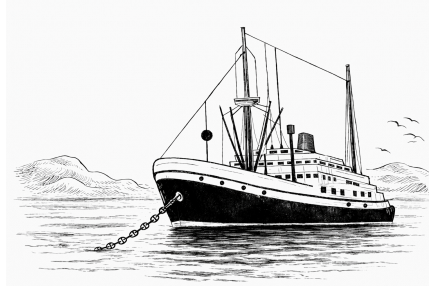


# EASYSEXTANT



## SOLAR ALMANAC 2033

### Astronomical Data Source

The solar positions (GHA and Declination) used in this almanac are computed from the JPL DE440s planetary ephemeris, developed by the Jet Propulsion Laboratory (NASA).

UT ↓	01 Jan ↓	02 Jan ↓	
00	179° 10,1' 23° 01,0' S	179° 03,0' 22° 56,0' S	→ Declination → GHA
01	194° 09,8' 23° 00,8' S	194° 02,8' 22° 55,7' S	
02	209° 09,5' 23° 00,6' S	209° 02,5' 22° 55,5' S	
03	224° 09,2' 23° 00,4' S	224° 02,2' 22° 55,3' S	

Editions 2026–2040 available at [www.easysextant.com](http://www.easysextant.com) (20 pages per year).

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 01 Jan to 20 Jan

UT	01 Jan	02 Jan	03 Jan	04 Jan	05 Jan	06 Jan	07 Jan	08 Jan	09 Jan	10 Jan
00	179° 08,4' 22° 59,2' S	179° 01,3' 22° 54,0' S	178° 54,3' 22° 48,4' S	178° 47,5' 22° 42,2' S	178° 40,7' 22° 35,7' S	178° 34,1' 22° 28,6' S	178° 27,5' 22° 21,2' S	178° 21,1' 22° 13,3' S	178° 14,8' 22° 04,9' S	178° 08,7' 21° 56,2' S
01	194° 08,1' 22° 59,0' S	194° 01,0' 22° 53,8' S	193° 54,1' 22° 48,1' S	193° 47,2' 22° 42,0' S	193° 40,4' 22° 35,4' S	193° 33,8' 22° 28,3' S	193° 27,2' 22° 20,9' S	193° 20,9' 22° 12,9' S	193° 14,6' 22° 04,6' S	193° 08,5' 21° 55,8' S
02	209° 07,8' 22° 58,8' S	209° 00,7' 22° 53,6' S	208° 53,8' 22° 47,9' S	208° 46,9' 22° 41,7' S	208° 40,1' 22° 35,1' S	208° 33,5' 22° 28,0' S	208° 27,0' 22° 20,5' S	208° 20,6' 22° 12,6' S	208° 14,3' 22° 04,2' S	208° 08,2' 21° 55,4' S
03	224° 07,5' 22° 58,6' S	224° 00,4' 22° 53,3' S	223° 53,5' 22° 47,6' S	223° 46,6' 22° 41,4' S	223° 39,9' 22° 34,8' S	223° 33,2' 22° 27,7' S	223° 26,7' 22° 20,2' S	223° 20,3' 22° 12,3' S	223° 14,1' 22° 03,9' S	223° 08,0' 21° 55,0' S
04	239° 07,2' 22° 58,4' S	239° 00,1' 22° 53,1' S	238° 53,2' 22° 47,4' S	238° 46,3' 22° 41,2' S	238° 39,6' 22° 34,5' S	238° 33,0' 22° 27,4' S	238° 26,4' 22° 19,9' S	238° 20,1' 22° 11,9' S	238° 13,8' 22° 03,5' S	238° 07,7' 21° 54,7' S
05	254° 06,9' 22° 58,2' S	253° 59,9' 22° 52,9' S	253° 52,9' 22° 47,1' S	253° 46,1' 22° 40,9' S	253° 39,3' 22° 34,2' S	253° 32,7' 22° 27,1' S	253° 26,2' 22° 19,6' S	253° 19,8' 22° 11,6' S	253° 13,6' 22° 03,2' S	253° 07,5' 21° 54,3' S
06	269° 06,6' 22° 58,0' S	268° 59,6' 22° 52,7' S	268° 52,6' 22° 46,9' S	268° 45,8' 22° 40,6' S	268° 39,0' 22° 34,0' S	268° 32,4' 22° 26,8' S	268° 25,9' 22° 19,3' S	268° 19,5' 22° 11,5' S	268° 13,3' 22° 02,8' S	268° 07,2' 21° 53,9' S
07	284° 06,3' 22° 57,8' S	283° 59,3' 22° 52,4' S	283° 52,3' 22° 46,6' S	283° 45,5' 22° 40,4' S	283° 38,8' 22° 33,7' S	283° 32,1' 22° 26,5' S	283° 25,6' 22° 18,9' S	283° 19,3' 22° 10,9' S	283° 13,0' 22° 02,4' S	283° 07,0' 21° 53,5' S
08	299° 06,0' 22° 57,6' S	298° 59,0' 22° 52,2' S	298° 52,0' 22° 46,4' S	298° 45,2' 22° 40,1' S	298° 38,5' 22° 33,4' S	298° 31,9' 22° 26,2' S	298° 25,4' 22° 18,6' S	298° 19,0' 22° 10,6' S	298° 12,8' 22° 02,1' S	298° 06,7' 21° 53,2' S
09	314° 05,7' 22° 57,3' S	313° 58,7' 22° 52,0' S	313° 51,8' 22° 46,1' S	313° 44,9' 22° 39,8' S	313° 38,2' 22° 33,1' S	313° 31,6' 22° 25,9' S	313° 25,1' 22° 18,3' S	313° 18,7' 22° 10,2' S	313° 12,5' 22° 01,7' S	313° 06,5' 21° 52,8' S
10	329° 05,4' 22° 57,1' S	328° 58,4' 22° 51,7' S	328° 51,5' 22° 45,9' S	328° 44,6' 22° 39,6' S	328° 37,9' 22° 32,8' S	328° 31,3' 22° 25,6' S	328° 24,8' 22° 17,9' S	328° 18,5' 22° 09,9' S	328° 12,3' 22° 01,3' S	328° 06,2' 21° 52,4' S
11	344° 05,1' 22° 56,9' S	343° 58,1' 22° 51,5' S	343° 51,2' 22° 45,6' S	343° 44,4' 22° 39,3' S	343° 37,6' 22° 32,5' S	343° 31,0' 22° 25,3' S	343° 24,6' 22° 17,6' S	343° 18,2' 22° 09,5' S	343° 12,0' 22° 01,0' S	343° 06,0' 21° 52,0' S
12	359° 04,8' 22° 56,7' S	358° 57,8' 22° 51,3' S	358° 50,9' 22° 45,4' S	358° 44,1' 22° 39,0' S	358° 37,4' 22° 32,2' S	358° 30,8' 22° 25,0' S	358° 24,3' 22° 17,3' S	358° 18,0' 22° 09,2' S	358° 11,8' 22° 00,6' S	358° 05,7' 21° 51,6' S
13	014° 04,5' 22° 56,5' S	013° 57,5' 22° 51,0' S	013° 50,6' 22° 45,1' S	013° 43,8' 22° 38,7' S	013° 37,1' 22° 31,9' S	013° 30,5' 22° 24,7' S	013° 24,0' 22° 17,0' S	013° 17,7' 22° 08,8' S	013° 11,5' 22° 00,2' S	013° 05,5' 21° 51,2' S
14	029° 04,2' 22° 56,3' S	028° 57,2' 22° 50,8' S	028° 50,3' 22° 44,8' S	028° 43,5' 22° 38,5' S	028° 36,8' 22° 31,6' S	028° 30,2' 22° 24,3' S	028° 23,8' 22° 16,6' S	028° 17,4' 22° 08,5' S	028° 11,3' 22° 00,8' S	028° 05,2' 21° 50,9' S
15	044° 04,0' 22° 56,0' S	043° 56,9' 22° 50,5' S	043° 50,0' 22° 44,6' S	043° 43,2' 22° 38,2' S	043° 36,5' 22° 31,3' S	043° 30,0' 22° 24,0' S	043° 23,5' 22° 16,3' S	043° 17,2' 22° 08,1' S	043° 11,0' 21° 59,5' S	043° 05,0' 21° 50,5' S
16	059° 03,7' 22° 55,8' S	058° 56,7' 22° 50,3' S	058° 49,8' 22° 44,3' S	058° 42,9' 22° 37,9' S	058° 36,3' 22° 31,0' S	058° 29,7' 22° 23,7' S	058° 23,2' 22° 16,0' S	058° 16,9' 22° 07,8' S	058° 10,7' 21° 59,1' S	058° 04,7' 21° 50,1' S
17	074° 03,4' 22° 55,6' S	073° 56,4' 22° 50,1' S	073° 49,5' 22° 44,1' S	073° 42,7' 22° 37,6' S	073° 36,0' 22° 30,7' S	073° 29,4' 22° 23,4' S	073° 23,0' 22° 15,6' S	073° 16,7' 22° 07,4' S	073° 10,5' 21° 58,8' S	073° 04,5' 21° 49,7' S
18	089° 03,1' 22° 55,4' S	088° 56,1' 22° 49,8' S	088° 49,2' 22° 43,8' S	088° 42,4' 22° 37,4' S	088° 35,7' 22° 30,4' S	088° 29,1' 22° 23,1' S	088° 22,7' 22° 15,3' S	088° 16,4' 22° 07,1' S	088° 10,2' 21° 58,4' S	088° 04,2' 21° 49,3' S
19	104° 02,8' 22° 55,2' S	103° 55,8' 22° 49,6' S	103° 48,9' 22° 43,6' S	103° 42,1' 22° 37,1' S	103° 35,4' 22° 30,1' S	103° 28,9' 22° 22,8' S	103° 22,4' 22° 15,0' S	103° 16,1' 22° 06,7' S	103° 10,0' 21° 58,0' S	103° 04,0' 21° 48,9' S
20	119° 02,5' 22° 54,9' S	118° 55,5' 22° 49,3' S	118° 48,6' 22° 43,3' S	118° 41,8' 22° 36,8' S	118° 35,2' 22° 29,8' S	118° 28,6' 22° 22,5' S	118° 22,2' 22° 14,6' S	118° 15,9' 22° 06,4' S	118° 09,7' 21° 57,7' S	118° 03,7' 21° 48,5' S
21	134° 02,2' 22° 54,7' S	133° 55,2' 22° 49,1' S	133° 48,3' 22° 43,0' S	133° 41,5' 22° 36,5' S	133° 34,9' 22° 29,5' S	133° 28,3' 22° 22,1' S	133° 21,9' 22° 14,3' S	133° 15,6' 22° 06,0' S	133° 09,5' 21° 57,3' S	133° 03,5' 21° 48,2' S
22	149° 01,9' 22° 54,5' S	148° 54,9' 22° 48,9' S	148° 48,0' 22° 42,8' S	148° 41,3' 22° 36,2' S	148° 34,6' 22° 29,2' S	148° 28,1' 22° 21,8' S	148° 21,6' 22° 14,0' S	148° 15,4' 22° 05,7' S	148° 09,2' 21° 56,9' S	148° 03,2' 21° 47,8' S
23	164° 01,6' 22° 54,3' S	163° 54,6' 22° 48,6' S	163° 47,8' 22° 42,5' S	163° 41,0' 22° 35,9' S	163° 34,3' 22° 28,9' S	163° 27,8' 22° 21,5' S	163° 21,4' 22° 13,6' S	163° 15,1' 22° 05,3' S	163° 09,0' 21° 56,6' S	163° 03,0' 21° 47,4' S

UT	11 Jan	12 Jan	13 Jan	14 Jan	15 Jan	16 Jan	17 Jan	18 Jan	19 Jan	20 Jan
00	178° 02,7' 21° 47,0' S	177° 56,9' 21° 37,4' S	177° 51,2' 21° 27,3' S	177° 45,7' 21° 16,9' S	177° 40,4' 21° 06,0' S	177° 35,2' 20° 54,7' S	177° 30,2' 20° 43,1' S	177° 25,3' 20° 31,0' S	177° 20,7' 20° 18,6' S	177° 16,2' 20° 05,7' S
01	193° 02,5' 21° 46,6' S	192° 56,7' 21° 37,0' S	192° 51,0' 21° 26,9' S	192° 45,5' 21° 16,4' S	192° 40,1' 21° 05,5' S	192° 35,0' 20° 54,3' S	192° 30,0' 20° 42,6' S	192° 25,1' 20° 30,5' S	192° 20,5' 20° 18,1' S	192° 16,0' 20° 05,2' S
02	208° 02,2' 21° 46,2' S	207° 56,4' 21° 36,5' S	207° 50,8' 21° 26,5' S	207° 45,3' 21° 16,0' S	207° 39,9' 21° 05,1' S	207° 34,8' 20° 53,8' S	207° 29,8' 20° 42,1' S	207° 24,9' 20° 30,0' S	207° 20,3' 20° 17,5' S	207° 15,8' 20° 04,7' S
03	223° 02,0' 21° 45,8' S	222° 56,2' 21° 36,1' S	222° 50,5' 21° 26,0' S	222° 45,0' 21° 15,5' S	222° 39,7' 21° 04,6' S	222° 34,6' 20° 53,3' S	222° 29,6' 20° 41,6' S	222° 24,8' 20° 29,5' S	222° 20,1' 20° 17,0' S	222° 15,7' 20° 04,1' S
04	238° 01,8' 21° 45,4' S	237° 55,9' 21° 35,7' S	237° 50,3' 21° 25,6' S	237° 44,8' 21° 15,1' S	237° 39,5' 21° 04,2' S	237° 34,3' 20° 52,8' S	237° 29,4' 20° 41,1' S	237° 24,6' 20° 29,0' S	237° 19,9' 20° 16,5' S	237° 15,5' 20° 03,6' S
05	253° 01,5' 21° 45,0' S	252° 55,7' 21° 35,3' S	252° 50,1' 21° 25,2' S	252° 44,6' 21° 14,6' S	252° 39,3' 21° 03,7' S	252° 34,1' 20° 52,3' S	252° 29,2' 20° 40,6' S	252° 24,4' 20° 28,5' S	252° 19,7' 20° 15,9' S	252° 15,3' 20° 03,0' S
06	268° 01,3' 21° 44,6' S	267° 55,5' 21° 34,9' S	267° 49,8' 21° 24,7' S	267° 44,4' 21° 14,2' S	267° 39,1' 21° 03,2' S	267° 33,9' 20° 51,9' S	267° 29,0' 20° 40,1' S	267° 24,2' 20° 27,9' S	267° 19,6' 20° 15,4' S	267° 15,1' 20° 02,5' S
07	283° 01,0' 21° 44,2' S	282° 55,2' 21° 34,5' S	282° 49,6' 21° 24,3' S	282° 44,1' 21° 13,7' S	282° 38,8' 21° 02,8' S	282° 33,7' 20° 51,4' S	282° 28,8' 20° 39,6' S	282° 24,0' 20° 27,4' S	282° 19,4' 20° 14,9' S	282° 14,9' 20° 01,9' S
08	298° 00,8' 21° 43,8' S	297° 55,0' 21° 34,1' S	297° 49,4' 21° 23,9' S	297° 43,9' 21° 13,3' S	297° 38,6' 21° 02,3' S	297° 33,5' 20° 50,9' S	297° 28,5' 20° 39,1' S	297° 23,8' 20° 26,9' S	297° 19,2' 20° 14,3' S	297° 14,8' 20° 01,4' S
09	313° 00,5' 21° 43,4' S	312° 54,8' 21° 33,6' S	312° 49,1' 21° 23,5' S	312° 43,7' 21° 12,8' S	312° 38,4' 21° 01,8' S	312° 33,3' 20° 50,4' S	312° 28,3' 20° 38,6' S	312° 23,6' 20° 26,4' S	312° 19,0' 20° 13,8' S	312° 14,6' 20° 00,8' S
10	328° 00,3' 21° 43,0' S	327° 54,5' 21° 33,2' S	327° 48,9' 21° 23,0' S	327° 43,5' 21° 12,4' S	327° 38,2' 21° 01,4' S	327° 33,1' 20° 49,9' S	327° 28,1' 20° 38,1' S	327° 23,4' 20° 25,9' S	327° 18,8' 20° 13,3' S	327° 14,4' 20° 00,3' S
11	343° 00,0' 21° 42,6' S	342° 54,3' 21° 32,8' S	342° 48,7' 21° 22,6' S	342° 43,2' 21° 11,9' S	342° 38,0' 21° 00,9' S	342° 32,9' 20° 49,4' S	342° 27,9' 20° 37,6' S	342° 23,2' 20° 25,4' S	342° 18,6' 20° 12,7' S	342° 14,2' 19° 59,7' S
12	357° 59,8' 21° 42,2' S	357° 54,0' 21° 32,4' S	357° 48,5' 21° 22,1' S	357° 43,0' 21° 11,5' S	357° 37,8' 21° 00,4' S	357° 32,7' 20° 49,0' S	357° 27,7' 20° 37,1' S	357° 23,0' 20° 24,8' S	357° 18,4' 20° 12,2' S	357° 14,0' 19° 59,2' S
13	012° 59,6' 21° 41,8' S	012° 53,8' 21° 32,0' S	012° 48,2' 21° 21,7' S	012° 42,8' 21° 11,0' S	012° 37,5' 21° 00,0' S	012° 32,5' 20° 48,5' S	012° 27,5' 20° 36,6' S	012° 22,8' 20° 24,3' S	012° 18,2' 20° 11,7' S	012° 13,9' 19° 58,6' S
14	027° 59,3' 21° 41,4' S	027° 53,6' 21° 31,8' S	027° 48,0' 21° 21,3' S	027° 42,6' 21° 10,6' S	027° 37,3' 20° 59,5' S	027° 32,2' 20° 48,0' S	027° 27,3' 20° 36,1' S	027° 22,6' 20° 23,8' S	027° 18,1' 20° 11,1' S	027° 13,7' 19° 58,1' S
15	042° 59,1' 21° 41,0' S	042° 53,3' 21° 31,1' S	042° 47,8' 21° 20,8' S	042° 42,4' 21° 10,1' S	042° 37,1' 20° 59,0' S	042° 32,0' 20° 47,5' S	042° 27,1' 20° 35,6' S	042° 22,4' 20° 23,3' S	042° 17,9' 20° 10,6' S	042° 13,5' 19° 57,5' S
16	057° 58,8' 21° 40,6' S	057° 53,1' 21° 30,7' S	057° 47,5' 21° 20,4' S	057° 42,1' 21° 09,7' S	057° 36,9' 20° 58,5' S	057° 31,8' 20° 47,0' S	057° 26,9' 20° 35,1' S	057° 22,2' 20° 22,8' S	0	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 21 Jan to 09 Feb

UT	21 Jan	22 Jan	23 Jan	24 Jan	25 Jan	26 Jan	27 Jan	28 Jan	29 Jan	30 Jan
00	177° 11,9' 19° 52,5' S	177° 07,8' 19° 39,0' S	177° 03,9' 19° 25,0' S	177° 00,2' 19° 10,7' S	176° 56,6' 18° 56,1' S	176° 53,3' 18° 41,0' S	176° 50,1' 18° 25,7' S	176° 47,2' 18° 10,0' S	176° 44,4' 17° 54,0' S	176° 41,9' 17° 37,7' S
01	192° 11,7' 19° 52,0' S	192° 07,6' 19° 38,4' S	192° 03,7' 19° 24,4' S	192° 00,0' 19° 10,1' S	191° 56,5' 18° 55,4' S	191° 53,2' 18° 40,4' S	191° 50,0' 18° 25,1' S	191° 47,1' 18° 09,4' S	191° 44,3' 17° 53,3' S	191° 41,8' 17° 37,0' S
02	207° 11,6' 19° 51,4' S	207° 07,5' 19° 37,8' S	207° 03,6' 19° 23,8' S	206° 59,9' 19° 09,5' S	206° 56,3' 18° 54,8' S	206° 53,0' 18° 39,8' S	206° 49,9' 18° 24,4' S	206° 47,0' 18° 08,7' S	206° 44,2' 17° 52,7' S	206° 41,7' 17° 36,3' S
03	222° 11,4' 19° 50,9' S	222° 07,3' 19° 37,2' S	222° 03,4' 19° 23,2' S	221° 59,7' 19° 08,9' S	221° 56,2' 18° 54,2' S	221° 52,9' 18° 39,1' S	221° 49,8' 18° 23,8' S	221° 46,8' 18° 08,0' S	221° 44,1' 17° 52,7' S	221° 41,6' 17° 35,6' S
04	237° 11,2' 19° 50,3' S	237° 07,1' 19° 36,7' S	237° 03,3' 19° 22,7' S	236° 59,6' 19° 08,3' S	236° 56,1' 18° 53,6' S	236° 52,7' 18° 38,5' S	236° 49,6' 18° 23,1' S	236° 46,7' 18° 07,4' S	236° 44,0' 17° 51,3' S	236° 41,5' 17° 34,9' S
05	252° 11,0' 19° 49,7' S	252° 07,0' 19° 36,1' S	252° 03,1' 19° 22,1' S	251° 59,4' 19° 07,7' S	251° 55,9' 18° 53,0' S	251° 52,6' 18° 37,9' S	251° 49,5' 18° 22,5' S	251° 46,6' 18° 06,7' S	251° 43,9' 17° 50,6' S	251° 41,4' 17° 34,2' S
06	267° 10,9' 19° 49,2' S	267° 06,8' 19° 35,5' S	267° 02,9' 19° 21,5' S	266° 59,3' 19° 07,1' S	266° 55,8' 18° 52,3' S	266° 52,5' 18° 37,2' S	266° 49,4' 18° 21,8' S	266° 46,5' 18° 06,0' S	266° 43,8' 17° 50,0' S	266° 41,3' 17° 33,5' S
07	282° 10,7' 19° 48,6' S	282° 06,6' 19° 34,9' S	282° 02,8' 19° 20,9' S	281° 59,1' 19° 06,5' S	281° 55,6' 18° 51,7' S	281° 52,3' 18° 36,6' S	281° 49,3' 18° 21,2' S	281° 46,4' 18° 05,4' S	281° 43,7' 17° 49,3' S	281° 41,2' 17° 32,9' S
08	297° 10,5' 19° 48,1' S	297° 06,5' 19° 34,4' S	297° 02,6' 19° 20,3' S	296° 59,0' 19° 05,9' S	296° 55,5' 18° 51,1' S	296° 52,2' 18° 36,0' S	296° 49,1' 18° 20,5' S	296° 46,3' 18° 04,7' S	296° 43,6' 17° 48,6' S	296° 41,1' 17° 32,2' S
09	312° 10,4' 19° 47,5' S	312° 06,3' 19° 33,8' S	312° 02,5' 19° 19,7' S	311° 58,8' 19° 05,3' S	311° 55,4' 18° 50,5' S	311° 52,1' 18° 35,3' S	311° 49,0' 18° 19,9' S	311° 46,1' 18° 04,1' S	311° 43,5' 17° 47,9' S	311° 41,0' 17° 31,5' S
10	327° 10,2' 19° 46,9' S	327° 06,2' 19° 33,2' S	327° 02,3' 19° 19,1' S	326° 58,7' 19° 04,6' S	326° 55,2' 18° 49,8' S	326° 52,0' 18° 34,7' S	326° 48,9' 18° 19,2' S	326° 46,0' 18° 03,4' S	326° 43,4' 17° 47,2' S	326° 40,9' 17° 30,8' S
11	342° 10,0' 19° 46,4' S	342° 06,0' 19° 32,6' S	342° 02,2' 19° 18,5' S	341° 58,5' 19° 04,0' S	341° 55,1' 18° 49,2' S	341° 51,8' 18° 34,1' S	341° 48,8' 18° 18,6' S	341° 45,9' 18° 02,7' S	341° 43,2' 17° 46,6' S	341° 40,8' 17° 30,1' S
12	357° 09,8' 19° 45,8' S	357° 05,8' 19° 32,0' S	357° 02,0' 19° 17,9' S	356° 58,4' 19° 03,4' S	356° 54,9' 18° 48,6' S	356° 51,7' 18° 33,4' S	356° 48,6' 18° 17,9' S	356° 45,8' 18° 02,1' S	356° 43,1' 17° 45,9' S	356° 40,7' 17° 29,4' S
13	012° 09,7' 19° 45,2' S	012° 05,7' 19° 31,5' S	012° 01,9' 19° 17,3' S	011° 58,2' 19° 02,8' S	011° 54,8' 18° 48,0' S	011° 51,6' 18° 32,8' S	011° 48,5' 18° 17,2' S	011° 45,7' 18° 01,4' S	011° 43,0' 17° 45,2' S	011° 40,6' 17° 28,7' S
14	027° 09,5' 19° 44,7' S	027° 05,5' 19° 30,9' S	027° 01,7' 19° 16,7' S	026° 58,1' 19° 02,2' S	026° 54,7' 18° 47,3' S	026° 51,4' 18° 32,1' S	026° 48,4' 18° 16,6' S	026° 45,6' 18° 00,7' S	026° 42,9' 17° 44,5' S	026° 40,5' 17° 28,0' S
15	042° 09,3' 19° 44,1' S	042° 05,3' 19° 30,3' S	042° 01,5' 19° 16,1' S	041° 57,9' 19° 01,6' S	041° 54,5' 18° 46,7' S	041° 51,3' 18° 31,5' S	041° 48,3' 18° 15,9' S	041° 45,4' 18° 00,0' S	041° 42,8' 17° 43,8' S	041° 40,4' 17° 27,3' S
16	057° 09,2' 19° 43,5' S	057° 05,2' 19° 29,7' S	057° 01,4' 19° 15,5' S	056° 57,8' 19° 01,0' S	056° 54,4' 18° 46,1' S	056° 51,2' 18° 30,9' S	056° 48,2' 18° 15,3' S	056° 45,3' 17° 59,4' S	056° 42,7' 17° 43,2' S	056° 40,3' 17° 26,6' S
17	072° 09,0' 19° 43,0' S	072° 05,0' 19° 29,1' S	072° 01,2' 19° 14,9' S	071° 57,6' 19° 00,4' S	071° 54,2' 18° 45,5' S	071° 51,0' 18° 30,2' S	071° 48,0' 18° 14,6' S	071° 45,2' 17° 58,7' S	071° 42,6' 17° 42,5' S	071° 40,2' 17° 25,9' S
18	087° 08,8' 19° 42,4' S	087° 04,9' 19° 28,5' S	087° 01,1' 19° 14,3' S	086° 57,5' 18° 59,7' S	086° 54,1' 18° 44,8' S	086° 50,9' 18° 29,6' S	086° 47,9' 18° 14,0' S	086° 45,1' 17° 58,0' S	086° 42,5' 17° 41,8' S	086° 40,1' 17° 25,2' S
19	102° 08,7' 19° 41,8' S	102° 04,7' 19° 28,0' S	102° 00,9' 19° 13,7' S	101° 57,3' 18° 59,1' S	101° 54,0' 18° 44,2' S	101° 50,8' 18° 28,9' S	101° 47,8' 18° 13,3' S	101° 45,0' 17° 57,4' S	101° 42,4' 17° 41,1' S	101° 40,0' 17° 24,5' S
20	117° 08,5' 19° 41,2' S	117° 04,5' 19° 27,4' S	117° 00,8' 19° 13,1' S	116° 57,2' 18° 58,5' S	116° 53,8' 18° 43,6' S	116° 50,7' 18° 28,3' S	116° 47,7' 18° 12,7' S	116° 44,9' 17° 56,7' S	116° 42,3' 17° 40,4' S	116° 39,9' 17° 23,8' S
21	132° 08,3' 19° 40,7' S	132° 04,4' 19° 26,8' S	132° 00,6' 19° 12,5' S	131° 57,1' 18° 57,9' S	131° 53,7' 18° 42,9' S	131° 50,5' 18° 27,6' S	131° 47,5' 18° 12,0' S	131° 44,8' 17° 56,0' S	131° 42,2' 17° 39,7' S	131° 39,8' 17° 23,1' S
22	147° 08,1' 19° 40,1' S	147° 04,2' 19° 26,2' S	147° 00,5' 19° 11,9' S	146° 56,9' 18° 57,3' S	146° 53,6' 18° 42,3' S	146° 50,4' 18° 27,0' S	146° 47,4' 18° 11,3' S	146° 44,7' 17° 55,4' S	146° 42,1' 17° 39,1' S	146° 39,7' 17° 22,4' S
23	162° 08,0' 19° 39,5' S	162° 04,1' 19° 25,6' S	162° 00,3' 19° 11,3' S	161° 56,8' 18° 56,7' S	161° 53,4' 18° 41,7' S	161° 50,3' 18° 26,3' S	161° 47,3' 18° 10,7' S	161° 44,6' 17° 54,7' S	161° 42,0' 17° 38,4' S	161° 39,6' 17° 21,7' S
UT	31 Jan	01 Feb	02 Feb	03 Feb	04 Feb	05 Feb	06 Feb	07 Feb	08 Feb	09 Feb
00	176° 39,5' 17° 21,0' S	176° 37,4' 17° 04,1' S	176° 35,5' 16° 46,8' S	176° 33,7' 16° 29,3' S	176° 32,2' 16° 11,5' S	176° 30,9' 15° 53,4' S	176° 29,8' 15° 35,0' S	176° 28,9' 15° 16,3' S	176° 28,2' 14° 57,4' S	176° 27,7' 14° 38,3' S
01	191° 39,5' 17° 20,3' S	191° 37,3' 17° 03,4' S	191° 35,4' 16° 46,1' S	191° 33,7' 16° 28,6' S	191° 32,2' 16° 10,7' S	191° 30,8' 15° 52,6' S	191° 29,7' 15° 34,2' S	191° 28,9' 15° 15,6' S	191° 28,2' 14° 56,6' S	191° 27,7' 14° 37,5' S
02	206° 39,4' 17° 19,6' S	206° 37,2' 17° 02,7' S	206° 35,3' 16° 45,4' S	206° 33,6' 16° 27,8' S	206° 32,1' 16° 9,9' S	206° 30,8' 15° 51,8' S	206° 29,7' 15° 33,4' S	206° 28,8' 15° 14,8' S	206° 28,1' 14° 55,8' S	206° 27,7' 14° 36,7' S
03	221° 39,3' 17° 18,9' S	221° 37,1' 17° 01,9' S	221° 35,2' 16° 44,7' S	221° 33,5' 16° 27,1' S	221° 32,0' 16° 09,2' S	221° 30,7' 15° 51,1' S	221° 29,7' 15° 32,7' S	221° 28,8' 15° 14,0' S	221° 28,1' 14° 55,1' S	221° 27,6' 14° 35,9' S
04	236° 39,2' 17° 18,2' S	236° 37,1' 17° 01,2' S	236° 35,2' 16° 43,9' S	236° 33,5' 16° 26,3' S	236° 32,0' 16° 08,5' S	236° 30,7' 15° 50,3' S	236° 29,6' 15° 31,9' S	236° 28,8' 15° 13,2' S	236° 28,1' 14° 54,3' S	236° 27,6' 14° 35,1' S
05	251° 39,1' 17° 17,5' S	251° 37,0' 17° 00,5' S	251° 35,1' 16° 43,2' S	251° 33,4' 16° 25,6' S	251° 31,9' 16° 07,7' S	251° 30,6' 15° 49,6' S	251° 29,6' 15° 31,1' S	251° 28,7' 15° 12,4' S	251° 27,6' 14° 53,5' S	251° 27,6' 14° 34,3' S
06	266° 39,0' 17° 16,8' S	266° 36,9' 16° 59,8' S	266° 35,0' 16° 42,5' S	266° 33,3' 16° 24,9' S	266° 31,9' 16° 07,0' S	266° 30,6' 15° 48,8' S	266° 29,5' 15° 30,3' S	266° 28,7' 15° 11,6' S	266° 27,6' 14° 52,7' S	266° 27,6' 14° 33,5' S
07	281° 38,9' 17° 16,1' S	281° 36,8' 16° 59,1' S	281° 34,9' 16° 41,7' S	281° 33,3' 16° 24,1' S	281° 31,8' 16° 06,2' S	281° 30,6' 15° 48,0' S	281° 29,5' 15° 29,6' S	281° 28,7' 15° 10,8' S	281° 28,0' 14° 51,9' S	281° 27,6' 14° 32,6' S
08	296° 38,8' 17° 15,4' S	296° 36,7' 16° 58,4' S	296° 34,9' 16° 41,0' S	296° 33,2' 16° 23,4' S	296° 31,8' 16° 05,5' S	296° 30,5' 15° 47,3' S	296° 29,5' 15° 28,8' S	296° 28,6' 15° 10,1' S	296° 28,0' 14° 51,1' S	296° 27,6' 14° 31,8' S
09	311° 38,7' 17° 14,7' S	311° 36,7' 16° 57,7' S	311° 34,8' 16° 40,3' S	311° 33,1' 16° 22,6' S	311° 31,7' 16° 04,7' S	311° 30,5' 15° 46,5' S	311° 29,4' 15° 28,0' S	311° 28,4' 15° 09,3' S	311° 27,6' 14° 50,3' S	311° 27,6' 14° 31,0' S
10	326° 38,6' 17° 14,0' S	326° 36,6' 16° 56,9' S	326° 34,7' 16° 39,6' S	326° 33,1' 16° 21,9' S	326° 31,6' 16° 04,0' S	326° 30,4' 15° 45,7' S	326° 29,4' 15° 27,2' S	326° 28,4' 15° 08,5' S	326° 28,0' 14° 49,5' S	326° 27,5' 14° 30,2' S
11	341° 38,5' 17° 13,3' S	341° 36,5' 16° 56,2' S	341° 34,6' 16° 38,8' S	341° 33,0' 16° 21,2' S	341° 31,6' 16° 03,2' S	341° 30,4' 15° 45,0' S	341° 29,3' 15° 26,5' S	341° 28,5' 15° 07,7' S	341° 27,9' 14° 48,7' S	341° 27,5' 14° 29,4' S
12	356° 38,4' 17° 12,6' S	356° 36,4' 16° 55,5' S	356° 34,6' 16° 38,1' S	356° 32,9' 16° 20,4' S	356° 31,5' 16° 02,4' S	356° 30,3' 15° 44,2' S	356° 29,3' 15° 25,7' S	356° 28,5' 15° 06,9' S	356° 27,9' 14° 47,9' S	356° 27,5' 14° 28,6' S
13	011° 38,4' 17° 11,9' S	011° 36,3' 16° 54,8' S	011° 34,5' 16° 37,4' S	011° 32,9' 16° 19,7' S	011° 31,5' 16° 01,7' S	011° 30,3' 15° 43,4' S	011° 29,3' 15° 24,9' S	011° 28,5' 15° 06,1' S	011° 27,9' 14° 47,1' S	011° 27,5' 14° 27,8' S
14	026° 38,3' 17° 11,2' S	026° 36,2' 16° 54,1' S	026° 34,4' 16° 36,6' S	026° 32,8' 16° 18,9' S	026° 31,4' 16° 00,9' S	026° 30,2' 15° 42,7' S	026° 29,2' 15° 24,1' S	026° 28,5' 15° 05,3' S	026° 27,9' 14° 46,3' S	026° 27,5' 14° 27,0' S
15	041° 38,2' 17° 10,5' S	041° 36,2' 16° 53,3' S	041° 34,4' 16° 35,9' S	041° 32,8' 16° 18,2' S	041° 31,4' 16° 00,2' S	041° 30,2' 15° 41,9' S	041° 29,2' 15° 23,4' S	041° 28,4' 15° 04,6' S	041° 27,8' 14° 45,5' S	041° 27,5' 14° 26,2' S
16	056° 38,1' 17° 09,8' S	056° 36,1' 16° 52,6' S	056° 34,3' 16° 35,2' S	056° 32,7' 16° 17,4' S	056° 31,3' 15° 59,4' S	056° 30,1' 15° 41,1' S	056° 29,2' 15° 22,6' S	056° 28,4' 15° 03,8' S	056° 27,8' 14° 44,7' S	0

