Annular Solar Eclipse

April 21, 2020
Context: Parts of Kerala, Karnataka and Tamil Nadu witnessed an annular solar eclipse on 26th Dec 2019

- The Moon's orbit around the Earth is tilted with relation to the Earth's orbital plane by ~ **5 degrees** two intersecting points called 'Lunar nodes'. The nodes also rotate around the earth once in 18 years.
- Solar eclipse happens when the moon, while orbiting the Earth, comes in between the Sun and the Earth. It is a rare phenomena
- Depending on how much of the sun is blocked there are different types of Solar eclipse Total, Annular, Partial and Hybrid


Annular Solar Eclipse

- Conditions for occurrence
    1. New Moon
    2. Moon is near apogee ((the farthest point of the Moon from Earth)
    3. Moon at lunar node
- Sun is not blocked completely and appears as "Ring of FIre"
- Baily's Beads are caused by the Moon's mountains, valleys, and craters. These surface features create an uneven edge of the Moon, where small "beads" of sunlight still shine through the lowest parts for a few moments after the rest of the Sun is covered. It is also called as "Diamond Ring effect"
- Corona can be studied when the sun's glare is blocked by the moon.

Other types

Total Solar Eclipse

- Conditions for occurrence
    1. New Moon
    2. Moon is near perigee (the closest point of the Moon from Earth)
    3. Moon at lunar node
- It is observed on the those region of the Earth which is traced by the Moon’s full shadow or umbra
- Sun is completely blocked by the moon

Partial Solar Eclipse

- It is observed on the those region of the Earth traced by the Moon’s lighter shadow or penumbra

Hybrid Eclipse

It is a rare phenomenon where the eclipse is annular for the first few seconds. For the rest it will be a total eclipse.

Safety measures

- It is not advisable to look at the Sun during a solar eclipse with naked eyes.
- Only eclipse glasses that have a certification with “ISO 12312-2 international standard” are safe for use, according to NASA.
- Other options are the number 14 welder’s glass, or a pinhole projector that allows a user to project the image of the sun on paper or cardboard.