



Total Eclipse of the Moon Tuesday 28 August 2007

General Information

A total eclipse of the Moon takes place on the evening of Tuesday 28 August. The Moon starts moving into the Earth's shadow at 6:51 pm Eastern Standard Time (EST) and is full immersed in the shadow at 7:52 pm. Totality is over at 9:23 pm and the eclipse ends at 10:24 pm. For people in the eastern half of Australia the whole eclipse is visible while for people in the west the eclipse starts with the rising of the partially eclipsed moon. People in the westernmost parts of Western Australia have the dramatic sight of the reddened totally eclipsed Moon at moonrise.

A total eclipse takes place when the Moon moves into the shadow of the Earth. According to simple geometry it should then be completely dark, however, some red sunlight is scattered onto the Moon by the Earth's atmosphere. Astronomers are always interested to see how dark and how red the Moon becomes during totality as that is an indication of atmospheric conditions. Viewing an eclipse of the Moon is perfectly safe.

Everyone who can see the Moon will see the eclipse simultaneously. However, because of the differences between time zones, local times of the event will be 30 minutes earlier in South Australia and The Northern Territory, and two hours earlier in Western Australia. See Table 1 below for local times of different stages of the event.

Place	E. Australia	SA/NT	WA
Eclipse begins	6:51 pm	6:21 pm	
Totality begins	7:52 pm	7:32 pm	5:52 pm
Totality ends	9:23 pm	8:53 pm	7:23 pm
Eclipse ends	10:24 pm	9:54 pm	8:24 pm
All times are in local time			

Table 1: Local Eclipse Times – 28 August 2007

Watching the Event

Unlike a solar eclipse, a lunar eclipse is quite safe to observe with the unaided eye, binoculars or telescopes. The times mentioned in this factsheet (see Table 1) refer only to the passage of the Moon through the Earth's main dark, circular shadow called the *umbra*. Surrounding the *umbra*, there is a lighter region of shadow called the *penumbra*, through which the Moon also passes. However, except when the Moon's edge is very close to the *umbra*, it is very difficult to notice any changes or dimming of the Moon's disc due to the *penumbra* as in this region the Moon still receives some direct sunlight.

Lunar Eclipses in History

Both solar and lunar eclipses have significant places in history. Long ago, the Greek astronomer Aristotle used lunar eclipses to support the argument that the Earth is round for, as you watch the shadow of the Earth falling onto the Moon, you will clearly see that the shadow has a curved shape.

There have also been associations between lunar eclipses and significant historical events. Information passed down to us from the writings of Flavius Josephus, in the first century AD, states that a lunar eclipse occurred shortly before King Herod the Great's death. Many historians feel that the partial lunar eclipse of March 12-13, 4BC is the most likely, but it is also possible that the total lunar eclipse of January 9-10, 1BC was the event to which Flavius Josephus referred.

In August, 413 BC, the Syracusan navy destroyed an Athenian fleet after its leader delayed a retreat because of a lunar eclipse, which was seen as a bad omen. More than a thousand years later, the defenders of Constantinople in 1453 were so frightened by a partial lunar eclipse that the fall of the city was hastened.

In 1504, Christopher Columbus and his crew were marooned in Jamaica and the natives were no longer supplying them with food. According to his son Ferdinand, Columbus told the natives that God would make his anger clear by making the Moon 'appear inflamed with wrath, denoting the evils that God would inflict upon them', on the night of February 29. Columbus, of course, knew that a total lunar eclipse would occur on that date. This solved the problem, with the natives being so frightened that they promised to satisfy Columbus' future needs.

Lunar Eclipse Photography

Digital cameras are ideal to photograph the Moon, but a tripod is necessary to ensure sharp images, especially during totality. The maximum possible optical zoom should be used to give a reasonable size image. Alternatively and preferably, it is possible to hand-hold a small digital camera in front of the eyepiece of a telescope. With care to make sure that the camera is in the right position, some surprisingly good results can be achieved.



Figure 1.
The partial lunar eclipse of 17 October 2005, photographed by with a Pentax Optio S5i camera through a 25 cm Dobsonian telescope.
Image by Nick Lomb

Recent and Forthcoming Eclipses

The most recent lunar eclipse visible from Australia was a partial one, occurring on the morning of 8 September 2006. The last total eclipse seen from beginning to end in the eastern states was on 16 July 2000.

The next lunar eclipse to be visible from Australia will be a partial one on the morning of 17 August 2008 where up to 81 per cent of the Moon's width will be in the Earth's shadow. The next total eclipse of the Moon to be seen from beginning to end will be on the night of 10/11 December 2011.

This information was prepared for the ASA by Dr Nick Lomb of Sydney Observatory (<http://www.sydneyobservatory.com.au>). This sheet may be freely copied for wide distribution provided the Australian Astronomy and ASA logos are retained.

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