Altitude Correction Tables for 10° to 90° — Sun, Stars, Planets

SUN
October – March

App. Alt.	Lower Limb	Upper Limb
° ′	′	′
9 33	+10.8	– 21.5
9 45	+10.9	– 21.4
9 56	+11.0	– 21.3
10 08	+11.1	– 21.2
10 20	+11.2	– 21.1
10 33	+11.3	– 21.0
10 46	+11.4	– 20.9
11 00	+11.5	– 20.8
11 15	+11.6	– 20.7
11 30	+11.7	– 20.6
11 45	+11.8	– 20.5
12 01	+11.9	– 20.4
12 18	+12.0	– 20.3
12 36	+12.1	– 20.2
12 54	+12.2	– 20.1
13 14	+12.3	– 20.0
13 34	+12.4	– 19.9
13 55	+12.5	– 19.8
14 17	+12.6	– 19.7
14 41	+12.7	– 19.6
15 05	+12.8	– 19.5
15 31	+12.9	– 19.4
15 59	+13.0	– 19.3
16 27	+13.1	– 19.2
16 58	+13.2	– 19.1
17 30	+13.3	– 19.0
18 05	+13.4	– 18.9
18 41	+13.5	– 18.8
19 20	+13.6	– 18.7
20 02	+13.7	– 18.6
20 46	+13.8	– 18.5
21 34	+13.9	– 18.4
22 25	+14.0	– 18.3
23 20	+14.1	– 18.2
24 20	+14.2	– 18.1
25 24	+14.3	– 18.0
26 34	+14.4	– 17.9
27 50	+14.5	– 17.8
29 13	+14.6	– 17.7
30 44	+14.7	– 17.6
32 24	+14.8	– 17.5
34 15	+14.9	– 17.4
36 17	+15.0	– 17.3
38 34	+15.1	– 17.2
41 06	+15.2	– 17.1
43 56	+15.3	– 17.0
47 07	+15.4	– 16.9
50 43	+15.5	– 16.8
54 46	+15.6	– 16.7
59 21	+15.7	– 16.6
64 28	+15.8	– 16.5
70 10	+15.9	– 16.4
76 24	+16.0	– 16.3
83 05	+16.1	– 16.2
90 00		

SUN
April – September

App. Alt.	Lower Limb	Upper Limb
° ′	′	′
9 39	+10.6	– 21.2
9 50	+10.7	– 21.1
10 02	+10.8	– 21.0
10 14	+10.9	– 20.9
10 27	+11.0	– 20.8
10 40	+11.1	– 20.7
10 53	+11.2	– 20.6
11 07	+11.3	– 20.5
11 22	+11.4	– 20.4
11 37	+11.5	– 20.3
11 53	+11.6	– 20.2
12 10	+11.7	– 20.1
12 27	+11.8	– 20.0
14 45	+11.9	– 19.9
13 04	+12.0	– 19.8
13 24	+12.1	– 19.7
13 44	+12.2	– 19.6
14 06	+12.3	– 19.5
14 29	+12.4	– 19.4
14 53	+12.5	– 19.3
15 18	+12.6	– 19.2
15 45	+12.7	– 19.1
16 13	+12.8	– 19.0
16 43	+12.9	– 18.9
17 14	+13.0	– 18.8
17 47	+13.1	– 18.7
18 23	+13.2	– 18.6
19 00	+13.3	– 18.5
19 41	+13.4	– 18.4
20 24	+13.5	– 18.3
21 10	+13.6	– 18.2
21 59	+13.7	– 18.1
22 52	+13.8	– 18.0
23 49	+13.9	– 17.9
24 51	+14.0	– 17.8
25 58	+14.1	– 17.7
27 11	+14.2	– 17.6
28 31	+14.3	– 17.5
29 58	+14.4	– 17.4
31 33	+14.5	– 17.3
33 18	+14.6	– 17.2
35 15	+14.7	– 17.1
37 24	+14.8	– 17.0
39 48	+14.9	– 16.9
42 28	+15.0	– 16.8
45 29	+15.1	– 16.7
48 52	+15.2	– 16.6
51 41	+15.3	– 16.5
56 59	+15.4	– 16.4
61 50	+15.5	– 16.3
67 15	+15.6	– 16.2
73 14	+15.7	– 16.1
79 42	+15.8	– 16.0
86 21	+15.9	– 15.9
90 00		

