The Metonic Cycle Made Simple

All calendars require some form of intercalation. This means that in order to keep the calendar months aligned with the correct seasons, additional time must occasionally be added. In the modern Gregorian calendar used the world over, the extra time comes in the form of a "leap" day every fourth year when an extra day, February 29, is added. The exception to this rule is the rare occurrence of a century year that is not divisible by 400. Thus, 2000 was a leap year, but 1900, 1800, and 1700 were not. In those years, there were eight years between leap years. The only other century year that had a leap day was 1600. (Prior to that time, the Julian calendar was used that did not exclude certain century years from being leap years.)

<u>The Creator's calendar</u> also requires intercalation. This is done by the addition of an extra month, <u>a 13th month</u>, in an "embolismic" year. A strictly lunar calendar, such as that used by Muslims, floats backward through the year. Thus, Ramadan sometimes occurs in the fall, but a few years later in the summer, and a few years after that in the spring, and so forth. A luni-solar calendar, on the other hand, anchors the lunar months to some event within the solar year.

The Biblical calendar is luni-solar and begins with the first lunation after the vernal spring equinox. Because the lunar year is 11 days shorter than the solar year, it is sometimes necessary to add a 13th month to realign the lunar year with the solar year. When the 12th month (lunation) ends before the spring equinox has taken place, a 13th month is added. Years containing 13 months are called "embolismic years."

These embolismic years fall into a very predictable 19-year cycle. Meton, a Greek astronomer, is typically credited with being the first to discover this cycle. In actuality, he merely introduced to the West the astronomical principles discovered by Kidinnu (or Cidenas), a Babylonian astronomer from around the same time period.

There are seven embolismic years within the 19-year cycle. The pattern of common versus embolismic years is as follows. Embolismic years (years containing 13 months) are shown in red:

1 2 <u>3</u> 4 5 <u>6</u> 7 <u>8</u> 9 10 <u>11</u> 12 13 <u>14</u> 15 16 <u>17</u> 18 <u>19</u>

- There are never two embolismic years in a row.
- There are never more than two common years before there is another embolismic year.

Below is a chart illustrating the Metonic cycle from 1817 to 2044^{1} . It is very important to note that this chart is based on Cairo time (Cairo, Egypt = UTC +2)². The New Moon Day Gregorian dates listed here are specific to Cairo and will not necessarily be applicable to other locations. You will need to check conjunction times³ and dawn (astronomical twilight) times⁴ for your specific location to ascertain the Gregorian dates on which New Moon Day will fall in your area.

Note: The conjunction, itself, must occur after the vernal equinox⁵ in order to declare the following <u>New Moon</u> <u>Day</u> the first day of the year. When the conjunction following the 12th month (lunation) occurs before the vernal equinox, a 13th month is added.



¹ The decision to map the Metonic cycle specifically from 1817-2044 is completely arbitrary. The sole purpose of this chart is to establish the Metonic Cycle with certainty. Any group of years extensively mapped out will result in the same conclusion, confirming the constancy of the Metonic cycle, as well as our current position in the cycle. WLC is in no way suggesting that the world will end in 2044. *In fact, WLC is convinced that Yahushua will return much, much sooner*: The Second Coming | Revelation 17 Reveals It is Only a Few Years Away!

Few Years Away! 2 The decision to use Cairo here is arbitrary. The sole purpose of this chart is to establish the Metonic Cycle with certainty. We are currently (2012) in year 6. Year 7 will begin in the Spring of 2013.

³ http://aa.usno.navy.mil/data/docs/MoonPhase.php *

http://eclipse.gsfc.nasa.gov/phase/phasecat.html *

(Note: Conjunction is referred to as the astronomical "new moon".)

* On rare occasions, the calculated times reported by NASA and the USNO in the links above may vary slightly, i.e. by one minute. The table below is based primarily on data provided by the USNO.

⁴ <u>http://aa.usno.navy.mil/data/docs/RS_OneYear.php</u> (Important Note: A Biblical day begins a dawn - *astronomical twilight*, NOT sunrise. You will need to select "astronomical twilight" as the *type of table*.)

When looking up the dawn times for your area, DO NOT FORGET to take *daylight saving time* into consideration when applicable. UTC time is unchanging; it does not make allowances for daylight saving time.

http://www.timeanddate.com/worldclock/sunrise.html (Important Note: A Biblical day begins a dawn - astronomical twilight, NOT sunrise. You will need to select

"twilight/rise/set (sun)" in the *Columns* section after selecting your location.)

⁵ Time and Date of Vernal Equinox, <u>http://aom.giss.nasa.gov/srver4x3.html</u>

Click here to download this table in PDF format.

