25.5	+52.8	81.2	21 43.0	+53.9	82.0	21 58.9	+54.9	82.8	22 13.2	+55.7	83.6	22 25.7	+56.4	84.4	22 36.6	+57.2	85.2
24	21 36.2	+50.6	79.1	21 58.1	+51.7	79.9	22 18.3	+52.8	80.7	22 36.9	+53.8	81.5	22 53.8	+54.8	82.3	23 08.9	+55.7	83.2	23 22.3	+56.4	84.0	23 33.8	+57.2	84.9
25	22 26.8	+50.4	78.5	22 49.8	+51.6	79.3	23 11.1	+52.7	80.2	23 30.7	+53.8	81.0	23 48.6	+54.7	81.9	24 04.6	+55.6	82.8	24 18.7	+56.5	83.7	24 31.0	+57.2	84.6
26	23 17.2	+50.2	77.9	23 41.4	+51.5	78.8	24 03.8	+52.6	79.7	24 24.5	+53.6	80.5	24 43.3	+54.6	81.4	24 55.2	+55.5	82.4	25 10.2	+56.3	83.2	25 28.2	+57.1	84.2
27	24 07.4	+50.2	77.3	24 32.9	+51.3	78.2	24 56.4	+52.5	79.1	25 18.1	+53.6	80.0	25 37.9	+54.5	81.0	25 57.7	+55.5	81.9	26 11.5	+56.3	82.9	26 25.3	+57.1	83.9
28	24 57.6	+50.0	76.7	25 24.2	+51.2	77.7	25 48.9	+52.4	78.6	26 11.7	+53.4	79.5	26 32.4	+54.5	80.5	26 51.2	+55.3	81.5	27 07.8	+56.3	82.5	27 22.4	+57.0	83.5
29	25 47.6	+49.8	76.1	26 15.4	+51.1	77.1	26 41.3	+52.2	78.0	27 05.1	+53.3	79.0	27 26.9	+54.3	80.1	27 46.5	+55.3	81.1	28 04.1	+56.1	82.1	28 19.4	+56.9	83.2
30	26 37.4	+49.7	75.5	27 06.5	+50.9	76.5	27 33.5	+52.1	77.5	27 58.4	+53.2	78.5	28 21.2	+54.3	79.6	28 41.8	+55.3	80.6	29 00.2	+56.1	81.7	29 16.3	+56.9	82.8
31	27 27.1	+49.5	74.9	27 57.4	+50.7	75.9	28 25.6	+51.9	76.9	28 51.6	+53.1	78.0	29 15.5	+54.1	79.1	29 37.1	+55.1	80.2	29 56.3	+56.0	81.3	30 13.2	+56.9	82.5
32	28 16.6	+49.3	74.2	28 48.1	+50.6	75.3	29 17.5	+51.8	76.4	29 44.7	+53.0	77.5	30 09.6	+54.0	78.6	30 32.2	+55.0	79.7	30 52.3	+55.8	80.9	31 10.1	+56.8	82.1
33	29 05.9	+49.1	73.6	30 09.3	+50.4	74.7	30 09.3	+50.4	74.7	30 37.7	+52.8	76.9	31 03.6	+53.9	78.1	31 27.2	+54.9	79.3	31 48.3	+55.8	80.5	32 06.9	+56.7	81.7
34	29 55.0	+48.9	72.9	30 29.1	+50.3	74.0	31 01.0	+51.5	75.2	31 30.5	+52.6	76.4	31 57.5	+53.8	77.6	32 22.1	+54.8	78.8	32 44.1	+55.8	80.1	33 03.6	+56.6	81.3
35	30 43.9	+48.7	72.3	31 19.4	+50.0	73.4	31 52.5	+51.3	74.6	32 23.1	+52.6	75.8	32 51.3	+53.7	77.0	33 16.9	+54.7	78.3	33 39.9	+55.7	79.6	34 00.2	+56.5	80.9
36	31 32.6	+48.5	71.6	32 09.4	+49.9	72.8	32 43.8	+51.1	74.0	33 15.7	+52.3	75.2	33 45.0	+53.5	76.5	34 11.6	+54.6	77.8	34 35.6	+55.5	79.2	34 56.7	+56.5	80.5
37	32 21.1	+48.3	70.9	32 59.3	+49.6	72.1	33 34.9	+50.9	73.3	34 08.0	+52.2	74.6	34 38.5	+53.3	76.0	35 06.2	+54.5	77.3	35 31.1	+55.5	78.7	35 53.2	+56.4	80.1
38	33 09.4	+48.0	70.2	33 48.9	+49.4	71.4	34 25.8	+50.8	72.7	35 00.2	+52.0	74.0	35 31.8	+53.2	75.4	36 00.7	+54.3	76.8	36 26.6	+55.3	78.2	36 49.6	+56.3	79.7
39	33 57.4	+47.8	69.4	34 38.3	+49.1	70.7	35 16.6	+50.5	72.1	35 52.2	+51.8	73.4	36 25.0	+53.0	74.8	36 55.0	+54.1	76.3	37 21.9	+55.3	77.7	37 45.9	+56.2	79.3
40	34 45.2	+47.5	68.7	35 27.4	+49.0	70.0	36 07.1	+50.3	71.4	36 44.0	+51.6	72.8	37 18.0	+52.9	74.2	37 49.1	+54.0	75.7	38 17.2	+55.1	77.3	38 42.1	+56.0	78.8
41	35 32.7	+47.2	68.0	36 16.4	+48.6	69.3	36 57.4	+50.0	70.7	37 35.6	+51.4	72.2	38 10.9	+52.7	73.6	38 43.1	+53.9	75.2	39 12.3	+54.9	76.7	39 38.1	+56.0	78.3
42	36 19.9	+46.9	67.2	37 05.0	+48.4	68.6	37 47.4	+49.9	70.0	38 27.0	+51.2	71.5	39 03.6	+52.4	73.0	39 37.0	+53.7	74.6	40 07.2	+54.8	76.2	40 34.1	+55.9	77.9
43	37 06.8	+46.6	66.4	37 53.4	+48.1	67.8	38 37.3	+49.5	69.3	39 18.2	+50.9	70.8	39 56.0	+52.3	72.4	40 30.7	+53.5	74.0	41 02.0	+54.7	75.7	41 30.0	+55.7	77.4
44	37 53.4	+46.3	65.6	38 41.5	+47.8	67.1	39 26.8	+49.3	68.6	40 09.1	+50.7	70.1	40 48.3	+52.0	71.8	41 24.2	+53.3	73.4	41 56.7	+54.5	75.1	42 25.7	+55.6	76.9
45	38 39.7	+45.9	64.8	39 29.3	+47.5	66.3	40 16.1	+48.9	67.8	40 59.8	+50.4	69.4	41 40.3	+51.8	71.1	42 17.5	+53.1	72.8	42 51.2	+54.3	74.6	43 21.3	+55.5	76.4
46	39 25.6	+45.6	64.0	40 16.8	+47.1	65.5	41 05.0	+48.7	67.1	41 50.2	+50.1	68.7	42 32.1	+51.6	70.4	43 10.6	+52.9	72.2	43 45.5	+54.2	74.0	44 16.8	+55.3	75.9
47	40 11.2	+45.2	63.1	41 03.9	+46.8	64.7	41 53.7	+48.4	66.3	42 40.3	+49.9	68.0	43 23.7	+51.2	69.7	44 03.5	+52.7	71.5	44 39.7	+53.9	73.4	45 12.1	+55.	

LATITUDE CONTRARY NAME

L.H.A. 88°, 272°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.												
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z													
1 00.0	-52.0	91.7	0 56.3	-53.0	91.8	0 52.6	-53.9	91.8	0 48.8	-54.8	91.8	0 44.9	-55.6	91.9	0 41.0	-56.4	91.9	0 37.1	-57.1	91.9	0 33.1	-57.7	91.9				0									
0 08.0	-52.0	92.2	0 03.3	-52.9	92.2	0 01.3	+54.0	87.8	0 06.0	+54.8	87.8	0 10.7	+55.6	87.8	0 15.4	+56.3	87.8	0 20.0	+57.1	87.8	0 24.6	+57.7	87.8	0 29.2	+58.3	87.8	0 33.8	+58.9	87.8	1						
0 44.0	+51.9	87.3	0 49.6	+53.0	87.3	0 55.3	+53.9	87.3	1 00.8	+54.9	87.4	1 06.3	+55.7	87.4	1 11.7	+56.4	87.4	1 17.1	+57.0	87.5	1 22.3	+57.7	87.5	1 27.5	+58.3	87.5	1 32.7	+58.9	87.5	2						
1 35.9	+52.0	86.8	1 42.6	+53.0	86.8	1 49.2	+53.9	86.9	1 55.7	+54.8	87.0	2 02.0	+55.6	87.0	2 08.1	+56.4	87.1	2 14.1	+57.1	87.2	2 20.0	+57.6	87.3	2 25.8	+58.1	87.3	2 31.6	+58.6	87.3	2 37.4	+59.1	87.3	3			
2 27.9	+51.9	86.3	2 35.6	+53.0	86.4	2 43.1	+53.9	86.4	2 50.5	+54.8	86.5	2 57.6	+55.6	86.6	3 04.5	+56.4	86.8	3 11.2	+57.0	86.9	3 17.8	+57.6	87.0	3 24.4	+58.1	87.0	3 31.0	+58.6	87.0	3 37.6	+59.1	87.0	4			
3 19.8	+52.0	85.8	3 28.6	+52.9	85.9	3 37.0	+53.9	86.0	3 45.3	+54.8	86.1	3 53.2	+55.6	86.3	4 00.9	+56.3	86.4	4 08.2	+57.1	86.6	4 15.3	+57.7	86.7	4 22.4	+58.3	86.7	4 29.5	+58.9	86.7	4 36.6	+59.5	86.7	5			
4 11.8	+51.9	85.3	4 21.5	+52.9	85.4	4 30.9	+53.9	85.6	4 40.1	+54.7	85.7	4 48.8	+55.6	85.9	4 57.2	+56.4	86.1	5 05.3	+57.0	86.2	5 13.0	+57.6	86.4	5 20.7	+58.1	86.4	5 28.4	+58.6	86.4	5 36.1	+59.1	86.4	6			
5 03.7	+51.9	84.8	5 14.4	+53.0	84.9	5 24.8	+53.9	85.1	5 34.8	+54.8	85.3	5 44.4	+55.6	85.5	5 53.6	+56.3	85.7	6 02.3	+57.1	85.9	6 10.6	+57.6	86.1	6 18.9	+58.1	86.1	6 27.2	+58.6	86.1	6 35.5	+59.1	86.1	7			
