

Topocentric ephemeris of the Moon

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
1	2029 01 01	00:00	7h 2m 36,0s	+22° 17' 59"	Gem	370541	15d 21h 54m	-12,73	1935	99,9	176,0° W	176,0°	18:24	00:57	08:32	67,9°	243,3°	118,7°
2	2029 01 02	00:00	8h 1m 5,5s	+18° 50' 56"	Cnc	367800	16d 21h 54m	-12,58	1949	97,8	163,0° W	162,9°	19:37	01:52	09:10	63,0°	249,5°	113,2°
3	2029 01 03	00:00	8h 57m 32,7s	+14° 14' 4"	Cnc	366263	17d 21h 54m	-12,41	1957	93,2	149,7° W	149,6°	20:50	02:46	09:43	57,2°	257,0°	106,4°
4	2029 01 04	00:00	9h 51m 51,6s	+8° 46' 47"	Leo	365924	18d 21h 54m	-12,22	1959	86,2	136,4° W	136,2°	22:02	03:37	10:13	51,0°	265,1°	98,8°
5	2029 01 05	00:00	10h 44m 31,7s	+2° 50' 24"	Sex	366660	19d 21h 54m	-12,01	1955	77,2	123,0° W	122,9°	23:14	04:27	10:41	44,6°	273,5°	90,7°
6	2029 01 06	00:00	11h 36m 23,4s	-3° 14' 8"	Leo	368272	20d 21h 54m	-11,77	1947	66,9	109,7° W	109,6°		05:17	11:08	38,6°	281,7°	82,6°
7	2029 01 07	00:00	12h 28m 25,3s	-9° 6' 52"	Vir	370532	21d 21h 54m	-11,49	1935	55,7	96,4° W	96,4°	00:26	06:06	11:37	38,6°	281,7°	74,8°
8	2029 01 08	00:00	13h 21m 32,7s	-14° 29' 1"	Vir	373229	22d 21h 54m	-11,18	1921	44,3	83,3° W	83,4°	01:38	06:58	12:09	33,1°	289,3°	67,9°
9	2029 01 09	00:00	14h 16m 26,3s	-19° 2' 45"	Vir	376203	23d 21h 54m	-10,82	1906	33,4	70,4° W	70,5°	02:51	07:52	12:46	28,6°	295,8°	62,1°
10	2029 01 10	00:00	15h 13m 20,0s	-22° 31' 40"	Lib	379348	24d 21h 54m	-10,42	1890	23,4	57,6° W	57,7°	04:02	08:48	13:30	25,3°	300,7°	58,0°
11	2029 01 11	00:00	16h 11m 49,9s	-24° 42' 23"	Sco	382611	25d 21h 54m	-9,98	1874	14,8	45,1° W	45,2°	05:09	09:46	14:21	23,6°	303,6°	55,9°
12	2029 01 12	00:00	17h 10m 53,9s	-25° 27' 2"	Oph	385968	26d 21h 54m	-9,48	1858	8,0	32,7° W	32,8°	06:09	10:44	15:19	23,5°	304,2°	56,2°
13	2029 01 13	00:00	18h 9m 7,7s	-24° 45' 11"	Sgr	389399	27d 21h 54m	-8,93	1841	3,2	20,6° W	20,6°	07:00	11:40	16:23	24,9°	302,5°	58,6°
14	2029 01 14	00:00	19h 5m 12,9s	-22° 44' 14"	Sgr	392857	28d 21h 54m	-8,32	1825	0,6	8,7° W	8,7°	07:43	12:33	17:29	27,7°	299,0°	62,9°
15	2029 01 15	00:00	19h 58m 20,4s	-19° 37' 17"	Sgr	396252	0d 6h 36m	-8,03	1809	0,1	3,0° E	3,2°	08:18	13:23	18:35	31,6°	294,0°	68,4°
16	2029 01 16	00:00	20h 48m 18,1s	-15° 40' 3"	Cap	399445	1d 6h 36m	-8,60	1795	1,6	14,5° E	14,6°	08:47	14:09	19:38	36,2°	288,0°	74,8°
17	2029 01 17	00:00	21h 35m 24,7s	-11° 8' 7"	Cap	402249	2d 6h 36m	-9,10	1782	5,1	25,8° E	25,9°	09:13	14:52	20:40	41,2°	281,5°	81,7°
18	2029 01 18	00:00	22h 20m 18,3s	-6° 15' 23"	Aqr	404450	3d 6h 36m	-9,54	1773	10,1	36,8° E	37,0°	09:36	15:33	21:40	46,5°	274,7°	88,6°
19	2029 01 19	00:00	23h 3m 46,8s	-1° 13' 37"	Psc	405826	4d 6h 36m	-9,94	1767	16,6	47,8° E	48,0°	09:59	16:14	22:39	51,8°	267,9°	95,6°
20	2029 01 20	00:00	23h 46m 42,4s	+3° 47' 12"	Psc	406174	5d 6h 36m	-10,30	1765	24,2	58,7° E	58,8°	10:21	16:54	23:37	56,9°	261,3°	102,3°
21	2029 01 21	00:00	0h 29m 58,5s	+8° 38' 8"	Psc	405337	6d 6h 36m	-10,62	1769	32,7	69,5° E	69,6°	10:44	17:36		56,9°	254,9°	102,3°
22	2029 01 22	00:00	1h 14m 28,0s	+13° 10' 24"	Psc	403226	7d 6h 36m	-10,92	1778	41,8	80,3° E	80,4°	11:11	18:19	00:37	61,7°	249,0°	108,5°
23	2029 01 23	00:00	2h 1m 0,9s	+17° 14' 21"	Ari	399844	8d 6h 36m	-11,19	1793	51,3	91,3° E	91,3°	11:41	19:05	01:37	66,1°	243,8°	114,2°
24	2029 01 24	00:00	2h 50m 19,4s	+20° 38' 48"	Ari	395295	9d 6h 36m	-11,45	1814	60,9	102,4° E	102,4°	12:16	19:55	02:39	69,7°	239,7°	118,9°
25	2029 01 25	00:00	3h 42m 49,5s	+23° 10' 42"	Tau	389795	10d 6h 36m	-11,70	1839	70,3	113,9° E	113,8°	12:59	20:48	03:40	72,5°	236,9°	122,2°
26	2029 01 26	00:00	4h 38m 29,4s	+24° 35' 55"	Tau	383674	11d 6h 36m	-11,94	1869	79,2	125,6° E	125,6°	13:51	21:43	04:39	74,0°	236,0°	123,9°
27	2029 01 27	00:00	5h 36m 41,6s	+24° 41' 23"	Tau	377357	12d 6h 36m	-12,16	1900	87,1	137,8° E	137,8°	14:52	22:40	05:34	74,2°	237,3°	123,4°
28	2029 01 28	00:00	6h 36m 15,7s	+23° 18' 27"	Gem	371333	13d 6h 36m	-12,38	1931	93,5	150,4° E	150,4°	16:01	23:37	06:22	72,8°	240,8°	120,8°
29	2029 01 29	00:00	7h 35m 48,6s	+20° 26' 15"	Gem	366109	14d 6h 36m	-12,58	1958	97,9	163,4° E	163,4°	17:14		07:04	65,4°	246,4°	116,1°
30	2029 01 30	00:00	8h 34m 12,5s	+16° 13' 9"	Cnc	362142	15d 6h 36m	-12,78	1980	99,9	176,8° E	176,0°	18:29	00:33	07:41	59,9°	253,5°	109,7°
31	2029 01 31	00:00	9h 30m 54,8s	+10° 55' 43"	Leo	359767	16d 6h 36m	-12,71	1993	99,1	169,5° W	168,9°	19:44	01:27	08:13	53,6°	261,6°	102,2°
32	2029 02 01	00:00	10h 26m 1,0s	+4° 56' 5"	Sex	359143	17d 6h 36m	-12,53	1996	95,4	155,6° W	155,2°	20:59	02:19	08:42	47,0°	270,2°	94,0°
33	2029 02 02	00:00	11h 20m 4,9s	-1° 21' 20"	Leo	360231	18d 6h 36m	-12,33	1990	89,1	141,7° W	141,4°	22:13	03:11	09:11	40,6°	278,8°	85,6°
34	2029 02 03	00:00	12h 13m 54,9s	-7° 32' 12"	Vir	362812	19d 6h 36m	-12,11	1976	80,6	127,8° W	127,6°	23:28	04:02	09:40	34,8°	286,8°	77,5°
35	2029 02 04	00:00	13h 8m 20,3s	-13° 13' 58"	Vir	366545	20d 6h 36m	-11,86	1956	70,5	114,2° W	114,1°		04:54	10:12	29,9°	293,8°	70,0°
36	2029 02 05	00:00	14h 3m 59,3s	-18° 6' 39"	Vir	371037	21d 6h 36m	-11,58	1932	59,6	101,0° W	100,9°	00:41	05:48	10:47	29,9°	293,8°	63,8°
37	2029 02 06	00:00	15h 1m 6,5s	-21° 53' 30"	Lib	375910	22d 6h 36m	-11,27	1907	48,4	88,0° W	88,0°	01:53	06:44	11:29	26,2°	299,3°	59,1°
38	2029 02 07	00:00	15h 59m 24,1s	-24° 22' 6"	Sco	380849	23d 6h 36m	-10,93	1882	37,5	75,4° W	75,4°	03:02	07:41	12:17	24,0°	302,8°	56,4°
39	2029 02 08	00:00	16h 58m 1,7s	-25° 25' 38"	Oph	385626	24d 6h 36m	-10,55	1859	27,5	63,1° W	63,1°	04:03	08:38	13:13	23,4°	304,1°	55,9°
40	2029 02 09	00:00	17h 55m 48,9s	-25° 3' 59"	Sgr	390094	25d 6h 36m	-10,13	1838	18,7	51,1° W	51,1°	04:56	09:34	14:14	24,3°	303,2°	57,6°

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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
41	2029 02 10	00:00	18h 51m 38,1s	-23° 23' 38"	Sgr	394177	26d 6h 36m	-9,68	1819	11,4	39,3° W	39,3°	05:41	10:27	15:18	26,6°	300,3°	61,2°
42	2029 02 11	00:00	19h 44m 44,7s	-20° 36' 1"	Sgr	397840	27d 6h 36m	-9,18	1802	5,8	27,7° W	27,7°	06:18	11:17	16:23	30,1°	295,9°	66,3°
43	2029 02 12	00:00	20h 34m 54,5s	-16° 55' 8"	Cap	401061	28d 6h 36m	-8,65	1788	2,1	16,4° W	16,4°	06:49	12:04	17:26	34,3°	290,4°	72,3°
44	2029 02 13	00:00	21h 22m 20,9s	-12° 35' 27"	Aqr	403810	29d 6h 36m	-8,10	1775	0,3	5,1° W	5,8°	07:16	12:48	18:28	39,2°	284,1°	78,9°
45	2029 02 14	00:00	22h 7m 35,2s	-7° 50' 33"	Aqr	406029	0d 13h 29m	-8,17	1766	0,4	5,9° E	6,9°	07:40	13:30	19:29	44,4°	277,5°	85,8°
46	2029 02 15	00:00	22h 51m 18,9s	-2° 52' 35"	Aqr	407628	1d 13h 29m	-8,68	1759	2,3	16,9° E	17,4°	08:03	14:11	20:28	49,6°	270,7°	92,8°
