N. Lat. {LHA greater than 180°........Zn=Z
{LHA less than 180°..............Zn=360−Z

DECLINATION (15°-29°) SAME NAME AS LATITUDE

LAT 1°

LHA	15° Hc	d	Z	16° Hc	d	Z	17° Hc	d	Z	18° Hc	d	Z	19° Hc	d	Z	20° Hc	d	Z	21° Hc	d	Z	22° Hc	d	Z	23° Hc	d	Z	24° Hc	d	Z	25° Hc	d	Z	26° Hc	d	Z	27° Hc	d	Z	28° Hc	d	Z	29° Hc	d	Z
	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°	° ′	′	°
290	19 34	−5	74	19 29	−5	73	19 24	−6	72	19 18	−5	71	19 13	−7	70	19 06	−6	69	19 00	−7	68	18 53	−7	67	18 46	−8	66	18 38	−8	65	18 30	−8	64	18 22	−9	63	18 13	−9	62	18 04	−9	61	17 55	−10	60
289	18 36	4	75	18 32	5	73	18 27	5	72	18 22	6	71	18 16	6	70	18 10	6	69	18 04	6	68	17 58	7	67	17 51	7	66	17 44	8	65	17 36	8	64	17 28	8	63	17 20	8	62	17 12	9	61	17 03	9	60
288	17 38	4	75	17 34	4	74	17 30	5	73	17 25	5	71	17 20	6	70	17 14	6	69	17 08	6	68	17 02	6	67	16 56	7	66	16 49	7	65	16 42	7	64	16 35	8	63	16 27	8	62	16 19	8	61	16 11	9	60
287	16 40	4	75	16 36	4	74	16 32	4	73	16 28	5	72	16 23	5	71	16 18	5	69	16 13	6	68	16 07	6	67	16 01	6	66	15 55	7	65	15 48	7	64	15 41	7	63	15 34	7	62	15 27	8	61	15 19	8	60
286	15 42	3	75	15 39	4	74	15 35	4	73	15 31	4	72	15 27	5	71	15 22	5	70	15 17	5	69	15 12	6	67	15 06	6	66	15 00	6	65	14 54	6	64	14 48	7	63	14 41	7	62	14 34	7	61	14 27	8	60
285	14 45	−4	75	14 41	−3	74	14 38	−4	73	14 34	−4	72	14 30	−4	71	14 26	−5	70	14 21	−5	69	14 16	−5	68	14 11	−5	67	14 06	−6	66	14 00	−6	65	13 54	−6	63	13 48	−7	62	13 41	−6	61	13 35	−7	60
284	13 47	3	75	13 44	3	74	13 41	4	73	13 37	4	72	13 33	4	71	13 29	4	70	13 25	4	69	13 21	5	68	13 16	5	67	13 11	5	66	13 06	6	65	13 00	5	64	12 55	6	63	12 49	6	62	12 43	7	61
283	12 49	3	75	12 46	3	74	12 43	3	73	12 40	3	72	12 37	4	71	12 33	4	70	12 29	4	69	12 25	4	68	12 21	5	67	12 16	4	66	12 12	5	65	12 07	5	64	12 02	6	63	11 56	6	62	11 50	5	61
282	11 51	2	75	11 49	3	74	11 46	3	73	11 43	3	72	11 40	3	71	11 37	4	70	11 33	3	69	11 30	4	68	11 26	4	67	11 22	5	66	11 17	4	65	11 13	5	64	11 08	5	63	11 03	5	62	10 58	5	61
281	10 53	2	75	10 51	2	74	10 49	3	73	10 46	3	72	10 43	2	71	10 41	4	70	10 37	3	69	10 34	3	68	10 31	4	67	10 27	4	66	10 23	4	65	10 19	4	64	10 15	4	63	10 11	5	62	10 06	5	61