5 55.6	+51.8	84.3	6 07.4	+52.8	84.5	6 18.7	+53.8	84.7	6 29.6	+54.7	84.9	6 40.0	+55.6	85.1	6 49.9	+56.3	85.4	6 59.4	+57.0	85.6	7 08.3	+57.6	85.9	7 17.2	+58.1	85.9	7 26.1	+58.6	85.9	7 35.0	+59.1	85.9	8			
6 47.4	+51.9	83.8	7 00.2	+52.9	84.0	7 12.5	+53.9	84.2	7 24.3	+54.7	84.5	7 35.6	+55.5	84.8	7 46.2	+56.4	85.0	7 56.4	+57.0	85.3	8 05.9	+57.6	85.6	8 15.4	+58.1	85.6	8 24.9	+58.6	85.6	8 34.4	+59.1	85.6	9			
7 39.3	+51.8	83.2	7 53.1	+52.8	83.5	8 06.4	+53.8	83.8	8 19.0	+54.7	84.1	8 31.1	+55.5	84.4	8 42.6	+56.2	84.7	8 53.4	+57.0	85.0	9 03.5	+57.6	85.3	9 13.6	+58.1	85.3	9 23.7	+58.6	85.3	9 33.8	+59.1	85.3	10			
8 31.1	+51.7	82.7	8 45.9	+52.8	83.0	9 00.2	+53.7	83.3	9 13.7	+54.7	83.7	9 26.6	+55.5	84.0	9 38.8	+56.3	84.3	9 50.4	+56.9	84.7	10 01.1	+57.6	85.0	10 11.1	+58.1	85.0	10 21.1	+58.6	85.0	10 31.1	+59.1	85.0	11			
9 22.8	+51.7	82.2	9 38.7	+52.8	82.6	9 53.9	+53.7	82.9	10 08.4	+54.6	83.2	10 22.1	+55.5	83.6	10 35.1	+56.3	84.0	10 47.3	+57.0	84.3	10 58.7	+57.6	84.7	11 09.1	+58.1	84.7	11 19.1	+58.6	84.7	11 29.1	+59.1	84.7	11 39.1	+59.6	84.7	12
10 14.5	+51.7	81.7	10 31.5	+52.7	82.1	10 47.6	+53.7	82.4	11 03.0	+54.6	82.8	11 17.6	+55.4	83.2	11 31.4	+56.2	83.6	11 44.3	+56.9	84.0	11 56.3	+57.6	84.4	12 07.3	+58.1	84.4	12 17.3	+58.6	84.4	12 27.3	+59.1	84.4	12 37.3	+59.6	84.4	13
11 06.2	+51.6	81.2	11 24.2	+52.6	81.6	11 41.3	+53.7	82.0	11 57.6	+54.6	82.4	12 13.0	+55.4	82.8	12 27.6	+56.2	83.3	12 41.2	+56.9	83.7	12 53.9	+57.5	84.2	13 06.6	+58.1	84.2	13 16.6	+58.6	84.2	13 26.6	+59.1	84.2	13 36.6	+59.6	84.2	14
11 57.8	+51.6	80.7	12 16.8	+52.6	81.1	12 35.0	+53.5	81.5	12 52.2	+54.5	82.0	13 08.4	+55.4	82.4	13 23.8	+56.1	82.9	13 38.1	+56.9	83.4	13 51.4	+57.5	83.9	14 03.7	+58.1	84.4	14 15.9	+58.6	84.4	14 28.1	+59.1	84.4	14 40.3	+59.6	84.4	15
12 49.4	+51.5	80.1	13 09.4	+52.6	80.6	13 28.5	+53.6	81.1	13 46.7	+54.5	81.5	14 03.8	+55.3	82.0	14 19.9	+56.1	82.5	14 35.0	+56.8	83.1	14 48.9	+57.6	83.6	15 01.7	+58.1	84.1	15 14.5	+58.6	84.1	15 27.3	+59.1	84.1	15 39.9	+59.6	84.1	16
13 40.9	+51.4	79.6	14 02.0	+52.5	80.1	14 22.1	+53.5	80.6	14 41.2	+54.4	81.1	14 59.1	+55.3	81.6	15 16.0	+56.1	82.2	15 31.8	+56.8	82.7	15 46.5	+57.6	83.3	16 00.2	+58.1	83.8	16 12.9	+58.6	83.8	16 25.7	+59.1	83.8	16 38.5	+59.6	83.8	17
14 32.3	+51.3	79.1	14 54.5	+52.4	79.6	15 15.6	+53.4	80.1	15 35.6	+54.3	80.7	15 54.4	+55.3	81.2	16 12.1	+56.1	81.8	16 28.6	+56.8	82.4	16 43.9	+57.5	83.0	17 00.0	+58.1	83.5	17 12.2	+58.6	83.5	17 24.4	+59.1	83.5	17 36.6	+59.6	83.5	18
15 23.6	+51.3	78.6	15 46.9	+52.3	79.1	16 09.0	+53.4	79.7	16 29.9	+54.4	80.2	16 49.7	+55.2	80.8	17 08.2	+56.0	81.4	17 25.4	+56.8	82.0	17 41.4	+57.4	82.7	18 00.0	+58.1	83.0	18 12.2	+58.6	83.0	18 24.4	+59.1	83.0	18 36.6	+59.6	83.0	19
16 14.9	+51.2	78.0	16 39.2	+52.3	78.6	17 02.4	+53.3	79.2	17 24.3	+54.2	79.8	17 44.9	+55.1	80.4	18 04.2	+56.0	81.1	18 22.9	+56.7	81.7	18 38.8	+57.4	82.4	19 00.0	+58.1	83.0	19 12.2	+58.6	83.0	19 24.4	+59.1	83.0	19 36.6	+59.6	83.0	20
17 06.1	+51.1	77.5	17 31.5	+52.2	78.1	17 55.7	+53.2	78.7	18 18.5	+54.2	79.3	18 40.0	+55.1	80.0	19 00.2	+55.9	80.7	19 18.2	+56.6	81.4	19 36.2	+57.4	82.1	20 00.0	+58.1	83.0	20 12.2	+58.6	83.0	20 24.4	+59.1	83.0	20 36.6	+59.6	83.0	21
17 57.2	+51.0	76.9	18 23.7	+52.1	77.6	18 48.9	+53.1	78.2	19 12.7	+54.1	78.9	19 35.1	+55.0	79.6	19 56.1	+55.8	80.3	20 15.6	+56.6	81.0	20 33.6	+57.3	81.7	21 00.0	+58.1	83.0	21 12.2	+58.6	83.0	21 24.4	+59.1	83.0	21 36.6	+59.6	83.0	22
18 48.2	+50.9	76.4	19 15.8	+52.0	77.0	19 42.0	+53.1	77.7	20 06.8	+54.1	78.4	20 30.1	+55.0	79.2	20 51.9	+55.9	79.9	21 12.2	+56.6	80.7	21 30.9	+57.3	81.4	22 00.0	+58.1	83.0	22 12.2	+58.6	83.0	22 24.4	+59.1	83.0	22 36.6	+59.6	83.0	23
19 39.1	+50.8	75.8	20 07.8	+52.0	76.5	20 35.1	+53.0	77.2	21 00.9	+53.9	78.0	21 25.1	+54.9	78.7	21 47.8	+55.7	79.5	22 08.8	+56.5	80.3	22 28.8	+57.2	81.1	23 00.0	+58.1	83.0	23 12.2	+58.6	83.0	23 24.4	+59.1	83.0	23 36.6	+59.6	83.0	24
20 29.9	+50.7	75.2	20 59.8	+51.8	76.0	21 28.1	+52.9	76.7	21 54.8	+53.9	77.5	22 20.0	+54.8	78.3	22 43.5	+55.7	79.1	23 05.3	+56.5	79.9	23 25.4	+57.2	80.8	24 00.0	+58.1	83.0	24 12.2	+58.6	83.0	24 24.4	+59.1	83.0	24 36.6	+59.6	83.0	25
21 20.6	+50.6	74.7	21 51.6	+51.7	75.4	22 21.0	+52.8	76.2	22 48.7	+53.8	77.0	23 14.8	+54.8	77.9	23 39.2	+55.6	78.7	24 05.0	+56.4	79.4	24 22.6	+57.2	80.5	25 00.0	+58.1	83.0	25 12.2	+58.6	83.0	25 24.4	+59.1	83.0	25 36.6	+59.6	83.0	26
22 11.2	+50.4	74.1	22 43.3	+51.6	74.9	23 13.8	+52.7	75.7	23 42.5	+53.8	76.5	24 09.6	+54.7	77.4	24 34.8	+55.6	78.3	24 58.3	+56.3	79.2	25 18.9	+57.1	80.1	26 00.0	+58.1	83.0	26 12.2	+58.6	83.0	26 24.4	+59.1	83.0	26 36.6	+59.6	83.0	27
23 01.6	+50.3	73.5	23 34.9	+51.5	74.3	24 06.5	+52.5	75.2	24 36.3	+53.6	76.1	25 04.3	+54.6	77.0	25 30.4	+55.5	77.9	25 54.6	+56.2	78.8	26 19.8	+57.1	79.8	27 00.0	+58.1	83.0	27 12.2	+58.6	83.0	27 24.4	+59.1	83.0	27 36.6	+59.6	83.0	28
23 51.9	+50.2	72.9	24 26.4	+51.3	73.8	24 59.0	+52.5	74.6	25 29.9	+53.5	75.6	25 58.9	+54.5	76.5	26 25.9	+55.4	77.5	26 51.0	+56.2	78.4	27 14.0	+57.0	79.4	28 00.0	+58.1	83.0	28 12.2	+58.6	83.0	28 24.4	+59.1	83.0	28 36.6	+59.6	83.0	29
24 42.1	+50.1	72.3	25 17.7	+51.2	73.2	25 51.5	+52.3	74.1	26 23.4	+53.4	75.1	26 53.4	+54.4	76.0	27 21.3	+55.4	77.0	27 47.2	+56.2	78.0	28 11.0	+57.0	79.1	29 00.0	+58.1	83.0	29 12.2	+58.6	83.0	29 24.4	+59.1	83.0	29 36.6	+59.6	83.0	30
25 32.2	+49.8	71.7	26 08.9	+51.1	72.6	26 43.8	+52.3	73.6	27 16.8	+53.3	74.5	27 47.8	+54.3	75.6	28 16.7	+55.2	76.6	28 43.4	+56.1	77.6	29 08.0	+56.9	78.7	30 00.0	+58.1	83.0	30 12.2	+58.6	83.0	30 24.4	+59.1	83.0	30 36.6	+59.6	83.0	31
26 22.0	+49.8	71.1	27 00.0	+51.0	72.0	27 36.1	+52.1	73.0	28 10.1	+53.2	74.0	28 42.1	+54.2	75.1	29 11.9	+55.2	76.1	29 39.5	+56.1	77.2	30 04.9	+56.8	78.													