47	2029 02 16	00:00	23h 34m 17,6s	+2° 7' 42"	Psc	408488	2d 13h 29m	-9,15	1755	5,9	27,8° E	28,1°	08:25	14:51	21:27	54,8°	263,9°	99,6°
48	2029 02 17	00:00	0h 17m 18,5s	+7° 0' 35"	Psc	408473	3d 13h 29m	-9,58	1755	11,1	38,6° E	38,8°	08:48	15:32	22:26	59,8°	257,4°	106,0°
49	2029 02 18	00:00	1h 1m 8,0s	+11° 36' 50"	Psc	407446	4d 13h 29m	-9,97	1760	17,6	49,3° E	49,5°	09:13	16:15	23:26	64,3°	251,4°	111,9°
50	2029 02 19	00:00	1h 46m 30,3s	+15° 47' 4"	Psc	405297	5d 13h 29m	-10,33	1769	25,3	60,1° E	60,2°	09:41	16:59		64,3°	246,0°	111,9°
51	2029 02 20	00:00	2h 34m 4,2s	+19° 21' 16"	Ari	401965	6d 13h 29m	-10,67	1784	33,9	71,0° E	71,1°	10:14	17:46	00:26	68,2°	241,4°	116,9°
52	2029 02 21	00:00	3h 24m 17,5s	+22° 8' 20"	Ari	397462	7d 13h 29m	-10,98	1804	43,3	82,1° E	82,1°	10:53	18:37	01:26	71,3°	238,1°	120,8°
53	2029 02 22	00:00	4h 17m 19,7s	+23° 56' 20"	Tau	391900	8d 13h 29m	-11,27	1829	53,1	93,4° E	93,4°	11:39	19:30	02:25	73,4°	236,4°	123,2°
54	2029 02 23	00:00	5h 12m 54,8s	+24° 33' 34"	Tau	385500	9d 13h 29m	-11,54	1860	63,1	105,1° E	105,0°	12:35	20:24	03:20	74,2°	236,6°	123,7°
55	2029 02 24	00:00	6h 10m 20,0s	+23° 50' 25"	Gem	378606	10d 13h 29m	-11,81	1894	72,9	117,1° E	117,1°	13:38	21:20	04:11	73,6°	239,0°	122,2°
56	2029 02 25	00:00	7h 8m 35,0s	+21° 41' 57"	Gem	371676	11d 13h 29m	-12,06	1929	82,0	129,6° E	129,6°	14:48	22:16	04:55	71,4°	243,4°	118,6°
57	2029 02 26	00:00	8h 6m 40,6s	+18° 9' 59"	Cnc	365250	12d 13h 29m	-12,29	1963	89,8	142,7° E	142,6°	16:01	23:10	05:34	67,8°	249,6°	113,2°
58	2029 02 27	00:00	9h 3m 57,7s	+13° 24' 2"	Cnc	359900	13d 13h 29m	-12,51	1992	95,7	156,2° E	156,0°	17:17		06:08	62,9°	257,3°	106,2°
59	2029 02 28	00:00	10h 0m 17,2s	+7° 40' 52"	Leo	356143	14d 13h 29m	-12,71	2013	99,1	170,2° E	169,3°	18:33	00:04	06:39	50,4°	265,8°	98,3°
60	2029 03 01	00:00	10h 55m 57,8s	+1° 23' 1"	Leo	354358	15d 13h 29m	-12,79	2023	99,7	175,6° W	173,3°	19:50	00:57	07:09	43,7°	274,6°	89,8°
61	2029 03 02	00:00	11h 51m 36,9s	-5° 3' 24"	Vir	354707	16d 13h 29m	-12,62	2021	97,1	161,2° W	160,4°	21:07	01:50	07:39	37,4°	283,2°	81,3°
62	2029 03 03	00:00	12h 47m 57,0s	-11° 11' 12"	Vir	357101	17d 13h 29m	-12,42	2008	91,7	146,9° W	146,5°	22:24	02:44	08:11	31,8°	291,0°	73,2°
63	2029 03 04	00:00	13h 45m 31,6s	-16° 34' 44"	Vir	361232	18d 13h 29m	-12,19	1985	83,9	132,9° W	132,6°	23:39	03:39	08:46	27,6°	297,3°	66,2°
64	2029 03 05	00:00	14h 44m 30,9s	-20° 52' 14"	Lib	366637	19d 13h 29m	-11,94	1955	74,4	119,2° W	119,1°		04:36	09:27	24,8°	301,6°	60,8°
65	2029 03 06	00:00	15h 44m 31,8s	-23° 48' 6"	Lib	372796	20d 13h 29m	-11,66	1923	63,9	106,0° W	106,0°	00:51	05:35	10:14	24,8°	301,6°	57,3°
66	2029 03 07	00:00	16h 44m 37,3s	-25° 14' 28"	Sco	379210	21d 13h 29m	-11,36	1891	53,0	93,3° W	93,3°	01:56	06:33	11:09	23,6°	303,7°	56,1°
67	2029 03 08	00:00	17h 43m 32,9s	-25° 11' 49"	Oph	385463	22d 13h 29m	-11,03	1860	42,3	81,0° W	81,0°	02:53	07:30	12:09	24,1°	303,5°	57,2°
68	2029 03 09	00:00	18h 40m 10,4s	-23° 47' 52"	Sgr	391245	23d 13h 29m	-10,68	1832	32,3	69,1° W	69,1°	03:40	08:24	13:12	26,0°	301,1°	60,2°
69	2029 03 10	00:00	19h 33m 48,0s	-21° 15' 0"	Sgr	396357	24d 13h 29m	-10,29	1809	23,2	57,5° W	57,5°	04:19	09:15	14:16	29,0°	297,2°	64,8°
70	2029 03 11	00:00	20h 24m 16,6s	-17° 47' 33"	Cap	400693	25d 13h 29m	-9,88	1789	15,5	46,2° W	46,2°	04:52	10:02	15:19	33,0°	292,1°	70,4°
71	2029 03 12	00:00	21h 11m 53,8s	-13° 39' 40"	Aqr	404217	26d 13h 29m	-9,44	1774	9,1	35,0° W	35,1°	05:20	10:46	16:21	37,6°	286,1°	76,7°
72	2029 03 13	00:00	21h 57m 13,9s	-9° 4' 18"	Cap	406934	27d 13h 29m	-8,96	1762	4,4	24,0° W	24,2°	05:44	11:28	17:21	42,6°	279,7°	83,5°
73	2029 03 14	00:00	22h 40m 59,4s	-4° 13' 3"	Aqr	408867	28d 13h 29m	-8,45	1753	1,4	13,1° W	13,6°	06:08	12:09	18:20	47,8°	273,0°	90,3°
74	2029 03 15	00:00	23h 23m 55,5s	+0° 43' 37"	Psc	410031	29d 13h 29m	-8,02	1749	0,2	2,3° W	4,8°	06:30	12:50	19:19	53,0°	266,3°	97,1°
75	2029 03 16	00:00	0h 6m 47,2s	+5° 35' 52"	Psc	410420	0d 19h 41m	-8,27	1747	0,7	8,5° E	9,6°	06:53	13:31	20:18	58,0°	259,8°	103,7°
76	2029 03 17	00:00	0h 50m 17,6s	+10° 14' 13"	Psc	410004	1d 19h 41m	-8,76	1749	3,0	19,3° E	19,8°	07:17	14:12	21:17	62,6°	253,6°	109,7°
77	2029 03 18	00:00	1h 35m 6,2s	+14° 29' 1"	Psc	408730	2d 19h 41m	-9,22	1754	6,9	30,0° E	30,3°	07:44	14:56	22:17	66,7°	248,0°	115,0°
78	2029 03 19	00:00	2h 21m 46,3s	+18° 10' 13"	Ari	406532	3d 19h 41m	-9,65	1764	12,3	40,9° E	41,0°	08:15	15:42	23:17	70,1°	243,2°	119,3°
79	2029 03 20	00:00	3h 10m 41,2s	+21° 7' 19"	Ari	403356	4d 19h 41m	-10,05	1777	19,2	51,8° E	51,8°	08:52	16:31		70,1°	239,5°	119,3°
80	2029 03 21	00:00	4h 1m 58,6s	+23° 9' 39"	Tau	399174	5d 19h 41m	-10,42	1796	27,3	62,8° E	62,8°	09:35	17:22	00:15	72,5°	237,2°	122,2°

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	yyyy mm dd	hh:mm	topocentric	topocentric		km	days	mV	"	%	°	°	hh:mm	hh:mm	hh:mm	(max.)	at rise	at set
81	2029 03 22	00:00	4h 55m 26,4s	+24° 7' 6"	Tau	394018	6d 19h 41m	-10,77	1820	36,4	74,1° E	74,1°	10:25	18:14	01:11	73,8°	236,6°	123,4°
82	2029 03 23	00:00	5h 50m 32,4s	+23° 51' 26"	Tau	388003	7d 19h 41m	-11,09	1848	46,3	85,6° E	85,6°	11:23	19:08	02:02	73,7°	238,0°	122,7°
83	2029 03 24	00:00	6h 46m 31,3s	+22° 17' 42"	Gem	381349	8d 19h 41m	-11,40	1880	56,7	97,5° E	97,5°	12:28	20:02	02:47	72,3°	241,4°	120,1°
84	2029 03 25	00:00	7h 42m 38,3s	+19° 25' 34"	Gem	374392	9d 19h 41m	-11,68	1915	67,1	109,9° E	109,9°	13:37	20:55	03:27	69,5°	246,6°	115,7°
85	2029 03 26	00:00	8h 38m 22,8s	+15° 20' 0"	Cnc	367584	10d 19h 41m	-11,95	1950	77,1	122,8° E	122,7°	14:50	21:48	04:02	65,3°	253,4°	109,7°
86	2029 03 27	00:00	9h 33m 38,0s	+10° 11' 32"	Leo	361464	11d 19h 41m	-12,20	1983	86,0	136,2° E	136,0°	16:04	22:40	04:34	60,0°	261,3°	102,4°
87	2029 03 28	00:00	10h 28m 41,1s	+4° 16' 13"	Sex	356600	12d 19h 41m	-12,43	2011	93,2	150,1° E	149,7°	17:20	23:33	05:04	53,9°	269,9°	94,3°
88	2029 03 29	00:00	11h 24m 7,9s	-2° 4' 35"	Leo	353505	13d 19h 41m	-12,64	2028	97,9	164,4° E	163,5°	18:37		05:34	47,3°	278,6°	85,9°
89	2029 03 30	00:00	12h 20m 43,0s	-8° 25' 6"	Vir	352538	14d 19h 41m	-12,80	2034	99,7	178,9° E	174,2°	19:56	00:27	06:06	34,6°	287,0°	77,5°
90	2029 03 31	00:00	13h 19m 5,1s	-14° 16' 58"	Vir	353827	15d 19h 41m	-12,68	2026	98,4	166,5° W	165,5°	21:15	01:23	06:40	29,6°	294,2°	69,8°
91	2029 04 01	00:00	14h 19m 31,0s	-19° 12' 21"	Vir	357234	16d 19h 41m	-12,48	2007	94,1	152,2° W	151,8°	22:31	02:21	07:20	26,0°	299,6°	63,4°