Year	Vernal Equinox (UTC)	Conjunction - March (UTC)	Conjunction - April (UTC)	New Moon Day	# of Months	Metonic Year
1817	3/20 22:26	Mar 17 21:19	Apr 16 14:27	April 17	<mark>12</mark>	1
1818	3/21 4:16	Mar 7 01:10	Apr 5 15:46	April 6	<mark>12</mark>	2
1819	3/21 10:05	Mar 25 23:29	Apr 24 11:46	March 26	<mark>13</mark>	3
1820	3/20 15:54	Mar 14 13:30	Apr 12 23:14	April 13	<mark>12</mark>	4
1821	3/20 21:43	Mar 4 05:50	Apr 2 15:14	April 3	<mark>12</mark>	5
1822	3/21 3:32	Mar 23 07:15	Apr 21 16:15	March 24	<mark>13</mark>	6
1823	3/21 9:22	Mar 12 18:43	Apr 11 06:49	April 12	<mark>12</mark>	7
1824	3/20 15:11	Mar 30 15:06	Apr 29 04:21	March 31	<mark>13</mark>	8
1825	3/20 21:00	Mar 19 16:30	Apr 18 09:19	April 19	<mark>12</mark>	9
1826	3/21 2:49	Mar 8 16:40	Apr 7 09:28	April 8	<mark>12</mark>	10
1827	3/21 8:38	Mar 27 12:07	Apr 26 03:00	March 28	<mark>13</mark>	11
1828	3/20 14:28	Mar 15 21:46	Apr 14 09:18	April 15	<mark>12</mark>	12
1829	3/20 20:17	Mar 5 12:48	Apr 3 22:24	April 4	<mark>12</mark>	13
1830	3/21 2:06	Mar 24 14:51	Apr 22 23:25	March 25	<mark>13</mark>	14
1831	3/21 7:55	Mar 14 05:59	Apr 12 16:01	April 13	<mark>12</mark>	15
1832	3/20 13:44	Mar 2 15:26	Apr 1 05:06	April 2	<mark>12</mark>	16
1833	3/20 19:34	Mar 21 11:07	Apr 20 01:46	March 22	<mark>13</mark>	17
1834	3/21 1:23	Mar 10 11:16	Apr 9 04:42	April 10	<mark>12</mark>	18
1835	3/21 7:12	Mar 29 04:41	Apr 27 21:20	March 30	<mark>13</mark>	19
Year	Vernal Equinox (UTC)	Conjunction - March (UTC)	Conjunction - April (UTC)	New Moon Day	# of Months	Metonic Year
1836	3/20 13:01	Mar 17 09:04	Apr 15 23:03	April 16	<mark>12</mark>	1
1837	3/20 18:50	Mar 6 20:29	Apr 5 07:20	April 6	<mark>12</mark>	2
1838	3/21 0:40	Mar 25 21:44	Apr 24 07:00	March 26	<mark>13</mark>	3
1839	3/21 6:29	Mar 15 14:13	Apr 13 23:17	April 14	<mark>12</mark>	4
1840	3/20 12:18	Mar 4 04:05	Apr 2 15:21	April 3	<mark>12</mark>	5
1841	3/20 18:07	Mar 23 02:36	Apr 21 14:32	March 23	<mark>13</mark>	6
1842	3/20 23:56	Mar 12 06:28	Apr 10 22:30	April 11	<mark>12</mark>	7
1843	3/21 5:46	Mar 30 23:48	Apr 29 16:18	March 31	<mark>13</mark>	8



1844	3/20 11:35	Mar 19 00:17	Apr 17 16:32	April 18	12	9
1845	3/20 17:24	Mar 8 06:36	Apr 6 19:40	April 7	12	10
1846	3/20 23:13	Mar 27 05:50	Apr 25 16:48	March 28	13	11
1847	3/21 5:02	Mar 16 21:11	Apr 15 06:22	April 16	12	12
1848	3/20 10:52	Mar 5 13:17	Apr 3 23:01	April 4	<mark>12</mark>	13
1849	3/20 16:41	Mar 24 14:06	Apr 22 23:54	March 25	<mark>13</mark>	14
1850	3/20 22:30	Mar 13 23:17	Apr 12 12:46	April 13	<mark>12</mark>	15
1851	3/21 4:19	Mar 3 01:15	Apr 1 18:32	April 2	<mark>12</mark>	16
1852	3/20 10:08	Mar 20 18:42	Apr 19 11:45	March 21	<mark>13</mark>	17
1853	3/20 15:58	Mar 9 20:18	Apr 8 11:57	April 9	<mark>12</mark>	18
1854	3/20 21:47	Mar 28 16:51	Apr 27 06:14	March 29	<mark>13</mark>	19
Year	Vernal Equinox (UTC)	Conjunction - March (UTC)	Conjunction - April (UTC)	New Moon Day	# of Months	Metonic Year
1855	3/21 3:36	Mar 18 04:45	Apr 16 15:05	April 17	12	1
1856	3/20 9:25	Mar 6 20:39	Apr 5 05:53	April 6	12	2
1857	3/20 15:14	Mar 25 22:29	Apr 24 07:14	March 26	13	3
1858	3/20 21:04	Mar 15 12:12	Apr 13 23:15	April 14	<mark>12</mark>	4
1859	3/21 2:53	Mar 4 19:11	Apr 3 10:17	April 4	<mark>12</mark>	5
1860	3/20 8:42	Mar 22 13:56	Apr 21 05:45	March 23	<mark>13</mark>	6
1861	3/20 14:31	Mar 11 13:37	Apr 10 06:56	April 11	<mark>12</mark>	7
1862	3/20 20:20	Mar 30 07:45	Apr 28 23:27	March 31	<mark>13</mark>	8
1863	3/21 2:10	Mar 19 14:37	Apr 18 03:05	April 19	<mark>12</mark>	9
1864	3/20 7:59	Mar 8 03:59	Apr 6 13:49	April 7	<mark>12</mark>	10
1865	3/20 13:48	Mar 27 05:28	Apr 25 14:13	March 28	13	11
1866	3/20 19:37	Mar 16 21:37	Apr 15 07:03	April 16	12	12
1867	3/21 1:26	Mar 6 09:38	Apr 4 22:04	April 5	12 13	13
1868 1869	3/20 7:16 3/20 13:05	Mar 24 06:59 Mar 13 08:47	Apr 22 20:20 Apr 12 01:48	March 25	13 12	14
1869	3/20 13:03	Mar 2 08:40	Apr 1 01:58	April 12 April 1	12	15 16
1870	3/21 0:43	Mar 21 04:01	Apr 19 19:04	March 22	13	10
1871	3/20 6:32	Mar 9 12:53	Apr 8 00:32	April 8	12	18
1873	3/20 12:22	Mar 28 12:54	Apr 26 22:42	March 29	13	19
Year	Vernal Equinox (UTC)	Conjunction - March (UTC)	Conjunction - April (UTC)	New Moon Day	# of Months	Metonic Year
1874	3/20 18:11	Mar 18 05:02	Apr 16 13:52	April 17	<mark>12</mark>	1
1875	3/21 0:00	Mar 7 20:20	Apr 6 06:36	April 7	12	2
1876	3/20 5:49	Mar 25 20:12	Apr 24 07:04	March 26	13	3
1877	3/20 11:38	Mar 15 02:54	Apr 13 17:50	April 14	<mark>12</mark>	4
1878	3/20 17:28	Mar 4 03:18	Apr 2 21:14	April 3	<mark>12</mark>	5
1879	3/20 23:17	Mar 22 21:05	Apr 21 13:56	March 23	<mark>13</mark>	6
1880	3/20 5:06	Mar 11 00:47	Apr 9 15:07	April 10	<mark>12</mark>	7
1881	3/20 10:55	Mar 29 22:32	Apr 28 10 25	March 30	<mark>13</mark>	8
1882	3/20 16:44	Mar 19 12:18	Apr 17 21:38	April 18	<mark>12</mark>	9
1883	3/20 22:34	Mar 9 04:31	Apr 7 13:36	April 8	<mark>12</mark>	10
1884	3/20 4:23	Mar 27 05:48	Apr 25 14:58	March 28	13	11
1885 1886	3/20 10:12	Mar 16 17:37	Apr 15 05:52	April 16	12	12
1 4000	3/20 16:01	Mar 5 22:04	Apr 4 14:31	April 5	<mark>12</mark>	13



