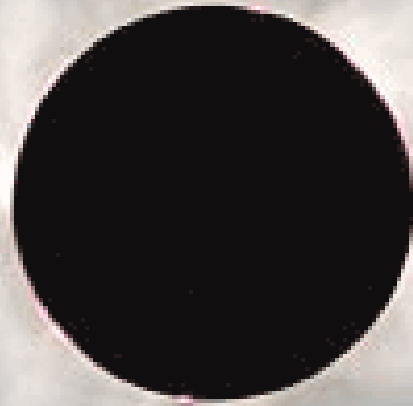
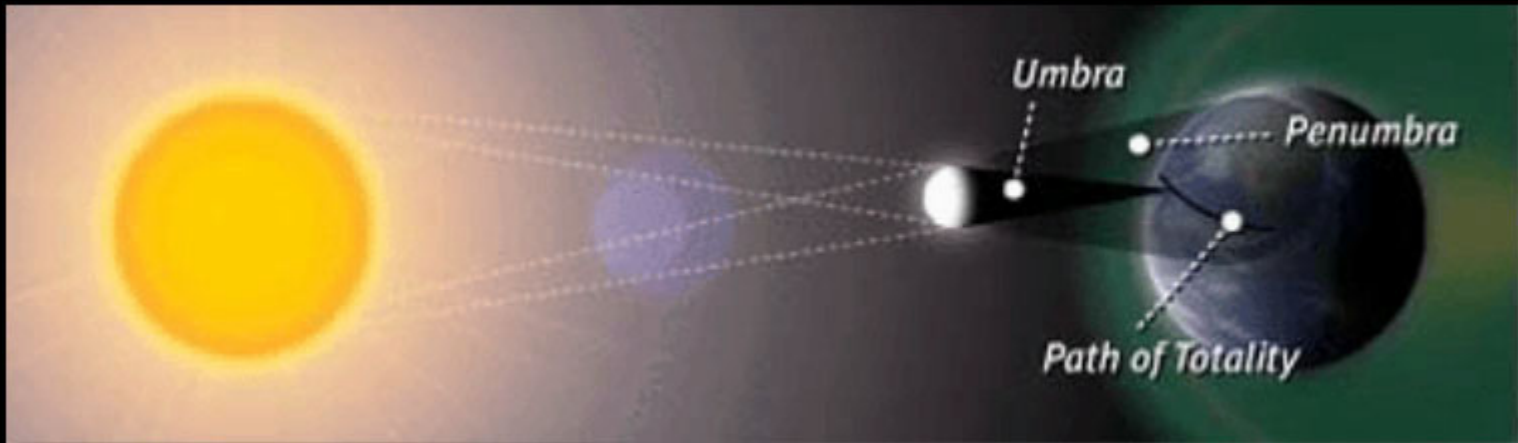


