

# Phases of the Moon: 2001 to 2100

<http://eclipse.gsfc.nasa.gov/phase/phases2001.html>

The following table gives the date and time ([Universal Time](#)) of all phases of the Moon for a period of one century. This data is provided primarily to assist in historical research projects. For the year 2000, the length of the mean synodic month (New Moon to New Moon) is 29.530588 days (=29d12h44m03s). However, the length of any one synodic month can vary from 29.26 to 29.80 days due to perturbing effects of the Sun on the Moon's eccentric orbit.

The phase table also indicates whether an eclipse of the Sun or Moon occurs on the date in question and gives the eclipse type. An eclipse of the Sun can occur only at New Moon, while an eclipse of the Moon can occur only at Full Moon. In any calendar year there are a minimum of two solar and two lunar eclipses. The maximum number of eclipses in any one year is 7 (4 solar and 3 lunar, or 5 solar and 2 lunar). The following table lists abbreviations for the different types of solar and lunar eclipses.

## Eclipse Types

Solar Eclipse	Lunar Eclipse
T - Total	t - Total (Umbral)
A - Annular	p - Partial (Umbral)
H - Hybrid (Annular/Total)	n - Penumbral
P - Partial	

Historians should note that the astronomical dating system used in these tables includes the year "0" while the traditional [BCE - CE dating convention](#) does not. Thus, the year "0" here corresponds to "1 BCE", the year "-100" is "101 BCE", and so on. The old style Julian calendar is used for dates prior to 1582, while the modern Gregorian calendar is used after that date. For more information, see [calendar dates](#).

The last column of the phase table lists [ΔT](#), the value used to convert Dynamical Time to [Universal Time](#). The [uncertainty in the value of ΔT](#) grows large for dates in the distant past or future.

## Phases of the Moon: 2001 to 2005 Universal Time (UT)

Year	New Moon		First Quarter		Full Moon		Last Quarter		ΔT
2001			Jan 2	22:31	Jan 9	20:24 t	Jan 16	12:35	00h01m
	Jan 24	13:07	Feb 1	14:02	Feb 8	07:12	Feb 15	03:24	
	Feb 23	08:21	Mar 3	02:03	Mar 9	17:23	Mar 16	20:45	
	Mar 25	01:21	Apr 1	10:49	Apr 8	03:22	Apr 15	15:31	
	Apr 23	15:26	Apr 30	17:08	May 7	13:53	May 15	10:11	
	May 23	02:46	May 29	22:09	Jun 6	01:39	Jun 14	03:28	
	Jun 21	11:58 T	Jun 28	03:20	Jul 5	15:04 p	Jul 13	18:45	
	Jul 20	19:44	Jul 27	10:08	Aug 4	05:56	Aug 12	07:53	
	Aug 19	02:55	Aug 25	19:55	Sep 2	21:43	Sep 10	19:00	
	Sep 17	10:27	Sep 24	09:31	Oct 2	13:49	Oct 10	04:20	
	Oct 16	19:23	Oct 24	02:58	Nov 1	05:41	Nov 8	12:21	
	Nov 15	06:40	Nov 22	23:21	Nov 30	20:49	Dec 7	19:52	
	Dec 14	20:48 A	Dec 22	20:56	Dec 30	10:41 n			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2002				Jan 6 03:55	00h01m
	Jan 13 13:29	Jan 21 17:47	Jan 28 22:50	Feb 4 13:33	
	Feb 12 07:41	Feb 20 12:02	Feb 27 09:17	Mar 6 01:25	
	Mar 14 02:03	Mar 22 02:28	Mar 28 18:25	Apr 4 15:29	
	Apr 12 19:21	Apr 20 12:48	Apr 27 03:00	May 4 07:16	
	May 12 10:45	May 19 19:42	May 26 11:51 n	Jun 3 00:05	
	Jun 10 23:47 A	Jun 18 00:29	Jun 24 21:42 n	Jul 2 17:19	
	Jul 10 10:26	Jul 17 04:47	Jul 24 09:07	Aug 1 10:22	
	Aug 8 19:15	Aug 15 10:12	Aug 22 22:29	Aug 31 02:31	
	Sep 7 03:10	Sep 13 18:08	Sep 21 13:59	Sep 29 17:03	
	Oct 6 11:17	Oct 13 05:33	Oct 21 07:20	Oct 29 05:28	
	Nov 4 20:34	Nov 11 20:52	Nov 20 01:34 n	Nov 27 15:46	
	Dec 4 07:34 T	Dec 11 15:49	Dec 19 19:10	Dec 27 00:31	

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2003				Jan 25 08:33	00h01m
	Jan 2 20:23	Jan 10 13:15	Jan 18 10:48	Feb 23 16:46	
	Feb 1 10:48	Feb 9 11:11	Feb 16 23:51	Mar 25 01:51	
	Mar 3 02:35	Mar 11 07:15	Mar 18 10:34	Apr 23 12:18	
	Apr 1 19:19	Apr 9 23:40	Apr 16 19:36	May 23 00:31	
	May 1 12:15	May 9 11:53	May 16 03:36 t	Jun 21 14:45	
	May 31 04:20 A	Jun 7 20:28	Jun 14 11:16	Jul 21 07:01	
	Jun 29 18:39	Jul 7 02:32	Jul 13 19:21	Aug 20 00:48	
	Jul 29 06:53	Aug 5 07:28	Aug 12 04:48	Sep 18 19:03	
	Aug 27 17:26	Sep 3 12:34	Sep 10 16:36	Oct 18 12:31	
	Sep 26 03:09	Oct 2 19:09	Oct 10 07:27	Nov 17 04:15	
	Oct 25 12:50	Nov 1 04:25	Nov 9 01:14 t	Dec 16 17:42	
	Nov 23 22:59 T	Nov 30 17:16	Dec 8 20:37		
	Dec 23 09:43	Dec 30 10:03			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2004			Jan 7 15:40	Jan 15 04:46	00h01m
	Jan 21 21:05	Jan 29 06:03	Feb 6 08:47	Feb 13 13:40	
	Feb 20 09:18	Feb 28 03:24	Mar 6 23:14	Mar 13 21:01	
	Mar 20 22:41	Mar 28 23:48	Apr 5 11:03	Apr 12 03:46	
	Apr 19 13:21 P	Apr 27 17:32	May 4 20:33 t	May 11 11:04	
	May 19 04:52	May 27 07:57	Jun 3 04:20	Jun 9 20:02	
	Jun 17 20:27	Jun 25 19:08	Jul 2 11:09	Jul 9 07:34	
	Jul 17 11:24	Jul 25 03:37	Jul 31 18:05	Aug 7 22:01	
	Aug 16 01:24	Aug 23 10:12	Aug 30 02:22	Sep 6 15:11	
	Sep 14 14:29	Sep 21 15:54	Sep 28 13:09	Oct 6 10:12	
	Oct 14 02:48 P	Oct 20 21:59	Oct 28 03:07 t	Nov 5 05:53	
	Nov 12 14:27	Nov 19 05:50	Nov 26 20:07	Dec 5 00:53	
	Dec 12 01:29	Dec 18 16:40	Dec 26 15:06		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2005				Jan 3 17:46	00h01m
	Jan 10 12:03	Jan 17 06:58	Jan 25 10:32	Feb 2 07:27	
	Feb 8 22:28	Feb 16 00:16	Feb 24 04:54	Mar 3 17:36	
	Mar 10 09:10	Mar 17 19:19	Mar 25 20:58	Apr 2 00:50	
	Apr 8 20:32 H	Apr 16 14:37	Apr 24 10:06 n	May 1 06:24	
	May 8 08:45	May 16 08:56	May 23 20:18	May 30 11:47	
	Jun 6 21:55	Jun 15 01:22	Jun 22 04:14	Jun 28 18:23	
	Jul 6 12:03	Jul 14 15:20	Jul 21 11:00	Jul 28 03:19	
	Aug 5 03:05	Aug 13 02:39	Aug 19 17:53	Aug 26 15:18	
	Sep 3 18:45	Sep 11 11:37	Sep 18 02:01	Sep 25 06:41	
	Oct 3 10:28 A	Oct 10 19:01	Oct 17 12:14 p	Oct 25 01:17	
	Nov 2 01:25	Nov 9 01:57	Nov 16 00:58	Nov 23 22:11	
	Dec 1 15:01	Dec 8 09:36	Dec 15 16:16	Dec 23 19:36	
	Dec 31 03:12				

# Phases of the Moon: 2006 to 2010

## Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2006		Jan 6 18:57	Jan 14 09:48	Jan 22 15:14	00h01m
	Jan 29 14:15	Feb 5 06:29	Feb 13 04:44	Feb 21 07:17	
	Feb 28 00:31	Mar 6 20:16	Mar 14 23:35 n	Mar 22 19:10	
	Mar 29 10:15 T	Apr 5 12:01	Apr 13 16:40	Apr 21 03:28	
	Apr 27 19:44	May 5 05:13	May 13 06:51	May 20 09:21	
	May 27 05:26	Jun 3 23:06	Jun 11 18:03	Jun 18 14:08	
	Jun 25 16:05	Jul 3 16:37	Jul 11 03:02	Jul 17 19:13	
	Jul 25 04:31	Aug 2 08:46	Aug 9 10:54	Aug 16 01:51	
	Aug 23 19:10	Aug 31 22:56	Sep 7 18:42 p	Sep 14 11:15	
	Sep 22 11:45 A	Sep 30 11:04	Oct 7 03:13	Oct 14 00:25	
	Oct 22 05:14	Oct 29 21:25	Nov 5 12:58	Nov 12 17:45	
	Nov 20 22:18	Nov 28 06:29	Dec 5 00:25	Dec 12 14:32	
	Dec 20 14:01	Dec 27 14:48			
2007		Jan 25 23:02	Jan 3 13:57	Jan 11 12:45	00h01m
	Jan 19 04:01	Feb 24 07:56	Feb 2 05:45	Feb 10 09:51	
	Feb 17 16:14	Mar 25 18:16	Mar 3 23:17 t	Mar 12 03:54	
	Mar 19 02:43 P	Apr 24 06:36	Apr 2 17:15	Apr 10 18:04	
	Apr 17 11:36	May 23 21:03	May 2 10:09	May 10 04:27	
	May 16 19:27	Jun 22 13:15	Jun 1 01:04	Jun 8 11:43	
	Jun 15 03:13	Jul 22 06:29	Jun 30 13:49	Jul 7 16:54	
	Jul 14 12:04	Aug 20 23:54	Jul 30 00:48	Aug 5 21:20	
	Aug 12 23:03	Sep 19 16:48	Aug 28 10:35 t	Sep 4 02:33	
	Aug 23 03:31	Oct 19 08:33	Sep 26 19:45	Oct 3 10:06	
	Sep 11 12:44 P	Nov 17 22:32	Oct 26 04:52	Nov 1 21:18	
	Oct 11 05:01	Dec 17 10:17	Nov 24 14:30	Dec 1 12:44	
	Nov 9 23:03		Dec 24 01:16	Dec 31 07:51	
Dec 9 17:40					
2008		Jan 15 19:46	Jan 22 13:35	Jan 30 05:03	00h01m
	Jan 8 11:37	Feb 14 03:34	Feb 21 03:31 t	Feb 29 02:18	
	Feb 7 03:44 A	Mar 14 10:46	Mar 21 18:40	Mar 29 21:47	
	Mar 7 17:14	Apr 12 18:32	Apr 20 10:25	Apr 28 14:12	
	Apr 6 03:55	May 12 03:47	May 20 02:11	May 28 02:57	
	May 5 12:18	Jun 10 15:04	Jun 18 17:30	Jun 26 12:10	
	Jun 3 19:23	Jul 10 04:35	Jul 18 07:59	Jul 25 18:42	
	Jul 3 02:19	Aug 8 20:20	Aug 16 21:16 p	Aug 23 23:50	
	Aug 1 10:13 T	Sep 7 14:04	Sep 15 09:13	Sep 22 05:04	
	Aug 30 19:58	Oct 7 09:04	Oct 14 20:03	Oct 21 11:55	
	Sep 29 08:12	Nov 6 04:04	Nov 13 06:17	Nov 19 21:31	
	Oct 28 23:14	Dec 5 21:26	Dec 12 16:37	Dec 19 10:29	
	Nov 27 16:55				
Dec 27 12:23					
2009		Jan 4 11:56	Jan 11 03:27	Jan 18 02:46	00h01m
	Jan 26 07:55 A	Feb 2 23:13	Feb 9 14:49 n	Feb 16 21:37	
	Feb 25 01:35	Mar 4 07:46	Mar 11 02:38	Mar 18 17:47	
	Mar 26 16:06	Apr 2 14:34	Apr 9 14:56	Apr 17 13:36	
	Apr 25 03:23	May 1 20:44	May 9 04:01	May 17 07:26	
	May 24 12:11	May 31 03:22	Jun 7 18:12	Jun 15 22:15	
	Jun 22 19:35	Jun 29 11:28	Jul 7 09:21 n	Jul 15 09:53	
	Jul 22 02:35 T	Jul 28 22:00	Aug 6 00:55 n	Aug 13 18:55	
	Aug 20 10:01	Aug 27 11:42	Sep 4 16:03	Sep 12 02:16	
	Sep 18 18:44	Sep 26 04:50	Oct 4 06:10	Oct 11 08:56	
	Oct 18 05:33	Oct 26 00:42	Nov 2 19:14	Nov 9 15:56	
	Nov 16 19:14	Nov 24 21:39	Dec 2 07:30	Dec 9 00:13	

Dec 16 12:02      Dec 24 17:36      Dec 31 19:13 p

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2010				Jan 7 10:40	00h01m
	Jan 15 07:11 A	Jan 23 10:53	Jan 30 06:18	Feb 5 23:49	
	Feb 14 02:51	Feb 22 00:42	Feb 28 16:38	Mar 7 15:42	
	Mar 15 21:01	Mar 23 11:00	Mar 30 02:25	Apr 6 09:37	
	Apr 14 12:29	Apr 21 18:20	Apr 28 12:18	May 6 04:15	
	May 14 01:04	May 20 23:43	May 27 23:07	Jun 4 22:13	
	Jun 12 11:15	Jun 19 04:30	Jun 26 11:30 p	Jul 4 14:35	
	Jul 11 19:40 T	Jul 18 10:11	Jul 26 01:37	Aug 3 04:59	
	Aug 10 03:08	Aug 16 18:14	Aug 24 17:05	Sep 1 17:22	
	Sep 8 10:30	Sep 15 05:50	Sep 23 09:17	Oct 1 03:52	
	Oct 7 18:44	Oct 14 21:27	Oct 23 01:36	Oct 30 12:46	
	Nov 6 04:52	Nov 13 16:39	Nov 21 17:27	Nov 28 20:36	
	Dec 5 17:36	Dec 13 13:59	Dec 21 08:13 t	Dec 28 04:18	

