

SOLAR AND LUNAR ECLIPSES

During 2015 there are four eclipses, two of the Sun and two of the Moon. The two lunar eclipses are total and there is a total and partial eclipse of the Sun. The only eclipse visible from Australasia is the April total lunar eclipse.

To cater for all observers we use four time zones in the eclipse section, UT, EST, CST and WST **and no account is made for daylight saving time (add one hour if applicable)**. Carefully check the data you are using when planning your observing.

20 March — Total eclipse of the Sun

The first solar eclipse of the year is total and occurs mostly over water in the northern hemisphere. The path of totality begins off the southern coast of Greenland and heads northeast between Iceland and the United Kingdom. First landfall is the Danish owned Faeroe Islands where the capitol Torshavn will enjoy 2 minutes and 5 seconds of totality. The path continues across the Norwegian Sea with the next touchdown being the Norwegian archipelago Svalbard, where the few inhabitants will witness 2 minutes and 30 seconds

of daytime darkness – the path then leaves the Earth near the North Pole. Greatest eclipse of 2 minutes and 47 seconds occurs over the Norwegian Sea.

13 September — Partial eclipse of the Sun

The year's second solar eclipse is partial and will not attract a lot of attention. The shadow begins in the southern portion of Africa (south of latitude -15°) and heads across the south-western Indian Ocean making landfall over Antarctica. At Cape Town, South Africa, the eclipse magnitude (fraction of the Sun's diameter occulted by the Moon) is 0.42 and the eclipse obscuration (fraction of the Sun's area occulted by the Moon) is 30%.

28 September — Total eclipse of the Moon

The last of this year's eclipses is visible from North America, South America, Europe, Africa, Antarctica, the eastern Pacific Ocean, the Atlantic Ocean and the western Indian Ocean. With a magnitude of 1.282 the Moon traverses a much deeper path through the umbral shadow than the April total lunar eclipse.

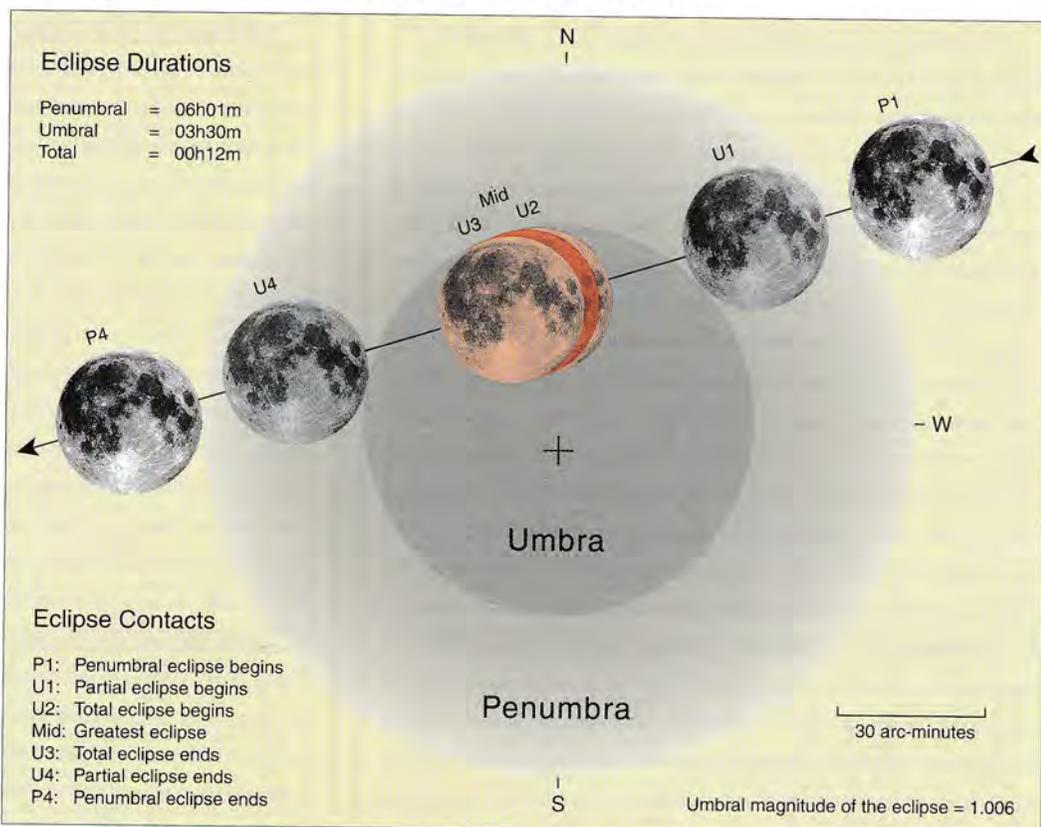
4 April — Total eclipse of the Moon

The year's first lunar eclipse is total and visible across Australia. From the eastern states the eclipse is visible in its entirety. From Western Australia greatest eclipse occurs 30 minutes after the end of astronomical twilight. Essentially if you cut the continent in half (down the 133° degree longitude line) those to the east will see the full eclipse, those to the west will suffer from some degree of daylight or twilight interference during the early stages.

This is a very short eclipse with the totality phase lasting just 12 minutes. The figures presented here are based on predictions from the Nautical Almanac Office of the US Naval Observatory, however some published data varies from this. The NASA eclipse site has a totality length of just 4.7 minutes – the shortest duration since the eclipse of 17th October 1529 (1.7 minutes), over 485 years ago! The next shortest (2.6 minutes) occurs 140 years hence on 11th September 2155. By comparison the length of the totality phase of a typical eclipse is often 60 to 90 minutes, with an upper limit of a little over 100 minutes – one of the longest occurred as recently as 16th July 2000 when it lasted for 106.4 minutes. The variation in time stems from different methods of calculating the eclipse geometry to allow for the Earth's atmosphere.

The magnitude of this eclipse, or the fraction of the Moon's diameter immersed in the umbral shadow is 1.006 (during a partial eclipse the magnitude is between 0.0 and 1.0, and when total the magnitude will be larger than 1.0).

The shallow incursion of the Moon into the northern edge of the Earth's umbra might also make this the brightest total lunar eclipse in



recent history, although there are other factors that contribute to the darkness and redness of each and every eclipse.

		UT	EST	CST	WST
Penumbral eclipse begins	P1	08:59.6	7:00 pm	6:30 pm	5:00 pm
Partial eclipse begins	U1	10:15.4	8:15 pm	7:45 pm	6:15 pm
Total eclipse begins	U2	11:54.1	9:54 pm	9:24 pm	7:54 pm
Greatest eclipse	Mid	12:00.2	10:00 pm	9:30 pm	8:00 pm
Total eclipse ends	U3	12:06.4	10:06 pm	9:36 pm	8:06 pm
Partial eclipse ends	U4	13:45.1	11:45 pm	11:15 pm	9:45 pm
Penumbral eclipse ends	P4	15:00.8	1:01 am	12:31 am	11:01 pm