

# OUR ATMOSPHERE



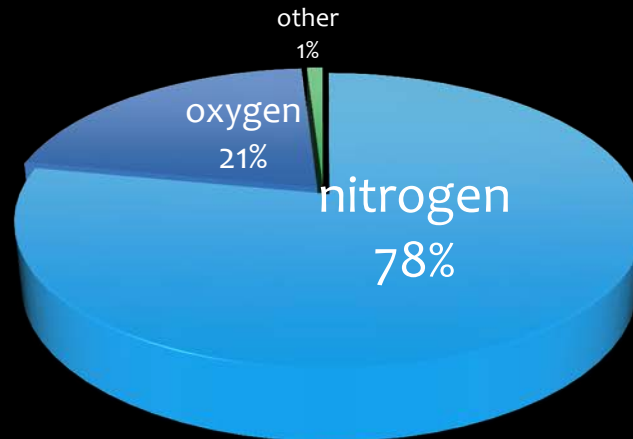
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# Composition

In the 700km high atmosphere, our oxygen makes up 21% and nitrogen makes up 78%, while other gases make up a mere 1%.

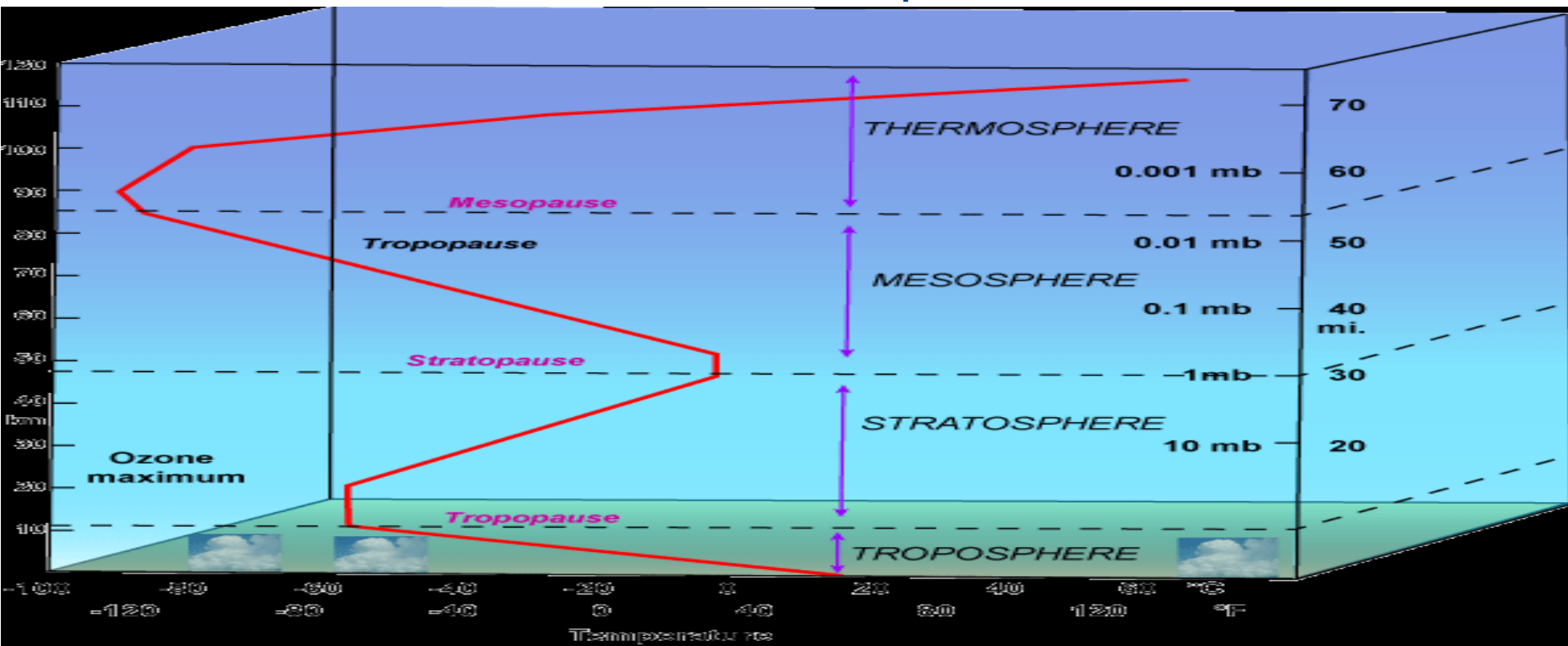
Water is also found in the atmosphere, but most of it is an invisible gas, called water vapor. When atmospheric conditions change, water vapor can change into solid or liquid water and snow or rain might fall from the sky.

Composition of the atmosphere



# Atmospheric Pressure and Temperature

- \* The atmosphere is held around the earth by gravity. Gravity pulls gas molecules in the atmosphere towards the earth's surface, causing *air pressure*. Air Pressure is the measure of the force with which air molecules push on a surface.



# Layers of Earth's atmosphere



- \* These 5 layers include: The troposphere, the stratosphere, mesosphere, the thermosphere, and the Ionosphere. These layers have different names because of their meaning. For example, Meso- means middle, and the mesosphere is in the middle. Thermo- means heat, and the thermosphere is where temperatures are at their highest(1000°C)

# The Troposphere and the Stratosphere

- \* The Troposphere is the layer in which we live in. It is the densest atmospheric layer in the atmosphere. It has about 90% of mass the atmosphere contains. Almost all of the carbon dioxide, water vapor, clouds, air pollution, weather, and life-forms that are on earth, are in this layer.
- \* The Stratosphere is home to the *Ozone Layer*. The *Ozone Layer* protects life on earth by absorbing harmful ultraviolet radiations. The lower stratosphere's temperatures can go down to about  $-60^{\circ}\text{C}$ . Though this is true, temperature rises as altitude increases in the stratosphere.



# The Mesosphere

- \* Above the stratosphere is the mesosphere. The Mesosphere is in the layer in the middle of the atmosphere. It is the coldest layer. Temperatures can be as low as  $-93^{\circ}\text{C}$ . Temperature decreases as altitude increases, just like troposphere.

# The Thermosphere

The Thermosphere is the uppermost atmospheric layer. As said earlier, the temperatures in this layer are approximately  $1000^{\circ}\text{C}$ . Although the temperature in this layer are really high, it does not feel like it. Air density affects the heating of both the thermosphere and the troposphere.

# The Ionosphere

This layer is home to the auroras or shimmering lights in the sky located in the polar regions and is located in between the thermosphere and mesosphere or the upper mesosphere and lower thermosphere. These auroras, when electrically charged, which are mostly electrons accelerate along the magnetic field lines into the upper atmosphere where they collide with gas atoms causing them to give off light.





# Other Information

- \* The remaining 1% of the atmosphere is made up of argon, carbon dioxide, water vapor, and other gases.
- \* Nitrogen is released when dead plants and dead animals break down and when volcanoes erupt
- \* Oxygen is made by phytoplankton and other plants.
- \* The Thermosphere is less dense than the troposphere