1887	3/20 21:50	Mar 24 16:10	Apr 23 08:53	March 25	13	14
1887	3/20 3:40	Mar 12 16:21	Apr 11 09:08	April 12	12	14
1889	3/20 9:29	Mar 31 11:38	Apr 30 02:05	April 1	12	16
1890	3/20 15:18	Mar 20 21:01	Apr 19 08:06	March 21	13	10
1890	3/20 21:07	Mar 10 11:51	Apr 8 20:57	April 9	12	17
1891	3/20 2:56	Mar 28 13:18	Apr 26 21:47	March 29	13	19
1092			-	Ivial CIT 2.5	15	Metonic
Year	Vernal Equinox (UTC)	Conjunction - March (UTC)	Conjunction - April (UTC)	New Moon Day	# of Months	Year
1893	3/20 8:46	Mar 18 04:33	Apr 16 14:34	April 17	<mark>12</mark>	1
1894	3/20 14:35	Mar 7 14:18	Apr 6 04:00	April 7	<mark>12</mark>	2
1895	3/20 20:24	Mar 26 10:25	Apr 25 01:11	March 27	<mark>13</mark>	3
1896	3/20 2:13	Mar 14 10:48	Apr 13 04:23	April 14	<mark>12</mark>	4
1897	3/20 8:02	Mar 3 11:56	Apr 2 04:24	April 3	<mark>12</mark>	5
1898	3/20 13:52	Mar 22 08:37	Apr 20 22:21	March 23	<mark>13</mark>	6
1899	3/20 19:41	Mar 11 19:53	Apr 10 06:21	April 11	<mark>12</mark>	7
1900	3/21 1:30	Mar 30 20:30	Apr 29 05:23	March 31	<mark>13</mark>	8
1901	3/21 7:19	Mar 20 12:53	Apr 18 21:37	April 19	<mark>12</mark>	9
1902	3/21 13:08	Mar 10 02:50	Apr 8 13:50	April 9	<mark>12</mark>	10
1903	3/21 18:58	Mar 29 01:26	Apr 27 13:31	March 29	<mark>13</mark>	11
1904	3/21 0:47	Mar 17 05:39	Apr 15 21:53	April 16	<mark>12</mark>	12
1905	3/21 6:36	Mar 6 05:19	Apr 4 23:23	April 5	<mark>12</mark>	13
1906	3/21 12:25	Mar 24 23:52	Apr 23 16:06	March 25	<mark>13</mark>	14
1907	3/21 18:14	Mar 14 06:05	Apr 12 19:06	April 13	<mark>12</mark>	15
1908	3/21 0:04	Mar 2 18:57	Apr 1 05:02	April 2	<mark>12</mark>	16
1909	3/21 5:53	Mar 21 20:11	Apr 20 04:51	March 22	<mark>13</mark>	17
1910	3/21 11:42	Mar 11 12:12	Apr 9 21:25	April 10	<mark>12</mark>	18
1911	3/21 17:31	Mar 30 12:38	Apr 28 22:25	March 31	<mark>13</mark>	19
Year	Vernal Equinox	Conjunction - March	Conjunction - April	New Moon Day	# of Months	Metonic
1012	(UTC)	(UTC) Mar 18 22:08	(UTC)		4.2	Year
1912	3/20 23:20		Apr 17 11:40	April 18	12 12	1
1913	3/21 5:10 3/21 10:59		Apr 6 17:48	April 7	12 13	2
1914			Apr 25 11:21	March 27		3
1915	3/21 16:48	Mar 15 19:42	Apr 14 11:35	April 15	<mark>12</mark>	4
1916		Mar 1 02.57	$\pi n n (2) = 16 \cdot (2)^{-1}$	April 2	10	F
1017	3/20 22:37	Mar 4 03:57	Apr 2 16:21	April 3 March 24	12 12	5
1917	3/21 4:26	Mar 23 04:05	Apr 21 14:01	March 24	<mark>13</mark>	6
1918	3/21 4:26 3/21 10:16	Mar 23 04:05 Mar 12 19:52	Apr 21 14:01 Apr 11 04:34	March 24 April 12	<mark>13</mark> 12	6 7
1918 1919	3/21 4:26 3/21 10:16 3/21 16:05	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04	Apr 2114:01Apr 1104:34Apr 3005:30	March 24 April 12 April 1	13 12 13	6 7 8
1918 1919 1920	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43	March 24 April 12 April 1 April 21	13 12 13 12	6 7 8 9
1918 1919 1920 1921	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54 3/21 3:43	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55 Mar 9 18:09	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43Apr 809:05	March 24 April 12 April 1 April 21 April 9	13 12 13 12 12 12	6 7 8 9 10
1918 1919 1920 1921 1922	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54 3/21 3:43 3/21 9:32	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55 Mar 9 18:09 Mar 28 13:03	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43Apr 809:05Apr 2705:03	March 24 April 12 April 1 April 21 April 9 March 29	13 12 13 12 12 12 13 12 13	6 7 8 9 10 11