280	09 55	−2	75	09 53	−2	74	09 51	−2	73	09 49	−2	72	09 47	−3	71	09 44	−2	70	09 42	−3	69	09 39	−3	68	09 36	−4	67	09 32	−3	66	09 29	−4	65	09 25	−3	64	09 22	−4	63	09 18	−4	62	09 14	−5	61
279	08 57	1	75	08 56	2	74	08 54	2	73	08 52	2	72	08 50	2	71	08 48	2	70	08 46	3	69	08 43	3	68	08 40	2	67	08 38	3	66	08 35	3	65	08 32	4	64	08 28	3	63	08 25	4	62	08 21	4	61
278	07 59	1	75	07 58	1	74	07 57	2	73	07 55	2	72	07 53	1	71	07 52	2	70	07 50	2	69	07 48	3	68	07 45	2	67	07 43	3	66	07 40	2	65	07 38	3	64	07 35	3	63	07 32	3	62	07 29	3	61
277	07 01	−1	75	07 00	1	74	06 59	1	73	06 58	1	72	06 57	2	71	06 55	1	70	06 54	2	69	06 52	2	68	06 50	2	67	06 48	2	66	06 46	2	65	06 44	3	64	06 41	2	63	06 39	3	62	06 36	2	61
276	06 03	0	75	06 03	1	74	06 02	−1	73	06 01	1	72	06 00	1	71	05 59	−1	70	05 58	2	69	05 56	1	68	05 55	2	67	05 53	1	66	05 52	2	65	05 50	2	64	05 48	2	63	05 46	2	62	05 44	2	61
275	05 05	0	75	05 05	−1	74	05 04	0	73	05 04	−1	72	05 03	−1	71	05 02	0	70	05 02	−1	69	05 01	−1	68	05 00	−2	67	04 58	−1	66	04 57	−1	65	04 56	−1	64	04 55	−2	63	04 53	−2	62	04 51	−1	61
274	04 07	0	75	04 07	0	74	04 07	0	73	04 07	−1	72	04 06	0	71	04 06	0	70	04 06	1	69	04 05	−1	68	04 04	0	67	04 04	1	66	04 03	−1	65	04 02	−1	64	04 01	1	63	04 00	−1	62	03 59	1	61
273	03 09	+1	75	03 10	0	74	03 10	0	73	03 10	0	72	03 10	0	71	03 10	0	70	03 10	−1	69	03 09	0	68	03 09	0	67	03 09	−1	66	03 08	0	65	03 08	0	64	03 08	−1	63	03 07	0	62	03 07	−1	61
272	02 11	1	75	02 12	0	74	02 12	+1	73	02 13	0	72	02 13	0	71	02 13	+1	70	02 14	0	69	02 14	0	68	02 14	0	67	02 14	0	66	02 14	0	65	02 14	0	64	02 14	0	63	02 14	0	62	02 14	0	61
271	01 13	1	75	01 14	+1	74	01 15	1	73	01 16	0	72	01 16	+1	71	01 17	1	70	01 18	0	69	01 18	+1	68	01 19	0	67	01 19	+1	66	01 20	0	65	01 20	+1	64	01 21	0	63	01 21	+1	62	01 22	0	61
270	00 16	+1	75	00 17	+1	74	00 18	+1	73	00 19	+1	72	00 20	+1	71	00 21	+1	70	00 22	0	69	00 22	+1	68	00 23	+1	67	00 24	+1	66	00 25	+1	65	00 26	+1	64	00 27	+1	63	00 28	+1	62	00 29	+1	61
269	−0 42	1	75	−0 41	1	74	−0 40	1	73	−0 39	2	72	−0 37	1	71	−0 36	2	70	−0 34	+1	69	−0 33	1	68	−0 32	2	67	−0 30	1	66	−0 29	1	65	−0 28	2	64	−0 26	1	63	−0 25	2	62	−0 23	1	61
268	−1 40	1	75	−1 39	2	74	−1 37	1	73	−1 36	2	72	−1 34	2	71	−1 32	2	70	−1 30	1	69	−1 29	2	68	−1 27	2	67	−1 25	2	66	−1 23	1	65	−1 22	2	64	−1 20	2	63	−1 18	2	62	−1 16	2	61