92	2029 04 02	00:00	15h 21m 38,8s	-22° 48' 10"	Lib	362389	17d 19h 41m	-12,25	1978	87,2	138,2° W	138,0°	23:42	03:21	08:06	24,1°	302,8°	58,9°
93	2029 04 03	00:00	16h 24m 21,9s	-24° 50' 7"	Oph	368769	18d 19h 41m	-12,00	1944	78,5	124,7° W	124,7°		04:22	08:59	24,0°	303,4°	56,7°
94	2029 04 04	00:00	17h 26m 5,4s	-25° 15' 10"	Oph	375792	19d 19h 41m	-11,73	1908	68,6	111,8° W	111,8°	00:44	05:21	09:59	24,0°	303,4°	56,9°
95	2029 04 05	00:00	18h 25m 17,7s	-24° 10' 44"	Sgr	382909	20d 19h 41m	-11,45	1872	58,2	99,3° W	99,3°	01:36	06:18	11:04	25,4°	301,8°	59,4°
96	2029 04 06	00:00	19h 21m 1,1s	-21° 51' 8"	Sgr	389658	21d 19h 41m	-11,14	1840	47,8	87,3° W	87,3°	02:18	07:11	12:09	28,2°	298,3°	63,5°
97	2029 04 07	00:00	20h 13m 1,0s	-18° 33' 7"	Cap	395697	22d 19h 41m	-10,81	1812	37,8	75,7° W	75,7°	02:53	07:59	13:13	31,9°	293,5°	68,8°
98	2029 04 08	00:00	21h 1m 37,7s	-14° 32' 40"	Cap	400801	23d 19h 41m	-10,46	1789	28,5	64,4° W	64,4°	03:23	08:45	14:15	36,3°	287,8°	74,9°
99	2029 04 09	00:00	21h 47m 31,7s	-10° 3' 38"	Cap	404855	24d 19h 41m	-10,09	1771	20,3	53,3° W	53,4°	03:49	09:28	15:15	41,2°	281,5°	81,5°
100	2029 04 10	00:00	22h 31m 32,4s	-5° 17' 40"	Aqr	407831	25d 19h 41m	-9,68	1758	13,2	42,4° W	42,6°	04:12	10:09	16:14	46,2°	275,0°	88,3°
101	2029 04 11	00:00	23h 14m 30,6s	-0° 24' 49"	Psc	409761	26d 19h 41m	-9,25	1750	7,6	31,6° W	31,8°	04:35	10:49	17:12	51,4°	268,4°	95,0°
102	2029 04 12	00:00	23h 57m 15,4s	+4° 25' 40"	Psc	410711	27d 19h 41m	-8,78	1746	3,4	20,8° W	21,3°	04:58	11:30	18:11	56,4°	261,9°	101,6°
103	2029 04 13	00:00	0h 40m 32,4s	+9° 4' 41"	Psc	410760	28d 19h 41m	-8,29	1745	0,9	10,1° W	11,0°	05:22	12:11	19:10	61,1°	255,6°	107,7°
104	2029 04 14	00:00	1h 25m 2,2s	+13° 22' 46"	Psc	409978	0d 2h 20m	-7,98	1749	0,1	0,7° E	4,2°	05:48	12:54	20:10	65,4°	249,8°	113,2°
105	2029 04 15	00:00	2h 11m 17,7s	+17° 9' 48"	Ari	408415	1d 2h 20m	-8,38	1755	1,1	11,5° E	12,1°	06:18	13:40	21:10	69,0°	244,8°	117,8°
106	2029 04 16	00:00	2h 59m 40,4s	+20° 15' 9"	Ari	406097	2d 2h 20m	-8,88	1765	3,9	22,4° E	22,6°	06:53	14:28	22:09	71,7°	240,7°	121,1°
107	2029 04 17	00:00	3h 50m 15,3s	+22° 28' 8"	Tau	403031	3d 2h 20m	-9,36	1779	8,3	33,4° E	33,5°	07:34	15:18	23:05	73,3°	238,0°	122,9°
108	2029 04 18	00:00	4h 42m 47,1s	+23° 39' 0"	Tau	399217	4d 2h 20m	-9,80	1796	14,4	44,5° E	44,5°	08:22	16:10	23:57	73,6°	236,9°	122,8°
109	2029 04 19	00:00	5h 36m 42,0s	+23° 40' 14"	Tau	394669	5d 2h 20m	-10,21	1817	22,0	55,8° E	55,8°	09:17	17:02		73,6°	237,7°	122,8°
110	2029 04 20	00:00	6h 31m 14,5s	+22° 27' 49"	Gem	389437	6d 2h 20m	-10,59	1841	30,9	67,4° E	67,4°	10:18	17:55	00:43	72,7°	240,4°	120,9°
111	2029 04 21	00:00	7h 25m 41,6s	+20° 1' 54"	Gem	383635	7d 2h 20m	-10,94	1869	40,8	79,3° E	79,3°	11:24	18:47	01:24	70,4°	244,8°	117,2°
112	2029 04 22	00:00	8h 19m 35,7s	+16° 26' 56"	Cnc	377466	8d 2h 20m	-11,27	1899	51,5	91,6° E	91,6°	12:32	19:38	01:59	66,8°	250,7°	111,9°
113	2029 04 23	00:00	9h 12m 52,9s	+11° 51' 11"	Cnc	371233	9d 2h 20m	-11,57	1931	62,4	104,3° E	104,3°	13:43	20:28	02:32	62,1°	257,9°	105,4°
114	2029 04 24	00:00	10h 5m 52,8s	+6° 26' 33"	Leo	365339	10d 2h 20m	-11,86	1962	73,1	117,5° E	117,4°	14:55	21:18	03:02	56,6°	265,9°	98,0°
115	2029 04 25	00:00	10h 59m 15,0s	+0° 28' 42"	Leo	360261	11d 2h 20m	-12,11	1990	82,8	131,2° E	130,9°	16:09	22:10	03:31	50,4°	274,3°	90,0°
116	2029 04 26	00:00	11h 53m 50,7s	-5° 42' 28"	Vir	356493	12d 2h 20m	-12,35	2011	90,9	145,2° E	144,8°	17:26	23:04	04:00	44,0°	282,7°	81,7°
117	2029 04 27	00:00	12h 50m 32,2s	-11° 42' 44"	Crv	354470	13d 2h 20m	-12,56	2023	96,6	159,6° E	158,8°	18:44		04:33	37,7°	290,5°	73,8°
118	2029 04 28	00:00	13h 49m 57,5s	-17° 4' 35"	Vir	354477	14d 2h 20m	-12,74	2023	99,5	174,0° E	171,9°	20:03	00:01	05:10	27,8°	296,9°	66,7°
119	2029 04 29	00:00	14h 52m 9,3s	-21° 20' 17"	Lib	356582	15d 2h 20m	-12,71	2011	99,3	171,6° W	170,4°	21:18	01:01	05:53	25,0°	301,3°	61,1°
120	2029 04 30	00:00	15h 56m 16,9s	-24° 7' 11"	Sco	360612	16d 2h 20m	-12,52	1988	96,1	157,6° W	157,3°	22:27	02:03	06:45	24,0°	303,2°	57,7°

Topocentric ephemeris of the Moon (following)

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

	Date	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
121	2029 05 01	00:00	17h 0m 38,2s	-25° 13' 14"	Oph	366187	17d 2h 20m	-12,29	1958	90,4	143,9° W	143,8°	23:25	03:05	07:44	24,8°	302,5°	56,8°
122	2029 05 02	00:00	18h 3m 10,8s	-24° 39' 54"	Sgr	372787	18d 2h 20m	-12,06	1923	82,7	130,8° W	130,7°		04:06	08:49	27,1°	299,6°	58,4°
123	2029 05 03	00:00	19h 2m 17,7s	-22° 40' 5"	Sgr	379847	19d 2h 20m	-11,81	1887	73,7	118,1° W	118,1°	00:13	05:02	09:56	27,1°	299,6°	62,0°
124	2029 05 04	00:00	19h 57m 14,9s	-19° 32' 39"	Sgr	386830	20d 2h 20m	-11,54	1853	63,8	105,9° W	105,9°	00:52	05:54	11:02	30,6°	295,1°	67,0°
125	2029 05 05	00:00	20h 48m 9,0s	-15° 36' 54"	Cap	393282	21d 2h 20m	-11,25	1823	53,8	94,2° W	94,2°	01:24	06:41	12:06	34,9°	289,6°	73,0°
126	2029 05 06	00:00	21h 35m 39,7s	-11° 9' 35"	Cap	398861	22d 2h 20m	-10,95	1797	43,9	82,8° W	82,8°	01:52	07:26	13:08	39,7°	283,5°	79,5°
127	2029 05 07	00:00	22h 20m 41,2s	-6° 24' 10"	Aqr	403344	23d 2h 20m	-10,64	1778	34,4	71,7° W	71,7°	02:16	08:07	14:07	44,7°	277,0°	86,2°
128	2029 05 08	00:00	23h 4m 11,3s	-1° 31' 21"	Psc	406619	24d 2h 20m	-10,29	1763	25,7	60,7° W	60,8°	02:39	08:48	15:06	49,8°	270,4°	93,0°
129	2029 05 09	00:00	23h 47m 6,0s	+3° 19' 45"	Psc	408670	25d 2h 20m	-9,93	1754	18,0	49,9° W	50,0°	03:02	09:29	16:04	54,9°	263,8°	99,6°
130	2029 05 10	00:00	0h 30m 17,4s	+8° 0' 37"	Psc	409553	26d 2h 20m	-9,53	1751	11,4	39,1° W	39,3°	03:26	10:10	17:03	59,7°	257,5°	105,8°
131	2029 05 11	00:00	1h 14m 31,7s	+12° 22' 28"	Psc	409377	27d 2h 20m	-9,09	1751	6,1	28,3° W	28,6°	03:51	10:52	18:02	64,1°	251,6°	111,5°
132	2029 05 12	00:00	2h 0m 27,3s	+16° 15' 44"	Ari	408276	28d 2h 20m	-8,62	1756	2,4	17,5° W	17,9°	04:20	11:37	19:03	67,9°	246,3°	116,4°
133	2029 05 13	00:00	2h 48m 30,3s	+19° 29' 52"	Ari	406388	29d 2h 20m	-8,11	1764	0,4	6,6° W	7,3°	04:54	12:25	20:02	70,9°	242,0°	120,1°
134	2029 05 14	00:00	3h 38m 49,4s	+21° 53' 54"	Tau	403840	0d 10h 18m	-8,03	1775	0,2	4,5° E	5,0°	05:33	13:14	20:59	72,8°	238,8°	122,4°
135	2029 05 15	00:00	4h 31m 10,7s	+23° 17' 29"	Tau	400737	1d 10h 18m	-8,57	1789	1,9	15,6° E	15,7°	06:19	14:06	21:53	73,6°	237,2°	122,8°
136	2029 05 16	00:00	5h 24m 57,6s	+23° 32' 30"	Tau	397155	2d 10h 18m	-9,09	1805	5,5	27,0° E	27,0°	07:13	14:59	22:42	73,0°	237,5°	121,4°
137	2029 05 17	00:00	6h 19m 19,0s	+22° 34' 43"	Gem	393147	3d 10h 18m	-9,58	1824	10,9	38,5° E	38,5°	08:12	15:51	23:24	71,0°	239,6°	118,2°
