

Q) Briefly describe various segments of atmosphere. How these segments are maintaining the Earth Radiation Balance?

Good answer!!

Answer

The envelope of gases surrounding the Earth is called it 'atmosphere'. Atmosphere is divided into five basic layers, each with distinct characteristics -

Improve the paper presentation and neatness part a bit

Troposphere

This lower atmospheric layer starts from 8 Km and extends till 14 Km. Temperature here gradually decreases to -50°C . Clouds are a distinct feature of this layer - Tropopause separates this layer from Stratosphere.

Stratosphere

The temperature in this layer gradually increases to 50°C due to presence of ozone layer. Height of this layer extends from 15 Km to 50 Km. Ozone is the layer that is implicated in maintaining Radiation Balance - Stratopause separates this layer from the next.

Mesosphere

This layer extends from 50 to 85 Km. It is the coldest layer where temperature reaches -100°C . Meteors burn in this layer - Weather Balloons also are present here.

Thermosphere

This layer extends from 85 Km to 500 Km. Temperature ranges between 250 to 1727°C. This is because of the presence of ions - Space shuttles and auroras exist here. This layer is also called "upper atmosphere".

Erosphere

This is the layer beyond which unlimited space starts.

Maintenance of Earth Radiation Balance

Earth's Radiation Balance depends on the amount of energy absorbed and reflected by the earth and its atmosphere.

- 1) Of the total sunlight that reaches the Earth's atmosphere, 6% is reflected back from atmosphere while 16% is absorbed by it.
- 2) 20% of Sun's radiation is reflected back by the clouds (troposphere) and 3% is absorbed by them.
- 3) 4% of the radiations are reflected back from the Earth surface and 51% are absorbed by land and ocean. This absorbed amount is eventually returned back via atmosphere and clouds back into the space.