Solar Eclipses



Solar eclipses: the big picture

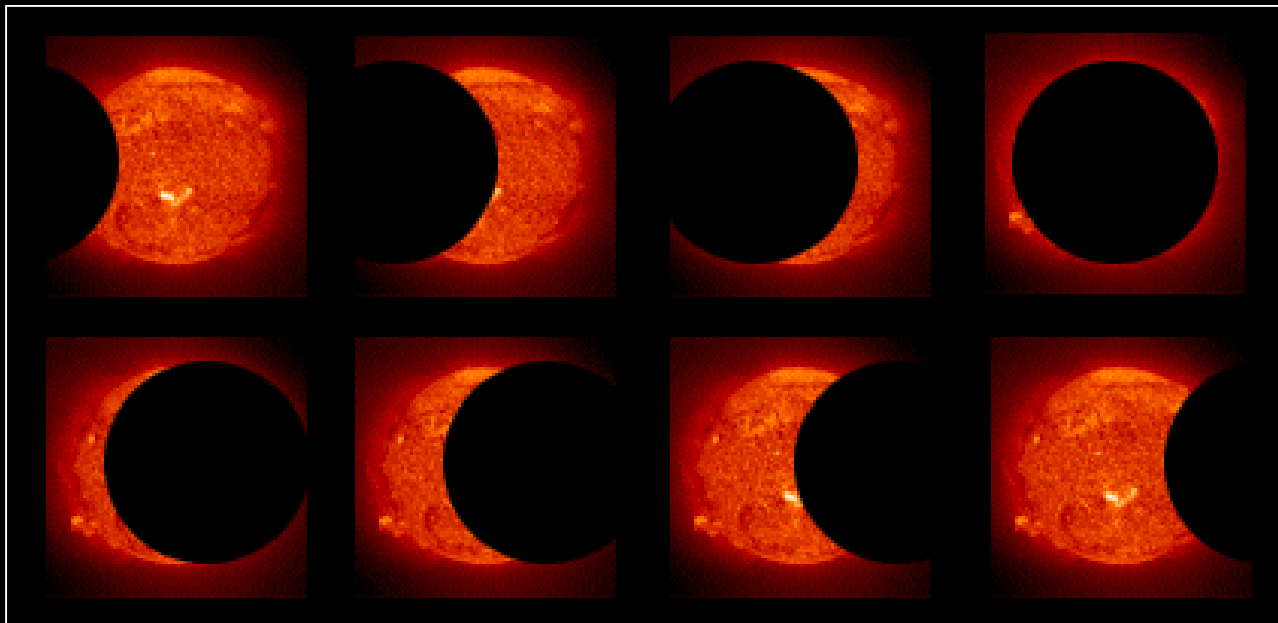
This drawing shows how the Sun, moon and Earth line up during a solar eclipse. The shadow area where you could see a total eclipse is only 92 miles wide. If the entire Sun appears covered by the moon, this is called a total eclipse; if only part, then it is a partial eclipse.



[Click here to see an eclipse animation](#)

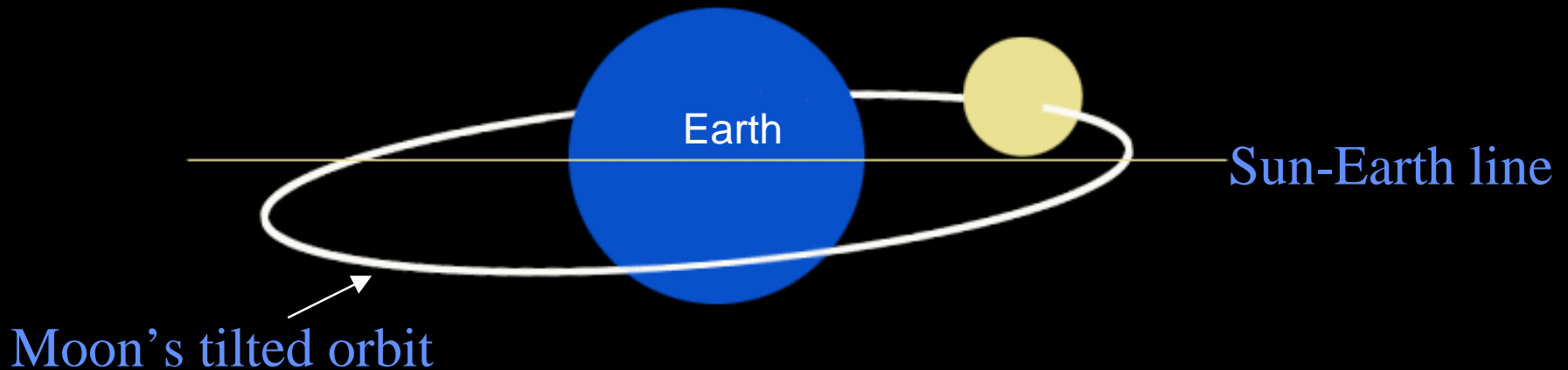
What do eclipses look like?

