

Continued! - Composition of the Atmosphere

classmate

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1) **Troposphere** :- The first atmospheric layer lying closest to the earth's surface, is the Troposphere.

The characteristic features of the Troposphere are its great density present in its composition. In addition to nitrogen and oxygen, CO_2 and water vapour (nearly all of the water vapour contained in the atmosphere is concentrated in the troposphere) and of numerous particles of various origin.

→ Another characteristic of this layer is that temperature decreases at nearly uniform rate with increased altitude. This is for every 1000 feet / 305 meters of altitude the temperature drops an average of 3.6°F / 2.0°C (or 0.6°C per every 100 meter of ascent). This rate is known as the Normal Lapse Rate.

→ The upper boundary of troposphere varies depending upon geographic latitude. The greatest height of the troposphere is recorded in the equatorial and tropical zones, where it reaches 16 to 18 kilometers while in the polar and circumpolar regions it is located at an average altitude of 8 to 10 km.

Tropopause :- The altitude at which the normal lapse rate ceases to function is called Tropopause, which separates the troposphere from the Stratosphere (the second layer of the atmosphere).

→ The height of the tropopause depends upon the temperature of lower layers, the cyclonic activities etc. The higher is the temperature of the lower layers, the higher is the height of this layer. The tops of cumulus-nimbus clouds often float in this region.

STRATOSPHERE :-

The Stratosphere lies between about 8-18 km to 50-50 km. It is free from violent weather changes which occur below. So, it is preferred by our jet liners, however, ~~face~~ another menace in stratosphere, namely Jet streams.

Jet streams: Jet streams are high velocity air currents.

Apart from the danger posed by their high velocity air speeds, they give rise to violent overturning of air currents. This overturning is known as CLEAR AIR TURBULANCE (CAT). CAT strikes without warning.

→ In the stratosphere temperature has tendency to rise. This is due to the presence of Ozone.

→ STRATOPAUSE: Stratopause is the level of atmosphere which is the boundary between two layers: the Stratosphere and the Mesosphere.

Vertical layers of the Atmosphere

