

ATMOSPHERE

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- **Definition:**

- Atmosphere refers to the blanket of gases surrounding a star or planetary body held in place by gravity.

- Earths surrounded by a blanket of air, which we call the atmosphere. It reaches over 560 kilometers form the surface of earth. About 99% of the Atmospheric mass lies within 30 kilometers of the surface and 75% lies within the lowest 11 kilometers.

- Atmosphere absorb the energy form the sun.

- It recycle water and other chemicals.

- The atmosphere protects and support life, it protects form high-energy radiation.

- **Gases in Atmosphere:** The atmosphere is comprised of a variety of gases;

- Major gases are Nitrogen (N) and oxygen. Nitrogen is 78% of Earth's atmosphere while oxygen is second abundant gas which makes up 21% of Earth's atmosphere.

➤ Minor gases are Argon 0.9% , Carbon dioxide 0.03%

• with very small percentage of other elements.

• Layers of Atmosphere:

• There are five layers of atmosphere.

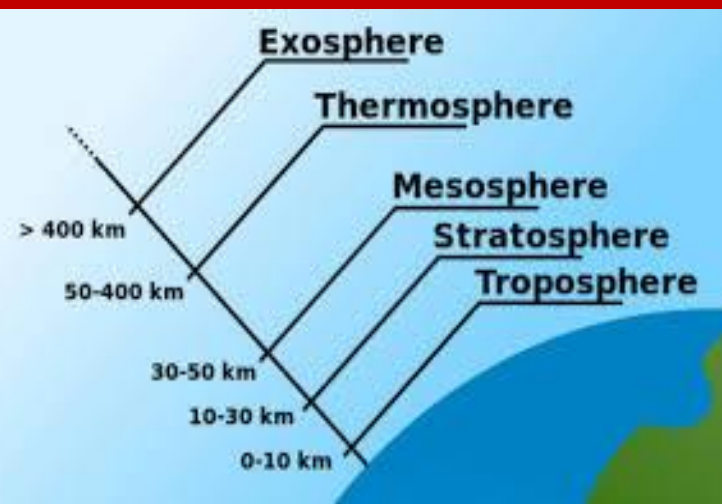
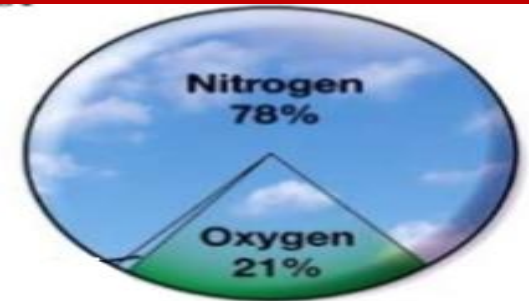
1. Troposphere