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	0 29.0	+58.2	91.9	0 24.9	+58.7	92.0	0 20.8	+59.1	92.0	0 16.7	+59.4	92.0	0 12.5	+59.7	92.0	0 08.4	+59.8	92.0	0 04.2	+60.0	92.0	0 00.0	+60.0	92.0
1	1 27.2	+58.3	91.7	1 23.6	+58.7	91.7	1 19.9	+59.1	91.8	1 16.1	+59.4	91.8	1 12.2	+59.7	91.9	1 08.2	+59.9	91.9	1 04.2	+59.9	92.0	1 00.0	+60.0	92.0
2	2 25.5	+58.2	91.5	2 22.3	+58.7	91.5	2 19.0	+59.1	91.6	2 15.5	+59.4	91.7	2 11.9	+59.7	91.8	2 08.1	+59.8	91.9	2 04.1	+60.0	91.9	2 00.0	+60.0	92.0
3	3 23.7	+58.2	91.2	3 21.0	+58.7	91.3	3 18.1	+59.1	91.4	3 14.9	+59.5	91.6	3 11.6	+59.6	91.7	3 07.9	+59.9	91.8	3 04.1	+59.9	91.9	3 00.0	+60.0	92.0
4	4 21.9	+58.2	91.0	4 19.7	+58.7	91.1	4 17.2	+59.1	91.3	4 14.4	+59.4	91.4	4 11.2	+59.7	91.6	4 07.8	+59.8	91.7	4 04.0	+60.0	91.9	4 00.0	+60.0	92.0
5	5 20.1	+58.2	90.7	5 18.4	+58.7	90.9	5 16.3	+59.0	91.1	5 13.8	+59.4	91.3	5 10.9	+59.7	91.5	5 07.6	+59.9	91.6	5 04.0	+60.0	91.8	5 00.0	+60.0	92.0
6	6 18.3	+58.2	90.5	6 17.1	+58.6	90.7	6 15.3	+59.1	90.9	6 13.2	+59.4	91.1	6 10.6	+59.6	91.4	6 07.5	+59.8	91.6	6 04.0	+59.9	91.8	6 00.0	+60.0	92.0
7	7 16.5	+58.2	90.2	7 15.7	+58.7	90.5	7 14.4	+59.1	90.7	7 12.6	+59.4	91.0	7 10.2	+59.7	91.3	7 07.3	+59.9	91.5	7 03.9	+60.0	91.7	7 00.0	+60.0	92.0
8	8 14.7	+58.2	90.0	8 14.4	+58.6	90.3	8 13.5	+59.1	90.6	8 12.0	+59.4	90.9	8 09.9	+59.7	91.1	8 07.2	+59.8	91.4	8 03.9	+60.0	91.8	8 00.0	+60.0	92.0
9	9 12.9	+58.1	89.7	9 13.0	+58.7	90.1	9 12.6	+59.0	90.4	9 11.4	+59.4	90.7	9 09.6	+59.6	91.0	9 07.0	+59.9	91.4	9 03.9	+59.9	91.7	9 00.0	+60.0	92.0
10	10 11.0	+58.2	89.5	10 11.7	+58.6	89.9	10 11.6	+59.1	90.2	10 10.8	+59.4	90.6	10 09.2	+59.7	90.9	10 06.9	+59.8	91.3	10 03.8	+60.0	91.6	10 00.0	+60.0	92.0
11	11 09.2	+58.1	89.2	11 10.3	+58.7	89.6	11 10.7	+59.0	90.0	11 10.2	+59.4	90.4	11 08.9	+59.6	90.8	11 06.7	+59.9	91.2	11 03.8	+59.9	91.6	11 00.0	+60.0	92.0
12	12 07.3	+58.2	89.0	12 09.0	+58.6	89.4	12 09.7	+59.1	89.9	12 09.6	+59.4	90.3	12 08.5	+59.7	90.7	12 06.6	+59.8	91.1	12 03.7	+60.0	91.6	12 00.0	+60.0	92.0
13	13 05.5	+58.1	88.7	13 07.6	+58.6	89.2	13 08.8	+59.0	89.7	13 09.0	+59.4	90.1	13 08.2	+59.6	90.6	13 06.4	+59.9	91.1	13 03.7	+60.0	91.5	13 00.0	+60.0	92.0
14	14 03.6	+58.1	88.5	14 06.2	+58.6	89.0	14 07.8	+59.0	89.5	14 08.4	+59.3	90.0	14 07.8	+59.7	90.5	14 06.3	+59.8	91.1	14 03.7	+59.9	91.5	14 00.0	+60.0	92.0
15	15 01.7	+58.0	88.2	15 04.8	+58.6	88.8	15 06.8	+59.1	89.3	15 07.7	+59.4	89.8	15 07.5	+59.6	90.4	15 06.1	+59.9	90.9	15 03.6	+60.0	91.5	15 00.0	+60.0	92.0
16	15 59.7	+58.1	88.0	16 03.4	+58.6	88.5	16 05.9	+59.0	89.1	16 07.1	+59.4	89.7	16 07.1	+59.7	90.3	16 06.0	+59.8	90.8	16 03.6	+59.9	91.4	16 00.0	+60.0	92.0
17	16 57.8	+58.0	87.7	17 02.0	+58.5	88.3	17 04.9	+59.0	88.9	17 06.5	+59.3	89.5	17 06.8	+59.6	90.2	17 05.8	+59.8	90.8	17 03.5	+60.0	91.4	17 00.0	+60.0	92.0
18	17 55.8	+58.1	87.4	18 00.5	+58.6	88.1	18 03.9	+59.0	88.7	18 05.8	+59.4	89.4	18 06.4	+59.7	90.0	18 05.6	+59.9	90.7	18 03.5	+60.0	91.3	18 00.0	+60.0	92.0
19	18 53.9	+58.0	87.2	18 59.1	+58.5	87.9	19 02.9	+58.9	88.5	19 05.2	+59.3	89.2	19 06.1	+59.6	89.9	19 05.5	+59.8	90.6	19 03.5	+59.9	91.3	19 00.0	+60.0	92.0
20	19 51.9	+57.9	86.9	19 57.6	+58.5	87.6	20 01.8	+59.0	88.3	20 04.5	+59.4	89.1	20 05.7	+59.6	89.8	20 05.3	+59.9	90.5	20 03.4	+60.0	91.3	20 00.0	+60.0	92.0
21	20 49.8	+58.0	86.6	20 56.1	+58.5	87.4	21 00.8	+58.9	88.1	21 03.9	+59.3	88.9	21 05.3	+59.6	89.7	21 05.2	+59.8	90.5	21 03.4	+59.9	91.2	21 00.0	+60.0	92.0
22	21 47.8	+57.9	86.3	21 54.6	+58.5	87.1	21 59.7	+59.0	87.9	22 03.2	+59.3	88.8	22 04.9	+59.6	89.6	22 05.0	+59.8	90.4	22 03.3	+60.0	91.2	22 00.0	+60.0	92.0
23	22 45.7	+57.9	86.1	22 53.1	+58.4	86.9	22 58.7	+58.9	87.7	23 02.5	+59.3	88.6	23 04.5	+59.7	89.4	23 04.8	+59.8	90.3	23 03.3	+60.0	91.2	23 00.0	+60.0	92.0
24	23 43.6	+57.8	85.8	23 51.5	+58.4	86.7	23 57.6	+58.9	87.5	24 01.8	+59.3	88.4	24 04.2	+59.6	89.3	24 04.6	+59.9	90.2	24 03.3	+59.9	91.1	24 00.0	+60.0	92.0
25	24 41.4	+57.9	85.5	24 49.9	+58.4	86.4	24 56.5	+58.9	87.3	25 01.1	+59.3	88.3	25 03.8	+59.6	89.2	25 04.5	+59.8	90.1	25 03.2	+60.0	91.1	25 00.0	+60.0	92.0
26	25 39.2	+57.8	85.2	25 48.3	+58.4	86.1	25 55.4	+58.8	87.1	26 00.4	+59.3	88.1	26 03.4	+59.5	89.1	26 04.3	+59.8	90.0	26 03.2	+59.9	91.0	26 00.0	+60.0	92.0
27	26 37.0	+57.8	84.9	26 46.7	+58.3	85.9	26 54.2	+58.9	86.9	26 59.7	+59.2	87.9	27 02.9	+59.6	88.9	27 04.1	+59.8	90.0	27 03.1	+60.0	91.0	27 00.0	+60.0	92.0
28	27 34.8	+57.7	84.6	27 45.0	+58.3	85.6	27 53.1	+58.8	86.7	27 58.9	+59.3	87.7	28 02.5	+59.6	88.8	28 03.9	+59.8	89.9	28 03.1	+59.9	90.9	28 00.0	+60.0	92.0
29	28 32.5	+57.6	84.3	28 43.3	+58.3	85.4	28 51.9	+58.8	86.5	28 58.2	+59.2	87.6	29 02.1	+59.6	88.7	29 03.7	+59.8	89.8	29 03.0	+60.0	90.9	29 00.0	+60.0	92.0
30	29 30.1	+57.7	84.0	29 41.6	+58.2	85.1	29 50.7	+58.8	86.2	29 57.4	+59.2	87.4	30 01.7	+59.5	88.5	30 03.5	+59.8	89.7	30 03.0	+59.9	90.8	30 00.0	+60.0	92.0
31	30 27.8	+57.5	83.6	30 39.8	+58.2	84.8	30 49.5	+58.7	86.0	30 56.6	+59.2	87.2	31 01.2	+59.6	88.4	31 03.3	+59.8	89.6	31 02.9	+60.0	90.8	31 00.0	+60.0	92.0
32	31 25.3	+57.5	83.3	31 38.0	+58.2	84.5	31 48.2	+58.7	85.8	31 55.8	+59.2	87.0	32 00.8	+59.5	88.2	32 03.1	+59.8	89.5	32 02.9	+59.9	90.7	32 00.0	+60.0	92.0
33	32 22.8	+57.5	83.0	32 36.2	+58.1	84.2	32 46.9	+58.7	85.5	32 55.0	+59.1	86.8	33 00.3	+59.5	88.1	33 02.9	+59.8	89.4	33 02.8	+60.0	90.7	33 00.0	+60.0	92.0
34	33 20.3	+57.4	82.6	33 34.3	+58.1	83.9	33 45.6	+58.7	85.3	33 54.1	+59.2	86.6	33 59.8	+59.6	87.9	34 02.7	+59.8	89.3	34 02.8	+59.9	90.6	34 00.0	+60.0	92.0
35	34 17.7	+57.3	82.3	34 32.4	+58.1	83.6	34 44.3	+58.6	85.0	34 53.3	+59.1	86.4	34 59.4	+59.5	87.8	35 02.5	+59.8	89.2	35 02.7	+60.0	90.6	35 00.0	+60.0	92.0
36	35 15.0	+57.3	81.9	35 30.5	+57.9	83.3	35 42.9	+58.6	84.8	35 52.4	+59.1	86.2	35 58.9	+59.5	87.6	36 02.3	+59.8	89.1	36 02.7	+59.9	90.5	36 00.0	+60.0	92.0
37	36 12.3	+57.2	81.6	36 28.4	+58.0	83.0	36 41.5	+58.6	84.5	36 51.5	+59.1	86.0	36 58.4	+59.4	87.5	37 02.1	+59.7	89.0	37 02.6	+60.0	90.5	37 00.0	+60.0	92.0
38	37 09.5	+57.2	81.2	37 26.4	+57.9	82.7	37 40.1	+58.5	84.2	37 50.6	+59.0	85.8	37 57.8	+59.5	87.3	38 01.8	+59.8	88.9	38 02.6	+59.9	90.4	38 00.0	+60.0	92.0
39	38 06.7	+57.0	80.8	38 24.3	+57.8	82.4	38 38.6	+58.5	83.9	38 49.6	+59.0	85.5	38 57.3	+59.4	87.1	39 01.6	+59.7	88.8	39 02.5	+59.9	90.4	39 00.0	+60.0	92.0
40	39 03.7	+57.0	80.4	39 22.1	+57.7	82.0	39 37.1	+58.4	83.6	39 48.6	+59.0	85.3	39 56.7	+59.5	87.0	40 01.3	+59.8	88.6	40 02.4	+60.0	90.3	40 00.0	+60.0	92.0
41	40 00.7	+56.9	80.0	40 19.8	+57.7	81.7	40 35.5	+58.4	83.3	40 47.6	+59.0	85.1	40 56.2	+59.4	86.8	41 01.1	+59.7	88.5	41 02.4	+59.9	90.3	41 00.0	+60.0	92.0
42	40 57.6	+56.8	79.6	41 17.5	+57.7	81.3	41 33.9	+58.3	83.0	41 46.6	+58.9	84.8	41 55.6	+59.4	86.6	42 00.8	+59.8	88.4	42 02.3	+59.9	90.2	42 00.0	+60.0	92.0
43	41 54.4	+56.7	79.1	42 15.2	+57.5	80.9	42 32.2	+58.3	82.7	42 45.5	+58.9	84.6	42 55.0	+59.4	86.4	43 00.6	+59.7	88.3	43 02.2	+60.0	90.1	43 00.0	+60.0	92.0
44	42 51.1	+56.6	78.7	43 12.7	+57.5	80.5	43 30.5	+58.2	82.4	43 44.4	+58.9	84.3	43 54.4	+59.3	86.2	44 00.3	+59.7	88.1	44 02.2	+59.9	90.1	44 00.0	+60.0	92.0
45	43 47.7	+56.4	78.2	44 10.2	+57.4	80.1	44 28.7	+58.2	82.1	44 43.3	+58.8	84.0	44 53.7	+59.3	86.0	45 00.0	+59.7	88.0	45 02.1	+59.9	90.0	45 00.0	+60.0	92.0
46	44 44.1	+56.4	77.8	45 07.6	+57.3	79.7	45 26.9	+58.1	81.7	45 42.1	+58.8	83.7	45 53.0	+59.4	85.8	45 59.7	+59.7	87.9	46 02.0	+59.9	89.9	46 00.0	+60.0	92.0
47	45 40.5	+56.2	77.3	46 04.9	+57.2	79.3	46 25.0	+58.0	81.4	46 40.9	+58.7	83.5	46 52.4	+59.2	85.6	46 59.4	+59.7	87.7	47 01.9	+60.0	89.9	47 00.0	+	

LATITUDE CONTRARY NAME

L.H.A. 88°, 272°

76°			78°			80°			82°			84°			86°			88°			90°			Dec.								