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 10 Feb to 01 Mar

UT	10 Feb	11 Feb	12 Feb	13 Feb	14 Feb	15 Feb	16 Feb	17 Feb	18 Feb	19 Feb
00	176° 27.4' 14° 18.9' S	176° 27.3' 13° 59.2' S	176° 27.4' 13° 39.4' S	176° 27.7' 13° 19.3' S	176° 28.1' 12° 59.0' S	176° 28.8' 12° 38.5' S	176° 29.6' 12° 17.7' S	176° 30.6' 11° 56.8' S	176° 31.8' 11° 35.7' S	176° 33.2' 11° 14.4' S
01	191° 27.4' 14° 18.1' S	191° 27.3' 13° 58.4' S	191° 27.4' 13° 38.6' S	191° 27.7' 13° 18.5' S	191° 28.2' 12° 58.1' S	191° 28.8' 12° 37.6' S	191° 29.7' 12° 16.9' S	191° 30.7' 11° 56.0' S	191° 31.9' 11° 34.8' S	191° 33.2' 11° 13.5' S
02	206° 27.4' 14° 17.3' S	206° 27.3' 13° 57.6' S	206° 27.4' 13° 37.7' S	206° 27.7' 13° 17.6' S	206° 28.2' 12° 57.3' S	206° 28.8' 12° 36.7' S	206° 29.7' 12° 16.0' S	206° 30.7' 11° 55.1' S	206° 31.9' 11° 34.0' S	206° 33.3' 11° 12.6' S
03	221° 27.4' 14° 16.4' S	221° 27.3' 13° 56.8' S	221° 27.4' 13° 36.9' S	221° 27.7' 13° 16.8' S	221° 28.2' 12° 56.4' S	221° 28.9' 12° 35.9' S	221° 29.7' 12° 15.1' S	221° 30.8' 11° 54.2' S	221° 32.0' 11° 33.1' S	221° 33.3' 11° 11.7' S
04	236° 27.4' 14° 15.6' S	236° 27.3' 13° 56.0' S	236° 27.4' 13° 36.1' S	236° 27.7' 13° 15.9' S	236° 28.2' 12° 55.6' S	236° 28.9' 12° 35.0' S	236° 29.8' 12° 14.3' S	236° 30.8' 11° 53.3' S	236° 32.0' 11° 32.2' S	236° 33.4' 11° 10.9' S
05	251° 27.3' 14° 14.8' S	251° 27.3' 13° 55.1' S	251° 27.4' 13° 35.2' S	251° 27.7' 13° 15.1' S	251° 28.3' 12° 54.7' S	251° 28.9' 12° 34.2' S	251° 29.8' 12° 13.4' S	251° 30.9' 11° 52.4' S	251° 32.1' 11° 31.3' S	251° 33.5' 11° 10.0' S
06	266° 27.3' 14° 14.0' S	266° 27.3' 13° 54.3' S	266° 27.4' 13° 34.4' S	266° 27.8' 13° 14.2' S	266° 28.3' 12° 53.9' S	266° 29.0' 12° 33.3' S	266° 29.9' 12° 12.5' S	266° 30.9' 11° 51.6' S	266° 32.1' 11° 30.4' S	266° 33.5' 11° 09.1' S
07	281° 27.3' 14° 13.2' S	281° 27.3' 13° 53.5' S	281° 27.4' 13° 33.5' S	281° 27.8' 13° 13.4' S	281° 28.3' 12° 53.0' S	281° 29.0' 12° 32.4' S	281° 29.9' 12° 11.7' S	281° 31.0' 11° 50.7' S	281° 32.2' 11° 29.5' S	281° 33.6' 11° 08.2' S
08	296° 27.3' 14° 12.4' S	296° 27.3' 13° 52.7' S	296° 27.5' 13° 32.7' S	296° 27.8' 13° 12.5' S	296° 28.3' 12° 52.2' S	296° 29.0' 12° 31.6' S	296° 29.9' 12° 10.8' S	296° 31.0' 11° 49.8' S	296° 32.2' 11° 28.6' S	296° 33.6' 11° 07.3' S
09	311° 27.3' 14° 11.5' S	311° 27.3' 13° 51.8' S	311° 27.5' 13° 31.9' S	311° 27.8' 13° 11.7' S	311° 28.4' 12° 51.3' S	311° 29.1' 12° 30.7' S	311° 29.9' 12° 09.9' S	311° 31.0' 11° 48.9' S	311° 32.3' 11° 27.8' S	311° 33.7' 11° 06.4' S
10	326° 27.3' 14° 10.7' S	326° 27.3' 13° 51.0' S	326° 27.5' 13° 31.0' S	326° 27.8' 13° 10.9' S	326° 28.4' 12° 50.5' S	326° 29.1' 12° 29.9' S	326° 30.0' 12° 09.1' S	326° 31.1' 11° 48.1' S	326° 32.4' 11° 26.9' S	326° 33.8' 11° 05.5' S
11	341° 27.3' 14° 09.9' S	341° 27.3' 13° 50.2' S	341° 27.5' 13° 30.2' S	341° 27.9' 13° 10.0' S	341° 28.4' 12° 49.6' S	341° 29.1' 12° 29.0' S	341° 30.1' 12° 08.2' S	341° 31.1' 11° 47.2' S	341° 32.4' 11° 26.0' S	341° 33.8' 11° 04.6' S
12	356° 27.3' 14° 09.1' S	356° 27.3' 13° 49.3' S	356° 27.5' 13° 29.4' S	356° 27.9' 13° 09.2' S	356° 28.4' 12° 48.8' S	356° 29.2' 12° 28.1' S	356° 30.1' 12° 07.3' S	356° 31.1' 11° 46.3' S	356° 32.5' 11° 25.1' S	356° 33.9' 11° 03.7' S
13	011° 27.3' 14° 08.3' S	011° 27.3' 13° 48.5' S	011° 27.5' 13° 28.5' S	011° 27.9' 13° 08.3' S	011° 28.5' 12° 47.9' S	011° 29.2' 12° 27.3' S	011° 30.1' 12° 06.4' S	011° 31.2' 11° 45.4' S	011° 32.5' 11° 24.2' S	011° 34.0' 11° 02.8' S
14	026° 27.3' 14° 07.5' S	026° 27.3' 13° 47.7' S	026° 27.5' 13° 27.7' S	026° 27.9' 13° 07.5' S	026° 28.5' 12° 47.0' S	026° 29.2' 12° 26.4' S	026° 30.2' 12° 05.6' S	026° 31.3' 11° 44.5' S	026° 32.6' 11° 23.3' S	026° 34.0' 11° 01.9' S
15	041° 27.3' 14° 06.6' S	041° 27.3' 13° 46.9' S	041° 27.5' 13° 26.9' S	041° 27.9' 13° 06.6' S	041° 28.5' 12° 46.2' S	041° 29.3' 12° 25.5' S	041° 30.2' 12° 04.7' S	041° 31.3' 11° 43.7' S	041° 32.6' 11° 22.4' S	041° 34.1' 11° 01.0' S
16	056° 27.3' 14° 05.8' S	056° 27.3' 13° 46.0' S	056° 27.5' 13° 26.0' S	056° 28.0' 13° 05.8' S	056° 28.5' 12° 45.3' S	056° 29.3' 12° 24.7' S	056° 30.3' 12° 03.8' S	056° 31.4' 11° 42.8' S	056° 32.7' 11° 21.5' S	056° 34.1' 11° 00.1' S
17	071° 27.3' 14° 05.0' S	071° 27.3' 13° 45.2' S	071° 27.6' 13° 25.2' S	071° 28.0' 13° 04.9' S	071° 28.6' 12° 44.5' S	071° 29.4' 12° 23.8' S	071° 30.3' 12° 02.9' S	071° 31.4' 11° 41.9' S	071° 32.7' 11° 20.7' S	071° 34.2' 10° 59.2' S
18	086° 27.3' 14° 04.2' S	086° 27.3' 13° 44.4' S	086° 27.6' 13° 24.3' S	086° 28.0' 13° 04.1' S	086° 28.6' 12° 43.6' S	086° 29.4' 12° 22.9' S	086° 30.4' 12° 02.1' S	086° 31.5' 11° 41.0' S	086° 32.8' 11° 19.8' S	086° 34.3' 10° 58.3' S
19	101° 27.3' 14° 03.4' S	101° 27.3' 13° 43.5' S	101° 27.6' 13° 23.5' S	101° 28.0' 13° 03.2' S	101° 28.6' 12° 42.8' S	101° 29.4' 12° 22.1' S	101° 30.4' 12° 01.2' S	101° 31.5' 11° 40.1' S	101° 32.9' 11° 18.9' S	101° 34.3' 10° 57.4' S
20	116° 27.3' 14° 02.5' S	116° 27.3' 13° 42.7' S	116° 27.6' 13° 22.7' S	116° 28.0' 13° 02.4' S	116° 28.7' 12° 41.9' S	116° 29.5' 12° 21.2' S	116° 30.4' 12° 00.3' S	116° 31.6' 11° 39.2' S	116° 32.9' 11° 18.0' S	116° 34.4' 10° 56.5' S
21	131° 27.3' 14° 01.7' S	131° 27.4' 13° 41.9' S	131° 27.6' 13° 21.8' S	131° 28.1' 13° 01.5' S	131° 28.7' 12° 41.0' S	131° 29.5' 12° 20.3' S	131° 30.5' 11° 59.5' S	131° 31.7' 11° 38.4' S	131° 33.0' 11° 17.1' S	131° 34.5' 10° 55.6' S
22	146° 27.3' 14° 00.9' S	146° 27.4' 13° 41.0' S	146° 27.6' 13° 21.0' S	146° 28.1' 13° 00.7' S	146° 28.7' 12° 40.2' S	146° 29.5' 12° 19.5' S	146° 30.5' 11° 58.6' S	146° 31.7' 11° 37.5' S	146° 33.0' 11° 16.2' S	146° 34.5' 10° 54.7' S
23	161° 27.3' 14° 00.1' S	161° 27.3' 13° 40.2' S	161° 27.6' 13° 20.1' S	161° 28.1' 12° 59.8' S	161° 28.8' 12° 39.3' S	161° 29.6' 12° 18.6' S	161° 30.6' 11° 57.7' S	161° 31.8' 11° 36.6' S	161° 33.1' 11° 15.3' S	161° 34.6' 10° 53.9' S
UT	20 Feb	21 Feb	22 Feb	23 Feb	24 Feb	25 Feb	26 Feb	27 Feb	28 Feb	01 Mar
00	176° 34.7' 10° 53.0' S	176° 36.3' 10° 31.3' S	176° 38.2' 10° 09.5' S	176° 40.2' 09° 47.5' S	176° 42.3' 09° 25.4' S	176° 44.6' 09° 03.2' S	176° 47.0' 08° 18.3' S	176° 49.5' 07° 55.6' S	176° 52.2' 07° 32.8' S	176° 55.0' 07° 32.8' S
01	191° 34.7' 10° 52.1' S	191° 36.4' 10° 30.4' S	191° 38.3' 10° 08.6' S	191° 40.2' 09° 46.6' S	191° 42.4' 09° 24.5' S	191° 44.7' 09° 02.2' S	191° 47.1' 08° 39.8' S	191° 49.6' 08° 17.3' S	191° 52.3' 07° 54.7' S	191° 55.1' 07° 31.9' S
02	206° 34.8' 10° 51.2' S	206° 36.5' 10° 29.5' S	206° 38.3' 10° 07.7' S	206° 40.3' 09° 45.7' S	206° 42.5' 09° 23.6' S	206° 44.8' 09° 01.3' S	206° 47.2' 08° 38.9' S	206° 49.7' 08° 16.4' S	206° 52.4' 07° 53.7' S	206° 55.2' 07° 30.9' S
03	221° 34.9' 10° 50.3' S	221° 36.6' 10° 28.6' S	221° 38.4' 10° 06.8' S	221° 40.4' 09° 44.8' S	221° 42.6' 09° 22.7' S	221° 44.9' 09° 00.4' S	221° 47.3' 08° 38.0' S	221° 49.8' 08° 15.4' S	221° 52.5' 07° 52.8' S	221° 55.4' 07° 30.0' S
04	236° 34.9' 10° 49.4' S	236° 36.6' 10° 27.7' S	236° 38.5' 10° 05.9' S	236° 40.5' 09° 43.9' S	236° 42.7' 09° 21.7' S	236° 45.0' 08° 59.4' S	236° 47.4' 08° 37.0' S	236° 50.0' 08° 14.5' S	236° 52.7' 07° 51.8' S	236° 55.5' 07° 29.0' S
05	251° 35.0' 10° 48.5' S	251° 36.7' 10° 26.8' S	251° 38.6' 10° 04.9' S	251° 40.6' 09° 42.9' S	251° 42.7' 09° 20.8' S	251° 45.0' 08° 58.5' S	251° 47.5' 08° 36.1' S	251° 50.1' 08° 13.5' S	251° 52.8' 07° 50.9' S	251° 55.6' 07° 28.1' S
06	266° 35.1' 10° 47.6' S	266° 36.8' 10° 25.9' S	266° 38.7' 10° 04.0' S	266° 40.7' 09° 42.0' S	266° 42.8' 09° 19.9' S	266° 45.1' 08° 57.6' S	266° 47.6' 08° 35.2' S	266° 50.2' 08° 12.6' S	266° 52.9' 07° 49.9' S	266° 55.7' 07° 27.1' S
07	281° 35.1' 10° 46.7' S	281° 36.9' 10° 25.0' S	281° 38.7' 10° 03.1' S	281° 40.8' 09° 41.1' S	281° 42.9' 09° 19.0' S	281° 45.2' 08° 56.7' S	281° 47.7' 08° 34.2' S	281° 50.3' 08° 11.7' S	281° 53.0' 07° 49.0' S	281° 55.9' 07° 26.2' S
08	296° 35.2' 10° 45.8' S	296° 36.9' 10° 24.1' S	296° 38.8' 10° 02.2' S	296° 40.9' 09° 40.2' S	296° 43.0' 09° 18.0' S	296° 45.3' 08° 55.7' S	296° 47.8' 08° 33.3' S	296° 50.4' 08° 10.7' S	296° 53.1' 07° 48.0' S	296° 56.0' 07° 25.2' S
09	311° 35.3' 10° 44.9' S	311° 37.0' 10° 23.2' S	311° 38.9' 10° 01.3' S	311° 40.9' 09° 39.3' S	311° 43.1' 09° 17.1' S	311° 45.4' 08° 54.8' S	311° 47.9' 08° 32.3' S	311° 50.5' 08° 09.8' S	311° 53.2' 07° 47.1' S	311° 56.1' 07° 24.3' S
10	326° 35.4' 10° 44.0' S	326° 37.1' 10° 22.2' S	326° 39.0' 10° 00.4' S	326° 41.0' 09° 38.3' S	326° 43.2' 09° 16.2' S	326° 45.5' 08° 53.9' S	326° 48.0' 08° 31.4' S	326° 50.6' 08° 08.8' S	326° 53.4' 07° 46.1' S	326° 56.2' 07° 23.3' S
11	341° 35.4' 10° 43.1' S	341° 37.2' 10° 21.3' S	341° 39.1' 09° 59.5' S	341° 41.1' 09° 37.4' S	341° 43.3' 09° 15.2' S	341° 45.6' 08° 52.9' S	341° 48.1' 08° 30.5' S	341° 50.7' 08° 07.9' S	341° 53.5' 07° 45.2' S	341° 56.3' 07° 22.4' S
12	356° 35.5' 10° 42.2' S	356° 37.2' 10° 20.4' S	356° 39.1' 09° 58.5' S	356° 41.2' 09° 36.5' S	356° 43.4' 09° 14.3' S	356° 45.7' 08° 52.0' S	356° 48.2' 08° 29.5' S	356° 50.8' 08° 06.9' S	356° 53.6' 07° 44.2' S	356° 56.5' 07° 21.4' S
13	011° 35.6' 10° 41.3' S	011° 37.3' 10° 19.5' S	011° 39.2' 09° 57.6' S	011° 41.3' 09° 35.6' S	011° 43.5' 09° 13.4' S	011° 45.8' 08° 51.1' S	011° 48.3' 08° 28.6' S	011° 51.0' 08° 06.0' S	011° 53.7' 07° 43.3' S	011° 56.6' 07° 20.5' S
14	026° 35.6' 10° 40.3' S	026° 37.4' 10° 18.6' S	026° 39.3' 09° 56.7' S	026° 41.4' 09° 34.7' S	026° 43.6' 09° 12.5' S	026° 45.9' 08° 50.1' S	026° 48.4' 08° 27.7' S	026° 51.1' 08° 05.1' S	026° 53.8' 07° 42.3' S	026° 56.7' 07° 19.5' S
15	041° 35.7' 10° 39.4' S	041° 37.5' 10° 17.7' S	041° 39.4' 09° 55.8' S	041° 41.5' 09° 33.7' S	041° 43.7' 09° 11.5' S	041° 46.0' 08° 49.2' S	041° 48.5' 08° 26.7' S	041° 51.2' 08° 04.1' S	041° 53.9' 07° 41.4' S	041° 56.8' 07° 18.6' S
16	056° 35.8' 10° 38.5' S	056° 37.5' 10° 16.8' S	056° 39.5' 09° 54.9' S	056° 41.6' 09° 32.8' S	056° 43.8' 09° 10.6' S	056° 46.2' 08° 48.3' S	056° 48.7' 08° 25.8' S	056° 51.3' 08° 03.2' S	056° 54.1' 07° 40.4' S	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 02 Mar to 21 Mar

UT	02 Mar	03 Mar	04 Mar	05 Mar	06 Mar	07 Mar	08 Mar	09 Mar	10 Mar	11 Mar
00	176° 57,9' 07° 10,0' S	177° 01,0' 06° 47,0' S	177° 04,2' 06° 23,9' S	177° 07,5' 06° 00,8' S	177° 10,9' 05° 37,6' S	177° 14,4' 05° 14,2' S	177° 18,0' 04° 50,9' S	177° 21,7' 04° 27,4' S	177° 25,5' 04° 03,9' S	177° 29,4' 03° 40,4' S
01	191° 58,1' 07° 09,0' S	192° 01,1' 06° 46,0' S	192° 04,3' 06° 23,0' S	192° 07,6' 05° 59,8' S	192° 11,0' 05° 36,6' S	192° 14,5' 05° 13,3' S	192° 18,2' 04° 49,9' S	192° 21,9' 04° 26,4' S	192° 25,7' 04° 03,0' S	192° 29,6' 03° 39,4' S
02	206° 58,2' 07° 08,1' S	207° 01,3' 06° 45,1' S	207° 04,4' 06° 22,0' S	207° 07,7' 05° 58,9' S	207° 11,2' 05° 35,6' S	207° 14,7' 05° 12,3' S	207° 18,3' 04° 48,9' S	207° 22,0' 04° 25,5' S	207° 25,8' 04° 02,0' S	207° 29,7' 03° 38,4' S
03	221° 58,3' 07° 07,1' S	222° 01,4' 06° 44,1' S	222° 04,6' 06° 21,1' S	222° 07,9' 05° 57,9' S	222° 11,3' 05° 34,6' S	222° 14,8' 05° 11,3' S	222° 18,5' 04° 47,9' S	222° 22,2' 04° 24,5' S	222° 26,0' 04° 01,0' S	222° 29,9' 03° 37,4' S
04	236° 58,4' 07° 06,2' S	237° 01,5' 06° 43,2' S	237° 04,7' 06° 20,1' S	237° 08,0' 05° 56,9' S	237° 11,5' 05° 33,7' S	237° 15,0' 05° 10,4' S	237° 18,6' 04° 47,0' S	237° 22,3' 04° 23,5' S	237° 26,2' 04° 00,0' S	237° 30,1' 03° 36,5' S
05	251° 58,6' 07° 05,2' S	252° 01,7' 06° 42,2' S	252° 04,9' 06° 19,1' S	252° 08,2' 05° 56,0' S	252° 11,6' 05° 32,7' S	252° 15,1' 05° 09,4' S	252° 18,8' 04° 46,0' S	252° 22,5' 04° 22,5' S	252° 26,3' 03° 59,0' S	252° 30,2' 03° 35,5' S
06	266° 58,7' 07° 04,2' S	267° 01,8' 06° 41,2' S	267° 05,0' 06° 18,2' S	267° 08,3' 05° 55,0' S	267° 11,7' 05° 31,7' S	267° 15,3' 05° 08,4' S	267° 18,9' 04° 45,0' S	267° 22,7' 04° 21,6' S	267° 26,5' 03° 58,1' S	267° 30,4' 03° 34,5' S
07	281° 58,8' 07° 03,3' S	282° 01,9' 06° 40,3' S	282° 05,1' 06° 17,2' S	282° 08,5' 05° 54,0' S	282° 11,9' 05° 30,8' S	282° 15,4' 05° 07,4' S	282° 19,1' 04° 44,0' S	282° 22,8' 04° 20,6' S	282° 26,6' 03° 57,1' S	282° 30,6' 03° 33,5' S
08	296° 58,9' 07° 02,3' S	297° 02,0' 06° 39,3' S	297° 05,3' 06° 16,2' S	297° 08,6' 05° 53,1' S	297° 12,0' 05° 29,8' S	297° 15,6' 05° 06,5' S	297° 19,2' 04° 43,1' S	297° 22,9' 04° 19,6' S	297° 26,8' 03° 56,1' S	297° 30,7' 03° 32,5' S
09	311° 59,1' 07° 01,4' S	312° 02,2' 06° 38,4' S	312° 05,4' 06° 15,3' S	312° 08,7' 05° 52,1' S	312° 12,2' 05° 28,8' S	312° 15,7' 05° 05,5' S	312° 19,4' 04° 42,1' S	312° 23,1' 04° 18,6' S	312° 27,0' 03° 55,1' S	312° 30,9' 03° 31,6' S
10	326° 59,2' 07° 00,4' S	327° 02,3' 06° 37,4' S	327° 05,5' 06° 14,3' S	327° 08,9' 05° 51,1' S	327° 12,3' 05° 27,9' S	327° 15,9' 05° 04,5' S	327° 19,5' 04° 41,1' S	327° 23,3' 04° 17,6' S	327° 27,1' 03° 54,1' S	327° 31,1' 03° 30,6' S
11	341° 59,3' 06° 59,5' S	342° 02,4' 06° 36,4' S	342° 05,7' 06° 13,3' S	342° 09,0' 05° 50,1' S	342° 12,5' 05° 26,9' S	342° 16,0' 05° 03,5' S	342° 19,7' 04° 40,1' S	342° 23,4' 04° 16,7' S	342° 27,3' 03° 53,1' S	342° 31,2' 03° 29,6' S
12	356° 59,5' 06° 58,5' S	357° 02,6' 06° 35,5' S	357° 05,8' 06° 12,4' S	357° 09,2' 05° 49,2' S	357° 12,6' 05° 25,9' S	357° 16,2' 05° 02,6' S	357° 19,8' 04° 39,2' S	357° 23,6' 04° 15,7' S	357° 27,5' 03° 52,2' S	357° 31,4' 03° 28,6' S
13	011° 59,6' 06° 57,5' S	012° 02,7' 06° 34,5' S	012° 05,9' 06° 11,4' S	012° 09,3' 05° 48,2' S	012° 12,8' 05° 24,9' S	012° 16,3' 05° 01,6' S	012° 20,0' 04° 38,2' S	012° 23,8' 04° 14,7' S	012° 27,6' 03° 51,2' S	012° 31,6' 03° 27,6' S
14	026° 59,7' 06° 56,6' S	027° 02,8' 06° 33,6' S	027° 06,1' 06° 10,4' S	027° 09,4' 05° 47,2' S	027° 12,9' 05° 24,0' S	027° 16,5' 05° 00,6' S	027° 20,2' 04° 37,2' S	027° 23,9' 04° 13,7' S	027° 27,8' 03° 50,2' S	027° 31,7' 03° 26,6' S
15	041° 59,8' 06° 55,6' S	042° 03,0' 06° 32,6' S	042° 06,2' 06° 09,5' S	042° 09,6' 05° 46,3' S	042° 13,1' 05° 23,0' S	042° 16,6' 04° 59,6' S	042° 20,3' 04° 36,2' S	042° 24,1' 04° 12,7' S	042° 27,9' 03° 49,2' S	042° 31,9' 03° 25,7' S
16	057° 00,0' 06° 54,7' S	057° 03,1' 06° 31,6' S	057° 06,4' 06° 08,5' S	057° 09,7' 05° 45,3' S	057° 13,2' 05° 22,0' S	057° 16,8' 04° 58,7' S	057° 20,5' 04° 35,2' S	057° 24,2' 04° 11,8' S	057° 28,1' 03° 48,2' S	057° 32,0' 03° 24,7' S
17	072° 00,1' 06° 53,7' S	072° 03,2' 06° 30,7' S	072° 06,5' 06° 07,6' S	072° 09,9' 05° 44,3' S	072° 13,4' 05° 21,1' S	072° 16,9' 04° 57,7' S	072° 20,6' 04° 34,3' S	072° 24,4' 04° 10,8' S	072° 28,3' 03° 47,3' S	072° 32,2' 03° 23,7' S
18	087° 00,2' 06° 52,8' S	087° 03,4' 06° 29,7' S	087° 06,6' 06° 06,6' S	087° 10,0' 05° 43,4' S	087° 13,5' 05° 20,1' S	087° 17,1' 04° 56,7' S	087° 20,8' 04° 33,3' S	087° 24,6' 04° 09,8' S	087° 28,4' 03° 46,3' S	087° 32,4' 03° 22,7' S
19	102° 00,4' 06° 51,8' S	102° 03,5' 06° 28,8' S	102° 06,8' 06° 05,6' S	102° 10,2' 05° 42,4' S	102° 13,6' 05° 19,1' S	102° 17,2' 04° 55,7' S	102° 20,9' 04° 32,3' S	102° 24,7' 04° 08,8' S	102° 28,6' 03° 45,3' S	102° 32,5' 03° 21,7' S
20	117° 00,5' 06° 50,8' S	117° 03,6' 06° 27,8' S	117° 06,9' 06° 04,7' S	117° 10,3' 05° 41,4' S	117° 13,8' 05° 18,1' S	117° 17,4' 04° 54,8' S	117° 21,1' 04° 31,3' S	117° 24,9' 04° 07,9' S	117° 28,8' 03° 44,3' S	117° 32,7' 03° 20,7' S
21	132° 00,6' 06° 49,9' S	132° 03,8' 06° 26,8' S	132° 07,1' 06° 03,7' S	132° 10,4' 05° 40,5' S	132° 13,9' 05° 17,2' S	132° 17,5' 04° 53,8' S	132° 21,2' 04° 30,4' S	132° 25,0' 04° 06,9' S	132° 28,9' 03° 43,3' S	132° 32,9' 03° 19,8' S
22	147° 00,7' 06° 48,9' S	147° 03,9' 06° 25,9' S	147° 07,2' 06° 02,7' S	147° 10,6' 05° 39,5' S	147° 14,1' 05° 16,2' S	147° 17,7' 04° 52,8' S	147° 21,4' 04° 29,4' S	147° 25,2' 04° 05,9' S	147° 29,1' 03° 42,4' S	147° 33,0' 03° 18,8' S
23	162° 00,9' 06° 48,0' S	162° 04,0' 06° 24,9' S	162° 07,3' 06° 01,8' S	162° 10,7' 05° 38,5' S	162° 14,2' 05° 15,2' S	162° 17,8' 04° 51,8' S	162° 21,6' 04° 28,4' S	162° 25,4' 04° 04,9' S	162° 29,2' 03° 41,4' S	162° 33,2' 03° 17,8' S
UT	12 Mar	13 Mar	14 Mar	15 Mar	16 Mar	17 Mar	18 Mar	19 Mar	20 Mar	21 Mar
00	177° 33,4' 03° 16,8' S	177° 37,4' 02° 53,2' S	177° 41,6' 02° 29,5' S	177° 45,7' 02° 05,8' S	177° 50,0' 01° 42,2' S	177° 54,3' 01° 18,4' S	177° 58,6' 00° 54,7' S	178° 03,0' 00° 31,0' S	178° 07,4' 00° 07,3' S	178° 11,9' 00° 16,4' N
01	192° 33,5' 03° 15,8' S	192° 37,6' 02° 52,2' S	192° 41,7' 02° 28,5' S	192° 45,9' 02° 04,9' S	192° 50,2' 01° 41,2' S	192° 54,5' 01° 17,5' S	192° 58,8' 00° 53,7' S	193° 03,2' 00° 30,0' S	193° 07,6' 00° 06,3' S	193° 12,1' 00° 17,4' N
02	207° 33,7' 03° 14,8' S	207° 37,8' 02° 51,2' S	207° 41,9' 02° 27,6' S	207° 46,1' 02° 03,9' S	207° 50,3' 01° 40,2' S	207° 54,6' 01° 16,5' S	207° 59,0' 00° 52,7' S	208° 03,4' 00° 29,0' S	208° 07,8' 00° 05,3' S	208° 12,2' 00° 18,4' N
03	222° 33,9' 03° 13,9' S	222° 37,9' 02° 50,2' S	222° 42,1' 02° 26,6' S	222° 46,3' 02° 02,9' S	222° 50,5' 01° 39,2' S	222° 54,8' 01° 15,5' S	222° 59,2' 00° 51,8' S	223° 03,6' 00° 28,0' S	223° 08,0' 00° 04,3' S	223° 12,4' 00° 19,4' N
04	237° 34,1' 03° 12,9' S	237° 38,1' 02° 49,2' S	237° 42,2' 02° 25,6' S	237° 46,4' 02° 01,9' S	237° 50,7' 01° 38,2' S	237° 55,0' 01° 14,5' S	237° 59,3' 00° 50,8' S	238° 03,7' 00° 27,1' S	238° 08,2' 00° 03,3' S	238° 12,6' 00° 20,4' N
05	252° 34,2' 03° 11,9' S	252° 38,3' 02° 48,3' S	252° 42,4' 02° 24,6' S	252° 46,6' 02° 00,9' S	252° 50,9' 01° 37,2' S	252° 55,2' 01° 13,5' S	252° 59,5' 00° 49,8' S	253° 03,9' 00° 26,1' S	253° 08,3' 00° 02,3' S	253° 12,8' 00° 21,4' N
06	267° 34,4' 03° 10,9' S	267° 38,5' 02° 47,3' S	267° 42,6' 02° 23,6' S	267° 46,8' 01° 59,9' S	267° 51,0' 01° 36,2' S	267° 55,4' 01° 12,5' S	267° 59,7' 00° 48,8' S	268° 04,1' 00° 25,1' S	268° 08,5' 00° 01,4' S	268° 13,0' 00° 22,3' N
07	282° 34,6' 03° 09,9' S	282° 38,6' 02° 46,3' S	282° 42,8' 02° 22,6' S	282° 47,0' 01° 58,9' S	282° 51,2' 01° 35,2' S	282° 55,5' 01° 11,5' S	282° 59,9' 00° 47,8' S	283° 04,3' 00° 24,1' S	283° 08,7' 00° 00,4' S	283° 13,2' 00° 23,3' N
08	297° 34,7' 03° 08,9' S	297° 38,8' 02° 45,3' S	297° 42,9' 02° 21,6' S	297° 47,1' 01° 58,0' S	297° 51,4' 01° 34,2' S	297° 55,7' 01° 10,5' S	298° 00,1' 00° 46,8' S	298° 04,5' 00° 23,1' S	298° 08,9' 00° 00,0' S	298° 13,4' 00° 24,3' N
09	312° 34,9' 03° 07,9' S	312° 39,0' 02° 44,3' S	312° 43,1' 02° 20,7' S	312° 47,3' 01° 57,0' S	312° 51,6' 01° 33,3' S	312° 55,9' 01° 09,5' S	313° 00,3' 00° 45,8' S	313° 04,7' 00° 22,1' S	313° 09,1' 00° 01,6' N	313° 13,5' 00° 25,3' N
10	327° 35,1' 03° 07,0' S	327° 39,1' 02° 43,3' S	327° 43,3' 02° 19,7' S	327° 47,5' 01° 56,0' S	327° 51,8' 01° 32,3' S	327° 56,1' 01° 08,6' S	328° 00,4' 00° 44,8' S	328° 04,8' 00° 21,8' S	328° 09,3' 00° 00,0' S	328° 13,7' 00° 26,3' N
11	342° 35,2' 03° 06,0' S	342° 39,3' 02° 42,3' S	342° 43,5' 02° 18,7' S	342° 47,7' 01° 55,0' S	342° 51,9' 01° 31,3' S	342° 56,3' 01° 07,6' S	343° 00,6' 00° 43,9' S	343° 05,0' 00° 20,1' S	343° 09,5' 00° 03,6' N	343° 13,9' 00° 27,3' N
12	357° 35,4' 03° 05,0' S	357° 39,5' 02° 41,4' S	357° 43,6' 02° 17,7' S	357° 47,9' 01° 54,0' S	357° 52,1' 01° 30,3' S	357° 56,4' 01° 06,6' S	358° 00,8' 00° 42,9' S	358° 05,2' 00° 19,1' S	358° 09,6' 00° 04,6' N	358° 14,1' 00° 28,3' N
13	012° 35,6' 03° 04,0' S	012° 39,7' 02° 40,4' S	012° 43,8' 02° 16,7' S	012° 48,0' 01° 53,0' S	012° 52,3' 01° 29,3' S	012° 56,6' 01° 05,6' S	013° 01,0' 00° 41,9' S	013° 05,4' 00° 18,2' S	013° 09,8' 00° 05,6' N	013° 14,3' 00° 29,2' N
14	027° 35,7' 03° 03,0' S	027° 39,8' 02° 39,4' S	027° 44,0' 02° 15,7' S	027° 48,2' 01° 52,0' S	027° 52,5' 01° 28,3' S	027° 56,8' 01° 04,6' S	028° 01,2' 00° 40,9' S	028° 05,6' 00° 17,2' S	028° 10,0' 00° 06,5' N	028° 14,5' 00° 30,2' N
15	042° 35,9' 03° 02,0' S	042° 40,0' 02° 38,4' S	042° 44,2' 02° 14,7' S	042° 48,4' 01° 51,0' S	042° 52,7' 01° 27,3' S	042° 57,0' 01° 03,6' S	043° 01,4' 00° 39,9' S	043° 05,8' 00° 16,2' S	043° 10,2' 00° 07,5' S	043° 14,7' 00° 31,2' N
16	057° 36,1' 03° 01,1' S	057° 40,2' 02° 37,4' S	057° 44,3' 02° 13,7' S	057° 48,6' 01° 50,1' S	057° 52,8' 01° 26,3' S	057° 57,2' 01° 02,6' S	058° 01,5' 00° 38,9' S	058° 05,9' 00° 15,2' S	058° 10,4' 00° 08,5' S	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 22 Mar to 10 Apr