## Phases of the Moon: 2011 to 2015 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2011				Jan 26 12:57	00h01m
	Jan 4 09:03 P	Jan 12 11:31	Jan 19 21:21	Feb 24 23:26	
	Feb 3 02:31	Feb 11 07:18	Feb 18 08:36	Mar 26 12:07	
	Mar 4 20:46	Mar 12 23:45	Mar 19 18:10	Apr 25 02:47	
	Apr 3 14:32	Apr 11 12:05	Apr 18 02:44	May 24 18:52	
	May 3 06:51	May 10 20:33	May 17 11:09	Jun 23 11:48	
	Jun 1 21:03 P	Jun 9 02:11	Jun 15 20:13 t	Jul 23 05:02	
	Jul 1 08:54 P	Jul 8 06:29	Jul 15 06:40	Aug 21 21:55	
	Jul 30 18:40	Aug 6 11:08	Aug 13 18:58	Sep 20 13:39	
	Aug 29 03:04	Sep 4 17:39	Sep 12 09:27	Oct 20 03:30	
	Sep 27 11:09	Oct 4 03:15	Oct 12 02:06	Nov 18 15:09	
	Oct 26 19:56	Nov 2 16:38	Nov 10 20:16	Dec 18 00:48	
	Nov 25 06:10 P	Dec 2 09:52	Dec 10 14:36 t		
	Dec 24 18:06				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2012		Jan 1 06:15	Jan 9 07:30	Jan 16 09:08	00h01m
	Jan 23 07:39	Jan 31 04:10	Feb 7 21:54	Feb 14 17:04	
	Feb 21 22:35	Mar 1 01:22	Mar 8 09:40	Mar 15 01:25	
	Mar 22 14:37	Mar 30 19:41	Apr 6 19:19	Apr 13 10:50	
	Apr 21 07:18	Apr 29 09:58	May 6 03:35	May 12 21:47	
	May 20 23:47 A	May 28 20:16	Jun 4 11:12 p	Jun 11 10:41	
	Jun 19 15:02	Jun 27 03:30	Jul 3 18:52	Jul 11 01:48	
	Jul 19 04:24	Jul 26 08:56	Aug 2 03:27	Aug 9 18:55	
	Aug 17 15:54	Aug 24 13:54	Aug 31 13:58	Sep 8 13:15	
	Sep 16 02:11	Sep 22 19:41	Sep 30 03:19	Oct 8 07:33	
	Oct 15 12:02	Oct 22 03:32	Oct 29 19:50	Nov 7 00:36	
	Nov 13 22:08 T	Nov 20 14:31	Nov 28 14:46 n	Dec 6 15:32	
	Dec 13 08:42	Dec 20 05:19	Dec 28 10:21		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2013				Jan 5 03:58	00h01m
	Jan 11 19:44	Jan 18 23:45	Jan 27 04:38	Feb 3 13:56	
	Feb 10 07:20	Feb 17 20:31	Feb 25 20:26	Mar 4 21:53	
	Mar 11 19:51	Mar 19 17:27	Mar 27 09:27	Apr 3 04:37	
	Apr 10 09:35	Apr 18 12:31	Apr 25 19:57 p	May 2 11:14	
	May 10 00:29 A	May 18 04:35	May 25 04:25 n	May 31 18:58	
	Jun 8 15:56	Jun 16 17:24	Jun 23 11:32	Jun 30 04:54	
	Jul 8 07:14	Jul 16 03:18	Jul 22 18:15	Jul 29 17:43	
	Aug 6 21:51	Aug 14 10:56	Aug 21 01:45	Aug 28 09:35	
	Sep 5 11:36	Sep 12 17:08	Sep 19 11:13	Sep 27 03:56	

Oct 5	00:35	Oct 11	23:02	Oct 18	23:38 n	Oct 26	23:41
Nov 3	12:50 H	Nov 10	05:57	Nov 17	15:16	Nov 25	19:28
Dec 3	00:22	Dec 9	15:12	Dec 17	09:28	Dec 25	13:48

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2014	Jan 1 11:14	Jan 8 03:39	Jan 16 04:52	Jan 24 05:19	00h01m
	Jan 30 21:39	Feb 6 19:22	Feb 14 23:53	Feb 22 17:15	
	Mar 1 08:00	Mar 8 13:27	Mar 16 17:09	Mar 24 01:46	
	Mar 30 18:45	Apr 7 08:31	Apr 15 07:42 t	Apr 22 07:52	
	Apr 29 06:14 A	May 7 03:15	May 14 19:16	May 21 12:59	
	May 28 18:40	Jun 5 20:39	Jun 13 04:11	Jun 19 18:39	
	Jun 27 08:09	Jul 5 11:59	Jul 12 11:25	Jul 19 02:08	
	Jul 26 22:42	Aug 4 00:50	Aug 10 18:09	Aug 17 12:26	
	Aug 25 14:13	Sep 2 11:11	Sep 9 01:38	Sep 16 02:05	
	Sep 24 06:14	Oct 1 19:33	Oct 8 10:51 t	Oct 15 19:12	
	Oct 23 21:57 P	Oct 31 02:48	Nov 6 22:23	Nov 14 15:16	
	Nov 22 12:32	Nov 29 10:06	Dec 6 12:27	Dec 14 12:51	
	Dec 22 01:36	Dec 28 18:31			

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2015			Jan 5 04:53	Jan 13 09:47	00h01m
	Jan 20 13:14	Jan 27 04:48	Feb 3 23:09	Feb 12 03:50	
	Feb 18 23:47	Feb 25 17:14	Mar 5 18:06	Mar 13 17:48	
	Mar 20 09:36 T	Mar 27 07:43	Apr 4 12:06 p	Apr 12 03:44	
	Apr 18 18:57	Apr 25 23:55	May 4 03:42	May 11 10:36	
	May 18 04:13	May 25 17:19	Jun 2 16:19	Jun 9 15:42	
	Jun 16 14:05	Jun 24 11:03	Jul 2 02:20	Jul 8 20:24	
	Jul 16 01:24	Jul 24 04:04	Jul 31 10:43	Aug 7 02:03	
	Aug 14 14:54	Aug 22 19:31	Aug 29 18:35	Sep 5 09:54	
	Sep 13 06:41 P	Sep 21 08:59	Sep 28 02:50 t	Oct 4 21:06	
	Oct 13 00:06	Oct 20 20:31	Oct 27 12:05	Nov 3 12:24	
	Nov 11 17:47	Nov 19 06:27	Nov 25 22:44	Dec 3 07:40	
	Dec 11 10:29	Dec 18 15:14	Dec 25 11:11		

## Phases of the Moon: 2016 to 2020 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2016				Jan 2 05:30	00h01m
	Jan 10 01:30	Jan 16 23:26	Jan 24 01:46	Feb 1 03:28	
	Feb 8 14:39	Feb 15 07:46	Feb 22 18:20	Mar 1 23:11	
	Mar 9 01:54 T	Mar 15 17:03	Mar 23 12:01 n	Mar 31 15:17	
	Apr 7 11:24	Apr 14 03:59	Apr 22 05:24	Apr 30 03:29	
	May 6 19:30	May 13 17:02	May 21 21:15	May 29 12:12	
	Jun 5 03:00	Jun 12 08:10	Jun 20 11:02	Jun 27 18:19	
	Jul 4 11:01	Jul 12 00:52	Jul 19 22:57	Jul 26 23:00	
	Aug 2 20:45	Aug 10 18:21	Aug 18 09:27	Aug 25 03:41	
	Sep 1 09:03 A	Sep 9 11:49	Sep 16 19:05 n	Sep 23 09:56	
	Oct 1 00:12	Oct 9 04:33	Oct 16 04:23	Oct 22 19:14	
	Oct 30 17:38	Nov 7 19:51	Nov 14 13:52	Nov 21 08:33	
	Nov 29 12:18	Dec 7 09:03	Dec 14 00:06	Dec 21 01:56	
Dec 29 06:53					

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2017		Jan 5 19:47	Jan 12 11:34	Jan 19 22:14	00h01m
	Jan 28 00:07	Feb 4 04:19	Feb 11 00:33 n	Feb 18 19:33	
	Feb 26 14:58 A	Mar 5 11:32	Mar 12 14:54	Mar 20 15:58	
	Mar 28 02:57	Apr 3 18:39	Apr 11 06:08	Apr 19 09:57	
	Apr 26 12:16	May 3 02:47	May 10 21:43	May 19 00:33	
	May 25 19:44	Jun 1 12:42	Jun 9 13:10	Jun 17 11:33	
	Jun 24 02:31	Jul 1 00:51	Jul 9 04:07	Jul 16 19:26	

Jul 23	09:46	Jul 30	15:23	Aug 7	18:11 p	Aug 15	01:15
Aug 21	18:30 T	Aug 29	08:13	Sep 6	07:03	Sep 13	06:25
Sep 20	05:30	Sep 28	02:54	Oct 5	18:40	Oct 12	12:25
Oct 19	19:12	Oct 27	22:22	Nov 4	05:23	Nov 10	20:37
Nov 18	11:42	Nov 26	17:03	Dec 3	15:47	Dec 10	07:51
Dec 18	06:31	Dec 26	09:20				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2018			Jan 2 02:24	Jan 8 22:25	00h01m
	Jan 17 02:17	Jan 24 22:20	Jan 31 13:27 t	Feb 7 15:54	
	Feb 15 21:05 P	Feb 23 08:09	Mar 2 00:51	Mar 9 11:20	
	Mar 17 13:12	Mar 24 15:35	Mar 31 12:37	Apr 8 07:18	
	Apr 16 01:57	Apr 22 21:46	Apr 30 00:58	May 8 02:09	
	May 15 11:48	May 22 03:49	May 29 14:20	Jun 6 18:32	
	Jun 13 19:43	Jun 20 10:51	Jun 28 04:53	Jul 6 07:51	
	Jul 13 02:48 P	Jul 19 19:52	Jul 27 20:20 t	Aug 4 18:18	
	Aug 11 09:58 P	Aug 18 07:49	Aug 26 11:56	Sep 3 02:37	
	Sep 9 18:01	Sep 16 23:15	Sep 25 02:53	Oct 2 09:45	
	Oct 9 03:47	Oct 16 18:02	Oct 24 16:45	Oct 31 16:40	
	Nov 7 16:02	Nov 15 14:54	Nov 23 05:39	Nov 30 00:19	
	Dec 7 07:20	Dec 15 11:49	Dec 22 17:49	Dec 29 09:34	

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2019			Jan 21 05:16 t	Jan 27 21:10	00h01m
	Jan 6 01:28 P	Jan 14 06:45	Feb 19 15:53	Feb 26 11:28	
	Feb 4 21:04	Feb 12 22:26	Mar 21 01:43	Mar 28 04:10	
	Mar 6 16:04	Mar 14 10:27	Apr 19 11:12	Apr 26 22:18	
	Apr 5 08:50	Apr 12 19:06	May 18 21:11	May 26 16:33	
	May 4 22:45	May 12 01:12	Jun 17 08:31	Jun 25 09:46	
	Jun 3 10:02	Jun 10 05:59	Jul 16 21:38 p	Jul 25 01:18	
	Jul 2 19:16 T	Jul 9 10:55	Aug 15 12:29	Aug 23 14:56	
	Aug 1 03:12	Aug 7 17:31	Sep 14 04:33	Sep 22 02:41	
	Aug 30 10:37	Sep 6 03:10	Oct 13 21:08	Oct 21 12:39	
	Sep 28 18:26	Oct 5 16:47	Nov 12 13:34	Nov 19 21:11	
	Oct 28 03:38	Nov 4 10:23	Dec 12 05:12	Dec 19 04:57	
	Nov 26 15:06	Dec 4 06:58			
	Dec 26 05:13 A				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2020		Jan 3 04:45	Jan 10 19:21 n	Jan 17 12:58	00h01m
	Jan 24 21:42	Feb 2 01:42	Feb 9 07:33	Feb 15 22:17	
	Feb 23 15:32	Mar 2 19:57	Mar 9 17:48	Mar 16 09:34	
	Mar 24 09:28	Apr 1 10:21	Apr 8 02:35	Apr 14 22:56	
	Apr 23 02:26	Apr 30 20:38	May 7 10:45	May 14 14:03	
	May 22 17:39	May 30 03:30	Jun 5 19:12 n	Jun 13 06:24	
	Jun 21 06:41 A	Jun 28 08:16	Jul 5 04:44 n	Jul 12 23:29	
	Jul 20 17:33	Jul 27 12:32	Aug 3 15:59	Aug 11 16:45	
	Aug 19 02:41	Aug 25 17:58	Sep 2 05:22	Sep 10 09:26	
	Sep 17 11:00	Sep 24 01:55	Oct 1 21:05	Oct 10 00:39	
	Oct 16 19:31	Oct 23 13:23	Oct 31 14:49	Nov 8 13:46	
	Nov 15 05:07	Nov 22 04:45	Nov 30 09:30 n	Dec 8 00:37	
	Dec 14 16:17 T	Dec 21 23:41	Dec 30 03:28		

## Phases of the Moon: 2021 to 2025 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2021				Jan 6 09:37	00h01m
	Jan 13 05:00	Jan 20 21:02	Jan 28 19:16	Feb 4 17:37	
	Feb 11 19:06	Feb 19 18:47	Feb 27 08:17	Mar 6 01:30	
	Mar 13 10:21	Mar 21 14:40	Mar 28 18:48	Apr 4 10:02	
	Apr 12 02:31	Apr 20 06:59	Apr 27 03:31	May 3 19:50	

May 11	19:00	May 19	19:13	May 26	11:14 t	Jun 2	07:24
Jun 10	10:53 A	Jun 18	03:54	Jun 24	18:40	Jul 1	21:11
Jul 10	01:17	Jul 17	10:11	Jul 24	02:37	Jul 31	13:16
Aug 8	13:50	Aug 15	15:20	Aug 22	12:02	Aug 30	07:13
Sep 7	00:52	Sep 13	20:39	Sep 20	23:55	Sep 29	01:57
Oct 6	11:05	Oct 13	03:25	Oct 20	14:57	Oct 28	20:05
Nov 4	21:15	Nov 11	12:46	Nov 19	08:58 p	Nov 27	12:28
Dec 4	07:43 T	Dec 11	01:36	Dec 19	04:36	Dec 27	02:24

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT				
2022	Jan 2	18:33	Jan 9	18:11	Jan 17	23:49	Jan 25	13:41	00h01m
	Feb 1	05:46	Feb 8	13:50	Feb 16	16:57	Feb 23	22:32	
	Mar 2	17:35	Mar 10	10:45	Mar 18	07:17	Mar 25	05:37	
	Apr 1	06:24	Apr 9	06:47	Apr 16	18:55	Apr 23	11:56	
	Apr 30	20:28 P	May 9	00:21	May 16	04:14 t	May 22	18:43	
	May 30	11:30	Jun 7	14:48	Jun 14	11:52	Jun 21	03:11	
	Jun 29	02:52	Jul 7	02:14	Jul 13	18:37	Jul 20	14:18	
	Jul 28	17:55	Aug 5	11:06	Aug 12	01:36	Aug 19	04:36	
	Aug 27	08:17	Sep 3	18:08	Sep 10	09:59	Sep 17	21:52	
	Sep 25	21:54	Oct 3	00:14	Oct 9	20:55	Oct 17	17:15	
	Oct 25	10:49 P	Nov 1	06:37	Nov 8	11:02 t	Nov 16	13:27	
	Nov 23	22:57	Nov 30	14:36	Dec 8	04:08	Dec 16	08:56	
	Dec 23	10:17	Dec 30	01:21					

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT				
2023	Jan 21	20:53	Jan 28	15:19	Jan 6	23:08	Jan 15	02:10	00h01m
	Feb 20	07:06	Feb 27	08:06	Feb 5	18:29	Feb 13	16:01	
	Mar 21	17:23	Mar 29	02:32	Mar 7	12:40	Mar 15	02:08	
	Apr 20	04:12 H	Apr 27	21:20	Apr 6	04:35	Apr 13	09:11	
	May 19	15:53	May 27	15:22	May 5	17:34 n	May 12	14:28	
	Jun 18	04:37	Jun 26	07:50	Jun 4	03:42	Jun 10	19:31	
	Jul 17	18:32	Jul 25	22:07	Jul 3	11:39	Jul 10	01:48	
	Aug 16	09:38	Aug 24	09:57	Aug 1	18:31	Aug 8	10:28	
	Sep 15	01:40	Sep 22	19:32	Aug 31	01:35	Sep 6	22:21	
	Oct 14	17:55 A	Oct 22	03:29	Sep 29	09:57	Oct 6	13:48	
	Nov 13	09:27	Nov 20	10:50	Oct 28	20:24 p	Nov 5	08:37	
	Dec 12	23:32	Dec 19	18:39	Nov 27	09:16	Dec 5	05:49	
					Dec 27	00:33			

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT				
2024	Jan 11	11:57	Jan 18	03:53	Jan 25	17:54	Jan 4	03:30	00h01m
	Feb 9	22:59	Feb 16	15:01	Feb 24	12:30	Feb 2	23:18	
	Mar 10	09:00	Mar 17	04:11	Mar 25	07:00 n	Mar 3	15:24	
	Apr 8	18:21 T	Apr 15	19:13	Apr 23	23:49	Apr 2	03:15	
	May 8	03:22	May 15	11:48	May 23	13:53	May 1	11:27	
	Jun 6	12:38	Jun 14	05:18	May 22	01:08	May 30	17:13	
	Jul 5	22:57	Jul 13	22:49	Jun 22	01:08	Jun 28	21:53	
	Aug 4	11:13	Aug 12	15:19	Jul 21	10:17	Jul 28	02:51	
	Sep 3	01:55	Sep 11	06:06	Aug 19	18:26	Aug 26	09:26	
	Oct 2	18:49 A	Oct 10	18:55	Sep 18	02:34 p	Sep 24	18:50	
	Nov 1	12:47	Nov 9	05:56	Oct 17	11:26	Oct 24	08:03	
	Dec 1	06:21	Dec 8	15:27	Nov 15	21:29	Nov 23	01:28	
	Dec 30	22:27			Dec 15	09:02	Dec 22	22:18	