- Below you see an illustration of a **total eclipse** as seen from Earth. The entire process lasts only less than two hours, with the whole Sun blocked for up to four minutes or less. Right then the corona seems to “glow” around the edges of the moon. Total eclipses only occur somewhere on Earth about once every 18 months.



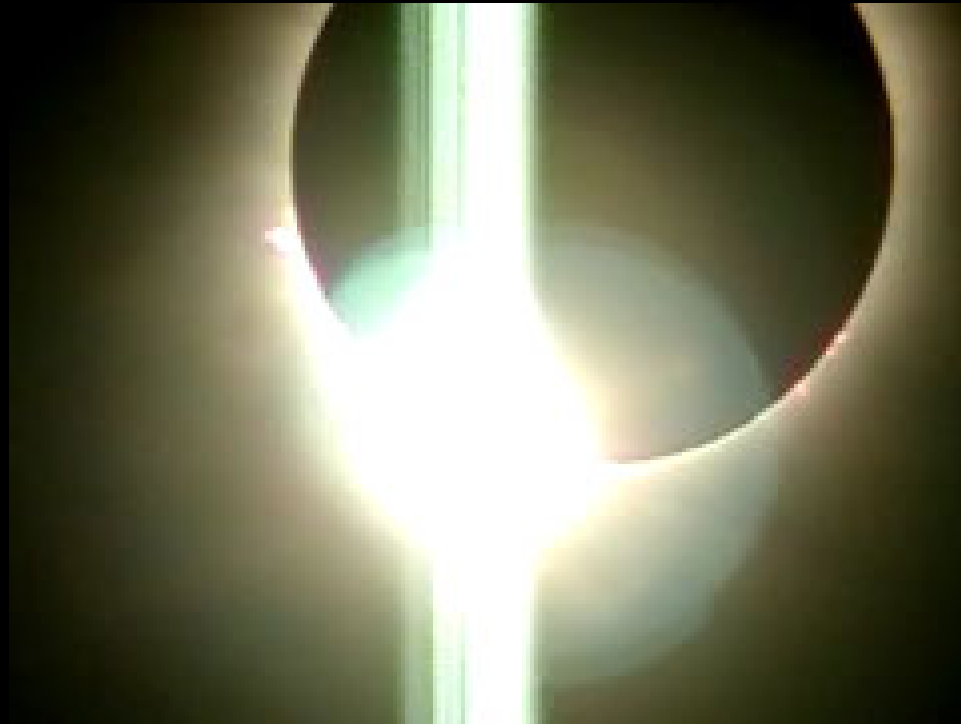
Why don't eclipses happen every month?

- At first thought, it would seem that we should have an eclipse each month when the moon passes between the Sun and the Earth. Why not?
- The answer lies in the slight tilt (5°) of the Moon's path in relation to the Earth's path. It is usually above or below the direct sight line to the Sun.



Total solar eclipse video

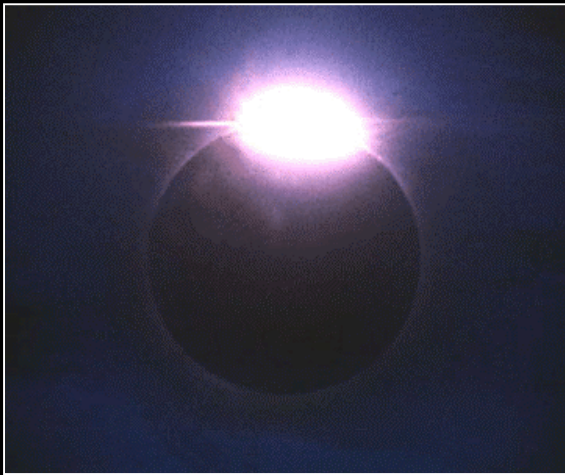
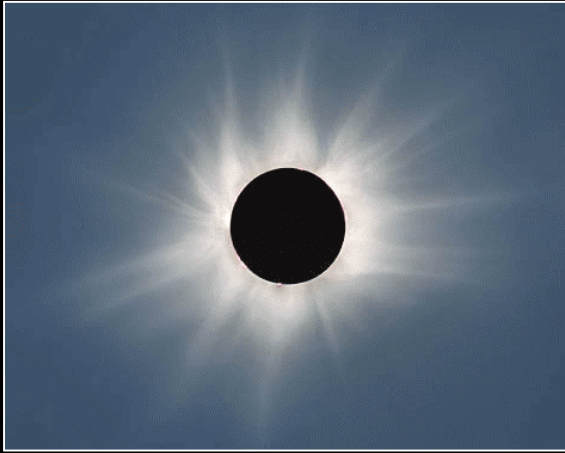
This video of the June 21, 2001 eclipse seen in Africa shows the Sun just as it is going into totality



