

Topocentric ephemeris of the Moon

Times are given in UT for Aveiro (8° 37' 48" W, 40° 36' 7" N, zone Z).

	Date yyyy mm dd	Hour hh:mm	R. A. (2000.0) topocentric	Decl. (2000.0) topocentric	Const.	Dist. E. km	Age days	Magn. mV	Diam. "	Illum. %	Elong. °	Separ. °	Rise hh:mm	Transit hh:mm	Set hh:mm	Elevation (max.)	Azimuth at rise	Azimuth at set
1	2030 01 01	00:00	15h 42m 35,8s	-22° 25' 15"	Lib	369710	26d 9h 08m	-9,92	1939	12,7	41,7° W	41,7°	05:11	09:59	14:43	25,6°	300,5°	58,6°
2	2030 01 02	00:00	16h 45m 14,6s	-23° 44' 41"	Oph	370126	27d 9h 08m	-9,38	1937	6,0	28,3° W	28,3°	06:18	11:01	15:44	24,9°	302,0°	58,1°
3	2030 01 03	00:00	17h 48m 15,4s	-23° 30' 11"	Sgr	371567	28d 9h 08m	-8,76	1930	1,7	14,9° W	14,9°	07:17	12:03	16:52	26,0°	300,9°	60,2°
4	2030 01 04	00:00	18h 49m 45,2s	-21° 44' 21"	Sgr	374053	29d 9h 08m	-8,09	1917	0,0	1,7° W	2,1°	08:07	13:02	18:04	28,7°	297,6°	64,3°
5	2030 01 05	00:00	19h 48m 17,1s	-18° 41' 9"	Sgr	377473	0d 21h 11m	-8,57	1899	1,0	11,3° E	11,5°	08:47	13:58	19:15	32,7°	292,5°	70,0°
6	2030 01 06	00:00	20h 43m 13,0s	-14° 39' 57"	Cap	381590	1d 21h 11m	-9,14	1879	4,4	24,0° E	24,2°	09:22	14:49	20:24	37,4°	286,4°	76,5°
7	2030 01 07	00:00	21h 34m 40,6s	-10° 1' 18"	Cap	386075	2d 21h 11m	-9,63	1857	9,9	36,4° E	36,6°	09:51	15:36	21:29	42,6°	279,8°	83,5°
8	2030 01 08	00:00	22h 23m 16,6s	-5° 3' 35"	Aqr	390553	3d 21h 11m	-10,05	1836	17,0	48,4° E	48,6°	10:18	16:21	22:33	47,9°	272,9°	90,5°
9	2030 01 09	00:00	23h 9m 52,2s	-0° 1' 49"	Psc	394646	4d 21h 11m	-10,41	1817	25,3	60,1° E	60,2°	10:43	17:04	23:34	53,1°	266,2°	97,2°
10	2030 01 10	00:00	23h 55m 22,0s	+4° 52' 4"	Psc	398019	5d 21h 11m	-10,72	1801	34,3	71,5° E	71,6°	11:09	17:47		53,1°	259,8°	97,2°
11	2030 01 11	00:00	0h 40m 38,8s	+9° 28' 23"	Psc	400414	6d 21h 11m	-10,99	1791	43,8	82,7° E	82,7°	11:35	18:30	00:34	58,0°	253,8°	103,6°
12	2030 01 12	00:00	1h 26m 30,8s	+13° 38' 32"	Psc	401664	7d 21h 11m	-11,24	1785	53,3	93,7° E	93,7°	12:04	19:14	01:33	62,4°	248,5°	109,3°
13	2030 01 13	00:00	2h 13m 38,2s	+17° 14' 11"	Ari	401708	8d 21h 11m	-11,46	1785	62,7	104,6° E	104,5°	12:36	19:59	02:32	66,3°	244,1°	114,2°
14	2030 01 14	00:00	3h 2m 29,4s	+20° 6' 42"	Ari	400583	9d 21h 11m	-11,67	1790	71,6	115,5° E	115,4°	13:13	20:47	03:30	69,3°	240,8°	118,1°
15	2030 01 15	00:00	3h 53m 16,5s	+22° 7' 10"	Tau	398425	10d 21h 11m	-11,87	1799	79,8	126,4° E	126,4°	13:56	21:37	04:27	71,5°	238,8°	120,6°
16	2030 01 16	00:00	4h 45m 50,1s	+23° 7' 10"	Tau	395444	11d 21h 11m	-12,06	1813	86,9	137,5° E	137,5°	14:45	22:28	05:20	72,6°	238,4°	121,7°
17	2030 01 17	00:00	5h 39m 39,7s	+23° 0' 0"	Tau	391910	12d 21h 11m	-12,24	1829	92,8	148,8° E	148,8°	15:41	23:20	06:09	72,5°	239,7°	121,0°
18	2030 01 18	00:00	6h 33m 59,7s	+21° 42' 26"	Gem	388121	13d 21h 11m	-12,42	1847	97,1	160,4° E	160,3°	16:42		06:53	71,1°	242,8°	118,6°
19	2030 01 19	00:00	7h 28m 2,6s	+19° 15' 49"	Gem	384372	14d 21h 11m	-12,59	1865	99,5	172,2° E	171,8°	17:46	00:11	07:32	64,9°	247,4°	114,7°
20	2030 01 20	00:00	8h 21m 13,2s	+15° 46' 27"	Cnc	380923	15d 21h 11m	-12,66	1882	99,8	175,7° W	174,4°	18:52	01:01	08:06	60,3°	253,2°	109,4°
21	2030 01 21	00:00	9h 13m 17,8s	+11° 24' 51"	Cnc	377971	16d 21h 11m	-12,52	1897	97,8	163,3° W	162,7°	19:59	01:50	08:38	55,1°	260,0°	103,2°
22	2030 01 22	00:00	10h 4m 25,7s	+6° 24' 35"	Leo	375632	17d 21h 11m	-12,37	1909	93,5	150,7° W	150,3°	21:07	02:38	09:07	49,5°	267,3°	96,2°
23	2030 01 23	00:00	10h 55m 6,1s	+1° 1' 7"	Leo	373936	18d 21h 11m	-12,20	1917	87,0	137,9° W	137,7°	22:16	03:26	09:35	43,7°	274,9°	88,9°
24	2030 01 24	00:00	11h 46m 1,1s	-4° 29' 4"	Vir	372845	19d 21h 11m	-12,01	1923	78,7	125,0° W	124,8°	23:25	04:14	10:03	38,2°	282,3°	81,6°
25	2030 01 25	00:00	12h 37m 59,0s	-9° 48' 46"	Vir	372279	20d 21h 11m	-11,79	1926	68,8	112,0° W	111,9°		05:04	10:34	33,3°	289,1°	74,6°
26	2030 01 26	00:00	13h 31m 45,8s	-14° 40' 14"	Vir	372148	21d 21h 11m	-11,54	1927	57,9	99,0° W	99,0°	00:36	05:56	11:09	33,3°	289,1°	68,3°
27	2030 01 27	00:00	14h 27m 54,1s	-18° 45' 19"	Lib	372383	22d 21h 11m	-11,24	1925	46,6	86,0° W	86,0°	01:48	06:51	11:49	29,2°	295,0°	63,1°
28	2030 01 28	00:00	15h 26m 30,3s	-21° 46' 34"	Lib	372963	23d 21h 11m	-10,91	1922	35,5	72,9° W	73,0°	02:58	07:49	12:36	26,4°	299,3°	59,6°
29	2030 01 29	00:00	16h 27m 2,5s	-23° 29' 14"	Oph	373911	24d 21h 11m	-10,52	1917	25,0	59,9° W	59,9°	04:05	08:49	13:32	25,1°	301,6°	58,2°
30	2030 01 30	00:00	17h 28m 20,7s	-23° 44' 25"	Oph	375288	25d 21h 11m	-10,08	1910	15,9	46,9° W	47,0°	05:05	09:49	14:35	25,4°	301,5°	59,1°
31	2030 01 31	00:00	18h 28m 54,3s	-22° 31' 37"	Sgr	377165	26d 21h 11m	-9,57	1901	8,6	34,1° W	34,1°	05:57	10:48	15:43	27,4°	299,2°	62,2°
32	2030 02 01	00:00	19h 27m 21,9s	-19° 59' 16"	Sgr	379587	27d 21h 11m	-9,01	1889	3,4	21,3° W	21,3°	06:41	11:44	16:53	30,7°	295,0°	67,1°
33	2030 02 02	00:00	20h 22m 54,8s	-16° 22' 27"	Cap	382546	28d 21h 11m	-8,40	1874	0,6	8,6° W	9,1°	07:18	12:36	18:03	35,0°	289,5°	73,2°
34	2030 02 03	00:00	21h 15m 23,0s	-11° 59' 28"	Aqr	385952	0d 7h 53m	-8,21	1858	0,2	3,8° E	5,3°	07:50	13:26	19:10	40,0°	283,1°	80,0°
35	2030 02 04	00:00	22h 5m 7,0s	-7° 8' 39"	Aqr	389637	1d 7h 53m	-8,74	1840	2,1	16,0° E	16,5°	08:18	14:12	20:15	45,3°	276,3°	87,1°
36	2030 02 05	00:00	22h 52m 45,1s	-2° 6' 30"	Psc	393360	2d 7h 53m	-9,24	1823	6,0	27,9° E	28,3°	08:44	14:56	21:18	50,6°	269,4°	94,0°
37	2030 02 06	00:00	23h 39m 3,2s	+2° 53' 2"	Psc	396836	3d 7h 53m	-9,69	1807	11,6	39,5° E	39,8°	09:10	15:40	22:19	55,7°	262,8°	100,6°
38	2030 02 07	00:00	0h 24m 48,2s	+7° 38' 23"	Psc	399767	4d 7h 53m	-10,07	1793	18,6	50,9° E	51,0°	09:36	16:23	23:20	60,4°	256,5°	106,7°
39	2030 02 08	00:00	1h 10m 44,0s	+11° 59' 44"	Psc	401878	5d 7h 53m	-10,41	1784	26,7	62,0° E	62,1°	10:04	17:07		60,4°	250,9°	106,7°
40	2030 02 09	00:00	1h 57m 29,1s	+15° 48' 22"	Ari	402947	6d 7h 53m	-10,72	1779	35,5	73,0° E	73,0°	10:35	17:53	00:19	64,6°	246,1°	112,0°
41	2030 02 10	00:00	2h 45m 33,3s	+18° 56' 6"	Ari	402825	7d 7h 53m	-11,00	1780	44,8	83,9° E	83,9°	11:10	18:40	01:18	68,0°	242,2°	116,4°
42	2030 02 11	00:00	3h 35m 14,1s	+21° 14' 54"	Tau	401455	8d 7h 53m	-11,25	1786	54,2	94,7° E	94,7°	11:50	19:28	02:15	70,5°	239,7°	119,5°
43	2030 02 12	00:00	4h 26m 33,4s	+22° 37' 10"	Tau	398882	9d 7h 53m	-11,49	1797	63,6	105,6° E	105,6°	12:36	20:18	03:09	72,1°	238,6°	121,2°
44	2030 02 13	00:00	5h 19m 15,7s	+22° 56' 17"	Tau	395254	10d 7h 53m	-11,71	1814	72,6	116,7° E	116,7°	13:29	21:09	03:59	72,5°	239,1°	121,3°
45	2030 02 14	00:00	6h 12m 50,9s	+22° 7' 46"	Gem	390817	11d 7h 53m	-11,93	1834	80,9	128,1° E	128,1°	14:27	22:00	04:46	71,8°	241,4°	119,7°
46	2030 02 15	00:00	7h 6m 42,1s	+20° 10' 21"	Gem	385896	12d 7h 53m	-12,13	1858	88,2	139,7° E	139,7°	15:29	22:51	05:27	69,8°	245,2°	116,5°
47	2030 02 16	00:00	8h 0m 16,7s	+17° 6' 50"	Cnc	380875	13d 7h 53m	-12,33	1882	94,0	151,7° E	151,6°	16:35	23:41	06:04	66,6°	250,5°	111,8°
48	2030 02 17	00:00	8h 53m 15,8s	+13° 4' 27"	Cnc	376154	14d 7h 53m	-12,52	1906	98,0	164,1° E	163,6°	17:43		06:37	57,4°	257,0°	106,0°
49	2030 02 18	00:00	9h 45m 39,2s	+8° 14' 33"	Leo	372107	15d 7h 53m	-12,69	1927	99,7	176,9° E	174,2°	18:52	00:30	07:07	51,8°	264,2°	99,2°
50	2030 02 19	00:00	10h 37m 45,3s	+2° 52' 3"	Sex	369031	16d 7h 53m	-12,65	1943	99,0	170,0° W	168,7°	20:02	01:20	07:37	46,0°	271,9°	91,9°

Topocentric ephemeris of the Moon (following)

Times are given in UT for Aveiro (8° 37' 48" W, 40° 36' 7" N, zone Z).

