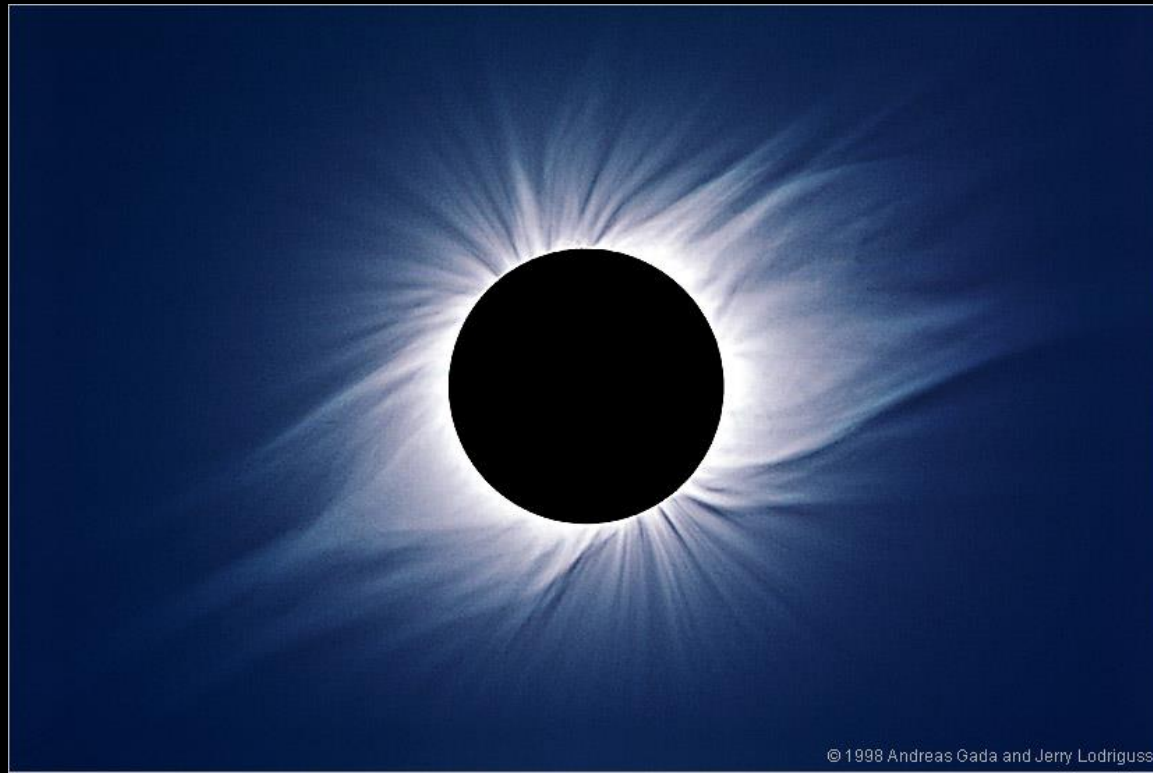


Solar and Lunar Eclipses



What is an eclipse?

- An eclipse occurs any time something passes in front of the Sun, blocking its light. This can be the Earth or the Moon.