UT	22 Mar	23 Mar	24 Mar	25 Mar	26 Mar	27 Mar	28 Mar	29 Mar	30 Mar	31 Mar
00	178° 16,3' 00° 40,1' N	178° 20,8' 01° 03,8' N	178° 25,3' 01° 27,4' N	178° 29,9' 01° 51,0' N	178° 34,4' 02° 14,6' N	178° 38,9' 02° 38,1' N	178° 43,4' 03° 01,6' N	178° 47,9' 03° 25,0' N	178° 52,3' 03° 48,3' N	178° 56,8' 04° 11,6' N
01	193° 16,5' 00° 41,1' N	193° 21,0' 01° 04,8' N	193° 25,5' 01° 28,4' N	193° 30,0' 01° 52,0' N	193° 34,6' 02° 15,6' N	193° 39,1' 02° 39,1' N	193° 43,6' 03° 02,5' N	193° 48,1' 03° 25,9' N	193° 52,5' 03° 49,3' N	193° 57,0' 04° 12,6' N
02	208° 16,7' 00° 42,1' N	208° 21,2' 01° 05,7' N	208° 25,7' 01° 29,4' N	208° 30,2' 01° 53,0' N	208° 34,7' 02° 16,5' N	208° 39,3' 02° 40,1' N	208° 43,8' 03° 03,5' N	208° 48,2' 03° 26,9' N	208° 52,7' 03° 50,3' N	208° 57,2' 04° 13,5' N
03	223° 16,9' 00° 43,1' N	223° 21,4' 01° 06,7' N	223° 25,9' 01° 30,4' N	223° 30,4' 01° 54,0' N	223° 34,9' 02° 17,5' N	223° 39,4' 02° 41,0' N	223° 43,9' 03° 04,5' N	223° 48,4' 03° 27,9' N	223° 52,9' 03° 51,2' N	223° 57,4' 04° 14,5' N
04	238° 17,1' 00° 44,1' N	238° 21,6' 01° 07,7' N	238° 26,1' 01° 31,3' N	238° 30,6' 01° 54,9' N	238° 35,1' 02° 18,5' N	238° 39,6' 02° 42,0' N	238° 44,1' 03° 05,5' N	238° 48,6' 03° 28,9' N	238° 53,1' 03° 52,2' N	238° 57,5' 04° 15,5' N
05	253° 17,3' 00° 45,0' N	253° 21,8' 01° 08,7' N	253° 26,3' 01° 32,3' N	253° 30,8' 01° 55,9' N	253° 35,3' 02° 19,5' N	253° 39,8' 02° 43,0' N	253° 44,3' 03° 06,4' N	253° 48,8' 03° 29,8' N	253° 53,3' 03° 53,2' N	253° 57,7' 04° 16,4' N
06	268° 17,5' 00° 46,0' N	268° 22,0' 01° 09,7' N	268° 26,5' 01° 33,3' N	268° 31,0' 01° 56,9' N	268° 35,5' 02° 20,5' N	268° 40,0' 02° 44,0' N	268° 44,5' 03° 07,4' N	268° 49,0' 03° 30,8' N	268° 53,5' 03° 54,1' N	268° 57,9' 04° 17,4' N
07	283° 17,7' 00° 47,0' N	283° 22,2' 01° 10,7' N	283° 26,7' 01° 34,3' N	283° 31,2' 01° 57,9' N	283° 35,7' 02° 21,4' N	283° 40,2' 02° 44,9' N	283° 44,7' 03° 08,4' N	283° 49,2' 03° 31,8' N	283° 53,6' 03° 55,1' N	283° 58,1' 04° 18,4' N
08	298° 17,8' 00° 48,0' N	298° 22,3' 01° 11,7' N	298° 26,8' 01° 35,3' N	298° 31,4' 01° 58,9' N	298° 35,9' 02° 22,4' N	298° 40,4' 02° 45,9' N	298° 44,9' 03° 09,4' N	298° 49,4' 03° 32,8' N	298° 53,8' 03° 56,1' N	298° 58,3' 04° 19,3' N
09	313° 18,0' 00° 49,0' N	313° 22,5' 01° 12,6' N	313° 27,0' 01° 36,3' N	313° 31,5' 01° 59,9' N	313° 36,1' 02° 23,4' N	313° 40,6' 02° 46,9' N	313° 45,1' 03° 10,3' N	313° 49,6' 03° 33,7' N	313° 54,0' 03° 57,0' N	313° 58,5' 04° 20,3' N
10	328° 18,2' 00° 50,0' N	328° 22,7' 01° 13,6' N	328° 27,2' 01° 37,2' N	328° 31,7' 02° 00,8' N	328° 36,2' 02° 24,4' N	328° 40,8' 02° 47,9' N	328° 45,3' 03° 11,3' N	328° 49,7' 03° 34,7' N	328° 54,2' 03° 58,0' N	328° 58,7' 04° 21,3' N
11	343° 18,4' 00° 51,0' N	343° 22,9' 01° 14,6' N	343° 27,4' 01° 38,2' N	343° 31,9' 02° 01,8' N	343° 36,4' 02° 25,4' N	343° 40,9' 02° 48,9' N	343° 45,4' 03° 12,3' N	343° 49,9' 03° 35,7' N	343° 54,4' 03° 59,0' N	343° 58,8' 04° 22,2' N
12	358° 18,6' 00° 51,9' N	358° 23,1' 01° 15,6' N	358° 27,6' 01° 39,2' N	358° 32,1' 02° 02,8' N	358° 36,6' 02° 26,3' N	358° 41,1' 02° 49,8' N	358° 45,6' 03° 13,3' N	358° 50,1' 03° 36,7' N	358° 54,6' 04° 00,0' N	358° 59,0' 04° 23,2' N
13	013° 18,8' 00° 52,9' N	013° 23,3' 01° 16,6' N	013° 27,8' 01° 40,2' N	013° 32,3' 02° 03,8' N	013° 36,8' 02° 27,3' N	013° 41,3' 02° 50,8' N	013° 45,8' 03° 14,2' N	013° 50,3' 03° 37,6' N	013° 54,8' 04° 00,9' N	013° 59,2' 04° 24,2' N
14	028° 19,0' 00° 53,9' N	028° 23,5' 01° 17,6' N	028° 28,0' 01° 41,2' N	028° 32,5' 02° 04,8' N	028° 37,0' 02° 28,3' N	028° 41,5' 02° 51,8' N	028° 46,0' 03° 15,2' N	028° 50,5' 03° 38,6' N	028° 54,9' 04° 01,9' N	028° 59,4' 04° 25,1' N
15	043° 19,2' 00° 54,9' N	043° 23,7' 01° 18,5' N	043° 28,2' 01° 42,2' N	043° 32,7' 02° 05,7' N	043° 37,2' 02° 29,3' N	043° 41,7' 02° 52,8' N	043° 46,2' 03° 16,2' N	043° 50,7' 03° 39,6' N	043° 55,1' 04° 02,9' N	043° 59,6' 04° 26,1' N
16	058° 19,3' 00° 55,9' N	058° 23,8' 01° 19,5' N	058° 28,3' 01° 43,2' N	058° 32,9' 02° 06,7' N	058° 37,4' 02° 30,3' N	058° 41,9' 02° 53,7' N	058° 46,4' 03° 17,2' N	058° 50,9' 03° 40,5' N	058° 55,3' 04° 03,8' N	058° 59,8' 04° 27,1' N
17	073° 19,5' 00° 56,9' N	073° 24,0' 01° 20,5' N	073° 28,5' 01° 44,1' N	073° 33,0' 02° 07,7' N	073° 37,6' 02° 31,2' N	073° 42,1' 02° 54,7' N	073° 46,6' 03° 18,1' N	073° 51,0' 03° 41,5' N	073° 55,5' 04° 04,8' N	073° 59,9' 04° 28,0' N
18	088° 19,7' 00° 57,9' N	088° 24,2' 01° 21,5' N	088° 28,7' 01° 45,1' N	088° 33,2' 02° 08,7' N	088° 37,7' 02° 32,2' N	088° 42,3' 02° 55,7' N	088° 46,7' 03° 19,1' N	088° 51,2' 03° 42,5' N	088° 55,7' 04° 05,8' N	088° 00,1' 04° 29,0' N
19	103° 19,9' 00° 58,8' N	103° 24,4' 01° 22,5' N	103° 28,9' 01° 46,1' N	103° 33,4' 02° 09,7' N	103° 37,9' 02° 33,2' N	103° 42,4' 02° 56,7' N	103° 46,9' 03° 20,1' N	103° 51,4' 03° 43,5' N	103° 55,9' 04° 06,7' N	104° 00,3' 04° 30,0' N
20	118° 20,1' 00° 59,8' N	118° 24,6' 01° 23,5' N	118° 29,1' 01° 47,1' N	118° 33,6' 02° 10,7' N	118° 38,1' 02° 34,2' N	118° 42,6' 02° 57,7' N	118° 47,1' 03° 21,1' N	118° 51,6' 03° 44,4' N	118° 56,1' 04° 07,7' N	119° 00,5' 04° 30,9' N
21	133° 20,3' 01° 00,8' N	133° 24,8' 01° 24,5' N	133° 29,3' 01° 48,1' N	133° 33,8' 02° 11,6' N	133° 38,3' 02° 35,2' N	133° 42,8' 02° 58,6' N	133° 47,3' 03° 22,0' N	133° 51,8' 03° 45,4' N	133° 56,2' 04° 08,7' N	134° 00,7' 04° 31,9' N
22	148° 20,5' 01° 01,8' N	148° 25,0' 01° 25,4' N	148° 29,5' 01° 49,0' N	148° 34,0' 02° 12,6' N	148° 38,5' 02° 36,1' N	148° 43,0' 02° 59,6' N	148° 47,5' 03° 23,0' N	148° 52,0' 03° 46,4' N	148° 56,4' 04° 09,6' N	149° 00,9' 04° 32,9' N
23	163° 20,7' 01° 02,8' N	163° 25,2' 01° 26,4' N	163° 29,7' 01° 50,0' N	163° 34,2' 02° 13,6' N	163° 38,7' 02° 37,1' N	163° 43,2' 03° 00,6' N	163° 47,7' 03° 24,0' N	163° 52,2' 03° 47,3' N	163° 56,6' 04° 10,6' N	164° 01,1' 04° 33,8' N
UT	01 Apr	02 Apr	03 Apr	04 Apr	05 Apr	06 Apr	07 Apr	08 Apr	09 Apr	10 Apr
00	179° 01,2' 04° 34,8' N	179° 05,6' 04° 57,9' N	179° 10,0' 05° 20,9' N	179° 14,4' 05° 43,8' N	179° 18,7' 06° 06,7' N	179° 22,9' 06° 29,4' N	179° 27,2' 06° 52,0' N	179° 31,3' 07° 14,5' N	179° 35,5' 07° 36,8' N	179° 39,5' 07° 59,1' N
01	194° 01,4' 04° 35,7' N	194° 05,8' 04° 58,9' N	194° 10,2' 05° 21,9' N	194° 14,6' 05° 44,8' N	194° 18,9' 06° 07,6' N	194° 23,1' 06° 30,3' N	194° 27,3' 06° 52,9' N	194° 31,5' 07° 15,4' N	194° 35,6' 07° 37,8' N	194° 39,7' 08° 00,0' N
02	209° 01,6' 04° 36,7' N	209° 06,0' 04° 59,8' N	209° 10,4' 05° 22,8' N	209° 14,7' 05° 45,7' N	209° 19,0' 06° 08,6' N	209° 23,3' 06° 31,3' N	209° 27,5' 06° 53,9' N	209° 31,7' 07° 16,4' N	209° 35,8' 07° 38,7' N	209° 39,8' 08° 00,9' N
03	224° 01,8' 04° 37,7' N	224° 06,2' 05° 00,8' N	224° 10,6' 05° 23,8' N	224° 14,9' 05° 46,7' N	224° 19,2' 06° 09,5' N	224° 23,5' 06° 32,2' N	224° 27,7' 06° 54,8' N	224° 31,9' 07° 17,3' N	224° 36,0' 07° 39,6' N	224° 40,0' 08° 01,9' N
04	239° 02,0' 04° 38,6' N	239° 06,4' 05° 01,7' N	239° 10,8' 05° 24,7' N	239° 15,1' 05° 47,7' N	239° 19,4' 06° 10,5' N	239° 23,7' 06° 33,2' N	239° 27,9' 06° 55,8' N	239° 32,0' 07° 18,2' N	239° 36,1' 07° 40,6' N	239° 40,2' 08° 02,8' N
05	254° 02,2' 04° 39,6' N	254° 06,6' 05° 02,7' N	254° 10,9' 05° 25,7' N	254° 15,3' 05° 48,6' N	254° 19,6' 06° 11,4' N	254° 23,8' 06° 34,1' N	254° 28,0' 06° 56,7' N	254° 32,2' 07° 19,2' N	254° 36,3' 07° 41,5' N	254° 40,3' 08° 03,7' N
06	269° 02,3' 04° 40,6' N	269° 06,7' 05° 03,7' N	269° 11,1' 05° 26,7' N	269° 15,5' 05° 49,6' N	269° 19,8' 06° 12,4' N	269° 24,0' 06° 35,1' N	269° 28,2' 06° 57,6' N	269° 32,4' 07° 20,1' N	269° 36,5' 07° 42,4' N	269° 40,5' 08° 04,6' N
07	284° 02,5' 04° 41,5' N	284° 06,9' 05° 04,6' N	284° 11,3' 05° 27,6' N	284° 15,6' 05° 50,5' N	284° 19,9' 06° 13,3' N	284° 24,2' 06° 36,0' N	284° 28,4' 06° 58,6' N	284° 32,5' 07° 21,0' N	284° 36,6' 07° 43,3' N	284° 40,7' 08° 05,5' N
08	299° 02,7' 04° 42,5' N	299° 07,1' 05° 05,6' N	299° 11,5' 05° 28,6' N	299° 15,8' 05° 51,5' N	299° 20,1' 06° 14,3' N	299° 24,4' 06° 36,9' N	299° 28,6' 06° 59,5' N	299° 32,7' 07° 22,0' N	299° 36,8' 07° 44,3' N	299° 40,8' 08° 06,5' N
09	314° 02,9' 04° 43,5' N	314° 07,3' 05° 06,5' N	314° 11,7' 05° 29,5' N	314° 16,0' 05° 52,4' N	314° 20,3' 06° 15,2' N	314° 24,5' 06° 37,9' N	314° 28,7' 07° 00,4' N	314° 32,9' 07° 22,9' N	314° 37,0' 07° 45,2' N	314° 41,0' 08° 07,4' N
10	329° 03,1' 04° 44,4' N	329° 07,5' 05° 07,5' N	329° 11,8' 05° 30,5' N	329° 16,2' 05° 53,4' N	329° 20,5' 06° 16,1' N	329° 24,7' 06° 38,8' N	329° 28,9' 07° 01,4' N	329° 33,1' 07° 23,8' N	329° 37,1' 07° 46,1' N	329° 41,2' 08° 08,3' N
11	344° 03,3' 04° 45,4' N	344° 07,7' 05° 08,5' N	344° 12,0' 05° 31,4' N	344° 16,4' 05° 54,3' N	344° 20,6' 06° 17,1' N	344° 24,9' 06° 39,8' N	344° 29,1' 07° 02,3' N	344° 33,2' 07° 24,8' N	344° 37,3' 07° 47,1' N	344° 41,3' 08° 09,2' N
12	359° 03,4' 04° 46,3' N	359° 07,8' 05° 09,4' N	359° 12,2' 05° 32,4' N	359° 16,5' 05° 55,3' N	359° 20,8' 06° 18,0' N	359° 25,1' 06° 40,7' N	359° 29,3' 07° 03,3' N	359° 33,4' 07° 25,7' N	359° 37,5' 07° 48,0' N	359° 41,5' 08° 10,1' N
13	014° 03,6' 04° 47,3' N	014° 08,0' 05° 10,4' N	014° 12,4' 05° 33,3' N	014° 16,7' 05° 56,2' N	014° 21,0' 06° 19,0' N	014° 25,2' 06° 41,6' N	014° 29,4' 07° 04,2' N	014° 33,6' 07° 26,6' N	014° 37,7' 07° 48,9' N	014° 41,7' 08° 11,1' N
14	029° 03,8' 04° 48,3' N	029° 08,2' 05° 11,3' N	029° 12,6' 05° 34,3' N	029° 16,9' 05° 57,2' N	029° 21,2' 06° 19,9' N	029° 25,4' 06° 42,6' N	029° 29,6' 07° 05,1' N	029° 33,7' 07° 27,5' N	029° 37,8' 07° 49,8' N	029° 41,8' 08° 12,0' N
15	044° 04,0' 04° 49,2' N	044° 08,4' 05° 12,3' N	044° 12,7' 05° 35,3' N	044° 17,1' 05° 58,1' N	044° 21,4' 06° 20,9' N	044° 25,6' 06° 43,5' N	044° 29,8' 07° 06,1' N	044° 33,9' 07° 28,5' N	044° 38,0' 07° 50,8' N	044° 42,0' 08° 12,9' N
16	059° 04,2' 04° 50,2' N	059° 08,6' 05° 13,3' N	059° 12,9' 05° 36,2' N	059° 17,2' 05° 59,1' N	059° 21,5' 06° 21,8' N	059° 25,8' 06° 44,5' N	059° 30,0' 07° 07,0' N	059° 34,1' 07° 29,4' N	059° 38,2' 07° 51,7' N	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 11 Apr to 30 Apr

UT	11 Apr	12 Apr	13 Apr	14 Apr	15 Apr	16 Apr	17 Apr	18 Apr	19 Apr	20 Apr
00	179° 43.5' 08° 21.2' N	179° 47.4' 08° 43.1' N	179° 51.3' 09° 05.0' N	179° 55.0' 09° 26.6' N	179° 58.7' 09° 48.1' N	180° 02.3' 10° 09.5' N	180° 05.8' 10° 30.6' N	180° 09.2' 10° 51.6' N	180° 12.5' 11° 12.5' N	180° 15.7' 11° 33.1' N
01	194° 43.7' 08° 22.1' N	194° 47.6' 08° 44.1' N	194° 51.4' 09° 05.9' N	194° 55.2' 09° 27.5' N	194° 58.9' 09° 49.0' N	195° 02.4' 10° 10.3' N	195° 05.9' 10° 31.5' N	195° 09.3' 10° 52.5' N	195° 12.6' 11° 13.3' N	195° 15.8' 11° 33.9' N
02	209° 43.8' 08° 23.0' N	209° 47.7' 08° 45.0' N	209° 51.6' 09° 06.8' N	209° 55.3' 09° 28.4' N	209° 59.0' 09° 49.9' N	210° 02.6' 10° 11.2' N	210° 06.1' 10° 32.4' N	210° 09.5' 10° 53.4' N	210° 12.8' 11° 14.2' N	210° 16.0' 11° 34.8' N
03	224° 44.0' 08° 23.9' N	224° 47.9' 08° 45.9' N	224° 51.7' 09° 07.7' N	224° 55.5' 09° 29.3' N	224° 59.2' 09° 50.8' N	225° 02.7' 10° 12.1' N	225° 06.2' 10° 33.3' N	225° 09.6' 10° 54.2' N	225° 12.9' 11° 15.0' N	225° 16.1' 11° 35.7' N
04	239° 44.2' 08° 24.9' N	239° 48.1' 08° 46.8' N	239° 51.9' 09° 08.6' N	239° 55.6' 09° 30.2' N	239° 59.3' 09° 51.7' N	240° 02.9' 10° 13.0' N	240° 06.4' 10° 34.1' N	240° 09.8' 10° 55.1' N	240° 13.0' 11° 15.9' N	240° 16.2' 11° 36.5' N
05	254° 44.3' 08° 25.8' N	254° 48.2' 08° 47.7' N	254° 52.1' 09° 09.5' N	254° 55.8' 09° 31.1' N	254° 59.5' 09° 52.6' N	255° 03.0' 10° 13.9' N	255° 06.5' 10° 35.0' N	255° 09.9' 10° 56.0' N	255° 13.2' 11° 16.8' N	255° 16.4' 11° 37.4' N
06	269° 44.5' 08° 26.7' N	269° 48.4' 08° 48.6' N	269° 52.2' 09° 10.4' N	269° 56.0' 09° 32.0' N	269° 59.6' 09° 53.5' N	270° 03.2' 10° 14.8' N	270° 06.7' 10° 35.9' N	270° 10.0' 10° 56.9' N	270° 13.3' 11° 17.6' N	270° 16.5' 11° 38.2' N
07	284° 44.6' 08° 27.6' N	284° 48.5' 08° 49.5' N	284° 52.4' 09° 11.3' N	284° 56.1' 09° 32.9' N	284° 59.8' 09° 54.4' N	285° 03.3' 10° 15.6' N	285° 06.8' 10° 36.8' N	285° 10.2' 10° 57.7' N	285° 13.4' 11° 18.5' N	285° 16.6' 11° 39.1' N
08	299° 44.8' 08° 28.5' N	299° 48.7' 08° 50.4' N	299° 52.5' 09° 12.2' N	299° 56.3' 09° 33.8' N	299° 59.9' 09° 55.2' N	300° 03.5' 10° 16.5' N	300° 06.9' 10° 37.6' N	300° 10.3' 10° 58.6' N	300° 13.6' 11° 19.4' N	300° 16.7' 11° 39.9' N
09	314° 45.0' 08° 29.4' N	314° 48.9' 08° 51.3' N	314° 52.7' 09° 13.1' N	314° 56.4' 09° 34.7' N	315° 00.1' 09° 56.1' N	315° 03.6' 10° 17.4' N	315° 07.1' 10° 38.5' N	315° 10.5' 10° 59.5' N	315° 13.7' 11° 20.2' N	315° 16.9' 11° 40.8' N
10	329° 45.1' 08° 30.3' N	329° 49.0' 08° 52.2' N	329° 52.8' 09° 14.0' N	329° 56.6' 09° 35.6' N	330° 00.2' 09° 57.0' N	330° 03.8' 10° 18.3' N	330° 07.2' 10° 39.4' N	330° 10.6' 11° 00.3' N	330° 13.8' 11° 21.1' N	330° 17.0' 11° 41.6' N
11	344° 45.3' 08° 31.3' N	344° 49.2' 08° 53.2' N	344° 53.0' 09° 14.9' N	344° 56.7' 09° 36.5' N	345° 00.4' 09° 57.9' N	345° 03.9' 10° 19.2' N	345° 07.4' 10° 40.3' N	345° 10.7' 11° 01.2' N	345° 14.0' 11° 21.9' N	345° 17.1' 11° 42.5' N
12	359° 45.5' 08° 32.2' N	359° 49.3' 08° 54.1' N	359° 53.2' 09° 15.8' N	359° 56.9' 09° 37.4' N	000° 00.5' 09° 58.8' N	000° 04.1' 10° 20.1' N	000° 07.5' 10° 41.2' N	000° 10.9' 10° 62.2' N	000° 14.1' 11° 22.8' N	000° 17.3' 11° 43.3' N
13	014° 45.6' 08° 33.1' N	014° 49.5' 08° 55.0' N	014° 53.3' 09° 16.7' N	014° 57.0' 09° 38.3' N	015° 00.7' 09° 59.7' N	015° 04.2' 10° 20.9' N	015° 07.7' 10° 42.0' N	015° 11.0' 10° 63.0' N	015° 14.2' 11° 23.7' N	015° 17.4' 11° 44.2' N
14	029° 45.8' 08° 34.0' N	029° 49.7' 08° 55.9' N	029° 53.5' 09° 17.6' N	029° 57.2' 09° 39.2' N	030° 00.8' 10° 00.6' N	030° 04.4' 10° 21.8' N	030° 07.8' 10° 42.9' N	030° 11.1' 11° 03.8' N	030° 14.4' 11° 24.5' N	030° 17.5' 11° 45.0' N
15	044° 46.0' 08° 34.9' N	044° 49.8' 08° 56.8' N	044° 53.6' 09° 18.5' N	044° 57.3' 09° 40.1' N	045° 01.0' 10° 01.5' N	045° 04.5' 10° 22.7' N	045° 07.9' 10° 43.8' N	045° 11.3' 11° 04.7' N	045° 14.5' 11° 25.4' N	045° 17.6' 11° 45.9' N
16	059° 46.1' 08° 35.8' N	059° 50.0' 08° 57.7' N	059° 53.8' 09° 19.4' N	059° 57.5' 09° 41.0' N	060° 01.1' 10° 02.4' N	060° 04.6' 10° 23.6' N	060° 08.1' 10° 44.6' N	060° 11.4' 11° 05.5' N	060° 14.6' 11° 26.2' N	060° 17.8' 11° 46.7' N
17	074° 46.3' 08° 36.7' N	074° 50.1' 08° 58.6' N	074° 53.9' 09° 20.3' N	074° 57.6' 09° 41.9' N	075° 01.3' 10° 03.2' N	075° 04.8' 10° 24.5' N	075° 08.2' 10° 45.5' N	075° 11.6' 11° 06.4' N	075° 14.8' 11° 27.1' N	075° 17.9' 11° 47.6' N
18	089° 46.4' 08° 37.7' N	089° 50.3' 08° 59.5' N	089° 54.1' 09° 21.2' N	089° 57.8' 09° 42.8' N	090° 01.4' 10° 04.1' N	090° 04.9' 10° 25.4' N	090° 08.4' 10° 46.4' N	090° 11.7' 11° 07.3' N	090° 14.9' 11° 27.9' N	090° 18.0' 11° 48.4' N
19	104° 46.6' 08° 38.6' N	104° 50.5' 09° 00.4' N	104° 54.2' 09° 22.1' N	104° 57.9' 09° 43.6' N	105° 01.6' 10° 05.0' N	105° 05.1' 10° 26.2' N	105° 08.5' 10° 47.3' N	105° 11.8' 11° 08.2' N	105° 15.0' 11° 28.8' N	105° 18.2' 11° 49.3' N
20	119° 46.8' 08° 39.5' N	119° 50.6' 09° 01.3' N	119° 54.4' 09° 23.0' N	119° 58.1' 09° 44.5' N	120° 01.7' 10° 05.9' N	120° 05.2' 10° 27.1' N	120° 08.6' 10° 48.1' N	120° 12.0' 11° 09.0' N	120° 15.2' 11° 29.7' N	120° 18.3' 11° 50.1' N
21	134° 46.9' 08° 40.4' N	134° 50.8' 09° 02.2' N	134° 54.6' 09° 23.9' N	134° 58.3' 09° 45.4' N	135° 01.9' 10° 06.8' N	135° 05.4' 10° 28.0' N	135° 08.8' 11° 09.1' N	135° 12.1' 11° 30.5' N	135° 15.3' 11° 51.0' N	135° 18.4' 11° 51.0' N
22	149° 47.1' 08° 41.3' N	149° 50.9' 09° 03.1' N	149° 54.7' 09° 24.8' N	149° 58.4' 09° 46.3' N	150° 02.0' 10° 07.7' N	150° 05.5' 10° 28.9' N	150° 08.9' 10° 49.9' N	150° 12.2' 11° 10.7' N	150° 15.4' 11° 31.4' N	150° 18.5' 11° 51.8' N
23	164° 47.3' 08° 42.2' N	164° 51.1' 09° 04.0' N	164° 54.9' 09° 25.7' N	164° 58.6' 09° 47.2' N	165° 02.2' 10° 08.6' N	165° 05.7' 10° 29.8' N	165° 09.1' 10° 50.8' N	165° 12.4' 11° 11.6' N	165° 15.6' 11° 32.2' N	165° 18.7' 11° 52.7' N
UT	21 Apr	22 Apr	23 Apr	24 Apr	25 Apr	26 Apr	27 Apr	28 Apr	29 Apr	30 Apr
00	180° 18.8' 11° 53.5' N	180° 21.8' 12° 13.8' N	180° 24.6' 12° 33.9' N	180° 27.3' 12° 53.7' N	180° 29.9' 13° 13.3' N	180° 32.4' 13° 32.8' N	180° 34.8' 13° 52.0' N	180° 37.0' 14° 11.7' N	180° 39.1' 14° 31.2' N	180° 41.1' 14° 50.9' N
01	195° 18.9' 11° 54.4' N	195° 21.9' 12° 14.6' N	195° 24.7' 12° 34.7' N	195° 27.5' 12° 54.5' N	195° 30.1' 13° 14.2' N	195° 32.5' 13° 33.6' N	195° 34.9' 13° 52.8' N	195° 37.1' 14° 11.7' N	195° 39.2' 14° 31.4' N	195° 41.2' 14° 50.9' N
02	210° 19.0' 11° 55.2' N	210° 22.0' 12° 15.5' N	210° 24.8' 12° 35.5' N	210° 27.6' 12° 55.3' N	210° 30.2' 13° 15.0' N	210° 32.6' 13° 34.4' N	210° 35.0' 13° 53.5' N	210° 37.2' 14° 12.5' N	210° 39.3' 14° 31.2' N	210° 41.2' 14° 49.7' N
03	225° 19.2' 11° 56.1' N	225° 22.1' 12° 16.3' N	225° 25.0' 12° 36.3' N	225° 27.7' 12° 56.2' N	225° 30.3' 13° 15.8' N	225° 32.7' 13° 35.2' N	225° 35.1' 13° 54.3' N	225° 37.3' 14° 13.3' N	225° 39.4' 14° 32.0' N	225° 41.3' 14° 50.5' N
04	240° 19.3' 11° 56.9' N	240° 22.2' 12° 17.2' N	240° 25.1' 12° 37.2' N	240° 27.8' 12° 57.0' N	240° 30.4' 13° 16.6' N	240° 32.8' 13° 36.0' N	240° 35.2' 13° 55.1' N	240° 37.4' 14° 14.1' N	240° 39.5' 14° 32.8' N	240° 41.4' 14° 51.2' N
05	255° 19.4' 11° 57.8' N	255° 22.4' 12° 18.0' N	255° 25.2' 12° 38.0' N	255° 27.9' 12° 57.8' N	255° 30.5' 13° 17.4' N	255° 32.9' 13° 36.8' N	255° 35.3' 13° 55.9' N	255° 37.5' 14° 14.8' N	255° 39.5' 14° 33.5' N	255° 41.5' 14° 52.0' N
06	270° 19.5' 11° 58.6' N	270° 22.5' 12° 18.8' N	270° 25.3' 12° 38.8' N	270° 28.0' 12° 58.6' N	270° 30.6' 13° 18.2' N	270° 33.0' 13° 37.6' N	270° 35.4' 13° 56.7' N	270° 37.6' 14° 15.6' N	270° 39.6' 14° 34.3' N	270° 41.6' 14° 52.7' N
07	285° 19.7' 11° 59.5' N	285° 22.6' 12° 19.7' N	285° 25.4' 12° 39.7' N	285° 28.1' 12° 59.4' N	285° 30.7' 13° 19.0' N	285° 33.1' 13° 38.4' N	285° 35.5' 13° 57.5' N	285° 37.6' 14° 16.4' N	285° 39.7' 14° 35.1' N	285° 41.6' 14° 53.5' N
08	300° 19.8' 12° 00.3' N	300° 22.7' 12° 20.5' N	300° 25.5' 12° 40.5' N	300° 28.2' 13° 00.3' N	300° 30.8' 13° 19.8' N	300° 33.2' 13° 39.2' N	300° 35.5' 13° 58.3' N	300° 37.7' 14° 17.2' N	300° 39.8' 14° 35.9' N	300° 41.7' 14° 54.3' N
09	315° 19.9' 12° 01.2' N	315° 22.8' 12° 21.3' N	315° 25.6' 12° 41.3' N	315° 28.3' 13° 01.1' N	315° 30.9' 13° 20.6' N	315° 33.3' 13° 40.0' N	315° 35.6' 13° 59.1' N	315° 37.8' 14° 18.0' N	315° 39.9' 14° 36.6' N	315° 41.8' 14° 55.0' N
10	330° 20.0' 12° 02.0' N	330° 23.0' 12° 22.2' N	330° 25.8' 12° 42.1' N	330° 28.4' 13° 01.9' N	330° 31.0' 13° 21.5' N	330° 33.4' 13° 40.8' N	330° 35.7' 13° 59.9' N	330° 37.9' 14° 18.8' N	330° 39.9' 14° 37.4' N	330° 41.9' 14° 55.8' N
11	345° 20.2' 12° 02.8' N	345° 23.1' 12° 23.0' N	345° 25.9' 12° 43.0' N	345° 28.6' 13° 02.7' N	345° 31.1' 13° 22.3' N	345° 33.5' 13° 41.6' N	345° 35.8' 14° 00.7' N	345° 38.0' 14° 19.5' N	345° 40.0' 14° 38.2' N	345° 41.9' 14° 56.6' N
12	000° 20.3' 12° 03.7' N	000° 23.2' 12° 23.8' N	000° 26.0' 12° 43.8' N	000° 28.7' 13° 03.5' N	000° 31.2' 13° 23.1' N	000° 33.6' 13° 42.4' N	000° 35.9' 14° 01.5' N	000° 38.1' 14° 20.3' N	000° 40.1' 14° 38.9' N	000° 42.0' 14° 57.3' N
13	015° 20.4' 12° 04.5' N	015° 23.3' 12° 24.7' N	015° 26.1' 12° 44.6' N	015° 28.8' 13° 04.4' N	015° 31.3' 13° 23.9' N	015° 33.7' 13° 43.2' N	015° 36.0' 14° 02.3' N	015° 38.2' 14° 21.1' N	015° 40.2' 14° 39.7' N	015° 42.1' 14° 58.1' N
14	030° 20.5' 12° 05.4' N	030° 23.4' 12° 25.5' N	030° 26.2' 12° 45.5' N	030° 28.9' 13° 05.2' N	030° 31.4' 13° 24.7' N	030° 33.8' 13° 44.0' N	030° 36.1' 14° 03.1' N	030° 38.3' 14° 21.9' N	030° 40.3' 14° 40.5' N	030° 42.2' 14° 58.8' N
15	045° 20.7' 12° 06.2' N	045° 23.6' 12° 26.4' N	045° 26.3' 12° 46.3' N	045° 29.0' 13° 06.0' N	045° 31.5' 13° 25.5' N	045° 33.9' 13° 44.8' N	045° 36.2' 14° 03.8' N	045° 38.3' 14° 22.7' N	045° 40.4' 14° 41.3' N	045° 42.2' 14° 59.6' N
16	060° 20.8' 12° 07.1' N	060° 23.7' 12° 27.2' N	060° 26.4' 12° 47.1' N	060° 29.1' 13° 06.8' N	060° 31.6' 13° 26.3' N	060° 34.0' 13° 45.6' N	060° 36.3' 14° 04.6' N	060° 38.4' 14° 23.4' N	060° 40.4' 14° 42.0' N	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 01 May to 20 May

UT	01 May	02 May	03 May	04 May	05 May	06 May	07 May	08 May	09 May	10 May
00	180° 42,9' 15° 06,4' N	180° 44,6' 15° 24,4' N	180° 46,2' 15° 42,2' N	180° 47,6' 15° 59,7' N	180° 48,9' 16° 16,9' N	180° 50,1' 16° 33,8' N	180° 51,1' 16° 50,5' N	180° 52,0' 17° 06,9' N	180° 52,8' 17° 23,0' N	180° 53,4' 17° 38,8' N
01	195° 43,0' 15° 07,2' N	195° 44,7' 15° 25,2' N	195° 46,3' 15° 42,9' N	195° 47,7' 16° 00,4' N	195° 49,0' 16° 17,6' N	195° 50,1' 16° 34,5' N	195° 51,2' 16° 51,2' N	195° 52,1' 17° 07,6' N	195° 52,8' 17° 23,6' N	195° 53,4' 17° 39,4' N
02	210° 43,1' 15° 07,9' N	210° 44,8' 15° 25,9' N	210° 46,3' 15° 43,6' N	210° 47,7' 16° 01,1' N	210° 49,0' 16° 18,3' N	210° 50,2' 16° 35,2' N	210° 51,2' 16° 51,9' N	210° 52,1' 17° 08,2' N	210° 52,8' 17° 24,3' N	210° 53,4' 17° 40,1' N
03	225° 43,1' 15° 08,7' N	225° 44,8' 15° 26,7' N	225° 46,4' 15° 44,4' N	225° 47,8' 16° 01,8' N	225° 49,1' 16° 19,0' N	225° 50,2' 16° 35,9' N	225° 51,3' 16° 52,6' N	225° 52,1' 17° 08,9' N	225° 52,9' 17° 25,0' N	225° 53,5' 17° 40,7' N
04	240° 43,2' 15° 09,4' N	240° 44,9' 15° 27,4' N	240° 46,4' 15° 45,1' N	240° 47,9' 16° 02,5' N	240° 49,1' 16° 19,7' N	240° 50,3' 16° 36,6' N	240° 51,3' 16° 53,2' N	240° 52,1' 17° 09,6' N	240° 52,9' 17° 25,6' N	240° 53,5' 17° 41,4' N
05	255° 43,3' 15° 10,2' N	255° 45,0' 15° 28,1' N	255° 46,5' 15° 45,8' N	255° 47,9' 16° 03,3' N	255° 49,2' 16° 20,4' N	255° 50,3' 16° 37,3' N	255° 51,3' 16° 53,9' N	255° 52,2' 17° 10,3' N	255° 52,9' 17° 26,3' N	255° 53,5' 17° 42,0' N
06	270° 43,4' 15° 10,9' N	270° 45,0' 15° 28,9' N	270° 46,6' 15° 46,6' N	270° 48,0' 16° 04,0' N	270° 49,2' 16° 21,1' N	270° 50,4' 16° 38,0' N	270° 51,4' 16° 54,6' N	270° 52,2' 17° 10,9' N	270° 53,0' 17° 27,0' N	270° 53,5' 17° 42,7' N
07	285° 43,4' 15° 11,7' N	285° 45,1' 15° 29,6' N	285° 46,6' 15° 47,3' N	285° 48,0' 16° 04,7' N	285° 49,3' 16° 21,8' N	285° 50,4' 16° 38,7' N	285° 51,4' 16° 55,3' N	285° 52,3' 17° 11,6' N	285° 53,0' 17° 27,6' N	285° 53,6' 17° 43,3' N
08	300° 43,5' 15° 12,4' N	300° 45,2' 15° 30,4' N	300° 46,7' 15° 48,0' N	300° 48,1' 16° 05,4' N	300° 49,3' 16° 22,6' N	300° 50,5' 16° 39,4' N	300° 51,4' 16° 56,0' N	300° 52,4' 17° 12,3' N	300° 53,0' 17° 28,3' N	300° 53,6' 17° 44,0' N
09	315° 43,6' 15° 13,2' N	315° 45,2' 15° 31,1' N	315° 46,7' 15° 48,8' N	315° 48,1' 16° 06,1' N	315° 49,4' 16° 23,3' N	315° 50,5' 16° 40,1' N	315° 51,5' 16° 56,7' N	315° 52,3' 17° 13,0' N	315° 53,0' 17° 28,9' N	315° 53,6' 17° 44,6' N
10	330° 43,6' 15° 13,9' N	330° 45,3' 15° 31,8' N	330° 46,8' 15° 49,5' N	330° 48,2' 16° 06,9' N	330° 49,4' 16° 24,0' N	330° 50,5' 16° 40,8' N	330° 51,5' 16° 57,4' N	330° 52,4' 17° 13,6' N	330° 53,1' 17° 29,6' N	330° 53,6' 17° 45,3' N
11	345° 43,7' 15° 14,7' N	345° 45,4' 15° 32,6' N	345° 46,9' 15° 50,2' N	345° 48,2' 16° 07,6' N	345° 49,5' 16° 24,7' N	345° 50,6' 16° 41,5' N	345° 51,6' 16° 58,0' N	345° 52,4' 17° 14,3' N	345° 53,1' 17° 30,3' N	345° 53,6' 17° 45,9' N
12	000° 43,8' 15° 15,4' N	000° 45,4' 15° 33,3' N	000° 46,9' 15° 50,9' N	000° 48,3' 16° 08,3' N	000° 49,5' 16° 25,4' N	000° 50,6' 16° 42,2' N	000° 51,6' 16° 58,7' N	000° 52,4' 17° 15,0' N	000° 53,1' 17° 30,9' N	000° 53,7' 17° 46,6' N
13	015° 43,9' 15° 16,2' N	015° 45,5' 15° 34,1' N	015° 47,0' 15° 51,7' N	015° 48,4' 16° 09,0' N	015° 49,6' 16° 26,1' N	015° 50,7' 16° 42,9' N	015° 51,6' 16° 59,4' N	015° 52,5' 17° 15,6' N	015° 53,1' 17° 31,6' N	015° 53,7' 17° 47,2' N
14	030° 43,9' 15° 16,9' N	030° 45,6' 15° 34,8' N	030° 47,0' 15° 52,4' N	030° 48,4' 16° 09,7' N	030° 49,6' 16° 26,8' N	030° 50,7' 16° 43,6' N	030° 51,7' 17° 00,1' N	030° 52,5' 17° 16,3' N	030° 53,2' 17° 32,2' N	030° 53,7' 17° 47,9' N
15	045° 44,0' 15° 17,7' N	045° 45,6' 15° 35,5' N	045° 47,1' 15° 53,1' N	045° 48,5' 16° 10,4' N	045° 49,7' 16° 27,5' N	045° 50,8' 16° 44,3' N	045° 51,7' 17° 00,8' N	045° 52,5' 17° 17,0' N	045° 53,2' 17° 32,9' N	045° 53,7' 17° 48,5' N
16	060° 44,1' 15° 18,4' N	060° 45,7' 15° 36,3' N	060° 47,2' 15° 53,9' N	060° 48,5' 16° 11,2' N	060° 49,7' 16° 28,2' N	060° 50,8' 16° 45,0' N	060° 51,7' 17° 01,4' N	060° 52,5' 17° 17,6' N	060° 53,2' 17° 33,6' N	060° 53,7' 17° 49,2' N
17	075° 44,1' 15° 19,2' N	075° 45,7' 15° 37,0' N	075° 47,2' 15° 54,6' N	075° 48,6' 16° 11,9' N	075° 49,8' 16° 28,9' N	075° 50,8' 16° 45,7' N	075° 51,8' 17° 02,1' N	075° 52,6' 17° 18,3' N	075° 53,2' 17° 34,2' N	075° 53,8' 17° 49,8' N
18	090° 44,2' 15° 19,9' N	090° 45,8' 15° 37,8' N	090° 47,3' 15° 55,3' N	090° 48,6' 16° 12,6' N	090° 49,8' 16° 29,6' N	090° 50,9' 16° 46,3' N	090° 51,8' 17° 02,8' N	090° 52,6' 17° 19,0' N	090° 53,3' 17° 34,9' N	090° 53,8' 17° 50,5' N
19	105° 44,3' 15° 20,7' N	105° 45,9' 15° 38,5' N	105° 47,3' 15° 56,0' N	105° 48,7' 16° 13,3' N	105° 49,9' 16° 30,3' N	105° 50,9' 16° 47,0' N	105° 51,9' 17° 03,5' N	105° 52,7' 17° 19,7' N	105° 53,3' 17° 35,5' N	105° 53,8' 17° 51,1' N
20	120° 44,3' 15° 21,4' N	120° 45,9' 15° 39,2' N	120° 47,4' 15° 56,8' N	120° 48,7' 16° 14,0' N	120° 49,9' 16° 31,0' N	120° 51,0' 16° 47,7' N	120° 51,9' 17° 04,2' N	120° 52,7' 17° 20,4' N	120° 53,3' 17° 36,2' N	120° 53,8' 17° 51,7' N
21	135° 44,4' 15° 22,2' N	135° 46,0' 15° 40,0' N	135° 47,5' 15° 57,5' N	135° 48,8' 16° 14,7' N	135° 50,0' 16° 31,7' N	135° 51,0' 16° 48,4' N	135° 51,9' 17° 04,8' N	135° 52,7' 17° 21,0' N	135° 53,3' 17° 36,8' N	135° 53,8' 17° 52,4' N
22	150° 44,5' 15° 22,9' N	150° 46,1' 15° 40,7' N	150° 47,5' 15° 58,2' N	150° 48,8' 16° 15,4' N	150° 50,0' 16° 32,4' N	150° 51,1' 16° 49,1' N	150° 52,0' 17° 05,5' N	150° 52,7' 17° 21,7' N	150° 53,4' 17° 37,5' N	150° 53,8' 17° 53,0' N
23	165° 44,6' 15° 23,7' N	165° 46,1' 15° 41,4' N	165° 47,6' 15° 58,9' N	165° 48,9' 16° 16,2' N	165° 50,1' 16° 33,1' N	165° 51,1' 16° 49,8' N	165° 52,0' 17° 06,2' N	165° 52,8' 17° 22,3' N	165° 53,4' 17° 38,1' N	165° 53,9' 17° 53,7' N