138	2029 05 18	00:00	7h 13m 24,0s	+20° 24' 37"	Gem	388762	4d 10h 18m	-10,03	1844	18,1	50,2° E	50,3°	09:16	16:43		71,0°	243,5°	118,2°
139	2029 05 19	00:00	8h 6m 37,4s	+17° 7' 18"	Cnc	384061	5d 10h 18m	-10,45	1867	26,8	62,2° E	62,3°	10:23	17:33	00:01	67,9°	248,9°	113,5°
140	2029 05 20	00:00	8h 58m 49,1s	+12° 51' 31"	Cnc	379143	6d 10h 18m	-10,83	1891	36,8	74,6° E	74,6°	11:31	18:23	00:33	63,6°	255,6°	107,5°
141	2029 05 21	00:00	9h 50m 15,5s	+7° 48' 39"	Leo	374167	7d 10h 18m	-11,18	1916	47,7	87,2° E	87,2°	12:41	19:11	01:03	58,4°	263,0°	100,5°
142	2029 05 22	00:00	10h 41m 34,6s	+2° 12' 17"	Sex	369369	8d 10h 18m	-11,49	1941	59,0	100,3° E	100,2°	13:52	20:01	01:31	52,6°	271,1°	92,9°
143	2029 05 23	00:00	11h 33m 39,3s	-3° 41' 39"	Leo	365058	9d 10h 18m	-11,78	1964	70,1	113,7° E	113,5°	15:04	20:52	01:59	46,5°	279,2°	85,0°
144	2029 05 24	00:00	12h 27m 29,4s	-9° 34' 7"	Vir	361597	10d 10h 18m	-12,04	1983	80,3	127,4° E	127,1°	16:19	21:45	02:29	40,4°	287,0°	77,2°
145	2029 05 25	00:00	13h 23m 59,6s	-15° 2' 36"	Vir	359351	11d 10h 18m	-12,26	1995	88,9	141,3° E	141,0°	17:36	22:42	03:03	34,6°	294,0°	69,9°
146	2029 05 26	00:00	14h 23m 42,7s	-19° 41' 49"	Lib	358631	12d 10h 18m	-12,47	1999	95,3	155,4° E	154,9°	18:52	23:43	03:42	29,8°	299,3°	63,6°
147	2029 05 27	00:00	15h 26m 27,2s	-23° 6' 39"	Lib	359622	13d 10h 18m	-12,65	1994	99,0	169,5° E	168,7°	20:04		04:29	24,3°	302,5°	59,2°
148	2029 05 28	00:00	16h 31m 1,7s	-24° 57' 36"	Sco	362334	14d 10h 18m	-12,74	1979	99,8	176,7° W	175,5°	21:08	00:45	05:25	24,3°	303,0°	57,0°
149	2029 05 29	00:00	17h 35m 24,7s	-25° 6' 29"	Oph	366584	15d 10h 18m	-12,54	1956	97,8	163,1° W	163,0°	22:02	01:47	06:28	26,0°	301,1°	57,4°
150	2029 05 30	00:00	18h 37m 28,0s	-23° 38' 55"	Sgr	372028	16d 10h 18m	-12,33	1927	93,3	149,9° W	149,9°	22:46	02:47	07:36	29,0°	297,2°	60,2°
151	2029 05 31	00:00	19h 35m 42,9s	-20° 51' 15"	Sgr	378207	17d 10h 18m	-12,11	1896	86,7	137,2° W	137,2°	23:22	03:42	08:44	33,1°	292,0°	64,8°
152	2029 06 01	00:00	20h 29m 40,8s	-17° 4' 26"	Cap	384623	18d 10h 18m	-11,87	1864	78,7	124,9° W	124,8°	23:52	04:33	09:51	37,8°	285,9°	70,6°
153	2029 06 02	00:00	21h 19m 42,3s	-12° 38' 37"	Aqr	390799	19d 10h 18m	-11,63	1835	69,6	113,0° W	112,9°		05:20	10:55	42,9°	279,4°	77,0°
154	2029 06 03	00:00	22h 6m 35,7s	-7° 50' 34"	Aqr	396324	20d 10h 18m	-11,37	1809	60,0	101,4° W	101,4°	00:18	06:03	11:57	42,9°	279,4°	83,8°
155	2029 06 04	00:00	22h 51m 20,1s	-2° 53' 22"	Aqr	400882	21d 10h 18m	-11,10	1788	50,3	90,2° W	90,2°	00:42	06:45	12:57	48,0°	272,7°	90,6°
156	2029 06 05	00:00	23h 34m 56,2s	+2° 2' 44"	Psc	404269	22d 10h 18m	-10,81	1773	40,8	79,2° W	79,2°	01:05	07:26	13:55	53,2°	266,1°	97,3°
157	2029 06 06	00:00	0h 18m 21,2s	+6° 49' 1"	Psc	406383	23d 10h 18m	-10,50	1764	31,7	68,3° W	68,3°	01:29	08:07	14:54	58,1°	259,6°	103,7°
158	2029 06 07	00:00	1h 2m 27,7s	+11° 17' 14"	Psc	407224	24d 10h 18m	-10,17	1761	23,3	57,4° W	57,5°	01:54	08:49	15:53	62,6°	253,6°	109,7°
159	2029 06 08	00:00	1h 48m 1,1s	+15° 18' 37"	Ari	406874	25d 10h 18m	-9,80	1762	15,8	46,6° W	46,7°	02:21	09:33	16:53	66,7°	248,1°	114,8°
160	2029 06 09	00:00	2h 35m 36,2s	+18° 43' 22"	Ari	405479	26d 10h 18m	-9,40	1768	9,5	35,6° W	35,8°	02:53	10:19	17:53	69,9°	243,3°	119,0°

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
161	2029 06 10	00:00	3h 25m 31,2s	+21° 20' 48"	Ari	403229	27d 10h 18m	-8,94	1778	4,6	24,6° W	24,7°	03:30	11:09	18:52	72,3°	239,7°	121,8°
162	2029 06 11	00:00	4h 17m 41,6s	+23° 0' 3"	Tau	400329	28d 10h 18m	-8,44	1791	1,4	13,4° W	13,5°	04:15	12:00	19:48	73,4°	237,6°	122,9°
163	2029 06 12	00:00	5h 11m 36,8s	+23° 31' 48"	Tau	396983	29d 10h 18m	-7,88	1806	0,0	2,0° W	2,1°	05:06	12:53	20:39	73,3°	237,2°	122,1°
164	2029 06 13	00:00	6h 6m 25,2s	+22° 50' 13"	Gem	393370	0d 20h 09m	-8,29	1823	0,7	9,6° E	9,6°	06:05	13:47	21:23	71,8°	238,8°	119,4°
165	2029 06 14	00:00	7h 1m 7,6s	+20° 54' 36"	Gem	389633	1d 20h 09m	-8,88	1840	3,5	21,4° E	21,5°	07:08	14:40	22:02	68,9°	242,2°	115,0°
166	2029 06 15	00:00	7h 54m 56,1s	+17° 49' 41"	Gem	385874	2d 20h 09m	-9,42	1858	8,4	33,5° E	33,6°	08:15	15:31	22:36	64,9°	247,2°	109,3°
167	2029 06 16	00:00	8h 47m 27,6s	+13° 44' 49"	Cnc	382161	3d 20h 09m	-9,91	1876	15,3	45,8° E	45,9°	09:24	16:20	23:06	60,0°	253,6°	102,6°
168	2029 06 17	00:00	9h 38m 47,2s	+8° 52' 24"	Leo	378547	4d 20h 09m	-10,35	1894	23,9	58,3° E	58,5°	10:33	17:09	23:35	54,4°	260,8°	95,2°
169	2029 06 18	00:00	10h 29m 25,0s	+3° 26' 42"	Sex	375086	5d 20h 09m	-10,75	1911	34,0	71,1° E	71,2°	11:42	17:57		54,4°	268,6°	95,2°
170	2029 06 19	00:00	11h 20m 9,0s	-2° 16' 49"	Leo	371864	6d 20h 09m	-11,11	1928	45,0	84,1° E	84,2°	12:52	18:46	00:02	48,4°	276,6°	87,5°
171	2029 06 20	00:00	12h 11m 56,8s	-8° 1' 14"	Vir	369008	7d 20h 09m	-11,43	1943	56,5	97,4° E	97,3°	14:04	19:37	00:31	42,4°	284,4°	79,8°
172	2029 06 21	00:00	13h 5m 47,1s	-13° 27' 43"	Vir	366697	8d 20h 09m	-11,71	1955	67,8	110,8° E	110,7°	15:18	20:31	01:02	36,6°	291,5°	72,4°
173	2029 06 22	00:00	14h 2m 27,4s	-18° 15' 14"	Vir	365145	9d 20h 09m	-11,96	1963	78,2	124,3° E	124,2°	16:32	21:29	01:38	31,5°	297,4°	65,9°
174	2029 06 23	00:00	15h 2m 15,7s	-22° 1' 36"	Lib	364571	10d 20h 09m	-12,18	1967	87,1	137,9° E	137,7°	17:44	22:29	02:20	27,5°	301,4°	60,8°
175	2029 06 24	00:00	16h 4m 41,6s	-24° 26' 26"	Sco	365154	11d 20h 09m	-12,38	1963	93,9	151,5° E	151,3°	18:51	23:30	03:10	25,0°	303,1°	57,7°
176	2029 06 25	00:00	17h 8m 19,1s	-25° 16' 0"	Oph	366986	12d 20h 09m	-12,55	1954	98,3	165,0° E	164,8°	19:49		04:09	25,0°	302,3°	56,9°
177	2029 06 26	00:00	18h 11m 8,2s	-24° 27' 43"	Sgr	370039	13d 20h 09m	-12,71	1937	100,0	178,2° E	178,0°	20:38	00:31	05:15	27,4°	299,3°	58,6°
178	2029 06 27	00:00	19h 11m 17,7s	-22° 11' 2"	Sgr	374153	14d 20h 09m	-12,56	1916	99,0	168,8° W	168,8°	21:18	01:28	06:24	31,1°	294,6°	62,4°
179	2029 06 28	00:00	20h 7m 42,4s	-18° 43' 48"	Cap	379046	15d 20h 09m	-12,36	1891	95,7	156,1° W	156,1°	21:51	02:22	07:32	35,6°	288,7°	67,8°
180	2029 06 29	00:00	21h 0m 11,1s	-14° 26' 45"	Aqr	384351	16d 20h 09m	-12,16	1865	90,4	143,8° W	143,8°	22:19	03:11	08:39	40,6°	282,3°	74,1°
181	2029 06 30	00:00	21h 49m 12,5s	-9° 39' 19"	Cap	389667	17d 20h 09m	-11,95	1840	83,4	131,9° W	131,8°	22:44	03:57	09:43	45,9°	275,5°	80,9°
182	2029 07 01	00:00	22h 35m 36,6s	-4° 37' 35"	Aqr	394597	18d 20h 09m	-11,73	1817	75,3	120,3° W	120,2°	23:08	04:40	10:44	51,1°	268,8°	87,8°
183	2029 07 02	00:00	23h 20m 20,8s	+0° 25' 46"	Psc	398793	19d 20h 09m	-11,50	1798	66,3	108,9° W	108,9°	23:31	05:21	11:44	56,2°	262,2°	94,7°