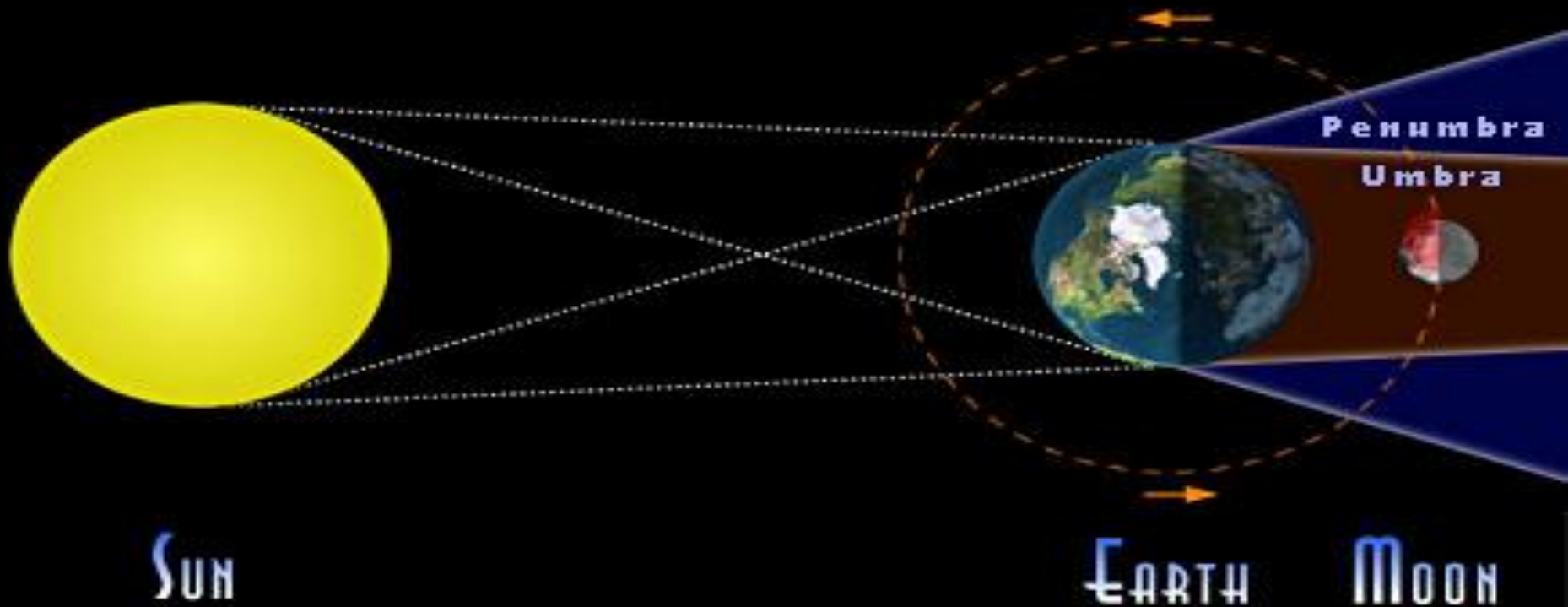


Is there more than 1 kind of eclipse?

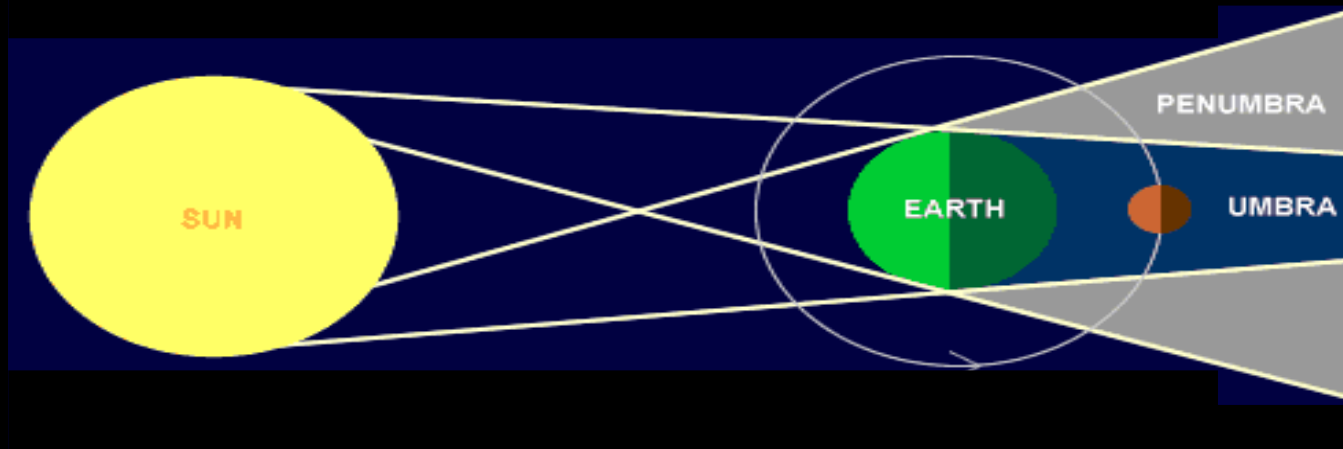
- Yes!! There are lunar and solar eclipses.
- Lunar Eclipse- When the Earth casts a shadow on the moon, causing the moon to go dark.
Earth comes between the Sun and the Moon and casts a shadow on the Moon (Full Moon)
- Solar Eclipse- When the Moon casts a shadow on the Earth, causing the sun to go dark.
The Moon comes between the Sun and Earth and casts a shadow on part of Earth (New Moon)

Lunar Eclipses

- The Earth moves between the Sun and the Moon, blocking the Sun's light, and causing the moon to glow red.



- Umbra – The dark inner portion of the shadow cone.
- Penumbral – the lighter outer portion of the shadow.



Types of Lunar Eclipses

- Total Lunar Eclipse – when the Moon passes completely into the Umbra, or total shadow of the Earth.
- Partial Lunar Eclipse – Occur when the Moon does not fully move into the Umbra.
- Penumbral Lunar Eclipse – When the moon passes only through the penumbra, or partial shadow. They are barely visible.

