

The May 15, 2022 Total Eclipse of the Moon

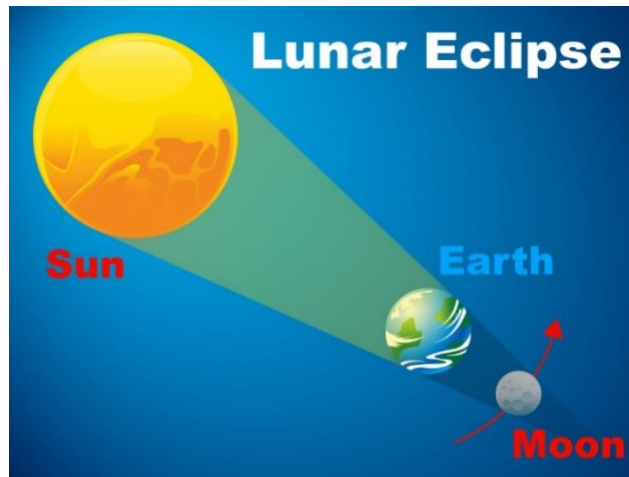
An Information Sheet by **Andrew Fraknoi** (*U. of San Francisco, Fromm Institute*)



Photo by Giuseppe Donatiello (in public domain)

1. What Is Happening?

On Sunday evening May 15th, a total eclipse of the Moon will be visible from throughout the U.S. (and much of North and all of South America.) In a lunar eclipse, the Moon & the Sun are exactly opposite each other in our sky, and the Earth gets between them. This means the Earth's shadow falls on the Moon, darkening it.



(NASA Diagram)

It's a nicely democratic event; no special equipment is needed to see it (provided it's not cloudy or foggy.) The East Coast will see all parts of the eclipse in the sky; on the West Coast, the Moon will rise in the southeastern sky with the early parts of the eclipse already in progress.

2. When Will the Eclipse Happen in the US?

Event	Pacific	Mountain	Central	Eastern
Partial eclipse starts	when Moon rises	8:28 pm	9:28 pm	10:28 pm
Total eclipse starts	8:29 pm	9:29 pm	10:29 pm	11:29 pm
Total eclipse ends	9:54 pm	10:54 pm	11:54 pm	12:54 am
Partial eclipse ends	10:56 pm	11:56 pm	12:56 am	1:56 am

As the Moon moves slowly through the Earth's shadow, we first see only part of the Moon darkening (partial eclipse). But then, as the Moon moves fully into the Earth's shadow, we see its entire globe become dark and reddish (total eclipse).

3. What Is Visible During a Lunar Eclipse?

As the shadow of the Earth covers the Moon, note that our natural satellite doesn't become completely dark. Some sunlight bent by 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 in part on the "sooty-ness" of our atmosphere – how recently volcanoes have erupted, plus how much cloud cover, storm activity, fire smoke, and human pollution there is around the globe. Once the Moon is eclipsed, the stars in the sky should become easier to see. (On the West Coast, the eclipse begins low in the sky, so make sure you can see the southeast horizon from where you are. You might be able to take some great photos as the eclipsed Moon rises above the landscape!)

4. Is It Safe to Watch, and How Do I Watch?

Since the Moon is safe to look at, and eclipses make the Moon *darker*, there's no danger in watching the eclipse with your eyes, binoculars, or a telescope. And lunar eclipses don't require you to go to a dark location. Bring binoculars to see the Moon larger, but just your eyes are fine. Be sure to bundle up against the cold night and to take someone along with whom you like to spend time in the dark!

5. What Can I Tell My Kids (or Grandkids)?

Suggest that they take a careful look at the shadow of the Earth as it moves across the bright face of the Moon. What shape is it? 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 like a ball. Eclipse after eclipse, they saw that the Earth cast a round shadow, and deduced that we lived on a ball-shaped planet (long before we had pictures of it from space).



Note the round shadow (Photo by Brian Day NASA)

Andrew Fraknoi, a long-time member of the SETI Institute Board of Trustees, is a retired astronomer, textbook author, and college professor. He is the lead author of a free, on-line astronomy textbook at: <http://openstax.org/details/astronomy> and writes science fiction stories on astronomical themes. He was co-author (with Dennis Schatz) of two books about eclipses: *Solar Science* (a book of activities) and *When the Sun Goes Dark* (a children's book.) You can read his fiction and see more about his educational work at <http://www.fraknoi.com> His colleagues have named Asteroid 4859 Asteroid Fraknoi to recognize his contributions to the public understanding of science.