184	2029 07 03	00:00	0h 4m 23,0s	+5° 20' 35"	Psc	401983	20d 20h 09m	-11,25	1784	56,9	97,8° W	97,8°	23:56	06:03	12:43	60,9°	255,9°	101,3°
185	2029 07 04	00:00	0h 48m 37,8s	+9° 58' 8"	Psc	403986	21d 20h 09m	-11,00	1775	47,4	86,8° W	86,9°		06:44	13:42	65,2°	250,1°	107,4°
186	2029 07 05	00:00	1h 33m 54,8s	+14° 10' 0"	Psc	404720	22d 20h 09m	-10,72	1771	38,0	75,9° W	76,0°	00:22	07:27	14:42	65,2°	250,1°	112,9°
187	2029 07 06	00:00	2h 20m 55,0s	+17° 47' 17"	Ari	404201	23d 20h 09m	-10,41	1774	29,0	65,0° W	65,1°	00:52	08:13	15:42	68,7°	245,1°	117,5°
188	2029 07 07	00:00	3h 10m 6,6s	+20° 40' 7"	Ari	402539	24d 20h 09m	-10,08	1781	20,7	54,0° W	54,1°	01:27	09:01	16:41	71,5°	241,0°	120,9°
189	2029 07 08	00:00	4h 1m 38,3s	+22° 38' 4"	Tau	399918	25d 20h 09m	-9,70	1793	13,4	42,9° W	42,9°	02:08	09:52	17:38	73,1°	238,3°	122,7°
190	2029 07 09	00:00	4h 55m 13,6s	+23° 31' 8"	Tau	396580	26d 20h 09m	-9,27	1808	7,4	31,5° W	31,5°	02:57	10:44	18:31	73,5°	237,1°	122,6°
191	2029 07 10	00:00	5h 50m 10,9s	+23° 11' 44"	Tau	392801	27d 20h 09m	-8,78	1825	3,0	19,9° W	19,9°	03:53	11:38	19:19	72,5°	237,9°	120,6°
192	2029 07 11	00:00	6h 45m 33,0s	+21° 36' 39"	Gem	388860	28d 20h 09m	-8,23	1844	0,5	8,0° W	8,1°	04:56	12:32	20:01	70,1°	240,7°	116,8°
193	2029 07 12	00:00	7h 40m 24,0s	+18° 48' 24"	Gem	385011	0d 8h 09m	-8,07	1862	0,2	4,2° E	4,9°	06:03	13:25	20:37	66,5°	245,2°	111,4°
194	2029 07 13	00:00	8h 34m 6,6s	+14° 55' 8"	Cnc	381458	1d 8h 09m	-8,71	1879	2,2	16,6° E	17,0°	07:12	14:16	21:09	61,7°	251,2°	104,9°
195	2029 07 14	00:00	9h 26m 30,9s	+10° 9' 28"	Leo	378340	2d 8h 09m	-9,29	1895	6,6	29,3° E	29,6°	08:23	15:06	21:38	56,2°	258,4°	97,6°
196	2029 07 15	00:00	10h 17m 53,8s	+4° 46' 51"	Sex	375724	3d 8h 09m	-9,82	1908	13,2	42,2° E	42,5°	09:33	15:55	22:07	50,3°	266,1°	89,9°
197	2029 07 16	00:00	11h 8m 53,2s	-0° 55' 45"	Leo	373622	4d 8h 09m	-10,29	1919	21,7	55,3° E	55,5°	10:44	16:44	22:35	44,2°	274,2°	82,1°
198	2029 07 17	00:00	12h 0m 19,1s	-6° 40' 36"	Vir	372013	5d 8h 09m	-10,70	1927	31,8	68,4° E	68,6°	11:55	17:35	23:05	38,3°	282,0°	74,6°
199	2029 07 18	00:00	12h 53m 6,0s	-12° 9' 13"	Crv	370871	6d 8h 09m	-11,06	1933	42,9	81,7° E	81,7°	13:07	18:27	23:39	33,1°	289,3°	67,9°
200	2029 07 19	00:00	13h 48m 1,7s	-17° 2' 30"	Vir	370187	7d 8h 09m	-11,38	1937	54,4	94,9° E	94,9°	14:20	19:22		33,1°	295,5°	67,9°

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
201	2029 07 20	00:00	14h 45m 34,3s	-21° 1' 0"	Lib	369991	8d 8h 09m	-11,65	1938	65,6	108,2° E	108,1°	15:32	20:20	00:18	28,8°	300,2°	62,4°
202	2029 07 21	00:00	15h 45m 36,4s	-23° 46' 35"	Lib	370345	9d 8h 09m	-11,89	1936	76,1	121,4° E	121,3°	16:39	21:19	01:04	25,7°	302,7°	58,6°
203	2029 07 22	00:00	16h 47m 14,7s	-25° 5' 20"	Sco	371330	10d 8h 09m	-12,10	1931	85,1	134,5° E	134,4°	17:39	22:19	01:58	24,2°	302,9°	56,9°
204	2029 07 23	00:00	17h 48m 57,6s	-24° 51' 11"	Sgr	373017	11d 8h 09m	-12,28	1922	92,2	147,5° E	147,4°	18:31	23:16	02:59	24,4°	300,8°	57,7°
205	2029 07 24	00:00	18h 49m 4,1s	-23° 7' 59"	Sgr	375436	12d 8h 09m	-12,44	1910	97,1	160,3° E	160,3°	19:13		04:06	26,2°	296,8°	60,6°
206	2029 07 25	00:00	19h 46m 17,8s	-20° 8' 20"	Sgr	378551	13d 8h 09m	-12,59	1894	99,6	172,9° E	172,8°	19:49	00:11	05:14	33,5°	291,4°	65,3°
207	2029 07 26	00:00	20h 40m 5,8s	-16° 10' 4"	Cap	382239	14d 8h 09m	-12,58	1876	99,8	174,7° W	174,3°	20:19	01:02	06:22	38,3°	285,2°	71,2°
208	2029 07 27	00:00	21h 30m 35,8s	-11° 32' 12"	Cap	386300	15d 8h 09m	-12,40	1856	97,7	162,6° W	162,3°	20:46	01:49	07:27	43,5°	278,5°	77,8°
209	2029 07 28	00:00	22h 18m 22,6s	-6° 32' 11"	Aqr	390468	16d 8h 09m	-12,22	1836	93,6	150,7° W	150,5°	21:10	02:33	08:30	48,8°	271,7°	84,7°
210	2029 07 29	00:00	23h 4m 14,1s	-1° 24' 50"	Psc	394442	17d 8h 09m	-12,03	1818	87,8	139,1° W	139,0°	21:34	03:16	09:31	54,0°	265,0°	91,7°
211	2029 07 30	00:00	23h 49m 2,6s	+3° 37' 40"	Psc	397915	18d 8h 09m	-11,83	1802	80,6	127,8° W	127,7°	21:58	03:58	10:31	58,9°	258,5°	98,5°
212	2029 07 31	00:00	0h 33m 39,7s	+8° 25' 8"	Psc	400608	19d 8h 09m	-11,63	1790	72,5	116,6° W	116,5°	22:24	04:39	11:30	63,4°	252,5°	104,9°
213	2029 08 01	00:00	1h 18m 53,4s	+12° 48' 30"	Psc	402297	20d 8h 09m	-11,41	1782	63,5	105,6° W	105,6°	22:52	05:22	12:29	67,3°	247,2°	110,7°
214	2029 08 02	00:00	2h 5m 25,7s	+16° 38' 59"	Ari	402831	21d 8h 09m	-11,18	1780	54,2	94,7° W	94,7°	23:25	06:06	13:29	70,4°	242,7°	115,6°
215	2029 08 03	00:00	2h 53m 49,2s	+19° 47' 31"	Ari	402150	22d 8h 09m	-10,93	1783	44,7	83,7° W	83,7°		06:53	14:28	72,5°	239,4°	119,5°
216	2029 08 04	00:00	3h 44m 21,2s	+22° 4' 34"	Tau	400287	23d 8h 09m	-10,66	1791	35,2	72,7° W	72,7°	00:02	07:42	15:26	72,5°	239,4°	122,0°
217	2029 08 05	00:00	4h 36m 58,7s	+23° 20' 36"	Tau	397375	24d 8h 09m	-10,35	1804	26,2	61,5° W	61,5°	00:47	08:33	16:20	73,4°	237,5°	122,8°
218	2029 08 06	00:00	5h 31m 16,0s	+23° 27' 26"	Tau	393636	25d 8h 09m	-10,00	1821	17,9	50,0° W	50,0°	01:40	09:27	17:10	73,1°	237,4°	121,7°
219	2029 08 07	00:00	6h 26m 28,4s	+22° 19' 50"	Gem	389362	26d 8h 09m	-9,59	1841	10,8	38,3° W	38,3°	02:40	10:20	17:55	71,3°	239,3°	118,7°
220	2029 08 08	00:00	7h 21m 44,3s	+19° 57' 14"	Gem	384897	27d 8h 09m	-9,12	1863	5,2	26,2° W	26,2°	03:45	11:14	18:34	68,2°	243,0°	113,9°
221	2029 08 09	00:00	8h 16m 21,5s	+16° 24' 40"	Cnc	380592	28d 8h 09m	-8,58	1884	1,5	13,7° W	14,1°	04:54	12:07	19:08	63,9°	248,5°	107,8°
222	2029 08 10	00:00	9h 9m 58,6s	+11° 52' 29"	Cnc	376773	29d 8h 09m	-8,08	1903	0,1	0,9° W	4,3°	06:06	12:58	19:39	58,6°	255,3°	100,7°
223	2029 08 11	00:00	10h 2m 39,7s	+6° 35' 24"	Leo	373696	0d 22h 04m	-8,57	1919	1,3	12,2° E	13,2°	07:18	13:49	20:09	52,6°	263,0°	92,9°
224	2029 08 12	00:00	10h 54m 50,4s	+0° 51' 11"	Leo	371514	1d 22h 04m	-9,19	1930	5,1	25,5° E	26,1°	08:30	14:39	20:38	46,4°	271,1°	84,9°
225	2029 08 13	00:00	11h 47m 11,4s	-5° 0' 33"	Vir	370273	2d 22h 04m	-9,74	1936	11,4	38,9° E	39,3°	09:43	15:31	21:08	40,3°	279,3°	77,2°
226	2029 08 14	00:00	12h 40m 29,0s	-10° 39' 24"	Vir	369914	3d 22h 04m	-10,23	1938	19,7	52,4° E	52,6°	10:57	16:23	21:41	34,8°	287,0°	70,1°
227	2029 08 15	00:00	13h 35m 25,7s	-15° 44' 54"	Vir	370308	4d 22h 04m	-10,65	1936	29,7	65,8° E	65,9°	12:11	17:18	22:19	30,1°	293,6°	64,1°
228	2029 08 16	00:00	14h 32m 27,6s	-19° 57' 32"	Lib	371296	5d 22h 04m	-11,01	1931	40,7	79,1° E	79,1°	13:23	18:15	23:02	26,6°	298,8°	59,7°
229	2029 08 17	00:00	15h 31m 31,9s	-23° 0' 1"	Lib	372724	6d 22h 04m	-11,31	1924	52,0	92,2° E	92,2°	14:31	19:13	23:54	24,7°	302,0°	57,4°