l	c	Z	l	c	Z	l	c	Z	l	c	Z	H	c	Z	H	c	Z	H	c	Z	H	c	Z		H	c	Z					
0	29.0	-58.2	91.9	0	24.9	-58.6	92.0	0	20.8	-59.1	92.0	0	16.7	-59.4	92.0	0	12.5	-59.6	92.0	0	08.4	-59.9	92.0	0	04.2	-60.0	92.0	0	00.0	+60.0	88.0	0
0	29.2	+58.2	87.8	0	33.7	+58.7	87.8	0	38.3	+59.0	87.9	0	42.7	+59.4	87.9	0	47.1	+59.7	87.9	0	51.5	+59.8	87.9	0	55.8	+59.9	88.0	1	00.0	+60.0	88.0	1
1	27.4	+58.2	87.6	1	32.4	+58.7	87.6	1	37.3	+59.1	87.7	1	42.1	+59.5	87.7	1	46.8	+59.7	87.8	1	51.3	+59.9	87.9	1	55.7	+60.0	87.9	2	00.0	+60.0	88.0	2
2	25.6	+58.2	87.3	2	31.1	+58.7	87.4	2	36.4	+59.1	87.5	2	41.6	+59.4	87.6	2	46.5	+59.6	87.7	2	51.2	+59.8	87.8	2	55.7	+60.0	87.9	3	00.0	+60.0	88.0	3
3	23.8	+58.3	87.1	3	29.8	+58.7	87.2	3	35.5	+59.1	87.3	3	41.0	+59.4	87.5	3	46.1	+59.7	87.6	3	51.0	+59.9	87.7	3	55.7	+59.9	87.9	4	00.0	+60.0	88.0	4
4	22.1	+58.2	86.8	4	28.5	+58.7	87.0	4	34.6	+59.1	87.2	4	40.4	+59.4	87.3	4	45.8	+59.7	87.5	4	50.9	+59.9	87.7	4	55.6	+60.0	87.8	5	00.0	+60.0	88.0	5
5	20.3	+58.2	86.6	5	27.2	+58.7	86.8	5	33.7	+59.1	87.0	5	39.8	+59.4	87.2	5	45.5	+59.7	87.4	5	50.8	+59.8	87.6	5	55.6	+60.0	87.8	6	00.0	+60.0	88.0	6
6	18.5	+58.2	86.4	6	25.9	+58.6	86.6	6	32.8	+59.0	86.8	6	39.2	+59.4	87.0	6	45.2	+59.6	87.3	6	50.6	+59.9	87.5	6	55.6	+59.9	87.8	7	00.0	+60.0	88.0	7
7	16.7	+58.1	86.1	7	24.5	+58.7	86.4	7	31.8	+59.1	86.6	7	38.6	+59.4	86.9	7	44.8	+59.7	87.2	7	50.5	+59.8	87.4	7	55.6	+60.0	87.7	8	00.0	+60.0	88.0	8
8	14.8	+58.2	85.9	8	23.2	+58.6	86.2	8	30.9	+59.1	86.5	8	38.0	+59.4	86.8	8	44.5	+59.6	87.1	8	50.3	+59.9	87.4	8	55.5	+59.9	87.7	9	00.0	+60.0	88.0	9
9	13.0	+58.2	85.6	9	21.8	+58.7	85.9	9	30.0	+59.0	86.3	9	37.4	+59.4	86.6	9	44.1	+59.7	87.0	9	50.2	+59.8	87.3	9	55.4	+60.0	87.6	10	00.0	+60.0	88.0	10
10	11.2	+58.1	85.4	10	20.5	+58.6	85.7	10	29.0	+59.1	86.1	10	36.8	+59.4	86.5	10	43.8	+59.7	86.8	10	50.0	+59.9	87.2	10	55.4	+60.0	87.6	11	00.0	+60.0	88.0	11
11	09.3	+58.2	85.1	11	19.1	+58.7	85.5	11	28.1	+59.0	85.9	11	36.2	+59.4	86.3	11	43.5	+59.6	86.7	11	49.9	+59.8	87.1	11	55.4	+59.9	87.6	12	00.0	+60.0	88.0	12
12	07.5	+58.1	84.9	12	17.8	+58.6	85.3	12	27.1	+59.1	85.7	12	35.6	+59.4	86.2	12	43.1	+59.7	86.6	12	49.7	+59.8	87.1	12	55.3	+60.0	87.5	13	00.0	+60.0	88.0	13
13	05.6	+58.1	84.6	13	16.4	+58.6	85.1	13	26.2	+59.0	85.6	13	35.0	+59.4	86.0	13	42.8	+59.6	86.5	13	49.5	+59.9	87.0	13	55.3	+60.0	87.5	14	00.0	+60.0	88.0	14
14	03.7	+58.1	84.4	14	15.0	+58.6	84.9	14	25.2	+59.0	85.4	14	34.4	+59.3	85.9	14	42.4	+59.7	86.4	14	49.4	+59.8	86.9	14	55.3	+59.9	87.5	15	00.0	+60.0	88.0	15
15	01.8	+58.1	84.1	15	13.6	+58.6	84.6	15	24.2	+59.1	85.2	15	33.7	+59.4	85.7	15	42.1	+59.6	86.3	15	49.2	+59.8	86.9	15	55.2	+60.0	87.4	16	00.0	+60.0	88.0	16
16	59.9	+58.1	83.8	16	12.2	+58.6	84.4	16	23.3	+59.0	85.0	16	33.1	+59.4	85.6	16	41.7	+59.7	86.2	16	49.1	+59.8	86.8	16	55.2	+59.9	87.4	17	00.0	+60.0	88.0	17
17	58.0	+58.0	83.6	17	10.8	+58.5	84.2	17	22.3	+59.0	84.8	17	32.5	+59.3	85.4	17	41.4	+59.6	86.1	17	48.9	+59.8	86.7	17	55.1	+60.0	87.4	18	00.0	+60.0	88.0	18
18	56.0	+58.0	83.3	18	09.3	+58.6	84.0	18	21.3	+58.9	84.6	18	31.8	+59.4	85.3	18	41.0	+59.6	86.0	18	48.8	+59.8	86.6	18	55.1	+60.0	87.3	19	00.0	+60.0	88.0	19
19	54.0	+58.0	83.0	19	07.9	+58.5	83.7	19	20.2	+59.0	84.4	19	31.2	+59.3	85.1	19	40.6	+59.7	85.8	19	48.6	+59.8	86.6	19	55.1	+59.9	87.3	20	00.0	+60.0	88.0	20
20	52.0	+58.0	82.8	20	06.4	+58.6	83.5	20	19.2	+59.0	84.2	20	30.5	+59.3	85.0	20	40.3	+59.6	85.7	20	48.4	+59.8	86.5	20	55.0	+60.0	87.2	21	00.0	+60.0	88.0	21
21	50.0	+57.9	82.5	21	04.9	+58.5	83.3	21	18.2	+58.9	84.0	21	29.8	+59.4	84.8	21	39.9	+59.6	85.6	21	48.3	+59.8	86.4	21	55.0	+59.9	87.2	22	00.0	+60.0	88.0	22
22	47.9	+58.0	82.2	22	03.4	+58.4	83.0	22	17.1	+58.9	83.8	22	29.2	+59.3	84.6	22	39.5	+59.6	85.5	22	48.1	+59.8	86.3	22	54.9	+60.0	87.2	23	00.0	+60.0	88.0	23
23	45.9	+57.8	81.9	23	01.8	+58.5	82.8	23	16.0	+58.9	83.6	23	28.5	+59.3	84.5	23	39.1	+59.6	85.4	23	47.9	+59.8	86.2	23	54.9	+59.9	87.1	24	00.0	+60.0	88.0	24
24	43.7	+57.9	81.7	24	00.3	+58.4	82.5	24	14.9	+58.9	83.4	24	27.8	+59.3	84.3	24	38.7	+59.6	85.2	24	47.7	+59.9	86.1	24	54.8	+60.0	87.1	25	00.0	+60.0	88.0	25
25	41.6	+57.8	81.4	25	58.7	+58.4	82.3	25	13.8	+58.9	83.2	25	27.1	+59.2	84.1	25	38.3	+59.6	85.1	25	47.6	+59.8	86.1	25	54.8	+59.9	87.0	26	00.0	+60.0	88.0	26
26	39.4	+57.8	81.1	26	57.1	+58.3	82.0	26	12.7	+58.9	83.0	26	26.3	+59.3	84.0	26	37.9	+59.6	85.0	26	47.4	+59.8	86.0	26	54.7	+60.0	87.0	27	00.0	+60.0	88.0	27
27	37.2	+57.7	80.8	27	55.4	+58.4	81.8	27	11.6	+58.8	82.8	27	25.6	+59.3	83.8	27	37.5	+59.6	84.8	27	47.2	+59.8	85.9	27	54.7	+60.0	86.9	28	00.0	+60.0	88.0	28
28	34.9	+57.7	80.5	28	53.8	+58.3	81.5	28	10.4	+58.8	82.6	28	24.9	+59.2	83.6	28	37.1	+59.5	84.7	28	47.0	+59.8	85.8	28	54.7	+59.9	86.9	29	00.0	+60.0	88.0	29
29	32.6	+57.7	80.1	29	52.1	+58.2	81.2	29	09.2	+58.8	82.3	29	24.1	+59.2	83.3	29	36.6	+59.6	84.6	29	46.8	+59.8	85.7	29	54.6	+60.0	86.8	30	00.0	+60.0	88.0	30
30	30.3	+57.6	79.8	30	50.3	+58.3	81.0	30	08.0	+58.8	82.1	30	23.3	+59.2	83.4	30	36.2	+59.6	84.4	30	46.6	+59.8	85.6	30	54.6	+59.9	86.8	31	00.0	+60.0	88.0	31
31	27.9	+57.6	79.5	31	48.6	+58.2	80.7	31	06.8	+58.7	81.9	31	22.5	+59.2	83.1	31	35.7	+59.6	84.3	31	46.4	+59.8	85.5	31	54.6	+60.0	86.8	32	00.0	+60.0	88.0	32
32	25.5	+57.5	79.2	32	46.8	+58.1	80.4	32	05.5	+58.7	81.6	32	21.7	+59.2	82.9	32	35.3	+59.5	84.1	32	46.2	+59.8	85.4	32	54.5	+59.9	86.7	33	00.0	+60.0	88.0	33
33	23.0	+57.5	78.8	33	44.9	+58.2	80.1	33	04.2	+58.7	81.4	33	20.9	+59.1	82.7	33	34.8	+59.5	84.0	33	46.0	+59.8	85.3	33	54.4	+59.9	86.7	34	00.0	+60.0	88.0	34
34	20.5	+57.4	78.5	34	43.1	+58.0	79.8	34	02.9	+58.7	81.1	34	20.0	+59.2	82.5	34	34.3	+59.5	83.8	34	45.8	+59.8	85.2	34	54.3	+60.0	86.6	35	00.0	+60.0	88.0	35
35	17.9	+57.3	78.2	35	41.1	+58.1	79.5	35	01.6	+58.6	80.9	35	19.2	+59.1	82.3	35	33.8	+59.5	83.7	35	45.6	+59.7	85.1	35	54.3	+59.9	86.6	36	00.0	+60.0	88.0	36
36	15.2	+57.3	77.8	36	39.2	+57.9	79.2	36	00.2	+58.6	80.6	36	18.3	+59.1	82.1	36	33.3	+59.5	83.5	36	45.3	+59.8	85.0	36	54.2	+60.0	86.5	37	00.0	+60.0	88.0	37
37	12.5	+57.2	77.4	37	37.1	+58.0	78.9	37	58.8	+58.5	80.3	37	17.4	+59.0	81.8	37	32.8	+59.5	83.4	37	44.1	+59.8	84.9	37	54.2	+59.9	86.4	38	00.0	+60.0	88.0	38
38	09.7	+57.1	77.1	38	35.1	+57.8	78.5	38	57.3	+58.5	80.1	38	16.4	+59.1	81.6	38	32.3	+59.5	83.2	38	45.9	+59.7	84.8	38	54.1	+60.0	86.4	39	00.0	+60.0	88.0	39
39	06.8	+57.1	76.7	39	32.9	+57.8	78.2	39	55.8	+58.5	79.8	39	15.5	+59.0	81.4	39	31.8	+59.4	83.0	39	44.6	+59.8	84.7	39	54.1	+59.9	86.3					

Table with columns for Dec. (0-90) and Latitude (60°, 62°, 64°, 66°, 68°, 70°, 72°, 74°). Each cell contains three values (Hc, d, Z) for each latitude. The table is a grid of astronomical data.