1918 1919 1920 1921 1922 1923	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54 3/21 3:43 3/21 9:32 3/21 15:22	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55 Mar 9 18:09 Mar 28 13:03 Mar 17 12:51	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43Apr 809:05Apr 2705:03Apr 1606:28	March 24 April 12 April 1 April 21 April 9 March 29 April 17	13 12 13 12 12 12 13 12 12	6 7 8 9 10 11 12
1918191919201921192219231924	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54 3/21 3:43 3/21 9:32 3/21 15:22 3/20 21:11	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55 Mar 9 18:09 Mar 28 13:03 Mar 17 12:51 Mar 5 15:58	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43Apr 809:05Apr 2705:03Apr 1606:28Apr 407:17	March 24 April 12 April 1 April 21 April 9 March 29 April 17 April 5	13 12 13 12 12 12 13 12 12 12 12	6 7 8 9 10 11 12 13
19181919192019211922192319241925	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54 3/21 3:43 3/21 9:32 3/21 15:22 3/20 21:11 3/21 3:00	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55 Mar 9 18:09 Mar 28 13:03 Mar 17 12:51 Mar 5 15:58 Mar 24 14:03	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43Apr 809:05Apr 2705:03Apr 1606:28Apr 2302:28	March 24 April 12 April 1 April 21 April 9 March 29 April 17 April 5 March 25	13 12 13 12 12 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13	6 7 8 9 10 11 12 13 14
191819191920192119221923192419251926	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54 3/21 3:43 3/21 9:32 3/21 15:22 3/20 21:11 3/21 3:00 3/21 8:49	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55 Mar 9 18:09 Mar 28 13:03 Mar 17 12:51 Mar 5 15:58 Mar 24 14:03 Mar 14 03:20	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43Apr 809:05Apr 2705:03Apr 1606:28Apr 407:17Apr 2302:28Apr 1212:56	March 24 April 12 April 1 April 21 April 9 March 29 April 17 April 5 March 25 April 13	13 12 13 12 12 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12	6 7 8 9 10 11 12 13 14 15
1918191919201921192219231924192519261927	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54 3/21 3:43 3/21 9:32 3/21 15:22 3/20 21:11 3/21 3:00 3/21 8:49 3/21 14:38	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55 Mar 9 18:09 Mar 28 13:03 Mar 17 12:51 Mar 5 15:58 Mar 24 14:03 Mar 14 03:20 Mar 3 19:25	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43Apr 809:05Apr 2705:03Apr 1606:28Apr 407:17Apr 2302:28Apr 1212:56Apr 204:24	March 24 April 12 April 1 April 21 April 9 March 29 April 17 April 5 March 25 April 13 April 3	13 12 13 12 12 12 13 12 13 12 13 12 13 12 12 12 12 12 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 14 15 16 17 18 19 11 12 13 14 15 16 17 18 19	6 7 8 9 10 11 12 13 14 15 16
191819191920192119221923192419251926	3/21 4:26 3/21 10:16 3/21 16:05 3/20 21:54 3/21 3:43 3/21 9:32 3/21 15:22 3/20 21:11 3/21 3:00 3/21 8:49	Mar 23 04:05 Mar 12 19:52 Mar 31 21:04 Mar 20 10:55 Mar 9 18:09 Mar 28 13:03 Mar 17 12:51 Mar 5 15:58 Mar 24 14:03 Mar 14 03:20	Apr 2114:01Apr 1104:34Apr 3005:30Apr 1821:43Apr 809:05Apr 2705:03Apr 1606:28Apr 407:17Apr 2302:28Apr 1212:56	March 24 April 12 April 1 April 21 April 9 March 29 April 17 April 5 March 25 April 13	13 12 13 12 12 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12 13 12	6 7 8 9 10 11 12 13 14 15