	Date	Hour	R. A. (2000.0)	Decl. (2000.0)	Const.	Dist. E.	Age	Magn.	Diam.	Illum.	Elong.	Separ.	Rise	Transit	Set	Elevation	Azimuth	Azimuth
	yyyy mm dd	hh:mm	topocentric	topocentric		km	days	mV	"	%	°	°	hh:mm	hh:mm	hh:mm	(max.)	at rise	at set
51	2030 02 20	00:00	11h 30m 6,3s	-2° 45' 21"	Leo	367111	17d 7h 53m	-12,49	1953	95,7	156,7° W	156,1°	21:13	02:09	08:06	40,2°	279,5°	84,4°
52	2030 02 21	00:00	12h 23m 21,5s	-8° 18' 6"	Vir	366395	18d 7h 53m	-12,31	1957	90,0	143,3° W	143,0°	22:25	02:59	08:37	35,0°	286,8°	77,1°
53	2030 02 22	00:00	13h 18m 9,2s	-13° 25' 43"	Vir	366804	19d 7h 53m	-12,11	1955	82,0	129,9° W	129,7°	23:38	03:52	09:11	30,5°	293,1°	70,4°
54	2030 02 23	00:00	14h 14m 55,7s	-17° 48' 2"	Vir	368160	20d 7h 53m	-11,89	1947	82,4	116,5° W	116,5°		04:47	09:50	27,3°	297,9°	64,8°
55	2030 02 24	00:00	15h 13m 43,0s	-21° 6' 50"	Lib	370237	21d 7h 53m	-11,63	1936	61,6	103,3° W	103,3°	00:50	05:44	10:35	27,3°	297,9°	60,7°
56	2030 02 25	00:00	16h 14m 0,4s	-23° 7' 49"	Sco	372804	22d 7h 53m	-11,33	1923	50,3	90,2° W	90,2°	01:57	06:43	11:28	25,5°	300,8°	58,7°
57	2030 02 26	00:00	17h 14m 45,1s	-23° 43' 5"	Oph	375670	23d 7h 53m	-11,00	1908	39,2	77,4° W	77,4°	02:59	07:43	12:28	25,3°	301,5°	58,8°
58	2030 02 27	00:00	18h 14m 38,9s	-22° 52' 29"	Sgr	378699	24d 7h 53m	-10,62	1893	28,7	64,6° W	64,6°	03:53	08:41	13:33	26,7°	300,0°	61,2°
59	2030 02 28	00:00	19h 12m 31,8s	-20° 43' 30"	Sgr	381814	25d 7h 53m	-10,20	1878	19,4	52,1° W	52,1°	04:38	09:36	14:40	29,5°	296,5°	65,3°
60	2030 03 01	00:00	20h 7m 42,1s	-17° 29' 14"	Cap	384982	26d 7h 53m	-9,74	1862	11,6	39,7° W	39,8°	05:16	10:29	15:48	33,3°	291,6°	70,8°
61	2030 03 02	00:00	21h 0m 1,3s	-13° 25' 36"	Aqr	388191	27d 7h 53m	-9,22	1847	5,7	27,5° W	27,7°	05:49	11:18	16:55	37,9°	285,7°	77,2°
62	2030 03 03	00:00	21h 49m 47,1s	-8° 49' 4"	Cap	391416	28d 7h 53m	-8,67	1832	1,9	15,4° W	15,9°	06:19	12:05	17:59	43,0°	279,2°	84,0°
63	2030 03 04	00:00	22h 37m 33,6s	-3° 55' 7"	Aqr	394606	29d 7h 53m	-8,15	1817	0,2	3,5° W	5,7°	06:46	12:50	19:03	48,3°	272,4°	91,0°
64	2030 03 05	00:00	23h 24m 1,8s	+1° 2' 14"	Psc	397658	0d 17h 25m	-8,33	1803	0,7	8,1° E	9,3°	07:12	13:34	20:05	53,4°	265,7°	97,7°
65	2030 03 06	00:00	0h 9m 53,9s	+5° 50' 38"	Psc	400424	1d 17h 25m	-8,83	1790	3,0	19,6° E	20,0°	07:38	14:17	21:06	58,3°	259,3°	104,0°
66	2030 03 07	00:00	0h 55m 49,1s	+10° 19' 9"	Psc	402717	2d 17h 25m	-9,29	1780	7,2	30,8° E	31,0°	08:05	15:01	22:06	62,7°	253,4°	109,6°
67	2030 03 08	00:00	1h 42m 21,5s	+14° 18' 4"	Psc	404331	3d 17h 25m	-9,71	1773	12,9	41,9° E	42,0°	08:35	15:46	23:06	66,4°	248,2°	114,4°
68	2030 03 09	00:00	2h 29m 57,0s	+17° 38' 35"	Ari	405060	4d 17h 25m	-10,08	1770	19,9	52,8° E	52,8°	09:09	16:33		66,4°	244,0°	114,4°
69	2030 03 10	00:00	3h 18m 51,3s	+20° 12' 39"	Ari	404732	5d 17h 25m	-10,42	1771	27,9	63,6° E	63,6°	09:46	17:21	00:03	69,3°	240,9°	118,0°
70	2030 03 11	00:00	4h 9m 7,0s	+21° 53' 10"	Tau	403228	6d 17h 25m	-10,73	1778	36,7	74,4° E	74,4°	10:30	18:09	00:59	71,3°	239,2°	120,3°
71	2030 03 12	00:00	5h 0m 33,6s	+22° 34' 11"	Tau	400505	7d 17h 25m	-11,02	1790	46,0	85,3° E	85,3°	11:19	18:59	01:50	72,2°	239,0°	121,1°
72	2030 03 13	00:00	5h 52m 49,6s	+22° 11' 32"	Ori	396613	8d 17h 25m	-11,29	1808	55,6	96,3° E	96,3°	12:13	19:49	02:38	72,0°	240,5°	120,3°
73	2030 03 14	00:00	6h 45m 28,3s	+20° 43' 21"	Gem	391712	9d 17h 25m	-11,55	1830	65,2	107,6° E	107,6°	13:13	20:39	03:20	70,6°	243,6°	117,8°
74	2030 03 15	00:00	7h 38m 6,0s	+18° 10' 37"	Gem	386066	10d 17h 25m	-11,79	1857	74,5	119,2° E	119,2°	14:16	21:29	03:58	68,0°	248,1°	113,9°
75	2030 03 16	00:00	8h 30m 29,4s	+14° 37' 31"	Cnc	380046	11d 17h 25m	-12,02	1886	83,0	131,3° E	131,2°	15:22	22:18	04:32	64,4°	253,9°	108,7°
76	2030 03 17	00:00	9h 22m 40,1s	+10° 11' 37"	Leo	374098	12d 17h 25m	-12,24	1916	90,2	143,8° E	143,5°	16:31	23:08	05:04	59,8°	260,7°	102,5°
77	2030 03 18	00:00	10h 14m 55,3s	+5° 4' 12"	Sex	368710	13d 17h 25m	-12,45	1944	95,8	156,8° E	156,2°	17:41	23:57	05:34	54,5°	268,2°	95,5°
78	2030 03 19	00:00	11h 7m 45,3s	-0° 29' 37"	Leo	364350	14d 17h 25m	-12,65	1968	99,0	170,2° E	168,7°	18:52		06:04	42,9°	276,0°	88,0°
79	2030 03 20	00:00	12h 1m 48,2s	-6° 10' 48"	Vir	361399	15d 17h 25m	-11,79	1984	99,7	176,1° W	173,3°	20:06	00:49	06:35	37,2°	283,6°	80,4°
80	2030 03 21	00:00	12h 57m 41,5s	-11° 37' 7"	Vir	360090	16d 17h 25m	-12,59	1991	97,4	162,2° W	161,6°	21:21	01:42	07:09	32,3°	290,5°	73,3°
81	2030 03 22	00:00	13h 55m 50,3s	-16° 24' 48"	Vir	360469	17d 17h 25m	-12,41	1989	92,5	148,3° W	148,0°	22:36	02:38	07:48	28,5°	296,0°	67,0°
82	2030 03 23	00:00	14h 56m 13,6s	-20° 11' 7"	Lib	362396	18d 17h 25m	-12,20	1978	85,0	134,5° W	134,4°	23:47	03:36	08:32	26,2°	299,7°	62,3°
83	2030 03 24	00:00	15h 58m 12,9s	-22° 38' 0"	Sco	365586	19d 17h 25m	-11,96	1961	75,7	120,9° W	120,9°		04:37	09:24	25,5°	301,1°	59,5°
84	2030 03 25	00:00	17h 0m 33,7s	-23° 35' 26"	Oph	369671	20d 17h 25m	-11,70	1939	65,2	107,6° W	107,6°	00:52	05:37	10:22	25,5°	301,1°	58,9°
85	2030 03 26	00:00	18h 1m 46,0s	-23° 3' 11"	Sgr	374271	21d 17h 25m	-11,40	1916	54,1	94,5° W	94,5°	01:49	06:36	11:27	26,4°	300,3°	60,6°
86	2030 03 27	00:00	19h 0m 33,0s	-21° 9' 54"	Sgr	379049	22d 17h 25m	-11,07	1891	43,0	81,8° W	81,8°	02:37	07:33	12:33	28,8°	297,4°	64,2°
87	2030 03 28	00:00	19h 56m 13,0s	-18° 9' 53"	Sgr	383743	23d 17h 25m	-10,71	1868	32,6	69,4° W	69,4°	03:17	08:26	13:41	32,3°	292,9°	69,3°
88	2030 03 29	00:00	20h 48m 41,5s	-14° 19' 32"	Aqr	388176	24d 17h 25m	-10,32	1847	23,1	57,3° W	57,3°	03:51	09:15	14:47	36,6°	287,4°	75,3°
89	2030 03 30	00:00	21h 38m 22,6s	-9° 54' 58"	Cap	392248	25d 17h 25m	-9,89	1828	15,0	45,3° W	45,5°	04:21	10:02	15:51	41,4°	281,2°	81,8°
90	2030 03 31	00:00	22h 25m 55,8s	-5° 10' 45"	Aqr	395910	26d 17h 25m	-9,42	1811	8,5	33,6° W	33,8°	04:48	10:47	16:53	46,5°	274,7°	88,6°
91	2030 04 01	00:00	23h 12m 5,9s	-0° 19' 54"	Psc	399142	27d 17h 25m	-8,91	1796	3,8	22,0° W	22,5°	05:15	11:30	17:55	51,6°	268,1°	95,3°
92	2030 04 02	00:00	23h 57m 37,4s	+4° 25' 55"	Psc	401927	28d 17h 25m	-8,37	1784	1,0	10,7° W	11,5°	05:41	12:13	18:56	56,5°	261,7°	101,6°
93	2030 04 03	00:00	0h 43m 10,9s	+8° 55' 59"	Psc	404229	0d 1h 58m	-8,01	1774	0,1	0,6° E	4,0°	06:08	12:57	19:56	61,0°	255,7°	107,5°
94	2030 04 04	00:00	1h 29m 20,0s	+13° 0' 19"	Psc	405979	1d 1h 58m	-8,40	1766	1,1	11,6° E	12,1°	06:37	13:42	20:55	65,0°	250,3°	112,5°
95	2030 04 05	00:00	2h 16m 29,4s	+16° 29' 33"	Ari	407082	2d 1h 58m	-8,89	1761	3,9	22,5° E	22,7°	07:09	14:28	21:54	68,2°	245,7°	116,5°
96	2030 04 06	00:00	3h 4m 52,5s	+19° 15' 5"	Ari	407415	3d 1h 58m	-9,34	1760	8,3	33,4° E	33,4°	07:45	15:15	22:50	70,5°	242,2°	119,3°
97	2030 04 07	00:00	3h 54m 29,5s	+21° 9' 28"	Tau	406847	4d 1h 58m	-9,75	1762	14,2	44,1° E	44,1°	08:26	16:03	23:42	71,8°	240,0°	120,6°
98	2030 04 08	00:00	4h 45m 7,6s	+22° 6' 47"	Tau	405260	5d 1h 58m	-10,13	1769	21,3	54,9° E	54,9°	09:13	16:52		71,8°	239,3°	120,6°
99	2030 04 09	00:00	5h 36m 24,0s	+22° 3' 11"	Tau	402571	6d 1h 58m	-10,48	1781	29,6	65,8° E	65,8°	10:05	17:42	00:31	72,0°	240,1°	120,4°
100	2030 04 10	00:00	6h 27m 52,7s	+20° 57' 13"	Gem	398758	7d 1h 58m	-10,80	1798	38,7	76,8° E	76,8°	11:01	18:31	01:15	71,0°	242,5°	118,6°