267	−2 38	2	75	−2 36	1	74	−2 35	2	73	−2 33	2	72	−2 31	2	71	−2 29	3	70	−2 26	2	69	−2 24	2	68	−2 22	2	67	−2 20	2	66	−2 18	3	65	−2 15	2	64	−2 13	2	63	−2 11	3	62	−2 08	2	61
266	−3 36	2	75	−3 34	2	74	−3 32	2	73	−3 30	3	72	−3 27	2	71	−3 25	3	70	−3 22	2	69	−3 20	3	68	−3 17	2	67	−3 15	3	66	−3 12	3	65	−3 09	3	64	−3 06	2	63	−3 04	3	62	−3 01	3	61
265	−4 34	+2	75	−4 32	+3	74	−4 29	+2	73	−4 27	+3	72	−4 24	+3	71	−4 21	+3	70	−4 18	+2	69	−4 16	+3	68	−4 13	+4	67	−4 09	+3	66	−4 06	+3	65	−4 03	+3	64	−4 00	+3	63	−3 57	+4	62	−3 53	+3	61
264	−5 32	3	75	−5 29	2	74	−5 27	3	73	−5 24	3	72	−5 21	3	71	−5 18	4	70	−5 14	3	69	−5 11	3	68	−5 08	4	67	−5 04	3	66	−5 01	4	65	−4 57	4	64	−4 53	4	63	−4 49	4	62	−4 45	4	61
263	−6 30	3	75	−6 27	3	74	−6 24	3	73	−6 21	4	72	−6 17	3	71	−6 14	4	70	−6 10	3	69	−6 07	4	68	−6 03	4	67	−5 59	4	66	−5 55	4	65	−5 51	4	64	−5 47	5	63	−5 42	4	62	−5 38	5	61
262																																98			−6 45	4	64	−6 40	5	63	−6 35	5	62	−6 30	5	61

LHA	15° Hc	d	Z	16° Hc	d	Z	17° Hc	d	Z	18° Hc	d	Z	19° Hc	d	Z	20° Hc	d	Z	21° Hc	d	Z	22° Hc	d	Z	23° Hc	d	Z	24° Hc	d	Z	25° Hc	d	Z	26° Hc	d	Z	27° Hc	d	Z	28° Hc	d	Z	29° Hc	d	Z
263																											97	−6 48	2	114	−6 46	2	115	−6 44	3	116	−6 41	2	117	−6 39	3	118	−6 36	2	119
264	6 03	0	105	−6 03	1	106	−6 02	+1	107	−6 01	1	108	−6 00	1	109	−5 59	+1	110	−5 58	2	111	−5 56	1	112	−5 55	2	113	−5 53	1	114	−5 52	2	115	−5 50	2	116	−5 48	2	117	−5 46	2	118	−5 44	2	119
265	5 05	0	105	−5 05	+1	106	−5 04	0	107	−5 04	+1	108	−5 03	+1	109	−5 02	0	110	−5 02	+1	111	−5 01	+1	112	−5 00	+2	113	−4 58	+1	114	−4 57	+1	115	−4 56	+1	116	−4 55	+2	117	−4 53	+2	118	−4 51	+1	119
266	4 07	0	105	−4 07	0	106	−4 07	0	107	−4 07	+1	108	−4 06	0	109	−4 06	0	110	−4 06	1	111	−4 05	+1	112	−4 04	0	113	−4 04	1	114	−4 03	+1	115	−4 02	+1	116	−4 01	1	117	−4 00	+1	118	−3 59	1	119
267	3 09	1	105	−3 10	0	106	−3 10	0	107	−3 10	0	108	−3 10	0	109	−3 10	0	110	−3 10	+1	111	−3 09	0	112	−3 09	0	113	−3 09	+1	114	−3 08	0	115	−3 08	0	116	−3 08	+1	117	−3 07	0	118	−3 07	+1	119
268	2 11	1	105	−2 12	0	106	−2 12	−1	107	−2 13	0	108	−2 13	0	109	−2 13	−1	110	−2 14	0	111	−2 14	0	112	−2 14	0	113	−2 14	0	114	−2 14	0	115	−2 14	0	116	−2 14	0	117	−2 14	0	118	−2 14	0	119