UT	11 May	12 May	13 May	14 May	15 May	16 May	17 May	18 May	19 May	20 May
00	180° 53,9' 17° 54,3' N	180° 54,2' 18° 09,5' N	180° 54,4' 18° 24,4' N	180° 54,5' 18° 39,0' N	180° 54,4' 18° 53,3' N	180° 54,2' 19° 07,3' N	180° 53,8' 19° 20,9' N	180° 53,3' 19° 34,2' N	180° 52,6' 19° 47,2' N	180° 51,8' 19° 59,8' N
01	195° 53,9' 17° 54,9' N	195° 54,2' 18° 10,1' N	195° 54,4' 18° 25,0' N	195° 54,5' 18° 39,6' N	195° 54,4' 18° 53,9' N	195° 54,2' 19° 07,8' N	195° 53,8' 19° 21,5' N	195° 53,3' 19° 34,8' N	195° 52,6' 19° 47,7' N	195° 51,8' 20° 00,4' N
02	210° 53,9' 17° 55,6' N	210° 54,2' 18° 10,8' N	210° 54,4' 18° 25,7' N	210° 54,5' 18° 40,2' N	210° 54,4' 18° 54,5' N	210° 54,1' 19° 08,4' N	210° 53,8' 19° 22,0' N	210° 53,2' 19° 35,3' N	210° 52,6' 19° 48,3' N	210° 51,8' 20° 00,9' N
03	225° 53,9' 17° 56,2' N	225° 54,3' 18° 11,4' N	225° 54,4' 18° 26,3' N	225° 54,5' 18° 40,8' N	225° 54,4' 18° 55,1' N	225° 54,1' 19° 09,0' N	225° 53,7' 19° 22,6' N	225° 53,2' 19° 35,9' N	225° 52,5' 19° 48,8' N	225° 51,7' 20° 01,4' N
04	240° 53,9' 17° 56,9' N	240° 54,3' 18° 12,0' N	240° 54,4' 18° 26,9' N	240° 54,5' 18° 41,4' N	240° 54,4' 18° 55,7' N	240° 54,1' 19° 09,6' N	240° 53,7' 19° 23,1' N	240° 53,2' 19° 36,4' N	240° 52,5' 19° 49,3' N	240° 51,7' 20° 01,9' N
05	255° 54,0' 17° 57,5' N	255° 54,3' 18° 12,7' N	255° 54,4' 18° 27,5' N	255° 54,5' 18° 42,0' N	255° 54,4' 18° 56,2' N	255° 54,1' 19° 10,1' N	255° 53,7' 19° 23,7' N	255° 53,2' 19° 36,9' N	255° 52,5' 19° 49,9' N	255° 51,7' 20° 02,4' N
06	270° 54,0' 17° 58,1' N	270° 54,3' 18° 13,3' N	270° 54,4' 18° 28,1' N	270° 54,5' 18° 42,6' N	270° 54,3' 18° 56,8' N	270° 54,1' 19° 10,7' N	270° 53,7' 19° 24,3' N	270° 53,1' 19° 37,5' N	270° 52,4' 19° 50,4' N	270° 51,6' 20° 02,9' N
07	285° 54,0' 17° 58,8' N	285° 54,3' 18° 13,9' N	285° 54,5' 18° 28,7' N	285° 54,5' 18° 43,2' N	285° 54,3' 18° 57,4' N	285° 54,1' 19° 11,3' N	285° 53,7' 19° 24,8' N	285° 53,1' 19° 38,0' N	285° 52,4' 19° 50,9' N	285° 51,6' 20° 03,5' N
08	300° 54,0' 17° 59,4' N	300° 54,3' 18° 14,5' N	300° 54,5' 18° 29,3' N	300° 54,5' 18° 43,8' N	300° 54,3' 18° 58,0' N	300° 54,1' 19° 11,9' N	300° 53,6' 19° 25,4' N	300° 53,1' 19° 38,6' N	300° 52,4' 19° 51,4' N	300° 51,5' 20° 04,0' N
09	315° 54,0' 18° 00,0' N	315° 54,3' 18° 15,1' N	315° 54,5' 18° 29,9' N	315° 54,5' 18° 44,4' N	315° 54,3' 18° 58,6' N	315° 54,0' 19° 12,4' N	315° 53,6' 19° 25,9' N	315° 53,1' 19° 39,1' N	315° 52,4' 19° 52,0' N	315° 51,5' 20° 04,5' N
10	330° 54,0' 18° 00,7' N	330° 54,3' 18° 15,8' N	330° 54,5' 18° 30,5' N	330° 54,5' 18° 45,0' N	330° 54,3' 18° 59,2' N	330° 54,0' 19° 13,0' N	330° 53,6' 19° 26,5' N	330° 53,0' 19° 39,7' N	330° 52,3' 19° 52,5' N	330° 51,5' 20° 05,0' N
11	345° 54,1' 18° 01,3' N	345° 54,3' 18° 16,4' N	345° 54,5' 18° 31,2' N	345° 54,5' 18° 45,6' N	345° 54,3' 18° 59,7' N	345° 54,0' 19° 13,6' N	345° 53,6' 19° 27,0' N	345° 53,0' 19° 40,2' N	345° 52,3' 19° 53,0' N	345° 51,4' 20° 05,5' N
12	000° 54,1' 18° 02,0' N	000° 54,3' 18° 17,0' N	000° 54,5' 18° 31,8' N	000° 54,5' 18° 46,2' N	000° 54,3' 19° 00,3' N	000° 54,0' 19° 14,1' N	000° 53,6' 19° 27,6' N	000° 53,0' 19° 40,7' N	000° 52,3' 19° 53,6' N	000° 51,4' 20° 06,0' N
13	015° 54,1' 18° 02,6' N	015° 54,3' 18° 17,6' N	015° 54,5' 18° 32,4' N	015° 54,4' 18° 46,8' N	015° 54,3' 19° 00,9' N	015° 54,0' 19° 14,7' N	015° 53,5' 19° 28,2' N	015° 52,9' 19° 41,3' N	015° 52,2' 19° 54,1' N	015° 51,4' 20° 06,5' N
14	030° 54,1' 18° 03,2' N	030° 54,4' 18° 18,3' N	030° 54,5' 18° 33,0' N	030° 54,4' 18° 47,4' N	030° 54,3' 19° 01,5' N	030° 54,0' 19° 15,3' N	030° 53,5' 19° 28,7' N	030° 52,9' 19° 41,8' N	030° 52,2' 19° 54,6' N	030° 51,3' 20° 07,1' N
15	045° 54,1' 18° 03,9' N	045° 54,4' 18° 18,9' N	045° 54,5' 18° 33,6' N	045° 54,4' 18° 48,0' N	045° 54,3' 19° 02,1' N	045° 53,9' 19° 15,8' N	045° 53,5' 19° 29,3' N	045° 52,9' 19° 42,4' N	045° 52,2' 19° 55,1' N	045° 51,3' 20° 07,6' N
16	060° 54,1' 18° 04,5' N	060° 54,4' 18° 19,5' N	060° 54,5' 18° 34,2' N	060° 54,4' 18° 48,6' N	060° 54,3' 19° 02,6' N	060° 53,9' 19° 16,4' N	060° 53,5' 19° 29,8' N	060		

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 21 May to 09 Jun

UT	21 May	22 May	23 May	24 May	25 May	26 May	27 May	28 May	29 May	30 May
00	180° 50,9' 20° 12,1' N	180° 49,8' 20° 24,1' N	180° 48,6' 20° 35,7' N	180° 47,3' 20° 47,0' N	180° 45,8' 20° 57,8' N	180° 44,2' 21° 08,4' N	180° 42,5' 21° 18,6' N	180° 40,7' 21° 28,4' N	180° 38,7' 21° 37,8' N	180° 36,6' 21° 46,8' N
01	195° 50,9' 20° 12,6' N	195° 49,8' 20° 24,6' N	195° 48,6' 20° 36,2' N	195° 47,2' 20° 47,4' N	195° 45,8' 20° 58,3' N	195° 44,2' 21° 08,8' N	195° 42,4' 21° 19,0' N	195° 40,6' 21° 28,8' N	195° 38,6' 21° 38,2' N	195° 36,6' 21° 47,2' N
02	210° 50,8' 20° 13,1' N	210° 49,7' 20° 25,1' N	210° 48,5' 20° 36,7' N	210° 47,2' 20° 47,9' N	210° 45,7' 20° 58,7' N	210° 44,1' 21° 09,2' N	210° 42,3' 21° 19,4' N	210° 40,5' 21° 29,2' N	210° 38,5' 21° 38,6' N	210° 36,5' 21° 47,6' N
03	225° 50,8' 20° 13,7' N	225° 49,7' 20° 25,6' N	225° 48,5' 20° 37,1' N	225° 47,1' 20° 48,3' N	225° 45,6' 20° 59,2' N	225° 44,0' 21° 09,7' N	225° 42,3' 21° 19,8' N	225° 40,4' 21° 29,6' N	225° 38,5' 21° 39,3' N	225° 36,4' 21° 47,9' N
04	240° 50,7' 20° 14,2' N	240° 49,6' 20° 26,1' N	240° 48,4' 20° 37,6' N	240° 47,1' 20° 48,8' N	240° 45,6' 20° 59,6' N	240° 43,9' 21° 10,1' N	240° 42,2' 21° 20,2' N	240° 40,3' 21° 30,0' N	240° 38,4' 21° 39,3' N	240° 36,3' 21° 48,3' N
05	255° 50,7' 20° 14,7' N	255° 49,6' 20° 26,5' N	255° 48,4' 20° 38,1' N	255° 47,0' 20° 49,3' N	255° 45,5' 21° 00,1' N	255° 43,9' 21° 10,5' N	255° 42,1' 21° 20,6' N	255° 40,3' 21° 30,3' N	255° 38,3' 21° 39,7' N	255° 36,2' 21° 48,7' N
06	270° 50,7' 20° 15,2' N	270° 49,5' 20° 27,0' N	270° 48,3' 20° 38,5' N	270° 46,9' 20° 49,7' N	270° 45,4' 21° 00,5' N	270° 43,8' 21° 11,0' N	270° 42,0' 21° 21,0' N	270° 40,2' 21° 30,7' N	270° 38,2' 21° 40,1' N	270° 36,1' 21° 49,0' N
07	285° 50,6' 20° 15,7' N	285° 49,5' 20° 27,5' N	285° 48,3' 20° 39,0' N	285° 46,9' 20° 50,2' N	285° 45,4' 21° 01,0' N	285° 43,7' 21° 11,4' N	285° 42,0' 21° 21,4' N	285° 40,1' 21° 31,1' N	285° 38,1' 21° 40,5' N	285° 36,0' 21° 49,4' N
08	300° 50,6' 20° 16,2' N	300° 49,4' 20° 28,0' N	300° 48,2' 20° 39,5' N	300° 46,8' 20° 50,6' N	300° 45,3' 21° 01,4' N	300° 43,7' 21° 11,8' N	300° 41,9' 21° 21,9' N	300° 40,0' 21° 31,5' N	300° 38,0' 21° 40,8' N	300° 35,9' 21° 49,8' N
09	315° 50,5' 20° 16,7' N	315° 49,4' 20° 28,5' N	315° 48,1' 20° 40,0' N	315° 46,8' 20° 51,1' N	315° 45,2' 21° 01,8' N	315° 43,6' 21° 12,2' N	315° 41,8' 21° 22,3' N	315° 39,9' 21° 31,9' N	315° 37,9' 21° 41,2' N	315° 35,8' 21° 50,1' N
10	330° 50,5' 20° 17,2' N	330° 49,3' 20° 29,0' N	330° 48,1' 20° 40,4' N	330° 46,7' 20° 51,5' N	330° 45,2' 21° 02,3' N	330° 43,5' 21° 12,7' N	330° 41,7' 21° 22,7' N	330° 39,9' 21° 32,3' N	330° 37,9' 21° 41,6' N	330° 35,7' 21° 50,5' N
11	345° 50,4' 20° 17,7' N	345° 49,3' 20° 29,5' N	345° 48,0' 20° 40,9' N	345° 46,6' 20° 52,0' N	345° 45,1' 21° 02,7' N	345° 43,4' 21° 13,1' N	345° 41,7' 21° 23,1' N	345° 39,8' 21° 32,7' N	345° 37,8' 21° 42,0' N	345° 35,7' 21° 50,9' N
12	000° 50,4' 20° 18,2' N	000° 49,2' 20° 29,9' N	000° 48,0' 20° 41,4' N	000° 46,6' 20° 52,4' N	000° 45,0' 21° 03,2' N	000° 43,4' 21° 13,5' N	000° 41,6' 21° 23,5' N	000° 39,7' 21° 33,1' N	000° 37,7' 21° 42,4' N	000° 35,6' 21° 51,2' N
13	015° 50,3' 20° 18,7' N	015° 49,2' 20° 30,4' N	015° 47,9' 20° 41,8' N	015° 46,5' 20° 52,9' N	015° 45,0' 21° 03,6' N	015° 43,3' 21° 13,9' N	015° 41,5' 21° 23,9' N	015° 39,6' 21° 33,5' N	015° 37,6' 21° 42,7' N	015° 35,5' 21° 51,6' N
14	030° 50,3' 20° 19,2' N	030° 49,1' 20° 30,9' N	030° 47,9' 20° 42,3' N	030° 46,4' 20° 53,4' N	030° 44,9' 21° 04,0' N	030° 43,2' 21° 14,4' N	030° 41,4' 21° 24,3' N	030° 39,5' 21° 33,9' N	030° 37,5' 21° 43,1' N	030° 35,4' 21° 51,9' N
15	045° 50,3' 20° 19,7' N	045° 49,1' 20° 31,4' N	045° 47,8' 20° 42,8' N	045° 46,4' 20° 53,8' N	045° 44,8' 21° 04,5' N	045° 43,2' 21° 14,8' N	045° 41,4' 21° 24,7' N	045° 39,4' 21° 34,3' N	045° 37,4' 21° 43,5' N	045° 35,3' 21° 52,3' N
16	060° 50,2' 20° 20,1' N	060° 49,0' 20° 31,9' N	060° 47,8' 20° 43,2' N	060° 46,3' 20° 54,3' N	060° 44,8' 21° 04,9' N	060° 43,1' 21° 15,2' N	060° 41,3' 21° 25,1' N	060° 39,4' 21° 34,7' N	060° 37,3' 21° 43,9' N	060° 35,2' 21° 52,7' N
17	075° 50,2' 20° 20,6' N	075° 49,0' 20° 32,4' N	075° 47,7' 20° 43,7' N	075° 46,3' 20° 54,7' N	075° 44,7' 21° 05,3' N	075° 43,0' 21° 15,6' N	075° 41,2' 21° 25,5' N	075° 39,3' 21° 35,1' N	075° 37,3' 21° 44,2' N	075° 35,1' 21° 53,0' N
18	090° 50,1' 20° 21,1' N	090° 48,9' 20° 32,8' N	090° 47,6' 20° 44,2' N	090° 46,2' 20° 55,2' N	090° 44,6' 21° 05,8' N	090° 42,9' 21° 16,0' N	090° 41,1' 21° 25,9' N	090° 39,2' 21° 35,5' N	090° 37,2' 21° 44,6' N	090° 35,0' 21° 53,4' N
19	105° 50,1' 20° 21,6' N	105° 48,9' 20° 33,3' N	105° 47,6' 20° 44,6' N	105° 46,1' 20° 55,6' N	105° 44,6' 21° 06,2' N	105° 42,9' 21° 16,5' N	105° 41,1' 21° 26,3' N	105° 39,1' 21° 35,9' N	105° 37,1' 21° 45,0' N	105° 34,9' 21° 53,7' N
20	120° 50,0' 20° 22,1' N	120° 48,8' 20° 33,8' N	120° 47,5' 20° 45,1' N	120° 46,1' 20° 56,1' N	120° 44,5' 21° 06,7' N	120° 42,8' 21° 16,9' N	120° 41,0' 21° 26,7' N	120° 39,0' 21° 36,2' N	120° 37,0' 21° 45,4' N	120° 34,8' 21° 54,1' N
21	135° 50,0' 20° 22,6' N	135° 48,8' 20° 34,3' N	135° 47,5' 20° 45,6' N	135° 46,0' 20° 56,5' N	135° 44,4' 21° 07,1' N	135° 42,7' 21° 17,3' N	135° 40,9' 21° 27,1' N	135° 38,9' 21° 36,6' N	135° 36,9' 21° 45,7' N	135° 34,7' 21° 54,5' N
22	150° 49,9' 20° 23,1' N	150° 48,7' 20° 34,7' N	150° 47,4' 20° 46,0' N	150° 45,9' 20° 57,0' N	150° 44,4' 21° 07,5' N	150° 42,6' 21° 17,7' N	150° 40,8' 21° 27,6' N	150° 38,9' 21° 37,0' N	150° 36,8' 21° 46,1' N	150° 34,7' 21° 54,8' N
23	165° 49,9' 20° 23,6' N	165° 48,7' 20° 35,2' N	165° 47,3' 20° 46,5' N	165° 45,9' 20° 57,4' N	165° 44,3' 21° 08,0' N	165° 42,6' 21° 18,1' N	165° 40,7' 21° 28,0' N	165° 38,8' 21° 37,4' N	165° 36,7' 21° 46,5' N	165° 34,6' 21° 55,2' N
UT	31 May	01 Jun	02 Jun	03 Jun	04 Jun	05 Jun	06 Jun	07 Jun	08 Jun	09 Jun
00	180° 34,5' 21° 55,5' N	180° 32,2' 22° 03,8' N	180° 29,8' 22° 11,7' N	180° 27,4' 22° 19,2' N	180° 24,8' 22° 26,4' N	180° 22,2' 22° 33,1' N	180° 19,5' 22° 39,5' N	180° 16,8' 22° 45,4' N	180° 13,9' 22° 50,9' N	180° 11,0' 22° 56,1' N
01	195° 34,4' 21° 55,9' N	195° 32,1' 22° 04,1' N	195° 29,7' 22° 12,0' N	195° 27,3' 22° 19,5' N	195° 24,7' 22° 26,7' N	195° 22,1' 22° 33,4' N	195° 19,4' 22° 39,7' N	195° 16,6' 22° 45,6' N	195° 13,8' 22° 51,2' N	195° 10,9' 22° 56,3' N
02	210° 34,3' 21° 56,2' N	210° 32,0' 22° 04,5' N	210° 29,6' 22° 12,4' N	210° 27,2' 22° 19,8' N	210° 24,6' 22° 26,9' N	210° 22,0' 22° 33,7' N	210° 19,3' 22° 40,0' N	210° 16,5' 22° 45,9' N	210° 13,7' 22° 51,4' N	210° 10,8' 22° 56,5' N
03	225° 34,2' 21° 56,6' N	225° 31,9' 22° 04,8' N	225° 29,5' 22° 12,7' N	225° 27,1' 22° 20,2' N	225° 24,5' 22° 27,2' N	225° 21,9' 22° 33,9' N	225° 19,2' 22° 40,2' N	225° 16,4' 22° 46,1' N	225° 13,6' 22° 51,6' N	225° 10,7' 22° 56,7' N
04	240° 34,1' 21° 56,9' N	240° 31,8' 22° 05,2' N	240° 29,4' 22° 13,0' N	240° 27,0' 22° 20,5' N	240° 24,4' 22° 27,5' N	240° 21,8' 22° 34,2' N	240° 19,1' 22° 40,5' N	240° 16,3' 22° 46,3' N	240° 13,4' 22° 51,8' N	240° 10,5' 22° 56,9' N
05	255° 34,0' 21° 57,3' N	255° 31,7' 22° 05,5' N	255° 29,3' 22° 13,3' N	255° 26,9' 22° 20,8' N	255° 24,3' 22° 27,8' N	255° 21,7' 22° 34,5' N	255° 19,0' 22° 40,7' N	255° 16,2' 22° 46,6' N	255° 13,3' 22° 52,0' N	255° 10,4' 22° 57,1' N
06	270° 33,9' 21° 57,6' N	270° 31,6' 22° 05,8' N	270° 29,2' 22° 13,6' N	270° 26,8' 22° 21,1' N	270° 24,2' 22° 28,1' N	270° 21,6' 22° 34,7' N	270° 18,8' 22° 41,0' N	270° 16,1' 22° 46,8' N	270° 13,2' 22° 52,3' N	270° 10,3' 22° 57,3' N
07	285° 33,8' 21° 58,0' N	285° 31,5' 22° 06,2' N	285° 29,1' 22° 14,0' N	285° 26,7' 22° 21,4' N	285° 24,1' 22° 28,4' N	285° 21,4' 22° 35,0' N	285° 18,7' 22° 41,2' N	285° 15,9' 22° 47,1' N	285° 13,1' 22° 52,5' N	285° 10,2' 22° 57,5' N
08	300° 33,7' 21° 58,3' N	300° 31,4' 22° 06,5' N	300° 29,0' 22° 14,3' N	300° 26,5' 22° 21,7' N	300° 24,0' 22° 28,7' N	300° 21,3' 22° 35,3' N	300° 18,6' 22° 41,5' N	300° 15,8' 22° 47,3' N	300° 13,0' 22° 52,7' N	300° 10,1' 22° 57,7' N
09	315° 33,6' 21° 58,7' N	315° 31,3' 22° 06,8' N	315° 28,9' 22° 14,6' N	315° 26,4' 22° 22,0' N	315° 23,9' 22° 28,9' N	315° 21,2' 22° 35,5' N	315° 18,5' 22° 41,7' N	315° 15,7' 22° 47,5' N	315° 12,8' 22° 52,9' N	315° 9,9' 22° 57,9' N
10	330° 33,5' 21° 59,0' N	330° 31,2' 22° 07,2' N	330° 28,8' 22° 14,9' N	330° 26,3' 22° 22,3' N	330° 23,8' 22° 29,2' N	330° 21,1' 22° 35,8' N	330° 18,4' 22° 42,0' N	330° 15,6' 22° 47,8' N	330° 12,7' 22° 53,1' N	330° 9,8' 22° 58,1' N
11	345° 33,4' 21° 59,4' N	345° 31,1' 22° 07,5' N	345° 28,7' 22° 15,2' N	345° 26,2' 22° 22,6' N	345° 23,7' 22° 29,5' N	345° 21,0' 22° 36,1' N	345° 18,3' 22° 42,2' N	345° 15,5' 22° 48,0' N	345° 12,6' 22° 53,3' N	345° 9,7' 22° 58,3' N
12	000° 33,3' 21° 59,7' N	000° 31,0' 22° 07,8' N	000° 28,6' 22° 15,5' N	000° 26,1' 22° 22,9' N	000° 23,5' 22° 29,8' N	000° 20,9' 22° 36,3' N	000° 18,2' 22° 42,5' N	000° 15,4' 22° 48,2' N	000° 12,5' 22° 53,6' N	000° 9,6' 22° 58,5' N
13	015° 33,3' 22° 00,1' N	015° 30,9' 22° 08,1' N	015° 28,5' 22° 15,8' N	015° 26,0' 22° 23,2' N	015° 23,4' 22° 30,1' N	015° 20,8' 22° 36,6' N	015° 18,0' 22° 42,7' N	015° 15,2' 22° 48,4' N	015° 12,4' 22° 53,8' N	015° 9,4' 22° 58,7' N
14	030° 33,2' 22° 00,4' N	030° 30,8' 22° 08,5' N	030° 28,4' 22° 16,2' N	030° 25,9' 22° 23,4' N	030° 23,3' 22° 30,3' N	030° 20,7' 22° 36,9' N	030° 17,9' 22° 43,0' N	030° 15,1' 22° 48,7' N	030° 12,2' 22° 54,0' N	030° 9,3' 22° 58,9' N
15	045° 33,1' 22° 00,7' N	045° 30,7' 22° 08,8' N	045° 28,3' 22° 16,5' N	045° 25,8' 22° 23,7' N	045° 23,2' 22° 30,6' N	045° 20,5' 22° 37,1' N	045° 17,8' 22° 43,2' N	045° 15,0' 22° 48,9' N	045° 12,1' 22° 54,2' N	045° 9,2' 22° 59,1' N
16	060° 33,0' 22° 01,1' N	060° 30,6' 22° 09,1' N	060° 28,2' 22° 16,8' N	060° 25,7' 22° 24,0' N	060° 23,1' 22° 30,9' N	060° 20,4' 22° 37,4' N	060° 17,7' 22° 43,5' N	060° 14,9' 22° 49,1' N	060° 12,0' 22° 54,4' N	060° 9,

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 10 Jun to 29 Jun

UT	10 Jun	11 Jun	12 Jun	13 Jun	14 Jun	15 Jun	16 Jun	17 Jun	18 Jun	19 Jun
00	180° 08,1' 23° 00,8' N	180° 05,1' 23° 05,2' N	180° 02,0' 23° 09,1' N	179° 58,9' 23° 12,6' N	179° 55,8' 23° 15,7' N	179° 52,6' 23° 18,4' N	179° 49,4' 23° 20,7' N	179° 46,2' 23° 22,6' N	179° 42,9' 23° 24,0' N	179° 39,7' 23° 25,1' N
01	195° 08,0' 23° 01,0' N	195° 04,9' 23° 05,3' N	195° 01,9' 23° 09,2' N	194° 58,8' 23° 12,7' N	194° 55,7' 23° 15,8' N	194° 52,5' 23° 18,5' N	194° 49,3' 23° 20,8' N	194° 46,1' 23° 22,6' N	194° 42,8' 23° 24,1' N	194° 39,5' 23° 25,1' N
02	210° 07,8' 23° 01,2' N	210° 04,8' 23° 05,5' N	210° 01,8' 23° 09,4' N	209° 58,7' 23° 12,9' N	209° 55,5' 23° 15,9' N	209° 52,3' 23° 18,6' N	209° 49,1' 23° 20,9' N	209° 45,9' 23° 22,7' N	209° 42,7' 23° 24,1' N	209° 39,4' 23° 25,2' N
03	225° 07,7' 23° 01,4' N	225° 04,7' 23° 05,7' N	225° 01,6' 23° 09,5' N	224° 58,5' 23° 13,0' N	224° 55,4' 23° 16,1' N	224° 52,2' 23° 18,7' N	224° 49,0' 23° 21,0' N	224° 45,8' 23° 22,8' N	224° 42,5' 23° 24,2' N	224° 39,3' 23° 25,2' N
04	240° 07,6' 23° 01,6' N	240° 04,6' 23° 05,8' N	240° 01,5' 23° 09,7' N	239° 58,4' 23° 13,1' N	239° 55,3' 23° 16,2' N	239° 52,1' 23° 18,8' N	239° 48,9' 23° 21,0' N	239° 45,6' 23° 22,8' N	239° 42,4' 23° 24,2' N	239° 39,1' 23° 25,2' N
05	255° 07,5' 23° 01,8' N	255° 04,4' 23° 06,0' N	255° 01,4' 23° 09,8' N	254° 58,3' 23° 13,3' N	254° 55,1' 23° 16,3' N	254° 51,9' 23° 18,9' N	254° 48,7' 23° 21,1' N	254° 45,5' 23° 22,9' N	254° 42,3' 23° 24,3' N	254° 39,0' 23° 25,2' N
06	270° 07,3' 23° 01,9' N	270° 04,3' 23° 06,2' N	270° 01,2' 23° 10,0' N	269° 58,1' 23° 13,4' N	269° 55,0' 23° 16,4' N	269° 51,8' 23° 19,0' N	269° 48,6' 23° 21,2' N	269° 45,4' 23° 23,0' N	269° 42,1' 23° 24,3' N	269° 38,9' 23° 25,3' N
07	285° 07,2' 23° 02,1' N	285° 04,2' 23° 06,3' N	285° 01,1' 23° 10,1' N	284° 58,0' 23° 13,5' N	284° 54,9' 23° 16,5' N	284° 51,7' 23° 19,1' N	284° 48,5' 23° 21,3' N	284° 45,2' 23° 23,0' N	284° 42,0' 23° 24,4' N	284° 38,7' 23° 25,3' N
08	300° 07,1' 23° 02,3' N	300° 04,1' 23° 06,5' N	300° 01,0' 23° 10,3' N	299° 57,9' 23° 13,7' N	299° 54,7' 23° 16,7' N	299° 51,6' 23° 19,2' N	299° 48,3' 23° 21,4' N	299° 45,1' 23° 23,1' N	299° 41,9' 23° 24,4' N	299° 38,6' 23° 25,3' N
09	315° 07,0' 23° 02,5' N	315° 03,9' 23° 06,7' N	315° 00,9' 23° 10,4' N	314° 57,7' 23° 13,8' N	314° 54,6' 23° 16,8' N	314° 51,4' 23° 19,3' N	314° 48,2' 23° 21,4' N	314° 45,0' 23° 23,2' N	314° 41,7' 23° 24,5' N	314° 38,5' 23° 25,4' N
10	330° 06,8' 23° 02,7' N	330° 03,8' 23° 06,8' N	330° 00,7' 23° 10,6' N	329° 57,6' 23° 13,9' N	329° 54,5' 23° 16,9' N	329° 51,3' 23° 19,4' N	329° 48,1' 23° 21,5' N	329° 44,8' 23° 23,2' N	329° 41,6' 23° 24,5' N	329° 38,3' 23° 25,4' N
11	345° 06,7' 23° 02,9' N	345° 03,7' 23° 07,0' N	345° 00,6' 23° 10,7' N	344° 57,5' 23° 14,1' N	344° 54,3' 23° 17,0' N	344° 51,2' 23° 19,5' N	344° 47,9' 23° 21,6' N	344° 44,7' 23° 23,3' N	344° 41,5' 23° 24,6' N	344° 38,2' 23° 25,4' N
12	000° 06,6' 23° 03,0' N	000° 03,6' 23° 07,2' N	000° 00,5' 23° 10,9' N	359° 57,4' 23° 14,2' N	359° 54,2' 23° 17,1' N	359° 51,0' 23° 19,6' N	359° 47,8' 23° 21,7' N	359° 44,6' 23° 23,4' N	359° 41,3' 23° 24,7' N	359° 38,1' 23° 25,5' N
13	015° 06,5' 23° 03,2' N	015° 03,4' 23° 07,3' N	015° 00,3' 23° 11,0' N	014° 57,2' 23° 14,3' N	014° 54,1' 23° 17,2' N	014° 50,9' 23° 19,7' N	014° 47,7' 23° 21,8' N	014° 44,4' 23° 23,4' N	014° 41,2' 23° 24,6' N	014° 37,9' 23° 25,5' N
14	030° 06,3' 23° 03,4' N	030° 03,3' 23° 07,5' N	030° 00,2' 23° 11,2' N	029° 57,1' 23° 14,5' N	029° 53,9' 23° 17,3' N	029° 50,8' 23° 19,8' N	029° 47,5' 23° 21,8' N	029° 44,3' 23° 23,4' N	029° 41,0' 23° 24,7' N	029° 37,8' 23° 25,5' N
15	045° 06,2' 23° 03,6' N	045° 03,2' 23° 07,7' N	045° 00,1' 23° 11,3' N	044° 57,0' 23° 14,6' N	044° 53,8' 23° 17,4' N	044° 50,6' 23° 19,9' N	044° 47,4' 23° 21,9' N	044° 44,2' 23° 23,5' N	044° 40,9' 23° 24,7' N	044° 37,6' 23° 25,5' N
16	060° 06,1' 23° 03,8' N	060° 03,0' 23° 07,8' N	060° 00,0' 23° 11,5' N	059° 56,8' 23° 14,7' N	059° 53,7' 23° 17,6' N	059° 50,5' 23° 20,0' N	059° 47,3' 23° 22,0' N	059° 44,0' 23° 23,6' N	059° 40,8' 23° 24,8' N	059° 37,5' 23° 25,6' N
17	075° 06,0' 23° 03,9' N	075° 02,9' 23° 08,0' N	074° 59,8' 23° 11,6' N	074° 56,7' 23° 14,8' N	074° 53,5' 23° 17,7' N	074° 50,4' 23° 20,1' N	074° 47,1' 23° 22,1' N	074° 43,9' 23° 23,6' N	074° 40,6' 23° 24,6' N	074° 37,4' 23° 25,6' N
18	090° 05,8' 23° 04,1' N	090° 02,8' 23° 08,1' N	089° 59,7' 23° 11,8' N	089° 56,6' 23° 15,0' N	089° 53,4' 23° 17,8' N	089° 50,2' 23° 20,2' N	089° 47,0' 23° 22,1' N	089° 43,8' 23° 23,7' N	089° 40,5' 23° 24,9' N	089° 37,2' 23° 25,6' N
19	105° 05,7' 23° 04,3' N	105° 02,7' 23° 08,3' N	104° 59,6' 23° 11,9' N	104° 56,4' 23° 15,1' N	104° 53,3' 23° 17,9' N	104° 50,1' 23° 20,3' N	104° 46,9' 23° 22,2' N	104° 43,6' 23° 23,8' N	104° 40,4' 23° 24,9' N	104° 37,1' 23° 25,6' N
20	120° 05,6' 23° 04,5' N	120° 02,5' 23° 08,5' N	119° 59,4' 23° 12,0' N	119° 56,3' 23° 15,2' N	119° 53,1' 23° 18,0' N	119° 49,9' 23° 20,3' N	119° 46,7' 23° 22,3' N	119° 43,5' 23° 23,8' N	119° 40,2' 23° 24,6' N	119° 37,0' 23° 25,6' N
21	135° 05,4' 23° 04,6' N	135° 02,4' 23° 08,6' N	134° 59,3' 23° 12,2' N	134° 56,2' 23° 15,3' N	134° 53,0' 23° 18,1' N	134° 49,8' 23° 20,4' N	134° 46,6' 23° 22,4' N	134° 43,4' 23° 23,9' N	134° 40,1' 23° 24,8' N	134° 36,8' 23° 25,7' N
22	150° 05,3' 23° 04,8' N	150° 02,3' 23° 08,8' N	149° 59,2' 23° 12,3' N	149° 56,0' 23° 15,5' N	149° 52,9' 23° 18,2' N	149° 49,7' 23° 20,5' N	149° 46,5' 23° 22,4' N	149° 43,2' 23° 23,9' N	149° 40,0' 23° 25,0' N	149° 36,7' 23° 25,7' N
23	165° 05,2' 23° 05,0' N	165° 02,1' 23° 08,9' N	164° 59,1' 23° 12,5' N	164° 55,9' 23° 15,6' N	164° 52,7' 23° 18,3' N	164° 49,5' 23° 20,6' N	164° 46,3' 23° 22,5' N	164° 43,1' 23° 24,0' N	164° 39,8' 23° 25,0' N	164° 36,6' 23° 25,7' N
UT	20 Jun	21 Jun	22 Jun	23 Jun	24 Jun	25 Jun	26 Jun	27 Jun	28 Jun	29 Jun
00	179° 36,4' 23° 25,7' N	179° 33,1' 23° 25,9' N	179° 29,9' 23° 25,7' N	179° 26,6' 23° 25,1' N	179° 23,4' 23° 24,1' N	179° 20,1' 23° 22,7' N	179° 16,9' 23° 20,9' N	179° 13,8' 23° 18,6' N	179° 10,7' 23° 15,9' N	179° 07,6' 23° 12,9' N
01	194° 36,3' 23° 25,7' N	194° 33,0' 23° 25,9' N	194° 29,7' 23° 25,7' N	194° 26,5' 23° 25,1' N	194° 23,2' 23° 24,1' N	194° 20,0' 23° 22,6' N	194° 16,8' 23° 20,8' N	194° 13,7' 23° 18,5' N	194° 10,5' 23° 15,8' N	194° 07,5' 23° 12,7' N
02	209° 36,1' 23° 25,8' N	209° 32,9' 23° 25,9' N	209° 29,6' 23° 25,7' N	209° 26,3' 23° 25,1' N	209° 23,1' 23° 24,0' N	209° 19,9' 23° 22,6' N	209° 16,7' 23° 20,7' N	209° 13,5' 23° 18,4' N	209° 10,4' 23° 15,7' N	209° 07,4' 23° 12,6' N
03	224° 36,0' 23° 25,8' N	224° 32,7' 23° 25,9' N	224° 29,5' 23° 25,7' N	224° 26,2' 23° 25,0' N	224° 23,0' 23° 24,0' N	224° 19,7' 23° 22,5' N	224° 16,6' 23° 20,6' N	224° 13,4' 23° 18,3' N	224° 10,3' 23° 15,6' N	224° 07,2' 23° 12,5' N
04	239° 35,9' 23° 25,8' N	239° 32,6' 23° 25,9' N	239° 29,3' 23° 25,7' N	239° 26,1' 23° 25,0' N	239° 22,8' 23° 23,9' N	239° 19,6' 23° 22,4' N	239° 16,4' 23° 20,5' N	239° 13,3' 23° 18,2' N	239° 10,2' 23° 15,5' N	239° 07,1' 23° 12,3' N
05	254° 35,7' 23° 25,8' N	254° 32,5' 23° 25,9' N	254° 29,2' 23° 25,7' N	254° 25,9' 23° 25,0' N	254° 22,7' 23° 23,9' N	254° 19,5' 23° 22,3' N	254° 16,3' 23° 20,4' N	254° 13,1' 23° 18,1' N	254° 10,0' 23° 15,3' N	254° 07,0' 23° 12,2' N
06	269° 35,6' 23° 25,8' N	269° 32,3' 23° 25,9' N	269° 29,1' 23° 25,6' N	269° 25,8' 23° 24,9' N	269° 22,6' 23° 23,8' N	269° 19,3' 23° 22,3' N	269° 16,2' 23° 20,3' N	269° 13,0' 23° 18,0' N	269° 9,9' 23° 15,2' N	269° 6,9' 23° 12,0' N
07	284° 35,5' 23° 25,8' N	284° 32,2' 23° 25,9' N	284° 28,9' 23° 25,6' N	284° 25,7' 23° 24,9' N	284° 22,4' 23° 23,8' N	284° 19,2' 23° 22,2' N	284° 16,0' 23° 20,2' N	284° 12,9' 23° 17,9' N	284° 9,8' 23° 15,1' N	284° 6,7' 23° 11,9' N
08	299° 35,3' 23° 25,8' N	299° 32,1' 23° 25,9' N	299° 28,8' 23° 25,6' N	299° 25,5' 23° 24,8' N	299° 22,3' 23° 23,7' N	299° 19,1' 23° 22,1' N	299° 15,9' 23° 20,1' N	299° 12,7' 23° 17,8' N	299° 9,6' 23° 15,0' N	299° 6,6' 23° 11,8' N
09	314° 35,2' 23° 25,9' N	314° 31,9' 23° 25,9' N	314° 28,7' 23° 24,8' N	314° 25,4' 23° 23,6' N	314° 22,2' 23° 22,6' N	314° 18,9' 23° 21,1' N	314° 15,8' 23° 19,1' N	314° 12,6' 23° 17,2' N	314° 9,5' 23° 14,8' N	314° 6,5' 23° 11,6' N
10	329° 35,1' 23° 25,9' N	329° 31,8' 23° 25,9' N	329° 28,5' 23° 25,5' N	329° 25,3' 23° 24,8' N	329° 22,0' 23° 23,6' N	329° 18,8' 23° 22,0' N	329° 15,6' 23° 20,0' N	329° 12,5' 23° 17,5' N	329° 9,4' 23° 14,7' N	329° 6,3' 23° 11,5' N
11	344° 34,9' 23° 25,9' N	344° 31,6' 23° 25,9' N	344° 28,4' 23° 25,5' N	344° 25,1' 23° 24,7' N	344° 21,9' 23° 23,5' N	344° 18,7' 23° 21,9' N	344° 15,5' 23° 19,9' N	344° 12,4' 23° 17,4' N	344° 9,3' 23° 14,6' N	344° 6,2' 23° 11,3' N
12	359° 34,8' 23° 25,9' N	359° 31,5' 23° 25,9' N	359° 28,2' 23° 25,5' N	359° 25,0' 23° 24,7' N	359° 21,8' 23° 23,5' N	359° 18,5' 23° 21,8' N	359° 15,4' 23° 19,8' N	359° 12,2' 23° 17,3' N	359° 9,1' 23° 14,5' N	359° 6,1' 23° 11,2' N
13	014° 34,6' 23° 25,9' N	014° 31,4' 23° 25,9' N	014° 28,1' 23° 25,5' N	014° 24,9' 23° 24,6' N	014° 21,6' 23° 23,4' N	014° 18,4' 23° 21,7' N	014° 15,2' 23° 19,7' N	014° 12,1' 23° 17,2' N	014° 9,0' 23° 14,3' N	014° 6,0' 23° 11,0' N
14	029° 34,5' 23° 25,9' N	029° 31,2' 23° 25,9' N	029° 28,0' 23° 25,4' N	029° 24,7' 23° 24,6' N	029° 21,5' 23° 23,3' N	029° 18,3' 23° 21,7' N	029° 15,1' 23° 19,6' N	029° 12,0' 23° 17,1' N	029° 8,9' 23° 14,2' N	029° 5,8' 23° 10,9' N
15	044° 34,4' 23° 25,9' N	044° 31,1' 23° 25,9' N	044° 27,8' 23° 25,4' N	044° 24,6' 23° 24,6' N	044° 21,3' 23° 23,3' N	044° 18,1' 23° 21,6' N	044° 15,0' 23° 19,5' N	044° 11,8' 23° 17,0' N	044° 8,8' 23° 14,1' N	044° 5,7' 23° 10,8' N
16	059° 34,2' 23° 25,9' N	059° 31,0' 23° 25,9' N	059° 27,7' 23° 25,4' N	059° 24,4' 23° 24,5' N	059° 21,2' 23° 23,2' N	059° 18,0' 23° 21,5' N	059° 14,8' 23° 19,4' N	059° 11,7' 23° 16,9' N	059° 8,6' 23° 13,9' N	059° 5,6' 23° 10,6' N