Topocentric ephemeris of the Moon (following)

Times are given in UT for Aveiro (8° 37' 48" W, 40° 36' 7" N, zone Z).

	Date yyyy mm dd	Hour hh:mm	R. A. (2000.0) topocentric	Decl. (2000.0) topocentric	Const.	Dist. E. km	Age days	Magn. mV	Diam. "	Illum. %	Elong. °	Separ. °	Rise hh:mm	Transit hh:mm	Set hh:mm	Elevation (max.)	Azimuth at rise	Azimuth at set
101	2030 04 11	00:00	7h 19m 12,1s	+18° 49' 54"	Gem	393882	8d 1h 58m	-11,10	1820	48,4	88,0° E	88,0°	12:01	19:19	01:54	69,0°	246,3°	115,4°
102	2030 04 12	00:00	8h 10m 11,9s	+15° 44' 36"	Cnc	388106	9d 1h 58m	-11,39	1847	58,4	99,6° E	99,5°	13:04	20:07	02:29	65,9°	251,4°	110,9°
103	2030 04 13	00:00	9h 0m 57,0s	+11° 46' 53"	Cnc	381707	10d 1h 58m	-11,66	1878	68,4	111,5° E	111,5°	14:10	20:55	03:00	61,8°	257,6°	105,3°
104	2030 04 14	00:00	9h 51m 48,1s	+7° 4' 48"	Leo	375075	11d 1h 58m	-11,92	1911	77,9	124,0° E	123,8°	15:17	21:44	03:31	57,0°	264,6°	98,8°
105	2030 04 15	00:00	10h 43m 19,6s	+1° 49' 17"	Sex	368694	12d 1h 58m	-12,16	1945	86,4	137,0° E	136,6°	16:27	22:34	04:00	51,6°	272,1°	91,7°
106	2030 04 16	00:00	11h 36m 15,7s	-3° 44' 55"	Leo	363101	13d 1h 58m	-12,38	1975	93,3	150,4° E	149,9°	17:40	23:26	04:30	45,8°	279,8°	84,2°
107	2030 04 17	00:00	12h 31m 23,3s	-9° 18' 30"	Vir	358817	14d 1h 58m	-12,60	1998	97,9	164,3° E	163,4°	18:55		05:03	40,0°	287,1°	76,9°
108	2030 04 18	00:00	13h 29m 21,4s	-14° 27' 53"	Vir	356267	15d 1h 58m	-12,78	2012	99,8	178,4° E	175,0°	20:11	00:21	05:40	30,3°	293,4°	70,1°
109	2030 04 19	00:00	14h 30m 24,0s	-18° 46' 55"	Lib	355698	16d 1h 58m	-12,68	2016	98,7	167,3° W	166,8°	21:27	01:20	06:23	27,2°	298,1°	64,4°
110	2030 04 20	00:00	15h 34m 1,6s	-21° 51' 7"	Lib	357131	17d 1h 58m	-12,48	2008	94,6	153,1° W	153,0°	22:38	02:22	07:13	25,8°	300,6°	60,6°
111	2030 04 21	00:00	16h 38m 53,4s	-23° 23' 17"	Oph	360361	18d 1h 58m	-12,26	1990	87,8	139,1° W	139,1°	23:40	03:25	08:11	26,1°	300,6°	59,1°
112	2030 04 22	00:00	17h 43m 4,7s	-23° 18' 6"	Oph	365005	19d 1h 58m	-12,02	1964	79,0	125,4° W	125,4°		04:27	09:16	28,0°	298,3°	60,0°
113	2030 04 23	00:00	18h 44m 46,9s	-21° 42' 49"	Sgr	370587	20d 1h 58m	-11,76	1935	68,9	112,1° W	112,1°	00:33	05:26	10:24	28,0°	298,3°	63,1°
114	2030 04 24	00:00	19h 42m 53,0s	-18° 53' 29"	Sgr	376619	21d 1h 58m	-11,47	1904	58,1	99,2° W	99,2°	01:16	06:22	11:33	31,2°	294,2°	67,9°
115	2030 04 25	00:00	20h 37m 7,7s	-15° 9' 26"	Cap	382667	22d 1h 58m	-11,15	1874	47,2	86,7° W	86,7°	01:53	07:13	12:40	35,4°	288,9°	73,6°
116	2030 04 26	00:00	21h 27m 55,2s	-10° 49' 9"	Cap	388390	23d 1h 58m	-10,81	1846	36,8	74,5° W	74,6°	02:24	08:00	13:45	40,1°	282,9°	80,0°
117	2030 04 27	00:00	22h 16m 1,1s	-6° 8' 28"	Aqr	393554	24d 1h 58m	-10,44	1822	27,2	62,7° W	62,8°	02:52	08:46	14:47	45,1°	276,5°	86,7°
118	2030 04 28	00:00	23h 2m 18,4s	-1° 20' 34"	Psc	398019	25d 1h 58m	-10,04	1801	18,8	51,1° W	51,3°	03:19	09:29	15:48	50,1°	270,0°	93,3°
119	2030 04 29	00:00	23h 47m 39,0s	+3° 23' 28"	Psc	401726	26d 1h 58m	-9,60	1785	11,8	39,8° W	40,0°	03:44	10:12	16:49	55,0°	263,6°	99,7°
120	2030 04 30	00:00	0h 32m 49,9s	+7° 53' 43"	Psc	404666	27d 1h 58m	-9,14	1772	6,3	28,6° W	28,9°	04:11	10:55	17:48	59,6°	257,5°	105,6°
121	2030 05 01	00:00	1h 18m 30,3s	+12° 0' 51"	Psc	406857	28d 1h 58m	-8,63	1762	2,4	17,6° W	17,9°	04:39	11:39	18:48	63,7°	252,0°	110,9°
122	2030 05 02	00:00	2h 5m 9,3s	+15° 35' 49"	Ari	408317	29d 1h 58m	-8,10	1756	0,4	6,7° W	7,3°	05:10	12:24	19:46	67,1°	247,2°	115,2°
123	2030 05 03	00:00	2h 53m 3,5s	+18° 29' 53"	Ari	409051	0d 9h 48m	-7,98	1753	0,2	4,1° E	4,5°	05:45	13:11	20:43	69,7°	243,3°	118,4°
124	2030 05 04	00:00	3h 42m 14,5s	+20° 35' 10"	Tau	409039	1d 9h 48m	-8,49	1753	1,7	14,9° E	14,9°	06:24	13:59	21:37	71,3°	240,7°	120,2°
125	2030 05 05	00:00	4h 32m 28,6s	+21° 45' 11"	Tau	408234	2d 9h 48m	-8,98	1756	4,9	25,6° E	25,6°	07:09	14:48	22:27	71,9°	239,5°	120,5°
126	2030 05 06	00:00	5h 23m 19,8s	+21° 55' 45"	Tau	406576	3d 9h 48m	-9,44	1763	9,8	36,4° E	36,4°	07:59	15:37	23:12	71,3°	239,8°	119,2°
127	2030 05 07	00:00	6h 14m 17,0s	+21° 5' 22"	Ori	404001	4d 9h 48m	-9,85	1775	16,2	47,3° E	47,3°	08:54	16:26	23:52	69,6°	241,7°	116,5°
128	2030 05 08	00:00	7h 4m 52,9s	+19° 15' 24"	Gem	400466	5d 9h 48m	-10,24	1790	23,8	58,3° E	58,3°	09:52	17:14		69,6°	245,0°	116,5°
129	2030 05 09	00:00	7h 54m 52,7s	+16° 29' 36"	Gem	395972	6d 9h 48m	-10,20	1811	32,7	69,5° W	69,6°	10:53	18:01	00:28	66,9°	249,5°	112,5°
130	2030 05 10	00:00	8h 44m 17,7s	+12° 53' 34"	Cnc	390590	7d 9h 48m	-10,94	1836	42,4	81,0° E	81,1°	11:56	18:47	00:59	63,3°	255,2°	107,4°
131	2030 05 11	00:00	9h 33m 27,0s	+8° 34' 28"	Leo	384485	8d 9h 48m	-11,25	1865	52,7	92,9° E	92,9°	13:00	19:34	01:30	58,9°	261,6°	101,4°
132	2030 05 12	00:00	10h 22m 55,3s	+3° 41' 4"	Sex	377930	9d 9h 48m	-11,55	1897	63,2	105,3° E	105,2°	14:07	20:22	01:58	53,9°	268,7°	94,8°
133	2030 05 13	00:00	11h 13m 29,5s	-1° 35' 35"	Leo	371312	10d 9h 48m	-11,82	1931	73,5	118,1° E	117,9°	15:16	21:11	02:27	48,5°	276,1°	87,7°
134	2030 05 14	00:00	12h 6m 4,2s	-7° 1' 3"	Vir	365114	11d 9h 48m	-12,08	1964	82,9	131,3° E	131,1°	16:28	22:04	02:58	42,8°	283,5°	80,4°
135	2030 05 15	00:00	13h 1m 34,1s	-12° 16' 25"	Vir	359873	12d 9h 48m	-12,32	1992	90,9	145,1° E	144,7°	17:43	23:00	03:32	37,3°	290,3°	73,4°
136	2030 05 16	00:00	14h 0m 40,1s	-16° 58' 4"	Vir	356108	13d 9h 48m	-12,54	2013	96,6	159,2° E	158,8°	18:59		04:11	32,5°	295,9°	67,2°
137	2030 05 17	00:00	15h 3m 27,4s	-20° 39' 31"	Lib	354232	14d 9h 48m	-12,74	2024	99,6	173,5° E	172,8°	20:14	00:01	04:57	26,3°	299,6°	62,4°
138	2030 05 18	00:00	16h 9m 4,1s	-22° 56' 26"	Sco	354467	15d 9h 48m	-12,74	2023	99,5	172,1° W	171,9°	21:22	01:04	05:53	25,8°	300,8°	59,6°
139	2030 05 19	00:00	17h 15m 37,6s	-23° 33' 38"	Oph	356793	16d 9h 48m	-12,53	2009	96,3	157,8° W	157,8°	22:21	02:09	06:56	27,1°	299,5°	59,4°
140	2030 05 20	00:00	18h 20m 48,0s	-22° 30' 24"	Sgr	360952	17d 9h 48m	-12,31	1986	90,4	143,8° W	143,8°	23:10	03:12	08:06	29,9°	296,0°	61,7°
141	2030 05 21	00:00	19h 22m 40,7s	-19° 59' 54"	Sgr	366505	18d 9h 48m	-12,07	1956	82,3	130,2° W	130,2°	23:51	04:11	09:17	33,8°	291,0°	65,9°
142	2030 05 22	00:00	20h 20m 21,1s	-16° 23' 19"	Cap	372920	19d 9h 48m	-11,81	1923	72,8	117,0° W	117,0°		05:06	10:27	38,5°	285,0°	71,5°
143	2030 05 23	00:00	21h 13m 53,1s	-12° 3' 7"	Aqr	379659	20d 9h 48m	-11,53	1888	62,5	104,3° W	104,3°	00:25	05:56	11:35	38,5°	285,0°	77,9°
144	2030 05 24	00:00	22h 3m 57,5s	-7° 18' 57"	Aqr	386244	21d 9h 48m	-11,23	1856	51,9	92,0° W	92,0°	00:55	06:43	12:40	43,5°	278,5°	84,6°
145	2030 05 25	00:00	22h 51m 30,9s	-2° 26' 28"	Psc	392302	22d 9h 48m	-10,91	1828	41,6	80,2° W	80,2°	01:22	07:28	13:42	48,6°	271,9°	91,4°
146	2030 05 26	00:00	23h 37m 32,2s	+2° 22' 8"	Psc	397571	23d 9h 48m	-10,57	1803	31,9	68,6° W	68,7°	01:48	08:11	14:43	53,6°	265,5°	97,9°
147	2030 05 27	00:00	0h 22m 55,9s	+6° 56' 56"	Psc	401900	24d 9h 48m	-10,20	1784	23,2	57,3° W	57,4°	02:15	08:54	15:42	58,3°	259,3°	103,9°
148	2030 05 28	00:00	1h 8m 29,0s	+11° 9' 10"	Psc	405230	25d 9h 48m	-9,80	1769	15,6	46,3° W	46,4°	02:42	09:38	16:42	62,5°	253,6°	109,4°
149	2030 05 29	00:00	1h 54m 48,4s	+14° 50' 33"	Ari	407569	26d 9h 48m	-9,38	1759	9,3	35,4° W	35,5°	03:12	10:22	17:40	66,2°	248,6°	114,0°
150	2030 05 30	00:00	2h 42m 18,1s	+17° 52' 58"	Ari	408967	27d 9h 48m	-8,91	1753	4,6	24,6° W	24,6°	03:45	11:08	18:37	69,0°	244,4°	117,5°