Stars & Planets

App. Alt.	Corr
° ′	′
9 55	– 5.3
10 07	– 5.2
10 20	– 5.1
10 32	– 5.0
10 46	– 4.9
10 59	– 4.8
11 14	– 4.7
11 29	– 4.6
11 44	– 4.5
12 00	– 4.4
12 17	– 4.3
12 35	– 4.2
12 53	– 4.1
13 12	– 4.0
13 32	– 3.9
13 53	– 3.8
14 16	– 3.7
14 39	– 3.6
15 03	– 3.5
15 29	– 3.4
15 56	– 3.3
16 25	– 3.2
16 55	– 3.1
17 27	– 3.0
18 01	– 2.9
18 37	– 2.8
19 16	– 2.7
19 56	– 2.6
20 40	– 2.5
21 27	– 2.4
22 17	– 2.3
23 11	– 2.2
24 09	– 2.1
25 12	– 2.0
26 20	– 1.9
27 34	– 1.8
28 54	– 1.7
30 22	– 1.6
31 58	– 1.5
33 43	– 1.4
35 38	– 1.3
37 45	– 1.2
40 06	– 1.1
42 42	– 1.0
45 34	– 0.9
48 45	– 0.8
52 16	– 0.7
56 09	– 0.6
60 26	– 0.5
65 06	– 0.4
70 09	– 0.3
75 32	– 0.2
81 12	– 0.1
87 03	0.0
90 00	

Additional Altitude Correction for Mars & Venus

A small additional altitude correction for Mars & Venus can be obtained in the Daily Pages of The Nautical Almanac for the day of the observation.

Find the correction in the block labeled **Horizontal parallax**.

The figure will cover the range of 3 days found on that Daily Page.

The correction is to be added to Apparent Altitude.

Refraction

App. Alt.	Corr
°	′
5.5	– 9.1
6.0	– 8.5
6.5	– 7.9
7.0	– 7.5
7.5	– 7.0
8.0	– 6.6
8.5	– 6.3
9.0	– 5.9
9.5	– 5.7
10.0	– 5.4
10.5	– 5.1
11.0	– 4.9
11.5	– 4.7
12.0	– 4.5
12.5	– 4.4
13.0	– 4.2
13.5	– 4.0
14.0	– 3.9
14.5	– 3.8
15.0	– 3.6
15.5	– 3.5
16.0	– 3.4
16.5	– 3.3
17.0	– 3.2
17.5	– 3.1
18.0	– 3.0
18.5	– 2.9
19.0	– 2.9
19.5	– 2.8
20.0	– 2.7
21.0	– 2.6
22.0	– 2.4
23.0	– 2.3
24.0	– 2.2
25.0	– 2.1
26.0	– 2.0
27.0	– 1.9
28.0	– 1.9
29.0	– 1.8
30.0	– 1.7
31.0	– 1.7
32.0	– 1.6
33.0	– 1.5
34.0	– 1.5
35.0	– 1.4
36.0	– 1.4
37.0	– 1.3
38.0	– 1.3
39.0	– 1.2
40.0	– 1.2
45.0	– 1.0
50.0	– 0.8
55.0	– 0.7
60.0	– 0.6
65.0	– 0.5
70.0	– 0.4
75.0	– 0.3
80.0	– 0.2
85.0	– 0.1

DIP
always subtracted from Hs

Ht. of Eye	Corr	Ht. of Eye	Ht. of Eye	Corr
meters	′	**feet**	**meters**	′
2.4	**– 2.8**	8.0	1.0	**– 1.8**
2.6	**– 2.9**	8.6	1.5	**– 2.2**
2.8	**– 3.0**	9.2	2.0	**– 2.5**
3.0	**– 3.1**	9.8	2.5	**– 2.8**
3.2	**– 3.2**	10.5	3.0	**– 3.0**
3.4	**– 3.3**	11.2	See table ←	
3.6	**– 3.4**	11.9		
3.8	**– 3.5**	12.6	**meters**	
4.0	**– 3.6**	13.3	20	**– 7.9**
4.3	**– 3.7**	14.1	22	**– 8.3**
4.5	**– 3.8**	14.9	24	**– 8.6**
4.7	**– 3.9**	15.7	26	**– 9.0**
5.0	**– 4.0**	16.5	28	**– 9.3**
5.2	**– 4.1**	17.4		
5.5	**– 4.2**	18.3	30	**– 9.6**
5.8	**– 4.3**	19.1	32	**– 10.0**
6.1	**– 4.4**	20.1	34	**– 10.3**
6.3	**– 4.5**	21.0	36	**– 10.6**
6.6	**– 4.6**	22.0	38	**– 10.8**
6.9	**– 4.7**	22.9		
7.2	**– 4.8**	23.9	40	**– 11.1**
7.5	**– 4.9**	24.9	42	**– 11.4**
7.9	**– 5.0**	26.0	44	**– 11.7**
8.2	**– 5.1**	27.1	46	**– 11.9**
8.5	**– 5.2**	28.1	48	**– 12.2**
8.8	**– 5.3**	29.2	**feet**	′
9.2	**– 5.4**	30.4	2	**– 1.4**
9.5	**– 5.5**	31.5	4	**– 1.9**
9.9	**– 5.6**	32.7	6	**– 2.4**
10.3	**– 5.7**	33.9	8	**– 2.7**
10.6	**– 5.8**	35.1	10	**– 3.1**
11.0	**– 5.9**	36.3	See table ←	
11.4	**– 6.0**	37.6		
11.8	**– 6.1**	38.9	**feet**	′
12.2	**– 6.2**	40.1	70	**– 8.1**
12.6	**– 6.3**	41.5	75	**– 8.4**
13.0	**– 6.4**	42.8	80	**– 8.7**
13.4	**– 6.5**	44.2	85	**– 8.9**
13.8	**– 6.6**	45.5	90	**– 9.2**
14.2	**– 6.7**	46.9	95	**9.5**
14.7	**– 6.8**	48.4		
15.1	**– 6.9**	49.8	100	**– 9.7**
15.5	**– 7.0**	51.3	105	**– 9.9**
16.0	**– 7.1**	52.8	110	**– 10.2**
16.5	**– 7.2**	54.3	115	**– 10.4**
16.9	**– 7.3**	55.8	120	**– 10.6**
17.4	**– 7.4**	57.4	125	**– 10.8**
17.9	**– 7.5**	58.9	130	**– 11.1**
18.4	**– 7.6**	60.5	135	**– 11.3**
18.8	**– 7.7**	62.1	140	**– 11.5**
19.3	**– 7.8**	63.8	145	**– 11.7**
19.8	**– 7.9**	65.4	150	**– 11.9**
20.4	**– 8.0**	67.1	155	**– 12.1**
20.9	**– 8.1**	68.8		
21.4		70.5		