Click on image to play video



Total eclipse photos



Watching a total eclipse . . .

- * As the crescent of light disappears, tiny specks of light are visible around the edge of the Sun. These specks of light are called Bailey's Beads and are the last rays of sunlight shining through the valleys on the edge of the Moon.
- * Suddenly the sky is dark, but if you look toward the horizon you will see a reddish glow like a sunset. Once the Sun is totally eclipsed, the Sun's corona can be seen shining in all directions around the Moon. This is a spectacular sight because the only time the Sun's corona can be seen is during a total solar eclipse. Temperatures begin to fall.
- * Also visible during a total solar eclipse are colorful lights from the Sun's chromosphere and solar prominences shooting out through the Sun's atmosphere. Without sunlight, bright stars and planets can be seen from the areas on earth in the Moon's shadow.

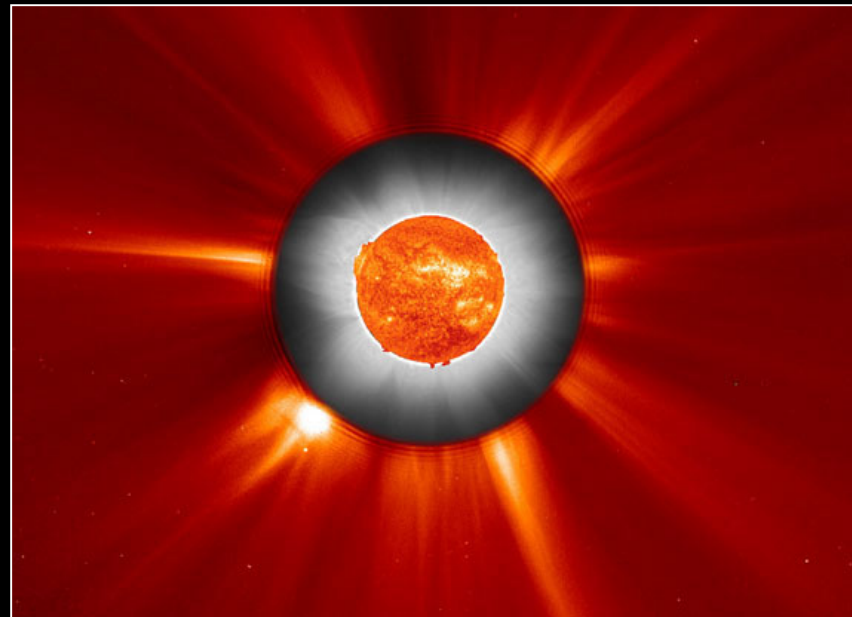
“Bailey’s Beads”
appearing just after
totality



Why do scientists care?

- Free from the blinding glare from the Sun itself, the corona that surrounds it is usually the prime target for the observations. So during an eclipse, expeditions go out to whatever sites seem most favorable, to capture what may be a once-in-a-lifetime observation of things that are otherwise hidden by the Sun's brightness.
- SOHO creates a false eclipse with its coronagraph instrument and observes the Sun all day. Its observations can be compared with others on Earth during an eclipse to help gain an even better understanding.

An image of the Sun was placed on top of an eclipse image, which was centered on a coronagraph showing the extended corona (June 21, 2001)



Eclipse image: Williams College