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT				
2025		Jan 6	23:56	Jan 13	22:27	Jan 21	20:31	00h01m	
	Jan 29	12:36	Feb 5	08:02	Feb 12	13:53	Feb 20		17:33
	Feb 28	00:45	Mar 6	16:32	Mar 14	06:55 t	Mar 22		11:30
	Mar 29	10:58 P	Apr 5	02:15	Apr 13	00:22	Apr 21		01:36
	Apr 27	19:31	May 4	13:52	May 12	16:56	May 20		11:59
	May 27	03:02	Jun 3	03:41	Jun 11	07:44	Jun 18		19:19
	Jun 25	10:31	Jul 2	19:30	Jul 10	20:37	Jul 18		00:38

Jul 24	19:11	Aug 1	12:41	Aug 9	07:55	Aug 16	05:12
Aug 23	06:06	Aug 31	06:25	Sep 7	18:09 t	Sep 14	10:33
Sep 21	19:54 P	Sep 29	23:54	Oct 7	03:47	Oct 13	18:13
Oct 21	12:25	Oct 29	16:21	Nov 5	13:19	Nov 12	05:28
Nov 20	06:47	Nov 28	06:59	Dec 4	23:14	Dec 11	20:52
Dec 20	01:43	Dec 27	19:10				

## Phases of the Moon: 2026 to 2030 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2026			Jan 3 10:03	Jan 10 15:48	00h01m
	Jan 18 19:52	Jan 26 04:47	Feb 1 22:09	Feb 9 12:43	
	Feb 17 12:01 A	Feb 24 12:28	Mar 3 11:38 t	Mar 11 09:39	
	Mar 19 01:23	Mar 25 19:18	Apr 2 02:12	Apr 10 04:52	
	Apr 17 11:52	Apr 24 02:32	May 1 17:23	May 9 21:10	
	May 16 20:01	May 23 11:11	May 31 08:45	Jun 8 10:00	
	Jun 15 02:54	Jun 21 21:55	Jun 29 23:57	Jul 7 19:29	
	Jul 14 09:43	Jul 21 11:06	Jul 29 14:36	Aug 6 02:21	
	Aug 12 17:37 T	Aug 20 02:46	Aug 28 04:18 p	Sep 4 07:51	
	Sep 11 03:27	Sep 18 20:44	Sep 26 16:49	Oct 3 13:25	
	Oct 10 15:50	Oct 18 16:13	Oct 26 04:12	Nov 1 20:28	
	Nov 9 07:02	Nov 17 11:48	Nov 24 14:53	Dec 1 06:09	
Dec 9 00:52	Dec 17 05:43	Dec 24 01:28	Dec 30 18:59		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2027			Jan 22 12:17	Jan 29 10:55	00h01m
	Jan 7 20:24	Jan 15 20:34	Feb 20 23:23 n	Feb 28 05:16	
	Feb 6 15:56 A	Feb 14 07:58	Mar 22 10:44	Mar 30 00:54	
	Mar 8 09:29	Mar 15 16:25	Apr 20 22:27	Apr 28 20:18	
	Apr 6 23:51	Apr 13 22:57	May 20 10:59	May 28 13:58	
	May 6 10:58	May 13 04:44	Jun 19 00:44	Jun 27 04:54	
	Jun 4 19:40	Jun 11 10:56	Jul 18 15:45	Jul 26 16:55	
	Jul 4 03:02	Jul 10 18:39	Aug 17 07:29 n	Aug 25 02:27	
	Aug 2 10:05 T	Aug 9 04:54	Sep 15 23:04	Sep 23 10:20	
	Aug 31 17:41	Sep 7 18:31	Oct 15 13:47	Oct 22 17:29	
	Sep 30 02:36	Oct 7 11:47	Nov 14 03:26	Nov 21 00:48	
	Oct 29 13:36	Nov 6 08:00	Dec 13 16:09	Dec 20 09:11	
Nov 28 03:24	Dec 6 05:22				
Dec 27 20:12					

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2028		Jan 5 01:40	Jan 12 04:03 p	Jan 18 19:26	00h01m
	Jan 26 15:12 A	Feb 3 19:10	Feb 10 15:04	Feb 17 08:08	
	Feb 25 10:37	Mar 4 09:02	Mar 11 01:06	Mar 17 23:23	
	Mar 26 04:31	Apr 2 19:15	Apr 9 10:27	Apr 16 16:37	
	Apr 24 19:47	May 2 02:26	May 8 19:49	May 16 10:43	
	May 24 08:16	May 31 07:37	Jun 7 06:09	Jun 15 04:27	
	Jun 22 18:27	Jun 29 12:10	Jul 6 18:11 p	Jul 14 20:57	
	Jul 22 03:02 T	Jul 28 17:40	Aug 5 08:10	Aug 13 11:45	
	Aug 20 10:44	Aug 27 01:36	Sep 3 23:48	Sep 12 00:46	
	Sep 18 18:24	Sep 25 13:10	Oct 3 16:25	Oct 11 11:57	
	Oct 18 02:57	Oct 25 04:53	Nov 2 09:17	Nov 9 21:26	
	Nov 16 13:18	Nov 24 00:15	Dec 2 01:40	Dec 9 05:39	
Dec 16 02:06	Dec 23 21:45	Dec 31 16:48 t			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2029				Jan 7 13:26	00h01m
	Jan 14 17:24 P	Jan 22 19:23	Jan 30 06:03	Feb 5 21:52	
	Feb 13 10:31	Feb 21 15:10	Feb 28 17:10	Mar 7 07:52	
	Mar 15 04:19	Mar 23 07:33	Mar 30 02:26	Apr 5 19:51	
Apr 13 21:40	Apr 21 19:50	Apr 28 10:37	May 5 09:48		



May 13	13:42	May 21	04:16	May 27	18:37	Jun 4	01:19
Jun 12	03:51 P	Jun 19	09:54	Jun 26	03:22 t	Jul 3	17:58
Jul 11	15:51 P	Jul 18	14:14	Jul 25	13:36	Aug 2	11:15
Aug 10	01:56	Aug 16	18:55	Aug 24	01:51	Sep 1	04:33
Sep 8	10:44	Sep 15	01:29	Sep 22	16:29	Sep 30	20:57
Oct 7	19:14	Oct 14	11:09	Oct 22	09:28	Oct 30	11:32
Nov 6	04:24	Nov 13	00:35	Nov 21	04:03	Nov 28	23:48
Dec 5	14:52 P	Dec 12	17:49	Dec 20	22:46 t	Dec 28	09:49

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2030	Jan 4 02:49	Jan 11 14:06	Jan 19 15:54	Jan 26 18:14	00h01m
	Feb 2 16:07	Feb 10 11:49	Feb 18 06:20	Feb 25 01:58	
	Mar 4 06:35	Mar 12 08:48	Mar 19 17:56	Mar 26 09:51	
	Apr 2 22:02	Apr 11 02:57	Apr 18 03:20	Apr 24 18:39	
	May 2 14:12	May 10 17:11	May 17 11:19	May 24 04:57	
	Jun 1 06:21 A	Jun 9 03:36	Jun 15 18:41 p	Jun 22 17:19	
	Jun 30 21:34	Jul 8 11:02	Jul 15 02:12	Jul 22 08:07	
	Jul 30 11:11	Aug 6 16:43	Aug 13 10:44	Aug 21 01:15	
	Aug 28 23:07	Sep 4 21:55	Sep 11 21:18	Sep 19 19:56	
	Sep 27 09:55	Oct 4 03:56	Oct 11 10:47	Oct 19 14:50	
	Oct 26 20:17	Nov 2 11:56	Nov 10 03:30	Nov 18 08:32	
	Nov 25 06:46 T	Dec 1 22:57	Dec 9 22:40 n	Dec 18 00:01	
Dec 24 17:32	Dec 31 13:36				

## Phases of the Moon: 2031 to 2035 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2031			Jan 8 18:26	Jan 16 12:47	00h01m
	Jan 23 04:31	Jan 30 07:43	Feb 7 12:46	Feb 14 22:50	
	Feb 21 15:49	Mar 1 04:02	Mar 9 04:30	Mar 16 06:36	
	Mar 23 03:49	Mar 31 00:32	Apr 7 17:21	Apr 14 12:58	
	Apr 21 16:57	Apr 29 19:19	May 7 03:40 n	May 13 19:07	
	May 21 07:17 A	May 29 11:20	Jun 5 11:58 n	Jun 12 02:20	
	Jun 19 22:25	Jun 28 00:19	Jul 4 19:01	Jul 11 11:50	
	Jul 19 13:40	Jul 27 10:35	Aug 3 01:45	Aug 10 00:24	
	Aug 18 04:32	Aug 25 18:40	Sep 1 09:20	Sep 8 16:14	
	Sep 16 18:47	Sep 24 01:20	Sep 30 18:58	Oct 8 10:50	
	Oct 16 08:21	Oct 23 07:36	Oct 30 07:33 n	Nov 7 07:02	
	Nov 14 21:10 H	Nov 21 14:45	Nov 28 23:18	Dec 7 03:20	
Dec 14 09:06	Dec 21 00:00	Dec 28 17:33			

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2032				Jan 5 22:04	00h01m
	Jan 12 20:07	Jan 19 12:14	Jan 27 12:52	Feb 4 13:49	
	Feb 11 06:24	Feb 18 03:29	Feb 26 07:43	Mar 5 01:47	
	Mar 11 16:25	Mar 18 20:56	Mar 27 00:46	Apr 3 10:10	
	Apr 10 02:39	Apr 17 15:24	Apr 25 15:10 t	May 2 16:02	
	May 9 13:36 A	May 17 09:43	May 25 02:37	May 31 20:51	
	Jun 8 01:32	Jun 16 03:00	Jun 23 11:32	Jun 30 02:12	
	Jul 7 14:41	Jul 15 18:32	Jul 22 18:51	Jul 29 09:25	
	Aug 6 05:11	Aug 14 07:51	Aug 21 01:47	Aug 27 19:33	
	Sep 4 20:57	Sep 12 18:49	Sep 19 09:30	Sep 26 09:12	
	Oct 4 13:26	Oct 12 03:48	Oct 18 18:58 t	Oct 26 02:29	
	Nov 3 05:45 P	Nov 10 11:33	Nov 17 06:42	Nov 24 22:48	
Dec 2 20:53	Dec 9 19:09	Dec 16 20:49	Dec 24 20:39		

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2033	Jan 1 10:17	Jan 8 03:34	Jan 15 13:07	Jan 23 17:46	00h01m
	Jan 30 22:00	Feb 6 13:34	Feb 14 07:04	Feb 22 11:53	
	Mar 1 08:23	Mar 8 01:27	Mar 16 01:37	Mar 24 01:50	

Mar 30	17:52	T	Apr 6	15:14	Apr 14	19:17	t	Apr 22	11:42
Apr 29	02:46		May 6	06:45	May 14	10:43		May 21	18:29
May 28	11:36		Jun 4	23:39	Jun 12	23:19		Jun 19	23:29
Jun 26	21:07		Jul 4	17:12	Jul 12	09:29		Jul 19	04:07
Jul 26	08:12		Aug 3	10:26	Aug 10	18:08		Aug 17	09:43
Aug 24	21:40		Sep 2	02:24	Sep 9	02:20		Sep 15	17:34
Sep 23	13:40	P	Oct 1	16:33	Oct 8	10:58	t	Oct 15	04:47
Oct 23	07:28		Oct 31	04:46	Nov 6	20:32		Nov 13	20:09
Nov 22	01:39		Nov 29	15:15	Dec 6	07:22		Dec 13	15:28
Dec 21	18:47		Dec 29	00:20					

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2034			Jan 4 19:47	Jan 12 13:17	00h01m
	Jan 20 10:02	Jan 27 08:32	Feb 3 10:05	Feb 11 11:09	
	Feb 18 23:10	Feb 25 16:34	Mar 5 02:10	Mar 13 06:45	
	Mar 20 10:14 T	Mar 27 01:18	Apr 3 19:19 n	Apr 11 22:45	
	Apr 18 19:26	Apr 25 11:35	May 3 12:16	May 11 10:56	
	May 18 03:12	May 24 23:57	Jun 2 03:54	Jun 9 19:44	
	Jun 16 10:26	Jun 23 14:35	Jul 1 17:44	Jul 9 01:59	
	Jul 15 18:15	Jul 23 07:05	Jul 31 05:54	Aug 7 06:50	
	Aug 14 03:53	Aug 22 00:43	Aug 29 16:49	Sep 5 11:41	
	Sep 12 16:14 A	Sep 20 18:39	Sep 28 02:57 p	Oct 4 18:05	
	Oct 12 07:33	Oct 20 12:03	Oct 27 12:42	Nov 3 03:27	
	Nov 11 01:16	Nov 19 04:01	Nov 25 22:32	Dec 2 16:46	
	Dec 10 20:14	Dec 18 17:45	Dec 25 08:54		

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2035				Jan 1 10:01	00h01m
	Jan 9 15:03	Jan 17 04:45	Jan 23 20:16	Jan 31 06:02	
	Feb 8 08:22	Feb 15 13:17	Feb 22 08:54 n	Mar 2 03:01	
	Mar 9 23:09 A	Mar 16 20:15	Mar 23 22:42	Mar 31 23:06	
	Apr 8 10:58	Apr 15 02:55	Apr 22 13:21	Apr 30 16:54	
	May 7 20:04	May 14 10:28	May 22 04:26	May 30 07:31	
	Jun 6 03:21	Jun 12 19:50	Jun 20 19:37	Jun 28 18:43	
	Jul 5 09:59	Jul 12 07:33	Jul 20 10:37	Jul 28 02:55	
	Aug 3 17:12	Aug 10 21:52	Aug 19 01:00 p	Aug 26 09:08	
	Sep 2 01:59 T	Sep 9 14:47	Sep 17 14:23	Sep 24 14:39	
	Oct 1 13:07	Oct 9 09:49	Oct 17 02:35	Oct 23 20:57	
	Oct 31 02:59	Nov 8 05:50	Nov 15 13:49	Nov 22 05:16	
	Nov 29 19:38	Dec 8 01:05	Dec 15 00:33	Dec 21 16:29	
	Dec 29 14:31				

## Phases of the Moon: 2036 to 2040

### Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2036		Jan 6 17:48	Jan 13 11:16	Jan 20 06:46	00h01m
	Jan 28 10:17	Feb 5 07:01	Feb 11 22:09 t	Feb 18 23:47	
	Feb 27 04:59 P	Mar 5 16:49	Mar 12 09:09	Mar 19 18:39	
	Mar 27 20:57	Apr 4 00:03	Apr 10 20:22	Apr 18 14:06	
	Apr 26 09:33	May 3 05:54	May 10 08:09	May 18 08:39	
	May 25 19:17	Jun 1 11:34	Jun 8 21:02	Jun 17 01:03	
	Jun 24 03:09	Jun 30 18:13	Jul 8 11:19	Jul 16 14:39	
	Jul 23 10:17 P	Jul 30 02:56	Aug 7 02:49 t	Aug 15 01:36	
	Aug 21 17:35 P	Aug 28 14:43	Sep 5 18:45	Sep 13 10:29	
	Sep 20 01:51	Sep 27 06:12	Oct 5 10:15	Oct 12 18:09	
	Oct 19 11:50	Oct 27 01:14	Nov 4 00:44	Nov 11 01:28	
	Nov 18 00:14	Nov 25 22:28	Dec 3 14:08	Dec 10 09:18	
	Dec 17 15:34	Dec 25 19:44			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2037			Jan 2 02:35	Jan 8 18:29	00h01m
	Jan 16 09:34 P	Jan 24 14:55	Jan 31 14:04 t	Feb 7 05:43	
	Feb 15 04:54	Feb 23 06:41	Mar 2 00:28	Mar 8 19:25	
	Mar 16 23:36	Mar 24 18:39	Mar 31 09:53	Apr 7 11:25	
	Apr 15 16:08	Apr 23 03:11	Apr 29 18:54	May 7 04:56	
	May 15 05:54	May 22 09:08	May 29 04:24	Jun 5 22:49	
	Jun 13 17:10	Jun 20 13:45	Jun 27 15:20	Jul 5 16:00	
	Jul 13 02:32 T	Jul 19 18:31	Jul 27 04:15 p	Aug 4 07:51	
	Aug 11 10:41	Aug 18 01:00	Aug 25 19:09	Sep 2 22:03	
	Sep 9 18:25	Sep 16 10:36	Sep 24 11:32	Oct 2 10:29	
	Oct 9 02:34	Oct 16 00:15	Oct 24 04:36	Oct 31 21:06	
	Nov 7 12:03	Nov 14 17:59	Nov 22 21:35	Nov 30 06:06	
	Dec 6 23:38	Dec 14 14:42	Dec 22 13:38	Dec 29 14:05	