Topocentric ephemeris of the Moon (following)

Times are given in UT for Aveiro (8° 37' 48" W, 40° 36' 7" N, zone Z).

	Date yyyy mm dd	Hour hh:mm	R. A. (2000.0) topocentric	Decl. (2000.0) topocentric	Const.	Dist. E. km	Age days	Magn. mV	Diam. "	Illum. %	Elong. °	Separ. °	Rise hh:mm	Transit hh:mm	Set hh:mm	Elevation (max.)	Azimuth at rise	Azimuth at set
151	2030 05 31	00:00	3h 31m 6,8s	+20° 8' 34"	Tau	409493	28d 9h 48m	-8,41	1751	1,5	13,8° W	13,8°	04:23	11:56	19:32	70,9°	241,4°	119,8°
152	2030 06 01	00:00	4h 21m 5,7s	+21° 30' 33"	Tau	409213	29d 9h 48m	-7,85	1752	0,1	3,1° W	3,1°	05:07	12:45	20:24	71,8°	239,8°	120,5°
153	2030 06 02	00:00	5h 11m 50,7s	+21° 54' 1"	Tau	408177	0d 17h 39m	-8,12	1756	0,5	7,7° E	7,8°	05:55	13:34	21:10	71,6°	239,6°	119,7°
154	2030 06 03	00:00	6h 2m 48,0s	+21° 16' 48"	Ori	406410	1d 17h 39m	-8,66	1764	2,7	18,6° E	18,7°	06:49	14:23	21:52	70,2°	241,0°	117,5°
155	2030 06 04	00:00	6h 53m 23,8s	+19° 39' 52"	Gem	403914	2d 17h 39m	-9,16	1775	6,6	29,5° E	29,7°	07:46	15:11	22:29	67,9°	243,8°	113,8°
156	2030 06 05	00:00	7h 43m 14,7s	+17° 7' 7"	Gem	400681	3d 17h 39m	-9,62	1789	12,2	40,7° E	40,8°	08:46	15:58	23:02	64,5°	248,0°	109,1°
157	2030 06 06	00:00	8h 32m 13,2s	+13° 44' 44"	Cnc	396706	4d 17h 39m	-10,05	1807	19,4	52,0° E	52,2°	09:47	16:44	23:32	60,4°	253,3°	103,5°
158	2030 06 07	00:00	9h 20m 30,9s	+9° 40' 22"	Cnc	392012	5d 17h 39m	-10,44	1829	28,0	63,6° E	63,7°	10:50	17:30		60,4°	259,4°	103,5°
159	2030 06 08	00:00	10h 8m 36,0s	+5° 2' 47"	Sex	386677	6d 17h 39m	-10,81	1854	37,6	75,5° E	75,5°	11:54	18:16	00:00	55,7°	266,1°	97,2°
160	2030 06 09	00:00	10h 57m 11,2s	+0° 1' 53"	Leo	380856	7d 17h 39m	-11,15	1882	48,1	87,7° E	87,7°	12:59	19:03	00:28	50,5°	273,2°	90,4°
161	2030 06 10	00:00	11h 47m 9,6s	-5° 10' 34"	Vir	374803	8d 17h 39m	-11,46	1913	59,1	100,3° E	100,3°	14:08	19:52	00:57	45,1°	280,3°	83,4°
162	2030 06 11	00:00	12h 39m 29,6s	-10° 19' 58"	Vir	368869	9d 17h 39m	-11,75	1944	69,9	113,4° E	113,3°	15:19	20:45	01:28	39,7°	287,2°	76,5°
163	2030 06 12	00:00	13h 35m 6,6s	-15° 7' 47"	Vir	363495	10d 17h 39m	-12,01	1972	80,0	126,9° E	126,7°	16:33	21:42	02:03	34,7°	293,3°	70,0°
164	2030 06 13	00:00	14h 34m 37,1s	-19° 11' 27"	Lib	359164	11d 17h 39m	-12,26	1996	88,7	140,7° E	140,5°	17:47	22:43	02:44	30,4°	298,0°	64,6°
165	2030 06 14	00:00	15h 37m 55,6s	-22° 6' 22"	Lib	356333	12d 17h 39m	-12,48	2012	95,2	154,8° E	154,7°	18:59	23:47	03:34	27,3°	300,5°	60,8°
166	2030 06 15	00:00	16h 43m 54,3s	-23° 31' 4"	Oph	355353	13d 17h 39m	-12,67	2018	99,1	169,1° E	169,0°	20:03		04:34	26,2°	300,5°	59,2°
167	2030 06 16	00:00	17h 50m 27,7s	-23° 14' 18"	Sgr	356390	14d 17h 39m	-12,77	2012	99,9	176,7° W	176,7°	20:58	00:51	05:41	28,3°	298,0°	60,2°
168	2030 06 17	00:00	18h 55m 14,3s	-21° 19' 34"	Sgr	359380	15d 17h 39m	-12,57	1995	97,7	162,6° W	162,5°	21:44	01:53	06:53	31,8°	293,6°	63,6°
169	2030 06 18	00:00	19h 56m 29,9s	-18° 3' 39"	Sgr	364042	16d 17h 39m	-12,35	1969	92,8	148,8° W	148,7°	22:22	02:52	08:06	36,3°	287,8°	68,7°
170	2030 06 19	00:00	20h 53m 34,1s	-13° 50' 9"	Aqr	369930	17d 17h 39m	-12,12	1938	85,6	135,4° W	135,3°	22:55	03:46	09:18	41,4°	281,3°	75,0°
171	2030 06 20	00:00	21h 46m 41,6s	-9° 2' 46"	Cap	376513	18d 17h 39m	-11,87	1904	76,9	122,5° W	122,4°	23:24	04:36	10:26	46,6°	274,5°	81,9°
172	2030 06 21	00:00	22h 36m 38,8s	-4° 1' 33"	Aqr	383257	19d 17h 39m	-11,61	1871	67,2	110,0° W	110,0°	23:51	05:23	11:31	51,8°	267,8°	88,8°
173	2030 06 22	00:00	23h 24m 23,7s	+0° 57' 56"	Psc	389692	20d 17h 39m	-11,33	1840	57,1	98,0° W	98,0°		06:08	12:33	56,7°	261,4°	95,5°
174	2030 06 23	00:00	0h 10m 54,6s	+5° 43' 52"	Psc	395442	21d 17h 39m	-11,03	1813	47,0	86,4° W	86,4°	00:18	06:51	13:34	56,7°	261,4°	101,9°
175	2030 06 24	00:00	0h 57m 3,6s	+10° 6' 53"	Psc	400245	22d 17h 39m	-10,72	1791	37,3	75,1° W	75,1°	00:45	07:35	14:34	61,2°	255,5°	107,6°
176	2030 06 25	00:00	1h 43m 34,2s	+13° 58' 56"	Psc	403953	23d 17h 39m	-10,39	1775	28,3	64,0° W	64,1°	01:14	08:20	15:33	65,0°	250,2°	112,5°
177	2030 06 26	00:00	2h 30m 58,1s	+17° 12' 29"	Ari	406514	24d 17h 39m	-10,03	1764	20,1	53,2° W	53,2°	01:46	09:05	16:31	68,1°	245,7°	116,5°
178	2030 06 27	00:00	3h 19m 32,9s	+19° 40' 21"	Ari	407956	25d 17h 39m	-9,63	1757	13,1	42,4° W	42,4°	02:23	09:52	17:27	70,4°	242,3°	119,2°
179	2030 06 28	00:00	4h 9m 19,0s	+21° 15' 54"	Tau	408363	26d 17h 39m	-9,21	1756	7,5	31,6° W	31,6°	03:04	10:41	18:19	71,6°	240,2°	120,4°
180	2030 06 29	00:00	4h 59m 60,0s	+21° 53' 52"	Tau	407849	27d 17h 39m	-8,74	1758	3,3	20,8° W	20,8°	03:51	11:30	19:08	71,8°	239,5°	120,2°
181	2030 06 30	00:00	5h 51m 6,1s	+21° 31' 15"	Ori	406543	28d 17h 39m	-8,23	1764	0,8	9,9° W	10,1°	04:43	12:19	19:52	70,8°	240,3°	118,4°
182	2030 07 01	00:00	6h 42m 2,6s	+20° 8' 1"	Gem	404559	0d 2h 26m	-7,84	1772	0,1	1,1° E	3,1°	05:40	13:08	20:30	68,8°	242,7°	115,2°
183	2030 07 02	00:00	7h 32m 19,9s	+17° 47' 23"	Gem	401994	1d 2h 26m	-8,39	1783	1,2	12,2° E	12,8°	06:39	13:56	21:05	65,7°	246,5°	110,7°
184	2030 07 03	00:00	8h 21m 42,0s	+14° 35' 21"	Cnc	398915	2d 2h 26m	-8,93	1797	4,3	23,5° E	24,0°	07:41	14:43	21:36	61,8°	251,5°	105,3°
185	2030 07 04	00:00	9h 10m 10,1s	+10° 40' 4"	Cnc	395365	3d 2h 26m	-9,43	1813	9,3	35,1° E	35,4°	08:43	15:29	22:05	57,2°	257,4°	99,2°
186	2030 07 05	00:00	9h 58m 3,3s	+6° 10' 59"	Sex	391376	4d 2h 26m	-9,90	1832	16,0	46,8° E	47,1°	09:47	16:14	22:32	52,2°	263,9°	92,6°
187	2030 07 06	00:00	10h 45m 55,4s	+1° 18' 34"	Sex	386988	5d 2h 26m	-10,32	1853	24,4	58,8° E	59,0°	10:51	17:00	23:00	46,9°	270,8°	85,8°
188	2030 07 07	00:00	11h 34m 31,9s	-3° 45' 41"	Leo	382272	6d 2h 26m	-10,71	1875	34,0	71,1° E	71,2°	11:57	17:48	23:30	41,6°	277,8°	79,0°
189	2030 07 08	00:00	12h 24m 45,7s	-8° 48' 43"	Vir	377358	7d 2h 26m	-11,07	1900	44,7	83,7° E	83,7°	13:05	18:38		41,6°	284,7°	79,0°
190	2030 07 09	00:00	13h 17m 31,2s	-13° 35' 10"	Vir	372448	8d 2h 26m	-11,40	1925	55,8	96,6° E	96,5°	14:16	19:31	00:02	36,5°	290,9°	72,5°
191	2030 07 10	00:00	14h 13m 34,6s	-17° 46' 47"	Vir	367827	9d 2h 26m	-11,69	1949	67,0	109,8° E	109,7°	15:27	20:28	00:39	32,1°	296,1°	66,8°
192	2030 07 11	00:00	15h 13m 17,3s	-21° 2' 53"	Lib	363846	10d 2h 26m	-11,96	1970	77,4	123,2° E	123,2°	16:38	21:29	01:24	28,5°	299,5°	62,3°
193	2030 07 12	00:00	16h 16m 16,0s	-23° 2' 46"	Sco	360885	11d 2h 26m	-12,19	1987	86,6	137,0° E	136,9°	17:45	22:31	02:17	26,3°	300,7°	59,7°
194	2030 07 13	00:00	17h 21m 11,6s	-23° 30' 38"	Oph	359298	12d 2h 26m	-12,40	1995	93,7	150,9° E	150,9°	18:44	23:34	03:19	25,8°	299,5°	59,4°
195	2030 07 14	00:00	18h 26m 4,6s	-22° 21' 3"	Sgr	359338	13d 2h 26m	-12,59	1995	98,3	164,8° E	164,8°	19:34		04:28	29,8°	296,1°	61,6°
196	2030 07 15	00:00	19h 28m 56,2s	-19° 41' 40"	Sgr	361103	14d 2h 26m	-12,74	1985	100,0	178,7° E	177,5°	20:16	00:35	05:41	33,9°	290,9°	65,9°
197	2030 07 16	00:00	20h 28m 29,3s	-15° 50' 48"	Cap	364501	15d 2h 26m	-12,59	1967	98,8	167,6° W	167,2°	20:52	01:31	06:54	38,8°	284,6°	71,7°
198	2030 07 17	00:00	21h 24m 21,4s	-11° 11' 47"	Aqr	369258	16d 2h 26m	-12,38	1942	94,9	154,2° W	153,9°	21:23	02:24	08:05	44,1°	277,8°	78,4°
199	2030 07 18	00:00	22h 16m 53,7s	-6° 7' 35"	Aqr	374965	17d 2h 26m	-12,17	1912	88,9	141,2° W	141,0°	21:52	03:14	09:13	49,5°	270,9°	85,5°
200	2030 07 19	00:00	23h 6m 50,9s	-0° 57' 46"	Psc	381142	18d 2h 26m	-11,94	1881	81,2	128,6° W	128,4°	22:19	04:01	10:18	54,6°	264,2°	92,5°

