



## Atmosphere and Its Layers

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# ATMOSPHERE AND ITS LAYERS

## ATMOSPHERE

- One of the main components of Earth's interdependent physical system
- It is composed of about 78% nitrogen, 21% oxygen, and 1% other gases

## LAYERS

### Troposphere:

- Extends from Earth's surface upto 12 kilometers
- The **lowest part of the atmosphere**- the part we live in
- **Temperature in the troposphere decreases with height**
  - The top of the troposphere is called **tropopause**
- **Densest atmospheric layer**
- Contains about **75% of all of the air in the atmosphere**, and 99% of water vapour (which forms clouds and rain)

### Stratosphere:

- Located between 12 and 50 kilometers above Earth's surface
- Contains **much of the ozone** in the atmosphere
  - Ozone molecules in this layer **absorb ultraviolet (UV) radiation** from the Sun, resulting in an increase in temperature
- It is **nearly cloud- and weather-free**
- It's the **highest part of the atmosphere that jet planes can reach**

### Mesosphere:

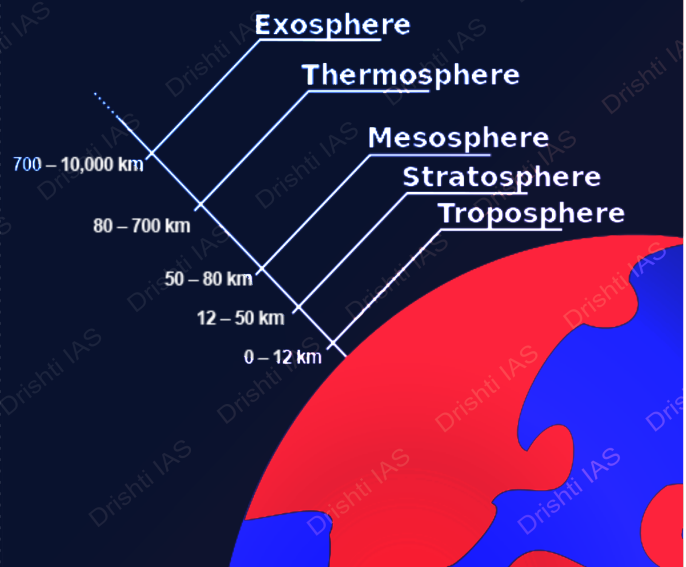
- Located between about 50 and 80 kilometers above Earth's surface
- The top of this layer is the **coldest place found within the Earth system**
- It forms **noctilucent clouds**, the highest clouds in Earth's atmosphere
- Most **meteors burn up** in this atmospheric layer
- **Sounding rockets and rocket-powered aircraft** can reach the mesosphere

### Thermosphere:

- Located between about 80 and 700 kilometers above Earth's surface
- Its **lowest part contains the ionosphere**
- The **temperature of the thermosphere varies between night and day and between the seasons**
- The **aurora borealis (northern) and aurora australis (southern)** are sometimes seen here

### Exosphere:

- Located between 700 and 10,000 kilometers above Earth's surface.
- The **highest layer of Earth's atmosphere**.
- There's **no weather at all** in this layer.
- Most Earth **satellites orbit in this layer**.
- At the bottom of the exosphere is a **transition layer called the thermopause**.



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