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2038			Jan 21 04:00 n	Jan 27 22:00	00h01m
	Jan 5 13:41 A	Jan 13 12:34	Feb 19 16:09	Feb 26 06:56	
	Feb 4 05:52	Feb 12 09:30	Mar 21 02:09	Mar 27 17:36	
	Mar 5 23:15	Mar 14 03:42	Apr 19 10:36	Apr 26 06:15	
	Apr 4 16:43	Apr 12 18:02	May 18 18:23	May 25 20:43	
	May 4 09:19	May 12 04:18	Jun 17 02:30 n	Jun 24 12:39	
	Jun 3 00:24	Jun 10 11:11	Jul 16 11:48 n	Jul 24 05:40	
	Jul 2 13:32 A	Jul 9 16:00	Aug 14 22:57	Aug 22 23:12	
	Aug 1 00:40	Aug 7 20:21	Sep 13 12:24	Sep 21 16:27	
	Aug 30 10:13	Sep 6 01:51	Oct 13 04:22	Oct 21 08:23	
	Sep 28 18:57	Oct 5 09:52	Nov 11 22:27	Nov 19 22:10	
	Oct 28 03:53	Nov 3 21:24	Dec 11 17:30 n	Dec 19 09:29	
	Nov 26 13:47	Dec 3 12:46			
	Dec 26 01:02 T				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2039		Jan 2 07:37	Jan 10 11:45	Jan 17 18:42	00h01m
	Jan 24 13:36	Feb 1 04:45	Feb 9 03:39	Feb 16 02:36	
	Feb 23 03:18	Mar 3 02:15	Mar 10 16:35	Mar 17 10:08	
	Mar 24 17:59	Apr 1 21:55	Apr 9 02:53	Apr 15 18:07	
	Apr 23 09:35	May 1 14:07	May 8 11:20	May 15 03:17	
	May 23 01:38	May 31 02:24	Jun 6 18:48 p	Jun 13 14:16	
	Jun 21 17:21 A	Jun 29 11:17	Jul 6 02:03	Jul 13 03:38	
	Jul 21 07:54	Jul 28 17:50	Aug 4 09:56	Aug 11 19:36	
	Aug 19 20:50	Aug 26 23:16	Sep 2 19:23	Sep 10 13:45	
	Sep 18 08:23	Sep 25 04:53	Oct 2 07:23	Oct 10 08:59	
	Oct 17 19:09	Oct 24 11:50	Oct 31 22:36	Nov 9 03:46	
	Nov 16 05:46	Nov 22 21:17	Nov 30 16:49 p	Dec 8 20:44	
	Dec 15 16:32 T	Dec 22 10:01	Dec 30 12:37		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2040				Jan 7 11:05	00h01m
	Jan 14 03:25	Jan 21 02:21	Jan 29 07:54	Feb 5 22:32	
	Feb 12 14:24	Feb 19 21:33	Feb 28 00:59	Mar 6 07:19	
	Mar 13 01:46	Mar 20 17:59	Mar 28 15:11	Apr 4 14:06	
	Apr 11 14:00	Apr 19 13:37	Apr 27 02:38	May 3 20:00	
	May 11 03:28 P	May 19 07:00	May 26 11:47 t	Jun 2 02:17	
	Jun 9 18:03	Jun 17 21:32	Jun 24 19:19	Jul 1 10:18	
	Jul 9 09:15	Jul 17 09:16	Jul 24 02:05	Jul 30 21:06	
	Aug 8 00:26	Aug 15 18:36	Aug 22 09:09	Aug 29 11:16	
	Sep 6 15:13	Sep 14 02:07	Sep 20 17:43	Sep 28 04:41	
	Oct 6 05:26	Oct 13 08:41	Oct 20 04:50	Oct 28 00:27	
	Nov 4 18:56 P	Nov 11 15:23	Nov 18 19:06 t	Nov 26 21:07	
	Dec 4 07:33	Dec 10 23:30	Dec 18 12:16	Dec 26 17:02	

# Phases of the Moon: 2041 to 2045

## Universal Time (UT)

Year	New Moon		First Quarter		Full Moon		Last Quarter		ΔT
2041	Jan	2 19:08	Jan	9 10:06	Jan	17 07:11	Jan	25 10:33	00h01m
	Feb	1 05:43	Feb	7 23:40	Feb	16 02:21	Feb	24 00:29	
	Mar	2 15:39	Mar	9 15:51	Mar	17 20:19	Mar	25 10:32	
	Apr	1 01:29	Apr	8 09:38	Apr	16 12:00	Apr	23 17:24	
	Apr	30 11:46 T	May	8 03:54	May	16 00:52 p	May	22 22:26	
	May	29 22:56	Jun	6 21:40	Jun	14 10:59	Jun	21 03:12	
	Jun	28 11:17	Jul	6 14:12	Jul	13 19:01	Jul	20 09:13	
	Jul	28 01:02	Aug	5 04:53	Aug	12 02:04	Aug	18 17:43	
	Aug	26 16:16	Sep	3 17:19	Sep	10 09:24	Sep	17 05:33	
	Sep	25 08:41	Oct	3 03:33	Oct	9 18:03	Oct	16 21:05	
	Oct	25 01:30 A	Nov	1 12:05	Nov	8 04:43 p	Nov	15 16:06	
	Nov	23 17:36	Nov	30 19:49	Dec	7 17:42	Dec	15 13:32	
Dec	23 08:06	Dec	30 03:46						

Year	New Moon		First Quarter		Full Moon		Last Quarter		ΔT
2042	Jan	21 20:42	Jan	28 12:48	Jan	6 08:54	Jan	14 11:24	00h01m
	Feb	20 07:39	Feb	26 23:29	Feb	5 01:58	Feb	13 07:16	
	Mar	21 17:23	Mar	28 12:00	Mar	6 20:10	Mar	14 23:21	
	Apr	20 02:19 T	Apr	27 02:19	Apr	5 14:16 n	Apr	13 11:09	
	May	19 10:55	May	26 18:18	May	5 06:48	May	12 19:18	
	Jun	17 19:48	Jun	25 11:29	Jun	3 20:48	Jun	11 01:00	
	Jul	17 05:52	Jul	25 05:01	Jul	3 08:09	Jul	10 05:38	
	Aug	15 18:01	Aug	23 21:55	Aug	31 02:02	Aug	8 10:35	
	Sep	14 08:50	Sep	22 13:20	Sep	29 10:34 n	Sep	6 17:09	
	Oct	14 02:03 A	Oct	22 02:53	Oct	28 19:48	Oct	6 02:35	
	Nov	12 20:28	Nov	20 14:31	Nov	27 06:06	Nov	4 15:51	
	Dec	12 14:29	Dec	20 00:28	Dec	26 17:43	Dec	4 09:19	

Year	New Moon		First Quarter		Full Moon		Last Quarter		ΔT
2043	Jan	11 06:53	Jan	18 09:05	Jan	25 06:56	Jan	3 06:08	00h01m
	Feb	9 21:07	Feb	16 17:00	Feb	23 21:58	Feb	2 04:14	
	Mar	11 09:09	Mar	18 01:03	Mar	25 14:26 t	Mar	4 01:07	
	Apr	9 19:06 T	Apr	16 10:09	Apr	24 07:23	Apr	2 18:56	
	May	9 03:21	May	15 21:05	May	23 23:37	May	2 08:59	
	Jun	7 10:35	Jun	14 10:19	Jun	22 14:20	May	31 19:25	
	Jul	6 17:51	Jul	14 01:47	Jun	22 14:20	Jun	30 02:53	
	Aug	5 02:23	Jul	14 01:47	Jul	22 03:24	Jul	29 08:23	
	Sep	3 13:17	Aug	12 18:57	Aug	20 15:04	Aug	27 13:09	
	Oct	3 03:12 A	Sep	11 13:01	Sep	19 01:47 t	Sep	27 13:09	
	Nov	1 19:57	Oct	11 07:05	Sep	19 01:47 t	Sep	25 18:40	
	Dec	1 14:37	Nov	10 00:13	Oct	18 11:56	Oct	25 02:27	
Dec	31 09:48	Dec	9 15:27	Nov	16 21:52	Nov	23 13:46		
				Dec	16 08:02	Dec	23 05:04		

Year	New Moon		First Quarter		Full Moon		Last Quarter		ΔT
2044	Jan	30 04:04	Jan	8 04:02	Jan	14 18:51	Jan	21 23:47	00h01m
	Feb	28 20:12 A	Feb	6 13:46	Feb	13 06:42	Feb	20 20:20	
	Mar	29 09:26	Mar	6 21:17	Mar	13 19:41 t	Mar	21 16:52	
	Apr	27 19:42	Apr	5 03:45	Apr	12 09:39	Apr	20 11:48	
	May	27 03:39	May	4 10:28	May	12 00:16	May	20 04:02	
	Jun	25 10:24	Jun	2 18:33	Jun	10 15:16	Jun	18 17:00	
	Jul	24 17:10	Jul	2 04:48	Jul	10 06:22	Jul	18 02:47	
	Aug	23 01:06 T	Jul	31 17:40	Aug	8 21:14	Aug	16 10:03	
	Sep	21 11:03	Aug	30 09:18	Sep	7 11:24 t	Sep	14 15:58	
	Oct	20 23:36	Sep	29 03:30	Oct	7 00:30	Oct	13 21:52	
		Oct	28 23:28	Nov	5 12:27	Nov	12 05:09		

Nov 19 14:58	Nov 27 19:36	Dec 4 23:34	Dec 11 14:52
Dec 19 08:53	Dec 27 14:00		

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2045			Jan 3 10:20	Jan 10 03:32	00h01m
	Jan 18 04:25	Jan 26 05:09	Feb 1 21:05	Feb 8 19:03	
	Feb 16 23:51 A	Feb 24 16:37	Mar 3 07:52 n	Mar 10 12:50	
	Mar 18 17:15	Mar 26 00:56	Apr 1 18:43	Apr 9 07:52	
	Apr 17 07:27	Apr 24 07:12	May 1 05:52	May 9 02:51	
	May 16 18:26	May 23 12:38	May 30 17:52	Jun 7 20:23	
	Jun 15 03:05	Jun 21 18:28	Jun 29 07:16	Jul 7 11:31	
	Jul 14 10:28	Jul 21 01:52	Jul 28 22:11	Aug 5 23:57	
	Aug 12 17:39 T	Aug 19 11:55	Aug 27 14:08 n	Sep 4 10:03	
	Sep 11 01:27	Sep 18 01:30	Sep 26 06:11	Oct 3 18:31	
	Oct 10 10:37	Oct 17 18:55	Oct 25 21:31	Nov 2 02:09	
	Nov 8 21:49	Nov 16 15:26	Nov 24 11:43	Dec 1 09:46	
	Dec 8 11:41	Dec 16 13:08	Dec 24 00:49	Dec 30 18:11	

## Phases of the Moon: 2046 to 2050

### Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2046			Jan 22 12:51 p	Jan 29 04:11	00h01m
	Jan 7 04:24	Jan 15 09:42	Feb 20 23:44	Feb 27 16:23	
	Feb 5 23:10 A	Feb 14 03:20	Mar 22 09:27	Mar 29 06:57	
	Mar 7 18:15	Mar 15 17:13	Apr 20 18:21	Apr 27 23:30	
	Apr 6 11:52	Apr 14 03:21	May 20 03:15	May 27 17:06	
	May 6 02:56	May 13 10:25	Jun 18 13:10	Jun 26 10:40	
	Jun 4 15:22	Jun 11 15:27	Jul 18 00:55 p	Jul 26 03:19	
	Jul 4 01:39	Jul 10 19:53	Aug 16 14:50	Aug 24 18:36	
	Aug 2 10:25 T	Aug 9 01:15	Sep 15 06:39	Sep 23 08:16	
	Aug 31 18:25	Sep 7 09:07	Oct 14 23:41	Oct 22 20:07	
	Sep 30 02:25	Oct 6 20:41	Nov 13 17:04	Nov 21 06:10	
	Oct 29 11:17	Nov 5 12:28	Dec 13 09:55	Dec 20 14:43	
	Nov 27 21:50	Dec 5 07:56			
	Dec 27 10:39				

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2047		Jan 4 05:31	Jan 12 01:21 t	Jan 18 22:32	00h02m
	Jan 26 01:44 P	Feb 3 03:09	Feb 10 14:40	Feb 17 06:42	
	Feb 24 18:26	Mar 4 22:52	Mar 12 01:37	Mar 18 16:11	
	Mar 26 11:44	Apr 3 15:11	Apr 10 10:35	Apr 17 03:30	
	Apr 25 04:40	May 3 03:26	May 9 18:24	May 16 16:46	
	May 24 20:27	Jun 1 11:54	Jun 8 02:05	Jun 15 07:45	
	Jun 23 10:36 P	Jun 30 17:37	Jul 7 10:33 t	Jul 15 00:09	
	Jul 22 22:49 P	Jul 29 22:03	Aug 5 20:38	Aug 13 17:34	
	Aug 21 09:16	Aug 28 02:49	Sep 4 08:54	Sep 12 11:18	
	Sep 19 18:31	Sep 26 09:29	Oct 3 23:42	Oct 12 04:22	
	Oct 19 03:28	Oct 25 19:13	Nov 2 16:58	Nov 10 19:39	
	Nov 17 12:59	Nov 24 08:41	Dec 2 11:55	Dec 10 08:29	
	Dec 16 23:38 P	Dec 24 01:51			

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2048			Jan 1 06:57 t	Jan 8 18:49	00h02m
	Jan 15 11:32	Jan 22 21:56	Jan 31 00:14	Feb 7 03:16	
	Feb 14 00:31	Feb 21 19:22	Feb 29 14:38	Mar 7 10:45	
	Mar 14 14:28	Mar 22 16:03	Mar 30 02:04	Apr 5 18:10	
	Apr 13 05:20	Apr 21 10:02	Apr 28 11:13	May 5 02:22	
	May 12 20:58	May 21 00:16	May 27 18:57	Jun 3 12:05	
	Jun 11 12:50 A	Jun 19 10:49	Jun 26 02:08 p	Jul 2 23:58	
	Jul 11 04:04	Jul 18 18:31	Jul 25 09:34	Aug 1 14:30	
	Aug 9 17:59	Aug 17 00:32	Aug 23 18:07	Aug 31 07:42	

Sep 8	06:24	Sep 15	06:04	Sep 22	04:46	Sep 30	02:45
Oct 7	17:45	Oct 14	12:20	Oct 21	18:25	Oct 29	22:15
Nov 6	04:38	Nov 12	20:29	Nov 20	11:20	Nov 28	16:34
Dec 5	15:30 T	Dec 12	07:29	Dec 20	06:39 n	Dec 28	08:31

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2049	Jan 4 02:24	Jan 10 21:56	Jan 19 02:29	Jan 26 21:33	00h02m
	Feb 2 13:16	Feb 9 15:38	Feb 17 20:47	Feb 25 07:36	
	Mar 4 00:11	Mar 11 11:26	Mar 19 12:23	Mar 26 15:10	
	Apr 2 11:39	Apr 10 07:27	Apr 18 01:04	Apr 24 21:11	
	May 2 00:11	May 10 01:57	May 17 11:13 n	May 24 02:54	
	May 31 14:00 A	Jun 8 17:56	Jun 15 19:26 n	Jun 22 09:41	
	Jun 30 04:50	Jul 8 07:10	Jul 15 02:29	Jul 21 18:48	
	Jul 29 20:07	Aug 6 17:52	Aug 13 09:19	Aug 20 07:10	
	Aug 28 11:18	Sep 5 02:28	Sep 11 17:04	Sep 18 23:03	
	Sep 27 02:05	Oct 4 09:39	Oct 11 02:53	Oct 18 17:55	
	Oct 26 16:15	Nov 2 16:19	Nov 9 15:38 n	Nov 17 14:32	
	Nov 25 05:35 H	Dec 1 23:39	Dec 9 07:28	Dec 17 11:15	
	Dec 24 17:51	Dec 31 08:53			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2050			Jan 8 01:39	Jan 16 06:17	00h02m
	Jan 23 04:57	Jan 29 20:48	Feb 6 20:47	Feb 14 22:10	
	Feb 21 15:03	Feb 28 11:29	Mar 8 15:23	Mar 16 10:08	
	Mar 23 00:41	Mar 30 04:17	Apr 7 08:12	Apr 14 18:24	
	Apr 21 10:25	Apr 28 22:08	May 6 22:26 t	May 14 00:04	
	May 20 20:51 H	May 28 16:04	Jun 5 09:51	Jun 12 04:39	
	Jun 19 08:22	Jun 27 09:17	Jul 4 18:51	Jul 11 09:46	
	Jul 18 21:17	Jul 27 01:05	Aug 3 02:20	Aug 9 16:48	
	Aug 17 11:47	Aug 25 14:56	Sep 1 09:30	Sep 8 02:51	
	Sep 16 03:49	Sep 24 02:34	Sep 30 17:31	Oct 7 16:32	
	Oct 15 20:48	Oct 23 12:10	Oct 30 03:16 t	Nov 6 09:57	
	Nov 14 13:41 P	Nov 21 20:25	Nov 28 15:09	Dec 6 06:27	
	Dec 14 05:18	Dec 21 04:15	Dec 28 05:15		