1930	3/21 8:06	Mar 30 05:46	Apr 28 19:08	March 31	<mark>13</mark>	19
Year	Vernal Equinox (UTC)	Conjunction - March (UTC)	Conjunction - April (UTC)	New Moon Day	# of Months	Metonic Year
1931	3/21 13:55	Mar 19 07:51	Apr 18 01:00	April 18	<mark>12</mark>	1
1932	3/20 19:44	Mar 7 07:44	Apr 6 01:21	April 6	<mark>12</mark>	2
1933	3/21 1:34	Mar 26 03:20	Apr 24 18:38	March 27	<mark>13</mark>	3
1934	3/21 7:23	Mar 15 12:08	Apr 13 23:57	April 14	<mark>12</mark>	4
1935	3/21 13:12	Mar 5 02:40	Apr 3 12:10	April 4	<mark>12</mark>	5
1936	3/20 19:01	Mar 23 04:13	Apr 21 12:32	March 24	<mark>13</mark>	6
1937	3/21 0:50	Mar 12 19:32	Apr 11 05:10	April 12	12	7
1938	3/21 6:40	Mar 31 18:52	Apr 30 05:28	April 1	13	8
1939	3/21 12:29	Mar 21 01:49	Apr 19 16:35	April 20	12	9
1940	3/20 18:18 3/21 0:07	Mar 9 02:23	Apr 7 20:18	April 8	<mark>12</mark> 13	10
1941	3/21 0:07 3/21 5:56	Mar 27 20:14 Mar 16 23:50	Apr 26 13:23 Apr 15 14:33	March 28		11
1942 1943	3/21 5:56	Mar 6 10:34	-	April 16	<mark>12</mark> 12	12 13
1943	3/20 17:35	Mar 24 11:36	Apr 4 21:53 Apr 22 20:43	April 5 March 25	12 13	13
1944	3/20 23:24	Mar 14 03:51	Apr 12 12:30	April 13	12	14
1946	3/21 5:13	Mar 3 18:01	Apr 2 04:37	April 3	12	16
1940	3/21 11:02	Mar 22 16:34	Apr 21 04:19	March 23	13	10
1948	3/20 16:52	Mar 10 21:15	Apr 9 13:17	April 10	12 12	18
1949	3/20 22:41	Mar 29 15:11	Apr 28 08:02	March 30	13	19
	Vernal Equinox	Conjunction - March	Conjunction - April			Metonic
Year	(UTC)	(UTC)	(UTC)	New Moon Day	# of Months	Year
1950	3/21 4:30	Mar 18 15:20	Apr 17 08:25	April 18	<mark>12</mark>	1
1951	3/21 10:19	Mar 7 20:51	Apr 6 10:52	April 7	<mark>12</mark>	2
1952	3/20 16:08	Mar 25 20:13	Apr 24 07:27	March 26	<mark>13</mark>	3
1953	3/20 21:58	Mar 15 11:05	Apr 13 20:09	April 14	<mark>12</mark>	4
1954	3/21 3:47	Mar 5 03:11	Apr 3 12:25	April 4	<mark>12</mark>	5
1955	3/21 9:36	Mar 24 03:42	Apr 22 13:06		4 3	
1956				March 25	<mark>13</mark>	6
	3/20 15:25	Mar 12 13:37	Apr 11 02:39	April 12	<mark>12</mark>	7
1957	3/20 21:14	Mar 12 13:37 Mar 31 09:19	Apr 11 02:39 Apr 29 23:54	April 12 April 1	12 13	7 8
1958	3/20 21:14 3/21 3:04	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50	Apr 1102:39Apr 2923:54Apr 1903:23	April 12 April 1 April 20	12 13 12	7 8 9
1958 1959	3/20 21:14 3/21 3:04 3/21 8:53	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29	April 12 April 1 April 20 April 9	12 13 12 12	7 8 9 10
1958 1959 1960	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44	April 12 April 1 April 20 April 9 March 28	12 13 12 12 12 13	7 8 9 10 11
1958 1959 1960 1961	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37 Mar 16 18:51	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37	April 12 April 1 April 20 April 9 March 28 April 16	12 13 12 12 12 13 13 12	7 8 9 10 11 12
19581959196019611962	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37 Mar 16 18:51 Mar 6 10:31	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45	April 12 April 1 April 20 April 9 March 28 April 16 April 5	12 13 12 12 13 13 12 12 12	7 8 9 10 11 12 13
195819591960196119621963	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20 3/21 8:10	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37 Mar 16 18:51 Mar 6 10:31 Mar 25 12:10	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45Apr 2320:29	April 12 April 1 April 20 April 9 March 28 April 16 April 5 March 26	12 13 12 12 13 13 12 12 12 12 13	7 8 9 10 11 12 13 14
1958195919601961196219631964	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20 3/21 8:10 3/20 13:59	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37 Mar 16 18:51 Mar 6 10:31 Mar 25 12:10 Mar 14 02:14	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45Apr 2320:29Apr 1212:37	April 12 April 1 April 20 April 9 March 28 April 16 April 5 March 26 April 13	12 13 12 12 13 13 12 12 12 13 12 12	7 8 9 10 11 12 13 14 15