NONE CONTRARY NAME

L.H.A. 90°, 270°

60°			62°			64°			66°			68°			70°			72°			74°			Dec.		
Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z		Hc	d
0 00.0	+52.0	90.0	0 00.0	+53.0	90.0	0 00.0	+53.9	90.0	0 00.0	+54.8	90.0	0 00.0	+55.6	90.0	0 00.0	+56.4	90.0	0 00.0	+57.1	90.0	0 00.0	+57.7	90.0	0		
0 52.0	+51.9	89.5	0 53.0	+52.9	89.5	0 53.9	+54.0	89.6	0 54.8	+54.8	89.6	0 55.6	+55.7	89.6	0 56.4	+56.4	89.7	0 57.1	+57.0	89.7	0 57.7	+57.6	89.7	0	1	
1 43.9	+52.0	89.0	1 45.9	+53.0	89.1	1 47.9	+53.9	89.1	1 49.6	+54.8	89.2	1 51.3	+55.6	89.3	1 52.8	+56.3	89.3	1 54.1	+57.1	89.4	1 55.3	+57.7	89.4	2	2	
2 35.9	+51.9	88.5	2 38.9	+53.0	88.6	2 41.8	+53.9	88.7	2 44.4	+54.8	88.8	2 46.9	+55.6	88.9	2 49.1	+56.4	89.0	2 51.2	+57.0	89.1	2 53.0	+57.7	89.2	3	3	
3 27.8	+51.9	88.0	3 31.9	+52.9	88.1	3 35.7	+53.9	88.2	3 39.2	+54.8	88.4	3 42.5	+55.6	88.5	3 45.5	+56.4	88.6	3 48.2	+57.1	88.8	3 50.7	+57.7	88.9	4	4	
4 19.7	+51.9	87.5	4 24.8	+52.9	87.6	4 29.6	+53.9	87.8	4 34.0	+54.8	88.0	4 38.1	+55.6	88.1	4 41.9	+56.3	88.3	4 45.3	+57.0	88.5	4 48.4	+57.6	88.6	5	5	
5 11.6	+51.9	87.0	5 17.7	+52.9	87.2	5 23.5	+53.8	87.4	5 28.8	+54.7	87.6	5 33.7	+55.6	87.7	5 38.2	+56.4	87.9	5 42.3	+57.0	88.1	5 46.0	+57.7	88.3	6	6	
6 03.5	+51.9	86.5	6 10.6	+52.9	86.7	6 17.3	+53.9	86.9	6 23.5	+54.8	87.1	6 29.3	+55.5	87.4	6 34.6	+56.3	87.6	6 39.3	+57.1	87.8	6 43.7	+57.6	88.1	7	7	
6 55.4	+51.9	86.0	7 03.5	+52.9	86.2	7 11.2	+53.8	86.5	7 18.3	+54.7	86.7	7 24.8	+55.6	87.0	7 30.9	+56.3	87.2	7 36.4	+57.0	87.5	7 41.3	+57.6	87.8	8	8	
7 47.2	+51.7	85.5	7 56.4	+52.8	85.7	8 05.0	+53.7	86.0	8 13.0	+54.7	86.3	8 20.4	+55.5	86.6	8 27.2	+56.3	86.9	8 33.4	+57.0	87.2	8 38.9	+57.6	87.5	9	9	
8 38.9	+51.8	85.0	8 49.2	+52.7	85.3	8 58.7	+53.8	85.6	9 07.7	+54.6	85.9	9 15.9	+55.5	86.2	9 23.5	+56.2	86.5	9 30.4	+56.9	86.9	9 36.5	+57.6	87.2	10	10	
9 30.7	+51.7	84.4	9 41.9	+52.8	84.8	9 52.5	+53.7	85.1	10 02.3	+54.6	85.5	10 11.4	+55.5	85.8	10 19.7	+56.3	86.2	10 27.3	+57.0	86.6	10 34.1	+57.6	86.9	11	11	
10 22.4	+51.6	83.9	10 34.7	+52.7	84.3	10 46.2	+53.7	84.7	10 56.9	+54.6	85.1	11 06.9	+55.4	85.4	11 16.0	+56.2	85.8	11 24.3	+56.9	86.2	11 31.7	+57.6	86.6	12	12	
11 14.0	+51.6	83.4	11 27.4	+52.6	83.8	11 39.9	+53.6	84.2	11 51.5	+54.6	84.6	12 02.3	+55.4	85.1	12 12.2	+56.2	85.5	12 21.2	+56.9	85.9	12 29.3	+57.6	86.4	13	13	
12 05.6	+51.6	82.9	12 20.0	+52.6	83.3	12 33.5	+53.6	83.8	12 46.1	+54.5	84.2	12 57.7	+55.4	84.7	13 08.4	+56.2	85.1	13 18.1	+56.9	85.6	13 26.8	+57.6	86.1	14	14	
12 57.2	+51.4	82.4	13 12.6	+52.5	82.8	13 27.1	+53.5	83.3	13 40.6	+54.5	83.8	13 53.1	+55.3	84.3	14 04.6	+56.1	84.8	14 15.0	+56.8	85.3	14 24.4	+57.5	85.8	15	15	
13 48.6	+51.4	81.8	14 05.1	+52.5	82.3	14 20.6	+53.5	82.8	14 35.1	+54.4	83.3	14 48.4	+55.3	83.9	15 00.7	+56.1	84.4	15 11.8	+56.9	84.9	15 21.9	+57.5	85.5	16	16	
14 40.0	+51.3	81.3	14 57.6	+52.4	81.8	15 14.1	+53.4	82.4	15 29.5	+54.4	82.9	15 43.7	+55.3	83.5	15 56.8	+56.0	84.0	16 08.7	+56.8	84.6	16 19.4	+57.4	85.2	17	17	
15 31.3	+51.3	80.8	15 50.0	+52.4	81.3	16 07.5	+53.4	81.9	16 23.9	+54.3	82.5	16 39.0	+55.2	83.1	16 52.8	+56.1	83.7	17 05.5	+56.7	84.3	17 16.8	+57.4	84.9	18	18	
16 22.6	+51.2	80.2	16 42.4	+52.2	80.8	17 00.9	+53.3	81.4	17 18.2	+54.2	82.0	17 34.2	+55.1	82.7	17 48.9	+55.9	83.3	18 02.2	+56.8	83.9	18 14.2	+57.5	84.6	19	19	
17 13.8	+51.0	79.7	17 34.6	+52.2	80.3	17 54.2	+53.2	80.9	18 12.4	+54.2	81.6	18 29.3	+55.1	82.2	18 44.8	+56.0	82.9	18 59.0	+56.6	83.6	19 11.7	+57.3	84.3	20	20	
18 04.8	+51.0	79.1	18 26.8	+52.1	79.8	18 47.4	+53.1	80.4	19 06.6	+54.1	81.1	19 24.4	+55.0	81.8	19 40.8	+55.8	82.5	19 55.0	+56.7	83.2	20 09.0	+57.4	84.0	21	21	
18 55.8	+50.9	78.6	19 18.9	+52.0	79.3	19 40.5	+53.1	80.0	20 00.7	+54.1	80.7	20 19.4	+55.0	81.4	20 36.6	+55.9	82.1	20 52.3	+56.6	82.9	21 06.4	+57.3	83.6	22	22	
19 46.7	+50.8	78.0	20 10.9	+51.9	78.7	20 33.6	+53.0	79.5	20 54.8	+54.0	80.2	21 14.4	+54.9	81.0	21 32.5	+55.7	81.7	21 48.9	+56.5	82.5	22 03.7	+57.2	83.3	23	23	
20 37.5	+50.6	77.4	21 02.8	+51.8	78.2	21 26.6	+52.9	79.0	21 48.8	+53.9	79.7	22 09.3	+54.9	80.5	22 28.2	+55.7	81.3	22 45.4	+56.5	82.2	23 00.9	+57.3	83.0	24	24	
21 28.1	+50.6	76.9	21 54.6	+51.7	77.7	22 19.5	+52.7	78.4	22 42.7	+53.8	79.3	23 04.2	+54.7	80.1	23 23.9	+55.7	80.9	23 41.9	+56.5	81.8	23 58.2	+57.1	82.7	25	25	
22 18.7	+50.6	76.3	22 46.3	+51.6	77.1	23 12.2	+52.7	77.9	23 36.5	+53.7	78.8	23 58.9	+54.7	79.6	24 19.6	+55.6	80.5	24 38.4	+56.4	81.4	24 55.3	+57.2	82.3	26	26	
23 09.1	+50.3	75.7	23 37.9	+51.4	76.5	24 04.9	+52.6	77.4	24 30.2	+53.6	78.3	24 53.6	+54.6	79.2	25 15.2	+55.5	80.1	25 34.8	+56.3	81.1	25 52.5	+57.1	82.0	27	27	
23 59.4	+50.1	75.1	24 29.3	+51.4	76.0	24 57.5	+52.5	76.9	25 23.8	+53.5	77.8	25 48.2	+54.5	78.7	26 10.7	+55.4	79.7	26 31.1	+56.3	80.7	26 49.6	+57.0	81.7	28	28	
24 49.5	+50.0	74.5	25 20.7	+51.2	75.4	25 50.0	+52.3	76.3	26 17.3	+53.4	77.3	26 42.7	+54.4	78.3	27 06.1	+55.4	79.3	27 27.4	+56.2	80.3	27 46.6	+57.0	81.3	29	29	
25 39.5	+49.9	73.9	26 11.9	+51.0	74.8	26 42.3	+52.2	75.8	27 10.7	+53.3	76.8	27 37.1	+54.4	77.8	28 01.5	+55.2	78.8	28 23.6	+56.2	79.9	28 43.6	+56.9	81.0	30	30	