Topocentric ephemeris of the Moon (following)

Times are given in UT for Aveiro (8° 37' 48" W, 40° 36' 7" N, zone Z).

	Date yyyy mm dd	Hour hh:mm	R. A. (2000.0) topocentric	Decl. (2000.0) topocentric	Const.	Dist. E. km	Age days	Magn. mV	Diam. "	Illum. %	Elong. °	Separ. °	Rise hh:mm	Transit hh:mm	Set hh:mm	Elevation (max.)	Azimuth at rise	Azimuth at set
201	2030 07 20	00:00	23h 55m 5,7s	+4° 2' 16"	Psc	387304	19d 2h 26m	-11,70	1851	72,3	116,4° W	116,4°	22:47	04:46	11:21	59,3°	257,9°	99,2°
202	2030 07 21	00:00	0h 42m 29,4s	+8° 40' 43"	Psc	393018	20d 2h 26m	-11,44	1824	62,8	104,7° W	104,7°	23:16	05:30	12:23	63,5°	252,3°	105,3°
203	2030 07 22	00:00	1h 29m 47,1s	+12° 48' 16"	Psc	397932	21d 2h 26m	-11,18	1802	53,0	93,3° W	93,3°	23:47	06:15	13:23	67,0°	247,4°	110,6°
204	2030 07 23	00:00	2h 17m 34,2s	+16° 17' 12"	Ari	401802	22d 2h 26m	-10,90	1784	43,4	82,2° W	82,2°	07:01	07:01	14:22	69,6°	243,6°	115,0°
205	2030 07 24	00:00	3h 6m 14,1s	+19° 0' 37"	Ari	404489	23d 2h 26m	-10,59	1772	34,1	71,3° W	71,3°	00:22	07:48	15:19	69,6°	243,6°	118,2°
206	2030 07 25	00:00	3h 55m 55,0s	+20° 52' 26"	Tau	405955	24d 2h 26m	-10,27	1766	25,5	60,5° W	60,5°	01:01	08:36	16:13	71,2°	240,9°	120,0°
207	2030 07 26	00:00	4h 46m 29,9s	+21° 47' 34"	Tau	406248	25d 2h 26m	-9,91	1765	17,7	49,7° W	49,7°	01:46	09:25	17:03	71,8°	239,7°	120,4°
208	2030 07 27	00:00	5h 37m 37,6s	+21° 42' 36"	Tau	405487	26d 2h 26m	-9,52	1768	11,1	38,8° W	38,8°	02:36	10:14	17:49	71,3°	239,9°	119,1°
209	2030 07 28	00:00	6h 28m 49,1s	+20° 36' 36"	Gem	403836	27d 2h 26m	-9,08	1775	5,9	27,8° W	27,9°	03:31	11:03	18:29	69,6°	241,7°	116,4°
210	2030 07 29	00:00	7h 19m 35,7s	+18° 31' 33"	Gem	401483	28d 2h 26m	-8,60	1786	2,2	16,7° W	17,0°	04:30	11:52	19:06	66,9°	245,0°	112,4°
211	2030 07 30	00:00	8h 9m 37,6s	+15° 32' 21"	Cnc	398618	29d 2h 26m	-8,10	1799	0,4	5,3° W	6,9°	05:32	12:40	19:38	63,3°	249,6°	107,3°
212	2030 07 31	00:00	8h 58m 49,0s	+11° 46' 34"	Cnc	395410	0d 12h 49m	-8,17	1813	0,5	6,3° E	8,1°	06:35	13:26	20:08	58,9°	255,2°	101,4°
213	2030 08 01	00:00	9h 47m 20,5s	+7° 23' 45"	Leo	391993	1d 12h 49m	-8,74	1829	2,7	18,1° E	18,9°	07:39	14:13	20:37	53,9°	261,6°	94,9°
214	2030 08 02	00:00	10h 35m 37,0s	+2° 35' 1"	Sex	388464	2d 12h 49m	-9,28	1846	7,0	30,2° E	30,7°	08:44	14:59	21:05	48,7°	268,5°	88,0°
215	2030 08 03	00:00	11h 24m 14,7s	-2° 27' 19"	Leo	384885	3d 12h 49m	-9,78	1863	13,4	42,4° E	42,8°	09:50	15:46	21:34	43,3°	275,5°	81,2°
216	2030 08 04	00:00	12h 13m 57,9s	-7° 29' 42"	Vir	381298	4d 12h 49m	-10,24	1880	21,5	54,9° E	55,1°	10:57	16:35	22:05	38,2°	282,5°	74,6°
217	2030 08 05	00:00	13h 5m 33,4s	-12° 17' 13"	Vir	377748	5d 12h 49m	-10,65	1898	31,1	67,6° E	67,7°	12:06	17:27	22:40	33,6°	288,9°	68,7°
218	2030 08 06	00:00	13h 59m 43,1s	-16° 33' 18"	Vir	374308	6d 12h 49m	-11,02	1915	41,8	80,4° E	80,4°	13:16	18:21	23:21	29,8°	294,3°	63,9°
219	2030 08 07	00:00	14h 56m 52,9s	-20° 0' 10"	Lib	371096	7d 12h 49m	-11,35	1932	53,1	93,5° E	93,4°	14:25	19:19		29,8°	298,3°	63,9°
220	2030 08 08	00:00	15h 56m 57,7s	-22° 19' 59"	Sco	368289	8d 12h 49m	-11,64	1947	64,4	106,6° E	106,6°	15:31	20:19	00:10	27,1°	300,3°	60,7°
221	2030 08 09	00:00	16h 59m 11,1s	-23° 17' 55"	Oph	366111	9d 12h 49m	-11,90	1958	75,1	120,0° E	120,0°	16:32	21:20	01:06	26,0°	300,2°	59,5°
222	2030 08 10	00:00	18h 2m 8,4s	-22° 45' 48"	Sgr	364808	10d 12h 49m	-12,12	1965	84,5	133,5° E	133,5°	17:24	22:20	02:10	26,4°	297,7°	60,5°
223	2030 08 11	00:00	19h 4m 11,3s	-20° 45' 16"	Sgr	364604	11d 12h 49m	-12,32	1966	92,0	147,0° E	147,0°	18:09	23:17	03:20	28,5°	293,4°	63,8°
224	2030 08 12	00:00	20h 3m 59,7s	-17° 27' 45"	Sgr	365654	12d 12h 49m	-12,50	1961	97,1	160,5° E	160,3°	18:47		04:32	31,9°	287,7°	68,8°
225	2030 08 13	00:00	21h 0m 53,2s	-13° 11' 40"	Aqr	367994	13d 12h 49m	-12,65	1948	99,6	173,9° E	172,9°	19:21	00:11	05:43	41,5°	281,2°	75,1°
226	2030 08 14	00:00	21h 54m 51,3s	-8° 18' 18"	Aqr	371527	14d 12h 49m	-12,61	1930	99,5	172,9° W	171,8°	19:51	01:02	06:53	46,8°	274,3°	82,0°
227	2030 08 15	00:00	22h 46m 21,2s	-3° 8' 16"	Aqr	376018	15d 12h 49m	-12,42	1907	96,9	160,0° W	159,6°	20:20	01:51	07:59	52,1°	267,5°	89,1°
228	2030 08 16	00:00	23h 36m 4,1s	+2° 0' 21"	Psc	381127	16d 12h 49m	-12,22	1881	92,1	147,5° W	147,2°	20:48	02:38	09:05	57,1°	260,9°	96,0°
229	2030 08 17	00:00	0h 24m 44,2s	+6° 52' 44"	Psc	386458	17d 12h 49m	-12,02	1855	85,5	135,3° W	135,2°	21:16	03:23	10:08	61,6°	254,9°	102,5°
230	2030 08 18	00:00	1h 13m 2,5s	+11° 17' 2"	Psc	391599	18d 12h 49m	-11,80	1831	77,7	123,6° W	123,5°	21:47	04:09	11:10	65,4°	249,6°	108,2°
231	2030 08 19	00:00	2h 1m 32,6s	+15° 3' 51"	Ari	396177	19d 12h 49m	-11,58	1810	68,9	112,1° W	112,1°	22:21	04:55	12:10	68,4°	245,3°	113,1°
232	2030 08 20	00:00	2h 50m 37,7s	+18° 5' 33"	Ari	399881	20d 12h 49m	-11,34	1793	59,7	101,0° W	101,0°	22:59	05:41	13:08	70,5°	242,1°	116,8°
233	2030 08 21	00:00	3h 40m 28,6s	+20° 15' 55"	Tau	402490	21d 12h 49m	-11,09	1781	50,2	90,0° W	90,0°	23:41	06:29	14:03	71,5°	240,3°	119,2°
234	2030 08 22	00:00	4h 31m 3,0s	+21° 30' 8"	Tau	403883	22d 12h 49m	-10,82	1775	40,7	79,2° W	79,2°	07:18	07:18	14:55	71,4°	239,9°	120,1°
235	2030 08 23	00:00	5h 22m 6,6s	+21° 44' 59"	Tau	404036	23d 12h 49m	-10,52	1774	31,6	68,3° W	68,3°	00:29	08:07	15:42	71,4°	239,9°	119,6°
236	2030 08 24	00:00	6h 13m 17,3s	+20° 59' 13"	Ori	403019	24d 12h 49m	-10,20	1779	23,2	57,4° W	57,4°	01:22	08:56	16:25	70,2°	241,1°	117,5°
237	2030 08 25	00:00	7h 4m 12,2s	+19° 13' 56"	Gem	400985	25d 12h 49m	-9,84	1788	15,6	46,3° W	46,4°	02:19	09:45	17:03	68,0°	243,7°	114,1°
238	2030 08 26	00:00	7h 54m 34,3s	+16° 32' 45"	Gem	398150	26d 12h 49m	-9,43	1801	9,2	35,0° W	35,2°	03:19	10:33	17:38	64,8°	247,7°	109,4°
239	2030 08 27	00:00	8h 44m 17,4s	+13° 1' 44"	Cnc	394768	27d 12h 49m	-8,97	1816	4,3	23,4° W	23,9°	04:22	11:20	18:09	60,7°	253,0°	103,8°
240	2030 08 28	00:00	9h 33m 28,8s	+8° 49' 16"	Leo	391107	28d 12h 49m	-8,47	1833	1,2	11,5° W	12,7°	05:26	12:07	18:39	55,9°	259,1°	97,4°
241	2030 08 29	00:00	10h 22m 28,5s	+4° 5' 52"	Sex	387417	0d 0h 53m	-8,10	1851	0,2	0,6° E	5,7°	06:32	12:55	19:08	50,7°	265,8°	90,6°
242	2030 08 30	00:00	11h 11m 46,8s	-0° 55' 59"	Leo	383906	1d 0h 53m	-8,57	1868	1,5	13,0° E	14,2°	07:39	13:42	19:37	45,3°	272,9°	83,7°
243	2030 08 31	00:00	12h 2m 1,3s	-6° 1' 57"	Vir	380721	2d 0h 53m	-9,15	1883	5,1	25,6° E	26,1°	08:47	14:32	20:08	40,0°	280,0°	76,9°
244	2030 09 01	00:00	12h 53m 51,4s	-10° 56' 2"	Vir	377942	3d 0h 53m	-9,69	1897	11,0	38,4° E	38,7°	09:57	15:23	20:43	35,1°	286,7°	70,7°
245	2030 09 02	00:00	13h 47m 51,8s	-15° 20' 57"	Vir	375594	4d 0h 53m	-10,17	1909	18,9	51,3° E	51,5°	11:07	16:18	21:22	31,0°	292,5°	65,5°
246	2030 09 03	00:00	14h 44m 22,9s	-18° 58' 54"	Lib	373663	5d 0h 53m	-10,59	1919	28,5	64,3° E	64,4°	12:17	17:14	22:08	28,0°	297,0°	61,8°
247	2030 09 04	00:00	15h 43m 19,3s	-21° 33' 6"	Lib	372130	6d 0h 53m	-10,97	1927	39,2	77,4° E	77,4°	13:23	18:13	23:02	26,4°	299,6°	59,9°
248	2030 09 05	00:00	16h 44m 2,0s	-22° 50' 1"	Oph	370993	7d 0h 53m	-11,30	1933	50,5	90,5° E	90,5°	14:25	19:13		26,4°	300,1°	59,9°
249	2030 09 06	00:00	17h 45m 22,5s	-22° 42' 13"	Sgr	370287	8d 0h 53m	-11,58	1936	61,9	103,6° E	103,6°	15:19	20:12	00:02	26,3°	298,5°	60,2°
250	2030 09 07	00:00	18h 46m 0,3s	-21° 10' 9"	Sgr	370086	9d 0h 53m	-11,83	1937	72,6	116,7° E	116,7°	16:05	21:08	01:08	27,8°	295,0°	62,7°