230	2029 08 18	00:00	16h 31m 58,2s	-24° 39' 33"	Oph	374476	7d 22h 04m	-11,58	1915	63,1	105,1° E	105,1°	15:33	20:12		24,7°	302,9°	57,4°
231	2029 08 19	00:00	17h 32m 33,4s	-24° 50' 6"	Oph	376483	8d 22h 04m	-11,80	1904	73,5	117,9° E	117,9°	16:26	21:09	00:52	24,3°	301,6°	57,3°
232	2029 08 20	00:00	18h 31m 52,8s	-23° 33' 53"	Sgr	378718	9d 22h 04m	-12,00	1893	82,5	130,4° E	130,4°	17:11	22:04	01:56	25,5°	298,3°	59,5°
233	2029 08 21	00:00	19h 28m 47,6s	-21° 0' 38"	Sgr	381182	10d 22h 04m	-12,17	1881	89,9	142,8° E	142,8°	17:49	22:55	03:02	28,2°	293,5°	63,5°
234	2029 08 22	00:00	20h 22m 42,6s	-17° 25' 6"	Cap	383873	11d 22h 04m	-12,33	1868	95,3	155,0° E	155,0°	18:20	23:43	04:09	31,9°	287,7°	68,8°
235	2029 08 23	00:00	21h 13m 37,7s	-13° 4' 4"	Aqr	386769	12d 22h 04m	-12,47	1854	98,7	167,1° E	166,8°	18:48		05:14	41,4°	281,3°	75,1°
236	2029 08 24	00:00	22h 1m 58,5s	-8° 14' 4"	Aqr	389803	13d 22h 04m	-12,57	1839	99,9	178,9° E	176,3°	19:13	00:28	06:17	46,6°	274,5°	81,9°
237	2029 08 25	00:00	22h 48m 25,1s	-3° 10' 7"	Aqr	392856	14d 22h 04m	-12,45	1825	99,0	169,4° W	168,6°	19:37	01:12	07:19	51,9°	267,8°	88,8°
238	2029 08 26	00:00	23h 33m 43,5s	+1° 54' 36"	Psc	395761	15d 22h 04m	-12,29	1812	96,2	157,9° W	157,5°	20:01	01:54	08:19	56,9°	261,2°	95,7°
239	2029 08 27	00:00	0h 18m 39,8s	+6° 48' 35"	Psc	398315	16d 22h 04m	-12,12	1800	91,7	146,6° W	146,4°	20:27	02:35	09:19	61,6°	255,0°	102,2°
240	2029 08 28	00:00	1h 3m 58,0s	+11° 21' 34"	Psc	400300	17d 22h 04m	-11,95	1791	85,6	135,5° W	135,3°	20:54	03:18	10:18	65,7°	249,4°	108,2°

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
241	2029 08 29	00:00	1h 50m 16,6s	+15° 24' 3"	Ari	401505	18d 22h 04m	-11,77	1786	78,3	124,5° W	124,4°	21:24	04:01	11:17	69,0°	244,6°	113,5°
242	2029 08 30	00:00	2h 38m 6,3s	+18° 46' 50"	Ari	401756	19d 22h 04m	-11,57	1785	70,0	113,5° W	113,5°	21:59	04:47	12:16	71,5°	240,8°	117,8°
243	2029 08 31	00:00	3h 27m 45,8s	+21° 20' 51"	Ari	400933	20d 22h 04m	-11,37	1788	61,0	102,6° W	102,5°	22:41	05:34	13:14	73,0°	238,4°	120,9°
244	2029 09 01	00:00	4h 19m 17,4s	+22° 57' 25"	Tau	398994	21d 22h 04m	-11,15	1797	51,5	91,5° W	91,5°	23:29	06:24	14:09	73,2°	237,5°	122,4°
245	2029 09 02	00:00	5h 12m 25,3s	+23° 28' 49"	Tau	395988	22d 22h 04m	-10,90	1811	41,7	80,3° W	80,3°		07:15	15:00	72,1°	238,4°	122,1°
246	2029 09 03	00:00	6h 6m 37,4s	+22° 49' 30"	Gem	392065	23d 22h 04m	-10,61	1829	32,1	68,8° W	68,9°	00:25	08:08	15:46	72,1°	238,4°	120,1°
247	2029 09 04	00:00	7h 1m 13,3s	+20° 57' 16"	Gem	387473	24d 22h 04m	-10,28	1850	22,9	57,1° W	57,1°	01:26	09:01	16:27	69,7°	241,2°	116,2°
248	2029 09 05	00:00	7h 55m 36,8s	+17° 54' 11"	Gem	382548	25d 22h 04m	-9,90	1874	14,7	44,9° W	45,0°	02:33	09:53	17:04	66,0°	245,8°	110,8°
249	2029 09 06	00:00	8h 49m 26,2s	+13° 47' 0"	Cnc	377685	26d 22h 04m	-9,45	1898	7,9	32,3° W	32,5°	03:43	10:45	17:36	61,2°	251,9°	104,2°
250	2029 09 07	00:00	9h 42m 40,5s	+8° 47' 6"	Leo	373300	27d 22h 04m	-8,92	1921	3,0	19,3° W	19,8°	04:55	11:37	18:07	55,5°	259,2°	96,6°
251	2029 09 08	00:00	10h 35m 38,4s	+3° 10' 3"	Sex	369772	28d 22h 04m	-8,35	1939	0,5	5,9° W	7,9°	06:09	12:28	18:37	49,3°	267,3°	88,6°
252	2029 09 09	00:00	11h 28m 54,1s	-2° 44' 58"	Leo	367391	0d 13h 16m	-8,44	1951	0,7	7,8° E	9,6°	07:23	13:20	19:08	43,0°	275,6°	80,5°
253	2029 09 10	00:00	12h 23m 8,7s	-8° 36' 7"	Vir	366310	1d 13h 16m	-9,07	1957	3,7	21,6° E	22,2°	08:39	14:14	19:41	37,1°	283,7°	72,9°
254	2029 09 11	00:00	13h 19m 0,2s	-14° 0' 17"	Vir	366527	2d 13h 16m	-9,64	1956	9,4	35,4° E	35,7°	09:55	15:10	20:18	31,9°	291,0°	66,3°
255	2029 09 12	00:00	14h 16m 51,4s	-18° 34' 51"	Vir	367895	3d 13h 16m	-10,14	1949	17,4	49,0° E	49,2°	11:10	16:08	21:01	27,8°	296,9°	61,3°
256	2029 09 13	00:00	15h 16m 36,1s	-22° 0' 4"	Lib	370169	4d 13h 16m	-10,57	1937	27,0	62,5° E	62,6°	12:22	17:08	21:51	25,3°	300,9°	58,2°
257	2029 09 14	00:00	16h 17m 31,8s	-24° 1' 47"	Sco	373055	5d 13h 16m	-10,93	1922	37,7	75,7° E	75,7°	13:27	18:07	22:47	24,5°	302,5°	57,4°
258	2029 09 15	00:00	17h 18m 24,7s	-24° 33' 45"	Oph	376268	6d 13h 16m	-11,23	1905	48,8	88,5° E	88,5°	14:23	19:05	23:50	25,2°	301,9°	58,9°
259	2029 09 16	00:00	18h 17m 52,3s	-23° 38' 21"	Sgr	379571	7d 13h 16m	-11,48	1889	59,7	101,1° E	101,1°	15:10	20:00		25,2°	299,2°	58,9°
260	2029 09 17	00:00	19h 14m 48,9s	-21° 25' 21"	Sgr	382796	8d 13h 16m	-11,70	1873	69,9	113,4° E	113,4°	15:49	20:52	00:55	27,4°	294,9°	62,3°
261	2029 09 18	00:00	20h 8m 43,0s	-18° 8' 55"	Cap	385847	9d 13h 16m	-11,89	1858	79,1	125,5° E	125,4°	16:22	21:40	02:01	30,8°	289,5°	67,2°
262	2029 09 19	00:00	20h 59m 36,8s	-14° 4' 46"	Aqr	388683	10d 13h 16m	-12,06	1845	86,8	137,3° E	137,3°	16:51	22:26	03:05	35,0°	283,4°	73,1°
263	2029 09 20	00:00	21h 47m 57,2s	-9° 28' 11"	Cap	391299	11d 13h 16m	-12,21	1832	92,8	149,1° E	148,9°	17:17	23:09	04:08	39,7°	276,9°	79,6°
264	2029 09 21	00:00	22h 34m 24,4s	-4° 33' 11"	Aqr	393701	12d 13h 16m	-12,35	1821	97,1	160,6° E	160,2°	17:41	23:51	05:10	44,8°	270,2°	86,4°
265	2029 09 22	00:00	23h 19m 43,3s	+0° 27' 32"	Psc	395883	13d 13h 16m	-12,48	1811	99,4	172,1° E	170,9°	18:05		06:10	55,0°	263,6°	93,2°
266	2029 09 23	00:00	0h 4m 39,2s	+5° 22' 26"	Psc	397809	14d 13h 16m	-12,51	1802	99,8	176,6° W	174,4°	18:30	00:33	07:09	59,8°	257,4°	99,8°
267	2029 09 24	00:00	0h 49m 54,0s	+10° 0' 42"	Psc	399405	15d 13h 16m	-12,38	1795	98,3	165,5° W	164,8°	18:57	01:15	08:09	64,1°	251,6°	106,0°
268	2029 09 25	00:00	1h 36m 3,8s	+14° 12' 3"	Psc	400564	16d 13h 16m	-12,23	1790	95,0	154,4° W	154,1°	19:26	01:58	09:08	67,7°	246,5°	111,5°
269	2029 09 26	00:00	2h 23m 36,4s	+17° 46' 34"	Ari	401151	17d 13h 16m	-12,07	1787	90,1	143,4° W	143,2°	19:59	02:43	10:07	70,5°	242,4°	116,1°
270	2029 09 27	00:00	3h 12m 47,8s	+20° 34' 46"	Ari	401025	18d 13h 16m	-11,91	1788	83,8	132,4° W	132,4°	20:39	03:29	11:05	72,3°	239,4°	119,6°
271	2029 09 28	00:00	4h 3m 39,0s	+22° 27' 58"	Tau	400059	19d 13h 16m	-11,74	1792	76,2	121,5° W	121,4°	21:24	04:18	12:00	73,0°	238,0°	121,6°
272	2029 09 29	00:00	4h 55m 54,3s	+23° 18' 54"	Tau	398164	20d 13h 16m	-11,56	1801	67,6	110,4° W	110,4°	22:15	05:08	12:52	72,5°	238,2°	122,1°
273	2029 09 30	00:00	5h 49m 5,0s	+23° 2' 30"	Tau	395314	21d 13h 16m	-11,35	1814	58,1	99,2° W	99,2°	23:13	05:59	13:39	70,7°	240,2°	120,8°
274	2029 10 01	00:00	6h 42m 35,8s	+21° 36' 37"	Gem	391563	22d 13h 16m	-11,12	1831	48,2	87,8° W	87,8°		06:50	14:21	67,6°	243,9°	117,8°
275	2029 10 02	00:00	7h 35m 56,3s	+19° 2' 31"	Gem	387066	23d 13h 16m	-10,86	1852	38,1	76,1° W	76,1°	00:15	07:41	14:58	67,6°	243,9°	113,2°