19581959196019611962196319641965	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20 3/21 8:10 3/20 13:59 3/20 19:48	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37 Mar 16 18:51 Mar 6 10:31 Mar 25 12:10 Mar 14 02:14 Mar 3 09:56	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45Apr 2320:29Apr 1212:37Apr 200:21	April 12 April 1 April 20 April 9 March 28 April 16 April 5 March 26 April 13 April 2	12 13 12 12 13 13 12 12 12 13 12 12 12	7 8 9 10 11 12 13 14 15 16
195819591960196119621963196419651966	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20 3/21 8:10 3/20 13:59 3/20 19:48 3/21 1:37	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37 Mar 16 18:51 Mar 6 10:31 Mar 25 12:10 Mar 14 02:14 Mar 3 09:56 Mar 22 04:46	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45Apr 2320:29Apr 1212:37Apr 200:21Apr 2020:35	April 12 April 1 April 20 April 9 March 28 April 16 April 5 March 26 April 13 April 2 March 23	12 13 12 12 13 12 12 12 12 13 12 12 12 12 12 13	7 8 9 10 11 12 13 14 15 16 17
1958195919601961196219631964196519661967	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20 3/21 8:10 3/20 13:59 3/20 19:48 3/21 1:37 3/21 7:26	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37 Mar 16 18:51 Mar 6 10:31 Mar 25 12:10 Mar 14 02:14 Mar 3 09:56 Mar 22 04:46 Mar 11 04:30	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45Apr 2320:29Apr 1212:37Apr 200:21Apr 2020:35Apr 922:20	April 12 April 1 April 20 April 9 March 28 April 16 April 5 March 26 April 13 April 2 March 23 April 10	12 13 12 12 13 12 12 12 13 12 12 12 12 13 13 12	7 8 9 10 11 12 13 14 15 16 17 18
1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20 3/21 8:10 3/20 13:59 3/20 19:48 3/21 1:37 3/21 7:26 3/20 13:16	Mar1213:37Mar3109:19Mar2009:50Mar910:51Mar2707:37Mar1618:51Mar610:31Mar2512:10Mar1402:14Mar309:56Mar2204:46Mar1104:30Mar2822:48	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45Apr 2320:29Apr 1212:37Apr 2000:21Apr 2020:35Apr 922:20Apr 2715:21	April 12 April 1 April 20 April 9 March 28 April 16 April 5 March 26 April 13 April 2 March 23 April 10 March 29	12 13 12 12 13 12 12 12 13 12 12 12 13 12 12 13 12 12 13	7 8 9 10 11 12 13 14 15 16 17 18 19
1958195919601961196219631964196519661967	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20 3/21 8:10 3/20 13:59 3/20 19:48 3/21 1:37 3/21 7:26	Mar 12 13:37 Mar 31 09:19 Mar 20 09:50 Mar 9 10:51 Mar 27 07:37 Mar 16 18:51 Mar 6 10:31 Mar 25 12:10 Mar 14 02:14 Mar 3 09:56 Mar 22 04:46 Mar 11 04:30	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45Apr 2320:29Apr 1212:37Apr 200:21Apr 2020:35Apr 922:20	April 12 April 1 April 20 April 9 March 28 April 16 April 5 March 26 April 13 April 2 March 23 April 10	12 13 12 12 13 12 12 12 13 12 12 12 12 13 13 12	7 8 9 10 11 12 13 14 15 16 17 18
1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968	3/20 21:14 3/21 3:04 3/21 8:53 3/20 14:42 3/20 20:31 3/21 2:20 3/21 8:10 3/20 13:59 3/20 19:48 3/21 1:37 3/21 7:26 3/20 13:16 Vernal Equinox	Mar1213:37Mar3109:19Mar2009:50Mar910:51Mar2707:37Mar1618:51Mar610:31Mar2512:10Mar1402:14Mar309:56Mar1204:46Mar1104:30Mar2822:48Conjunction - March	Apr 1102:39Apr 2923:54Apr 1903:23Apr 803:29Apr 2521:44Apr 1505:37Apr 419:45Apr 2320:29Apr 1212:37Apr 2000:21Apr 2020:35Apr 922:20Apr 2715:21Conjunction - April	April 12 April 1 April 20 April 9 March 28 April 16 April 5 March 26 April 13 April 2 March 23 April 10 March 29	12 13 12 12 13 12 12 12 13 12 12 12 13 12 12 13 12 12 13	7 8 9 10 11 12 13 14 15 16 17 18 19 Metonic