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 30 Jun to 19 Jul

UT	30 Jun	01 Jul	02 Jul	03 Jul	04 Jul	05 Jul	06 Jul	07 Jul	08 Jul	09 Jul
00	179° 04,6' 23° 09,4' N	179° 01,7' 23° 05,5' N	178° 58,8' 23° 01,2' N	178° 56,0' 22° 56,6' N	178° 53,3' 22° 51,5' N	178° 50,6' 22° 46,0' N	178° 48,1' 22° 40,1' N	178° 45,6' 22° 33,8' N	178° 43,3' 22° 27,2' N	178° 41,0' 22° 20,1' N
01	194° 04,5' 23° 09,2' N	194° 01,5' 23° 05,4' N	193° 58,7' 23° 01,1' N	193° 55,9' 22° 56,3' N	193° 53,1' 22° 51,2' N	193° 50,5' 22° 45,8' N	193° 48,0' 22° 39,9' N	193° 45,5' 22° 33,6' N	193° 43,2' 22° 26,9' N	193° 40,9' 22° 19,8' N
02	209° 04,4' 23° 09,1' N	209° 01,4' 23° 05,2' N	208° 58,5' 23° 00,9' N	208° 55,7' 22° 56,1' N	208° 53,0' 22° 51,0' N	208° 50,4' 22° 45,5' N	208° 47,9' 22° 39,6' N	208° 45,4' 22° 33,3' N	208° 43,1' 22° 26,6' N	208° 40,8' 22° 19,5' N
03	224° 04,2' 23° 08,9' N	224° 01,3' 23° 05,0' N	223° 58,4' 23° 00,7' N	223° 55,6' 22° 55,9' N	223° 52,9' 22° 50,8' N	223° 50,3' 22° 45,3' N	223° 47,8' 22° 39,3' N	223° 45,3' 22° 33,0' N	223° 43,0' 22° 26,3' N	223° 40,8' 22° 19,2' N
04	239° 04,1' 23° 08,8' N	239° 01,2' 23° 04,8' N	238° 58,3' 23° 00,5' N	238° 55,5' 22° 55,7' N	238° 52,8' 22° 50,6' N	238° 50,2' 22° 45,0' N	238° 47,7' 22° 39,1' N	238° 45,2' 22° 32,8' N	238° 42,9' 22° 26,0' N	238° 40,7' 22° 18,9' N
05	254° 04,0' 23° 08,6' N	254° 01,1' 23° 04,7' N	253° 58,2' 23° 00,3' N	253° 55,4' 22° 55,5' N	253° 52,7' 22° 50,4' N	253° 50,1' 22° 44,8' N	253° 47,6' 22° 38,8' N	253° 45,1' 22° 32,5' N	253° 42,8' 22° 25,7' N	253° 40,6' 22° 18,6' N
06	269° 03,9' 23° 08,5' N	269° 00,9' 23° 04,5' N	268° 58,1' 23° 00,1' N	268° 55,3' 22° 55,3' N	268° 52,6' 22° 50,1' N	268° 50,0' 22° 44,6' N	268° 47,5' 22° 38,6' N	268° 45,0' 22° 32,2' N	268° 42,7' 22° 25,5' N	268° 40,5' 22° 18,3' N
07	284° 03,7' 23° 08,3' N	284° 00,8' 23° 04,3' N	283° 58,0' 22° 59,9' N	283° 55,2' 22° 55,1' N	283° 52,5' 22° 49,9' N	283° 49,9' 22° 44,3' N	283° 47,4' 22° 38,3' N	283° 44,9' 22° 31,9' N	283° 42,6' 22° 25,2' N	283° 40,4' 22° 18,0' N
08	299° 03,6' 23° 08,2' N	299° 00,7' 23° 04,1' N	298° 57,8' 22° 59,7' N	298° 55,1' 22° 54,9' N	298° 52,4' 22° 49,7' N	298° 49,8' 22° 44,1' N	298° 47,2' 22° 38,1' N	298° 44,8' 22° 31,7' N	298° 42,5' 22° 24,9' N	298° 40,3' 22° 17,7' N
09	314° 03,5' 23° 08,0' N	314° 00,6' 23° 04,0' N	313° 57,7' 22° 59,5' N	313° 54,9' 22° 54,7' N	313° 52,3' 22° 49,5' N	313° 49,7' 22° 43,8' N	313° 47,1' 22° 37,8' N	313° 44,4' 22° 31,4' N	313° 42,4' 22° 24,6' N	313° 40,2' 22° 17,4' N
10	329° 03,4' 23° 07,8' N	329° 00,4' 23° 03,8' N	328° 57,6' 22° 59,3' N	328° 54,8' 22° 54,5' N	328° 52,1' 22° 49,2' N	328° 49,5' 22° 43,6' N	328° 47,0' 22° 37,5' N	328° 44,6' 22° 31,1' N	328° 42,3' 22° 24,3' N	328° 40,1' 22° 17,1' N
11	344° 03,2' 23° 07,7' N	344° 00,3' 23° 03,6' N	343° 57,5' 22° 59,1' N	343° 54,7' 22° 54,3' N	343° 52,0' 22° 49,0' N	343° 49,4' 22° 43,3' N	343° 46,9' 22° 37,3' N	343° 44,5' 22° 30,8' N	343° 42,2' 22° 24,0' N	343° 40,0' 22° 16,8' N
12	359° 03,1' 23° 07,5' N	359° 00,2' 23° 03,4' N	358° 57,4' 22° 58,9' N	358° 54,6' 22° 54,1' N	358° 51,9' 22° 48,8' N	358° 49,3' 22° 43,1' N	358° 46,8' 22° 37,0' N	358° 44,4' 22° 30,6' N	358° 42,1' 22° 23,7' N	358° 39,9' 22° 16,5' N
13	014° 03,0' 23° 07,3' N	014° 00,1' 23° 03,3' N	013° 57,3' 22° 58,8' N	013° 54,5' 22° 53,8' N	013° 51,8' 22° 48,5' N	013° 49,2' 22° 42,9' N	013° 46,7' 22° 36,8' N	013° 44,3' 22° 30,3' N	013° 42,0' 22° 23,4' N	013° 39,9' 22° 16,2' N
14	029° 02,9' 23° 07,2' N	029° 00,0' 23° 03,1' N	028° 57,1' 22° 58,6' N	028° 54,4' 22° 53,6' N	028° 51,7' 22° 48,3' N	028° 49,1' 22° 42,6' N	028° 46,6' 22° 36,5' N	028° 44,2' 22° 30,0' N	028° 41,9' 22° 23,1' N	028° 39,8' 22° 15,8' N
15	044° 02,8' 23° 07,0' N	043° 59,9' 23° 02,9' N	043° 57,0' 22° 58,4' N	043° 54,3' 22° 53,4' N	043° 51,6' 22° 48,1' N	043° 49,0' 22° 42,4' N	043° 46,5' 22° 36,2' N	043° 44,1' 22° 29,7' N	043° 41,9' 22° 22,8' N	043° 39,7' 22° 15,5' N
16	059° 02,6' 23° 06,9' N	058° 59,7' 23° 02,7' N	058° 56,9' 22° 58,2' N	058° 54,2' 22° 53,2' N	058° 51,5' 22° 47,9' N	058° 48,9' 22° 42,1' N	058° 46,4' 22° 36,0' N	058° 44,0' 22° 29,4' N	058° 41,8' 22° 22,5' N	058° 39,6' 22° 15,2' N
17	074° 02,5' 23° 06,7' N	073° 59,6' 23° 02,5' N	073° 56,8' 22° 58,0' N	073° 54,0' 22° 53,0' N	073° 51,4' 22° 47,6' N	073° 48,8' 22° 41,9' N	073° 46,3' 22° 35,7' N	073° 43,9' 22° 29,2' N	073° 41,7' 22° 22,2' N	073° 39,5' 22° 14,9' N
18	089° 02,4' 23° 06,5' N	088° 59,5' 23° 02,3' N	088° 56,7' 22° 57,8' N	088° 53,9' 22° 52,8' N	088° 51,3' 22° 47,4' N	088° 48,7' 22° 41,8' N	088° 46,2' 22° 35,4' N	088° 43,9' 22° 28,9' N	088° 41,6' 22° 21,9' N	088° 39,4' 22° 14,6' N
19	104° 02,3' 23° 06,4' N	103° 59,4' 23° 02,2' N	103° 56,6' 22° 57,6' N	103° 53,8' 22° 52,6' N	103° 51,2' 22° 47,2' N	103° 48,6' 22° 41,4' N	103° 46,1' 22° 35,2' N	103° 43,8' 22° 28,6' N	103° 41,5' 22° 21,6' N	103° 39,3' 22° 14,3' N
20	119° 02,1' 23° 06,2' N	118° 59,3' 23° 02,0' N	118° 56,4' 22° 57,4' N	118° 53,7' 22° 52,3' N	118° 51,1' 22° 46,9' N	118° 48,5' 22° 41,1' N	118° 46,0' 22° 34,9' N	118° 43,7' 22° 28,3' N	118° 41,4' 22° 21,3' N	118° 39,2' 22° 14,0' N
21	134° 02,0' 23° 06,0' N	133° 59,1' 23° 01,8' N	133° 56,3' 22° 57,2' N	133° 53,6' 22° 52,1' N	133° 50,9' 22° 46,7' N	133° 48,4' 22° 40,9' N	133° 45,9' 22° 34,6' N	133° 43,6' 22° 28,0' N	133° 41,3' 22° 21,0' N	133° 39,1' 22° 13,7' N
22	149° 01,9' 23° 05,9' N	148° 59,0' 23° 01,6' N	148° 56,2' 22° 57,0' N	148° 53,5' 22° 51,9' N	148° 50,8' 22° 46,5' N	148° 48,3' 22° 40,6' N	148° 45,8' 22° 34,4' N	148° 43,5' 22° 27,8' N	148° 41,2' 22° 20,7' N	148° 39,1' 22° 13,3' N
23	164° 01,8' 23° 05,7' N	163° 58,9' 23° 01,4' N	163° 56,1' 22° 56,8' N	163° 53,4' 22° 51,7' N	163° 50,7' 22° 46,2' N	163° 48,2' 22° 40,4' N	163° 45,7' 22° 34,1' N	163° 43,4' 22° 27,5' N	163° 41,1' 22° 20,4' N	163° 39,0' 22° 13,0' N
UT	10 Jul	11 Jul	12 Jul	13 Jul	14 Jul	15 Jul	16 Jul	17 Jul	18 Jul	19 Jul
00	178° 38,9' 22° 12,7' N	178° 36,9' 22° 04,9' N	178° 34,9' 21° 56,7' N	178° 33,1' 21° 48,1' N	178° 31,5' 21° 39,2' N	178° 29,9' 21° 29,9' N	178° 28,5' 21° 20,2' N	178° 27,2' 21° 10,2' N	178° 26,0' 20° 59,8' N	178° 24,9' 20° 49,0' N
01	193° 38,8' 22° 12,4' N	193° 36,8' 22° 04,6' N	193° 34,9' 21° 56,3' N	193° 33,1' 21° 47,8' N	193° 31,4' 21° 38,8' N	193° 29,8' 21° 29,5' N	193° 28,4' 21° 19,8' N	193° 27,1' 21° 09,7' N	193° 25,9' 20° 59,3' N	193° 24,9' 20° 48,5' N
02	208° 38,7' 22° 12,1' N	208° 36,7' 22° 04,2' N	208° 34,8' 21° 56,0' N	208° 33,0' 21° 47,4' N	208° 31,3' 21° 38,4' N	208° 29,8' 21° 29,1' N	208° 28,3' 21° 19,4' N	208° 27,0' 21° 09,3' N	208° 25,9' 20° 58,9' N	208° 24,8' 20° 48,1' N
03	223° 38,6' 22° 11,7' N	223° 36,6' 22° 03,9' N	223° 34,7' 21° 55,6' N	223° 32,9' 21° 47,0' N	223° 31,3' 21° 38,0' N	223° 29,7' 21° 28,7' N	223° 28,3' 21° 19,0' N	223° 27,0' 21° 08,9' N	223° 25,8' 20° 58,4' N	223° 24,8' 20° 47,6' N
04	238° 38,5' 22° 11,4' N	238° 36,5' 22° 03,5' N	238° 34,6' 21° 55,3' N	238° 32,9' 21° 46,7' N	238° 31,2' 21° 37,7' N	238° 29,7' 21° 28,3' N	238° 28,2' 21° 18,5' N	238° 26,9' 21° 08,4' N	238° 25,8' 20° 58,0' N	238° 24,8' 20° 47,2' N
05	253° 38,5' 22° 11,1' N	253° 36,4' 22° 03,2' N	253° 34,6' 21° 54,9' N	253° 32,8' 21° 46,3' N	253° 31,1' 21° 37,3' N	253° 29,6' 21° 27,9' N	253° 28,2' 21° 18,1' N	253° 26,9' 21° 08,0' N	253° 25,7' 20° 57,5' N	253° 24,7' 20° 46,7' N
06	268° 38,4' 22° 10,8' N	268° 36,4' 22° 02,9' N	268° 34,5' 21° 54,6' N	268° 32,7' 21° 45,9' N	268° 31,1' 21° 36,9' N	268° 29,5' 21° 27,5' N	268° 28,1' 21° 17,7' N	268° 26,8' 21° 07,6' N	268° 25,7' 20° 57,1' N	268° 24,7' 20° 46,3' N
07	283° 38,3' 22° 10,5' N	283° 36,3' 22° 02,5' N	283° 34,4' 21° 54,2' N	283° 32,6' 21° 45,6' N	283° 31,0' 21° 36,5' N	283° 29,5' 21° 27,1' N	283° 28,1' 21° 17,3' N	283° 26,8' 21° 07,2' N	283° 25,6' 20° 56,7' N	283° 24,6' 20° 45,8' N
08	298° 38,2' 22° 10,1' N	298° 36,2' 22° 02,2' N	298° 34,3' 21° 53,9' N	298° 32,6' 21° 45,2' N	298° 30,9' 21° 36,1' N	298° 29,4' 21° 26,7' N	298° 28,0' 21° 16,9' N	298° 26,7' 21° 06,9' N	298° 25,6' 20° 56,2' N	298° 24,6' 20° 45,3' N
09	313° 38,1' 22° 09,8' N	313° 36,1' 22° 01,9' N	313° 34,3' 21° 53,5' N	313° 32,5' 21° 44,8' N	313° 30,9' 21° 35,7' N	313° 29,3' 21° 26,3' N	313° 28,0' 21° 16,5' N	313° 26,7' 21° 06,3' N	313° 25,6' 20° 55,8' N	313° 24,6' 20° 44,9' N
10	328° 38,0' 22° 09,5' N	328° 36,0' 22° 01,5' N	328° 34,2' 21° 53,2' N	328° 32,4' 21° 44,4' N	328° 30,8' 21° 35,3' N	328° 29,3' 21° 25,9' N	328° 27,9' 21° 16,1' N	328° 26,6' 21° 05,9' N	328° 25,5' 20° 55,3' N	328° 24,5' 20° 44,4' N
11	343° 37,9' 22° 09,2' N	343° 36,0' 22° 01,2' N	343° 34,1' 21° 52,8' N	343° 32,4' 21° 44,1' N	343° 30,7' 21° 35,0' N	343° 29,2' 21° 25,5' N	343° 27,8' 21° 15,6' N	343° 26,6' 21° 05,4' N	343° 25,5' 20° 54,9' N	343° 24,5' 20° 43,9' N
12	358° 37,9' 22° 08,8' N	358° 35,9' 22° 00,8' N	358° 34,0' 21° 52,5' N	358° 32,3' 21° 43,7' N	358° 30,7' 21° 34,6' N	358° 29,2' 21° 25,1' N	358° 27,8' 21° 15,2' N	358° 26,5' 21° 05,0' N	358° 25,4' 20° 54,4' N	358° 24,4' 20° 43,5' N
13	013° 37,8' 22° 08,5' N	013° 35,8' 22° 00,5' N	013° 33,9' 21° 52,1' N	013° 32,2' 21° 43,3' N	013° 30,6' 21° 34,2' N	013° 29,1' 21° 24,7' N	013° 27,7' 21° 14,8' N	013° 26,5' 21° 04,6' N	013° 25,4' 20° 54,0' N	013° 24,4' 20° 43,0' N
14	028° 37,7' 22° 08,2' N	028° 35,7' 22° 00,2' N	028° 33,9' 21° 51,7' N	028° 32,1' 21° 43,0' N	028° 30,5' 21° 33,8' N	028° 29,0' 21° 24,3' N	028° 27,7' 21° 14,4' N	028° 26,4' 21° 04,1' N	028° 25,3' 20° 53,5' N	028° 24,4' 20° 42,6' N
15	043° 37,6' 22° 07,9' N	043° 35,6' 21° 59,8' N	043° 33,8' 21° 51,4' N	043° 32,1' 21° 42,6' N	043° 30,5' 21° 33,4' N	043° 29,0' 21° 23,9' N	043° 27,6' 21° 14,0' N	043° 26,4' 21° 03,7' N	043° 25,3' 20° 53,1' N	043° 24,3' 20° 42,1' N
16	058° 37,5' 22° 07,5' N	058° 35,6' 21° 59,5' N	058° 33,7' 21° 51,0' N	058° 32,0' 21° 42,2' N	058° 30,4' 21° 33,0' N	058° 28,9' 21° 23,5' N	058° 27,6' 21° 13,5' N	058° 26,3' 21° 03,3' N	058° 25,3' 20° 52,6' N	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 20 Jul to 08 Aug

UT	20 Jul	21 Jul	22 Jul	23 Jul	24 Jul	25 Jul	26 Jul	27 Jul	28 Jul	29 Jul
00	178° 24.0' 20° 37.9' N	178° 23.2' 20° 26.4' N	178° 22.6' 20° 14.6' N	178° 22.0' 20° 02.5' N	178° 21.7' 19° 50.0' N	178° 21.5' 19° 37.2' N	178° 21.4' 19° 24.1' N	178° 21.5' 19° 10.6' N	178° 21.7' 18° 56.9' N	178° 22.1' 18° 42.8' N
01	193° 24.0' 20° 37.4' N	193° 23.2' 20° 25.9' N	193° 22.5' 20° 14.1' N	193° 22.0' 20° 02.0' N	193° 21.7' 19° 49.5' N	193° 21.5' 19° 36.7' N	193° 21.4' 19° 23.5' N	193° 21.5' 19° 10.1' N	193° 21.7' 18° 56.3' N	193° 22.1' 18° 42.2' N
02	208° 23.9' 20° 36.9' N	208° 23.1' 20° 25.5' N	208° 22.5' 20° 13.6' N	208° 22.0' 20° 01.5' N	208° 21.7' 19° 49.0' N	208° 21.4' 19° 36.1' N	208° 21.4' 19° 23.0' N	208° 21.5' 19° 09.5' N	208° 21.7' 18° 55.7' N	208° 22.1' 18° 41.6' N
03	223° 23.9' 20° 36.5' N	223° 23.1' 20° 25.0' N	223° 22.5' 20° 13.1' N	223° 22.0' 20° 01.0' N	223° 21.6' 19° 48.4' N	223° 21.4' 19° 35.6' N	223° 21.4' 19° 22.4' N	223° 21.5' 19° 08.9' N	223° 21.7' 18° 55.1' N	223° 22.1' 18° 41.0' N
04	238° 23.9' 20° 36.0' N	238° 23.1' 20° 24.5' N	238° 22.5' 20° 12.6' N	238° 22.0' 20° 00.4' N	238° 21.6' 19° 47.9' N	238° 21.4' 19° 35.0' N	238° 21.4' 19° 21.9' N	238° 21.5' 19° 08.4' N	238° 21.7' 18° 54.5' N	238° 22.1' 18° 40.4' N
05	253° 23.8' 20° 35.5' N	253° 23.1' 20° 24.0' N	253° 22.4' 20° 12.1' N	253° 22.0' 19° 59.9' N	253° 21.6' 19° 47.4' N	253° 21.4' 19° 34.5' N	253° 21.4' 19° 21.3' N	253° 21.5' 19° 07.8' N	253° 21.7' 18° 54.0' N	253° 22.2' 18° 39.8' N
06	268° 23.8' 20° 35.1' N	268° 23.0' 20° 23.5' N	268° 22.4' 20° 11.6' N	268° 21.9' 19° 59.4' N	268° 21.6' 19° 46.8' N	268° 21.4' 19° 34.0' N	268° 21.4' 19° 20.8' N	268° 21.5' 19° 07.2' N	268° 21.8' 18° 53.4' N	268° 22.2' 18° 39.2' N
07	283° 23.8' 20° 34.6' N	283° 23.0' 20° 23.0' N	283° 22.4' 20° 11.1' N	283° 21.9' 19° 58.9' N	283° 21.6' 19° 46.3' N	283° 21.4' 19° 33.4' N	283° 21.4' 19° 20.2' N	283° 21.5' 19° 06.7' N	283° 21.8' 18° 52.8' N	283° 22.2' 18° 38.6' N
08	298° 23.7' 20° 34.1' N	298° 23.0' 20° 22.5' N	298° 22.4' 20° 10.6' N	298° 21.9' 19° 58.4' N	298° 21.6' 19° 45.8' N	298° 21.4' 19° 32.9' N	298° 21.4' 19° 19.6' N	298° 21.5' 19° 06.1' N	298° 21.8' 18° 52.2' N	298° 22.2' 18° 38.0' N
09	313° 23.7' 20° 33.6' N	313° 22.9' 20° 22.0' N	313° 22.4' 20° 10.1' N	313° 21.9' 19° 57.9' N	313° 21.6' 19° 45.3' N	313° 21.4' 19° 32.3' N	313° 21.4' 19° 19.1' N	313° 21.5' 19° 05.5' N	313° 21.8' 18° 51.6' N	313° 22.2' 18° 37.4' N
10	328° 23.7' 20° 33.2' N	328° 22.9' 20° 21.6' N	328° 22.3' 20° 09.6' N	328° 21.9' 19° 57.3' N	328° 21.6' 19° 44.7' N	328° 21.4' 19° 31.8' N	328° 21.4' 19° 18.5' N	328° 21.5' 19° 04.9' N	328° 21.8' 18° 51.0' N	328° 22.3' 18° 36.8' N
11	343° 23.6' 20° 32.7' N	343° 22.9' 20° 21.1' N	343° 22.3' 20° 09.1' N	343° 21.9' 19° 56.8' N	343° 21.6' 19° 44.2' N	343° 21.4' 19° 31.2' N	343° 21.4' 19° 18.0' N	343° 21.5' 19° 04.4' N	343° 21.8' 18° 50.5' N	343° 22.3' 18° 36.2' N
12	358° 23.6' 20° 32.2' N	358° 22.9' 20° 20.6' N	358° 22.3' 20° 08.6' N	358° 21.8' 19° 56.3' N	358° 21.6' 19° 43.7' N	358° 21.4' 19° 30.7' N	358° 21.4' 19° 17.4' N	358° 21.5' 19° 03.8' N	358° 21.8' 18° 49.9' N	358° 22.3' 18° 35.6' N
13	013° 23.6' 20° 31.7' N	013° 22.8' 20° 20.1' N	013° 22.3' 20° 08.1' N	013° 21.8' 19° 55.8' N	013° 21.5' 19° 43.1' N	013° 21.4' 19° 30.1' N	013° 21.4' 19° 16.8' N	013° 21.6' 19° 03.2' N	013° 21.9' 18° 49.3' N	013° 22.3' 18° 35.0' N
14	028° 23.5' 20° 31.2' N	028° 22.8' 20° 19.6' N	028° 22.2' 20° 07.6' N	028° 21.8' 19° 55.3' N	028° 21.5' 19° 42.6' N	028° 21.4' 19° 29.6' N	028° 21.4' 19° 16.3' N	028° 21.6' 19° 02.6' N	028° 21.9' 18° 48.7' N	028° 22.3' 18° 34.4' N
15	043° 23.5' 20° 30.8' N	043° 22.8' 20° 19.1' N	043° 22.2' 20° 07.1' N	043° 21.8' 19° 54.7' N	043° 21.5' 19° 42.1' N	043° 21.4' 19° 29.0' N	043° 21.4' 19° 15.7' N	043° 21.6' 19° 02.1' N	043° 21.9' 18° 48.1' N	043° 22.4' 18° 33.8' N
16	058° 23.5' 20° 30.3' N	058° 22.8' 20° 18.6' N	058° 22.2' 20° 06.6' N	058° 21.8' 19° 54.2' N	058° 21.5' 19° 41.5' N	058° 21.4' 19° 28.5' N	058° 21.4' 19° 15.2' N	058° 21.6' 19° 01.5' N	058° 21.9' 18° 47.5' N	058° 22.4' 18° 33.2' N
17	073° 23.4' 20° 29.8' N	073° 22.7' 20° 18.1' N	073° 22.2' 20° 06.1' N	073° 21.8' 19° 53.7' N	073° 21.5' 19° 41.0' N	073° 21.4' 19° 27.9' N	073° 21.4' 19° 14.6' N	073° 21.6' 19° 00.9' N	073° 21.9' 18° 46.9' N	073° 22.4' 18° 32.6' N
18	088° 23.4' 20° 29.3' N	088° 22.7' 20° 17.6' N	088° 22.2' 20° 05.6' N	088° 21.8' 19° 53.2' N	088° 21.5' 19° 40.4' N	088° 21.4' 19° 27.4' N	088° 21.4' 19° 14.0' N	088° 21.5' 19° 00.3' N	088° 21.9' 18° 46.3' N	088° 22.4' 18° 32.0' N
19	103° 23.4' 20° 28.8' N	103° 22.7' 20° 17.1' N	103° 22.2' 20° 05.0' N	103° 21.7' 19° 52.6' N	103° 21.5' 19° 39.9' N	103° 21.4' 19° 26.8' N	103° 21.4' 19° 13.5' N	103° 21.6' 19° 00.0' N	103° 22.0' 18° 45.8' N	103° 22.5' 18° 31.4' N
20	118° 23.3' 20° 28.4' N	118° 22.7' 20° 16.6' N	118° 22.1' 20° 04.5' N	118° 21.7' 19° 52.1' N	118° 21.5' 19° 39.4' N	118° 21.4' 19° 26.3' N	118° 21.4' 19° 12.9' N	118° 21.6' 19° 00.0' N	118° 22.0' 18° 45.2' N	118° 22.5' 18° 30.8' N
21	133° 23.3' 20° 27.9' N	133° 22.6' 20° 16.1' N	133° 22.1' 20° 04.0' N	133° 21.7' 19° 51.6' N	133° 21.5' 19° 38.8' N	133° 21.4' 19° 25.7' N	133° 21.4' 19° 12.3' N	133° 21.6' 19° 00.0' N	133° 22.0' 18° 44.6' N	133° 22.5' 18° 30.2' N
22	148° 23.3' 20° 27.4' N	148° 22.6' 20° 15.6' N	148° 22.1' 20° 03.5' N	148° 21.7' 19° 51.1' N	148° 21.5' 19° 38.3' N	148° 21.4' 19° 25.2' N	148° 21.4' 19° 11.8' N	148° 21.7' 18° 58.0' N	148° 22.0' 18° 44.0' N	148° 22.5' 18° 29.6' N
23	163° 23.2' 20° 26.9' N	163° 22.6' 20° 15.1' N	163° 22.1' 20° 03.0' N	163° 21.7' 19° 50.5' N	163° 21.5' 19° 37.8' N	163° 21.4' 19° 24.6' N	163° 21.4' 19° 11.2' N	163° 21.7' 18° 57.5' N	163° 22.0' 18° 43.4' N	163° 22.6' 18° 29.0' N
UT	30 Jul	31 Jul	01 Aug	02 Aug	03 Aug	04 Aug	05 Aug	06 Aug	07 Aug	08 Aug
00	178° 22.6' 18° 28.4' N	178° 23.3' 18° 13.7' N	178° 24.1' 17° 58.7' N	178° 25.1' 17° 43.5' N	178° 26.3' 17° 27.9' N	178° 27.6' 17° 12.1' N	178° 29.0' 16° 55.9' N	178° 30.7' 16° 39.5' N	178° 32.4' 16° 22.9' N	178° 34.4' 16° 06.0' N
01	193° 22.6' 18° 27.8' N	193° 23.3' 18° 13.1' N	193° 24.2' 17° 58.1' N	193° 25.2' 17° 42.8' N	193° 26.3' 17° 27.3' N	193° 27.6' 17° 11.4' N	193° 29.1' 16° 55.3' N	193° 30.7' 16° 38.9' N	193° 32.5' 16° 22.2' N	193° 34.4' 16° 05.2' N
02	208° 22.6' 18° 27.2' N	208° 23.3' 18° 12.5' N	208° 24.2' 17° 57.5' N	208° 25.2' 17° 42.2' N	208° 26.4' 17° 26.6' N	208° 27.7' 17° 10.7' N	208° 29.2' 16° 54.6' N	208° 30.8' 16° 38.2' N	208° 32.6' 16° 21.5' N	208° 34.5' 16° 04.5' N
03	223° 22.7' 18° 26.6' N	223° 23.4' 18° 11.9' N	223° 24.2' 17° 56.9' N	223° 25.3' 17° 41.5' N	223° 26.4' 17° 25.9' N	223° 27.8' 17° 10.1' N	223° 29.2' 16° 53.9' N	223° 30.9' 16° 37.5' N	223° 32.7' 16° 20.8' N	223° 34.6' 16° 03.8' N
04	238° 22.7' 18° 26.0' N	238° 23.4' 18° 11.3' N	238° 24.3' 17° 56.2' N	238° 25.3' 17° 40.9' N	238° 26.5' 17° 25.3' N	238° 27.8' 17° 09.4' N	238° 29.3' 16° 53.2' N	238° 30.9' 16° 36.8' N	238° 32.7' 16° 20.1' N	238° 34.7' 16° 03.1' N
05	253° 22.7' 18° 25.4' N	253° 23.4' 18° 10.6' N	253° 24.3' 17° 55.6' N	253° 25.3' 17° 40.3' N	253° 26.5' 17° 24.6' N	253° 27.9' 17° 08.7' N	253° 29.4' 16° 52.5' N	253° 31.1' 16° 36.1' N	253° 32.8' 16° 19.4' N	253° 34.8' 16° 02.4' N
06	268° 22.7' 18° 24.8' N	268° 23.5' 18° 10.0' N	268° 24.4' 17° 55.0' N	268° 25.4' 17° 39.6' N	268° 26.6' 17° 24.0' N	268° 27.9' 17° 08.1' N	268° 29.4' 16° 51.9' N	268° 31.1' 16° 35.4' N	268° 32.9' 16° 18.7' N	268° 34.9' 16° 01.7' N
07	283° 22.8' 18° 24.2' N	283° 23.5' 18° 09.4' N	283° 24.4' 17° 54.3' N	283° 25.4' 17° 39.0' N	283° 26.6' 17° 23.3' N	283° 28.0' 17° 07.4' N	283° 29.5' 16° 51.2' N	283° 31.2' 16° 34.7' N	283° 33.0' 16° 18.0' N	283° 34.9' 16° 01.0' N
08	298° 22.8' 18° 23.6' N	298° 23.5' 18° 08.8' N	298° 24.4' 17° 53.7' N	298° 25.5' 17° 38.3' N	298° 26.7' 17° 22.7' N	298° 28.0' 17° 06.7' N	298° 29.6' 16° 50.5' N	298° 31.2' 16° 34.0' N	298° 33.1' 16° 17.3' N	298° 35.0' 16° 00.3' N
09	313° 22.8' 18° 22.9' N	313° 23.6' 18° 08.1' N	313° 24.5' 17° 53.1' N	313° 25.5' 17° 37.7' N	313° 26.7' 17° 22.0' N	313° 28.1' 17° 06.0' N	313° 29.6' 16° 49.8' N	313° 31.3' 16° 33.3' N	313° 33.1' 16° 16.6' N	313° 35.1' 15° 59.5' N
10	328° 22.9' 18° 22.3' N	328° 23.6' 18° 07.5' N	328° 24.5' 17° 52.4' N	328° 25.6' 17° 37.0' N	328° 26.8' 17° 21.3' N	328° 28.2' 17° 05.4' N	328° 29.7' 16° 49.1' N	328° 31.4' 16° 32.6' N	328° 33.2' 16° 15.9' N	328° 35.2' 15° 58.8' N
11	343° 22.9' 18° 21.7' N	343° 23.6' 18° 06.9' N	343° 24.6' 17° 51.8' N	343° 25.6' 17° 36.4' N	343° 26.8' 17° 20.7' N	343° 28.2' 17° 04.7' N	343° 29.8' 16° 48.5' N	343° 31.5' 16° 31.9' N	343° 33.3' 16° 15.2' N	343° 35.3' 15° 58.1' N
12	358° 22.9' 18° 21.1' N	358° 23.7' 18° 06.3' N	358° 24.6' 17° 51.1' N	358° 25.7' 17° 35.7' N	358° 26.9' 17° 20.0' N	358° 28.3' 17° 04.0' N	358° 29.8' 16° 47.8' N	358° 31.5' 16° 31.2' N	358° 33.4' 16° 14.5' N	358° 35.4' 15° 57.4' N
13	013° 22.9' 18° 20.5' N	013° 23.7' 18° 05.6' N	013° 24.6' 17° 50.5' N	013° 25.7' 17° 35.1' N	013° 27.0' 17° 19.4' N	013° 28.4' 17° 03.4' N	013° 29.9' 16° 47.1' N	013° 31.6' 16° 30.6' N	013° 33.5' 16° 13.7' N	013° 35.5' 15° 56.7' N
14	028° 23.0' 18° 19.9' N	028° 23.7' 18° 05.0' N	028° 24.7' 17° 49.9' N	028° 25.8' 17° 34.4' N	028° 27.0' 17° 18.7' N	028° 28.4' 17° 02.7' N	028° 30.0' 16° 46.4' N	028° 31.7' 16° 29.9' N	028° 33.5' 16° 13.0' N	028° 35.5' 15° 56.0' N
15	043° 23.0' 18° 19.3' N	043° 23.8' 18° 04.4' N	043° 24.7' 17° 49.2' N	043° 25.8' 17° 33.8' N	043° 27.1' 17° 18.0' N	043° 28.5' 17° 02.0' N	043° 30.0' 16° 45.7' N	043° 31.8' 16° 29.2' N	043° 33.6' 16° 12.3' N	043° 35.6' 15° 55.2' N
16	058° 23.0' 18° 18.7' N	058° 23.8' 18° 03.8' N	058° 24.8' 17° 33.1' N	058° 25.9' 17° 17.4' N	058° 27.1' 17° 01.3' N	058° 28.5' 17° 01.3' N	058° 30.1' 16° 45.0' N	058° 31.8' 16° 28.5' N	058° 33.7' 16° 11.6' N	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 09 Aug to 28 Aug