## Phases of the Moon: 2051 to 2055 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2051				Jan 5 04:29	00h02m
	Jan 12 18:58	Jan 19 12:38	Jan 26 21:20	Feb 4 01:40	
	Feb 11 06:41	Feb 17 22:16	Feb 25 14:53	Mar 5 19:47	
	Mar 12 16:52	Mar 19 09:34	Mar 27 09:00	Apr 4 09:41	
	Apr 11 01:59 P	Apr 17 22:38	Apr 26 02:19 t	May 3 19:30	
	May 10 10:29	May 17 13:29	May 25 17:35	Jun 2 02:15	
	Jun 8 18:56	Jun 16 05:55	Jun 24 06:14	Jul 1 07:15	
	Jul 8 04:09	Jul 15 23:21	Jul 23 16:36	Jul 30 11:52	
	Aug 6 15:05	Aug 14 16:49	Aug 22 01:35	Aug 28 17:29	
	Sep 5 04:33	Sep 13 09:20	Sep 20 10:11	Sep 27 01:22	
	Oct 4 20:47 P	Oct 13 00:12	Oct 19 19:13 t	Oct 26 12:39	
	Nov 3 14:59	Nov 11 13:07	Nov 18 05:06	Nov 25 04:02	
	Dec 3 09:37	Dec 11 00:07	Dec 17 16:05	Dec 24 23:21	

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2052					00h02m
	Jan 2 03:05	Jan 9 09:27	Jan 16 04:24	Jan 23 21:03	
	Jan 31 18:30	Feb 7 17:35	Feb 14 18:21	Feb 22 18:44	
	Mar 1 07:36	Mar 8 01:17	Mar 15 09:54	Mar 23 14:09	
	Mar 30 18:27 T	Apr 6 09:28	Apr 14 02:29 n	Apr 22 06:03	
	Apr 29 03:20	May 5 19:05	May 13 19:00	May 21 18:15	
	May 28 10:50	Jun 4 06:49	Jun 12 10:27	Jun 20 03:10	
	Jun 26 17:50	Jul 3 20:59	Jul 12 00:23	Jul 19 09:37	

Jul 26	01:31	Aug 2	13:20	Aug 10	12:52	Aug 17	14:43
Aug 24	11:07	Sep 1	07:10	Sep 9	00:15	Sep 15	19:48
Sep 22	23:32 A	Oct 1	01:36	Oct 8	10:54 p	Oct 15	02:22
Oct 22	15:03	Oct 30	19:39	Nov 6	21:09	Nov 13	11:50
Nov 21	09:02	Nov 29	12:16	Dec 6	07:18	Dec 13	01:07
Dec 21	04:15	Dec 29	02:28				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$					
2053					00h02m					
	Jan 19	23:12	Jan 27	13:41	Jan 4	17:46	Jan 11	18:09		
	Feb 18	16:31	Feb 25	22:09	Feb 3	04:57	Feb 10	13:49		
	Mar 20	07:11 A	Mar 27	04:50	Mar 4	17:09 n	Mar 12	10:21		
	Apr 18	18:48	Apr 25	11:02	Apr 3	06:22	Apr 11	06:04		
	May 18	03:43	May 24	18:04	May 2	20:25	May 10	23:40		
	Jun 16	10:51	Jun 23	02:55	Jun 1	11:02	Jun 9	14:19		
	Jul 15	17:26	Jul 22	14:16	Jul 1	02:01	Jul 9	01:47		
	Aug 14	00:41	Aug 21	04:27	Jul 30	17:06	Aug 7	10:25		
	Sep 12	09:36 T	Sep 19	21:29	Aug 29	07:53 n	Sep 5	17:05		
	Oct 11	20:53	Oct 19	16:54	Sep 27	21:50	Oct 4	23:01		
	Nov 10	10:55	Nov 18	13:26	Oct 27	10:38	Nov 3	05:37		
	Dec 10	03:40	Dec 18	09:11	Nov 25	22:21	Dec 2	14:04		
					Dec 25	09:23				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$					
2054					00h02m					
	Jan 8	22:34	Jan 17	02:14	Jan 23	20:08	Jan 1	01:11		
	Feb 7	18:14	Feb 15	15:36	Jan 30	15:08	Jan 30	15:08		
	Mar 9	12:46 P	Mar 17	01:21	Feb 22	06:46 t	Mar 1	07:36		
	Apr 8	04:32	Apr 15	08:23	Mar 23	17:21	Mar 31	01:50		
	May 7	17:00	May 14	13:57	Apr 22	04:02	Apr 29	20:46		
	Jun 6	02:40	Jun 12	19:17	May 21	15:16	May 29	15:03		
	Jul 5	10:34	Jul 12	01:36	Jun 20	03:42	Jun 28	07:30		
	Aug 3	17:48 P	Aug 10	10:05	Jul 19	17:47	Jul 27	21:28		
	Sep 2	01:18 P	Sep 8	21:46	Aug 18	09:22 t	Aug 26	08:56		
	Oct 1	09:49	Oct 8	13:19	Sep 17	01:41	Sep 24	18:26		
	Oct 30	20:01	Nov 7	08:34	Oct 16	17:44	Oct 24	02:39		
	Nov 29	08:33	Dec 7	06:07	Nov 15	08:49	Nov 22	10:22		
	Dec 28	23:52			Dec 14	22:41	Dec 21	18:22		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$					
2055					00h02m					
	Jan 27	17:39 P	Jan 6	03:39	Jan 13	11:21	Jan 20	03:24		
	Feb 26	12:39	Feb 4	22:59	Feb 11	22:48 t	Feb 18	14:14		
	Mar 28	07:01	Mar 6	14:48	Mar 13	08:57	Mar 20	03:18		
	Apr 26	23:17	Apr 5	02:43	Apr 11	17:58	Apr 18	18:35		
	May 26	12:57	May 4	11:10	May 11	02:31	May 18	11:30		
	Jun 25	00:15	Jun 2	17:01	Jun 9	11:36	Jun 17	05:02		
	Jul 24	09:48 T	Jul 1	21:31	Jul 8	22:11	Jul 16	22:15		
	Aug 22	18:14	Jul 31	02:11	Aug 7	10:57 p	Aug 15	14:26		
	Sep 21	02:19	Aug 29	08:35	Sep 6	01:56	Sep 14	05:14		
	Oct 20	10:49	Sep 27	18:11	Oct 5	18:38	Oct 13	18:22		
	Nov 18	20:34	Oct 27	07:53	Nov 4	12:12	Nov 12	05:38		
	Dec 18	08:15	Nov 26	01:42	Dec 4	05:40	Dec 11	15:05		
			Dec 25	22:29						

## Phases of the Moon: 2056 to 2060 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$					
2056					00h02m					
	Jan 16	22:10 A	Jan 24	20:21	Jan 2	22:05	Jan 9	23:13		
	Feb 15	14:00	Feb 23	17:11	Feb 1	12:36 n	Feb 8	07:01		
	Mar 16	06:52	Mar 24	11:17	Mar 2	00:40	Mar 8	15:31		
					Mar 31	10:25	Apr 7	01:33		

Apr 14	23:50	Apr 23	01:33	Apr 29	18:31	May 6	13:30
May 14	16:06	May 22	11:50	May 29	01:58	Jun 5	03:21
Jun 13	07:04	Jun 20	18:48	Jun 27	09:47 n	Jul 4	18:55
Jul 12	20:20 A	Jul 19	23:45	Jul 26	18:54 n	Aug 3	11:52
Aug 11	07:48	Aug 18	04:13	Aug 25	06:00	Sep 2	05:43
Sep 9	17:47	Sep 16	09:50	Sep 23	19:34	Oct 1	23:33
Oct 9	03:00	Oct 15	17:58	Oct 23	11:46	Oct 31	16:12
Nov 7	12:20	Nov 14	05:33	Nov 22	06:12	Nov 30	06:37
Dec 6	22:31	Dec 13	20:54	Dec 22	01:34 n	Dec 29	18:22

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2057	Jan 5 09:49 T	Jan 12 15:34	Jan 20 20:01	Jan 28 03:44	00h02m
	Feb 3 22:10	Feb 11 12:25	Feb 19 11:56	Feb 26 11:30	
	Mar 5 11:25	Mar 13 09:35	Mar 21 00:45	Mar 27 18:39	
	Apr 4 01:31	Apr 12 04:59	Apr 19 10:49	Apr 26 02:06	
	May 3 16:32	May 11 21:06	May 18 19:02	May 25 10:40	
	Jun 2 08:11	Jun 10 09:30	Jun 17 02:18 p	Jun 23 21:08	
	Jul 1 23:47 A	Jul 9 18:37	Jul 16 09:28	Jul 23 10:09	
	Jul 31 14:32	Aug 8 01:30	Aug 14 17:21	Aug 22 02:02	
	Aug 30 03:54	Sep 6 07:18	Sep 13 02:53	Sep 20 20:25	
	Sep 28 16:00	Oct 5 13:13	Oct 12 15:01	Oct 20 16:09	
	Oct 28 03:19	Nov 3 20:24	Nov 11 06:24	Nov 19 11:31	
	Nov 26 14:22	Dec 3 05:54	Dec 11 00:46 p	Dec 19 05:02	
	Dec 26 01:22 T				

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2058	Jan 24 12:14	Jan 1 18:30	Jan 9 20:39	Jan 17 19:43	00h02m
	Feb 22 22:56	Jan 31 10:28	Feb 8 15:54	Feb 16 07:16	
	Mar 24 09:50	Mar 2 05:10	Mar 10 08:52	Mar 17 15:56	
	Apr 22 21:29	Apr 1 01:03	Apr 8 22:55	Apr 15 22:27	
	May 22 10:23 P	Apr 30 20:18	May 8 10:12	May 15 03:58	
	Jun 21 00:35 P	May 30 13:33	Jun 6 19:15 t	Jun 13 09:50	
	Jul 20 15:40	Jun 29 04:13	Jul 6 02:46	Jul 12 17:28	
	Aug 19 07:03	Jul 28 16:19	Aug 4 09:37	Aug 11 04:00	
	Sep 17 22:17	Aug 27 02:10	Sep 2 16:51	Sep 9 18:07	
	Oct 17 13:05	Sep 25 10:14	Oct 2 01:36	Oct 9 11:41	
	Nov 16 03:09 P	Oct 24 17:16	Oct 31 12:54	Nov 8 07:47	
	Dec 15 16:12	Nov 23 00:16	Nov 30 03:17 t	Dec 8 04:51	
		Dec 22 08:27	Dec 29 20:25		

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2059	Jan 14 03:57	Jan 20 18:51	Jan 28 15:11	Jan 7 01:06	00h02m
	Feb 12 14:27	Feb 19 07:57	Feb 27 10:06	Feb 5 18:49	
	Mar 14 00:05	Mar 20 23:30	Mar 29 03:47	Mar 7 08:47	
	Apr 12 09:28	Apr 19 16:37	Apr 27 19:17	Apr 5 18:46	
	May 11 19:15 T	May 19 10:22	May 27 08:04 p	May 5 01:29	
	Jun 10 05:57	Jun 18 03:55	Jun 25 18:12	Jun 3 06:20	
	Jul 9 17:58	Jul 17 20:34	Jul 25 02:24	Jul 2 10:53	
	Aug 8 07:37	Aug 16 11:40	Aug 23 09:42	Jul 31 16:43	
	Sep 6 23:01	Sep 15 00:44	Aug 30 01:05	Aug 28 12:54	
	Oct 6 15:50	Oct 14 11:38	Sep 21 17:18	Sep 28 12:54	
	Nov 5 09:11 A	Oct 21 02:15	Oct 28 04:31	Oct 28 04:31	
	Dec 5 01:49	Nov 12 20:45	Nov 19 13:09 p	Nov 26 23:42	
		Dec 12 04:50	Dec 19 02:11	Dec 26 21:17	

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2060	Jan 3 16:40	Jan 10 12:52	Jan 17 17:14	Jan 25 19:14	00h02m
	Feb 2 05:22	Feb 8 21:41	Feb 16 09:56	Feb 24 15:06	
	Mar 2 16:11	Mar 9 07:52	Mar 17 03:41	Mar 25 07:08	
	Apr 1 01:37	Mar 27 19:42	Apr 15 21:21 n	Apr 23 18:53	
	Apr 30 10:11 T	May 7 09:19	May 15 13:39	May 23 03:01	
	May 29 18:23	Jun 6 00:44	Jun 14 03:37	Jun 21 08:44	
	Jun 28 02:58	Jul 5 17:38	Jul 13 15:08	Jul 20 13:24	



Jul 27	12:49	Aug 4	11:16	Aug 12	00:51	Aug 18	18:23
Aug 26	00:56	Sep 3	04:36	Sep 10	09:44	Sep 17	01:00
Sep 24	15:53	Oct 2	20:41	Oct 9	18:41 n	Oct 16	10:30
Oct 24	09:25 A	Nov 1	10:56	Nov 8	04:17 n	Nov 14	23:48
Nov 23	04:16	Nov 30	23:11	Dec 7	14:48	Dec 14	17:15
Dec 22	22:39	Dec 30	09:29				

## Phases of the Moon: 2061 to 2065 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2061			Jan 6 02:24	Jan 13 13:57	00h02m
	Jan 21 15:16	Jan 28 18:10	Feb 4 15:22	Feb 12 11:52	
	Feb 20 05:31	Feb 27 01:51	Mar 6 05:54	Mar 14 08:31	
	Mar 21 17:23	Mar 28 09:26	Apr 4 21:47 t	Apr 13 02:10	
	Apr 20 03:04 T	Apr 26 17:55	May 4 14:13	May 12 16:10	
	May 19 11:03	May 26 04:12	Jun 3 06:09	Jun 11 02:42	
	Jun 17 18:03	Jun 24 16:54	Jul 2 20:52	Jul 10 10:23	
	Jul 17 01:10	Jul 24 08:05	Aug 1 10:11	Aug 8 16:09	
	Aug 15 09:39	Aug 23 01:18	Aug 30 22:18	Sep 6 21:12	
	Sep 13 20:37	Sep 21 19:44	Sep 29 09:32 t	Oct 6 02:57	
	Oct 13 10:41 A	Oct 21 14:24	Oct 28 20:12	Nov 4 10:53	
	Nov 12 03:40	Nov 20 08:11	Nov 27 06:32	Dec 3 22:12	
	Dec 11 22:32	Dec 19 23:58	Dec 26 16:53		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2062				Jan 2 13:21	00h02m
	Jan 10 17:52	Jan 18 12:51	Jan 25 03:37	Feb 1 07:43	
	Feb 9 12:11	Feb 16 22:38	Feb 23 15:08	Mar 3 03:49	
	Mar 11 04:13 P	Mar 18 05:58	Mar 25 03:35 t	Apr 1 23:55	
	Apr 9 17:17	Apr 16 12:03	Apr 23 16:57	May 1 18:33	
	May 9 03:22	May 15 18:17	May 23 07:03	May 31 10:44	
	Jun 7 11:12	Jun 14 01:53	Jun 21 21:43	Jun 29 23:54	
	Jul 6 17:53	Jul 13 11:43	Jul 21 12:47	Jul 29 10:04	
	Aug 5 00:40	Aug 12 00:21	Aug 20 03:55	Aug 27 17:49	
	Sep 3 08:42 P	Sep 10 15:59	Sep 18 18:36 t	Sep 26 00:11	
	Oct 2 18:49	Oct 10 10:27	Oct 18 08:18	Oct 25 06:28	
	Nov 1 07:32	Nov 9 06:50	Nov 16 20:48	Nov 23 13:58	
	Nov 30 23:01	Dec 9 03:28	Dec 16 08:17	Dec 22 23:40	
	Dec 30 16:57				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2063		Jan 7 22:16	Jan 14 19:11	Jan 21 12:05	00h02m
	Jan 29 12:23	Feb 6 13:37	Feb 13 05:48	Feb 20 03:07	
	Feb 28 07:38 A	Mar 8 01:06	Mar 14 16:14 p	Mar 21 20:16	
	Mar 30 00:50	Apr 6 09:18	Apr 13 02:34	Apr 20 14:42	
	Apr 28 14:52	May 5 15:20	May 12 13:11	May 20 09:16	
	May 28 01:47	Jun 3 20:28	Jun 11 00:43	Jun 19 02:43	
	Jun 26 10:25	Jul 3 02:01	Jul 10 13:48	Jul 18 18:05	
	Jul 25 17:55	Aug 1 09:09	Aug 9 04:40	Aug 17 07:01	
	Aug 24 01:17 T	Aug 30 19:04	Sep 7 20:53 n	Sep 15 17:44	
	Sep 22 09:21	Sep 29 08:39	Oct 7 13:27	Oct 15 02:49	
	Oct 21 18:46	Oct 29 02:13	Nov 6 05:22	Nov 13 10:56	
	Nov 20 06:09	Nov 27 22:59	Dec 5 20:06	Dec 12 18:49	
	Dec 19 20:04	Dec 27 20:57			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2064			Jan 4 09:31	Jan 11 03:14	00h02m
	Jan 18 12:37	Jan 26 17:42	Feb 2 21:37 p	Feb 9 12:55	
	Feb 17 07:03 A	Feb 25 11:23	Mar 3 08:19	Mar 10 00:33	
	Mar 18 01:45	Mar 26 01:13	Apr 1 17:40	Apr 8 14:25	