269	1 13	1	105	−1 14	−1	106	−1 15	1	107	−1 16	0	108	−1 16	−1	109	−1 17	1	110	−1 18	0	111	−1 18	−1	112	−1 19	0	113	−1 19	−1	114	−1 20	0	115	−1 20	−1	116	−1 21	0	117	−1 21	−1	118	−1 22	0	119
270	0 16	−1	105	−0 17	−1	106	−0 18	−1	107	−0 19	−1	108	−0 20	−1	109	−0 21	−1	110	−0 22	0	111	−0 22	−1	112	−0 23	−1	113	−0 24	−1	114	−0 25	−1	115	−0 26	−1	116	−0 27	−1	117	−0 28	−1	118	−0 29	−1	119
271	42	1	105	00 41	1	106	00 40	1	107	00 39	2	108	00 37	1	109	00 36	2	110	00 34	−1	111	00 33	1	112	00 32	2	113	00 30	1	114	00 29	1	115	00 28	2	116	00 26	1	117	00 25	2	118	00 23	1	119
272	40	1	105	01 39	2	106	01 37	1	107	01 36	2	108	01 34	2	109	01 32	2	110	01 30	1	111	01 29	2	112	01 27	2	113	01 25	2	114	01 23	1	115	01 22	2	116	01 20	2	117	01 18	2	118	01 16	2	119
273	38	2	105	02 36	1	106	02 35	2	107	02 33	2	108	02 31	2	109	02 29	3	110	02 26	2	111	02 24	2	112	02 22	2	113	02 20	2	114	02 18	3	115	02 15	2	116	02 13	2	117	02 11	3	118	02 08	2	119
274	36	2	105	03 34	2	106	03 32	2	107	03 30	3	108	03 27	2	109	03 25	3	110	03 22	2	111	03 20	3	112	03 17	2	113	03 15	3	114	03 12	3	115	03 09	3	116	03 06	3	117	03 04	3	118	03 01	3	119
275	34	−2	105	04 32	−3	106	04 29	−2	107	04 27	−3	108	04 24	−3	109	04 21	−3	110	04 18	−2	111	04 16	−3	112	04 13	−4	113	04 09	−3	114	04 06	−3	115	04 03	−3	116	04 00	−3	117	03 57	−4	118	03 53	−3	119
276	32	3	105	05 29	2	106	05 27	3	107	05 24	3	108	05 21	3	109	05 18	4	110	05 14	3	111	05 11	3	112	05 08	4	113	05 04	3	114	05 01	4	115	04 57	4	116	04 53	4	117	04 49	4	118	04 45	4	119
277	30	3	105	06 27	3	106	06 24	3	107	06 21	4	108	06 17	3	109	06 14	4	110	06 10	3	111	06 07	4	112	06 03	4	113	05 59	4	114	05 55	4	115	05 51	4	116	05 47	5	117	05 42	4	118	05 38	5	119
	28	3	105	07 25	4	106	07 21	3	107	07 18	4	108	07 14	4	109	07 10	4	110	07 06	4	111	07 02	4	112	06 58	4	113	06 54	5	114	06 49	4	115	06 45	4	116	06 40	5	117						
	26	4	105	08 22	4	106	08 18	3	107	08 15	4	108	08 11	5	109	08 06	4	110	08 02	4	111	07 58	5	112	07 53	5	113	07 48		114															
	24	−4	105	09 20	−4	106	09 16	−4	107	09 12	−5	108	09 07	−4	109	09 03	−5	110	08 58	−5	111																								