Topocentric ephemeris of the Moon (following)

Times are given in UT for Aveiro (8° 37' 48" W, 40° 36' 7" N, zone Z).

	Date yyyy mm dd	Hour hh:mm	R. A. (2000.0) topocentric	Decl. (2000.0) topocentric	Const.	Dist. E. km	Age days	Magn. mV	Diam. "	Illum. %	Elong. °	Separ. °	Rise hh:mm	Transit hh:mm	Set hh:mm	Elevation (max.)	Azimuth at rise	Azimuth at set
251	2030 09 08	00:00	19h 44m 48,3s	-18° 22' 15"	Sgr	370494	10d 0h 53m	-12,04	1935	82,1	129,8° E	129,8°	16:45	22:02	02:17	30,6°	290,0°	66,9°
252	2030 09 09	00:00	20h 41m 9,5s	-14° 32' 56"	Aqr	371613	11d 0h 53m	-12,23	1929	89,8	142,9° E	142,7°	17:19	22:53	03:27	34,6°	283,9°	72,6°
253	2030 09 10	00:00	21h 34m 60,0s	-9° 59' 54"	Cap	373512	12d 0h 53m	-12,40	1919	95,5	155,9° E	155,5°	17:50	23:42	04:36	39,3°	277,3°	79,1°
254	2030 09 11	00:00	22h 26m 40,8s	-5° 1' 37"	Aqr	376198	13d 0h 53m	-12,55	1906	98,9	168,7° E	167,8°	18:19		05:43	49,7°	270,5°	85,9°
255	2030 09 12	00:00	23h 16m 46,5s	+0° 4' 20"	Psc	379588	14d 0h 53m	-12,62	1889	99,8	178,8° W	175,5°	18:48	00:29	06:48	54,9°	263,9°	92,9°
256	2030 09 13	00:00	0h 5m 56,2s	+5° 2' 8"	Psc	383510	15d 0h 53m	-12,47	1869	98,5	166,5° W	165,9°	19:16	01:15	07:52	59,6°	257,6°	99,5°
257	2030 09 14	00:00	0h 54m 46,6s	+9° 38' 3"	Psc	387715	16d 0h 53m	-12,30	1849	95,1	154,5° W	154,3°	19:47	02:01	08:55	63,7°	252,0°	105,6°
258	2030 09 15	00:00	1h 43m 47,5s	+13° 40' 34"	Psc	391902	17d 0h 53m	-12,11	1829	89,8	142,8° W	142,7°	20:20	02:47	09:56	67,0°	247,3°	110,9°
259	2030 09 16	00:00	2h 33m 19,2s	+17° 0' 15"	Ari	395749	18d 0h 53m	-11,92	1812	83,1	131,4° W	131,4°	20:56	03:34	10:56	69,5°	243,6°	115,1°
260	2030 09 17	00:00	3h 23m 30,0s	+19° 29' 40"	Ari	398951	19d 0h 53m	-11,72	1797	75,3	120,2° W	120,2°	21:37	04:22	11:52	70,9°	241,2°	118,0°
261	2030 09 18	00:00	4h 14m 15,8s	+21° 3' 25"	Tau	401248	20d 0h 53m	-11,51	1787	66,6	109,3° W	109,3°	22:22	05:10	12:46	71,3°	240,2°	119,6°
262	2030 09 19	00:00	5h 5m 22,1s	+21° 38' 13"	Tau	402448	21d 0h 53m	-11,29	1781	57,4	98,4° W	98,4°	23:13	05:59	13:35	70,6°	240,7°	119,6°
263	2030 09 20	00:00	5h 56m 28,6s	+21° 12' 57"	Ori	402447	22d 0h 53m	-11,05	1781	47,9	87,5° W	87,5°		06:48	14:19	68,8°	242,7°	118,2°
264	2030 09 21	00:00	6h 47m 15,4s	+19° 48' 39"	Gem	401236	23d 0h 53m	-10,78	1787	38,5	76,5° W	76,5°	00:08	07:36	14:59	68,8°	242,7°	115,4°
265	2030 09 22	00:00	7h 37m 29,0s	+17° 28' 22"	Gem	398902	24d 0h 53m	-10,49	1797	29,3	65,4° W	65,4°	01:06	08:24	15:34	66,1°	246,1°	111,3°
266	2030 09 23	00:00	8h 27m 6,4s	+14° 17' 4"	Cnc	395630	25d 0h 53m	-10,16	1812	20,8	54,0° W	54,1°	02:07	09:11	16:07	62,4°	250,7°	106,2°
267	2030 09 24	00:00	9h 16m 17,4s	+10° 21' 28"	Cnc	391683	26d 0h 53m	-9,77	1830	13,2	42,3° W	42,6°	03:10	09:58	16:37	58,0°	256,4°	100,2°
268	2030 09 25	00:00	10h 5m 23,2s	+5° 50' 18"	Sex	387383	27d 0h 53m	-9,33	1851	7,0	30,3° W	30,7°	04:15	10:46	17:07	53,0°	262,8°	93,6°
269	2030 09 26	00:00	10h 54m 54,8s	+0° 54' 27"	Leo	383077	28d 0h 53m	-8,83	1872	2,7	17,9° W	18,7°	05:21	11:34	17:36	47,6°	269,8°	86,7°
270	2030 09 27	00:00	11h 45m 29,3s	-4° 12' 37"	Vir	379101	29d 0h 53m	-8,28	1891	0,4	5,2° W	7,4°	06:30	12:23	18:08	42,2°	277,0°	79,7°
271	2030 09 28	00:00	12h 37m 45,9s	-9° 14' 41"	Vir	375734	0d 14h 05m	-8,38	1908	0,6	7,8° E	9,1°	07:41	13:15	18:42	37,0°	284,0°	73,1°
272	2030 09 29	00:00	13h 32m 17,7s	-13° 53' 13"	Vir	373168	1d 14h 05m	-9,00	1921	3,4	21,0° E	21,3°	08:53	14:10	19:21	32,5°	290,3°	67,4°
273	2030 09 30	00:00	14h 29m 22,5s	-17° 48' 26"	Lib	371488	2d 14h 05m	-9,58	1930	8,8	34,3° E	34,4°	10:05	15:08	20:06	29,1°	295,4°	63,1°
274	2030 10 01	00:00	15h 28m 50,5s	-20° 41' 30"	Lib	370672	3d 14h 05m	-10,09	1934	16,3	47,6° E	47,6°	11:14	16:07	20:58	27,0°	298,7°	60,6°
275	2030 10 02	00:00	16h 29m 57,5s	-22° 17' 34"	Oph	370619	4d 14h 05m	-10,53	1934	25,7	60,8° E	60,8°	12:18	17:08	21:57	26,4°	299,9°	60,3°
276	2030 10 03	00:00	17h 31m 29,7s	-22° 28' 47"	Oph	371186	5d 14h 05m	-10,90	1932	36,3	74,0° E	74,0°	13:15	18:07	23:02	27,4°	298,9°	62,1°
277	2030 10 04	00:00	18h 32m 4,1s	-21° 15' 55"	Sgr	372223	6d 14h 05m	-11,23	1926	47,6	87,1° E	87,1°	14:03	19:04		27,4°	295,9°	62,1°
278	2030 10 05	00:00	19h 30m 34,8s	-18° 47' 36"	Sgr	373612	7d 14h 05m	-11,51	1919	58,8	100,0° E	100,0°	14:45	19:58	00:10	29,9°	291,4°	65,8°
279	2030 10 06	00:00	20h 26m 28,6s	-15° 17' 49"	Cap	375281	8d 14h 05m	-11,74	1910	69,5	128,8° W	128,8°	15:20	20:49	01:18	33,4°	285,8°	70,9°
280	2030 10 07	00:00	21h 19m 46,3s	-11° 2' 53"	Aqr	377205	9d 14h 05m	-11,95	1901	79,1	125,5° E	125,4°	15:52	21:37	02:26	37,8°	279,5°	77,0°
281	2030 10 08	00:00	22h 10m 53,0s	-6° 19' 23"	Aqr	379392	10d 14h 05m	-12,13	1890	87,1	138,1° E	137,9°	16:21	22:24	03:32	42,7°	272,9°	83,6°
282	2030 10 09	00:00	23h 0m 26,7s	-1° 23' 6"	Psc	381859	11d 14h 05m	-12,29	1878	93,4	150,4° E	150,1°	16:49	23:10	04:36	47,8°	266,4°	90,4°
283	2030 10 10	00:00	23h 49m 9,3s	+3° 31' 21"	Psc	384602	12d 14h 05m	-12,44	1864	97,6	162,6° E	162,1°	17:17	23:55	05:40	52,9°	260,1°	97,0°
284	2030 10 11	00:00	0h 37m 39,6s	+8° 10' 34"	Psc	387581	13d 14h 05m	-12,57	1850	99,7	174,6° E	173,4°	17:47		06:42	62,0°	254,3°	103,2°
285	2030 10 12	00:00	1h 26m 29,1s	+12° 22' 19"	Psc	390696	14d 14h 05m	-12,54	1835	99,6	173,7° W	173,0°	18:19	00:41	07:44	65,7°	249,2°	108,7°
286	2030 10 13	00:00	2h 15m 58,8s	+15° 55' 51"	Ari	393795	15d 14h 05m	-12,38	1821	97,6	162,2° W	162,1°	18:54	01:27	08:44	68,5°	245,1°	113,3°
287	2030 10 14	00:00	3h 6m 16,0s	+18° 42' 6"	Ari	396678	16d 14h 05m	-12,22	1807	93,7	150,9° W	150,9°	19:33	02:15	09:42	70,3°	242,2°	116,8°
288	2030 10 15	00:00	3h 57m 13,8s	+20° 34' 11"	Tau	399118	17d 14h 05m	-12,05	1796	88,2	139,8° W	139,8°	20:17	03:03	10:37	71,1°	240,7°	118,9°
289	2030 10 16	00:00	4h 48m 33,4s	+21° 27' 46"	Tau	400883	18d 14h 05m	-11,87	1788	81,4	128,8° W	128,8°	21:05	03:52	11:27	70,8°	240,7°	119,5°
290	2030 10 17	00:00	5h 39m 49,0s	+21° 21' 20"	Tau	401767	19d 14h 05m	-11,69	1784	73,5	117,9° W	117,9°	21:58	04:40	12:13	69,5°	242,1°	118,6°
291	2030 10 18	00:00	6h 30m 36,1s	+20° 15' 57"	Gem	401611	20d 14h 05m	-11,49	1785	64,8	107,0° W	107,0°	22:54	05:29	12:54	67,1°	244,9°	116,4°
292	2030 10 19	00:00	7h 20m 38,1s	+18° 14' 55"	Gem	400326	21d 14h 05m	-11,27	1791	55,4	96,1° W	96,1°	23:53	06:16	13:31	63,9°	248,9°	112,9°
293	2030 10 20	00:00	8h 9m 51,5s	+15° 23' 10"	Cnc	397913	22d 14h 05m	-11,04	1802	45,7	84,9° W	85,0°		07:02	14:04	59,9°	254,0°	108,3°
294	2030 10 21	00:00	8h 58m 26,9s	+11° 46' 50"	Cnc	394471	23d 14h 05m	-10,77	1817	36,0	73,6° W	73,6°	00:54	07:49	14:35	59,9°	254,0°	102,9°
295	2030 10 22	00:00	9h 46m 48,3s	+7° 33' 11"	Leo	390203	24d 14h 05m	-10,46	1837	26,6	61,9° W	62,0°	01:56	08:35	15:04	55,3°	259,9°	96,7°
296	2030 10 23	00:00	10h 35m 30,3s	+2° 51' 0"	Sex	385408	25d 14h 05m	-10,10	1860	18,0	49,8° W	50,0°	03:01	09:22	15:33	50,2°	266,5°	90,0°
297	2030 10 24	00:00	11h 25m 15,3s	-2° 8' 48"	Leo	380462	26d 14h 05m	-9,68	1884	10,5	37,3° W	37,7°	04:08	10:10	16:03	44,8°	273,5°	83,1°
298	2030 10 25	00:00	12h 16m 49,0s	-7° 12' 18"	Vir	375779	27d 14h 05m	-9,18	1908	4,7	24,5° W	24,9°	05:17	11:01	16:36	39,5°	280,6°	76,3°
299	2030 10 26	00:00	13h 10m 53,8s	-12° 2' 5"	Vir	371769	28d 14h 05m	-8,59	1928	1,1	11,3° W	12,0°	06:30	11:55	17:14	34,6°	287,3°	70,0°
300	2030 10 27	00:00	14h 7m 58,1s	-16° 17' 38"	Vir	368772	0d 3h 43m	-8,17	1944	0,1	2,2° E	3,9°	07:44	12:53	17:57	30,6°	293,1°	64,9°