Apr 16	19:02	Apr 24	11:17	May 1	02:08	May 8	06:16
May 16	09:55	May 23	18:15	May 30	10:36	Jun 6	23:23
Jun 14	22:20	Jun 21	23:13	Jun 28	20:08	Jul 6	16:48
Jul 14	08:46	Jul 21	03:35	Jul 28	07:40 p	Aug 5	09:41
Aug 12	17:49 T	Aug 19	08:55	Aug 26	21:35	Sep 4	01:29
Sep 11	02:11	Sep 17	16:45	Sep 25	13:38	Oct 3	15:50
Oct 10	10:34	Oct 17	04:22	Oct 25	07:06	Nov 2	04:24
Nov 8	19:45	Nov 15	20:14	Nov 24	00:58	Dec 1	15:00
Dec 8	06:28	Dec 15	15:45	Dec 23	18:14	Dec 30	23:50

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2065	Jan 6 19:15	Jan 14 13:19	Jan 22 09:53 t	Jan 29 07:38	00h02m
	Feb 5 10:02 P	Feb 13 10:50	Feb 20 23:11	Feb 27 15:29	
	Mar 7 02:15	Mar 15 06:25	Mar 22 09:56	Mar 29 00:24	
	Apr 5 19:01	Apr 13 22:38	Apr 20 18:36	Apr 27 11:02	
	May 5 11:30	May 13 10:52	May 20 02:05	May 26 23:38	
	Jun 4 03:05	Jun 11 19:25	Jun 18 09:28	Jun 25 14:08	
	Jul 3 17:16 P	Jul 11 01:16	Jul 17 17:45 t	Jul 25 06:22	
	Aug 2 05:46 P	Aug 9 05:52	Aug 16 03:45	Aug 23 23:56	
	Aug 31 16:39	Sep 7 10:49	Sep 14 16:05	Sep 22 18:09	
	Sep 30 02:24	Oct 6 17:37	Oct 14 07:04	Oct 22 11:53	
	Oct 29 11:48	Nov 5 03:26	Nov 13 00:37	Nov 21 03:51	
	Nov 27 21:40	Dec 4 16:54	Dec 12 19:52	Dec 20 17:12	
	Dec 27 08:27 P				

## Phases of the Moon: 2066 to 2070 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2066		Jan 3 09:56	Jan 11 15:07 t	Jan 19 03:48	00h02m
	Jan 25 20:14	Feb 2 05:44	Feb 10 08:29	Feb 17 12:14	
	Feb 24 08:50	Mar 4 02:48	Mar 11 22:48	Mar 18 19:25	
	Mar 25 22:13	Apr 2 23:09	Apr 10 10:03	Apr 17 02:23	
	Apr 24 12:29	May 2 16:57	May 9 18:58	May 16 10:01	
	May 24 03:38	Jun 1 07:13	Jun 8 02:31	Jun 14 19:10	
	Jun 22 19:15 A	Jun 30 17:59	Jul 7 09:34 p	Jul 14 06:38	
	Jul 22 10:34	Jul 30 02:01	Aug 5 16:59	Aug 12 20:59	
	Aug 21 00:50	Aug 28 08:25	Sep 4 01:37	Sep 11 14:16	
	Sep 19 13:47	Sep 26 14:19	Oct 3 12:25	Oct 11 09:43	
	Oct 19 01:42	Oct 25 20:52	Nov 2 02:13	Nov 10 05:45	
	Nov 17 13:06	Nov 24 05:10	Dec 1 19:16	Dec 10 00:38	
	Dec 17 00:17 T	Dec 23 16:07	Dec 31 14:41 n		

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2067				Jan 8 17:01	00h02m
	Jan 15 11:17	Jan 22 06:17	Jan 30 10:29	Feb 7 06:14	
	Feb 13 21:57	Feb 20 23:30	Mar 1 04:42	Mar 8 16:16	
	Mar 15 08:29	Mar 22 18:44	Mar 30 20:08	Apr 6 23:37	
	Apr 13 19:23	Apr 21 14:15	Apr 29 08:40	May 6 05:19	
	May 13 07:20	May 21 08:29	May 28 18:42 n	Jun 4 10:38	
	Jun 11 20:41 A	Jun 20 00:28	Jun 27 02:52 n	Jul 3 17:02	
	Jul 11 11:16	Jul 19 13:59	Jul 26 09:58	Aug 2 01:51	
	Aug 10 02:36	Aug 18 01:09	Aug 24 16:57	Aug 31 14:04	
	Sep 8 18:09	Sep 16 10:20	Sep 23 00:54	Sep 30 06:01	
	Oct 8 09:28	Oct 15 18:03	Oct 22 10:56	Oct 30 01:08	
	Nov 7 00:14	Nov 14 01:07	Nov 20 23:50 n	Nov 28 22:06	
	Dec 6 14:05 A	Dec 13 08:38	Dec 20 15:41	Dec 28 19:10	

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2068	Jan 5 02:38	Jan 11 17:47	Jan 19 09:45	Jan 27 14:27	00h02m
	Feb 3 13:44	Feb 10 05:20	Feb 18 04:38	Feb 26 06:25	

Mar 3	23:38	Mar 10	19:26	Mar 18	22:56	Mar 26	18:20
Apr 2	08:51	Apr 9	11:33	Apr 17	15:29	Apr 25	02:30
May 1	18:07	May 9	04:47	May 17	05:35 p	May 24	08:00
May 31	04:03 H	Jun 7	22:20	Jun 15	17:00	Jun 22	12:25
Jun 29	15:11	Jul 7	15:31	Jul 15	02:07	Jul 21	17:22
Jul 29	03:55	Aug 6	07:38	Aug 13	09:51	Aug 20	00:16
Aug 27	18:28	Sep 4	22:04	Sep 11	17:19	Sep 18	10:16
Sep 26	10:48	Oct 4	10:23	Oct 11	01:39	Oct 18	00:00
Oct 26	04:17	Nov 2	20:38	Nov 9	11:40 t	Nov 16	17:33
Nov 24	21:42 P	Dec 2	05:21	Dec 8	23:42	Dec 16	14:11
Dec 24	13:44	Dec 31	13:23				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2069			Jan 7 13:43	Jan 15 12:16	00h02m
	Jan 23 03:36	Jan 29 21:39	Feb 6 05:29	Feb 14 09:27	
	Feb 21 15:17	Feb 28 06:54	Mar 7 22:35	Mar 16 03:31	
	Mar 23 01:13	Mar 29 17:34	Apr 6 16:13	Apr 14 17:21	
	Apr 21 09:58 P	Apr 28 05:56	May 6 09:11 t	May 14 03:10	
	May 20 18:06 P	May 27 20:09	Jun 5 00:19	Jun 12 09:56	
	Jun 19 02:14	Jun 26 12:10	Jul 4 13:05	Jul 11 14:59	
	Jul 18 11:13	Jul 26 05:30	Aug 2 23:44	Aug 9 19:41	
	Aug 16 22:03	Aug 24 23:17	Sep 1 09:06	Sep 8 01:22	
	Sep 15 11:35	Sep 23 16:23	Sep 30 18:09	Oct 7 09:20	
	Oct 15 04:03 P	Oct 23 07:57	Oct 30 03:35 t	Nov 5 20:40	
	Nov 13 22:38	Nov 21 21:31	Nov 28 13:46	Dec 5 12:03	
	Dec 13 17:38	Dec 21 09:00	Dec 28 00:50		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2070				Jan 4 07:16	00h02m
	Jan 12 11:22	Jan 19 18:31	Jan 26 12:59	Feb 3 04:46	
	Feb 11 02:52	Feb 18 02:33	Feb 25 02:31	Mar 5 02:11	
	Mar 12 15:52	Mar 19 09:53	Mar 26 17:31	Apr 3 21:23	
	Apr 11 02:30 T	Apr 17 17:32	Apr 25 09:31 n	May 3 13:11	
	May 10 11:08	May 17 02:30	May 25 01:37	Jun 2 01:26	
	Jun 8 18:24	Jun 15 13:40	Jun 23 16:57	Jul 1 10:33	
	Jul 8 01:14	Jul 15 03:26	Jul 23 07:02	Jul 30 17:17	
	Aug 6 08:51	Aug 13 19:40	Aug 21 19:54	Aug 28 22:41	
	Sep 4 18:29	Sep 12 13:44	Sep 20 07:47	Sep 27 04:02	
	Oct 4 07:01 A	Oct 12 08:40	Oct 19 18:59 p	Oct 26 10:47	
	Nov 2 22:42	Nov 11 03:20	Nov 18 05:40	Nov 24 20:20	
	Dec 2 16:53	Dec 10 20:32	Dec 17 16:05	Dec 24 09:31	

## Phases of the Moon: 2071 to 2075 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2071					00h02m
	Jan 1 12:15	Jan 9 11:08	Jan 16 02:35	Jan 23 02:16	
	Jan 31 07:16	Feb 7 22:30	Feb 14 13:33	Feb 21 21:29	
	Mar 2 00:31	Mar 9 06:53	Mar 16 01:18 n	Mar 23 17:32	
	Mar 31 15:03 A	Apr 7 13:17	Apr 14 13:56	Apr 22 12:52	
	Apr 30 02:30	May 6 19:05	May 14 03:24	May 22 06:18	
	May 29 11:17	Jun 5 01:38	Jun 12 17:36	Jun 20 21:04	
	Jun 27 18:21	Jul 4 10:02	Jul 12 08:25	Jul 20 08:52	
	Jul 27 00:56	Aug 2 21:04	Aug 10 23:39	Aug 18 17:57	
	Aug 25 08:16	Sep 1 11:10	Sep 9 14:51 n	Sep 17 01:07	
	Sep 23 17:21 T	Oct 1 04:21	Oct 9 05:23	Oct 16 07:30	
	Oct 23 04:49	Oct 31 00:07	Nov 7 18:47	Nov 14 14:24	
	Nov 21 18:59	Nov 29 21:06	Dec 7 06:57	Dec 13 22:57	
	Dec 21 11:47	Dec 29 17:16			

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2072			Jan 5 18:13	Jan 12 09:54	00h02m
	Jan 20 06:35	Jan 28 10:36	Feb 4 04:55	Feb 10 23:27	
	Feb 19 02:03	Feb 27 00:02	Mar 4 15:17 t	Mar 11 15:18	
	Mar 19 20:21 P	Mar 27 09:43	Apr 3 01:25	Apr 10 08:53	
	Apr 18 11:57	Apr 25 16:35	May 2 11:34	May 10 03:17	
	May 18 00:18	May 24 21:53	May 31 22:18	Jun 8 21:20	
	Jun 16 09:57	Jun 23 02:57	Jun 30 10:21	Jul 8 13:53	
	Jul 15 17:56	Jul 22 09:02	Jul 30 00:17	Aug 7 04:15	
	Aug 14 01:21	Aug 20 17:20	Aug 28 15:59 t	Sep 5 16:19	
	Sep 12 09:07 T	Sep 19 04:58	Sep 27 08:43	Oct 5 02:28	
	Oct 11 17:55	Oct 18 20:37	Oct 27 01:21	Nov 3 11:16	
	Nov 10 04:21	Nov 17 16:03	Nov 25 16:59	Dec 2 19:22	
	Dec 9 16:59	Dec 17 13:50	Dec 25 07:15		

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2073				Jan 1 03:27	00h02m
	Jan 8 08:11	Jan 16 11:33	Jan 23 20:05	Jan 30 12:18	
	Feb 7 01:40 P	Feb 15 06:57	Feb 22 07:26 t	Feb 28 22:40	
	Mar 8 20:15	Mar 16 22:44	Mar 23 17:17	Mar 30 11:04	
	Apr 7 14:14	Apr 15 10:36	Apr 22 01:54	Apr 29 01:38	
	May 7 06:15	May 14 18:59	May 21 10:02	May 28 17:57	
	Jun 5 19:51	Jun 13 00:47	Jun 19 18:44	Jun 27 11:12	
	Jul 5 07:16	Jul 12 05:16	Jul 19 05:04	Jul 27 04:29	
	Aug 3 17:04 T	Aug 10 09:54	Aug 17 17:45 t	Aug 25 21:05	
	Sep 2 01:52	Sep 8 16:19	Sep 16 08:52	Sep 24 12:32	
	Oct 1 10:21	Oct 8 01:56	Oct 16 01:54	Oct 24 02:22	
	Oct 30 19:13	Nov 6 15:42	Nov 14 19:55	Nov 22 14:15	
	Nov 29 05:12	Dec 6 09:33	Dec 14 13:49	Dec 22 00:06	
	Dec 28 16:55				

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2074		Jan 5 06:18	Jan 13 06:31	Jan 20 08:20	00h02m
	Jan 27 06:37 A	Feb 4 04:02	Feb 11 21:05 n	Feb 18 15:55	
	Feb 25 22:00	Mar 6 00:43	Mar 13 09:01	Mar 19 23:58	
	Mar 27 14:19	Apr 4 18:40	Apr 11 18:30	Apr 18 09:22	
	Apr 26 06:47	May 4 08:53	May 11 02:17	May 17 20:39	
	May 25 22:44	Jun 2 19:14	Jun 9 09:27	Jun 16 09:57	
	Jun 24 13:38	Jul 2 02:22	Jul 8 17:05 n	Jul 16 01:11	
	Jul 24 03:07 A	Jul 31 07:30	Aug 7 02:06 n	Aug 14 18:10	
	Aug 22 14:59	Aug 29 12:12	Sep 5 13:13	Sep 13 12:21	
	Sep 21 01:28	Sep 27 17:59	Oct 5 02:55	Oct 13 06:47	
	Oct 20 11:11	Oct 27 02:15	Nov 3 19:21	Nov 12 00:07	
	Nov 18 20:56	Nov 25 13:52	Dec 3 14:03	Dec 11 15:08	
	Dec 18 07:20	Dec 25 05:07			

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2075			Jan 2 09:39 n	Jan 10 03:14	00h02m
	Jan 16 18:37 T	Jan 23 23:32	Feb 1 04:13	Feb 8 12:41	
	Feb 15 06:40	Feb 22 20:00	Mar 2 20:06	Mar 9 20:17	
	Mar 16 19:25	Mar 24 16:45	Apr 1 08:45	Apr 8 03:03	
	Apr 15 08:55	Apr 23 11:53	Apr 30 18:37	May 7 09:59	
	May 14 23:22	May 23 03:57	May 30 02:38	Jun 5 18:00	
	Jun 13 14:39	Jun 21 16:29	Jun 28 09:46 p	Jul 5 04:00	
	Jul 13 06:11 A	Jul 21 01:55	Jul 27 16:54	Aug 3 16:43	
	Aug 11 21:10	Aug 19 09:12	Aug 26 00:51	Sep 2 08:34	
	Sep 10 11:02	Sep 17 15:25	Sep 24 10:31	Oct 2 03:13	
	Oct 9 23:43	Oct 16 21:42	Oct 23 22:49	Oct 31 23:26	
	Nov 8 11:35	Nov 15 05:06	Nov 22 14:20	Nov 30 19:22	
	Dec 7 23:03	Dec 14 14:37	Dec 22 08:48 p	Dec 30 13:20	

