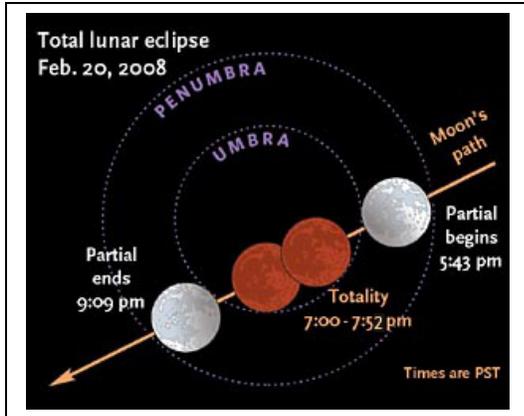


The Total Eclipse of the Moon, Feb. 20, 2008
A Resource Guide by Andrew Fraknoi
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On Wednesday evening, Feb. 20, a beautiful total eclipse of the Moon will be visible from North America.

What's happening	Eastern	Cent	Mount	Pacific
Partial eclipse start	8:43 pm	7:43	6:43	5:43
Total eclipse start	10:00	9:00	8:00	7:00
Eclipse mid-point	10:26	9:26	8:26	7:26
Total eclipse end	10:52	9:52	8:52	7:52
Partial eclipse end	12:09 am	11:09	10:09	9:09

Greg Dindermann diagram,
 courtesy of *Sky & Telescope* Magazine

What Happens During an Eclipse of the Moon?

The full Moon and the Sun are exactly opposite each other in our skies, and the Earth gets between them. The Earth's shadow falls on the Moon, darkening it over the course of several hours. Such a *lunar eclipse* is visible to everyone on the Earth who can see the Moon.

What is Visible During a Lunar Eclipse?

As the shadow of the Earth covers the Moon, note that our satellite doesn't become completely dark. Light bent through the Earth's atmosphere still reaches the shadowed Moon and gives it a dull brown or reddish glow. The exact color of the glow and its darkness depend on the "sooty-ness" of our atmosphere – how recently volcanoes have gone off and how much cloud cover, storm activity, and human pollution there is around the globe.

Is it Safe and How do I Watch?

Since the Moon is always safe to look at, and the eclipse only makes the Moon darker, there is no danger in watching this eclipse with your eyes or through a telescope. (The dangerous eclipse is the solar one, where it is the Sun that gets covered.) A lunar eclipse is one astronomical phenomenon that doesn't really require you to have fancy equipment or to go to a dark location to see it. You can bring binoculars to see the Moon larger & friends to enjoy it with.

How Often Do Lunar Eclipses Occur and When Are the Next Ones?

We can get anywhere from 0 to 3 lunar eclipses per year. Some of these will be *total* eclipses, where the Moon is completely inside the dark part of the Earth's shadow, while others are *partial*, meaning that only some of the Moon is in shadow. Between 2000 BC and 3000 AD, there are 7718 eclipses of the Moon, for an average of 1.3 per year. The next total eclipse of the Moon visible from the U.S. will be Dec. 21, 2010, so catch this one if you can.

What Can We Learn from Such Eclipses?

Be sure to take a careful look at the shadow of the Earth as it moves across the bright face of the Moon. What shape is it? A tree's shadow looks like the tree, your little brother's shadow looks like him. The round shape of the Earth's shadow suggested to the ancient Greeks, more than 2000 years ago, that the Earth's shape must be round too. Eclipse after eclipse, they saw the Earth cast a round shadow, and deduced that we lived on a round planet – long before spacecraft and astronaut pictures showed the Earth's blue globe from orbit.