

on 4th July. This position of the earth is called APHELION (for moon and satellites it is APOGEE). (Energy received is low at this point of time). And *on Jan 3*, it is nearest – Known as Perihelion. However this variation is miniscule. Velocity of a celestial body is maximum at aphelion/apogee.

Ecliptic – The ecliptic is the apparent path of the Sun on the celestial sphere as seen from the Earth's center, and also the plane of this path, which is coplanar with the orbit of the Earth around the Sun.

Insolation – Amount of Sun radiations received. The insolation received at the surface varies from about 320 Watt/m² in the tropics to about 70 Watt/m² in the poles. Maximum insolation is received over the subtropical deserts, where the cloudiness is the least. *Equator receives comparatively less insolation than the tropics (as there is cloud formation due to evaporation)*. Generally, at the same latitude the insolation is more over the continent than over the oceans. In winter, the middle and higher latitudes receive less radiation than in summer.

Layers of sun

a. Inner Zones

- Inner most is the **Core**,
- Outer Core is Fusion Zone and is also **Radioactive Zone**
- **Convection Zone**

b. Atmosphere

- Next is **Photosphere**, here **Sunspots** (*Sunspots are temporary phenomena on the photosphere of the Sun that appear visibly as dark spots compared to surrounding regions. They are caused by intense magnetic activity, forming areas of reduced surface temperature. Although they are at temperatures of roughly 3000–4500 K (2727–4227 °C), the contrast with the surrounding material at about 5780 K (5500 °C) leaves them clearly visible as dark spots*) form. Sunspots form in a cyclical manner and period of maximum sunspots is called period of Solar Activity. Here apart from the dark sunspots, **Foculus** form which are very bright spots which are the converging points of the convection currents
- Next is **Chromosphere**, where **Plages**– Bright Spots form.
- Outermost is **Corona**, here **Solar Flares** (*A solar flare is a sudden brightening observed over the Sun's surface which is interpreted as a large energy release. Solar flares affect all layers of the solar atmosphere - photosphere, chromosphere, and corona*) and **Prominence** form.