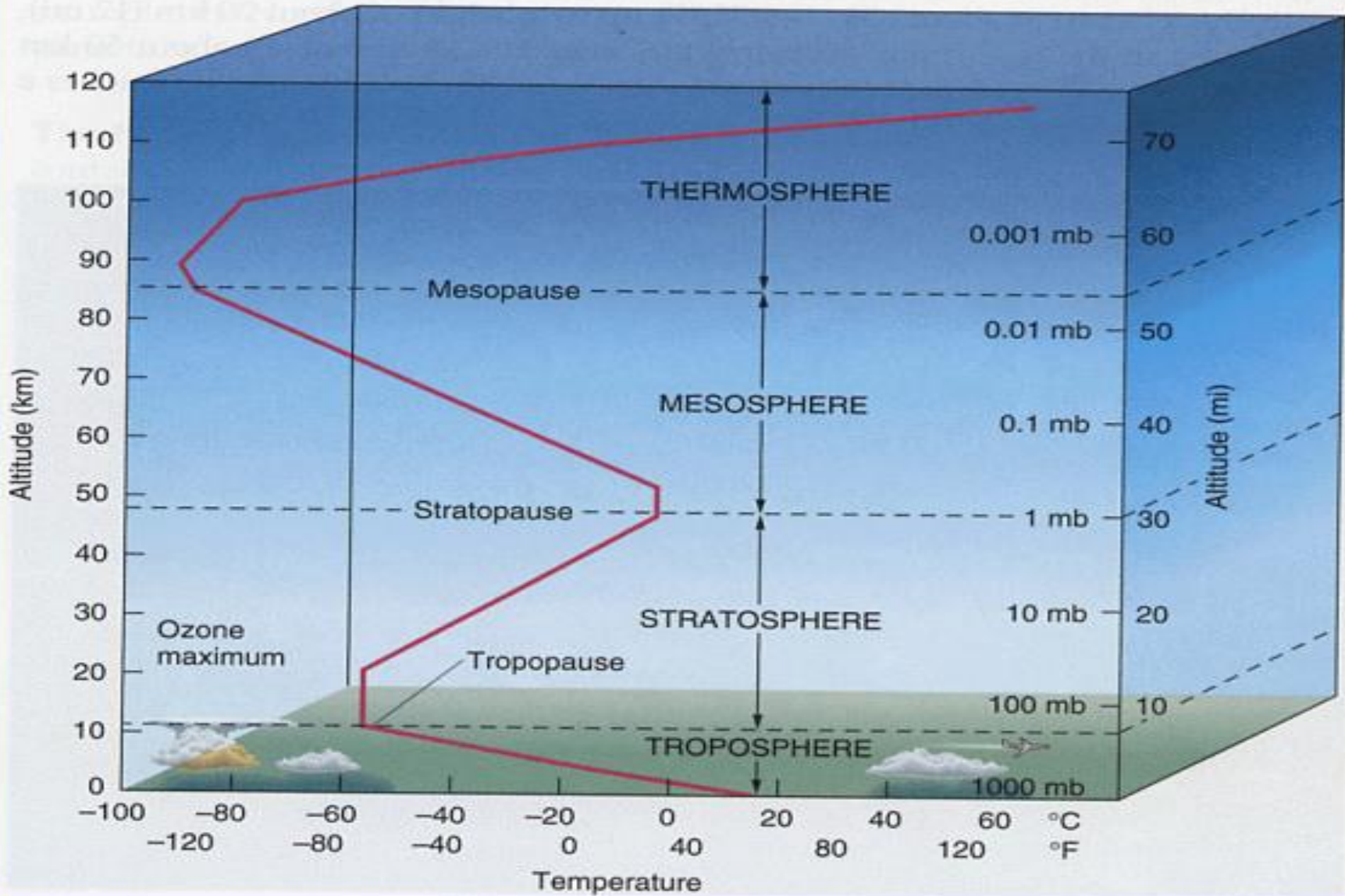
2. Stratosphere

3. Mesosphere

4. Thermosphere

5. Exosphere





1) Troposphere:

- Troposphere is the most important layer of the atmosphere because all kinds of weather changes take place only in this layer.
- It is the lowest and thinnest layer about 16 km equator and 8 km at poles.
- It contains 90 % of the atmosphere mass.
- In this Temperature decrease with altitude at a rate of 6degree centigrade per kilometer. Almost all aircrafts fly in this region.
- The major constituents of troposphere are nitrogen and oxygen gases. Although concentration of carbon dioxide and water vapours is negligible in atmosphere,



- but they play a significant role in maintaining temperature of the atmosphere. Both the gases allow visible light to pass through and absorb the infrared radiations emitted by the Earth's surface .

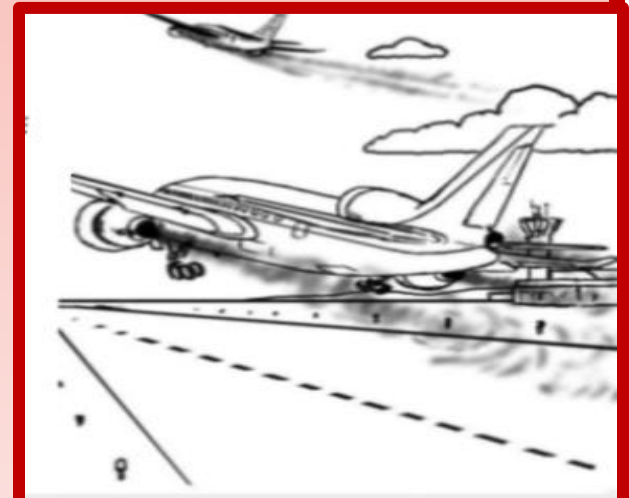
- We live in this layer. Boundary between the troposphere and the stratosphere is called the tropopause.

2) Stratosphere:

- This layer extends up to 50 kilometers. In this layer temperature rises gradually up to 2 degree centigrade.

- In this layer temperature increases with altitude.

- No weather occurrence in this layer.

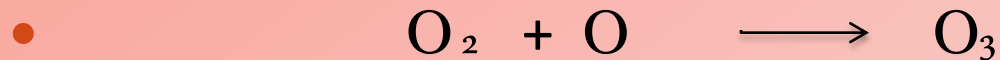


- Stratosphere contains high level of ozone layer. It helps to absorb high energy ultraviolet radiations from the sun, it breaks down into monatomic and diatomic oxygen.



- The mid stratosphere has less UV light passing through it. Here O and O₂ recombine

- to form ozone. Ozone formation in this region results in formation of ozone layer.



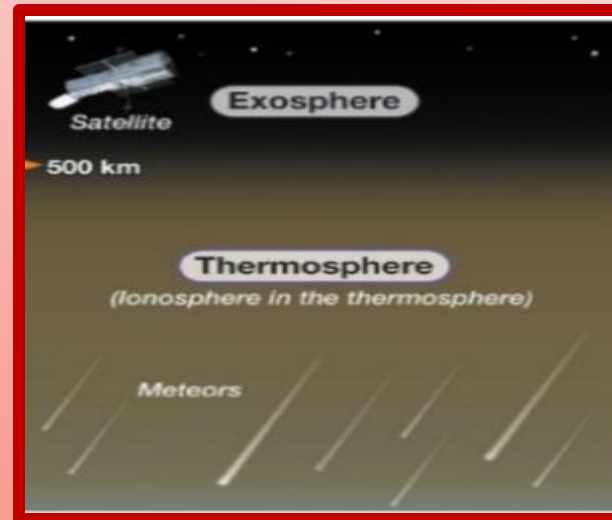
3) **Mesosphere:**

- “The coldest layer of the atmosphere is known as the mesosphere.”
- Mesosphere extends up to almost 80 km high. In this layer gases are less dense which absorb very little UV radiation. In this temperature decreases as altitude increases. It is the layer where meteors burn.



4) Thermosphere:

- The Thermosphere is the Fourth layer of Earth's atmosphere. The thermosphere is directly above the mesosphere and below the exosphere.
- The word Thermosphere is derived from Greek word "Thermos" which means heat.
- It extends to almost 600 km high.
- In this layer temperature increases with altitude and even temperature can go high as 1,500 degree centigrade because of high temperature it absorbs X-rays and extreme ultraviolet radiations from the Sun.



• 5) Exosphere:

- The exosphere begins at about 500 km above Earth and does not have a specific outer limit.
- It is the layer where satellite orbit Earth.