Total Lunar Eclipse – when the Moon passes completely into the Umbra, or total shadow of the Earth.

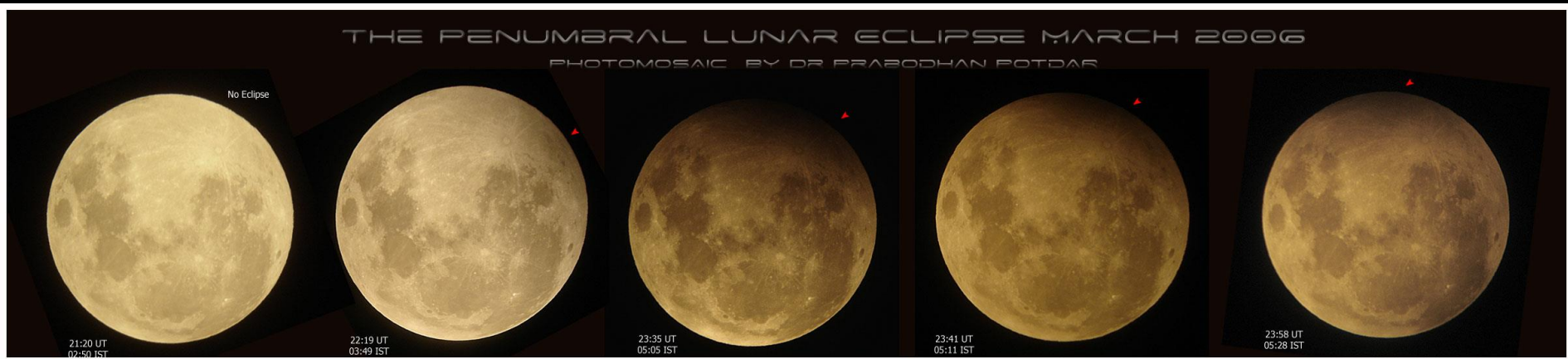
Total Lunar Eclipse March 3, 2007



Partial Lunar Eclipse – Occur when the Moon does not fully move into the Umbra



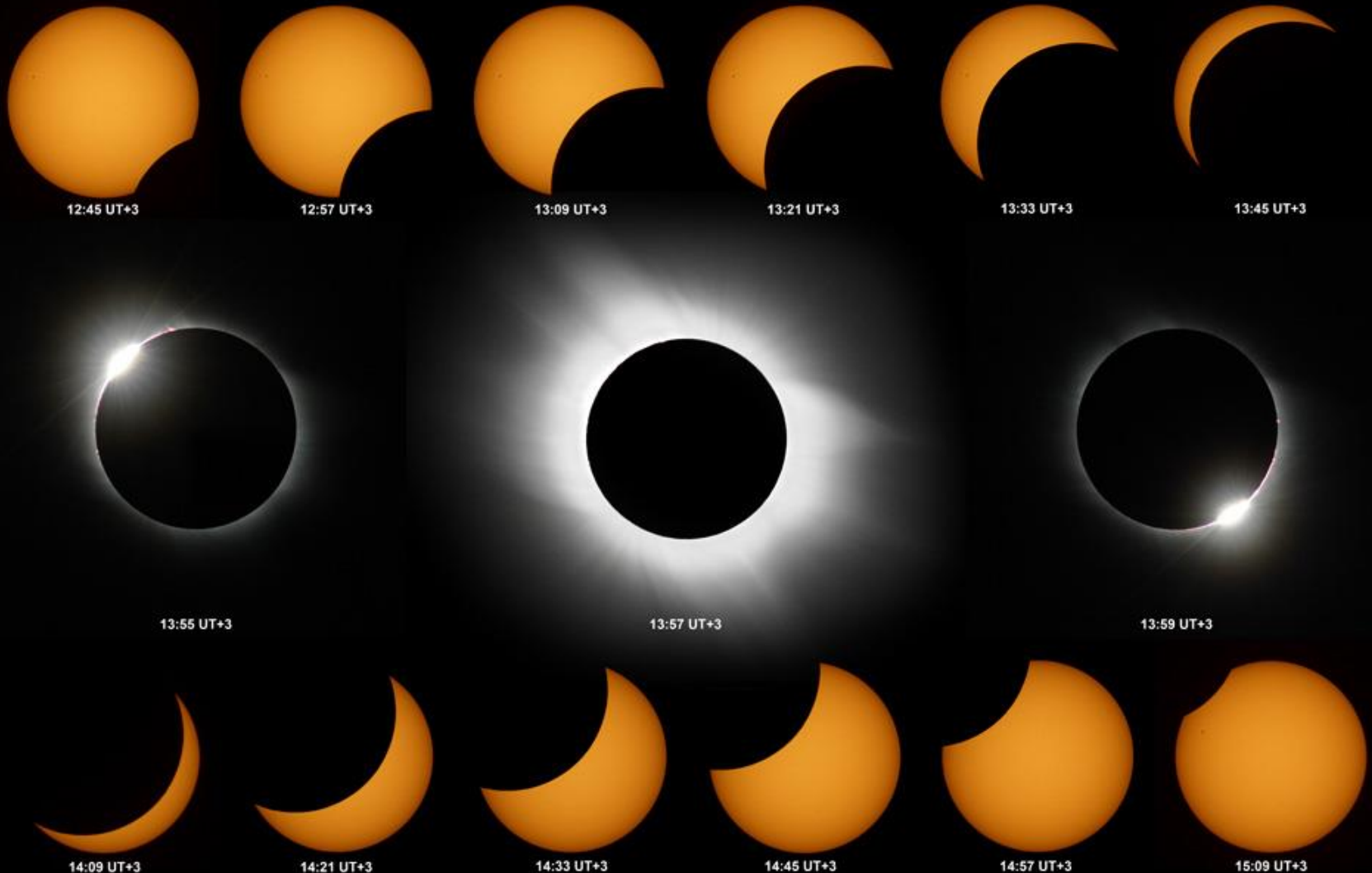
Penumbral Lunar Eclipse – When the moon passes only through the penumbra, or partial shadow. They are barely visible.