# Phases of the Moon: 2076 to 2080

## Universal Time (UT)

Year	New Moon		First Quarter		Full Moon		Last Quarter		$\Delta T$
2076	Jan	6 10:14 T	Jan	13 03:02	Jan	21 04:39	Jan	29 04:17	00h02m
	Feb	4 21:01	Feb	11 18:35	Feb	19 23:49	Feb	27 15:54	
	Mar	5 07:24	Mar	12 12:41	Mar	20 16:37	Mar	28 00:26	
	Apr	3 17:47	Apr	11 07:59	Apr	19 06:29	Apr	26 06:41	
	May	3 04:51	May	11 02:50	May	18 17:38	May	25 11:51	
	Jun	1 17:14 P	Jun	9 19:58	Jun	17 02:38 t	Jun	23 17:21	
	Jul	1 07:04 P	Jul	9 10:49	Jul	16 10:12	Jul	23 00:40	
	Jul	30 22:05	Aug	7 23:21	Aug	14 17:11	Aug	21 11:00	
	Aug	29 13:43	Sep	6 09:46	Sep	13 00:38	Sep	20 01:06	
	Sep	28 05:27	Oct	5 18:26	Oct	12 09:37	Oct	19 18:51	
	Oct	27 20:50	Nov	4 01:58	Nov	10 21:07	Nov	18 15:15	
	Nov	26 11:28 P	Dec	3 09:15	Dec	10 11:35 t	Dec	18 12:39	
Dec	26 00:53								

Year	New Moon		First Quarter		Full Moon		Last Quarter		$\Delta T$
2077			Jan	1 17:27	Jan	9 04:37	Jan	17 09:09	00h03m
	Jan	24 12:45	Jan	31 03:35	Feb	7 23:08	Feb	16 02:58	
	Feb	22 23:07	Mar	1 16:11	Mar	9 17:42	Mar	17 16:56	
	Mar	24 08:24	Mar	31 07:02	Apr	8 11:05	Apr	16 02:50	
	Apr	22 17:20	Apr	29 23:28	May	8 02:23	May	15 09:26	
	May	22 02:38 T	May	29 16:43	Jun	6 15:07 p	Jun	13 14:08	
	Jun	20 12:55	Jun	28 10:05	Jul	6 01:22	Jul	12 18:33	
	Jul	20 00:41	Jul	28 02:55	Aug	4 09:46	Aug	11 00:16	
	Aug	18 14:17	Aug	26 18:31	Sep	2 17:23	Sep	9 08:36	
	Sep	17 05:53	Sep	25 08:15	Oct	2 01:20	Oct	8 20:26	
	Oct	16 23:07	Oct	24 19:51	Oct	31 10:36	Nov	7 12:09	
	Nov	15 17:00 A	Nov	23 05:31	Nov	29 21:43 p	Dec	7 07:25	
Dec	15 10:06	Dec	22 13:56	Dec	29 10:45				

Year	New Moon		First Quarter		Full Moon		Last Quarter		$\Delta T$
2078							Jan	6 05:04	00h03m
	Jan	14 01:14	Jan	20 21:59	Jan	28 01:33	Feb	5 03:00	
	Feb	12 13:59	Feb	19 06:31	Feb	26 17:50	Mar	6 22:47	
	Mar	14 00:37	Mar	20 16:10	Mar	28 11:04	Apr	5 14:45	
	Apr	12 09:45	Apr	19 03:19	Apr	27 04:19 n	May	5 02:29	
	May	11 17:56 T	May	18 16:15	May	26 20:23	Jun	3 10:38	
	Jun	10 01:49	Jun	17 07:08	Jun	25 10:22	Jul	2 16:25	
	Jul	9 10:08	Jul	16 23:48	Jul	24 22:07	Jul	31 21:11	
	Aug	7 19:52	Aug	15 17:34	Aug	23 08:11	Aug	30 02:16	
	Sep	6 07:59	Sep	14 11:22	Sep	21 17:31	Sep	28 09:00	
	Oct	5 23:06	Oct	14 04:07	Oct	21 02:55 n	Oct	27 18:34	
	Nov	4 16:56 A	Nov	12 19:04	Nov	19 12:52 n	Nov	26 07:54	
Dec	4 12:08	Dec	12 07:52	Dec	18 23:34	Dec	26 01:16		

Year	New Moon		First Quarter		Full Moon		Last Quarter		$\Delta T$
2079	Jan	3 06:50	Jan	10 18:29	Jan	17 11:06	Jan	24 21:46	00h03m
	Feb	1 23:35	Feb	9 03:11	Feb	15 23:45	Feb	23 19:23	
	Mar	3 13:49	Mar	10 10:37	Mar	17 13:45	Mar	25 15:46	
	Apr	2 01:30	Apr	8 17:44	Apr	16 05:02 p	Apr	24 09:15	
	May	1 10:57 T	May	8 01:37	May	15 20:58	May	23 23:15	
	May	30 18:41	Jun	6 11:18	Jun	14 12:39	Jun	22 09:56	
	Jun	29 01:31	Jul	5 23:31	Jul	14 03:24	Jul	21 17:54	
	Jul	28 08:33	Aug	4 14:28	Aug	12 17:00	Aug	20 00:00	
	Aug	26 17:02	Sep	3 07:46	Sep	11 05:36	Sep	18 05:22	
	Sep	25 04:06	Oct	3 02:35	Oct	10 17:23 t	Oct	17 11:22	
	Oct	24 18:19 A	Nov	1 21:49	Nov	9 04:34	Nov	15 19:26	
	Nov	23 11:29	Dec	1 16:13	Dec	8 15:16	Dec	15 06:43	

Dec 23 06:31      Dec 31 08:29

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2080			Jan 7 01:45	Jan 13 21:40	00h03m
	Jan 22 01:55	Jan 29 21:37	Feb 5 12:21	Feb 12 15:37	
	Feb 20 20:11	Feb 28 07:24	Mar 5 23:29	Mar 13 11:12	
	Mar 21 12:06 P	Mar 28 14:32	Apr 4 11:24 t	Apr 12 06:49	
	Apr 20 01:00	Apr 26 20:16	May 4 00:10	May 12 01:11	
	May 19 10:56	May 26 02:03	Jun 2 13:45	Jun 10 17:20	
	Jun 17 18:40	Jun 24 09:12	Jul 2 04:09	Jul 10 06:45	
	Jul 17 01:21	Jul 23 18:40	Jul 31 19:13	Aug 8 17:21	
	Aug 15 08:13	Aug 22 07:07	Aug 30 10:41	Sep 7 01:37	
	Sep 13 16:25 P	Sep 20 22:48	Sep 29 01:54 t	Oct 6 08:30	
	Oct 13 02:44	Oct 20 17:32	Oct 28 16:13	Nov 4 15:10	
	Nov 11 15:37	Nov 19 14:20	Nov 27 05:14	Dec 3 22:52	
	Dec 11 07:10	Dec 19 11:23	Dec 26 17:03		

## Phases of the Moon: 2081 to 2085 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2081				Jan 2 08:32	00h03m
	Jan 10 01:02	Jan 18 06:29	Jan 25 04:01	Jan 31 20:37	
	Feb 8 20:17	Feb 16 21:59	Feb 23 14:27	Mar 2 11:06	
	Mar 10 15:16 A	Mar 18 09:27	Mar 25 00:29 p	Apr 1 03:35	
	Apr 9 08:15	Apr 16 17:31	Apr 23 10:20	Apr 30 21:24	
	May 8 22:09	May 15 23:21	May 22 20:26	May 30 15:35	
	Jun 7 09:01	Jun 14 04:16	Jun 21 07:32	Jun 29 09:00	
	Jul 6 17:44	Jul 13 09:34	Jul 20 20:22	Jul 29 00:39	
	Aug 5 01:24	Aug 11 16:32	Aug 19 11:15	Aug 27 14:08	
	Sep 3 09:01 T	Sep 10 02:21	Sep 18 03:45 n	Sep 26 01:30	
	Oct 2 17:23	Oct 9 15:58	Oct 17 20:50	Oct 25 11:13	
	Nov 1 03:04	Nov 8 09:40	Nov 16 13:19	Nov 23 19:49	
	Nov 30 14:36	Dec 8 06:38	Dec 16 04:31	Dec 23 03:55	
	Dec 30 04:28				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2082		Jan 7 04:45	Jan 14 18:11	Jan 21 12:15	00h03m
	Jan 28 20:46	Feb 6 01:34	Feb 13 06:16 p	Feb 19 21:35	
	Feb 27 14:48 A	Mar 7 19:15	Mar 14 16:45	Mar 21 08:37	
	Mar 29 09:05	Apr 6 09:02	Apr 13 01:45	Apr 19 21:46	
	Apr 28 02:02	May 5 19:04	May 12 09:49	May 19 12:58	
	May 27 16:47	Jun 4 02:01	Jun 10 17:55	Jun 18 05:39	
	Jun 26 05:16	Jul 3 06:59	Jul 10 03:10	Jul 17 22:58	
	Jul 25 15:54	Aug 1 11:21	Aug 8 14:33 n	Aug 16 16:07	
	Aug 24 01:18 T	Aug 30 16:42	Sep 7 04:30	Sep 15 08:29	
	Sep 22 10:04	Sep 29 00:34	Oct 6 20:48	Oct 14 23:32	
	Oct 21 18:50	Oct 28 12:13	Nov 5 14:38	Nov 13 12:46	
	Nov 20 04:19	Nov 27 04:07	Dec 5 08:57	Dec 12 23:51	
	Dec 19 15:11	Dec 26 23:37			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2083			Jan 4 02:32	Jan 11 08:55	00h03m
	Jan 18 03:50	Jan 25 21:03	Feb 2 18:20 t	Feb 9 16:39	
	Feb 16 18:15 P	Feb 24 18:24	Mar 4 07:34	Mar 11 00:10	
	Mar 18 09:56	Mar 26 13:47	Apr 2 18:07	Apr 9 08:31	
	Apr 17 02:09	Apr 25 05:54	May 2 02:29	May 8 18:30	
	May 16 18:14	May 24 18:11	May 31 09:42	Jun 7 06:29	
	Jun 15 09:37	Jun 23 02:52	Jun 29 16:51	Jul 6 20:33	
	Jul 14 23:54 P	Jul 22 08:56	Jul 29 01:00 t	Aug 5 12:38	
	Aug 13 12:45 P	Aug 20 13:46	Aug 27 11:00	Sep 4 06:24	

Sep 12	00:07	Sep 18	18:56	Sep 25	23:25	Oct 4	01:07
Oct 11	10:23	Oct 18	01:54	Oct 25	14:36	Nov 2	19:30
Nov 9	20:15	Nov 16	11:48	Nov 24	08:23	Dec 2	12:06
Dec 9	06:25	Dec 16	01:13	Dec 24	03:52		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2084				Jan 1 01:54	00h03m
	Jan 7 17:17 P	Jan 14 18:02	Jan 22 23:15 t	Jan 30 12:42	
	Feb 6 04:53	Feb 13 13:28	Feb 21 16:36	Feb 28 21:04	
	Mar 6 17:04	Mar 14 10:06	Mar 22 06:48	Mar 29 03:58	
	Apr 5 05:52	Apr 13 06:05	Apr 20 17:52	Apr 27 10:29	
	May 4 19:32	May 12 23:43	May 20 02:36	May 26 17:35	
	Jun 3 10:13	Jun 11 14:03	Jun 18 10:00	Jun 25 02:15	
	Jul 3 01:38 A	Jul 11 01:06	Jul 17 17:01 p	Jul 24 13:22	
	Aug 1 17:04	Aug 9 09:32	Aug 16 00:29	Aug 23 03:34	
	Aug 31 07:45	Sep 7 16:23	Sep 14 09:15	Sep 21 20:59	
	Sep 29 21:16	Oct 6 22:42	Oct 13 20:12	Oct 21 16:49	
	Oct 29 09:47	Nov 5 05:33	Nov 12 10:10	Nov 20 13:23	
	Nov 27 21:39	Dec 4 13:57	Dec 12 03:19	Dec 20 08:44	
	Dec 27 09:07 T				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2085		Jan 3 00:47	Jan 10 22:42 n	Jan 19 01:26	00h03m
	Jan 25 20:06	Feb 1 14:36	Feb 9 18:24	Feb 17 14:47	
	Feb 24 06:32	Mar 3 07:16	Mar 11 12:26	Mar 19 00:45	
	Mar 25 16:37	Apr 2 01:51	Apr 10 03:41	Apr 17 07:54	
	Apr 24 02:59	May 1 20:52	May 9 16:04	May 16 13:18	
	May 23 14:23	May 31 14:51	Jun 8 02:02 n	Jun 14 18:19	
	Jun 22 03:18 A	Jun 30 06:55	Jul 7 10:14 n	Jul 14 00:24	
	Jul 21 17:43	Jul 29 20:47	Aug 5 17:29	Aug 12 09:00	
	Aug 20 09:10	Aug 28 08:30	Sep 4 00:41	Sep 10 21:07	
	Sep 19 01:07	Sep 26 18:18	Oct 3 08:53	Oct 10 13:09	
	Oct 18 17:00	Oct 26 02:34	Nov 1 19:08	Nov 9 08:31	
	Nov 17 08:20	Nov 24 10:02	Dec 1 08:10 n	Dec 9 05:47	
	Dec 16 22:38 A	Dec 23 17:42	Dec 30 23:59		

## Phases of the Moon: 2086 to 2090 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2086				Jan 8 03:06	00h03m
	Jan 15 11:24	Jan 22 02:41	Jan 29 17:49	Feb 6 22:30	
	Feb 13 22:27	Feb 20 13:48	Feb 28 12:21	Mar 8 14:30	
	Mar 15 08:04	Mar 22 03:16	Mar 30 06:17	Apr 7 02:22	
	Apr 13 16:53	Apr 20 18:40	Apr 28 22:35	May 6 10:26	
	May 13 01:41	May 20 11:19	May 28 12:35 p	Jun 4 15:51	
	Jun 11 11:12 T	Jun 19 04:33	Jun 27 00:04	Jul 3 20:10	
	Jul 10 22:02	Jul 18 21:45	Jul 26 09:24	Aug 2 01:01	
	Aug 9 10:38	Aug 17 14:14	Aug 24 17:25	Aug 31 07:52	
	Sep 8 01:17	Sep 16 05:17	Sep 23 01:15	Sep 29 17:52	
	Oct 7 17:56	Oct 15 18:18	Oct 22 09:56	Oct 29 07:40	
	Nov 6 11:53	Nov 14 05:11	Nov 20 20:12 p	Nov 28 01:17	
	Dec 6 05:48 P	Dec 13 14:20	Dec 20 08:19	Dec 27 21:58	

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2087				Jan 26 20:01	00h03m
	Jan 4 22:11	Jan 11 22:31	Jan 18 22:11	Jan 26 20:01	
	Feb 3 12:10	Feb 10 06:38	Feb 17 13:34	Feb 25 17:06	
	Mar 4 23:45	Mar 11 15:26	Mar 19 06:09	Mar 27 11:04	
	Apr 3 09:26	Apr 10 01:29	Apr 17 23:17	Apr 26 00:51	
	May 2 17:51 P	May 9 13:09	May 17 15:55 t	May 25 10:41	
	Jun 1 01:38 P	Jun 8 02:45	Jun 16 06:58	Jun 23 17:33	

Jun 30	09:31	Jul 7	18:24	Jul 15	19:54	Jul 22	22:43
Jul 29	18:20	Aug 6	11:43	Aug 14	06:54	Aug 21	03:34
Aug 28	05:08	Sep 5	05:49	Sep 12	16:43	Sep 19	09:23
Sep 26	18:47	Oct 4	23:32	Oct 12	02:14	Oct 18	17:27
Oct 26	11:29 P	Nov 3	15:48	Nov 10	12:05 t	Nov 17	04:51
Nov 25	06:23	Dec 3	06:01	Dec 9	22:31	Dec 16	20:11
Dec 25	01:42						

