

TABLE 4.—GHA and Declination of the Sun for the Years 1981–2016 — Argument “Orbit Time” — Continued

c. Hours and Tens of Minutes of GMT

	00m	10m	20m	30m	40m	50m
h	° ′	° ′	° ′	° ′	° ′	° ′
00	175 00	177 30	180 00	182 30	185 00	187 30
01	190 00	192 30	195 00	197 30	200 00	202 30
02	205 00	207 30	210 00	212 30	215 00	217 30
03	220 00	222 30	225 00	227 30	230 00	232 30
04	235 00	237 30	240 00	242 30	245 00	247 30
05	250 00	252 30	255 00	257 30	260 00	262 30
06	265 00	267 30	270 00	272 30	275 00	277 30
07	280 00	282 30	285 00	287 30	290 00	292 30
08	295 00	297 30	300 00	302 30	305 00	307 30
09	310 00	312 30	315 00	317 30	320 00	322 30
10	325 00	327 30	330 00	332 30	335 00	337 30
11	340 00	342 30	345 00	347 30	350 00	352 30
12	355 00	357 30	0 00	2 30	5 00	7 30
13	10 00	12 30	15 00	17 30	20 00	22 30
14	25 00	27 30	30 00	32 30	35 00	37 30
15	40 00	42 30	45 00	47 30	50 00	52 30
16	55 00	57 30	60 00	62 30	65 00	67 30
17	70 00	72 30	75 00	77 30	80 00	82 30
18	85 00	87 30	90 00	92 30	95 00	97 30
19	100 00	102 30	105 00	107 30	110 00	112 30
20	115 00	117 30	120 00	122 30	125 00	127 30
21	130 00	132 30	135 00	137 30	140 00	142 30
22	145 00	147 30	150 00	152 30	155 00	157 30
23	160 00	162 30	165 00	167 30	170 00	172 30

d. Minutes and Seconds of GMT (in critical cases ascend)

m s ° ′	m s ° ′	m s ° ′	m s ° ′	m s ° ′	m s ° ′
00 00 0 00	01 37 0 25	03 17 0 50	04 57 1 15	06 37 1 40	08 17 2 05
01 0 01	41 0 26	21 0 51	05 01 1 16	41 1 41	21 2 06
05 0 02	45 0 27	25 0 52	05 1 17	45 1 42	25 2 07
09 0 03	49 0 28	29 0 53	09 1 18	49 1 43	29 2 08
13 0 04	53 0 29	33 0 54	13 1 19	53 1 44	33 2 09
17 0 05	01 57 0 30	37 0 55	17 1 20	06 57 1 45	37 2 10
21 0 06	02 01 0 31	41 0 56	21 1 21	07 01 1 46	41 2 11
25 0 07	05 0 32	45 0 57	25 1 22	05 1 47	45 2 12
29 0 08	09 0 33	49 0 58	29 1 23	09 1 48	49 2 13
33 0 09	13 0 34	53 0 59	33 1 24	13 1 49	53 2 14
37 0 10	17 0 35	03 57 1 00	37 1 25	17 1 50	08 57 2 15
41 0 11	21 0 36	04 01 1 01	41 1 26	21 1 51	09 01 2 16
45 0 12	25 0 37	05 1 02	45 1 27	25 1 52	05 2 17
49 0 13	29 0 38	09 1 03	49 1 28	29 1 53	09 2 18
53 0 14	33 0 39	13 1 04	53 1 29	33 1 54	13 2 19
00 57 0 15	37 0 40	17 1 05	05 57 1 30	37 1 55	17 2 20
01 01 0 16	41 0 41	21 1 06	06 01 1 31	41 1 56	21 2 21
05 0 17	45 0 42	25 1 07	05 1 32	45 1 57	25 2 22
09 0 18	49 0 43	29 1 08	09 1 33	49 1 58	29 2 23
13 0 19	53 0 44	33 1 09	13 1 34	53 1 59	33 2 24
17 0 20	02 57 0 45	37 1 10	17 1 35	07 57 2 00	37 2 25
21 0 21	03 01 0 46	41 1 11	21 1 36	08 01 2 01	41 2 26
25 0 22	05 0 47	45 1 12	25 1 37	05 2 02	45 2 27
29 0 23	09 0 48	49 1 13	29 1 38	09 2 03	49 2 28
33 0 24	13 0 49	53 1 14	33 1 39	13 2 04	53 2 29
37 0 25	17 0 50	04 57 1 15	37 1 40	17 2 05	09 57 2 30
01 41	03 21	05 01	06 41	08 21	10 00

EXPLANATION

Table 4 and supplementary tables a, b, c, and d make possible the determination of the GHA and declination of the Sun for any time during the years 1981–2016. The main table gives E (5° + Equation of Time) and declination of the Sun for the argument “Orbit Time” OT, the latter is formed by applying the h correction from Table a to the nearest integral hour of GMT. In leap years, the upper value of the correction is to be used for January and February and the lower value for the rest of the year. Thus, OT’s corresponding to 1996 February 29^d 16^h 31^m GMT and 1996 March 1^d 05^h 29^m GMT are February 29^d 09^h 00^m and March 1^d 21^h 00^m respectively.

Corrections to E and declination for OT are determined by entering Table b with the differences between consecutive values of E and of declination respectively as the horizontal argument, and with the number of hours of OT as the vertical argument. The declination differences are given in the main table.

The GHA is obtained by adding to the corrected E the value of the diurnal arc obtained from Tables c and d. The latter two tables must be entered with argument GMT.

Example. To find the GHA and declination of the Sun on 1996 January 18 at 03^h 30^m 35^s GMT.
OT = GMT (nearest integral hour) + Corr. (Table a).
= Jan. 18^d 04^h – 8^h = Jan. 17^d 20^h.

	°	′	Diff.	°	′	Diff.
Main Table, Jan. 17 ^d OT,	E	2 32	(-4)	Dec.	S 20 51	(-12)
Table b for 20 ^h OT		<u>-3</u>			<u>-10</u>	

Jan.17 ^d 20 ^h OT, corrected	E	2 29	Dec.	S 20 41
Table c for 03 ^h 30 ^m GMT		227 30		
Table d for 00 ^m 35 ^s GMT		<u>0 09</u>		

Sum GHA Sun = 230 08

TABLE 5.—Correction to Tabulated Altitude for Minutes of Declination

[illegible]