UT	09 Aug	10 Aug	11 Aug	12 Aug	13 Aug	14 Aug	15 Aug	16 Aug	17 Aug	18 Aug
00	178° 36.4' 15° 48.8' N	178° 38.7' 15° 31.3' N	178° 41.0' 15° 13.7' N	178° 43.5' 14° 55.7' N	178° 46.2' 14° 37.6' N	178° 48.9' 14° 19.2' N	178° 51.9' 14° 00.5' N	178° 54.9' 13° 41.7' N	178° 58.1' 13° 22.6' N	179° 01.3' 13° 03.3' N
01	193° 36.5' 15° 48.1' N	193° 38.7' 15° 30.6' N	193° 41.1' 15° 12.9' N	193° 43.6' 14° 55.0' N	193° 46.3' 14° 36.8' N	193° 49.1' 14° 18.4' N	193° 52.0' 13° 59.8' N	193° 55.0' 13° 40.9' N	193° 58.2' 13° 21.8' N	194° 01.5' 13° 02.5' N
02	208° 36.6' 15° 47.3' N	208° 38.8' 15° 29.9' N	208° 41.2' 15° 12.2' N	208° 43.7' 14° 54.2' N	208° 46.4' 14° 36.0' N	208° 49.2' 14° 17.6' N	208° 52.1' 13° 59.0' N	208° 55.2' 13° 40.1' N	208° 58.3' 13° 21.0' N	209° 01.6' 13° 01.7' N
03	223° 36.7' 15° 46.6' N	223° 38.9' 15° 29.1' N	223° 41.3' 15° 11.4' N	223° 43.8' 14° 53.5' N	223° 46.5' 14° 35.3' N	223° 49.3' 14° 16.9' N	223° 52.2' 13° 58.2' N	223° 55.3' 13° 39.3' N	223° 58.5' 13° 20.2' N	224° 01.8' 13° 00.9' N
04	238° 36.8' 15° 45.9' N	238° 39.0' 15° 28.4' N	238° 41.4' 15° 10.7' N	238° 44.0' 14° 52.7' N	238° 46.6' 14° 34.5' N	238° 49.4' 14° 16.1' N	238° 52.4' 13° 57.4' N	238° 55.4' 13° 38.5' N	238° 58.6' 13° 19.4' N	239° 01.9' 13° 00.1' N
05	253° 36.9' 15° 45.2' N	253° 39.1' 15° 27.7' N	253° 41.5' 15° 09.9' N	253° 44.1' 14° 52.0' N	253° 46.7' 14° 33.8' N	253° 49.5' 14° 15.3' N	253° 52.5' 13° 37.7' N	253° 55.5' 13° 18.6' N	253° 58.7' 13° 00.1' N	254° 02.0' 12° 59.3' N
06	268° 37.0' 15° 44.4' N	268° 39.2' 15° 26.9' N	268° 41.6' 15° 09.2' N	268° 44.2' 14° 51.2' N	268° 46.8' 14° 33.0' N	268° 49.7' 14° 14.5' N	268° 52.6' 13° 55.8' N	268° 55.7' 13° 36.9' N	268° 58.9' 13° 17.8' N	269° 02.2' 12° 58.5' N
07	283° 37.1' 15° 43.7' N	283° 39.3' 15° 26.2' N	283° 41.7' 15° 08.5' N	283° 44.3' 14° 50.5' N	283° 47.0' 14° 32.2' N	283° 49.8' 14° 13.8' N	283° 52.7' 13° 55.1' N	283° 55.8' 13° 36.1' N	283° 59.0' 13° 17.0' N	284° 02.3' 12° 57.7' N
08	298° 37.2' 15° 43.0' N	298° 39.4' 15° 25.5' N	298° 41.8' 15° 07.7' N	298° 44.4' 14° 49.7' N	298° 47.1' 14° 31.5' N	298° 49.9' 14° 13.0' N	298° 52.9' 13° 54.3' N	298° 55.9' 13° 35.4' N	298° 59.1' 13° 16.2' N	299° 02.5' 12° 56.9' N
09	313° 37.2' 15° 42.3' N	313° 39.5' 15° 24.7' N	313° 41.9' 15° 07.0' N	313° 44.5' 14° 48.9' N	313° 47.2' 14° 30.7' N	313° 50.0' 14° 12.2' N	313° 53.0' 13° 53.5' N	313° 56.1' 13° 34.6' N	313° 59.3' 13° 15.4' N	314° 02.6' 12° 56.1' N
10	328° 37.3' 15° 41.5' N	328° 39.6' 15° 24.0' N	328° 42.0' 15° 06.2' N	328° 44.6' 14° 48.2' N	328° 47.3' 14° 29.9' N	328° 50.1' 14° 11.4' N	328° 53.1' 13° 52.7' N	328° 56.2' 13° 33.8' N	328° 59.4' 13° 14.6' N	329° 02.7' 12° 55.2' N
11	343° 37.4' 15° 40.8' N	343° 39.7' 15° 23.3' N	343° 42.1' 15° 05.5' N	343° 44.7' 14° 47.4' N	343° 47.4' 14° 29.2' N	343° 50.3' 14° 10.7' N	343° 53.2' 13° 51.9' N	343° 56.3' 13° 33.0' N	343° 59.5' 13° 14.8' N	344° 02.9' 12° 54.4' N
12	358° 37.5' 15° 40.1' N	358° 39.8' 15° 22.5' N	358° 42.3' 15° 04.7' N	358° 44.8' 14° 46.7' N	358° 47.5' 14° 28.4' N	358° 50.4' 14° 09.9' N	358° 53.4' 13° 51.1' N	358° 56.5' 13° 32.2' N	358° 59.7' 13° 13.0' N	359° 03.0' 12° 53.6' N
13	013° 37.6' 15° 39.4' N	013° 39.9' 15° 21.8' N	013° 42.4' 15° 04.0' N	013° 44.9' 14° 45.9' N	013° 47.7' 14° 27.6' N	013° 50.5' 14° 09.1' N	013° 53.5' 13° 50.4' N	013° 56.6' 13° 31.4' N	013° 59.8' 13° 12.2' N	014° 03.2' 12° 52.8' N
14	028° 37.7' 15° 38.6' N	028° 40.0' 15° 21.1' N	028° 42.5' 15° 03.2' N	028° 45.0' 14° 45.2' N	028° 47.8' 14° 26.9' N	028° 50.6' 14° 08.3' N	028° 53.6' 13° 49.6' N	028° 56.7' 13° 30.6' N	029° 00.0' 13° 11.4' N	029° 03.3' 12° 52.0' N
15	043° 37.8' 15° 37.9' N	043° 40.1' 15° 20.3' N	043° 42.6' 15° 02.5' N	043° 45.2' 14° 44.4' N	043° 47.9' 14° 26.1' N	043° 50.7' 14° 07.6' N	043° 53.7' 13° 48.8' N	043° 56.9' 13° 29.8' N	044° 00.1' 13° 10.6' N	044° 03.5' 12° 51.2' N
16	058° 37.9' 15° 37.2' N	058° 40.2' 15° 19.6' N	058° 42.7' 15° 01.7' N	058° 45.3' 14° 43.6' N	058° 48.0' 14° 25.3' N	058° 50.9' 14° 06.8' N	058° 53.9' 13° 48.0' N	058° 57.0' 13° 29.0' N	059° 00.2' 13° 09.8' N	059° 03.6' 12° 50.4' N
17	073° 38.0' 15° 36.5' N	073° 40.3' 15° 18.8' N	073° 42.8' 15° 01.0' N	073° 45.4' 14° 42.9' N	073° 48.1' 14° 24.6' N	073° 51.0' 14° 06.0' N	073° 54.0' 13° 47.2' N	073° 57.1' 13° 28.2' N	074° 00.4' 13° 09.0' N	074° 03.7' 12° 49.6' N
18	088° 38.1' 15° 35.7' N	088° 40.4' 15° 18.1' N	088° 42.9' 15° 00.2' N	088° 45.5' 14° 42.1' N	088° 48.2' 14° 23.8' N	088° 51.1' 14° 05.2' N	088° 54.1' 13° 46.4' N	088° 57.3' 13° 27.4' N	089° 00.5' 13° 08.2' N	089° 03.9' 12° 48.7' N
19	103° 38.2' 15° 35.0' N	103° 40.5' 15° 17.4' N	103° 43.0' 15° 05.5' N	103° 45.6' 14° 41.4' N	103° 48.4' 14° 23.0' N	103° 51.2' 14° 04.4' N	103° 54.2' 13° 45.6' N	103° 57.4' 13° 26.6' N	104° 00.6' 13° 07.4' N	104° 04.0' 12° 47.9' N
20	118° 38.3' 15° 34.3' N	118° 40.6' 15° 16.6' N	118° 43.1' 15° 08.7' N	118° 45.7' 14° 50.6' N	118° 48.5' 14° 32.3' N	118° 51.4' 14° 13.7' N	118° 54.4' 13° 54.8' N	118° 57.5' 13° 35.8' N	119° 00.8' 13° 16.6' N	119° 04.2' 12° 47.1' N
21	133° 38.4' 15° 33.5' N	133° 40.7' 15° 15.9' N	133° 43.2' 14° 58.0' N	133° 45.8' 14° 39.9' N	133° 48.6' 14° 21.5' N	133° 51.5' 14° 02.9' N	133° 54.5' 13° 44.1' N	133° 57.7' 13° 25.0' N	134° 00.9' 13° 05.8' N	134° 04.3' 12° 46.3' N
22	148° 38.5' 15° 32.8' N	148° 40.8' 15° 15.1' N	148° 43.3' 14° 57.2' N	148° 45.9' 14° 39.1' N	148° 48.7' 14° 20.7' N	148° 51.6' 14° 02.1' N	148° 54.6' 13° 43.3' N	148° 57.8' 13° 24.2' N	149° 01.1' 13° 05.0' N	149° 04.5' 12° 45.5' N
23	163° 38.6' 15° 32.1' N	163° 40.9' 15° 14.4' N	163° 43.4' 14° 56.5' N	163° 46.1' 14° 38.3' N	163° 48.8' 14° 19.9' N	163° 51.7' 14° 01.3' N	163° 54.8' 13° 42.5' N	163° 57.9' 13° 23.4' N	164° 01.2' 13° 04.1' N	164° 04.6' 12° 44.7' N
UT	19 Aug	20 Aug	21 Aug	22 Aug	23 Aug	24 Aug	25 Aug	26 Aug	27 Aug	28 Aug
00	179° 04.7' 12° 43.8' N	179° 08.3' 12° 24.2' N	179° 11.9' 12° 04.3' N	179° 15.7' 11° 44.2' N	179° 19.5' 11° 23.9' N	179° 23.5' 11° 03.5' N	179° 27.6' 10° 42.8' N	179° 31.7' 10° 22.0' N	179° 36.0' 10° 01.1' N	179° 40.4' 09° 40.0' N
01	194° 04.9' 12° 43.0' N	194° 08.4' 12° 23.3' N	194° 12.1' 12° 03.4' N	194° 15.8' 11° 43.3' N	194° 19.7' 11° 23.1' N	194° 23.7' 11° 02.6' N	194° 27.7' 10° 42.0' N	194° 31.9' 10° 21.2' N	194° 36.2' 10° 00.2' N	194° 40.6' 09° 39.1' N
02	209° 05.0' 12° 42.2' N	209° 08.6' 12° 22.5' N	209° 12.2' 12° 02.6' N	209° 16.0' 11° 42.5' N	209° 19.8' 11° 22.2' N	209° 23.8' 11° 01.8' N	209° 27.9' 10° 41.1' N	209° 32.1' 10° 20.3' N	209° 36.4' 09° 59.3' N	209° 40.7' 09° 38.2' N
03	224° 05.2' 12° 41.4' N	224° 08.7' 12° 21.7' N	224° 12.4' 12° 01.8' N	224° 16.1' 11° 41.7' N	224° 20.0' 11° 21.4' N	224° 24.0' 11° 00.9' N	224° 28.1' 10° 40.3' N	224° 32.3' 10° 19.4' N	224° 36.5' 09° 58.5' N	224° 40.9' 09° 37.3' N
04	239° 05.3' 12° 40.6' N	239° 08.9' 12° 20.8' N	239° 12.5' 12° 00.9' N	239° 16.3' 11° 40.8' N	239° 20.2' 11° 20.5' N	239° 24.2' 11° 00.0' N	239° 28.2' 10° 39.4' N	239° 32.4' 10° 18.6' N	239° 36.7' 09° 57.6' N	239° 41.1' 09° 36.4' N
05	254° 05.5' 12° 39.8' N	254° 09.0' 12° 20.0' N	254° 12.7' 12° 00.1' N	254° 16.5' 11° 40.0' N	254° 20.3' 11° 19.7' N	254° 24.3' 10° 59.2' N	254° 28.4' 10° 38.5' N	254° 32.6' 10° 17.7' N	254° 36.9' 09° 56.7' N	254° 41.3' 09° 35.6' N
06	269° 05.6' 12° 38.9' N	269° 09.2' 12° 19.2' N	269° 12.8' 11° 59.3' N	269° 16.6' 11° 39.1' N	269° 20.5' 11° 18.8' N	269° 24.5' 10° 58.3' N	269° 28.6' 10° 37.7' N	269° 32.8' 10° 16.8' N	269° 37.1' 09° 55.8' N	269° 41.5' 09° 34.7' N
07	284° 05.8' 12° 38.1' N	284° 09.3' 12° 18.4' N	284° 13.0' 11° 58.4' N	284° 16.8' 11° 38.3' N	284° 20.7' 11° 18.0' N	284° 24.7' 10° 57.5' N	284° 28.8' 10° 36.8' N	284° 33.0' 10° 16.0' N	284° 37.3' 09° 55.0' N	284° 41.7' 09° 33.8' N
08	299° 05.9' 12° 37.3' N	299° 09.5' 12° 17.5' N	299° 13.1' 11° 57.6' N	299° 16.9' 11° 37.4' N	299° 20.8' 11° 17.1' N	299° 24.8' 10° 56.6' N	299° 28.9' 10° 35.9' N	299° 33.1' 10° 15.1' N	299° 37.4' 09° 54.1' N	299° 41.8' 09° 32.9' N
09	314° 06.1' 12° 36.5' N	314° 09.6' 12° 16.7' N	314° 13.3' 11° 56.8' N	314° 17.1' 11° 36.6' N	314° 21.0' 11° 16.3' N	314° 25.0' 10° 55.7' N	314° 29.1' 10° 35.1' N	314° 33.3' 10° 14.2' N	314° 37.6' 09° 53.2' N	314° 42.0' 09° 32.0' N
10	329° 06.2' 12° 35.7' N	329° 09.8' 12° 15.9' N	329° 13.5' 11° 55.9' N	329° 17.3' 11° 35.8' N	329° 21.2' 11° 15.4' N	329° 25.2' 10° 54.9' N	329° 29.3' 10° 34.2' N	329° 33.5' 10° 13.3' N	329° 37.8' 09° 52.3' N	329° 42.2' 09° 31.1' N
11	344° 06.3' 12° 34.8' N	344° 09.9' 12° 15.1' N	344° 13.6' 11° 55.1' N	344° 17.4' 11° 34.9' N	344° 21.3' 11° 14.6' N	344° 25.3' 10° 54.0' N	344° 29.5' 10° 33.3' N	344° 33.7' 10° 12.5' N	344° 38.0' 09° 51.4' N	344° 42.4' 09° 30.2' N
12	359° 06.5' 12° 34.0' N	359° 10.1' 12° 14.2' N	359° 13.8' 11° 54.2' N	359° 17.6' 11° 34.1' N	359° 21.5' 11° 13.7' N	359° 25.5' 10° 53.2' N	359° 29.6' 10° 32.5' N	359° 33.9' 10° 11.6' N	359° 38.2' 09° 50.6' N	359° 42.6' 09° 29.4' N
13	014° 06.6' 12° 33.2' N	014° 10.2' 12° 13.4' N	014° 13.9' 11° 53.4' N	014° 17.7' 11° 33.2' N	014° 21.7' 11° 12.9' N	014° 25.7' 10° 52.3' N	014° 29.8' 10° 31.6' N	014° 34.0' 10° 10.7' N	014° 38.4' 09° 49.7' N	014° 42.8' 09° 28.5' N
14	029° 06.8' 12° 32.4' N	029° 10.4' 12° 12.6' N	029° 14.1' 11° 52.6' N	029° 17.9' 11° 32.4' N	029° 21.8' 11° 12.0' N	029° 25.8' 10° 51.5' N	029° 30.0' 10° 30.7' N	029° 34.2' 10° 09.8' N	029° 38.5' 09° 48.8' N	029° 43.0' 09° 27.6' N
15	044° 06.9' 12° 31.6' N	044° 10.5' 12° 11.7' N	044° 14.2' 11° 51.7' N	044° 18.1' 11° 31.5' N	044° 22.0' 11° 11.2' N	044° 26.0' 10° 50.6' N	044° 30.2' 10° 29.9' N	044° 34.4' 10° 09.0' N	044° 38.7' 09° 47.9' N	044° 43.1' 09° 26.7' N
16	059° 07.1' 12° 30.7' N	059° 10.7' 12° 10.9' N	059° 14.4' 11° 50.9' N	059° 18.2' 11° 30.7' N	059° 22.1' 11° 10.3' N	059° 26.2' 10° 49.7' N	059° 30.3' 10° 29.0' N	059° 34.6' 10° 08.1' N	059° 38.9' 09° 47.0' N	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 29 Aug to 17 Sep

UT	29 Aug	30 Aug	31 Aug	01 Sep	02 Sep	03 Sep	04 Sep	05 Sep	06 Sep	07 Sep
00	179° 44.8' 09° 18.7' N	179° 49.4' 08° 57.3' N	179° 54.0' 08° 35.7' N	179° 58.7' 08° 14.0' N	180° 03.5' 07° 52.2' N	180° 08.4' 07° 30.3' N	180° 13.4' 07° 08.2' N	180° 18.4' 06° 46.0' N	180° 23.4' 06° 23.7' N	180° 28.6' 06° 01.3' N
01	194° 45.0' 09° 17.8' N	194° 49.6' 08° 56.4' N	194° 54.2' 08° 34.8' N	194° 58.9' 08° 13.1' N	195° 03.7' 07° 51.3' N	195° 08.6' 07° 29.4' N	195° 13.6' 07° 07.3' N	195° 18.6' 06° 45.1' N	195° 23.6' 06° 22.8' N	195° 28.8' 06° 00.4' N
02	209° 45.2' 09° 16.9' N	209° 49.8' 08° 55.5' N	209° 54.4' 08° 33.9' N	209° 59.1' 08° 12.2' N	210° 03.9' 07° 50.4' N	210° 08.8' 07° 28.4' N	210° 13.8' 07° 06.4' N	210° 18.8' 06° 44.2' N	210° 23.9' 06° 21.9' N	210° 29.0' 06° 59.5' N
03	224° 45.4' 09° 16.0' N	224° 50.0' 08° 54.6' N	224° 54.6' 08° 33.0' N	224° 59.3' 08° 11.3' N	225° 04.1' 07° 49.5' N	225° 09.0' 07° 27.5' N	225° 14.0' 07° 05.4' N	225° 19.0' 06° 43.2' N	225° 24.1' 06° 20.9' N	225° 29.2' 06° 58.5' N
04	239° 45.6' 09° 15.2' N	239° 50.2' 08° 53.7' N	239° 54.8' 08° 32.1' N	239° 59.5' 08° 10.4' N	240° 04.3' 07° 48.6' N	240° 09.2' 07° 26.6' N	240° 14.2' 07° 04.5' N	240° 19.2' 06° 42.3' N	240° 24.3' 06° 20.0' N	240° 29.4' 06° 57.6' N
05	254° 45.8' 09° 14.3' N	254° 50.3' 08° 52.8' N	254° 55.0' 08° 31.2' N	254° 59.7' 08° 09.5' N	255° 04.5' 07° 47.7' N	255° 09.4' 07° 25.7' N	255° 14.4' 07° 03.6' N	255° 19.4' 06° 41.4' N	255° 24.5' 06° 19.1' N	255° 29.6' 06° 56.7' N
06	269° 46.0' 09° 13.4' N	269° 50.5' 08° 51.9' N	269° 55.2' 08° 30.3' N	269° 59.9' 08° 08.6' N	270° 04.8' 07° 46.7' N	270° 09.6' 07° 24.8' N	270° 14.6' 07° 02.7' N	270° 19.6' 06° 40.5' N	270° 24.7' 06° 18.1' N	270° 29.8' 06° 55.7' N
07	284° 46.2' 09° 12.5' N	284° 50.7' 08° 51.0' N	284° 55.4' 08° 29.4' N	285° 00.1' 08° 07.7' N	285° 05.0' 07° 45.8' N	285° 09.8' 07° 23.9' N	285° 14.8' 07° 01.7' N	285° 19.8' 06° 39.5' N	285° 24.9' 06° 17.2' N	285° 30.1' 06° 54.8' N
08	299° 46.3' 09° 11.6' N	299° 50.9' 08° 50.1' N	299° 55.6' 08° 28.5' N	300° 00.3' 08° 06.8' N	300° 05.2' 07° 44.9' N	300° 10.1' 07° 22.9' N	300° 15.0' 07° 00.8' N	300° 20.0' 06° 38.6' N	300° 25.1' 06° 16.3' N	300° 30.3' 06° 53.8' N
09	314° 46.5' 09° 10.7' N	314° 51.1' 08° 49.2' N	314° 55.8' 08° 27.6' N	315° 00.5' 08° 05.9' N	315° 05.4' 07° 44.0' N	315° 10.3' 07° 22.0' N	315° 15.2' 06° 59.9' N	315° 20.2' 06° 37.7' N	315° 25.3' 06° 15.3' N	315° 30.5' 06° 52.9' N
10	329° 46.7' 09° 09.8' N	329° 51.3' 08° 48.3' N	329° 56.0' 08° 26.7' N	330° 00.7' 08° 05.0' N	330° 05.6' 07° 43.1' N	330° 10.5' 07° 21.1' N	330° 15.4' 06° 59.0' N	330° 20.5' 06° 36.7' N	330° 25.6' 06° 14.4' N	330° 30.7' 06° 52.0' N
11	344° 46.9' 09° 08.9' N	344° 51.5' 08° 47.4' N	344° 56.2' 08° 25.8' N	345° 00.9' 08° 04.1' N	345° 05.8' 07° 42.2' N	345° 10.7' 07° 20.2' N	345° 15.6' 06° 58.1' N	345° 20.7' 06° 35.8' N	345° 25.8' 06° 13.5' N	345° 30.9' 06° 51.0' N
12	359° 47.1' 09° 08.0' N	359° 51.7' 08° 46.5' N	359° 56.4' 08° 24.9' N	000° 01.1' 08° 03.2' N	000° 06.0' 07° 41.3' N	000° 10.9' 07° 19.3' N	000° 15.9' 06° 57.1' N	000° 20.9' 06° 34.9' N	000° 26.0' 06° 12.5' N	000° 31.1' 05° 50.1' N
13	014° 47.3' 09° 07.1' N	014° 51.9' 08° 45.6' N	014° 56.6' 08° 24.0' N	015° 01.3' 08° 02.2' N	015° 06.2' 07° 40.4' N	015° 11.1' 07° 18.3' N	015° 16.1' 06° 56.2' N	015° 21.1' 06° 34.0' N	015° 26.2' 06° 11.6' N	015° 31.4' 05° 49.2' N
14	029° 47.5' 09° 06.2' N	029° 52.1' 08° 44.7' N	029° 56.8' 08° 23.1' N	030° 01.5' 08° 01.3' N	030° 06.4' 07° 39.4' N	030° 11.3' 07° 17.4' N	030° 16.3' 06° 55.3' N	030° 21.3' 06° 33.0' N	030° 26.4' 06° 10.7' N	030° 31.6' 05° 48.2' N
15	044° 47.7' 09° 05.3' N	044° 52.3' 08° 43.8' N	044° 57.0' 08° 22.2' N	045° 01.7' 08° 00.4' N	045° 06.6' 07° 38.5' N	045° 11.5' 07° 16.5' N	045° 16.5' 06° 54.4' N	045° 21.5' 06° 32.1' N	045° 26.6' 06° 09.7' N	045° 31.8' 05° 47.3' N
16	059° 47.9' 09° 04.5' N	059° 52.5' 08° 42.9' N	059° 57.2' 08° 21.3' N	060° 01.9' 07° 59.5' N	060° 06.8' 07° 37.6' N	060° 11.7' 07° 15.6' N	060° 16.7' 06° 53.4' N	060° 21.7' 06° 31.2' N	060° 26.8' 06° 08.8' N	060° 32.0' 05° 46.3' N
17	074° 48.0' 09° 03.6' N	074° 52.7' 08° 42.0' N	074° 57.4' 08° 20.4' N	075° 02.1' 07° 58.6' N	075° 07.0' 07° 36.7' N	075° 11.9' 07° 14.7' N	075° 16.9' 06° 52.5' N	075° 21.9' 06° 30.2' N	075° 27.1' 06° 07.9' N	075° 32.2' 05° 45.4' N
18	089° 48.2' 09° 02.7' N	089° 52.9' 08° 41.1' N	089° 57.6' 08° 19.5' N	090° 02.3' 07° 57.7' N	090° 07.2' 07° 35.8' N	090° 12.1' 07° 13.7' N	090° 17.1' 06° 51.6' N	090° 22.2' 06° 29.3' N	090° 27.3' 06° 06.9' N	090° 32.4' 05° 44.5' N
19	104° 48.4' 09° 01.8' N	104° 53.0' 08° 40.2' N	104° 57.8' 08° 18.6' N	105° 02.5' 07° 56.8' N	105° 07.4' 07° 34.9' N	105° 12.3' 07° 12.8' N	105° 17.3' 06° 50.7' N	105° 22.4' 06° 28.4' N	105° 27.5' 06° 06.0' N	105° 32.6' 05° 43.5' N
20	119° 48.6' 09° 00.9' N	119° 53.2' 08° 39.3' N	119° 57.9' 08° 17.7' N	120° 02.7' 07° 55.9' N	120° 07.6' 07° 33.9' N	120° 12.5' 07° 11.9' N	120° 17.5' 06° 49.7' N	120° 22.6' 06° 27.5' N	120° 27.7' 06° 05.1' N	120° 32.9' 05° 42.6' N
21	134° 48.8' 09° 00.0' N	134° 53.4' 08° 38.4' N	134° 58.1' 08° 16.8' N	135° 02.9' 07° 55.0' N	135° 07.8' 07° 33.0' N	135° 12.7' 07° 11.0' N	135° 17.7' 06° 48.8' N	135° 22.8' 06° 26.5' N	135° 27.9' 06° 04.1' N	135° 33.1' 05° 41.7' N
22	149° 49.0' 08° 59.1' N	149° 53.6' 08° 37.5' N	149° 58.3' 08° 15.9' N	150° 03.1' 07° 54.0' N	150° 08.0' 07° 32.1' N	150° 12.9' 07° 10.1' N	150° 17.9' 06° 47.9' N	150° 23.0' 06° 25.6' N	150° 28.1' 06° 03.2' N	150° 33.3' 05° 40.7' N
23	164° 49.2' 08° 58.2' N	164° 53.8' 08° 36.6' N	164° 58.5' 08° 15.0' N	165° 03.3' 07° 53.1' N	165° 08.2' 07° 31.2' N	165° 13.1' 07° 09.1' N	165° 18.2' 06° 47.0' N	165° 23.3' 06° 24.7' N	165° 28.3' 06° 02.3' N	165° 33.5' 05° 39.8' N
UT	08 Sep	09 Sep	10 Sep	11 Sep	12 Sep	13 Sep	14 Sep	15 Sep	16 Sep	17 Sep
00	180° 33.7' 05° 38.8' N	180° 38.9' 05° 16.3' N	180° 44.2' 04° 53.6' N	180° 49.5' 04° 30.8' N	180° 54.8' 04° 08.0' N	181° 00.1' 03° 45.1' N	181° 05.5' 03° 22.1' N	181° 10.9' 02° 59.0' N	181° 16.2' 02° 35.9' N	181° 21.6' 02° 12.8' N
01	195° 33.9' 05° 37.9' N	195° 39.2' 05° 15.3' N	195° 44.4' 04° 52.6' N	195° 49.7' 04° 29.9' N	195° 55.0' 04° 07.0' N	196° 00.4' 03° 44.1' N	196° 05.7' 03° 21.1' N	196° 11.1' 02° 58.1' N	196° 16.4' 02° 35.0' N	196° 21.8' 02° 11.8' N
02	210° 34.2' 05° 37.0' N	210° 39.4' 05° 14.4' N	210° 44.6' 04° 51.7' N	210° 49.9' 04° 28.9' N	210° 55.3' 04° 06.1' N	211° 00.6' 03° 43.1' N	211° 05.9' 03° 20.2' N	211° 11.3' 02° 57.1' N	211° 16.7' 02° 34.0' N	211° 22.0' 02° 10.8' N
03	225° 34.4' 05° 36.0' N	225° 39.6' 05° 13.4' N	225° 44.9' 04° 50.7' N	225° 50.2' 04° 28.0' N	225° 55.5' 04° 05.1' N	226° 00.8' 03° 42.2' N	226° 06.2' 03° 19.2' N	226° 11.5' 02° 56.1' N	226° 16.9' 02° 33.0' N	226° 22.3' 02° 09.9' N
04	240° 34.6' 05° 35.1' N	240° 39.8' 05° 12.5' N	240° 45.1' 04° 49.8' N	240° 50.4' 04° 27.0' N	240° 55.7' 04° 04.2' N	241° 01.0' 03° 41.2' N	241° 06.4' 03° 18.2' N	241° 11.7' 02° 55.2' N	241° 17.1' 02° 32.1' N	241° 22.5' 02° 08.9' N
05	255° 34.8' 05° 34.1' N	255° 40.0' 05° 11.5' N	255° 45.3' 04° 48.8' N	255° 50.6' 04° 26.1' N	255° 55.9' 04° 03.2' N	256° 01.3' 03° 40.3' N	256° 06.6' 03° 17.3' N	256° 12.0' 02° 54.2' N	256° 17.3' 02° 31.1' N	256° 22.7' 02° 07.9' N
06	270° 35.0' 05° 33.2' N	270° 40.3' 05° 10.6' N	270° 45.5' 04° 47.9' N	270° 50.8' 04° 25.1' N	270° 56.1' 04° 02.2' N	271° 01.5' 03° 39.3' N	271° 06.8' 03° 16.3' N	271° 12.2' 02° 53.3' N	271° 17.6' 02° 30.1' N	271° 22.9' 02° 07.0' N
07	285° 35.2' 05° 32.3' N	285° 40.5' 05° 09.6' N	285° 45.7' 04° 46.9' N	285° 51.0' 04° 24.2' N	285° 56.4' 04° 01.3' N	286° 01.7' 03° 38.4' N	286° 07.1' 03° 15.4' N	286° 12.4' 02° 52.3' N	286° 17.8' 02° 29.2' N	286° 23.1' 02° 06.0' N
08	300° 35.5' 05° 31.3' N	300° 40.7' 05° 08.7' N	300° 46.0' 04° 46.0' N	300° 51.3' 04° 23.2' N	300° 56.6' 04° 00.3' N	301° 01.9' 03° 37.4' N	301° 07.3' 03° 14.4' N	301° 12.6' 02° 51.3' N	301° 18.0' 02° 28.2' N	301° 23.4' 02° 05.0' N
09	315° 35.7' 05° 30.4' N	315° 40.9' 05° 07.8' N	315° 46.2' 04° 45.0' N	315° 51.5' 04° 22.3' N	315° 56.8' 03° 59.4' N	316° 02.2' 03° 36.4' N	316° 07.5' 03° 13.4' N	316° 12.9' 02° 50.4' N	316° 18.2' 02° 27.2' N	316° 23.6' 02° 04.1' N
10	330° 35.9' 05° 29.4' N	330° 41.1' 05° 06.8' N	330° 46.4' 04° 44.1' N	330° 51.7' 04° 21.3' N	330° 57.0' 03° 58.4' N	331° 02.4' 03° 35.5' N	331° 07.7' 03° 12.5' N	331° 13.1' 02° 49.4' N	331° 18.5' 02° 26.3' N	331° 23.8' 02° 03.1' N
11	345° 36.1' 05° 28.5' N	345° 41.4' 05° 05.9' N	345° 46.6' 04° 43.1' N	345° 51.9' 04° 20.4' N	345° 57.3' 03° 57.5' N	346° 02.6' 03° 34.5' N	346° 08.0' 03° 11.5' N	346° 13.3' 02° 48.4' N	346° 18.7' 02° 25.3' N	346° 24.0' 02° 02.1' N
12	000° 36.3' 05° 27.6' N	000° 41.6' 05° 04.9' N	000° 46.8' 04° 42.2' N	000° 52.1' 04° 19.4' N	000° 57.5' 03° 56.5' N	001° 02.8' 03° 33.6' N	001° 08.2' 03° 10.6' N	001° 13.5' 02° 47.5' N	001° 18.9' 02° 24.3' N	001° 24.3' 02° 01.2' N
13	015° 36.6' 05° 26.6' N	015° 41.8' 05° 04.0' N	015° 47.1' 04° 41.3' N	015° 52.4' 04° 18.4' N	015° 57.7' 03° 55.6' N	016° 03.0' 03° 32.6' N	016° 08.4' 03° 09.6' N	016° 13.8' 02° 46.5' N	016° 19.1' 02° 23.4' N	016° 24.5' 02° 00.2' N
14	030° 36.8' 05° 25.7' N	030° 42.0' 05° 03.0' N	030° 47.3' 04° 40.3' N	030° 52.6' 04° 17.5' N	030° 57.9' 03° 54.6' N	031° 03.3' 03° 31.7' N	031° 08.6' 03° 08.6' N	031° 14.0' 02° 45.6' N	031° 19.3' 02° 22.4' N	031° 24.7' 02° 59.2' N
15	045° 37.0' 05° 24.7' N	045° 42.2' 05° 02.1' N	045° 47.5' 04° 39.4' N	045° 52.8' 04° 16.5' N	045° 58.1' 03° 53.7' N	046° 03.5' 03° 30.7' N	046° 08.8' 03° 07.7' N	046° 14.2' 02° 44.6' N	046° 19.6' 02° 21.5' N	046° 24.9' 01° 58.3' N
16	060° 37.2' 05° 23.8' N	060° 42.4' 05° 01.1' N	060° 47.7' 04° 38.4' N	060° 53.0' 04° 15.6' N	060° 58.4' 03° 52.7' N	061° 03.7' 03° 29.7' N	061° 09.1' 03° 06.7' N	061° 14.4' 02° 43.6' N	061° 19.8' 02° 20.5' N	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 18 Sep to 07 Oct