App. Alt. = Apparent altitude = Sextant altitude corrected for index error and dip.

Altitude Correction Tables for 0° to 10° — Sun, Stars, Planets

App. Alt.	Sun October – March Lower Limb	Sun October – March Upper Limb	Sun April – September Lower Limb	Sun April – September Upper Limb	Stars & Planets
° ′	′	′	′	′	′
0 00	– 17.5	– 49.8	– 17.8	– 49.6	– 33.8
0 03	16.9	49.2	17.2	49.0	33.2
0 06	16.3	48.6	16.6	48.4	32.6
0 09	15.7	48.0	16.0	47.8	32.0
0 12	15.2	47.5	15.4	47.2	31.5
0 15	14.6	46.9	14.8	46.6	30.9
0 18	– 14.1	– 46.4	– 14.3	– 46.1	– 30.4
0 21	13.5	45.8	13.8	33.8	29.8
0 24	13.0	45.3	13.3	45.1	29.3
0 27	12.5	44.8	12.8	44.6	28.8
0 30	12.0	44.3	12.3	44.1	28.3
0 33	11.6	43.9	11.8	43.6	27.9
0 36	– 11.1	– 10.0	– 11.3	– 43.1	– 27.4
0 39	10.6	42.9	10.9	42.7	26.9
0 42	10.2	42.5	10.5	42.3	26.5
0 45	9.8	42.1	10.0	41.8	26.1
0 48	9.4	41.7	9.6	41.4	25.7
0 51	9.0	41.3	9.2	41.0	25.3
0 54	– 8.6	– 40.9	– 8.8	– 40.6	– 24.9
0 57	8.2	40.5	8.4	40.2	24.5
1 00	7.8	40.1	8.0	39.8	24.1
1 03	7.4	39.7	7.7	39.5	23.7
1 06	7.1	39.4	7.3	39.1	23.4
1 09	6.7	39.0	7.0	38.8	23.0
1 12	– 6.4	– 38.7	– 6.6	– 38.4	– 22.7
1 15	6.0	38.3	6.3	38.1	22.3
1 18	5.7	38.0	6.0	37.8	22.0
1 21	5.4	37.7	5.7	37.5	21.7
1 24	5.1	37.4	5.3	37.1	21.4
1 27	4.8	37.1	5.0	33.8	21.1
1 30	– 4.5	– 36.8	– 4.7	– 36.5	– 20.8
1 35	4.0	36.3	4.3	36.1	20.3
1 40	3.6	35.9	3.8	35.6	19.9
1 45	3.1	35.4	3.4	35.2	19.4
1 50	2.7	35.0	2.9	34.7	19.0
1 55	2.3	34.6	2.5	34.3	18.6
2 00	– 1.9	– 34.2	– 2.1	– 33.9	– 18.2
2 05	1.5	33.8	1.7	33.5	17.8
2 10	1.1	33.4	1.4	33.2	17.4
2 15	0.8	33.1	1.0	32.8	17.1
2 20	0.4	32.7	0.7	32.5	16.7
2 25	– 0.1	32.4	– 0.3	32.1	16.4
2 30	+ 0.2	– 32.1	0.0	– 31.8	– 16.1
2 35	0.5	31.8	+ 0.3	31.5	15.8
2 40	0.8	31.5	0.6	31.2	15.4
2 45	1.1	31.2	0.9	30.9	15.2
2 50	1.4	30.9	1.2	30.6	14.9
2 55	1.7	30.6	1.4	30.4	14.9
3 00	+ 2.0	– 30.3	+ 1.7	– 30.1	– 14.3
3 05	2.2	30.1	2.0	29.8	14.1
3 10	2.5	29.8	2.2	29.6	13.8
3 15	2.7	29.6	2.5	29.3	13.6
3 20	2.9	29.4	2.7	29.1	13.4
3 25	3.2	29.1	2.9	28.9	13.4
3 30	3.4	– 28.9	+ 3.1	– 28.7	– 12.9