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2088		Jan 1 17:54	Jan 8 09:37	Jan 15 15:13	00h03m
	Jan 23 19:38	Jan 31 03:33	Feb 6 21:33	Feb 14 12:24	
	Feb 22 11:09	Feb 29 11:26	Mar 7 10:36	Mar 15 09:29	
	Mar 23 00:00	Mar 29 18:23	Apr 6 00:59	Apr 14 04:26	
	Apr 21 10:25 T	Apr 28 01:29	May 5 16:25 p	May 13 20:09	
	May 20 18:49	May 27 09:51	Jun 4 08:08	Jun 12 08:30	
	Jun 19 01:54	Jun 25 20:29	Jul 3 23:22	Jul 11 17:52	
	Jul 18 08:38	Jul 25 09:54	Aug 2 13:39	Aug 10 00:57	
	Aug 16 16:15	Aug 24 02:05	Sep 1 02:57	Sep 8 06:43	
	Sep 15 01:58	Sep 22 20:25	Sep 30 15:25	Oct 7 12:24	
	Oct 14 14:39 A	Oct 22 15:51	Oct 30 03:10 p	Nov 5 19:22	
	Nov 13 06:32	Nov 21 11:08	Nov 28 14:18	Dec 5 04:58	
	Dec 13 00:52	Dec 21 04:52	Dec 28 00:57		

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2089		Jan 19 19:47	Jan 26 11:25	Jan 3 18:00	00h03m
	Jan 11 20:17	Feb 18 07:15	Feb 24 22:05	Feb 2 10:23	
	Feb 10 15:16	Mar 19 15:30	Mar 26 09:20 n	Mar 4 05:05	
	Mar 12 08:24	Apr 17 21:37	Apr 24 21:22	Apr 3 00:36	
	Apr 10 22:45 A	May 17 03:01	May 24 10:18	May 2 19:31	
	May 10 22:03	Jun 15 09:09	Jun 23 00:07	Jun 1 12:49	
	Jun 8 18:44	Jul 14 17:11	Jul 22 14:50	Jul 1 03:43	
	Jul 8 01:47	Aug 13 03:58	Aug 21 06:16	Jul 30 15:55	
	Aug 6 08:28	Sep 11 18:01	Sep 19 21:55 n	Aug 29 01:32	
	Sep 4 15:58	Oct 11 11:22	Oct 19 13:04	Sep 27 09:15	
	Oct 4 01:15 T	Nov 10 07:28	Nov 18 03:02	Oct 26 16:06	
	Nov 2 12:55	Dec 10 04:52	Dec 17 15:37	Nov 24 23:18	
	Dec 2 03:11			Dec 24 07:55	
	Dec 31 19:57				

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2090		Jan 9 01:21	Jan 16 03:02	Jan 22 18:38	00h03m
	Jan 30 14:34	Feb 7 18:52	Feb 14 13:39	Feb 21 07:42	
	Mar 1 09:46	Mar 9 08:20	Mar 15 23:42 t	Mar 22 22:55	
	Mar 31 03:48 P	Apr 7 17:56	Apr 14 09:22	Apr 21 15:50	
	Apr 29 19:12	May 7 00:38	May 13 19:01	May 21 09:43	
	May 29 07:29	Jun 5 05:45	Jun 12 05:18	Jun 20 03:33	
	Jun 27 17:11	Jul 4 10:37	Jul 11 17:02	Jul 19 20:16	
	Jul 27 01:19	Aug 2 16:31	Aug 10 06:51	Aug 18 11:05	
	Aug 25 08:58	Sep 1 00:44	Sep 8 22:44 t	Sep 16 23:48	
	Sep 23 17:03 T	Sep 30 12:21	Oct 8 15:54	Oct 16 10:36	
	Oct 23 02:09	Oct 30 04:04	Nov 7 09:05	Nov 14 19:58	
	Nov 21 12:48	Nov 28 23:40	Dec 7 01:14	Dec 14 04:25	
	Dec 21 01:29	Dec 28 21:36			

## Phases of the Moon: 2091 to 2095 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	ΔT
2091		Jan 27 19:23	Jan 5 15:50	Jan 12 12:34	00h03m
	Jan 19 16:31	Feb 26 14:47	Feb 4 04:46	Feb 10 21:11	
	Feb 18 09:38 P		Mar 5 15:59 t	Mar 12 07:02	



Mar 20	03:45	Mar 28	06:31	Apr 4	01:31	Apr 10	18:45
Apr 18	21:20	Apr 26	18:20	May 3	09:46	May 10	08:36
May 18	13:07	May 26	02:42	Jun 1	17:31	Jun 9	00:22
Jun 17	02:41	Jun 24	08:31	Jul 1	01:54	Jul 8	17:21
Jul 16	14:15	Jul 23	13:02	Jul 30	12:01	Aug 7	10:44
Aug 15	00:22 T	Aug 21	17:43	Aug 29	00:39 t	Sep 6	03:47
Sep 13	09:34	Sep 20	00:10	Sep 27	15:56	Oct 5	19:53
Oct 12	18:29	Oct 19	09:50	Oct 27	09:18	Nov 4	10:27
Nov 11	03:42	Nov 17	23:38	Nov 26	03:43	Dec 3	22:55
Dec 10	13:54	Dec 17	17:29	Dec 25	21:59		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2092				Jan 2 09:07	00h03m
	Jan 9 01:37	Jan 16 14:08	Jan 24 14:55	Jan 31 17:25	
	Feb 7 15:03 A	Feb 15 11:40	Feb 23 05:29 n	Mar 1 00:46	
	Mar 8 05:56	Mar 16 08:07	Mar 23 17:15	Mar 30 08:21	
	Apr 6 21:41	Apr 15 01:54	Apr 22 02:29	Apr 28 17:08	
	May 6 13:39	May 14 16:06	May 21 10:00	May 28 03:46	
	Jun 5 05:17	Jun 13 02:33	Jun 19 16:56	Jun 26 16:32	
	Jul 4 20:10	Jul 12 09:54	Jul 19 00:24 n	Jul 26 07:31	
	Aug 3 09:54 A	Aug 10 15:18	Aug 17 09:22 n	Aug 25 00:32	
	Sep 1 22:14	Sep 8 20:15	Sep 15 20:33	Sep 23 19:05	
	Oct 1 09:15	Oct 8 02:16	Oct 15 10:25	Oct 23 14:07	
	Oct 30 19:28	Nov 6 10:40	Nov 14 03:04	Nov 22 08:07	
	Nov 29 05:36	Dec 5 22:18	Dec 13 21:59	Dec 21 23:39	
	Dec 28 16:10				

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2093		Jan 4 13:22	Jan 12 17:43 n	Jan 20 12:03	00h03m
	Jan 27 03:22 T	Feb 3 07:27	Feb 11 12:18	Feb 18 21:32	
	Feb 25 15:05	Mar 5 03:27	Mar 13 04:06	Mar 20 04:57	
	Mar 27 03:18	Apr 3 23:46	Apr 11 16:35	Apr 18 11:20	
	Apr 25 16:12	May 3 18:37	May 11 02:17	May 17 17:47	
	May 25 06:07	Jun 2 10:39	Jun 9 10:09	Jun 16 01:19	
	Jun 23 21:04	Jul 1 23:24	Jul 8 17:14 p	Jul 15 10:54	
	Jul 23 12:36 A	Jul 31 09:13	Aug 7 00:23	Aug 13 23:23	
	Aug 22 03:53	Aug 29 16:58	Sep 5 08:28	Sep 12 15:15	
	Sep 20 18:16	Sep 27 23:39	Oct 4 18:18	Oct 12 10:10	
	Oct 20 07:33	Oct 27 06:18	Nov 3 06:46	Nov 11 06:50	
	Nov 18 19:57	Nov 25 13:54	Dec 2 22:24	Dec 11 03:15	
	Dec 18 07:47	Dec 24 23:25			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2094			Jan 1 16:51 p	Jan 9 21:36	00h03m
	Jan 16 19:05 T	Jan 23 11:34	Jan 31 12:36	Feb 8 12:45	
	Feb 15 05:43	Feb 22 02:36	Mar 2 07:35	Mar 10 00:22	
	Mar 16 15:44	Mar 23 20:05	Apr 1 00:11	Apr 8 08:46	
	Apr 15 01:37	Apr 22 14:48	Apr 30 13:54	May 7 14:47	
	May 14 12:09	May 22 09:15	May 30 00:58	Jun 5 19:41	
	Jun 13 00:03 P	Jun 21 02:19	Jun 28 09:58 t	Jul 5 00:54	
	Jul 12 13:36 P	Jul 20 17:25	Jul 27 17:39	Aug 3 07:58	
	Aug 11 04:36	Aug 19 06:26	Aug 26 00:51	Sep 1 18:09	
	Sep 9 20:31	Sep 17 17:28	Sep 24 08:33	Oct 1 08:15	
	Oct 9 12:44	Oct 17 02:45	Oct 23 17:47	Oct 31 02:09	
	Nov 8 04:42	Nov 15 10:45	Nov 22 05:27	Nov 29 22:48	
	Dec 7 19:50 P	Dec 14 18:17	Dec 21 19:56 t	Dec 29 20:27	

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2095	Jan 6 09:33	Jan 13 02:28	Jan 20 12:48	Jan 28 17:07	00h03m
	Feb 4 21:28	Feb 11 12:17	Feb 19 06:59	Feb 27 10:58	
	Mar 6 07:39	Mar 13 00:18	Mar 21 01:10	Mar 29 00:54	
	Apr 4 16:36	Apr 11 14:27	Apr 19 18:14	Apr 27 10:45	
	May 4 01:06	May 11 06:14	May 19 09:21	May 26 17:17	

Jun 2	09:58	T	Jun 9	23:02	Jun 17	22:05	p	Jun 24	21:55
Jul 1	19:54		Jul 9	16:15	Jul 17	08:31		Jul 24	02:17
Jul 31	07:29		Aug 8	09:19	Aug 15	17:13		Aug 22	07:57
Aug 29	21:05		Sep 7	01:26	Sep 14	01:11		Sep 20	16:15
Sep 28	12:54		Oct 6	15:52	Oct 13	09:30		Oct 20	04:08
Oct 28	06:32		Nov 5	04:09	Nov 11	19:05		Nov 18	19:55
Nov 27	00:54	A	Dec 4	14:21	Dec 11	06:21	p	Dec 18	15:14
Dec 26	18:24								

## Phases of the Moon: 2096 to 2100 Universal Time (UT)

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2096		Jan 2 23:02	Jan 9 19:20	Jan 17 12:50	00h03m
	Jan 25 09:45	Feb 1 07:03	Feb 8 09:50	Feb 16 10:39	
	Feb 23 22:28	Mar 1 15:16	Mar 9 01:37	Mar 17 06:18	
	Mar 24 08:54	Mar 31 00:21	Apr 7 18:18	Apr 15 22:10	
	Apr 22 17:43	Apr 29 10:49	May 7 11:06	May 15 09:54	
	May 22 01:35	May 28 23:07	Jun 6 02:58	Jun 13 18:09	
	Jun 20 09:12	Jun 27 13:31	Jul 5 17:02	Jul 13 00:05	
	Jul 19 17:20	Jul 27 05:59	Aug 4 05:05	Aug 11 05:01	
	Aug 18 03:00	Aug 25 23:56	Sep 2 15:36	Sep 9 10:17	
	Sep 16 15:10	Sep 24 18:14	Oct 2 01:24	Oct 8 17:09	
	Oct 16 06:28	Oct 24 11:40	Oct 31 11:16	Nov 7 02:48	
	Nov 15 00:36	Nov 23 03:18	Nov 29 21:34	Dec 6 16:07	
	Dec 14 20:05	Dec 22 16:36	Dec 29 08:23		

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2097				Jan 5 09:20	00h03m
	Jan 13 15:00	Jan 21 03:27	Jan 27 19:47	Feb 4 05:32	
	Feb 12 07:49	Feb 19 12:07	Feb 26 08:02	Mar 6 02:47	
	Mar 13 21:56	Mar 20 19:16	Mar 27 21:28	Apr 4 22:50	
	Apr 12 09:26	Apr 19 01:54	Apr 26 12:09	May 4 16:09	
	May 11 18:40	May 18 09:14	May 26 03:36	Jun 3 06:11	
	Jun 10 02:13	Jun 16 18:22	Jun 24 19:03	Jul 2 17:05	
	Jul 9 08:58	Jul 16 06:10	Jul 24 09:54	Aug 1 01:24	
	Aug 7 16:00	Aug 14 20:56	Aug 22 23:52	Aug 30 07:54	
	Sep 6 00:33	Sep 13 14:22	Sep 21 13:00	Sep 28 13:39	
	Oct 5 11:45	Oct 13 09:35	Oct 21 01:23	Oct 27 19:56	
	Nov 4 02:08	Nov 12 05:22	Nov 19 13:03	Nov 26 04:07	
	Dec 3 19:26	Dec 12 00:19	Dec 19 00:04	Dec 25 15:20	

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2098					00h03m
	Jan 2 14:32	Jan 10 16:58	Jan 17 10:36	Jan 24 05:58	
	Feb 1 09:54	Feb 9 06:16	Feb 15 21:00	Feb 22 23:26	
	Mar 3 04:02	Mar 10 16:01	Mar 17 07:43	Mar 24 18:26	
	Apr 1 19:47	Apr 8 22:56	Apr 15 19:04	Apr 23 13:33	
	May 1 08:32	May 8 04:21	May 15 07:16	May 23 07:39	
	May 30 18:23	Jun 6 09:45	Jun 13 20:25	Jun 21 23:50	
	Jun 29 02:06	Jul 5 16:31	Jul 13 10:35	Jul 21 13:34	
	Jul 28 08:51	Aug 4 01:43	Aug 12 01:44	Aug 20 00:41	
	Aug 26 15:52	Sep 2 14:03	Sep 10 17:33	Sep 18 09:33	
	Sep 25 00:17	Oct 2 05:48	Oct 10 09:20	Oct 17 16:57	
	Oct 24 10:49	Nov 1 00:47	Nov 9 00:15	Nov 16 00:01	
	Nov 22 23:51	Nov 30 21:56	Dec 8 13:45	Dec 15 07:52	
	Dec 22 15:24	Dec 30 19:20			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2099			Jan 7 01:50	Jan 13 17:26	00h03m
	Jan 21 09:07	Jan 29 14:38	Feb 5 12:48	Feb 12 05:08	
	Feb 20 04:05	Feb 28 06:13	Mar 6 22:59	Mar 13 19:00	

Mar 21	22:46	A	Mar 29	17:38	Apr 5	08:37	p	Apr 12	10:47
Apr 20	15:30		Apr 28	01:36	May 4	17:58		May 12	04:00
May 20	05:16		May 27	07:16	Jun 3	03:37		Jun 10	21:49
Jun 18	16:10		Jun 25	12:00	Jul 2	14:21		Jul 10	15:13
Jul 18	01:01		Jul 24	17:09	Aug 1	02:59		Aug 9	07:14
Aug 16	08:54		Aug 23	00:01	Aug 30	17:56		Sep 7	21:18
Sep 14	16:50	T	Sep 21	09:48	Sep 29	10:45	n	Oct 7	09:21
Oct 14	01:32		Oct 20	23:27	Oct 29	04:20		Nov 5	19:42
Nov 12	11:29		Nov 19	17:17	Nov 27	21:22		Dec 5	04:46
Dec 11	23:09		Dec 19	14:22	Dec 27	12:58			

Year	New Moon	First Quarter	Full Moon	Last Quarter	$\Delta T$
2100				Jan 3 13:03	00h03m
	Jan 10 12:55	Jan 18 12:34	Jan 26 02:49	Feb 1 21:16	
	Feb 9 04:55	Feb 17 09:22	Feb 24 14:51 n	Mar 3 06:11	
	Mar 10 22:28 A	Mar 19 02:58	Mar 26 01:05	Apr 1 16:35	
	Apr 9 16:16	Apr 17 16:42	Apr 24 09:43	May 1 05:01	
	May 9 08:54	May 17 02:42	May 23 17:25	May 30 19:35	
	Jun 7 23:31	Jun 15 09:41	Jun 22 01:11	Jun 29 11:52	
	Jul 7 12:06	Jul 14 14:43	Jul 21 10:12	Jul 29 05:09	
	Aug 5 23:02	Aug 12 19:10	Aug 19 21:29 n	Aug 27 22:36	
	Sep 4 08:49 T	Sep 11 00:35	Sep 18 11:32	Sep 26 15:33	
	Oct 3 18:03	Oct 10 08:33	Oct 18 04:06	Oct 26 07:19	
	Nov 2 03:14	Nov 8 20:15	Nov 16 22:19	Nov 24 21:13	
	Dec 1 13:00	Dec 8 12:09	Dec 16 17:00	Dec 24 08:46	
	Dec 30 23:56				

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Algorithms used in predicting the phases of the Moon and eclipses are based on Jean Meeus' *Astronomical Algorithms* (Willmann-Bell, Inc., 1998). All calculations are by Fred Espenak, and he assumes full responsibility for their accuracy.

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