26 29.4	+49.7	73.3	27 02.9	+50.9	74.2	27 34.5	+52.1	75.2	28 04.0	+53.2	76.3	28 31.5	+54.2	77.3	28 56.7	+55.2	78.4	29 19.8	+56.0	79.5	29 40.5	+56.9	80.6	31	31	
27 19.1	+49.5	72.6	27 53.8	+50.8	73.7	28 26.6	+51.9	74.7	28 57.2	+53.1	75.7	29 25.7	+54.1	76.8	29 51.9	+55.1	77.9	30 15.8	+56.0	79.1	30 37.4	+56.8	80.2	32	32	
28 08.6	+49.3	72.0	28 44.6	+50.6	73.0	29 18.5	+51.8	74.1	29 50.3	+52.9	75.2	30 19.8	+54.0	76.3	30 47.0	+55.0	77.5	31 11.8	+55.9	78.7	31 34.2	+56.7	79.9	33	33	
28 57.9	+49.1	71.4	29 35.2	+50.4	72.4	30 10.3	+51.7	73.5	30 43.2	+52.8	74.7	31 13.8	+53.9	75.8	31 42.0	+54.9	77.0	32 07.7	+55.8	78.2	32 30.9	+56.7	79.5	34	34	
29 47.0	+49.0	70.7	30 25.6	+50.2	71.8	31 02.0	+51.4	72.9	31 36.0	+52.7	74.1	32 07.7	+53.7	75.3	32 36.9	+54.8	76.5	33 03.5	+55.8	77.8	33 27.6	+56.6	79.1	35	35	
30 36.0	+48.7	70.0	31 15.8	+50.1	71.2	31 53.4	+51.3	72.3	32 28.7	+52.4	73.5	33 01.4	+53.6	74.8	33 31.7	+54.6	76.0	33 53.9	+55.6	77.3	34 24.2	+56.5	78.7	36	36	
31 24.7	+48.5	69.4	32 05.9	+49.8	70.5	32 44.7	+51.1	71.7	33 21.1	+52.4	73.0	33 55.0	+53.5	74.2	34 26.3	+54.5	75.5	34 54.9	+55.5	76.9	35 20.7	+56.4	78.3	37	37	
32 13.2	+48.3	68.7	32 55.7	+49.7	69.9	33 35.8	+51.0	71.1	34 13.5	+52.1	72.4	34 48.5	+53.3	73.7	35 20.8	+54.4	75.0	35 50.4	+55.4	76.3	36 17.1	+56.4	77.8	38	38	
33 01.5	+48.1	68.0	33 45.4	+49.6	69.2	34 26.8	+50.7	70.5	35 05.6	+52.0	71.8	35 41.8	+53.2	73.1	36 15.2	+54.3	74.5	36 54.8	+55.3	76.0	37 13.5	+56.2	77.4	39	39	
33 49.6	+47.7	67.2	34 34.8	+49.1	68.5	35 17.5	+50.5	69.8	35 57.6	+51.8	71.2	36 35.0	+52.9	72.6	37 09.5	+54.1	74.0	37 41.1	+55.2	75.5	38 09.7	+56.2	77.0	40	40	
34 37.3	+47.6	66.5	35 23.9	+49.0	67.8	36 08.0	+50.3	69.1	36 49.4	+51.5	70.5	37 27.9	+52.9	72.0	38 03.6	+54.0	73.4	38 36.3	+55.0	75.0	39 05.9	+56.0	76.5	41	41	
35 24.9	+47.2	65.8	36 12.9	+48.6	67.1	36 58.3	+50.0	68.5	37 40.9	+51.4	69.9	38 20.8	+52.6	71.4	38 57.6	+53.8	72.9	39 31.3	+55.0	74.5	40 01.9	+56.9	76.1	42	42	
36 12.1	+46.9	65.0	37 01.5	+48.4	66.4	37 48.3	+49.8	67.8	38 32.3	+51.1	69.2	39 13.4	+52.4	70.7	39 51.4	+53.6	72.3	40 26.3	+54.7	73.9	40 57.8	+56.8	75.6	43	43	
36 59.9	+46.7	64.2	37 49.9	+48.1	65.6	38 38.1	+49.5	67.1	39 23.4	+50.9	68.6	40 03.8	+52.2	70.1	40 45.0	+53.5	71.7	41 21.0	+54.6	73.4	41 53.6	+55.7	75.1	44	44	
37 45.7	+46.3	63.4	38 38.0	+47.8	64.9	39 27.6	+49.3	66.3	40 14.3	+50.7	67.9	40 58.0	+52.0	69.5	41 38.5	+53.2	71.1	42 15.6	+54.4	72.8	42 49.3	+55.5	74.6	45	45	
38 32.0	+46.0	62.6	39 25.8	+47.5	64.1	40 16.9	+48.9	65.6	41 05.0	+50.4	67.2	41 50.0	+51.7	6												

Dec.	76°			78°			80°			82°			84°			86°			88°			90°		
	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z	Hc	d	Z
0	0 00.0	+58.2	90.0	0 00.0	+58.7	90.0	0 00.0	+59.1	90.0	0 00.0	+59.4	90.0	0 00.0	+59.7	90.0	0 00.0	+59.9	90.0	0 00.0	+60.0	90.0	0 00.0	+60.0	90.0
1	0 58.2	+58.2	89.8	0 58.7	+58.7	89.8	0 59.1	+59.1	89.8	0 59.4	+59.4	89.9	0 59.7	+59.6	89.9	0 59.9	+59.8	89.9	1 00.0	+59.9	90.0	1 00.0	+60.0	90.0
2	1 56.4	+58.2	89.5	1 57.4	+58.7	89.6	1 58.2	+59.0	89.7	1 58.8	+59.4	89.7	1 59.3	+59.7	89.8	1 59.7	+59.9	89.9	1 59.9	+60.0	89.9	2 00.0	+60.0	90.0
3	2 54.6	+58.3	89.3	2 56.1	+58.6	89.4	2 57.3	+59.0	89.5	2 58.2	+59.5	89.6	2 59.0	+59.7	89.7	2 59.6	+59.8	89.8	2 59.9	+60.0	89.9	3 00.0	+60.0	90.0
4	3 52.9	+58.2	89.0	3 54.7	+58.7	89.2	3 56.3	+59.1	89.3	3 57.7	+59.4	89.4	3 58.7	+59.7	89.6	3 59.4	+59.9	89.7	3 59.9	+59.9	89.9	4 00.0	+60.0	90.0
5	4 51.1	+58.2	88.8	4 53.4	+58.7	89.0	4 55.4	+59.1	89.1	4 57.1	+59.4	89.3	4 58.4	+59.6	89.5	4 59.3	+59.8	89.7	4 59.8	+60.0	89.8	5 00.0	+60.0	90.0
6	5 49.3	+58.2	88.5	5 52.1	+58.7	88.7	5 54.5	+59.1	89.0	5 56.5	+59.4	89.2	5 58.0	+59.7	89.4	5 59.1	+59.9	89.6	5 59.8	+59.9	89.8	6 00.0	+60.0	90.0
7	6 47.5	+58.2	88.3	6 50.8	+58.6	88.5	6 53.6	+59.1	88.8	6 55.9	+59.4	89.0	6 57.7	+59.7	89.3	6 59.0	+59.8	89.5	6 59.7	+60.0	89.8	7 00.0	+60.0	90.0
8	7 45.7	+58.1	88.1	7 49.4	+58.7	88.3	7 52.7	+59.0	88.6	7 55.3	+59.4	88.9	7 57.4	+59.6	89.2	7 58.8	+59.9	89.4	7 59.7	+60.0	89.7	8 00.0	+60.0	90.0
9	8 43.8	+58.2	87.8	8 48.1	+58.7	88.1	8 51.7	+59.1	88.4	8 54.7	+59.4	88.7	8 57.0	+59.7	89.1	8 58.7	+59.8	89.4	8 59.7	+59.9	89.7	9 00.0	+60.0	90.0
10	9 42.0	+58.2	87.6	9 46.8	+58.6	87.9	9 50.8	+59.1	88.2	9 54.1	+59.4	88.6	9 56.7	+59.6	88.9	9 58.5	+59.9	89.3	9 59.6	+60.0	89.6	10 00.0	+60.0	90.0
11	10 40.2	+58.1	87.3	10 45.4	+58.6	87.7	10 49.9	+59.0	88.1	10 53.5	+59.4	88.5	10 56.3	+59.7	88.8	10 58.4	+59.8	89.2	10 59.6	+60.0	89.6	11 00.0	+60.0	90.0
12	11 38.3	+58.1	87.1	11 44.0	+58.7	87.5	11 48.9	+59.0	87.9	11 52.9	+59.4	88.3	11 56.0	+59.7	88.7	11 58.2	+59.9	89.2	11 59.6	+59.9	89.6	12 00.0	+60.0	90.0
13	12 36.4	+58.2	86.8	12 42.7	+58.6	87.3	12 47.9	+59.1	87.7	12 52.3	+59.4	88.2	12 55.7	+59.6	88.6	12 58.1	+59.8	89.1	12 59.5	+60.0	89.5	13 00.0	+60.0	90.0
14	13 34.6	+58.1	86.5	13 41.3	+58.6	87.0	13 47.0	+59.0	87.5	13 51.7	+59.3	88.0	13 55.3	+59.7	88.5	13 57.9	+59.9	89.0	13 59.5	+59.9	89.5	14 00.0	+60.0	90.0
15	14 32.7	+58.1	86.3	14 39.9	+58.6	86.8	14 46.0	+59.0	87.3	14 51.0	+59.4	87.9	14 55.0	+59.6	88.4	14 57.8	+59.8	88.9	14 59.4	+60.0	89.5	15 00.0	+60.0	90.0