276	2029 10 03	00:00	8h 28m 49,3s	+15° 24' 55"	Cnc	382080	24d 13h 16m	-10,55	1876	28,2	63,9° W	64,0°	01:22	08:32	15:32	63,5°	249,1°	107,3°
277	2029 10 04	00:00	9h 21m 16,3s	+10° 51' 56"	Cnc	376958	25d 13h 16m	-10,18	1902	18,9	51,4° W	51,5°	02:31	09:23	16:03	58,3°	255,7°	100,4°
278	2029 10 05	00:00	10h 13m 37,5s	+5° 35' 19"	Sex	372122	26d 13h 16m	-9,75	1927	11,0	38,3° W	38,6°	03:43	10:13	16:33	52,5°	263,2°	92,7°
279	2029 10 06	00:00	11h 6m 27,9s	-0° 9' 29"	Leo	368017	27d 13h 16m	-9,23	1948	4,9	24,9° W	25,4°	04:56	11:05	17:03	46,3°	271,3°	84,7°
280	2029 10 07	00:00	12h 0m 31,0s	-6° 2' 59"	Vir	365050	28d 13h 16m	-8,63	1964	1,2	11,1° W	12,3°	06:12	11:59	17:36	40,1°	279,6°	76,8°

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
281	2029 10 08	00:00	12h 56m 29,4s	-11° 42' 11"	Crv	363516	0d 4h 46m	-8,30	1972	0,3	2,9° E	6,0°	07:29	12:55	18:12	34,4°	287,5°	69,5°
282	2029 10 09	00:00	13h 54m 51,8s	-16° 41' 58"	Vir	363547	1d 4h 46m	-8,89	1972	2,3	17,0° E	17,6°	08:47	13:54	18:53	29,6°	294,2°	63,5°
283	2029 10 10	00:00	14h 55m 36,9s	-20° 38' 2"	Lib	365088	2d 4h 46m	-9,49	1964	7,2	30,9° E	31,1°	10:03	14:55	19:42	26,4°	299,2°	59,5°
284	2029 10 11	00:00	15h 58m 0,8s	-23° 11' 7"	Sco	367911	3d 4h 46m	-10,01	1949	14,5	44,6° E	44,7°	11:14	15:57	20:39	24,8°	301,9°	57,8°
285	2029 10 12	00:00	17h 0m 39,5s	-24° 10' 54"	Oph	371669	4d 4h 46m	-10,44	1929	23,6	57,9° E	58,0°	12:15	16:57	21:41	25,0°	302,0°	58,5°
286	2029 10 13	00:00	18h 1m 53,3s	-23° 38' 3"	Sgr	375966	5d 4h 46m	-10,80	1907	33,8	70,9° E	70,9°	13:07	17:55	22:47	26,8°	299,9°	61,4°
287	2029 10 14	00:00	19h 0m 20,9s	-21° 42' 38"	Sgr	380419	6d 4h 46m	-11,10	1885	44,4	83,5° E	83,5°	13:49	18:49	23:54	29,9°	296,1°	65,9°
288	2029 10 15	00:00	19h 55m 21,4s	-18° 40' 17"	Sgr	384708	7d 4h 46m	-11,36	1864	55,1	95,7° E	95,7°	14:24	19:38		29,9°	290,9°	65,9°
289	2029 10 16	00:00	20h 46m 56,1s	-14° 48' 2"	Cap	388600	8d 4h 46m	-11,58	1845	65,2	107,6° E	107,6°	14:54	20:24	00:59	33,8°	285,0°	71,5°
290	2029 10 17	00:00	21h 35m 35,2s	-10° 21' 42"	Cap	391956	9d 4h 46m	-11,77	1829	74,5	119,3° E	119,2°	15:21	21:08	02:02	38,4°	278,7°	77,8°
291	2029 10 18	00:00	22h 22m 4,4s	-5° 35' 7"	Aqr	394720	10d 4h 46m	-11,94	1816	82,6	130,8° E	130,6°	15:46	21:50	03:03	43,4°	272,2°	84,4°
292	2029 10 19	00:00	23h 7m 14,0s	-0° 40' 15"	Psc	396896	11d 4h 46m	-12,10	1806	89,4	142,1° E	141,9°	16:10	22:32	04:03	48,4°	265,7°	91,1°
293	2029 10 20	00:00	23h 51m 53,9s	+4° 12' 7"	Psc	398529	12d 4h 46m	-12,25	1799	94,6	153,3° E	153,0°	16:34	23:13	05:02	53,5°	259,4°	97,7°
294	2029 10 21	00:00	0h 36m 49,8s	+8° 51' 46"	Psc	399672	13d 4h 46m	-12,38	1794	98,0	164,5° E	163,9°	17:00	23:56	06:01	58,3°	253,5°	104,0°
295	2029 10 22	00:00	1h 22m 40,8s	+13° 8' 31"	Psc	400370	14d 4h 46m	-12,51	1791	99,7	175,5° E	173,9°	17:29		07:00	66,5°	248,2°	109,7°
296	2029 10 23	00:00	2h 9m 56,7s	+16° 52' 7"	Ari	400644	15d 4h 46m	-12,49	1789	99,6	173,4° W	172,5°	18:01	00:40	07:59	69,6°	243,8°	114,6°
297	2029 10 24	00:00	2h 58m 54,2s	+19° 52' 24"	Ari	400476	16d 4h 46m	-12,36	1790	97,6	162,4° W	162,2°	18:38	01:26	08:58	71,7°	240,5°	118,4°
298	2029 10 25	00:00	3h 49m 33,2s	+21° 59' 52"	Tau	399820	17d 4h 46m	-12,22	1793	93,9	151,4° W	151,4°	19:21	02:14	09:54	72,7°	238,6°	120,9°
299	2029 10 26	00:00	4h 41m 35,3s	+23° 6' 39"	Tau	398604	18d 4h 46m	-12,07	1799	88,6	140,4° W	140,4°	20:10	03:03	10:47	72,6°	238,2°	121,8°
300	2029 10 27	00:00	5h 34m 27,2s	+23° 7' 31"	Tau	396751	19d 4h 46m	-11,91	1807	81,8	129,3° W	129,3°	21:05	03:54	11:35	71,2°	239,6°	121,1°
301	2029 10 28	00:00	6h 27m 29,0s	+22° 0' 36"	Gem	394203	20d 4h 46m	-11,74	1819	73,6	118,1° W	118,1°	22:05	04:44	12:18	68,7°	242,7°	118,7°
302	2029 10 29	00:00	7h 20m 6,3s	+19° 47' 32"	Gem	390943	21d 4h 46m	-11,55	1834	64,4	106,6° W	106,6°	23:08	05:34	12:56	65,1°	247,2°	114,8°
303	2029 10 30	00:00	8h 12m 0,3s	+16° 33' 11"	Cnc	387021	22d 4h 46m	-11,33	1852	54,4	94,9° W	94,9°		06:24	13:29	60,5°	253,0°	109,6°
304	2029 10 31	00:00	9h 3m 12,2s	+12° 24' 56"	Cnc	382576	23d 4h 46m	-11,08	1874	43,9	82,8° W	82,9°	00:14	07:12	14:00	60,5°	253,0°	103,3°
305	2029 11 01	00:00	9h 54m 3,7s	+7° 32' 27"	Leo	377843	24d 4h 46m	-10,78	1897	33,4	70,4° W	70,5°	01:22	08:01	14:30	55,1°	259,9°	96,2°
306	2029 11 02	00:00	10h 45m 12,7s	+2° 7' 45"	Sex	373154	25d 4h 46m	-10,43	1921	23,3	57,5° W	57,7°	02:32	08:50	14:59	49,3°	267,5°	88,6°
307	2029 11 03	00:00	11h 37m 28,4s	-3° 34' 1"	Vir	368911	26d 4h 46m	-10,01	1943	14,4	44,2° W	44,5°	03:44	09:42	15:29	43,2°	275,5°	80,8°
308	2029 11 04	00:00	12h 31m 43,1s	-9° 13' 56"	Vir	365537	27d 4h 46m	-9,50	1961	7,1	30,5° W	30,9°	04:59	10:36	16:03	37,3°	283,4°	73,3°
309	2029 11 05	00:00	13h 28m 42,1s	-14° 29' 8"	Vir	363419	28d 4h 46m	-8,90	1973	2,3	16,6° W	17,2°	06:17	11:33	16:42	32,1°	290,7°	66,6°
310	2029 11 06	00:00	14h 28m 46,1s	-18° 54' 13"	Lib	362824	29d 4h 46m	-8,27	1976	0,2	2,5° W	4,7°	07:35	12:34	17:28	28,0°	296,7°	61,5°
311	2029 11 07	00:00	15h 31m 31,8s	-22° 4' 53"	Lib	363851	0d 19h 36m	-8,64	1970	1,1	11,5° E	11,9°	08:50	13:37	18:22	25,5°	300,7°	58,5°
312	2029 11 08	00:00	16h 35m 22,4s	-23° 43' 25"	Oph	366401	1d 19h 36m	-9,26	1957	4,8	25,3° E	25,4°	09:58	14:41	19:24	24,9°	302,0°	58,1°
313	2029 11 09	00:00	17h 39m 22,0s	-23° 43' 40"	Oph	370196	2d 19h 36m	-9,79	1937	11,1	38,8° E	38,8°	10:56	15:42	20:32	26,1°	300,9°	60,2°
314	2029 11 10	00:00	18h 40m 37,1s	-22° 12' 15"	Sgr	374840	3d 19h 36m	-10,24	1913	19,3	51,9° E	51,9°	11:44	16:40	21:41	28,7°	297,5°	64,3°
315	2029 11 11	00:00	19h 38m 14,5s	-19° 25' 3"	Sgr	379882	4d 19h 36m	-10,61	1887	28,7	64,6° E	64,6°	12:23	17:32	22:48	32,5°	292,7°	69,7°
316	2029 11 12	00:00	20h 31m 55,1s	-15° 41' 31"	Cap	384891	5d 19h 36m	-10,93	1863	38,8	76,9° E	76,9°	12:56	18:21	23:54	37,0°	286,9°	75,9°
317	2029 11 13	00:00	21h 22m 2,4s	-11° 20' 13"	Aqr	389505	6d 19h 36m	-11,19	1841	49,1	88,8° E	88,9°	13:24	19:06		37,0°	280,6°	75,9°
318	2029 11 14	00:00	22h 9m 23,3s	-6° 36' 53"	Aqr	393456	7d 19h 36m	-11,42	1822	59,2	100,5° E	100,4°	13:50	19:49	00:56	41,9°	274,1°	82,5°
319	2029 11 15	00:00	22h 54m 54,1s	-1° 44' 11"	Psc	396583	8d 19h 36m	-11,62	1808	68,7	111,8° E	111,8°	14:14	20:30	01:57	46,9°	267,6°	89,2°
320	2029 11 16	00:00	23h 39m 31,3s	+3° 7' 17"	Psc	398824	9d 19h 36m	-11,81	1798	77,3	123,0° E	122,9°	14:38	21:12	02:56	52,0°	261,2°	95,8°

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
321	2029 11 17	00:00	0h 24m 7,7s	+7° 48' 2"	Psc	400198	10d 19h 36m	-11,98	1791	84,8	134,1° E	133,9°	15:04	21:54	03:55	56,9°	255,2°	102,1°
