



## Lunar Eclipses: 2011 - 2020

### Fred Espenak

A concise summary of all lunar eclipses from 2011 through 2020 is presented in the table below. The first column gives the **Calendar Date** of the instant of greatest eclipse[1]. The second column **TD of Greatest Eclipse** is the Terrestrial Dynamical Time of greatest eclipse. The third column lists the **Eclipse Type** which is either Total, Partial, or Penumbral.

Eclipses recur over the **Saros** cycle, a period of approximately 18 years 11 days. Each eclipse belongs to the **Saros Series** shown in the 4th column. The **Umbral Magnitude**[2] (column 5) gives the fraction of the Moon's diameter immersed in Earth's umbral shadow at the instant of greatest eclipse. The **Eclipse Duration**[3] gives the length of the partial eclipse. If the eclipse is total then two durations are listed. The first is the interval between the beginning and end of the partial phases. The second value (in **bold**) is the duration the total phase. Finally, the **Geographic Region of Eclipse Visibility**[4] provides a brief description of the regions where each eclipse will be seen.

Two fields in the summary table provide links to graphics and additional information for each eclipse. A figure consisting of a diagram and map for each eclipse may be seen by clicking on the **Calendar Date**. The top diagram shows the Moon's trajectory with respect to Earth's penumbral and umbral shadows. The equidistant projection map below illustrates the geographic region of visibility for each phase of the eclipse. These figures are described in greater detail in the **Key to Lunar Eclipse Maps**. Each figure is stored as a PDF file of about 110 kilobytes.

All eclipses belonging to a particular **Saros Series** are listed in a table linked through the **Saros** number.

The **Key to Lunar Eclipse Decade Table** contains a more detailed description of each item in the table.

For more data on lunar eclipses during this period, see **Catalog of Lunar Eclipses: 2001 to 2100**.

<b>Lunar Eclipses: 2011 - 2020</b>						
<b>Calendar Date</b>	<b>TD of Greatest Eclipse</b>	<b>Eclipse Type</b>	<b>Saros Series</b>	<b>Umbral Magnitude</b>	<b>Eclipse Duration</b>	<b>Geographic Region of Eclipse Visibility</b>
<a href="#"><u>2011 Jun 15</u></a>	20:13:43	Total	<a href="#"><u>130</u></a>	1.700	03h39m <b>01h40m</b>	<a href="#"><u>S.America, Europe, Africa, Asia, Aus.</u></a>
<a href="#"><u>2011 Dec 10</u></a>	14:32:56	Total	<a href="#"><u>135</u></a>	1.106	03h32m <b>00h51m</b>	<a href="#"><u>Europe, e Africa, Asia, Aus., Pacific, N.A.</u></a>
<a href="#"><u>2012 Jun 04</u></a>	11:04:20	Partial	<a href="#"><u>140</u></a>	0.370	02h07m	Asia, Aus., Pacific, Americas
<a href="#"><u>2012 Nov 28</u></a>	14:34:07	Penumbral	<a href="#"><u>145</u></a>	-0.187	-	Europe, e Africa, Asia, Aus., Pacific, N.A.
<a href="#"><u>2013 Apr 25</u></a>	20:08:38	Partial	<a href="#"><u>112</u></a>	0.015	00h27m	Europe, Africa, Asia, Aus.
<a href="#"><u>2013 May 25</u></a>	04:11:06	Penumbral	<a href="#"><u>150</u></a>	-0.934	-	Americas, Africa
<a href="#"><u>2013 Oct 18</u></a>	23:51:25	Penumbral	<a href="#"><u>117</u></a>	-0.272	-	Americas, Europe, Africa, Asia
<a href="#"><u>2014 Apr 15</u></a>	07:46:48	Total	<a href="#"><u>122</u></a>	1.291	03h35m <b>01h18m</b>	Aus., Pacific, Americas
<a href="#"><u>2014 Oct 08</u></a>	10:55:44	Total	<a href="#"><u>127</u></a>	1.166	03h20m <b>00h59m</b>	Asia, Aus., Pacific, Americas
<a href="#"><u>2015 Apr 04</u></a>	12:01:24	Total	<a href="#"><u>132</u></a>	1.001	03h29m <b>00h05m</b>	Asia, Aus., Pacific, Americas
<a href="#"><u>2015 Sep 28</u></a>	02:48:17	Total	<a href="#"><u>137</u></a>	1.276	03h20m <b>01h12m</b>	e Pacific, Americas, Europe, Africa, w Asia
<a href="#"><u>2016 Mar 23</u></a>	11:48:21	Penumbral	<a href="#"><u>142</u></a>	-0.312	-	Asia, Aus., Pacific, w Americas
<a href="#"><u>2016 Sep 16</u></a>	18:55:27	Penumbral	<a href="#"><u>147</u></a>	-0.064	-	Europe, Africa, Asia, Aus., w Pacific
<a href="#"><u>2017 Feb 11</u></a>	00:45:03	Penumbral	<a href="#"><u>114</u></a>	-0.035	-	Americas, Europe, Africa, Asia
<a href="#"><u>2017 Aug 07</u></a>	18:21:38	Partial	<a href="#"><u>119</u></a>	0.246	01h55m	Europe, Africa, Asia, Aus.
<a href="#"><u>2018 Jan 31</u></a>	13:31:00	Total	<a href="#"><u>124</u></a>	1.315	03h23m <b>01h16m</b>	Asia, Aus., Pacific, w N.America