Topocentric ephemeris of the Moon (following)

Times are given in UT for Aveiro (8° 37' 48" W, 40° 36' 7" N, zone Z).

	Date yyyy mm dd	Hour hh:mm	R. A. (2000.0) topocentric	Decl. (2000.0) topocentric	Const.	Dist. E. km	Age days	Magn. mV	Diam. "	Illum. %	Elong. °	Separ. °	Rise hh:mm	Transit hh:mm	Set hh:mm	Elevation (max.)	Azimuth at rise	Azimuth at set	
301	2030	10 28	00:00	15h 8m 1,5s	-19° 37' 10"	Lib	367010	1d 3h 43m	-8,81	1953	1,9	15,8° E	15,9°	08:57	13:54	18:48	27,8°	297,4°	61,5°
302	2030	10 29	00:00	16h 10m 21,8s	-21° 41' 24"	Sco	366554	2d 3h 43m	-9,43	1956	6,5	29,5° E	29,5°	10:06	14:56	19:47	26,6°	299,5°	60,3°
303	2030	10 30	00:00	17h 13m 35,5s	-22° 18' 15"	Oph	367322	3d 3h 43m	-9,97	1952	13,5	43,1° E	43,1°	11:07	15:58	20:52	27,1°	299,2°	61,5°
304	2030	10 31	00:00	18h 15m 60,0s	-21° 25' 59"	Sgr	369107	4d 3h 43m	-10,42	1942	22,5	56,5° E	56,6°	11:59	16:58	22:01	29,1°	296,8°	64,7°
305	2030	11 01	00:00	19h 16m 7,5s	-19° 13' 10"	Sgr	371632	5d 3h 43m	-10,81	1929	32,9	69,8° E	69,8°	12:44	17:54	23:10	32,4°	292,7°	69,5°
306	2030	11 02	00:00	20h 13m 10,6s	-15° 55' 11"	Cap	374606	6d 3h 43m	-11,13	1914	43,8	82,8° E	82,8°	13:22	18:46		32,4°	287,3°	69,5°
307	2030	11 03	00:00	21h 7m 5,0s	-11° 50' 1"	Aqr	377771	7d 3h 43m	-11,40	1898	54,9	95,5° E	95,5°	13:54	19:35	00:18	36,6°	281,2°	75,3°
308	2030	11 04	00:00	21h 58m 18,4s	-7° 15' 2"	Aqr	380932	8d 3h 43m	-11,64	1882	65,5	108,0° E	107,9°	14:24	20:22	01:25	41,4°	274,8°	81,8°
309	2030	11 05	00:00	22h 47m 34,8s	-2° 25' 46"	Aqr	383968	9d 3h 43m	-11,84	1867	75,1	120,2° E	120,1°	14:52	21:07	02:29	46,4°	268,3°	88,4°
310	2030	11 06	00:00	23h 35m 43,1s	+2° 24' 8"	Psc	386826	10d 3h 43m	-12,02	1853	83,5	132,2° E	132,0°	15:20	21:52	03:32	51,4°	262,0°	95,0°
311	2030	11 07	00:00	0h 23m 30,0s	+7° 2' 30"	Psc	389494	11d 3h 43m	-12,18	1841	90,4	144,0° E	143,8°	15:49	22:37	04:34	56,2°	256,1°	101,2°
312	2030	11 08	00:00	1h 11m 34,9s	+11° 18' 1"	Psc	391984	12d 3h 43m	-12,32	1829	95,5	155,6° E	155,4°	16:19	23:23	05:35	60,6°	250,9°	106,9°
313	2030	11 09	00:00	2h 0m 25,9s	+15° 0' 11"	Ari	394302	13d 3h 43m	-12,46	1818	98,7	167,0° E	166,8°	16:53		06:35	64,5°	246,5°	111,8°
314	2030	11 10	00:00	2h 50m 17,0s	+17° 59' 19"	Ari	396429	14d 3h 43m	-12,59	1809	100,0	178,3° E	177,7°	17:31	00:10	07:33	69,7°	243,2°	115,6°
315	2030	11 11	00:00	3h 41m 5,1s	+20° 7' 17"	Tau	398307	15d 3h 43m	-12,49	1800	99,3	170,5° W	170,5°	18:13	00:58	08:29	70,8°	241,2°	118,2°
316	2030	11 12	00:00	4h 32m 31,2s	+21° 18' 11"	Tau	399837	16d 3h 43m	-12,34	1793	96,9	159,5° W	159,5°	18:59	01:46	09:21	70,9°	240,6°	119,3°
317	2030	11 13	00:00	5h 24m 4,6s	+21° 29' 8"	Tau	400885	17d 3h 43m	-12,18	1788	92,7	148,6° W	148,5°	19:51	02:35	10:09	70,0°	241,5°	119,0°
318	2030	11 14	00:00	6h 15m 12,4s	+20° 40' 26"	Ori	401299	18d 3h 43m	-12,02	1787	87,0	137,7° W	137,6°	20:46	03:23	10:52	68,0°	243,8°	117,2°
319	2030	11 15	00:00	7h 5m 28,0s	+18° 55' 17"	Gem	400930	19d 3h 43m	-11,86	1788	79,9	126,7° W	126,6°	21:43	04:11	11:29	65,1°	247,4°	114,2°
320	2030	11 16	00:00	7h 54m 39,3s	+16° 19' 4"	Gem	399654	20d 3h 43m	-11,68	1794	71,8	115,7° W	115,7°	22:42	04:57	12:03	61,5°	252,0°	110,1°
321	2030	11 17	00:00	8h 42m 50,9s	+12° 58' 25"	Cnc	397399	21d 3h 43m	-11,48	1804	62,7	104,6° W	104,5°	23:42	05:42	12:34	57,2°	257,5°	105,0°
322	2030	11 18	00:00	9h 30m 23,5s	+9° 0' 41"	Leo	394170	22d 3h 43m	-11,27	1819	52,9	93,2° W	93,2°		06:27	13:03	52,4°	263,7°	99,3°
323	2030	11 19	00:00	10h 17m 51,1s	+4° 33' 49"	Sex	390064	23d 3h 43m	-11,02	1838	42,9	81,6° W	81,6°	00:44	07:12	13:31	52,4°	263,7°	93,0°
324	2030	11 20	00:00	11h 5m 58,1s	-0° 13' 7"	Leo	385285	24d 3h 43m	-10,73	1861	32,8	69,6° W	69,7°	01:48	07:58	13:59	47,3°	270,3°	86,4°
325	2030	11 21	00:00	11h 55m 35,4s	-5° 9' 12"	Vir	380140	25d 3h 43m	-10,39	1886	23,1	57,2° W	57,4°	02:54	08:47	14:31	42,1°	277,2°	79,7°
326	2030	11 22	00:00	12h 47m 35,7s	-10° 0' 28"	Vir	375027	26d 3h 43m	-9,99	1912	14,5	44,4° W	44,6°	04:03	09:38	15:05	37,1°	284,0°	73,2°
327	2030	11 23	00:00	13h 42m 45,2s	-14° 29' 13"	Vir	370395	27d 3h 43m	-9,50	1936	7,4	31,2° W	31,4°	05:16	10:33	15:44	32,6°	290,2°	67,5°
328	2030	11 24	00:00	14h 41m 29,0s	-18° 14' 16"	Lib	366689	28d 3h 43m	-8,93	1955	2,4	17,7° W	17,9°	06:30	11:33	16:32	29,1°	295,3°	63,1°
329	2030	11 25	00:00	15h 43m 32,5s	-20° 53' 21"	Lib	364281	29d 3h 43m	-8,24	1968	0,1	3,9° W	4,1°	07:42	12:36	17:28	27,0°	298,6°	60,7°
330	2030	11 26	00:00	16h 47m 48,4s	-22° 7' 58"	Oph	363399	0d 17h 14m	-8,56	1973	0,8	10,0° E	10,0°	08:50	13:40	18:32	26,7°	299,6°	60,7°
331	2030	11 27	00:00	17h 52m 25,6s	-21° 49' 4"	Sgr	364090	1d 17h 14m	-9,22	1969	4,3	23,9° E	24,0°	09:49	14:44	19:42	28,1°	298,1°	63,1°
332	2030	11 28	00:00	18h 55m 25,0s	-20° 0' 18"	Sgr	366211	2d 17h 14m	-9,79	1958	10,5	37,7° E	37,8°	10:39	15:44	20:55	31,0°	294,5°	67,4°
333	2030	11 29	00:00	19h 55m 21,3s	-16° 56' 13"	Sgr	369468	3d 17h 14m	-10,26	1940	18,8	51,2° E	51,3°	11:20	16:40	22:06	35,0°	289,4°	73,2°
334	2030	11 30	00:00	20h 51m 42,4s	-12° 56' 59"	Aqr	373477	4d 17h 14m	-10,65	1920	28,5	64,4° E	64,4°	11:56	17:31	23:15	39,7°	283,4°	79,6°
335	2030	12 01	00:00	21h 44m 42,5s	-8° 23' 13"	Aqr	377840	5d 17h 14m	-10,98	1897	39,1	77,2° E	77,2°	12:27	18:20		39,7°	276,9°	79,6°