322	2029 11 18	00:00	1h 9m 29,9s	+12° 8' 50"	Psc	400787	11d 19h 36m	-12,13	1789	90,9	145,1° E	144,9°	15:31	22:38	04:54	61,4°	249,8°	107,9°
323	2029 11 19	00:00	1h 56m 15,4s	+16° 0' 2"	Ari	400704	12d 19h 36m	-12,29	1789	95,6	156,1° E	155,8°	16:02	23:23	05:53	65,4°	245,1°	113,1°
324	2029 11 20	00:00	2h 44m 48,5s	+19° 11' 30"	Ari	400073	13d 19h 36m	-12,43	1792	98,7	167,1° E	166,7°	16:38		06:51	68,6°	241,4°	117,2°
325	2029 11 21	00:00	3h 35m 15,5s	+21° 33' 7"	Tau	399004	14d 19h 36m	-12,57	1797	99,9	178,1° E	177,1°	17:20	00:11	07:48	72,4°	239,1°	120,2°
326	2029 11 22	00:00	4h 27m 21,5s	+22° 55' 48"	Tau	397582	15d 19h 36m	-12,50	1803	99,3	170,8° W	170,7°	18:07	00:59	08:42	72,6°	238,3°	121,6°
327	2029 11 23	00:00	5h 20m 31,1s	+23° 12' 55"	Tau	395848	16d 19h 36m	-12,37	1811	96,9	159,6° W	159,6°	19:01	01:50	09:32	71,6°	239,2°	121,4°
328	2029 11 24	00:00	6h 13m 57,2s	+22° 21' 37"	Gem	393811	17d 19h 36m	-12,22	1821	92,6	148,3° W	148,3°	19:59	02:41	10:17	69,5°	241,7°	119,5°
329	2029 11 25	00:00	7h 6m 54,2s	+20° 23' 21"	Gem	391449	18d 19h 36m	-12,07	1832	86,6	136,9° W	136,9°	21:01	03:31	10:56	66,2°	245,8°	116,0°
330	2029 11 26	00:00	7h 58m 51,7s	+17° 23' 29"	Cnc	388735	19d 19h 36m	-11,91	1844	78,9	125,3° W	125,2°	22:05	04:20	11:31	62,0°	251,1°	111,3°
331	2029 11 27	00:00	8h 49m 42,1s	+13° 30' 16"	Cnc	385655	20d 19h 36m	-11,72	1859	70,0	113,5° W	113,4°	23:10	05:08	12:02	57,0°	257,5°	105,4°
332	2029 11 28	00:00	9h 39m 41,1s	+8° 53' 48"	Leo	382239	21d 19h 36m	-11,51	1876	60,0	101,4° W	101,3°		05:55	12:31	51,5°	264,6°	98,8°
333	2029 11 29	00:00	10h 29m 23,6s	+3° 45' 31"	Sex	378583	22d 19h 36m	-11,27	1894	49,2	89,0° W	89,0°	00:17	06:43	12:59	51,5°	264,6°	91,6°
334	2029 11 30	00:00	11h 19m 38,9s	-1° 41' 37"	Leo	374864	23d 19h 36m	-10,98	1913	38,3	76,2° W	76,3°	01:25	07:31	13:27	45,7°	272,2°	84,1°
335	2029 12 01	00:00	12h 11m 23,5s	-7° 12' 25"	Vir	371340	24d 19h 36m	-10,63	1931	27,6	63,2° W	63,3°	02:36	08:22	13:58	39,9°	279,9°	76,7°
336	2029 12 02	00:00	13h 5m 33,9s	-12° 28' 36"	Vir	368335	25d 19h 36m	-10,22	1946	17,9	49,8° W	50,0°	03:50	09:15	14:33	34,5°	287,3°	69,8°
337	2029 12 03	00:00	14h 2m 53,5s	-17° 8' 32"	Vir	366191	26d 19h 36m	-9,73	1958	9,8	36,2° W	36,4°	05:06	10:13	15:14	29,9°	293,8°	63,9°
338	2029 12 04	00:00	15h 3m 33,6s	-20° 48' 37"	Lib	365219	27d 19h 36m	-9,16	1963	3,9	22,4° W	22,6°	06:22	11:14	16:03	26,6°	298,8°	59,8°
339	2029 12 05	00:00	16h 6m 54,1s	-23° 7' 3"	Sco	365627	28d 19h 36m	-8,49	1961	0,6	8,6° W	8,8°	07:34	12:18	17:01	25,0°	301,6°	58,1°
340	2029 12 06	00:00	17h 11m 18,7s	-23° 49' 43"	Oph	367471	0d 9h 08m	-8,29	1951	0,2	5,2° E	5,2°	08:38	13:22	18:08	25,3°	301,7°	58,9°
341	2029 12 07	00:00	18h 14m 40,9s	-22° 54' 48"	Sgr	370634	1d 9h 08m	-8,95	1934	2,6	18,6° E	18,6°	09:32	14:23	19:18	27,3°	299,4°	62,1°
342	2029 12 08	00:00	19h 15m 10,2s	-20° 33' 8"	Sgr	374839	2d 9h 08m	-9,50	1913	7,6	31,8° E	31,8°	10:17	15:20	20:29	30,7°	295,1°	67,1°
343	2029 12 09	00:00	20h 11m 47,2s	-17° 3' 43"	Cap	379696	3d 9h 08m	-9,97	1888	14,5	44,6° E	44,7°	10:53	16:12	21:38	35,0°	289,5°	73,2°
344	2029 12 10	00:00	21h 4m 27,7s	-12° 47' 41"	Aqr	384766	4d 9h 08m	-10,36	1863	22,9	57,0° E	57,1°	11:24	16:59	22:43	39,9°	283,2°	79,9°
345	2029 12 11	00:00	21h 53m 45,6s	-8° 4' 7"	Aqr	389621	5d 9h 08m	-10,70	1840	32,2	69,0° E	69,1°	11:52	17:45	23:46	45,1°	276,6°	86,7°
346	2029 12 12	00:00	22h 40m 34,0s	-3° 8' 29"	Aqr	393895	6d 9h 08m	-10,98	1820	42,0	80,7° E	80,7°	12:17	18:27		45,1°	269,9°	86,7°
347	2029 12 13	00:00	23h 25m 51,8s	+1° 47' 3"	Psc	397312	7d 9h 08m	-11,23	1804	51,9	92,0° E	92,0°	12:41	19:09	00:47	50,2°	263,4°	93,5°
348	2029 12 14	00:00	0h 10m 36,6s	+6° 32' 38"	Psc	399704	8d 9h 08m	-11,45	1794	61,5	103,2° E	103,1°	13:06	19:51	01:46	55,2°	257,2°	100,0°
349	2029 12 15	00:00	0h 55m 41,0s	+10° 59' 31"	Psc	401007	9d 9h 08m	-11,65	1788	70,5	114,2° E	114,1°	13:33	20:34	02:45	59,9°	251,6°	106,0°
350	2029 12 16	00:00	1h 41m 50,8s	+14° 59' 2"	Psc	401252	10d 9h 08m	-11,84	1787	78,8	125,1° E	125,0°	14:03	21:19	03:44	64,1°	246,6°	111,4°
351	2029 12 17	00:00	2h 29m 40,5s	+18° 22' 2"	Ari	400550	11d 9h 08m	-12,01	1790	86,0	136,1° E	136,0°	14:37	22:06	04:43	67,6°	242,6°	115,9°
352	2029 12 18	00:00	3h 19m 29,2s	+20° 58' 47"	Ari	399069	12d 9h 08m	-12,18	1797	91,9	147,0° E	146,9°	15:17	22:55	05:41	70,3°	239,7°	119,3°
353	2029 12 19	00:00	4h 11m 14,5s	+22° 39' 42"	Tau	397009	13d 9h 08m	-12,34	1806	96,4	158,1° E	158,1°	16:02	23:45	06:36	72,1°	238,4°	121,3°
354	2029 12 20	00:00	5h 4m 30,6s	+23° 16' 34"	Tau	394576	14d 9h 08m	-12,51	1817	99,1	169,3° E	169,3°	16:54		07:28	72,1°	238,7°	121,6°
355	2029 12 21	00:00	5h 58m 32,1s	+22° 44' 23"	Ori	391954	15d 9h 08m	-12,65	1829	100,0	179,3° W	179,0°	17:52	00:36	08:15	70,3°	240,7°	120,3°
356	2029 12 22	00:00	6h 52m 26,4s	+21° 2' 35"	Gem	389292	16d 9h 08m	-12,52	1842	98,8	167,8° W	167,6°	18:54	01:27	08:56	67,3°	244,4°	117,3°
357	2029 12 23	00:00	7h 45m 29,2s	+18° 15' 32"	Gem	386685	17d 9h 08m	-12,38	1854	95,7	156,0° W	155,9°	19:58	02:17	09:33	63,3°	249,4°	112,8°
358	2029 12 24	00:00	8h 37m 17,0s	+14° 31' 41"	Cnc	384178	18d 9h 08m	-12,23	1866	90,5	144,1° W	143,9°	21:03	03:06	10:05	58,6°	255,5°	107,3°
359	2029 12 25	00:00	9h 27m 51,4s	+10° 2' 17"	Leo	381774	19d 9h 08m	-12,06	1878	83,4	132,0° W	131,8°	22:09	03:54	10:35	53,3°	262,4°	100,9°
360	2029 12 26	00:00	10h 17m 37,0s	+5° 0' 7"	Sex	379454	20d 9h 08m	-11,88	1889	74,7	119,6° W	119,5°	23:16	04:41	11:02	47,6°	269,7°	93,9°

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
361	2029 12 27	00:00	11h 7m 15,4s	-0° 21' 6"	Leo	377207	21d 9h 08m	-11,66	1901	64,7	107,1° W	107,0°		05:28	11:30	42,0°	277,3°	86,6°
362	2029 12 28	00:00	11h 57m 38,9s	-5° 46' 44"	Vir	375053	22d 9h 08m	-11,42	1912	53,9	94,3° W	94,3°	00:24	06:16	11:59	42,0°	277,3°	79,3°
363	2029 12 29	00:00	12h 49m 43,6s	-11° 0' 43"	Vir	373067	23d 9h 08m	-11,13	1922	42,7	81,4° W	81,4°	01:34	07:07	12:31	36,5°	284,6°	72,4°
364	2029 12 30	00:00	13h 44m 19,8s	-15° 45' 2"	Vir	371385	24d 9h 08m	-10,79	1930	31,7	68,3° W	68,4°	02:46	08:00	13:08	31,7°	291,3°	66,3°
365	2029 12 31	00:00	14h 41m 59,0s	-19° 39' 53"	Lib	370195	25d 9h 08m	-10,39	1937	21,5	55,0° W	55,1°	03:59	08:58	13:51	28,0°	296,8°	61,5°
366	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°
367	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°
368	2030 01 03	00:00	17h 48m 15,4s	-23° 30' 1"	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°