UT	18 Sep	19 Sep	20 Sep	21 Sep	22 Sep	23 Sep	24 Sep	25 Sep	26 Sep	27 Sep
00	181° 26.9' 01° 49.6' N	181° 32.3' 01° 26.3' N	181° 37.6' 01° 03.0' N	181° 42.9' 00° 39.7' N	181° 48.2' 00° 16.4' N	181° 53.5' 00° 06.9' S	181° 58.7' 00° 30.3' S	182° 03.9' 00° 53.7' S	182° 09.1' 01° 17.0' S	182° 14.2' 01° 40.4' S
01	196° 27.2' 01° 48.6' N	196° 32.5' 01° 25.3' N	196° 37.8' 01° 02.1' N	196° 43.2' 00° 38.8' N	196° 48.4' 00° 15.4' N	196° 53.7' 00° 07.9' S	196° 58.9' 00° 31.3' S	197° 04.1' 00° 54.6' S	197° 09.3' 01° 18.0' S	197° 14.4' 01° 41.4' S
02	211° 27.4' 01° 47.6' N	211° 32.7' 01° 24.4' N	211° 38.1' 01° 01.1' N	211° 43.4' 00° 37.8' N	211° 48.7' 00° 14.5' N	211° 53.9' 00° 08.9' S	211° 59.2' 00° 32.3' S	212° 04.4' 00° 55.6' S	212° 09.5' 01° 19.0' S	212° 14.6' 01° 42.3' S
03	226° 27.6' 01° 46.7' N	226° 33.0' 01° 23.4' N	226° 38.3' 01° 00.1' N	226° 43.6' 00° 36.8' N	226° 48.9' 00° 13.5' N	226° 54.1' 00° 09.9' S	226° 59.4' 00° 33.2' S	227° 04.6' 00° 56.6' S	227° 09.7' 01° 19.9' S	227° 14.8' 01° 43.3' S
04	241° 27.8' 01° 45.7' N	241° 33.2' 01° 22.4' N	241° 38.5' 00° 59.2' N	241° 43.8' 00° 35.8' N	241° 49.1' 00° 12.5' N	241° 54.4' 00° 10.8' S	241° 59.6' 00° 34.2' S	242° 04.8' 00° 57.6' S	242° 09.9' 01° 20.9' S	242° 15.0' 01° 44.3' S
05	256° 28.1' 01° 44.7' N	256° 33.4' 01° 21.5' N	256° 38.7' 00° 58.2' N	256° 44.0' 00° 34.9' N	256° 49.3' 00° 11.5' N	256° 54.6' 00° 11.8' S	256° 59.8' 00° 35.2' S	257° 05.0' 00° 58.5' S	257° 10.1' 01° 21.9' S	257° 15.2' 01° 45.3' S
06	271° 28.3' 01° 43.8' N	271° 33.6' 01° 20.5' N	271° 39.0' 00° 57.2' N	271° 44.3' 00° 33.9' N	271° 49.5' 00° 10.6' N	271° 54.8' 00° 12.8' S	272° 00.0' 00° 36.1' S	272° 05.2' 00° 59.5' S	272° 10.4' 01° 21.9' S	272° 15.5' 01° 46.2' S
07	286° 28.5' 01° 42.8' N	286° 33.8' 01° 19.5' N	286° 39.2' 00° 56.2' N	286° 44.5' 00° 32.9' N	286° 49.8' 00° 09.6' N	286° 55.0' 00° 13.8' S	287° 00.2' 00° 37.1' S	287° 05.4' 01° 00.5' S	287° 10.6' 01° 23.8' S	287° 15.7' 01° 47.2' S
08	301° 28.7' 01° 41.8' N	301° 34.1' 01° 18.6' N	301° 39.4' 00° 55.3' N	301° 44.7' 00° 32.0' N	301° 50.0' 00° 08.6' N	301° 55.2' 00° 14.7' S	302° 00.5' 00° 38.1' S	302° 05.6' 01° 01.5' S	302° 10.8' 01° 24.8' S	302° 15.9' 01° 48.2' S
09	316° 28.9' 01° 40.8' N	316° 34.3' 01° 17.6' N	316° 39.6' 00° 54.3' N	316° 44.9' 00° 31.0' N	316° 50.2' 00° 07.6' N	316° 55.5' 00° 15.7' S	317° 00.7' 00° 39.1' S	317° 05.9' 01° 02.4' S	317° 11.0' 01° 25.8' S	317° 16.1' 01° 49.1' S
10	331° 29.2' 01° 39.9' N	331° 34.5' 01° 16.6' N	331° 39.8' 00° 53.3' N	331° 45.1' 00° 30.0' N	331° 50.4' 00° 06.7' N	331° 55.7' 00° 16.7' S	332° 00.9' 00° 40.0' S	332° 06.1' 01° 03.4' S	332° 11.2' 01° 26.8' S	332° 16.3' 01° 50.1' S
11	346° 29.4' 01° 38.9' N	346° 34.7' 01° 15.7' N	346° 40.1' 00° 52.4' N	346° 45.4' 00° 29.0' N	346° 50.6' 00° 05.7' N	346° 55.9' 00° 17.7' S	347° 01.1' 00° 41.0' S	347° 06.3' 01° 04.4' S	347° 11.4' 01° 27.7' S	347° 16.5' 01° 51.1' S
12	001° 29.6' 01° 37.9' N	001° 35.0' 01° 14.7' N	001° 40.3' 00° 51.4' N	001° 45.6' 00° 28.1' N	001° 50.9' 00° 04.7' N	001° 56.1' 00° 18.6' S	002° 01.3' 00° 42.0' S	002° 06.5' 01° 05.3' S	002° 11.6' 01° 28.6' S	002° 16.7' 01° 52.1' S
13	016° 29.8' 01° 37.0' N	016° 35.2' 01° 13.7' N	016° 40.5' 00° 50.4' N	016° 45.8' 00° 27.1' N	016° 51.1' 00° 03.8' N	016° 56.3' 00° 19.6' S	017° 01.5' 00° 43.0' S	017° 06.7' 01° 06.3' S	017° 11.8' 01° 29.6' S	017° 16.9' 01° 53.0' S
14	031° 30.1' 01° 36.0' N	031° 35.4' 01° 12.7' N	031° 40.7' 00° 49.4' N	031° 46.0' 00° 26.1' N	031° 51.3' 00° 02.8' N	031° 56.5' 00° 20.6' S	032° 01.8' 00° 43.9' S	032° 06.9' 01° 07.3' S	032° 12.1' 01° 30.7' S	032° 17.1' 01° 54.0' S
15	046° 30.3' 01° 35.0' N	046° 35.6' 01° 11.8' N	046° 40.9' 00° 48.5' N	046° 46.2' 00° 25.2' N	046° 51.5' 00° 01.8' N	046° 56.8' 00° 21.5' S	047° 02.0' 00° 44.9' S	047° 07.1' 01° 08.3' S	047° 12.3' 01° 31.6' S	047° 17.4' 01° 55.0' S
16	061° 30.5' 01° 34.1' N	061° 35.8' 01° 10.8' N	061° 41.2' 00° 47.5' N	061° 46.5' 00° 24.2' N	061° 51.7' 00° 00.8' N	061° 57.0' 00° 22.5' S	062° 02.2' 00° 45.9' S	062° 07.4' 01° 09.2' S	062° 12.5' 01° 32.6' S	062° 17.6' 01° 56.0' S
17	076° 30.7' 01° 33.1' N	076° 36.1' 01° 09.8' N	076° 41.4' 00° 46.5' N	076° 46.7' 00° 23.2' N	076° 52.0' 00° 00.1' S	076° 57.2' 00° 23.5' S	077° 02.4' 00° 46.9' S	077° 07.6' 01° 10.2' S	077° 12.7' 01° 33.6' S	077° 17.8' 01° 56.9' S
18	091° 31.0' 01° 32.1' N	091° 36.3' 01° 08.9' N	091° 41.6' 00° 45.6' N	091° 46.9' 00° 22.2' N	091° 52.2' 00° 01.1' S	091° 57.4' 00° 24.5' S	092° 02.6' 00° 47.8' S	092° 07.8' 01° 11.2' S	092° 12.9' 01° 34.5' S	092° 18.0' 01° 57.9' S
19	106° 31.2' 01° 31.2' N	106° 36.5' 01° 07.9' N	106° 41.8' 00° 44.6' N	106° 47.1' 00° 21.3' N	106° 52.4' 00° 02.1' S	106° 57.6' 00° 25.4' S	107° 02.8' 00° 48.8' S	107° 08.0' 01° 12.2' S	107° 13.1' 01° 35.5' S	107° 18.2' 01° 58.9' S
20	121° 31.4' 01° 30.2' N	121° 36.7' 01° 06.9' N	121° 42.1' 00° 43.6' N	121° 47.3' 00° 20.3' N	121° 52.6' 00° 03.1' S	121° 57.9' 00° 26.4' S	122° 03.1' 00° 49.8' S	122° 08.2' 01° 13.1' S	122° 13.3' 01° 36.5' S	122° 18.4' 01° 59.8' S
21	136° 31.6' 01° 29.2' N	136° 37.0' 01° 05.9' N	136° 42.3' 00° 42.6' N	136° 47.6' 00° 19.3' N	136° 52.8' 00° 04.0' S	136° 58.1' 00° 27.4' S	137° 03.3' 00° 50.7' S	137° 08.4' 01° 14.1' S	137° 13.5' 01° 37.4' S	137° 18.6' 02° 00.8' S
22	151° 31.8' 01° 28.3' N	151° 37.2' 01° 05.0' N	151° 42.5' 00° 41.7' N	151° 47.8' 00° 18.3' N	151° 53.1' 00° 05.0' S	151° 58.3' 00° 28.4' S	152° 03.5' 00° 51.7' S	152° 08.6' 01° 15.1' S	152° 13.8' 01° 38.4' S	152° 18.8' 02° 01.8' S
23	166° 32.1' 01° 27.3' N	166° 37.4' 01° 04.0' N	166° 42.7' 00° 40.7' N	166° 48.0' 00° 17.4' N	166° 53.3' 00° 06.0' S	166° 58.5' 00° 29.3' S	167° 03.7' 00° 52.7' S	167° 08.9' 01° 16.1' S	167° 14.0' 01° 39.4' S	167° 19.0' 02° 02.8' S
UT	28 Sep	29 Sep	30 Sep	01 Oct	02 Oct	03 Oct	04 Oct	05 Oct	06 Oct	07 Oct
00	182° 19.2' 02° 03.7' S	182° 24.3' 02° 27.1' S	182° 29.2' 02° 50.4' S	182° 34.1' 03° 13.6' S	182° 38.9' 03° 36.9' S	182° 43.6' 04° 00.1' S	182° 48.3' 04° 23.2' S	182° 52.9' 04° 46.3' S	182° 57.4' 05° 09.3' S	183° 01.8' 05° 32.3' S
01	197° 19.5' 02° 04.7' S	197° 24.5' 02° 28.0' S	197° 29.4' 02° 51.3' S	197° 34.3' 03° 14.6' S	197° 39.1' 03° 37.8' S	197° 43.8' 04° 01.0' S	197° 48.5' 04° 24.2' S	197° 53.1' 04° 47.3' S	197° 57.6' 05° 10.3' S	198° 02.0' 05° 33.2' S
02	212° 19.7' 02° 05.7' S	212° 24.7' 02° 29.0' S	212° 29.6' 02° 52.3' S	212° 34.5' 03° 15.6' S	212° 39.3' 03° 38.8' S	212° 44.0' 04° 02.0' S	212° 48.7' 04° 25.1' S	212° 53.3' 04° 48.2' S	212° 57.8' 05° 11.2' S	213° 02.2' 05° 34.2' S
03	227° 19.9' 02° 06.6' S	227° 24.9' 02° 30.0' S	227° 29.8' 02° 53.3' S	227° 34.7' 03° 16.5' S	227° 39.5' 03° 39.8' S	227° 44.2' 04° 03.0' S	227° 48.9' 04° 26.1' S	227° 53.5' 04° 49.2' S	227° 57.9' 05° 12.2' S	228° 02.3' 05° 35.2' S
04	242° 20.1' 02° 07.6' S	242° 25.1' 02° 30.9' S	242° 30.0' 02° 54.2' S	242° 34.9' 03° 17.5' S	242° 39.7' 03° 40.7' S	242° 44.4' 04° 03.9' S	242° 49.1' 04° 27.1' S	242° 53.8' 04° 50.1' S	242° 58.1' 05° 13.2' S	243° 02.5' 05° 36.1' S
05	257° 20.3' 02° 08.6' S	257° 25.3' 02° 31.9' S	257° 30.2' 02° 55.2' S	257° 35.1' 03° 18.5' S	257° 39.9' 03° 41.7' S	257° 44.6' 04° 04.9' S	257° 49.3' 04° 28.0' S	257° 53.8' 04° 51.1' S	257° 58.3' 05° 14.1' S	258° 02.7' 05° 37.1' S
06	272° 20.5' 02° 09.6' S	272° 25.5' 02° 32.9' S	272° 30.4' 02° 56.2' S	272° 35.3' 03° 19.4' S	272° 40.1' 03° 42.7' S	272° 44.8' 04° 05.8' S	272° 49.5' 04° 29.0' S	272° 54.0' 04° 52.1' S	272° 58.5' 05° 15.1' S	273° 02.9' 05° 38.0' S
07	287° 20.7' 02° 10.5' S	287° 25.7' 02° 33.9' S	287° 30.6' 02° 57.1' S	287° 35.5' 03° 20.4' S	287° 40.3' 03° 43.6' S	287° 45.0' 04° 06.8' S	287° 49.7' 04° 29.9' S	287° 54.2' 04° 53.0' S	287° 58.7' 05° 16.0' S	288° 03.1' 05° 39.0' S
08	302° 20.9' 02° 11.5' S	302° 25.9' 02° 34.8' S	302° 30.8' 02° 58.1' S	302° 35.7' 03° 21.4' S	302° 40.5' 03° 44.6' S	302° 45.2' 04° 07.8' S	302° 49.8' 04° 30.9' S	302° 54.4' 04° 54.0' S	302° 58.9' 05° 17.0' S	303° 03.2' 05° 39.9' S
09	317° 21.1' 02° 12.5' S	317° 26.1' 02° 35.8' S	317° 31.0' 02° 59.1' S	317° 35.9' 03° 22.3' S	317° 40.7' 03° 45.6' S	317° 45.4' 04° 08.7' S	317° 50.0' 04° 31.9' S	317° 54.6' 04° 55.9' S	317° 59.1' 05° 17.9' S	318° 03.4' 05° 40.9' S
10	332° 21.3' 02° 13.5' S	332° 26.3' 02° 36.8' S	332° 31.2' 03° 00.1' S	332° 36.1' 03° 23.3' S	332° 40.9' 03° 46.5' S	332° 45.6' 04° 09.7' S	332° 50.2' 04° 32.8' S	332° 54.8' 04° 55.9' S	332° 59.2' 05° 18.9' S	333° 03.6' 05° 41.8' S
11	347° 21.5' 02° 14.4' S	347° 26.5' 02° 37.7' S	347° 31.4' 03° 01.0' S	347° 36.3' 03° 24.3' S	347° 41.1' 03° 47.5' S	347° 45.8' 04° 10.7' S	347° 50.4' 04° 33.8' S	347° 55.0' 04° 56.9' S	347° 59.4' 05° 19.9' S	348° 03.8' 05° 42.8' S
12	002° 21.8' 02° 15.4' S	002° 26.7' 02° 38.7' S	002° 31.6' 03° 02.0' S	002° 36.5' 03° 25.3' S	002° 41.3' 03° 48.5' S	002° 46.0' 04° 11.6' S	002° 50.6' 04° 34.8' S	002° 55.2' 04° 57.8' S	002° 59.6' 05° 20.8' S	003° 04.0' 05° 43.7' S
13	017° 22.0' 02° 16.4' S	017° 26.9' 02° 39.7' S	017° 31.9' 03° 03.0' S	017° 36.7' 03° 26.2' S	017° 41.5' 03° 49.4' S	017° 46.2' 04° 12.6' S	017° 50.8' 04° 35.7' S	017° 55.3' 04° 58.8' S	017° 59.8' 05° 21.8' S	018° 04.1' 05° 44.7' S
14	032° 22.2' 02° 17.3' S	032° 27.1' 02° 40.7' S	032° 32.1' 03° 03.9' S	032° 36.9' 03° 27.2' S	032° 41.7' 03° 50.4' S	032° 46.4' 04° 13.6' S	032° 51.0' 04° 36.7' S	032° 55.5' 04° 59.7' S	033° 00.0' 05° 22.7' S	033° 04.3' 05° 45.7' S
15	047° 22.4' 02° 18.3' S	047° 27.4' 02° 41.6' S	047° 32.3' 03° 04.9' S	047° 37.1' 03° 28.2' S	047° 41.9' 03° 51.4' S	047° 46.6' 04° 14.5' S	047° 51.2' 04° 37.6' S	047° 55.7' 05° 00.7' S	048° 00.2' 05° 23.7' S	048° 04.5' 05° 46.6' S
16	062° 22.6' 02° 19.3' S	062° 27.6' 02° 42.6' S	062° 32.5' 03° 05.9' S	062° 37.3' 03° 29.1' S	062° 42.1' 03° 52.3' S	062° 46.8' 04° 15.5' S	062° 51.4' 04° 38.6' S	062° 55.9' 05° 01.7' S	063° 00.3' 05° 24.6' S	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 08 Oct to 27 Oct

UT	08 Oct	09 Oct	10 Oct	11 Oct	12 Oct	13 Oct	14 Oct	15 Oct	16 Oct	17 Oct
00	183° 06.1' 05° 55.2' S	183° 10.3' 06° 18.0' S	183° 14.4' 06° 40.7' S	183° 18.3' 07° 03.4' S	183° 22.2' 07° 25.9' S	183° 25.9' 07° 48.4' S	183° 29.4' 08° 10.7' S	183° 32.9' 08° 33.0' S	183° 36.2' 08° 55.1' S	183° 39.3' 09° 17.1' S
01	198° 06.3' 05° 56.1' S	198° 10.5' 06° 18.9' S	198° 14.5' 06° 41.7' S	198° 18.5' 07° 04.3' S	198° 22.3' 07° 26.9' S	198° 26.0' 07° 49.3' S	198° 29.6' 08° 11.7' S	198° 33.4' 08° 33.9' S	198° 36.3' 08° 56.0' S	198° 39.4' 09° 18.0' S
02	213° 06.4' 05° 57.1' S	213° 10.6' 06° 19.9' S	213° 14.7' 06° 42.6' S	213° 18.7' 07° 05.3' S	213° 22.5' 07° 27.8' S	213° 26.2' 07° 50.2' S	213° 29.7' 08° 12.6' S	213° 33.2' 08° 34.8' S	213° 36.4' 08° 56.9' S	213° 39.6' 09° 18.9' S
03	228° 06.6' 05° 58.0' S	228° 10.8' 06° 20.8' S	228° 14.9' 06° 43.6' S	228° 18.8' 07° 06.2' S	228° 22.6' 07° 28.7' S	228° 26.3' 07° 51.2' S	228° 29.9' 08° 13.5' S	228° 33.3' 08° 35.7' S	228° 36.6' 08° 57.8' S	228° 39.7' 09° 19.8' S
04	243° 06.8' 05° 59.0' S	243° 11.0' 06° 21.8' S	243° 15.0' 06° 44.5' S	243° 19.0' 07° 07.1' S	243° 22.8' 07° 29.7' S	243° 26.5' 07° 52.1' S	243° 30.0' 08° 14.4' S	243° 33.4' 08° 36.6' S	243° 36.7' 08° 58.7' S	243° 39.8' 09° 20.7' S
05	258° 07.0' 05° 59.9' S	258° 11.1' 06° 22.7' S	258° 15.2' 06° 45.5' S	258° 19.1' 07° 08.1' S	258° 22.9' 07° 30.6' S	258° 26.6' 07° 53.0' S	258° 30.2' 08° 15.4' S	258° 33.6' 08° 37.6' S	258° 36.8' 08° 59.7' S	258° 39.9' 09° 21.6' S
06	273° 07.1' 06° 00.9' S	273° 11.3' 06° 23.7' S	273° 15.4' 06° 46.4' S	273° 19.3' 07° 09.0' S	273° 23.1' 07° 31.6' S	273° 26.8' 07° 54.0' S	273° 30.3' 08° 16.3' S	273° 33.7' 08° 38.5' S	273° 37.0' 09° 00.6' S	273° 40.1' 09° 22.5' S
07	288° 07.3' 06° 01.8' S	288° 11.5' 06° 24.6' S	288° 15.5' 06° 47.3' S	288° 19.5' 07° 10.0' S	288° 23.3' 07° 32.5' S	288° 26.9' 07° 54.9' S	288° 30.5' 08° 17.2' S	288° 33.8' 08° 39.4' S	288° 37.1' 09° 01.5' S	288° 40.2' 09° 23.4' S
08	303° 07.5' 06° 02.8' S	303° 11.7' 06° 25.6' S	303° 15.7' 06° 48.3' S	303° 19.6' 07° 10.9' S	303° 23.4' 07° 33.4' S	303° 27.1' 07° 55.8' S	303° 30.6' 08° 18.1' S	303° 34.0' 08° 40.3' S	303° 37.2' 09° 02.4' S	303° 40.3' 09° 24.4' S
09	318° 07.7' 06° 03.7' S	318° 11.8' 06° 26.5' S	318° 15.9' 06° 49.2' S	318° 19.8' 07° 11.8' S	318° 23.6' 07° 34.4' S	318° 27.2' 07° 56.8' S	318° 30.7' 08° 19.1' S	318° 34.1' 08° 41.3' S	318° 37.4' 09° 03.3' S	318° 40.4' 09° 25.3' S
10	333° 07.9' 06° 04.7' S	333° 12.0' 06° 27.5' S	333° 16.0' 06° 50.2' S	333° 19.9' 07° 12.8' S	333° 23.7' 07° 35.3' S	333° 27.4' 07° 57.7' S	333° 30.9' 08° 20.0' S	333° 34.3' 08° 42.2' S	333° 37.5' 09° 04.2' S	333° 40.6' 09° 26.2' S
11	348° 08.0' 06° 05.6' S	348° 12.2' 06° 28.4' S	348° 16.2' 06° 51.1' S	348° 20.1' 07° 13.7' S	348° 23.9' 07° 36.2' S	348° 27.5' 07° 58.6' S	348° 31.0' 08° 20.9' S	348° 34.4' 08° 43.1' S	348° 37.6' 09° 05.2' S	348° 40.7' 09° 27.1' S
12	003° 08.2' 06° 06.6' S	003° 12.3' 06° 29.4' S	003° 16.4' 06° 52.1' S	003° 20.3' 07° 14.7' S	003° 24.0' 07° 37.2' S	003° 27.7' 07° 59.6' S	003° 31.2' 08° 21.9' S	003° 34.5' 08° 44.0' S	003° 37.8' 09° 06.1' S	003° 40.8' 09° 28.0' S
13	018° 08.4' 06° 07.6' S	018° 12.5' 06° 30.3' S	018° 16.5' 06° 53.0' S	018° 20.4' 07° 15.6' S	018° 24.2' 07° 38.1' S	018° 27.8' 08° 00.5' S	018° 31.3' 08° 22.8' S	018° 34.7' 08° 44.9' S	018° 37.9' 09° 07.0' S	018° 40.9' 09° 28.9' S
14	033° 08.6' 06° 08.5' S	033° 12.7' 06° 31.3' S	033° 16.7' 06° 54.0' S	033° 20.6' 07° 16.5' S	033° 24.3' 07° 39.0' S	033° 28.0' 08° 01.4' S	033° 31.5' 08° 23.7' S	033° 34.8' 08° 45.9' S	033° 38.0' 09° 07.9' S	033° 41.1' 09° 29.8' S
15	048° 08.7' 06° 09.5' S	048° 12.8' 06° 32.2' S	048° 16.9' 06° 54.9' S	048° 20.7' 07° 17.5' S	048° 24.5' 07° 40.0' S	048° 28.1' 08° 02.4' S	048° 31.6' 08° 24.6' S	048° 34.9' 08° 46.8' S	048° 38.1' 09° 08.8' S	048° 41.2' 09° 30.7' S
16	063° 08.9' 06° 10.4' S	063° 13.0' 06° 33.2' S	063° 17.0' 06° 55.8' S	063° 20.9' 07° 18.4' S	063° 24.7' 07° 40.9' S	063° 28.3' 08° 03.3' S	063° 31.7' 08° 25.6' S	063° 35.1' 08° 47.7' S	063° 38.3' 09° 09.7' S	063° 41.3' 09° 31.6' S
17	078° 09.1' 06° 11.4' S	078° 13.2' 06° 34.1' S	078° 17.2' 06° 56.8' S	078° 21.1' 07° 19.4' S	078° 24.8' 07° 41.8' S	078° 28.4' 08° 04.2' S	078° 31.9' 08° 26.5' S	078° 35.2' 08° 48.6' S	078° 38.4' 09° 10.7' S	078° 41.4' 09° 32.5' S
18	093° 09.2' 06° 12.3' S	093° 13.4' 06° 35.1' S	093° 17.3' 06° 57.7' S	093° 21.3' 07° 20.3' S	093° 25.0' 07° 42.8' S	093° 28.6' 08° 05.1' S	093° 32.0' 08° 27.4' S	093° 35.4' 08° 49.6' S	093° 38.5' 09° 11.6' S	093° 41.6' 09° 33.5' S
19	108° 09.4' 06° 13.3' S	108° 13.5' 06° 36.0' S	108° 17.5' 06° 58.7' S	108° 21.4' 07° 21.2' S	108° 25.1' 07° 43.7' S	108° 28.7' 08° 06.1' S	108° 32.2' 08° 28.3' S	108° 35.5' 08° 50.5' S	108° 38.7' 09° 12.5' S	108° 41.7' 09° 34.4' S
20	123° 09.6' 06° 14.2' S	123° 13.7' 06° 36.9' S	123° 17.7' 06° 59.6' S	123° 21.5' 07° 22.2' S	123° 25.3' 07° 44.6' S	123° 28.9' 08° 07.0' S	123° 32.3' 08° 29.3' S	123° 35.6' 08° 51.4' S	123° 38.8' 09° 13.4' S	123° 41.8' 09° 35.3' S
21	138° 09.8' 06° 15.2' S	138° 13.9' 06° 37.9' S	138° 17.8' 07° 00.6' S	138° 21.7' 07° 23.1' S	138° 25.4' 07° 45.6' S	138° 29.0' 08° 07.9' S	138° 32.5' 08° 30.2' S	138° 35.8' 08° 52.3' S	138° 38.9' 09° 14.3' S	138° 41.9' 09° 36.2' S
22	153° 09.9' 06° 16.1' S	153° 14.0' 06° 38.8' S	153° 18.0' 07° 01.5' S	153° 21.8' 07° 24.1' S	153° 25.6' 07° 46.5' S	153° 29.2' 08° 08.9' S	153° 32.6' 08° 31.1' S	153° 35.9' 08° 53.2' S	153° 39.0' 09° 15.2' S	153° 42.0' 09° 37.1' S
23	168° 10.1' 06° 17.0' S	168° 14.2' 06° 39.8' S	168° 18.2' 07° 02.4' S	168° 22.0' 07° 25.0' S	168° 25.7' 07° 47.4' S	168° 29.3' 08° 09.8' S	168° 32.7' 08° 32.0' S	168° 36.0' 08° 54.1' S	168° 39.2' 09° 16.1' S	168° 42.2' 09° 38.0' S
UT	18 Oct	19 Oct	20 Oct	21 Oct	22 Oct	23 Oct	24 Oct	25 Oct	26 Oct	27 Oct
00	183° 42.3' 09° 38.9' S	183° 45.1' 10° 00.6' S	183° 47.8' 10° 22.2' S	183° 50.3' 10° 43.6' S	183° 52.6' 11° 04.9' S	183° 54.8' 11° 26.0' S	183° 56.8' 11° 46.9' S	183° 58.6' 12° 07.6' S	184° 00.3' 12° 28.2' S	184° 01.7' 12° 48.6' S
01	198° 42.4' 09° 39.8' S	198° 45.2' 10° 01.5' S	198° 47.9' 10° 23.1' S	198° 50.4' 10° 44.5' S	198° 52.7' 11° 05.8' S	198° 54.9' 11° 26.8' S	198° 56.9' 11° 47.8' S	198° 58.7' 12° 08.5' S	199° 00.3' 12° 29.1' S	199° 01.8' 12° 49.4' S
02	213° 42.5' 09° 40.7' S	213° 45.3' 10° 02.4' S	213° 48.0' 10° 24.0' S	213° 50.5' 10° 45.4' S	213° 52.8' 11° 06.6' S	213° 55.0' 11° 27.7' S	213° 57.0' 11° 48.6' S	213° 58.8' 12° 09.4' S	214° 00.4' 12° 30.0' S	214° 01.8' 12° 50.2' S
03	228° 42.6' 09° 41.6' S	228° 45.5' 10° 03.3' S	228° 48.1' 10° 24.9' S	228° 50.6' 10° 46.3' S	228° 52.9' 11° 07.5' S	228° 55.1' 11° 28.6' S	228° 57.0' 11° 49.5' S	228° 58.8' 12° 10.2' S	229° 00.4' 12° 30.7' S	229° 01.9' 12° 51.1' S
04	243° 42.8' 09° 42.5' S	243° 45.6' 10° 04.2' S	243° 48.2' 10° 25.8' S	243° 50.7' 10° 47.2' S	243° 53.0' 11° 08.4' S	243° 55.1' 11° 29.5' S	243° 57.1' 11° 50.4' S	243° 58.9' 12° 11.1' S	244° 00.5' 12° 31.6' S	244° 01.9' 12° 51.9' S
05	258° 42.9' 09° 43.4' S	258° 45.7' 10° 05.1' S	258° 48.3' 10° 26.7' S	258° 50.8' 10° 48.1' S	258° 53.1' 11° 09.3' S	258° 55.2' 11° 30.3' S	258° 57.2' 11° 51.2' S	258° 59.0' 12° 11.9' S	259° 00.6' 12° 32.4' S	259° 02.0' 12° 52.8' S
06	273° 43.0' 09° 44.4' S	273° 45.8' 10° 06.0' S	273° 48.4' 10° 27.6' S	273° 50.9' 10° 48.9' S	273° 53.2' 11° 10.2' S	273° 55.3' 11° 31.2' S	273° 57.3' 11° 52.1' S	273° 59.0' 12° 12.8' S	274° 00.6' 12° 33.3' S	274° 02.1' 12° 53.6' S
07	288° 43.1' 09° 45.3' S	288° 45.9' 10° 06.9' S	288° 48.5' 10° 28.5' S	288° 51.0' 10° 49.8' S	288° 53.3' 11° 11.0' S	288° 55.4' 11° 32.1' S	288° 57.3' 11° 53.0' S	288° 59.1' 12° 13.6' S	289° 00.7' 12° 34.1' S	289° 02.1' 12° 54.5' S
08	303° 43.2' 09° 46.2' S	303° 46.0' 10° 07.8' S	303° 48.6' 10° 29.4' S	303° 51.1' 10° 50.7' S	303° 53.4' 11° 11.9' S	303° 55.5' 11° 33.0' S	303° 57.4' 11° 53.8' S	303° 59.2' 12° 14.5' S	304° 00.8' 12° 35.0' S	304° 02.2' 12° 55.3' S
09	318° 43.4' 09° 47.1' S	318° 46.1' 10° 08.7' S	318° 48.7' 10° 30.2' S	318° 51.2' 10° 51.6' S	318° 53.5' 11° 12.8' S	318° 55.6' 11° 33.8' S	318° 57.5' 11° 54.7' S	318° 59.2' 12° 15.4' S	319° 00.8' 12° 35.9' S	319° 02.2' 12° 56.1' S
10	333° 43.5' 09° 48.0' S	333° 46.2' 10° 09.6' S	333° 48.8' 10° 31.1' S	333° 51.3' 10° 52.5' S	333° 53.6' 11° 13.7' S	333° 55.6' 11° 34.7' S	333° 57.6' 11° 55.6' S	333° 59.3' 12° 16.2' S	334° 00.9' 12° 36.7' S	334° 02.3' 12° 57.0' S
11	348° 43.6' 09° 48.9' S	348° 46.4' 10° 10.5' S	348° 49.0' 10° 32.0' S	348° 51.4' 10° 53.4' S	348° 53.6' 11° 14.6' S	348° 55.7' 11° 35.6' S	348° 57.6' 11° 56.4' S	348° 59.4' 12° 17.1' S	349° 00.9' 12° 37.5' S	349° 02.3' 12° 57.8' S
12	003° 43.7' 09° 49.8' S	003° 46.5' 10° 11.4' S	003° 49.1' 10° 32.9' S	003° 51.5' 10° 54.3' S	003° 53.7' 11° 15.4' S	003° 55.8' 11° 36.5' S	003° 57.7' 11° 57.3' S	003° 59.5' 12° 17.9' S	004° 01.0' 12° 38.4' S	004° 02.4' 12° 58.7' S
13	018° 43.8' 09° 50.7' S	018° 46.6' 10° 12.3' S	018° 49.2' 10° 33.8' S	018° 51.6' 10° 55.1' S	018° 53.8' 11° 16.3' S	018° 55.9' 11° 37.3' S	018° 57.8' 11° 58.1' S	018° 59.5' 12° 18.8' S	019° 01.1' 12° 39.2' S	019° 02.4' 12° 59.5' S
14	033° 44.0' 09° 51.6' S	033° 46.7' 10° 13.2' S	033° 49.3' 10° 34.7' S	033° 51.7' 10° 56.0' S	033° 53.9' 11° 17.2' S	033° 56.0' 11° 38.2' S	033° 57.9' 11° 59.0' S	033° 59.6' 12° 19.6' S	034° 01.1' 12° 40.1' S	034° 02.5' 13° 00.3' S
15	048° 44.1' 09° 52.5' S	048° 46.8' 10° 14.1' S	048° 49.4' 10° 35.6' S	048° 51.8' 10° 56.9' S	048° 54.0' 11° 18.1' S	048° 56.1' 11° 39.1' S	048° 58.0' 11° 59.9' S	048° 59.7' 12° 20.5' S	049° 01.2' 12° 40.9' S	049° 02.5' 13° 01.2' S
16	063° 44.2' 09° 53.4' S	063° 46.9' 10° 15.0' S	063° 49.5' 10° 36.5' S	063° 51.9' 10° 57.8' S	063° 54.1' 11° 19.0' S	063° 56.1' 11° 39.9' S	063° 58.0' 12° 20.7' S	063° 59.7' 12° 41.8' S	064° 01.2' 12° 41.8' S	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 28 Oct to 16 Nov

UT	28 Oct	29 Oct	30 Oct	31 Oct	01 Nov	02 Nov	03 Nov	04 Nov	05 Nov	06 Nov
00	184° 03.0' 13° 08.7' S	184° 04.1' 13° 28.7' S	184° 05.0' 13° 48.4' S	184° 05.7' 14° 08.0' S	184° 06.2' 14° 27.3' S	184° 06.6' 14° 46.3' S	184° 06.7' 15° 05.1' S	184° 06.6' 15° 23.7' S	184° 06.4' 15° 42.0' S	184° 05.9' 16° 00.1' S
01	199° 03.0' 13° 09.6' S	199° 04.1' 13° 29.5' S	199° 05.0' 13° 49.2' S	199° 05.7' 14° 08.8' S	199° 06.2' 14° 28.1' S	199° 06.6' 14° 47.1' S	199° 06.7' 15° 05.9' S	199° 06.6' 15° 24.5' S	199° 06.3' 15° 45.1' S	199° 05.9' 16° 00.9' S
02	214° 03.1' 13° 10.4' S	214° 04.2' 13° 30.3' S	214° 05.1' 13° 50.1' S	214° 05.8' 14° 09.6' S	214° 06.3' 14° 28.9' S	214° 06.6' 14° 47.9' S	214° 06.7' 15° 06.7' S	214° 06.6' 15° 25.3' S	214° 06.3' 15° 43.6' S	214° 05.8' 16° 01.6' S
03	229° 03.1' 13° 11.2' S	229° 04.2' 13° 31.2' S	229° 05.1' 13° 50.9' S	229° 05.8' 14° 10.4' S	229° 06.3' 14° 29.7' S	229° 06.6' 14° 48.7' S	229° 06.7' 15° 07.5' S	229° 06.6' 15° 26.0' S	229° 06.3' 15° 44.3' S	229° 05.8' 16° 02.4' S
04	244° 03.2' 13° 12.1' S	244° 04.3' 13° 32.0' S	244° 05.1' 13° 51.7' S	244° 05.8' 14° 11.2' S	244° 06.3' 14° 30.4' S	244° 06.6' 14° 49.5' S	244° 06.7' 15° 08.3' S	244° 06.6' 15° 26.8' S	244° 06.3' 15° 45.1' S	244° 05.8' 16° 03.1' S
05	259° 03.2' 13° 12.9' S	259° 04.3' 13° 32.8' S	259° 05.2' 13° 52.5' S	259° 05.8' 14° 12.0' S	259° 06.3' 14° 31.2' S	259° 06.6' 14° 50.3' S	259° 06.7' 15° 09.0' S	259° 06.6' 15° 27.6' S	259° 06.3' 15° 45.8' S	259° 05.8' 16° 03.8' S
06	274° 03.3' 13° 13.7' S	274° 04.3' 13° 33.6' S	274° 05.2' 13° 53.3' S	274° 05.9' 14° 12.8' S	274° 06.3' 14° 32.0' S	274° 06.6' 14° 51.0' S	274° 06.7' 15° 09.8' S	274° 06.6' 15° 28.3' S	274° 06.3' 15° 46.6' S	274° 05.7' 16° 04.6' S
07	289° 03.3' 13° 14.6' S	289° 04.4' 13° 34.5' S	289° 05.2' 13° 54.1' S	289° 05.9' 14° 13.6' S	289° 06.3' 14° 32.8' S	289° 06.6' 14° 51.8' S	289° 06.7' 15° 10.6' S	289° 06.6' 15° 29.1' S	289° 06.2' 15° 47.3' S	289° 05.7' 16° 05.3' S
08	304° 03.4' 13° 15.4' S	304° 04.4' 13° 35.3' S	304° 05.3' 13° 55.0' S	304° 05.9' 14° 14.4' S	304° 06.4' 14° 33.6' S	304° 06.6' 14° 52.6' S	304° 06.7' 15° 11.4' S	304° 06.6' 15° 29.9' S	304° 06.2' 15° 48.1' S	304° 05.7' 16° 06.1' S
09	319° 03.4' 13° 16.2' S	319° 04.4' 13° 36.1' S	319° 05.3' 13° 55.8' S	319° 05.9' 14° 15.2' S	319° 06.4' 14° 34.4' S	319° 06.6' 14° 53.4' S	319° 06.7' 15° 12.1' S	319° 06.5' 15° 30.6' S	319° 06.2' 15° 48.9' S	319° 05.6' 16° 06.8' S
10	334° 03.5' 13° 17.1' S	334° 04.5' 13° 36.9' S	334° 05.3' 13° 56.6' S	334° 05.9' 14° 16.0' S	334° 06.4' 14° 35.2' S	334° 06.6' 14° 54.2' S	334° 06.7' 15° 12.9' S	334° 06.5' 15° 31.4' S	334° 06.2' 15° 49.6' S	334° 05.6' 16° 07.6' S
11	349° 03.5' 13° 17.9' S	349° 04.5' 13° 37.8' S	349° 05.3' 13° 57.4' S	349° 06.0' 14° 16.8' S	349° 06.4' 14° 36.0' S	349° 06.6' 14° 55.0' S	349° 06.7' 15° 13.7' S	349° 06.5' 15° 32.2' S	349° 06.2' 15° 50.4' S	349° 05.6' 16° 08.3' S
12	004° 03.6' 13° 18.7' S	004° 04.6' 13° 38.6' S	004° 05.4' 13° 58.2' S	004° 06.0' 14° 17.6' S	004° 06.4' 14° 36.8' S	004° 06.6' 14° 55.8' S	004° 06.7' 15° 14.5' S	004° 06.5' 15° 32.9' S	004° 06.1' 15° 51.1' S	004° 05.6' 16° 09.0' S
13	019° 03.6' 13° 19.6' S	019° 04.6' 13° 39.4' S	019° 05.4' 13° 59.0' S	019° 06.0' 14° 18.4' S	019° 06.4' 14° 37.6' S	019° 06.6' 14° 56.5' S	019° 06.7' 15° 15.2' S	019° 06.5' 15° 33.7' S	019° 06.1' 15° 51.9' S	019° 05.5' 16° 09.8' S
14	034° 03.7' 13° 20.4' S	034° 04.6' 13° 40.2' S	034° 05.4' 13° 59.8' S	034° 06.0' 14° 19.2' S	034° 06.4' 14° 38.4' S	034° 06.7' 14° 57.3' S	034° 06.7' 15° 16.0' S	034° 06.5' 15° 34.4' S	034° 06.1' 15° 52.6' S	034° 05.5' 16° 10.5' S
15	049° 03.7' 13° 21.2' S	049° 04.7' 13° 41.0' S	049° 05.5' 14° 00.7' S	049° 06.1' 14° 20.0' S	049° 06.5' 14° 39.2' S	049° 06.7' 14° 58.1' S	049° 06.7' 15° 16.8' S	049° 06.5' 15° 35.2' S	049° 06.1' 15° 53.4' S	049° 05.5' 16° 11.3' S
16	064° 03.7' 13° 22.1' S	064° 04.7' 13° 41.9' S	064° 05.5' 14° 01.5' S	064° 06.1' 14° 20.8' S	064° 06.5' 14° 40.0' S	064° 06.7' 14° 58.9' S	064° 06.7' 15° 17.6' S	064° 06.5' 15° 36.0' S	064° 06.1' 15° 54.1' S	064° 05.4' 16° 12.0' S
17	079° 03.8' 13° 22.9' S	079° 04.7' 13° 42.7' S	079° 05.5' 14° 02.3' S	079° 06.1' 14° 21.6' S	079° 06.5' 14° 40.8' S	079° 06.7' 14° 59.7' S	079° 06.7' 15° 18.3' S	079° 06.5' 15° 36.7' S	079° 06.0' 15° 54.9' S	079° 05.4' 16° 12.7' S
18	094° 03.8' 13° 23.7' S	094° 04.8' 13° 43.5' S	094° 05.5' 14° 03.1' S	094° 06.1' 14° 22.5' S	094° 06.5' 14° 41.6' S	094° 06.7' 15° 00.5' S	094° 06.7' 15° 19.1' S	094° 06.5' 15° 37.5' S	094° 06.0' 15° 55.6' S	094° 05.4' 16° 13.5' S
19	109° 03.9' 13° 24.5' S	109° 04.8' 13° 44.3' S	109° 05.6' 14° 03.9' S	109° 06.1' 14° 23.3' S	109° 06.5' 14° 42.4' S	109° 06.7' 15° 01.2' S	109° 06.7' 15° 19.9' S	109° 06.4' 15° 38.3' S	109° 06.0' 15° 56.4' S	109° 05.4' 16° 14.2' S
20	124° 03.9' 13° 25.4' S	124° 04.9' 13° 45.2' S	124° 05.6' 14° 04.7' S	124° 06.2' 14° 24.1' S	124° 06.5' 14° 43.2' S	124° 06.7' 15° 02.0' S	124° 06.6' 15° 20.6' S	124° 06.4' 15° 39.0' S	124° 06.0' 15° 57.1' S	124° 05.3' 16° 15.0' S
21	139° 04.0' 13° 26.2' S	139° 04.9' 13° 46.0' S	139° 05.6' 14° 05.5' S	139° 06.2' 14° 24.9' S	139° 06.5' 14° 43.9' S	139° 06.7' 15° 02.8' S	139° 06.6' 15° 21.4' S	139° 06.4' 15° 39.8' S	139° 05.9' 15° 57.9' S	139° 05.3' 16° 15.7' S
22	154° 04.0' 13° 27.0' S	154° 04.9' 13° 46.8' S	154° 05.7' 14° 06.3' S	154° 06.2' 14° 25.7' S	154° 06.5' 14° 44.7' S	154° 06.7' 15° 03.6' S	154° 06.6' 15° 22.2' S	154° 06.4' 15° 40.5' S	154° 05.9' 15° 58.6' S	154° 05.3' 16° 16.4' S
23	169° 04.0' 13° 27.9' S	169° 05.0' 13° 47.6' S	169° 05.7' 14° 07.1' S	169° 06.2' 14° 26.5' S	169° 06.5' 14° 45.5' S	169° 06.7' 15° 04.4' S	169° 06.6' 15° 23.0' S	169° 06.4' 15° 41.3' S	169° 05.9' 15° 59.4' S	169° 05.2' 16° 17.2' S
UT	07 Nov	08 Nov	09 Nov	10 Nov	11 Nov	12 Nov	13 Nov	14 Nov	15 Nov	16 Nov
00	184° 05.2' 16° 17.9' S	184° 04.3' 16° 35.4' S	184° 03.2' 16° 52.7' S	184° 01.9' 17° 09.6' S	184° 00.3' 17° 26.3' S	183° 58.6' 17° 42.7' S	183° 56.6' 17° 58.7' S	183° 54.4' 18° 14.5' S	183° 52.0' 18° 29.9' S	183° 49.4' 18° 45.0' S
01	199° 05.2' 16° 18.6' S	199° 04.3' 16° 36.2' S	199° 03.2' 16° 53.4' S	199° 01.8' 17° 10.3' S	199° 00.3' 17° 27.0' S	198° 58.5' 17° 43.4' S	198° 56.5' 17° 59.4' S	198° 54.4' 18° 15.1' S	198° 51.9' 18° 30.6' S	198° 49.3' 18° 45.7' S
02	214° 05.1' 16° 19.4' S	214° 04.2' 16° 36.9' S	214° 03.1' 16° 54.1' S	214° 01.8' 17° 11.0' S	214° 00.2' 17° 27.7' S	213° 58.4' 17° 44.0' S	213° 56.5' 18° 00.1' S	213° 54.3' 18° 15.8' S	213° 51.8' 18° 31.2' S	213° 49.2' 18° 46.3' S
03	229° 05.1' 16° 20.1' S	229° 04.2' 16° 37.6' S	229° 03.0' 16° 54.8' S	229° 01.7' 17° 11.7' S	229° 00.1' 17° 28.4' S	228° 58.4' 17° 44.7' S	228° 56.4' 18° 00.7' S	228° 54.2' 18° 16.4' S	228° 51.7' 18° 31.8' S	228° 49.1' 18° 46.9' S
04	244° 05.1' 16° 20.9' S	244° 04.1' 16° 38.3' S	244° 03.0' 16° 55.5' S	244° 01.6' 17° 12.4' S	244° 00.1' 17° 29.1' S	243° 58.3' 17° 45.4' S	243° 56.3' 18° 01.4' S	243° 54.4' 18° 17.1' S	243° 51.6' 18° 32.5' S	243° 49.0' 18° 47.5' S
05	259° 05.0' 16° 21.6' S	259° 04.1' 16° 39.1' S	259° 02.9' 16° 56.2' S	259° 01.6' 17° 13.1' S	259° 00.0' 17° 29.7' S	258° 58.2' 17° 46.1' S	258° 56.2' 18° 02.1' S	258° 54.4' 18° 17.7' S	258° 51.5' 18° 33.1' S	258° 48.9' 18° 48.1' S
06	274° 05.0' 16° 22.3' S	274° 04.0' 16° 39.8' S	274° 02.9' 16° 56.9' S	274° 01.5' 17° 13.8' S	273° 59.9' 17° 30.4' S	273° 58.1' 17° 46.7' S	273° 56.1' 18° 02.7' S	273° 54.4' 18° 18.4' S	273° 51.4' 18° 33.7' S	273° 48.7' 18° 48.8' S
07	289° 05.0' 16° 23.1' S	289° 04.0' 16° 40.5' S	289° 02.8' 16° 57.7' S	289° 01.5' 17° 14.5' S	288° 59.9' 17° 31.1' S	288° 58.0' 17° 47.4' S	288° 56.0' 18° 03.4' S	288° 53.8' 18° 19.0' S	288° 51.3' 18° 34.4' S	288° 48.6' 18° 49.4' S
08	304° 04.9' 16° 23.8' S	304° 04.0' 16° 41.2' S	304° 02.8' 16° 58.4' S	304° 01.4' 17° 15.2' S	303° 59.8' 17° 31.8' S	303° 58.0' 17° 48.1' S	303° 55.9' 18° 04.0' S	303° 53.7' 18° 19.7' S	303° 51.2' 18° 35.0' S	303° 48.5' 18° 50.0' S
09	319° 04.9' 16° 24.5' S	319° 03.9' 16° 41.9' S	319° 02.7' 16° 59.1' S	319° 01.3' 17° 15.9' S	318° 59.7' 17° 32.5' S	318° 57.9' 17° 48.7' S	318° 55.8' 18° 04.7' S	318° 53.6' 18° 20.3' S	318° 51.1' 18° 35.6' S	318° 48.4' 18° 50.6' S
10	334° 04.9' 16° 25.2' S	334° 03.9' 16° 42.7' S	334° 02.7' 16° 59.8' S	334° 01.3' 17° 16.6' S	333° 59.6' 17° 33.2' S	333° 57.8' 17° 49.4' S	333° 55.7' 18° 05.3' S	333° 53.5' 18° 21.0' S	333° 51.0' 18° 36.3' S	333° 48.3' 18° 51.2' S
11	349° 04.8' 16° 26.0' S	349° 03.8' 16° 43.4' S	349° 02.6' 17° 00.5' S	349° 01.2' 17° 17.3' S	348° 59.6' 17° 33.9' S	348° 57.7' 17° 50.1' S	348° 55.7' 18° 06.0' S	348° 53.4' 18° 21.6' S	348° 50.9' 18° 36.9' S	348° 48.2' 18° 51.9' S
12	004° 04.8' 16° 26.7' S	004° 03.8' 16° 44.1' S	004° 02.6' 17° 01.2' S	004° 01.1' 17° 18.0' S	003° 59.5' 17° 34.5' S	003° 57.6' 17° 50.8' S	003° 55.6' 18° 06.7' S	003° 53.3' 18° 22.3' S	003° 50.8' 18° 37.5' S	003° 48.0' 18° 52.5' S
13	019° 04.7' 16° 27.4' S	019° 03.7' 16° 44.8' S	019° 02.5' 17° 01.9' S	019° 01.1' 17° 18.7' S	018° 59.4' 17° 35.2' S	018° 57.6' 17° 51.4' S	018° 55.5' 18° 07.3' S	018° 53.2' 18° 22.9' S	018° 50.7' 18° 38.2' S	018° 47.9' 18° 53.1' S
14	034° 04.7' 16° 28.2' S	034° 03.7' 16° 45.5' S	034° 02.5' 17° 02.6' S	034° 01.0' 17° 19.4' S	033° 59.4' 17° 35.9' S	033° 57.5' 17° 52.1' S	033° 55.4' 18° 08.0' S	033° 53.1' 18° 23.5' S	033° 50.5' 18° 38.8' S	033° 47.8' 18° 53.7' S
15	049° 04.7' 16° 28.9' S	049° 03.6' 16° 46.2' S	049° 02.4' 17° 03.3' S	049° 01.0' 17° 20.1' S	048° 59.3' 17° 36.6' S	048° 57.4' 17° 52.8' S	048° 55.3' 18° 08.6' S	048° 53.0' 18° 24.2' S	048° 50.4' 18° 39.4' S	048° 47.7' 18° 54.3' S
16	064° 04.6' 16° 29.6' S	064° 03.6' 16° 47.0' S	064° 02.3' 17° 04.0' S	064° 00.9' 17° 20.8' S	063° 59.2' 17° 37.3' S	063° 57.3' 17° 53.4' S	063° 55.2' 18° 09.3' S	063° 52.9' 18° 24.8' S	063° 50.3' 18° 40.0' S	