336	2030	12 02	00:00	22h 35m 3,1s	-3° 33' 2"	Aqr	382198	6d 17h 14m	-11,26	1876	49,8	89,6° E	89,6°	12:56	19:06	00:21	44,8°	270,3°	86,3°
337	2030	12 03	00:00	23h 23m 37,4s	+1° 18' 41"	Psc	386272	7d 17h 14m	-11,49	1856	60,3	101,7° E	101,7°	13:24	19:51	01:25	49,9°	263,9°	93,0°
338	2030	12 04	00:00	0h 11m 18,7s	+5° 59' 42"	Psc	389879	8d 17h 14m	-11,70	1839	70,0	113,5° E	113,5°	13:52	20:36	02:27	54,8°	257,9°	99,4°
339	2030	12 05	00:00	0h 58m 54,9s	+10° 19' 31"	Psc	392924	9d 17h 14m	-11,88	1825	78,8	125,1° E	125,0°	14:22	21:21	03:28	59,4°	252,4°	105,2°
340	2030	12 06	00:00	1h 47m 4,0s	+14° 8' 37"	Ari	395391	10d 17h 14m	-12,04	1813	86,2	136,4° E	136,4°	14:54	22:07	04:28	63,3°	247,8°	110,4°
341	2030	12 07	00:00	2h 36m 10,7s	+17° 18' 4"	Ari	397310	11d 17h 14m	-12,20	1805	92,2	147,6° E	147,6°	15:30	22:54	05:27	66,6°	244,1°	114,5°
342	2030	12 08	00:00	3h 26m 23,2s	+19° 39' 43"	Ari	398737	12d 17h 14m	-12,34	1798	96,6	158,7° E	158,7°	16:11	23:42	06:23	69,1°	241,7°	117,5°
343	2030	12 09	00:00	4h 17m 31,2s	+21° 6' 49"	Tau	399728	13d 17h 14m	-12,48	1794	99,2	169,7° E	169,7°	16:56		07:17	71,0°	240,7°	119,1°
344	2030	12 10	00:00	5h 9m 8,4s	+21° 34' 58"	Tau	400316	14d 17h 14m	-12,60	1791	100,0	179,3° W	178,5°	17:46	00:31	08:06	70,4°	241,1°	119,3°
345	2030	12 11	00:00	6h 0m 39,1s	+21° 2' 55"	Ori	400501	15d 17h 14m	-12,46	1790	98,9	168,4° W	168,1°	18:40	01:20	08:50	68,8°	242,9°	118,0°
346	2030	12 12	00:00	6h 51m 28,6s	+19° 32' 45"	Gem	400246	16d 17h 14m	-12,32	1791	96,1	157,4° W	157,2°	19:36	02:07	09:30	66,2°	246,1°	115,4°
347	2030	12 13	00:00	7h 41m 12,9s	+17° 9' 29"	Gem	399483	17d 17h 14m	-12,17	1795	91,6	146,4° W	146,2°	20:34	02:54	10:05	62,8°	250,3°	111,6°
348	2030	12 14	00:00	8h 29m 44,9s	+14° 0' 9"	Cnc	398124	18d 17h 14m	-12,02	1801	85,5	135,3° W	135,1°	21:34	03:40	10:36	58,8°	255,5°	106,9°
349	2030	12 15	00:00	9h 17m 15,1s	+10° 12' 55"	Cnc	396087	19d 17h 14m	-11,85	1810	78,0	123,1° W	123,9°	22:34	04:24	11:06	54,3°	261,3°	101,4°
350	2030	12 16	00:00	10h 4m 10,0s	+5° 56' 26"	Sex	393321	20d 17h 14m	-11,67	1823	69,3	112,7° W	112,5°	23:35	05:08	11:33	49,4°	267,7°	95,4°

Topocentric ephemeris of the Moon (following)

Times are given in UT for Aveiro (8° 37' 48" W, 40° 36' 7" N, zone Z).

	Date	Hour	R. A. (2000.0)	Decl. (2000.0)	Const.	Dist. E.	Age	Magn.	Diam.	Illum.	Elong.	Separ.	Rise	Transit	Set	Elevation	Azimuth	Azimuth
	yyyy mm dd	hh:mm	topocentric	topocentric		km	days	mV	"	%	°	°	hh:mm	hh:mm	hh:mm	(max.)	at rise	at set
351	2030 12 17	00:00	10h 51m 8,6s	+1° 19' 42"	Sex	389828	21d 17h 14m -11,47	1839	59,6	101,0° W	101,0°		05:52	12:01	12:01	44,4°	274,3°	89,1°
352	2030 12 18	00:00	11h 38m 58,9s	-3° 27' 27"	Vir	385690	22d 17h 14m -11,24	1859	49,4	89,1° W	89,1°	00:38	06:38	12:29	12:29	44,4°	274,3°	82,6°
353	2030 12 19	00:00	12h 28m 34,5s	-8° 13' 39"	Vir	381085	23d 17h 14m -10,97	1881	38,8	76,9° W	76,9°	01:44	07:26	13:00	13:00	39,4°	280,9°	76,2°
354	2030 12 20	00:00	13h 20m 49,2s	-12° 44' 51"	Vir	376294	24d 17h 14m -10,64	1905	28,4	64,3° W	64,3°	02:52	08:17	13:36	13:36	34,7°	287,2°	70,3°
355	2030 12 21	00:00	14h 16m 27,3s	-16° 43' 45"	Vir	371687	25d 17h 14m -10,26	1929	18,8	51,3° W	51,3°	04:03	09:13	14:17	14:17	30,8°	292,8°	65,2°
356	2030 12 22	00:00	15h 15m 47,4s	-19° 50' 13"	Lib	367690	26d 17h 14m -9,79	1950	10,6	37,9° W	37,9°	05:15	10:13	15:07	15:07	28,0°	297,1°	61,8°
357	2030 12 23	00:00	16h 18m 24,4s	-21° 43' 49"	Sco	364725	27d 17h 14m -9,24	1966	4,4	24,2° W	24,2°	06:25	11:16	16:07	16:07	26,6°	299,4°	60,4°
358	2030 12 24	00:00	17h 22m 58,9s	-22° 8' 50"	Oph	363145	28d 17h 14m -8,59	1974	0,8	10,3° W	10,4°	07:29	12:21	17:15	17:15	27,1°	299,3°	61,5°
359	2030 12 25	00:00	18h 27m 33,4s	-20° 59' 54"	Sgr	363155	0d 6h 28m -8,29	1974	0,1	3,6° E	4,3°	08:25	13:24	18:28	18:28	29,2°	296,7°	64,9°
360	2030 12 26	00:00	19h 30m 12,6s	-18° 24' 30"	Sgr	364774	1d 6h 28m -8,95	1965	2,4	17,6° E	17,9°	09:12	14:24	19:43	19:43	32,8°	292,2°	70,1°
361	2030 12 27	00:00	20h 29m 41,9s	-14° 40' 26"	Cap	367821	2d 6h 28m -9,54	1949	7,4	31,3° E	31,5°	09:52	15:20	20:56	20:56	37,4°	286,4°	76,5°
362	2030 12 28	00:00	21h 25m 40,2s	-10° 10' 9"	Aqr	371961	3d 6h 28m -10,03	1927	14,6	44,7° E	44,9°	10:26	16:12	22:06	22:06	42,5°	279,8°	83,4°
363	2030 12 29	00:00	22h 18m 28,8s	-5° 15' 39"	Aqr	376764	4d 6h 28m -10,44	1903	23,5	57,7° E	57,8°	10:57	17:01	23:13	23:13	47,8°	273,0°	90,4°
364	2030 12 30	00:00	23h 8m 52,2s	-0° 15' 34"	Psc	381779	5d 6h 28m -10,78	1878	33,3	70,3° E	70,3°	11:26	17:47	17:47	17:47	47,8°	266,3°	90,4°
365	2030 12 31	00:00	23h 57m 42,8s	+4° 35' 18"	Psc	386601	6d 6h 28m -11,06	1854	43,5	82,4° E	82,4°	11:55	18:33	00:17	00:17	53,0°	260,0°	97,1°
366	2031 01 01	00:00	0h 45m 51,6s	+9° 5' 20"	Psc	390907	7d 6h 28m -11,31	1834	53,8	94,2° E	94,2°	12:25	19:18	01:20	01:20	57,8°	254,3°	103,2°
367	2031 01 02	00:00	1h 34m 2,3s	+13° 5' 5"	Psc	394478	8d 6h 28m -11,53	1817	63,6	105,6° E	105,6°	12:56	20:04	02:21	02:21	62,0°	249,3°	108,7°
368	2031 01 03	00:00	2h 22m 48,0s	+16° 26' 18"	Ari	397200	9d 6h 28m -11,72	1805	72,7	116,8° E	116,8°	13:31	20:51	03:20	03:20	65,6°	245,3°	113,2°