1971	3/21 6:43	Mar 26 19:23	Apr 25 04:02	March 27	13	3
1971	3/20 12:32	Mar 15 11:35	Apr 13 20:31	April 14	12	4
1972	3/20 18:22	Mar 5 00:07	Apr 3 11:45	April 4	12	5
1973	3/21 0:11	Mar 23 21:24	Apr 22 10:16	March 24	13	6
1974	3/21 6:00	Mar 12 23:47	Apr 11 16:39	April 12	12	7
1976	3/20 11:49	Mar 30 17:08	Apr 29 10:19	March 31	13	8
1970	3/20 17:38	Mar 19 18:33	Apr 18 10:35	April 19	12	9
1977	3/20 23:28	Mar 9 02:36	Apr 7 15:15	April 8	12	10
1978	3/21 5:17	Mar 28 02:59	Apr 26 13:15	March 29	12	10
1979	3/20 11:06	Mar 16 18:56	Apr 15 03:46	April 16	12	11
1981	3/20 16:55	Mar 6 10:31	Apr 4 20:19	April 5	12	12
1982	3/20 22:44	Mar 25 10:17	Apr 23 20:29	March 26	13	13
1983	3/21 4:34	Mar 14 17:43	Apr 13 07:58	April 14	12	15
1984	3/20 10:23	Mar 2 18:31	Apr 1 12:10	April 2	12	16
1985	3/20 16:12	Mar 21 11:59	Apr 20 05:22	March 22	13	10
1986	3/20 22:01	Mar 10 14:52	Apr 9 06:08	April 10	12	17
1987	3/21 3:50	Mar 29 12:46	Apr 28 01:34	March 30	13	18
	Vernal Equinox	Conjunction - March	Conjunction - April			Metonic
Year	(UTC)	(UTC)	(UTC)	New Moon Day	# of Months	Year
1988	3/20 9:40	Mar 18 02:02	Apr 16 12:00	April 17	12	1
1989	3/20 15:29	Mar 7 18:19	Apr 6 03:33	April 7	12	2
1990	3/20 21:18	Mar 26 19:48	Apr 25 04:27	March 27	13	3
1991	3/21 3:07	Mar 16 08:10	Apr 14 19:38	April 15	12	4
1992	3/20 8:56	Mar 4 13:22	Apr 3 05:01	April 4	<mark>12</mark>	5
1993	3/20 14:46	Mar 23 07:14	Apr 21 23:49	March 24	13	6
1994	3/20 20:35	Mar 12 07:05	Apr 11 00:17	April 11	12	7
1995	3/21 2:24	Mar 31 02:09	Apr 29 17:36	March 31	<mark>13</mark>	8
1996	3/20 8:13	Mar 19 10:45	Apr 17 22:49	April 18	<mark>12</mark>	9
1997	3/20 14:02	Mar 9 01:15	Apr 7 11:02	April 8	<mark>12</mark>	10
1998	3/20 19:52	Mar 28 03:14	Apr 26 11:41	March 29	<mark>13</mark>	11
1999	3/21 1:41	Mar 17 18:48	Apr 16 04:22	April 17	<mark>12</mark>	12
2000	3/20 7:30	Mar 6 05:17	Apr 4 18:12	April 5	<mark>12</mark>	13
2001	3/20 13:19	Mar 25 01:21	Apr 23 15:26	March 25	<mark>13</mark>	14
2002	3/20 19:08	Mar 14 02:03	Apr 12 19:21	April 13	<mark>12</mark>	15
2003	3/21 0:58	Mar 3 02:35	Apr 1 19:19	April 2	<mark>12</mark>	16
2004	3/20 6:47	Mar 20 22:41	Apr 19 13:21	March 21	<mark>13</mark>	17
2005	3/20 12:36	Mar 10 09:10	Apr 8 20:32	April 9	<mark>12</mark>	18
2006	3/20 18:25	Mar 29 10:15	Apr 27 19:44	March 30	<mark>13</mark>	19
Year	Vernal Equinox	Conjunction - March	Conjunction - April	New Moon Day	# of Months	Metonic
Year	(UTC)	(UTC)	(UTC)	New Moon Day	# of Months	Metonic Year
2007	(UTC) 3/21 0:14	(UTC) Mar 19 02:43	(UTC) Apr 17 11:36	April 18	12	Year 1
2007 2008	(UTC) 3/21 0:14 3/20 6:04	(UTC) Mar 19 02:43 Mar 7 17:14	(UTC) Apr 17 11:36 Apr 6 03:55	April 18 April 7	12 12 12	Year 1 2
2007 2008 2009	(UTC) 3/21 0:14 3/20 6:04 3/20 11:53	(UTC) Mar 19 02:43 Mar 7 17:14 Mar 26 16:06	UTC) Apr 17 11:36 Apr 6 03:55 Apr 25 03:23	April 18 April 7 March 27	12 12 13	Year 1 2 3
2007 2008 2009 2010	(UTC) 3/21 0:14 3/20 6:04 3/20 11:53 3/20 17:42	(UTC) Mar 19 02:43 Mar 7 17:14 Mar 26 16:06 Mar 15 21:01	(UTC) Apr 17 11:36 Apr 6 03:55 Apr 25 03:23 Apr 14 12:29	April 18 April 7 March 27 April 15	12 12 13 12	Year 1 2 3 4
2007 2008 2009 2010 2011	(UTC) 3/21 0:14 3/20 6:04 3/20 11:53 3/20 17:42 3/20 23:31	UTC) Mar 19 02:43 Mar 7 17:14 Mar 26 16:06 Mar 15 21:01 Mar 4 20:46	(UTC) Apr 17 11:36 Apr 6 03:55 Apr 25 03:23 Apr 14 12:29 Apr 3 14:32	April 18 April 7 March 27 April 15 April 4	12 12 13 12 12 12	Year 1 2 3 4 5
2007 2008 2009 2010	(UTC) 3/21 0:14 3/20 6:04 3/20 11:53 3/20 17:42	(UTC) Mar 19 02:43 Mar 7 17:14 Mar 26 16:06 Mar 15 21:01	(UTC) Apr 17 11:36 Apr 6 03:55 Apr 25 03:23 Apr 14 12:29	April 18 April 7 March 27 April 15	12 12 13 12	Year 1 2 3 4



