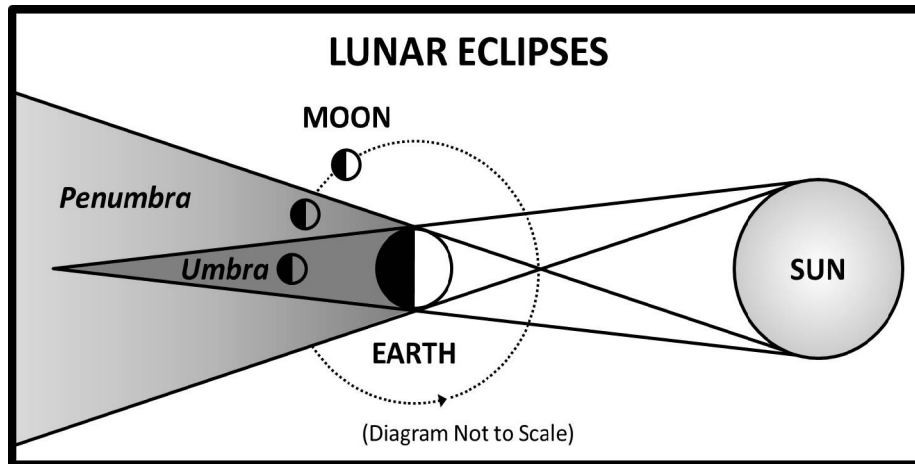


BRIEF GLOSSARY OF SOME LUNAR ECLIPSE RELATED TERMS

Lunar Eclipse Partial or complete obscuration of the Full Moon due to the passage of the Moon through some or all of the Earth's shadow. This can only occur at Full Moon when Sun, Earth and Moon are aligned (in this order). Usually the Moon passes above or below Earth's shadow so no eclipse occurs.



LUNAR ECLIPSE TYPES

1. **Penumbral** Moon passes through Earth's penumbral shadow.
2. **Partial** A portion of Moon passes through Earth's umbral shadow.
3. **Total** Entire Moon passes through Earth's umbral shadow.

SHADOW TYPES

1. **Penumbral Shadow** Earth blocks part but not all Sunlight from reaching Moon.
2. **Umbral Shadow** Earth blocks all Sunlight from reaching Moon.

ECLIPSE MAGNITUDES AND GREATEST ECLIPSE

1. **Umbral Magnitude** Fraction of Moon's diameter immersed in (or obscured by) Earth's umbral shadow at greatest eclipse
2. **Penumbral Magnitude** Fraction of Moon's diameter immersed in (or obscured by) Earth's penumbral shadow at greatest eclipse
3. **Greatest Eclipse** Instant when distance between Earth's umbral shadow axis and Moon's disk center reaches a minimum.

RISE AND SET TERMS

- 1. Horizon (True)** Apparent intersection of sky with Earth's surface in absence of visual obstructions. Hence, boundary between sky and Earth's surface.
- 2. Sunrise/set** Upper edge of Sun's disk on horizon.
- 3. Moonrise/set** Upper edge of Moon's disk on horizon.

TERMS RELATING TO POSITION ON SKY

- 1. Altitude** Angular distance from horizon vertically up to celestial object. Examples: halfway up is 45° ; overhead (the zenith) is 90° . An average hand width is about 7° .
- 2. Azimuth** Angular distance measured around the horizon usually starting at north as the zero point and measured toward east. Hence, the azimuth of the four cardinal points (north, east, south and west) would be 0° , 90° , 180° and 270° respectively.

TWILIGHT TYPES

- 1. Civil** Center of Sun 6° below horizon. Terrestrial objects clearly distinguished, horizon clearly defined and brightest stars are visible.
- 2. Nautical** Center of Sun 12° below horizon. Navigational stars visible, general outlines of objects distinguishable but horizon indistinct.
- 3. Astronomical** Center of Sun 18° below horizon. In absence of light pollution, sky dark enough for all astronomical observations and scattered sunlight less than that from starlight and other natural sources.