App. Alt.	Sun October – March Lower Limb	Sun October – March Upper Limb	Sun April – September Lower Limb	Sun April – September Upper Limb	Stars & Planets
° ′	′	′	′	′	′
3 30	+ 3.4	– 28.9	+ 3.1	– 28.7	– 12.9
3 35	3.6	28.7	3.3	28.5	12.7
3 40	3.8	28.5	3.6	28.2	12.5
3 45	4.0	28.3	3.8	28.0	12.3
3 50	4.2	28.1	4.0	27.8	12.1
3 55	4.4	27.9	4.1	27.7	11.9
4 00	+ 4.6	– 27.7	+ 4.3	– 27.5	– 11.7
4 05	4.8	27.5	4.5	27.3	11.5
4 10	4.9	27.4	4.7	27.1	11.4
4 15	5.1	27.2	4.9	26.9	11.2
4 20	5.3	27.0	5.0	26.8	11.0
4 25	5.4	26.9	5.2	26.6	10.9
4 30	+ 5.6	– 26.7	+ 5.3	– 26.5	– 10.7
4 35	5.7	26.6	5.5	26.3	10.6
4 40	5.9	26.4	5.6	26.2	10.4
4 45	6.0	26.3	5.8	26.0	10.3
4 50	6.2	26.1	5.9	25.9	10.1
4 55	6.3	26.0	6.1	25.7	10.0
5 00	+ 6.4	– 25.9	+ 6.2	– 25.6	– 9.9
5 05	6.6	25.7	6.3	25.5	9.7
5 10	6.7	25.6	6.5	25.3	9.6
5 15	6.8	25.5	6.6	25.2	9.5
5 20	7.0	25.3	6.7	25.1	9.3
5 25	7.1	25.2	6.8	25.0	9.2
5 30	+ 7.2	– 25.1	+ 6.9	– 24.9	– 9.1
5 35	7.3	25.0	7.1	24.7	9.0
5 40	7.4	24.9	7.2	24.6	8.9
5 45	7.5	24.8	7.3	24.5	8.8
5 50	7.6	24.7	7.4	24.4	8.7
5 55	7.7	24.6	7.5	24.3	8.6
6 00	+ 7.8	– 24.5	+ 7.6	– 24.2	– 8.5
6 10	8.0	24.3	7.8	24.0	8.3
6 20	8.2	24.1	8.0	23.8	8.1
6 30	8.4	23.9	8.2	23.6	7.9
6 40	8.6	23.7	8.3	23.5	7.7
6 50	8.7	23.6	8.5	23.3	7.6
7 00	+ 8.9	– 23.4	+ 8.7	– 23.1	– 7.4
7 10	9.1	23.2	8.8	23.0	7.2
7 20	9.2	23.1	9.0	22.8	7.1
7 30	9.3	23.0	9.1	22.7	6.9
7 40	9.5	22.8	9.2	22.6	6.8
7 50	9.6	22.7	9.4	22.4	6.7
8 00	+ 9.7	– 22.6	+ 9.5	– 22.3	– 6.6
8 10	9.9	22.4	9.6	22.2	6.4
8 20	10.0	22.3	9.7	22.1	6.3
8 30	10.1	22.2	9.9	21.9	6.2
8 40	10.2	22.1	10.0	21.8	6.1
8 50	10.3	22.0	10.1	21.7	6.0
9 00	+ 10.4	– 21.9	+ 10.2	– 21.6	– 5.9
9 10	10.5	21.8	10.3	21.5	5.8
9 20	10.6	21.7	10.4	21.4	5.7
9 30	10.7	21.6	10.5	21.3	5.6
9 40	10.8	21.5	10.6	21.2	5.5
9 50	10.9	21.4	10.6	21.2	5.4
10 00	+ 11.0	– 21.3	+ 10.7	– 21.1	– 5.3

For bubble sextant observations- ignore dip and use star corrections for the Sun, planets and stars.