<a href="#">2018 Jul 27</a>	20:22:54	Total	<b>129</b>	1.609	03h55m <b>01h43m</b>	S.America, Europe, Africa, Asia, Aus.
<a href="#">2019 Jan 21</a>	05:13:27	Total	<b>134</b>	1.195	03h17m <b>01h02m</b>	c Pacific, Americas, Europe, Africa
<a href="#">2019 Jul 16</a>	21:31:55	Partial	<b>139</b>	0.653	02h58m	S.America, Europe, Africa, Asia, Aus.
<a href="#">2020 Jan 10</a>	19:11:11	Penumbral	<b>144</b>	-0.116	-	Europe, Africa, Asia, Aus.
<a href="#">2020 Jun 05</a>	19:26:14	Penumbral	<b>111</b>	-0.405	-	Europe, Africa, Asia, Aus.
<a href="#">2020 Jul 05</a>	04:31:12	Penumbral	<b>149</b>	-0.644	-	Americas, sw Europe, Africa
<a href="#">2020 Nov 30</a>	09:44:01	Penumbral	<b>116</b>	-0.262	-	Asia, Aus., Pacific, Americas

*Geographic abbreviations (used above): n = north, s = south, e = east, w = west, c = central*

[ **1**] **Greatest Eclipse** is the instant when the distance between the axis of Earth's umbral shadow and the center of the Moon's disk reaches a minimum.

[ **2**] **Umbral magnitude** is the fraction of the Moon's diameter obscured by Earth's umbral shadow at the instant of greatest eclipse. For total eclipses, the umbral magnitude is always greater than or equal to 1. For partial eclipses, the umbral magnitude is always greater than 0 and less than 1. For penumbral eclipses, the umbral magnitude is always negative (i.e., less than 0).

[ **3**] **Eclipse Duration** is the duration of the partial phase of a partial eclipse. For total eclipses two values are given. The first is the period between the beginning and end of the partial phases, while the second value (in **bold** is the duration of the total phase.

[ **4**] **Geographic Region of Eclipse Visibility** is the portion of Earth's surface where some portion of the eclipse can be seen.

## Decade Tables of Lunar Eclipses

Every link in the following table displays a page containing 10 years of lunar eclipses. Each eclipse has links to diagrams, maps and saros tables.

Ten Year Tables of Lunar Eclipses					
Decades	<a href="#">1901-1910</a>	<a href="#">1911-1920</a>	<a href="#">1921-1930</a>	<a href="#">1931-1940</a>	<a href="#">1941-1950</a>
	<a href="#">1951-1960</a>	<a href="#">1961-1970</a>	<a href="#">1971-1980</a>	<a href="#">1981-1990</a>	<a href="#">1991-2000</a>
	<a href="#">2001-2010</a>	<a href="#">2011-2020</a>	<a href="#">2021-2030</a>	<a href="#">2031-2040</a>	<a href="#">2041-2050</a>
	<a href="#">2051-2060</a>	<a href="#">2061-2070</a>	<a href="#">2071-2080</a>	<a href="#">2081-2090</a>	<a href="#">2091-2100</a>

## Lunar Eclipse Catalogs

- [Five Millennium Catalog of Lunar Eclipses: -1999 to +3000](#)
- [Local Visibility of Lunar Eclipses: 1951 to 2050](#)
- [Catalog of Lunar Eclipse Saros Series](#)
- [Lunar Eclipses of Historical Interest](#)

## Lunar Eclipse Resources

- [Lunar Eclipses for Students and Beginners](#)
- [Visual Appearance of Lunar Eclipses](#)
- [Lunar Eclipses and the Enlargement of Earth's Shadow](#)
- [Danjon Scale of Lunar Eclipse Brightness](#)
- [Crater Timings During Lunar Eclipses](#)
- [Photographing Lunar Eclipses](#)
- [Solar and Lunar Eclipse Photography](#)
- [Lunar Eclipses and the Saros](#)
- [Javascript Lunar Eclipse Explorer](#) - calculate all lunar eclipses visible from any city

## Lunar Eclipse Publications Online

- [RASC Observer's Handbook:](#)  
[\[ 1996 \]](#) | [\[ 1996 \]](#) | [\[ 1997 \]](#) | [\[ 1998 \]](#) | [\[ 1999 \]](#) | [\[ 2000 \]](#)  
[\[ 2001 \]](#) | [\[ 2002 \]](#) | [\[ 2003 \]](#) | [\[ 2004 \]](#) | [\[ 2005 \]](#) | [\[ 2006 \]](#) | [\[ 2007 \]](#) | [\[ 2008 \]](#) | [\[ 2009 \]](#) | [\[ 2010 \]](#)  
[\[ 2011 \]](#)
- [NASA RP1216: Fifty Year Canon of Lunar Eclipses: 1986 - 2035](#)

- [NASA TP-2009-214172: Five Millennium Canon of Lunar Eclipses: -1999 to +3000 \(2000 BCE to 3000 CE\)](#)
- [NASA TP-2009-214173: Five Millennium Catalog of Lunar Eclipses: -1999 to +3000 \(2000 BCE to 3000 CE\)](#)

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All eclipse calculations are by Fred Espenak, and he assumes full responsibility for their accuracy. Some of the information presented on this web site is based on data published in [\*Five Millennium Catalog of Lunar Eclipses: -1999 to +3000\*](#).

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