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 17 Nov to 06 Dec

UT	17 Nov	18 Nov	19 Nov	20 Nov	21 Nov	22 Nov	23 Nov	24 Nov	25 Nov	26 Nov
00	183° 46,6' 18° 59,8' S	183° 43,6' 19° 14,3' S	183° 40,3' 19° 28,4' S	183° 36,8' 19° 42,1' S	183° 33,2' 19° 55,5' S	183° 29,3' 20° 08,5' S	183° 25,2' 20° 21,2' S	183° 21,0' 20° 33,4' S	183° 16,5' 20° 45,3' S	183° 11,9' 20° 56,9' S
01	198° 46,5' 19° 00,4' S	198° 43,4' 19° 14,9' S	198° 40,2' 19° 28,9' S	198° 36,7' 19° 42,7' S	198° 33,0' 19° 56,0' S	198° 29,1' 20° 09,0' S	198° 25,1' 20° 21,7' S	198° 20,8' 20° 34,0' S	198° 16,3' 20° 45,8' S	198° 11,7' 20° 57,3' S
02	213° 46,4' 19° 01,0' S	213° 43,3' 19° 15,4' S	213° 40,0' 19° 29,5' S	213° 36,5' 19° 43,2' S	213° 32,9' 19° 56,6' S	213° 29,0' 20° 09,6' S	213° 24,9' 20° 22,2' S	213° 20,6' 20° 34,5' S	213° 16,2' 20° 46,3' S	213° 11,5' 20° 57,8' S
03	228° 46,2' 19° 01,6' S	228° 43,2' 19° 16,0' S	228° 39,9' 19° 30,1' S	228° 36,4' 19° 43,8' S	228° 32,7' 19° 57,1' S	228° 28,8' 20° 10,1' S	228° 24,7' 20° 22,7' S	228° 20,4' 20° 35,0' S	228° 16,0' 20° 46,8' S	228° 11,3' 20° 58,3' S
04	243° 46,1' 19° 02,2' S	243° 43,0' 19° 16,6' S	243° 39,7' 19° 30,7' S	243° 36,2' 19° 44,4' S	243° 32,5' 19° 57,7' S	243° 28,6' 20° 10,6' S	243° 24,6' 20° 23,2' S	243° 20,3' 20° 35,5' S	243° 15,8' 20° 47,3' S	243° 11,1' 20° 58,7' S
05	258° 46,0' 19° 02,9' S	258° 42,9' 19° 17,2' S	258° 39,6' 19° 31,2' S	258° 36,1' 19° 44,9' S	258° 32,4' 19° 58,2' S	258° 28,5' 20° 11,2' S	258° 24,4' 20° 23,8' S	258° 20,1' 20° 36,0' S	258° 15,6' 20° 47,8' S	258° 10,9' 20° 59,2' S
06	273° 45,9' 19° 03,5' S	273° 42,8' 19° 17,8' S	273° 39,5' 19° 31,8' S	273° 35,9' 19° 45,5' S	273° 32,2' 19° 58,8' S	273° 28,3' 20° 11,7' S	273° 24,2' 20° 24,3' S	273° 19,9' 20° 36,5' S	273° 15,4' 20° 48,3' S	273° 10,7' 20° 59,7' S
07	288° 45,7' 19° 04,1' S	288° 42,6' 19° 18,4' S	288° 39,3' 19° 32,4' S	288° 35,8' 19° 46,0' S	288° 32,1' 19° 59,3' S	288° 28,1' 20° 12,2' S	288° 24,0' 20° 24,8' S	288° 19,7' 20° 37,0' S	288° 15,2' 20° 48,7' S	288° 10,5' 21° 00,1' S
08	303° 45,6' 19° 04,7' S	303° 42,5' 19° 19,0' S	303° 39,2' 19° 33,0' S	303° 35,6' 19° 46,6' S	303° 31,9' 19° 59,9' S	303° 28,0' 20° 12,8' S	303° 23,8' 20° 25,3' S	303° 19,5' 20° 37,5' S	303° 15,0' 20° 49,2' S	303° 10,3' 21° 00,6' S
09	318° 45,5' 19° 05,3' S	318° 42,4' 19° 19,6' S	318° 39,0' 19° 33,5' S	318° 35,5' 19° 47,2' S	318° 31,8' 20° 00,4' S	318° 27,8' 20° 13,3' S	318° 23,7' 20° 25,8' S	318° 19,2' 20° 38,0' S	318° 14,8' 20° 49,7' S	318° 10,1' 21° 01,1' S
10	333° 45,4' 19° 05,9' S	333° 42,2' 19° 20,2' S	333° 38,9' 19° 34,1' S	333° 35,3' 19° 47,7' S	333° 31,6' 20° 01,0' S	333° 27,6' 20° 13,8' S	333° 23,5' 20° 26,3' S	333° 19,2' 20° 38,5' S	333° 14,6' 20° 50,2' S	333° 9,9' 21° 01,5' S
11	348° 45,2' 19° 06,5' S	348° 42,1' 19° 20,8' S	348° 38,7' 19° 34,7' S	348° 35,2' 19° 48,3' S	348° 31,4' 20° 01,5' S	348° 27,5' 20° 14,4' S	348° 23,3' 20° 26,8' S	348° 19,0' 20° 38,9' S	348° 14,4' 20° 50,7' S	348° 9,7' 21° 02,0' S
12	003° 45,1' 19° 07,1' S	003° 42,0' 19° 21,3' S	003° 38,6' 19° 35,3' S	003° 35,0' 19° 48,8' S	003° 31,3' 20° 02,0' S	003° 27,3' 20° 14,9' S	003° 23,1' 20° 27,4' S	003° 18,8' 20° 39,4' S	003° 14,2' 20° 51,2' S	003° 9,5' 21° 02,5' S
13	018° 45,0' 19° 07,7' S	018° 41,8' 19° 21,9' S	018° 38,5' 19° 35,8' S	018° 34,9' 19° 49,4' S	018° 31,1' 20° 02,6' S	018° 27,1' 20° 15,4' S	018° 23,0' 20° 27,9' S	018° 18,6' 20° 39,9' S	018° 14,0' 20° 51,6' S	018° 9,3' 21° 02,9' S
14	033° 44,9' 19° 08,3' S	033° 41,7' 19° 22,5' S	033° 38,3' 19° 36,4' S	033° 34,7' 19° 50,0' S	033° 30,9' 20° 03,1' S	033° 27,0' 20° 15,9' S	033° 22,8' 20° 28,4' S	033° 18,4' 20° 40,4' S	033° 13,9' 20° 52,1' S	033° 9,1' 21° 03,4' S
15	048° 44,7' 19° 08,9' S	048° 41,6' 19° 23,1' S	048° 38,2' 19° 37,0' S	048° 34,6' 19° 50,5' S	048° 30,8' 20° 03,7' S	048° 26,8' 20° 16,5' S	048° 22,6' 20° 28,9' S	048° 18,2' 20° 40,9' S	048° 13,7' 20° 52,6' S	048° 8,9' 21° 03,9' S
16	063° 44,6' 19° 09,5' S	063° 41,4' 19° 23,7' S	063° 38,0' 19° 37,6' S	063° 34,4' 19° 51,1' S	063° 30,6' 20° 04,2' S	063° 26,6' 20° 17,0' S	063° 22,4' 20° 29,4' S	063° 18,0' 20° 41,4' S	063° 13,5' 20° 53,1' S	063° 8,7' 21° 04,3' S
17	078° 44,5' 19° 10,1' S	078° 41,3' 19° 24,3' S	078° 37,9' 19° 38,1' S	078° 34,3' 19° 51,6' S	078° 30,5' 20° 04,7' S	078° 26,5' 20° 17,5' S	078° 22,2' 20° 29,9' S	078° 17,9' 20° 41,9' S	078° 13,3' 20° 53,5' S	078° 8,5' 21° 04,8' S
18	093° 44,3' 19° 10,7' S	093° 41,1' 19° 24,9' S	093° 37,7' 19° 38,7' S	093° 34,1' 19° 52,2' S	093° 30,3' 20° 05,3' S	093° 26,3' 20° 18,0' S	093° 22,1' 20° 30,4' S	093° 17,7' 20° 42,4' S	093° 13,1' 20° 54,0' S	093° 8,3' 21° 05,2' S
19	108° 44,2' 19° 11,3' S	108° 41,0' 19° 25,4' S	108° 37,6' 19° 39,3' S	108° 34,0' 19° 52,7' S	108° 30,1' 20° 05,8' S	108° 26,1' 20° 18,6' S	108° 21,9' 20° 30,9' S	108° 17,5' 20° 42,9' S	108° 12,9' 20° 54,5' S	108° 8,1' 21° 05,7' S
20	123° 44,1' 19° 11,9' S	123° 40,9' 19° 26,0' S	123° 37,4' 19° 39,8' S	123° 33,8' 19° 53,3' S	123° 30,0' 20° 06,4' S	123° 25,9' 20° 19,1' S	123° 21,7' 20° 31,4' S	123° 17,3' 20° 43,4' S	123° 12,7' 20° 55,0' S	123° 7,9' 21° 06,2' S
21	138° 44,0' 19° 12,5' S	138° 40,7' 19° 26,6' S	138° 37,3' 19° 53,8' S	138° 33,6' 20° 06,9' S	138° 29,8' 20° 19,6' S	138° 25,8' 20° 31,9' S	138° 21,5' 20° 43,9' S	138° 17,1' 20° 55,4' S	138° 12,5' 20° 56,4' S	138° 7,7' 21° 06,6' S
22	153° 43,8' 19° 13,1' S	153° 40,6' 19° 27,2' S	153° 37,1' 19° 41,0' S	153° 33,5' 19° 54,4' S	153° 29,6' 20° 07,4' S	153° 25,6' 20° 20,1' S	153° 21,3' 20° 32,4' S	153° 16,9' 20° 44,4' S	153° 12,3' 20° 55,9' S	153° 7,5' 21° 07,1' S
23	168° 43,7' 19° 13,7' S	168° 40,4' 19° 27,8' S	168° 37,0' 19° 41,5' S	168° 33,3' 19° 54,9' S	168° 29,5' 20° 08,0' S	168° 25,4' 20° 20,6' S	168° 21,2' 20° 32,9' S	168° 16,7' 20° 44,9' S	168° 12,1' 20° 56,4' S	168° 7,3' 21° 07,5' S
UT	27 Nov	28 Nov	29 Nov	30 Nov	01 Dec	02 Dec	03 Dec	04 Dec	05 Dec	06 Dec
00	183° 07,1' 21° 08,0' S	183° 02,1' 21° 18,7' S	182° 56,9' 21° 29,0' S	182° 51,6' 21° 38,9' S	182° 46,1' 21° 48,4' S	182° 40,5' 21° 57,5' S	182° 34,7' 22° 06,2' S	182° 28,7' 22° 14,4' S	182° 22,6' 22° 22,2' S	182° 16,4' 22° 29,6' S
01	198° 06,9' 21° 08,4' S	198° 01,9' 21° 19,1' S	197° 56,7' 21° 29,5' S	197° 51,4' 21° 39,3' S	197° 45,9' 21° 48,8' S	197° 40,2' 21° 57,9' S	197° 34,4' 22° 06,5' S	197° 28,5' 22° 14,8' S	197° 22,4' 22° 22,5' S	197° 16,2' 22° 29,9' S
02	213° 06,7' 21° 08,9' S	213° 01,7' 21° 19,6' S	212° 56,5' 21° 29,9' S	212° 51,1' 21° 39,8' S	212° 45,6' 21° 49,2' S	212° 40,0' 21° 58,3' S	212° 34,2' 22° 06,9' S	212° 28,2' 22° 15,1' S	212° 22,1' 22° 23,2' S	212° 15,9' 22° 30,2' S
03	228° 06,5' 21° 09,3' S	228° 01,5' 21° 20,0' S	227° 56,3' 21° 30,3' S	227° 50,9' 21° 40,2' S	227° 45,4' 21° 49,6' S	227° 39,7' 21° 58,6' S	227° 33,9' 22° 07,2' S	227° 28,0' 22° 15,4' S	227° 21,9' 22° 23,2' S	227° 15,6' 22° 30,5' S
04	243° 06,3' 21° 09,8' S	243° 01,2' 21° 20,5' S	242° 56,1' 21° 30,7' S	242° 50,7' 21° 40,6' S	242° 45,2' 21° 50,0' S	242° 39,5' 21° 59,0' S	242° 33,7' 22° 07,6' S	242° 27,7' 22° 15,8' S	242° 21,6' 22° 23,5' S	242° 15,4' 22° 30,8' S
05	258° 06,1' 21° 10,3' S	258° 01,0' 21° 20,9' S	257° 55,8' 21° 31,1' S	257° 50,5' 21° 41,0' S	257° 44,9' 21° 50,4' S	257° 39,3' 21° 59,4' S	257° 33,4' 22° 07,9' S	257° 27,5' 22° 16,1' S	257° 21,4' 22° 23,8' S	257° 15,1' 22° 31,1' S
06	273° 05,9' 21° 10,7' S	273° 00,8' 21° 21,3' S	272° 55,6' 21° 31,5' S	272° 50,2' 21° 41,4' S	272° 44,7' 21° 50,8' S	272° 39,0' 21° 59,7' S	272° 33,2' 22° 08,3' S	272° 27,2' 22° 16,4' S	272° 21,1' 22° 24,1' S	272° 14,8' 22° 31,4' S
07	288° 05,6' 21° 11,2' S	288° 00,6' 21° 21,8' S	287° 55,4' 21° 32,0' S	287° 50,0' 21° 41,8' S	287° 44,5' 21° 51,1' S	287° 38,8' 22° 00,1' S	287° 32,9' 22° 08,6' S	287° 27,0' 22° 16,7' S	287° 20,8' 22° 24,4' S	287° 14,6' 22° 31,7' S
08	303° 05,4' 21° 11,6' S	303° 00,4' 21° 22,2' S	302° 55,2' 21° 32,4' S	302° 49,8' 21° 42,2' S	302° 44,2' 21° 51,5' S	302° 38,5' 22° 00,5' S	302° 32,7' 22° 09,0' S	302° 26,7' 22° 17,1' S	302° 20,6' 22° 24,7' S	302° 14,3' 22° 32,0' S
09	318° 05,2' 21° 12,1' S	318° 00,2' 21° 22,6' S	317° 54,9' 21° 32,8' S	317° 49,6' 21° 42,6' S	317° 44,0' 21° 51,9' S	317° 38,3' 22° 00,8' S	317° 32,5' 22° 09,3' S	317° 26,5' 22° 17,4' S	317° 20,3' 22° 25,0' S	317° 14,0' 22° 32,2' S
10	333° 05,0' 21° 12,5' S	333° 00,0' 21° 23,1' S	332° 54,7' 21° 33,2' S	332° 49,3' 21° 43,0' S	332° 43,8' 21° 52,3' S	332° 38,1' 22° 01,2' S	332° 32,2' 22° 09,7' S	332° 26,2' 22° 17,7' S	332° 20,1' 22° 25,3' S	332° 13,8' 22° 32,5' S
11	348° 04,8' 21° 13,0' S	347° 59,7' 21° 23,5' S	347° 54,5' 21° 33,6' S	347° 49,1' 21° 43,4' S	347° 43,5' 21° 52,7' S	347° 37,8' 22° 01,6' S	347° 32,0' 22° 10,0' S	347° 25,9' 22° 18,1' S	347° 19,8' 22° 25,7' S	347° 13,5' 22° 32,8' S
12	003° 04,6' 21° 13,4' S	002° 59,5' 21° 23,9' S	002° 54,3' 21° 34,0' S	002° 48,9' 21° 43,7' S	002° 43,3' 21° 53,0' S	002° 37,6' 22° 01,9' S	002° 31,7' 22° 10,4' S	002° 25,7' 22° 18,4' S	002° 19,5' 22° 26,0' S	002° 13,3' 22° 33,1' S
13	018° 04,4' 21° 13,8' S	017° 59,3' 21° 24,4' S	017° 54,1' 21° 34,5' S	017° 48,6' 21° 44,1' S	017° 43,1' 21° 53,4' S	017° 37,3' 22° 02,3' S	017° 31,5' 22° 10,7' S	017° 25,4' 22° 18,7' S	017° 19,3' 22° 26,3' S	017° 13,0' 22° 33,4' S
14	033° 04,2' 21° 14,3' S	032° 59,1' 21° 24,8' S	032° 53,8' 21° 34,9' S	032° 48,4' 21° 44,5' S	032° 42,8' 21° 53,8' S	032° 37,1' 22° 02,6' S	032° 31,2' 22° 11,0' S	032° 25,2' 22° 19,0' S	032° 19,0' 22° 26,6' S	032° 12,7' 22° 33,7' S
15	048° 04,0' 21° 14,7' S	047° 58,9' 21° 25,2' S	047° 53,6' 21° 35,3' S	047° 48,2' 21° 44,9' S	047° 42,6' 21° 54,2' S	047° 36,9' 22° 03,0' S	047° 31,0' 22° 11,4' S	047° 24,9' 22° 19,4' S	047° 18,8' 22° 26,9' S	047° 12,5' 22° 34,0' S
16	063° 03,8' 21° 15,2' S	062° 58,7' 21° 25,6' S	062° 53,4' 21° 35,7' S	062° 48,0' 21° 45,3' S	062° 42,4' 21° 54,5' S	062° 36,6' 22° 03,3' S	062° 30,7' 22° 11,7' S	062° 24,7' 22° 19,7' S	062° 18,5' 22° 27,2' S	062° 12,2' 22

# Solar Almanac 2033 — Sun GHA & Decl (UT) — 07 Dec to 26 Dec

UT	07 Dec	08 Dec	09 Dec	10 Dec	11 Dec	12 Dec	13 Dec	14 Dec	15 Dec	16 Dec
00	182° 10,1' 22° 36,5' S	182° 03,6' 22° 43,0' S	181° 57,0' 22° 49,1' S	181° 50,3' 22° 54,6' S	181° 43,5' 22° 59,8' S	181° 36,5' 23° 04,5' S	181° 29,5' 23° 08,7' S	181° 22,4' 23° 12,5' S	181° 15,3' 23° 15,8' S	181° 08,0' 23° 18,6' S
01	197° 09,8' 22° 36,8' S	197° 03,3' 22° 43,3' S	196° 56,7' 22° 49,3' S	196° 50,0' 22° 54,9' S	196° 43,2' 23° 00,0' S	196° 36,3' 23° 04,7' S	196° 29,2' 23° 08,9' S	196° 22,1' 23° 12,6' S	196° 15,0' 23° 15,9' S	196° 07,7' 23° 18,7' S
02	212° 09,5' 22° 37,1' S	212° 03,0' 22° 43,5' S	211° 56,4' 22° 49,5' S	211° 49,7' 22° 55,1' S	211° 42,9' 23° 00,2' S	211° 36,0' 23° 04,8' S	211° 28,9' 23° 09,0' S	211° 21,8' 23° 12,8' S	211° 14,7' 23° 16,0' S	211° 07,4' 23° 18,8' S
03	227° 09,3' 22° 37,4' S	227° 02,8' 22° 43,8' S	226° 56,2' 22° 49,8' S	226° 49,4' 22° 55,3' S	226° 42,6' 23° 00,4' S	226° 35,7' 23° 05,0' S	226° 28,6' 23° 09,2' S	226° 21,5' 23° 12,9' S	226° 14,4' 23° 16,2' S	226° 07,1' 23° 19,0' S
04	242° 09,0' 22° 37,6' S	242° 02,5' 22° 44,0' S	241° 55,9' 22° 50,0' S	241° 49,2' 22° 55,5' S	241° 42,3' 23° 00,6' S	241° 35,4' 23° 05,2' S	241° 28,4' 23° 09,4' S	241° 21,2' 23° 13,1' S	241° 14,1' 23° 16,3' S	241° 06,8' 23° 19,1' S
05	257° 08,7' 22° 37,9' S	257° 02,2' 22° 44,3' S	256° 55,6' 22° 50,3' S	256° 48,9' 22° 55,8' S	256° 42,0' 23° 00,8' S	256° 35,1' 23° 05,4' S	256° 28,1' 23° 09,5' S	256° 20,9' 23° 13,2' S	256° 13,8' 23° 16,4' S	256° 06,5' 23° 19,2' S
06	272° 08,5' 22° 38,2' S	272° 01,9' 22° 44,6' S	271° 55,3' 22° 50,5' S	271° 48,6' 22° 56,0' S	271° 41,7' 23° 01,0' S	271° 34,8' 23° 05,6' S	271° 27,8' 23° 09,7' S	271° 20,6' 23° 13,3' S	271° 13,5' 23° 16,5' S	271° 06,2' 23° 19,3' S
07	287° 08,2' 22° 38,5' S	287° 01,7' 22° 44,8' S	286° 55,0' 22° 50,7' S	286° 48,3' 22° 56,2' S	286° 41,5' 23° 01,2' S	286° 34,5' 23° 05,8' S	286° 27,5' 23° 09,9' S	286° 20,3' 23° 13,5' S	286° 13,2' 23° 16,7' S	286° 05,9' 23° 19,4' S
08	302° 07,9' 22° 38,7' S	302° 01,4' 22° 45,1' S	301° 54,8' 22° 51,0' S	301° 48,0' 22° 56,4' S	301° 41,2' 23° 01,4' S	301° 34,2' 23° 05,9' S	301° 27,2' 23° 10,0' S	301° 20,0' 23° 13,6' S	301° 12,9' 23° 16,8' S	301° 05,6' 23° 19,5' S
09	317° 07,7' 22° 39,0' S	317° 01,1' 22° 45,3' S	316° 54,5' 22° 51,2' S	316° 47,7' 22° 56,6' S	316° 40,9' 23° 01,6' S	316° 33,9' 23° 06,1' S	316° 26,9' 23° 10,2' S	316° 19,8' 23° 13,8' S	316° 12,5' 23° 16,9' S	316° 05,3' 23° 19,6' S
10	332° 07,4' 22° 39,3' S	332° 00,9' 22° 45,6' S	331° 54,2' 22° 51,4' S	331° 47,5' 22° 56,8' S	331° 40,6' 23° 01,8' S	331° 33,6' 23° 06,3' S	331° 26,6' 23° 10,3' S	331° 19,5' 23° 13,9' S	331° 12,2' 23° 17,0' S	331° 05,0' 23° 19,7' S
11	347° 07,1' 22° 39,6' S	347° 00,6' 22° 45,8' S	346° 53,9' 22° 51,7' S	346° 47,2' 22° 57,1' S	346° 40,3' 23° 02,0' S	346° 33,3' 23° 06,5' S	346° 26,3' 23° 10,5' S	346° 19,2' 23° 14,1' S	346° 11,9' 23° 17,1' S	346° 04,7' 23° 19,8' S
12	002° 06,8' 22° 39,8' S	002° 00,3' 22° 46,1' S	001° 53,6' 22° 51,9' S	001° 46,9' 22° 57,3' S	001° 40,0' 23° 02,2' S	001° 33,0' 23° 06,6' S	001° 26,0' 23° 10,6' S	001° 18,9' 23° 14,2' S	001° 11,6' 23° 17,3' S	001° 04,4' 23° 19,9' S
13	017° 06,6' 22° 40,1' S	017° 00,0' 22° 46,3' S	016° 53,4' 22° 52,1' S	016° 46,6' 22° 57,5' S	016° 39,7' 23° 02,4' S	016° 32,8' 23° 06,8' S	016° 25,7' 23° 10,8' S	016° 18,6' 23° 14,3' S	016° 11,3' 23° 17,4' S	016° 04,1' 23° 20,0' S
14	032° 06,3' 22° 40,4' S	031° 59,8' 22° 46,6' S	031° 53,1' 22° 52,4' S	031° 46,3' 22° 57,7' S	031° 39,4' 23° 02,6' S	031° 32,5' 23° 07,0' S	031° 25,4' 23° 11,0' S	031° 18,3' 23° 14,5' S	031° 11,0' 23° 17,5' S	031° 03,8' 23° 20,1' S
15	047° 06,0' 22° 40,6' S	046° 59,5' 22° 46,8' S	046° 52,8' 22° 52,6' S	046° 46,0' 22° 57,9' S	046° 39,1' 23° 02,8' S	046° 32,2' 23° 07,2' S	046° 25,1' 23° 11,1' S	046° 18,0' 23° 14,6' S	046° 10,7' 23° 17,6' S	046° 03,5' 23° 20,2' S
16	062° 05,8' 22° 40,9' S	061° 59,2' 22° 47,1' S	061° 52,5' 22° 52,8' S	061° 45,7' 22° 58,1' S	061° 38,9' 23° 03,0' S	061° 31,9' 23° 07,3' S	061° 24,8' 23° 11,3' S	061° 17,7' 23° 14,7' S	061° 10,4' 23° 17,7' S	061° 03,1' 23° 20,3' S
17	077° 05,5' 22° 41,2' S	076° 58,9' 22° 47,3' S	076° 52,2' 22° 53,1' S	076° 45,5' 22° 58,3' S	076° 38,6' 23° 03,2' S	076° 31,6' 23° 07,5' S	076° 24,5' 23° 11,4' S	076° 17,4' 23° 14,9' S	076° 10,2' 23° 17,8' S	076° 02,8' 23° 20,4' S
18	092° 05,2' 22° 41,4' S	091° 58,7' 22° 47,6' S	091° 52,0' 22° 53,3' S	091° 45,2' 22° 58,5' S	091° 38,3' 23° 03,3' S	091° 31,3' 23° 07,7' S	091° 24,2' 23° 11,6' S	091° 17,1' 23° 15,0' S	091° 09,8' 23° 18,0' S	091° 02,5' 23° 20,5' S
19	107° 04,9' 22° 41,7' S	106° 58,4' 22° 47,8' S	106° 51,7' 22° 53,5' S	106° 44,9' 22° 58,8' S	106° 38,0' 23° 03,5' S	106° 31,0' 23° 07,9' S	106° 23,9' 23° 11,7' S	106° 16,8' 23° 15,1' S	106° 09,5' 23° 18,1' S	106° 02,2' 23° 20,6' S
20	122° 04,7' 22° 42,0' S	121° 58,1' 22° 48,1' S	121° 51,4' 22° 53,7' S	121° 44,6' 22° 59,0' S	121° 37,7' 23° 03,7' S	121° 30,7' 23° 08,0' S	121° 23,6' 23° 11,9' S	121° 16,5' 23° 15,3' S	121° 09,2' 23° 18,2' S	121° 01,9' 23° 20,6' S
21	137° 04,4' 22° 42,2' S	136° 57,8' 22° 48,3' S	136° 51,1' 22° 54,0' S	136° 44,3' 22° 59,2' S	136° 37,4' 23° 03,9' S	136° 30,4' 23° 08,2' S	136° 23,3' 23° 12,0' S	136° 16,2' 23° 15,4' S	136° 08,9' 23° 18,3' S	136° 01,6' 23° 20,7' S
22	152° 04,1' 22° 42,5' S	151° 57,5' 22° 48,6' S	151° 50,8' 22° 54,2' S	151° 44,0' 22° 59,4' S	151° 37,1' 23° 04,1' S	151° 30,1' 23° 08,4' S	151° 23,0' 23° 12,2' S	151° 15,9' 23° 15,5' S	151° 08,6' 23° 18,4' S	151° 01,3' 23° 20,8' S
23	167° 03,9' 22° 42,7' S	166° 57,3' 22° 48,8' S	166° 50,6' 22° 54,4' S	166° 43,7' 22° 59,6' S	166° 36,8' 23° 04,3' S	166° 29,8' 23° 08,5' S	166° 22,7' 23° 12,3' S	166° 15,6' 23° 15,7' S	166° 08,3' 23° 18,5' S	166° 01,0' 23° 20,9' S
UT	17 Dec	18 Dec	19 Dec	20 Dec	21 Dec	22 Dec	23 Dec	24 Dec	25 Dec	26 Dec
00	181° 00,7' 23° 21,0' S	180° 53,4' 23° 22,9' S	180° 46,0' 23° 24,4' S	180° 38,5' 23° 25,3' S	180° 31,1' 23° 25,8' S	180° 23,6' 23° 25,9' S	180° 16,1' 23° 25,4' S	180° 08,6' 23° 24,5' S	180° 01,2' 23° 23,2' S	179° 53,7' 23° 21,3' S
01	196° 00,4' 23° 21,1' S	195° 53,0' 23° 23,0' S	195° 45,6' 23° 24,4' S	195° 38,2' 23° 25,4' S	195° 30,7' 23° 25,9' S	195° 23,3' 23° 25,9' S	195° 15,8' 23° 25,4' S	195° 08,3' 23° 24,5' S	195° 00,9' 23° 23,5' S	194° 53,4' 23° 21,2' S
02	211° 00,1' 23° 21,2' S	210° 52,7' 23° 23,1' S	210° 45,3' 23° 24,5' S	210° 37,9' 23° 25,4' S	210° 30,4' 23° 25,9' S	210° 23,0' 23° 25,9' S	210° 15,5' 23° 25,4' S	210° 08,0' 23° 24,4' S	210° 00,6' 23° 23,4' S	209° 53,1' 23° 21,1' S
03	225° 59,8' 23° 21,3' S	225° 52,4' 23° 23,1' S	225° 45,0' 23° 24,5' S	225° 37,6' 23° 25,4' S	225° 30,1' 23° 25,9' S	225° 22,7' 23° 25,8' S	225° 15,2' 23° 25,4' S	225° 07,7' 23° 24,4' S	225° 00,2' 23° 23,0' S	224° 52,8' 23° 21,0' S
04	240° 59,5' 23° 21,4' S	240° 52,1' 23° 23,2' S	240° 44,7' 23° 24,6' S	240° 37,3' 23° 25,5' S	240° 29,8' 23° 25,9' S	240° 22,3' 23° 25,8' S	240° 14,9' 23° 25,3' S	240° 07,4' 23° 24,3' S	239° 59,9' 23° 22,9' S	239° 52,5' 23° 21,0' S
05	255° 59,2' 23° 21,4' S	255° 51,8' 23° 23,3' S	255° 44,4' 23° 24,6' S	255° 37,0' 23° 25,5' S	255° 29,5' 23° 25,9' S	255° 22,0' 23° 25,8' S	255° 14,6' 23° 25,3' S	255° 07,1' 23° 24,3' S	254° 59,6' 23° 22,8' S	254° 52,2' 23° 20,9' S
06	270° 58,9' 23° 21,5' S	270° 51,5' 23° 23,3' S	270° 44,1' 23° 24,6' S	270° 36,7' 23° 25,5' S	270° 29,2' 23° 25,9' S	270° 21,7' 23° 25,8' S	270° 14,2' 23° 25,3' S	270° 06,8' 23° 24,2' S	269° 59,3' 23° 22,7' S	269° 51,9' 23° 20,8' S
07	285° 58,6' 23° 21,6' S	285° 51,2' 23° 23,4' S	285° 43,8' 23° 24,7' S	285° 36,3' 23° 25,5' S	285° 28,9' 23° 25,9' S	285° 21,4' 23° 25,8' S	285° 13,9' 23° 25,2' S	285° 06,5' 23° 24,2' S	284° 59,0' 23° 22,7' S	284° 51,6' 23° 20,7' S
08	300° 58,3' 23° 21,7' S	300° 50,9' 23° 23,5' S	300° 43,5' 23° 24,7' S	300° 36,0' 23° 25,6' S	300° 28,6' 23° 25,9' S	300° 21,1' 23° 25,8' S	300° 13,6' 23° 25,2' S	300° 06,1' 23° 24,1' S	299° 58,7' 23° 22,6' S	299° 51,3' 23° 20,6' S
09	315° 58,0' 23° 21,8' S	315° 50,6' 23° 23,5' S	315° 43,2' 23° 24,8' S	315° 35,7' 23° 25,6' S	315° 28,3' 23° 25,9' S	315° 20,8' 23° 25,8' S	315° 13,3' 23° 25,2' S	315° 05,8' 23° 24,1' S	314° 58,4' 23° 22,5' S	314° 51,0' 23° 20,5' S
10	330° 57,6' 23° 21,9' S	330° 50,3' 23° 23,6' S	330° 42,9' 23° 24,8' S	330° 35,4' 23° 25,6' S	330° 27,9' 23° 25,9' S	330° 20,5' 23° 25,8' S	330° 13,0' 23° 25,1' S	330° 05,5' 23° 24,0' S	329° 58,1' 23° 22,4' S	329° 50,6' 23° 20,4' S
11	345° 57,3' 23° 21,9' S	345° 50,0' 23° 23,6' S	345° 42,5' 23° 24,9' S	345° 35,1' 23° 25,6' S	345° 27,6' 23° 25,9' S	345° 20,2' 23° 25,7' S	345° 12,7' 23° 25,1' S	345° 05,2' 23° 24,0' S	344° 57,8' 23° 22,4' S	344° 50,3' 23° 20,3' S
12	000° 57,0' 23° 22,0' S	000° 49,7' 23° 23,7' S	000° 42,2' 23° 24,9' S	000° 34,8' 23° 25,6' S	000° 27,3' 23° 25,9' S	000° 19,8' 23° 25,7' S	000° 12,4' 23° 25,0' S	000° 04,9' 23° 23,9' S	359° 57,5' 23° 22,3' S	359° 50,0' 23° 20,2' S
13	015° 56,7' 23° 22,1' S	015° 49,3' 23° 23,8' S	015° 41,9' 23° 24,9' S	015° 34,5' 23° 25,7' S	015° 27,0' 23° 25,9' S	015° 19,5' 23° 25,7' S	015° 12,1' 23° 25,0' S	015° 04,6' 23° 23,8' S	014° 57,1' 23° 22,2' S	014° 49,7' 23° 20,1' S
14	030° 56,4' 23° 22,2' S	030° 49,0' 23° 23,8' S	030° 41,6' 23° 25,0' S	030° 34,2' 23° 25,7' S	030° 26,7' 23° 25,9' S	030° 19,2' 23° 25,7' S	030° 11,7' 23° 25,0' S	030° 04,3' 23° 23,8' S	029° 56,8' 23° 22,1' S	029° 49,4' 23° 20,0' S
15	045° 56,1' 23° 22,3' S	045° 48,7' 23° 23,9' S	045° 41,3' 23° 25,0' S	045° 33,9' 23° 25,7' S	045° 26,4' 23° 25,9' S	045° 18,9' 23° 25,7' S	045° 11,4' 23° 24,9' S	045° 04,0' 23° 23,7' S	044° 56,5' 23° 22,1' S	044° 49,1' 23° 19,9' S
16	060° 55,8' 23° 22,3' S	060° 48,4' 23° 23,9' S	060° 41,0' 23° 25,1' S	060° 33,5' 23° 25,7' S	060° 26,1' 23° 25,9' S	060° 18,6' 23° 25,6' S	060° 11,1' 23° 24,9' S	060° 03,7' 23° 23,7' S	059° 56,2' 23° 22,0' S	