16	15 30.8	+58.0	86.0	15 38.5	+58.6	86.6	15 45.0	+59.0	87.1	15 50.4	+59.4	87.7	15 54.6	+59.6	88.3	15 57.6	+59.8	88.9	15 59.4	+60.0	89.4	16 00.0	+60.0	90.0
17	16 28.8	+58.1	85.8	16 37.1	+58.5	86.4	16 44.0	+59.0	87.0	16 49.8	+59.3	87.6	16 54.2	+59.7	88.2	16 57.4	+59.9	88.8	16 59.4	+59.9	89.4	17 00.0	+60.0	90.0
18	17 26.9	+58.0	85.5	17 35.6	+58.6	86.1	17 43.0	+59.0	86.8	17 49.1	+59.4	87.4	17 53.9	+59.6	88.1	17 57.3	+59.8	88.7	17 59.3	+60.0	89.4	18 00.0	+60.0	90.0
19	18 24.9	+58.0	85.2	18 34.2	+58.5	85.9	18 42.0	+59.0	86.6	18 48.5	+59.3	87.3	18 53.5	+59.6	87.9	18 57.1	+59.9	88.6	18 59.3	+59.9	89.3	19 00.0	+60.0	90.0
20	19 22.9	+58.0	85.0	19 32.7	+58.5	85.7	19 41.0	+59.0	86.4	19 47.8	+59.4	87.1	19 53.1	+59.7	87.8	19 57.0	+59.8	88.5	19 59.2	+60.0	89.3	20 00.0	+60.0	90.0
21	20 20.9	+57.9	84.7	20 31.2	+58.5	85.4	20 40.0	+59.0	86.2	20 47.2	+59.3	86.9	20 52.8	+59.6	87.7	20 56.8	+59.8	88.5	20 59.2	+60.0	89.2	21 00.0	+60.0	90.0
22	21 18.8	+58.0	84.4	21 29.7	+58.5	85.2	21 38.9	+59.0	86.0	21 46.5	+59.3	86.8	21 52.4	+59.6	87.6	21 56.6	+59.8	88.4	21 59.2	+59.9	89.2	22 00.0	+60.0	90.0
23	22 16.8	+57.9	84.1	22 28.2	+58.4	85.0	22 37.9	+58.9	85.8	22 45.8	+59.3	86.6	22 52.0	+59.6	87.3	22 56.4	+59.8	88.3	22 59.1	+60.0	89.2	23 00.0	+60.0	90.0
24	23 14.7	+57.8	83.9	23 26.6	+58.5	84.7	23 36.8	+58.9	85.6	23 45.1	+59.3	86.5	23 51.6	+59.6	87.3	23 56.3	+59.8	88.2	23 59.1	+59.9	89.1	24 00.0	+60.0	90.0
25	24 12.5	+57.9	83.6	24 25.1	+58.4	84.5	24 35.7	+58.9	85.4	24 44.4	+59.3	86.3	24 51.2	+59.6	87.2	24 56.1	+59.8	88.1	24 59.0	+60.0	89.1	25 00.0	+60.0	90.0
26	25 10.4	+57.8	83.3	25 23.5	+58.3	84.2	25 34.6	+58.8	85.2	25 43.7	+59.3	86.1	25 50.8	+59.6	87.1	25 55.9	+59.8	88.1	25 59.0	+59.9	89.0	26 00.0	+60.0	90.0
27	26 08.2	+57.7	83.0	26 21.8	+58.4	84.0	26 33.4	+58.9	84.9	26 43.0	+59.2	85.9	26 50.4	+59.6	87.0	26 55.7	+59.8	88.0	26 58.9	+60.0	89.0	27 00.0	+60.0	90.0
28	27 05.9	+57.7	82.7	27 20.0	+58.3	83.7	27 32.3	+58.8	84.7	27 42.2	+59.3	85.8	27 50.0	+59.6	86.8	27 55.5	+59.9	87.9	27 58.9	+59.9	88.9	28 00.0	+60.0	90.0
29	28 03.6	+57.7	82.4	28 18.5	+58.3	83.4	28 31.1	+58.8	84.5	28 41.5	+59.2	85.6	28 49.6	+59.5	86.7	28 55.4	+59.8	87.8	28 58.8	+60.0	88.9	29 00.0	+60.0	90.0
30	29 01.3	+57.7	82.0	29 16.8	+58.2	83.2	29 29.9	+58.8	84.3	29 40.7	+59.2	85.4	29 49.1	+59.5	86.5	29 55.2	+59.8	87.7	29 58.8	+59.9	88.8	30 00.0	+60.0	90.0
31	29 59.0	+57.6	81.7	30 15.0	+58.3	82.9	30 28.7	+58.8	84.0	30 39.9	+59.2	85.2	30 48.7	+59.5	86.4	30 55.0	+59.8	87.6	30 58.7	+60.0	88.8	31 00.0	+60.0	90.0
32	30 56.6	+57.5	81.4	31 13.3	+58.1	82.6	31 27.5	+58.7	83.8	31 39.1	+59.2	85.0	31 48.2	+59.5	86.3	31 54.8	+59.8	87.5	31 58.7	+59.9	88.8	32 00.0	+60.0	90.0
33	31 54.1	+57.5	81.1	32 11.4	+58.2	82.3	32 26.2	+58.7	83.6	32 38.3	+59.2	84.8	32 47.8	+59.5	86.1	32 54.6	+59.8	87.4	32 58.6	+60.0	88.7	33 00.0	+60.0	90.0
34	32 51.6	+57.4	80.7	33 09.6	+58.1	82.0	33 24.9	+58.7	83.3	33 37.5	+59.1	84.6	33 47.3	+59.5	86.0	33 54.4	+59.7	87.3	33 58.6	+59.9	88.7	34 00.0	+60.0	90.0
35	33 49.0	+57.4	80.4	34 07.7	+58.0	81.7	34 23.6	+58.6	83.1	34 36.6	+59.2	84.4	34 46.8	+59.5	85.8	34 54.1	+59.8	87.2	34 58.5	+59.9	88.6	35 00.0	+60.0	90.0
36	34 46.4	+57.3	80.0	35 05.7	+58.0	81.4	35 22.2	+58.6	82.8	35 35.8	+59.1	84.2	35 46.3	+59.5	85.7	35 53.9	+59.8	87.1	35 58.5	+59.9	88.5	36 00.0	+60.0	90.0
37	35 43.7	+57.2	79.7	36 03.7	+58.0	81.1	36 20.8	+58.6	82.5	36 34.9	+59.0	84.0	36 45.8	+59.5	85.5	36 53.7	+59.8	87.0	36 58.4	+60.0	88.5	37 00.0	+60.0	90.0
38	36 40.9	+57.2	79.3	37 01.7	+57.9	80.8	37 19.4	+58.5	82.3	37 33.9	+59.1	83.8	37 45.3	+59.5	85.3	37 53.7	+59.7	86.9	37 58.4	+59.9	88.4	38 00.0	+60.0	90.0
39	37 38.1	+57.1	78.9	37 59.6	+57.8	80.4	38 17.9	+58.5	82.0	38 33.0	+59.0	83.6	38 44.8	+59.4	85.2	38 53.2	+59.8	86.8	38 58.3	+59.9	88.4	39 00.0	+60.0	90.0
40	38 35.2	+57.0	78.5	38 57.4	+57.8	80.1	39 16.4	+58.5	81.7	39 32.0	+59.0	83.3	39 44.2	+59.5	85.0	39 53.0	+59.7	86.7	39 58.2	+60.0	88.3	40 00.0	+60.0	90.0
41	39 32.2	+56.9	78.1	39 55.2	+57.7	79.8	40 14.9	+58.4	81.4	40 31.0	+59.0	83.1	40 43.7	+59.4	84.8	40 52.7	+59.8	86.5	40 58.2	+59.9	88.3	41 00.0	+60.0	90.0
42	40 29.1	+56.9	77.7	40 52.9	+57.7	79.4	41 13.3	+58.3	81.1	41 30.0	+58.9	82.9	41 43.1	+59.4	84.6	41 52.5	+59.7	86.4	41 58.1	+59.9	88.2	42 00.0	+60.0	90.0
43	41 26.0	+56.7	77.3	41 50.6	+57.6	79.0	42 11.6	+58.3	80.8	42 28.9	+58.9	82.6	42 42.5	+59.4	84.4	42 52.2	+59.7	86.3	42 58.0	+60.0	88.1	43 00.0	+60.0	90.0
44	42 22.7	+56.6	76.9	42 48.2	+57.5	78.6	43 09.9	+58.3	80.5	43 27.8	+58.9	82.3	43 41.9	+59.3	84.2	43 51.9	+59.7	86.1	43 58.0	+59.9	88.1	44 00.0	+60.0	90.0
45	43 19.3	+56.6	76.4	43 45.7	+57.4	78.3	44 08.2	+58.1	80.1	44 26.7	+58.8	82.1	44 41.2	+59.4	84.0	44 51.6	+59.7	86.0	44 57.9	+59.9	88.0	45 00.0	+60.0	90.0
46	44 15.9	+56.4	75.9	44 43.1	+57.3	77.8	45 06.3	+58.2	79.8	45 25.5	+58.8	81.8	45 40.6	+59.3	83.8	45 51.3	+59.7	85.9	45 57.8	+60.0	87.9	46 00.0	+60.0	90.0
47	45 12.3	+56.3	75.5	45 40.4	+57.3	77.4	46 04.5	+58.0	79.5	46 24.3	+58.8	81.5	46 39.9	+59.3	83.6	46 51.0	+59.7	85.7	46 57.8	+59.9	87.9	47 00.0	+60.0	

NONE CONTRARY NAME

L.H.A. 90°, 270°

76°				78°				80°				82°				84°				86°				88°				90°				Dec.								