2014	3/20 16:59	Mar 30 18:45	Apr 29 06:14	March 31	13	8
2015	3/20 22:48	Mar 20 09:36	Apr 18 18:57	April 19	12	9
2016	3/20 4:37	Mar 9 01:54	Apr 7 11:24	April 8	<mark>12</mark>	10
2017	3/20 10:26	Mar 28 02:57	Apr 26 12:16	March 29	13	11
2018	3/20 16:16	Mar 17 13:11	Apr 16 01:57	April 17	<mark>12</mark>	12
2019	3/20 22:05	Mar 6 16:04	Apr 5 08:50	April 6	<mark>12</mark>	13
2020	3/20 3:54	Mar 24 09:28	Apr 23 02:26	March 25	<mark>13</mark>	14
2021	3/20 9:43	Mar 13 10:21	Apr 12 02:31	April 13	<mark>12</mark>	15
2022	3/20 15:32	Mar 2 17:35	Apr 1 06:24	April 2	<mark>12</mark>	16
2023	3/20 21:22	Mar 21 17:23	Apr 20 04:12	March 22	<mark>13</mark>	17
2024	3/20 3:11	Mar 10 09:00	Apr 8 18:21	April 9	<mark>12</mark>	18
2025	3/20 9:00	Mar 29 10:58	Apr 27 19:31	March 30	<mark>13</mark>	19
Year	Vernal Equinox (UTC)	Conjunction - March (UTC)	Conjunction - April (UTC)	New Moon Day	# of Months	Metonic Year
2026	3/20 14:49	Mar 19 01:23	Apr 17 11:52	April 18	<mark>12</mark>	1
2027	3/20 20:38	Mar 8 09:29	Apr 6 23:51	April 7	<mark>12</mark>	2
2028	3/20 2:28	Mar 26 04:31	Apr 24 19:47	March 27	<mark>13</mark>	3
2029	3/20 8:17	Mar 15 04:19	Apr 13 21:40	April 14	<mark>12</mark>	4
2030	3/20 14:06	Mar 4 06:34	Apr 2 22:02	April 3	<mark>12</mark>	5
2031	3/20 19:55	Mar 23 03:49	Apr 21 16:57	March 24	<mark>13</mark>	6
2032	3/20 1:44	Mar 11 16:24	Apr 10 02:39	April 11	<mark>12</mark>	7
2033	3/20 7:34	Mar 30 17:51	Apr 29 02:46	March 31	<mark>13</mark>	8
2034	3/20 13:23	Mar 20 10.14	N 10 10.0C		4.0	0
		Mar 20 10:14	Apr 18 19:26	April 19	<mark>12</mark>	9
2035	3/20 19:12	Mar 9 23:09	Apr 8 10:58	April 9	<mark>12</mark>	10
2036	3/20 19:12 3/20 1:01	Mar 9 23:09 Mar 27 20:57	Apr 8 10:58 Apr 26 09:33	April 9 March 28	12 13	10 11
2036 2037	3/20 19:12 3/20 1:01 3/20 6:50	Mar 9 23:09 Mar 27 20:57 Mar 16 23:36	Apr 8 10:58 Apr 26 09:33 Apr 15 16:08	April 9 March 28 April 16	12 13 12	10 11 12
2036 2037 2038	3/20 19:12 3/20 1:01 3/20 6:50 3/20 12:40	Mar 9 23:09 Mar 27 20:57 Mar 16 23:36 Mar 5 23:15	Apr 8 10:58 Apr 26 09:33 Apr 15 16:08 Apr 4 16:43	April 9 March 28 April 16 April 5	12 13 12 12	10 11 12 13
2036 2037 2038 2039	3/20 19:12 3/20 1:01 3/20 6:50 3/20 12:40 3/20 18:29	Mar 9 23:09 Mar 27 20:57 Mar 16 23:36 Mar 5 23:15 Mar 24 17:59	Apr 8 10:58 Apr 26 09:33 Apr 16:08 Apr 4 16:43 Apr 23 09:35	April 9 March 28 April 16 April 5 March 25	12 13 12 12 12 13	10 11 12 13 14
2036 2037 2038 2039 2040	3/20 19:12 3/20 1:01 3/20 6:50 3/20 12:40 3/20 18:29 3/20 0:18	Mar 9 23:09 Mar 27 20:57 Mar 16 23:36 Mar 5 23:15 Mar 24 17:59 Mar 13 01:46	Apr810:58Apr2609:33Apr1516:08Apr416:43Apr2309:35Apr1114:00	April 9 March 28 April 16 April 5 March 25 April 12	12 13 12 12 12 13 12	10 11 12 13 14 15
2036 2037 2038 2039 2040 2041	3/20 19:12 3/20 1:01 3/20 6:50 3/20 12:40 3/20 18:29 3/20 0:18 3/20 6:07	Mar 9 23:09 Mar 27 20:57 Mar 16 23:36 Mar 5 23:15 Mar 24 17:59 Mar 13 01:46 Mar 2 15:39	Apr810:58Apr2609:33Apr1516:08Apr416:43Apr2309:35Apr1114:00Apr101:29	April 9 March 28 April 16 April 5 March 25 April 12 April 1	12 13 12 12 12 13 12 12 12	10 11 12 13 14 15 16
2036 2037 2038 2039 2040 2041 2041	3/20 19:12 3/20 1:01 3/20 6:50 3/20 12:40 3/20 18:29 3/20 0:18 3/20 0:18 3/20 6:07 3/20 11:56	Mar 9 23:09 Mar 27 20:57 Mar 16 23:36 Mar 5 23:15 Mar 24 17:59 Mar 13 01:46 Mar 2 15:39 Mar 21 17:23	Apr810:58Apr2609:33Apr1516:08Apr416:43Apr2309:35Apr1114:00Apr101:29Apr2002:19	April 9 March 28 April 16 April 5 March 25 April 12 April 1 March 22	12 13 12 12 13 13 12 12 12 12 13	10 11 12 13 14 15 16 17
2036 2037 2038 2039 2040 2041	3/20 19:12 3/20 1:01 3/20 6:50 3/20 12:40 3/20 18:29 3/20 0:18 3/20 6:07	Mar 9 23:09 Mar 27 20:57 Mar 16 23:36 Mar 5 23:15 Mar 24 17:59 Mar 13 01:46 Mar 2 15:39	Apr810:58Apr2609:33Apr1516:08Apr416:43Apr2309:35Apr1114:00Apr101:29	April 9 March 28 April 16 April 5 March 25 April 12 April 1	12 13 12 12 12 13 12 12 12	10 11 12 13 14 15 16