Types of Solar Eclipses

- Total Solar Eclipse – can only occur if you are at the exact spot within the moon's umbra (which isn't very big).
- Partial Solar Eclipse – Visible if you are in the penumbra of the shadow. Only some of the moon will be shadowed.
- Annular Eclipse – occurs when the moon is farthest from the Earth in its orbit. This makes the moon look smaller, so during the eclipse you see an outer ring of light from the Sun.

Total Solar Eclipse – can only occur if you are at the exact spot within the moon's umbra (which isn't very big).



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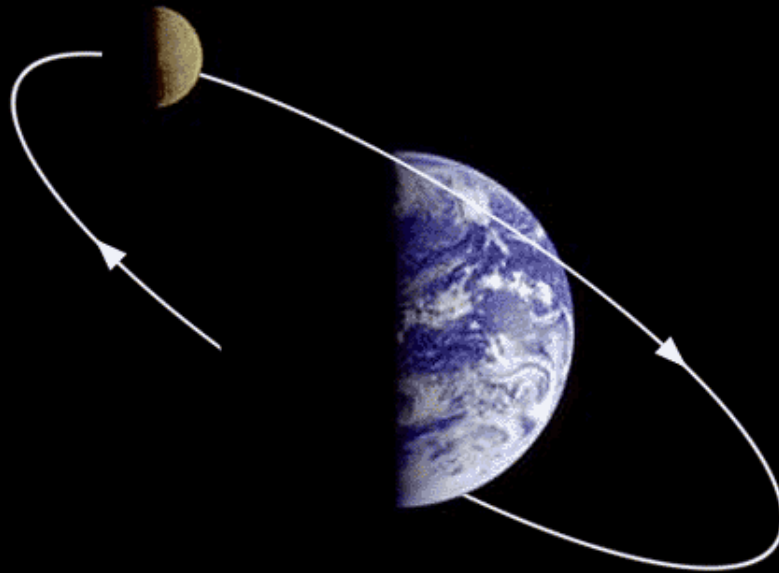


How often do Eclipses Happen?

- That depends!! Lunar Eclipses happen more often than Solar Eclipses.
- Why? Well everyone who is experiencing nighttime during a lunar eclipse can see it.
- But you have to be at the exact spot on Earth to see a Solar Eclipse.
- The spot on Earth is so small, that the same place only sees a Solar Eclipse every 350 years!!

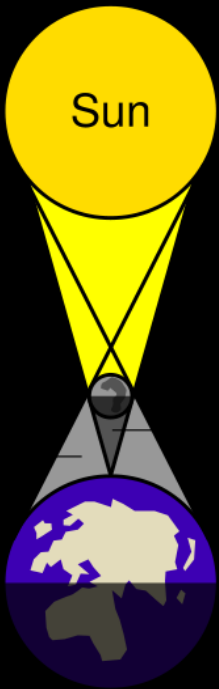
Why Don't We See Lunar Eclipses More Often?

- Well, lunar eclipses don't happen everyday because the Moon's orbit is tilted. So, during most months, the Moon is above or below the Earth's shadow.



Eclipse Seasons

- Syzygy- The times where the Moon, the Earth, and the Sun line up perfectly for an eclipse.



LUNAR ECLIPSE