H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z	H	c	d	Z		H	c	d	Z				
0	00.0	-58.0	90.0	0	00.0	-58.2	90.0	0	00.0	-59.5	90.0	0	00.0	-59.7	90.0	0	00.0	-59.7	90.0	0	00.0	-59.9	90.0	0	00.0	-59.9	90.0	0	00.0	-60.0	90.0		0	00.0	-60.0	90.0	0	00.0	-60.0	90.0
0	58.2	+58.2	89.8	0	58.7	+58.7	89.8	0	59.1	+59.1	89.8	0	59.4	+59.4	89.9	0	59.7	+59.7	89.9	0	59.9	+59.9	89.9	0	60.0	+60.0	90.0	0	60.0	+60.0	90.0	0	60.0	+60.0	90.0	0	60.0	+60.0	90.0	1
1	56.4	+58.2	89.5	1	57.4	+58.7	89.6	1	58.2	+59.1	89.7	1	58.8	+59.4	89.7	1	59.3	+59.7	89.8	1	59.7	+59.9	89.9	1	59.9	+60.0	89.9	2	00.0	+60.0	90.0	2	00.0	+60.0	90.0	2	00.0	+60.0	90.0	2
2	54.6	+58.3	89.3	2	56.1	+58.6	89.4	2	57.3	+59.0	89.5	2	58.2	+59.5	89.6	2	59.0	+59.7	89.7	2	59.6	+59.8	89.8	2	59.9	+60.0	89.9	3	00.0	+60.0	90.0	3	00.0	+60.0	90.0	3	00.0	+60.0	90.0	3
3	52.9	+58.2	89.0	3	54.7	+58.7	89.2	3	56.3	+59.1	89.3	3	57.7	+59.4	89.4	3	58.7	+59.7	89.6	3	59.4	+59.9	89.7	3	59.9	+59.9	89.9	4	00.0	+60.0	90.0	4	00.0	+60.0	90.0	4	00.0	+60.0	90.0	4
4	51.1	+58.2	88.8	4	53.4	+58.7	89.0	4	55.4	+59.1	89.1	4	57.1	+59.4	89.3	4	58.4	+59.6	89.5	4	59.3	+59.8	89.7	4	59.8	+60.0	89.8	5	00.0	+60.0	90.0	5	00.0	+60.0	90.0	5	00.0	+60.0	90.0	5
5	49.3	+58.2	88.5	5	52.1	+58.7	88.7	5	54.5	+59.1	89.0	5	56.5	+59.4	89.2	5	58.0	+59.7	89.4	5	59.1	+59.9	89.6	5	59.8	+59.9	89.8	6	00.0	+60.0	90.0	6	00.0	+60.0	90.0	6	00.0	+60.0	90.0	6
6	47.5	+58.2	88.3	6	50.8	+58.6	88.5	6	53.6	+59.1	88.8	6	55.9	+59.4	89.0	6	57.7	+59.7	89.3	6	59.0	+59.8	89.5	6	59.7	+60.0	89.8	7	00.0	+60.0	90.0	7	00.0	+60.0	90.0	7	00.0	+60.0	90.0	7
7	45.7	+58.1	88.1	7	49.4	+58.7	88.3	7	52.7	+59.0	88.6	7	55.3	+59.4	88.9	7	57.4	+59.6	89.2	7	58.8	+59.9	89.4	7	59.7	+60.0	89.7	8	00.0	+60.0	90.0	8	00.0	+60.0	90.0	8	00.0	+60.0	90.0	8
8	43.8	+58.2	87.8	8	48.1	+58.7	88.1	8	51.7	+59.1	88.4	8	54.7	+59.4	88.7	8	57.0	+59.7	89.1	8	58.7	+59.8	89.4	8	59.7	+59.9	89.7	9	00.0	+60.0	90.0	9	00.0	+60.0	90.0	9	00.0	+60.0	90.0	9
9	42.0	+58.2	87.6	9	46.8	+58.6	87.9	9	50.8	+59.1	88.2	9	54.1	+59.4	88.6	9	56.7	+59.6	88.9	9	58.5	+59.9	89.3	9	59.6	+60.0	89.6	10	00.0	+60.0	90.0	10	00.0	+60.0	90.0	10	00.0	+60.0	90.0	10
10	40.2	+58.1	87.3	10	45.4	+58.6	87.7	10	49.9	+59.0	88.1	10	53.5	+59.4	88.5	10	56.3	+59.7	88.8	10	58.4	+59.8	89.2	10	59.6	+60.0	89.6	11	00.0	+60.0	90.0	11	00.0	+60.0	90.0	11	00.0	+60.0	90.0	11
11	38.3	+58.1	87.1	11	44.0	+58.7	87.5	11	48.9	+59.0	87.9	11	52.9	+59.4	88.3	11	56.0	+59.7	88.7	11	58.2	+59.9	89.1	11	59.6	+59.9	89.6	12	00.0	+60.0	90.0	12	00.0	+60.0	90.0	12	00.0	+60.0	90.0	12
12	36.4	+58.2	86.8	12	42.7	+58.6	87.3	12	47.9	+59.1	87.7	12	52.3	+59.4	88.2	12	55.7	+59.6	88.6	12	58.1	+59.8	89.1	12	59.5	+60.0	89.5	13	00.0	+60.0	90.0	13	00.0	+60.0	90.0	13	00.0	+60.0	90.0	13
13	34.6	+58.1	86.5	13	41.3	+58.6	87.0	13	47.0	+59.0	87.5	13	51.7	+59.3	88.0	13	55.3	+59.7	88.5	13	57.9	+59.9	89.0	13	59.5	+59.9	89.5	14	00.0	+60.0	90.0	14	00.0	+60.0	90.0	14	00.0	+60.0	90.0	14
14	32.7	+58.1	86.3	14	39.9	+58.6	86.8	14	46.0	+59.0	87.3	14	51.0	+59.4	87.9	14	55.0	+59.6	88.4	14	57.8	+59.8	88.9	14	59.4	+60.0	89.5	15	00.0	+60.0	90.0	15	00.0	+60.0	90.0	15	00.0	+60.0	90.0	15
15	30.8	+58.0	86.0	15	38.5	+58.6	86.6	15	45.0	+59.0	87.1	15	50.4	+59.4	87.7	15	54.6	+59.6	88.3	15	57.6	+59.8	88.9	15	59.0	+60.0	89.4	16	00.0	+60.0	90.0	16	00.0	+60.0	90.0	16	00.0	+60.0	90.0	16
16	28.8	+58.1	85.8	16	37.1	+58.5	86.4	16	44.0	+59.0	87.0	16	49.8	+59.3	87.6	16	54.2	+59.7	88.2	16	57.4	+59.8	88.8	16	59.4	+59.9	89.4	17	00.0	+60.0	90.0	17	00.0	+60.0	90.0	17	00.0	+60.0	90.0	17
17	26.9	+58.0	85.5	17	35.6	+58.6	86.1	17	43.0	+59.0	86.8	17	49.1	+59.4	87.4	17	53.9	+59.6	88.1	17	57.3	+59.8	88.7	17	59.3	+60.0	89.4	18	00.0	+60.0	90.0	18	00.0	+60.0	90.0	18	00.0	+60.0	90.0	18
18	24.9	+58.0	85.2	18	34.2	+58.5	85.9	18	42.0	+59.0	86.6	18	48.5	+59.3	87.3	18	53.5	+59.6	87.9	18	57.1	+59.9	88.6	18	59.3	+59.9	89.3	19	00.0	+60.0	90.0	19	00.0	+60.0	90.0	19	00.0	+60.0	90.0	19
19	22.9	+58.0	85.0	19	32.7	+58.5	85.7	19	41.0	+59.0	86.4	19	47.8	+59.4	87.1	19	53.1	+59.7	87.8	19	57.0	+59.8	88.5	19	59.2	+60.0	89.3	20	00.0	+60.0	90.0	20	00.0	+60.0	90.0	20	00.0	+60.0	90.0	20
20	20.9	+57.9	84.7	20	31.2	+58.5	85.4	20	40.0	+58.9	86.2	20	47.2	+59.3	86.9	20	52.8	+59.6	87.7	20	56.8	+59.8	88.5	20	59.2	+60.0	89.2	21	00.0	+60.0	90.0	21	00.0	+60.0	90.0	21	00.0	+60.0	90.0	21
21	18.8	+58.0	84.4	21	29.7	+58.5	85.2	21	38.9	+59.0	86.0	21	46.5	+59.3	86.8	21	52.4	+59.6	87.6	21	56.6	+59.8	88.4	21	59.2	+59.9	89.2	22	00.0	+60.0	90.0	22	00.0	+60.0	90.0	22	00.0	+60.0	90.0	22
22	16.8	+57.9	84.1	22	28.2	+58.4	85.0	22	37.9	+58.9	85.8	22	45.8	+59.3	86.6	22	51.0	+59.6	87.5	22	56.4	+59.8	88.3	22	59.1	+60.0	89.2	23	00.0	+60.0	90.0	23	00.0	+60.0	90.0	23	00.0	+60.0	90.0	23
23	14.7	+57.8	83.9	23	26.6	+58.5	84.7	23	36.8	+58.9	85.6	23	45.1	+59.3	86.5	23	51.6	+59.6	87.3	23	56.3	+59.8	88.2	23	59.1	+59.9	89.1	24	00.0	+60.0	90.0	24	00.0	+60.0	90.0	24	00.0	+60.0	90.0	24
24	12.5	+57.9	83.6	24	25.1	+58.4	84.5	24	35.7	+58.9	85.4	24	44.4	+59.3	86.3	24	51.2	+59.6	87.2	24	56.1	+59.8	88.1	24	59.0	+60.0	89.1	25	00.0	+60.0	90.0	25	00.0	+60.0	90.0	25	00.0	+60.0	90.0	25
25	10.4	+57.8	83.3	25	23.5	+58.3	84.2	25	34.6	+58.8	85.2	25	43.7	+59.3	86.1	25	50.8	+59.6	87.1	25	55.9	+59.8	88.1	25	59.0	+59.9	89.1	26	00.0	+60.0	90.0	26	00.0	+60.0	90.0	26	00.0	+60.0	90.0	26
26	08.2	+57.7	83.0	26	21.8	+58.4	84.0	26	33.4	+58.9	84.9	26	43.0	+59.2	85.9	26	50.4	+59.6	87.0	26	55.7	+59.8	88.0	26	58.9	+60.0	89.0	27	00.0	+60.0	90.0	27	00.0	+60.0	90.0	27	00.0	+60.0	90.0	27
27	05.9	+57.7	82.7	27	20.2	+58.3	83.7	27	32.3	+58.8	84.7	27	42.2	+59.3	85.8	27	50.0	+59.6	86.8	27	55.5	+59.9	87.9	27	58.9	+59.9	88.9	28	00.0	+60.0	90.0	28	00.0	+60.0	90.0	28	00.0	+60.0	90.0	28
28	03.6	+57.7	82.4	28	18.5	+58.3	83.4	28	31.1	+58.8	84.5	28	41.5	+59.2	85.6	28	49.6	+59.5	86.7	28	55.4	+59.8	87.8	28	58.8	+60.0	88.9	29	00.0	+60.0	90.0	29	00.0	+60.0	90.0	29	00.0	+60.0	90.0	29
29	01.3	+57.7	82.0	29	16.8	+58.2	83.2	29	29.9	+58.8	84.3	29	40.7	+59.2	85.4	29	49.1	+59.6	86.5	29	55.2	+59.8	87.7	29	58.8	+59.9	88.8	30	00.0	+60.0	90.0	30	00.0	+60.0	90.0	30	00.0	+60.0	90.0	30
30	00.0	+57.6	81.7	30	15.0	+58.3	82.9	30	28.7	+58.8	84.0	30	39.9	+59.2	85.2	30	48.7	+59.5	86.4	30	55.0	+59.8	87.6	30	58.7	+60.0	88.8	31	00.0	+60.0	90.0	31	00.0	+60.0	90.0	31	00.0	+60.0	90.0	31
31	58.6	+57.5	81.4	31	13.3	+58.1	82.6	31	27.5	+58.7	83.8	31	39.1	+59.2	85.0	31	48.2	+59.6	86.3	31	54.8	+59.8	87.5	31	58.7	+59.9	88.8	32	00.0	+60.0	90.0	32	00.0	+60.0	90.0	32	00.0	+60.0	90.0	32
32	56.1	+57.5	81.1	32	11.4	+58.2	82.3	32	26.2	+58.7	83.6	32	38.3	+59.2	84.8	32	47.8	+59.5	86.1	32	54.6	+59.8	87.4	32	58.6	+60.0	88.7	33	00.0	+60.0	90.0	33	00.0	+60.0	90.0	33	00.0	+60.0	90.0	33
33	54.1	+57.4	80.7	33	09.6	+58.1	82.0	33	24.9																															