

CHAPTER - 14

"Environmental Chemistry I: Atmosphere"

SLOs

SOCH BADIO BY MAK.

• What do you know about Temperature Inversion & why does this happen?

Temperature Inversion :- It is a meteorological phenomenon where the typical temperature gradient in atmosphere is reversed. Normally, air temperature decreases with altitude, but during inversion it is reversed.

Reason / Cause :-

The cause of temperature inversion is a layer of warmer air sits above cooler air, reversing the usual temperature gradient. This can result from radiational cooling, frontal systems, or high-pressure subsidence & can effect air quality, weather pattern & temperature variations.

• What is the temperature variation in different layers of atmosphere? ~~with altitude~~.

Layer	At top	At bottom
Troposphere	-55°C	17°C
Stratosphere	-5°C	-55°C
Mesosphere	-93°C	-5°C
Thermosphere	1800°C	-93°C

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• Write sources & harmful effects of CO , SO_2 & CFCs.

CO :-

Sources :- i - Burning of wood / organic material
ii - Result of incomplete combustion.

Harmful effects :-

- i - headache
- ii - dizziness
- iii - When inhaled for a long time, it may cause death.

SO_2 :-

Sources :- i - burning fossil fuels
ii - Can also be released during volcanic eruption.

Harmful Effects :-

- i - Asthma
- ii - Bronchitis
- iii - Emphysema
- iv - Lung diseases

CFCs :-

Sources :- i - Refrigerants ii - Solvents
iii - Fire Extinguishers.

Harmful effects :-

- i - Ozone depletion
- ii - Skin allergy
- iii - Damage liver, kidney, nervous system

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• Why Statue of Liberty has turned green?

Statue of Liberty has turned green due to acid rain.

Reason:-

The acid rain reacts with carbonates in limestone. The limestone dissolves & the statue gradually crumbles away. Thus, Acid rain damages building & statues and has turned Statue of Liberty green.

• Describe the height range & temperature changes in different layers of Atmosphere.

Layer	Height Range	Temperature Change
Troposphere	0-12 km	17°C to -55°C
Stratosphere	12-50 km	-55°C to -5°C
Mesosphere	50-80 km	-5°C to -93°C
Thermosphere	Above 80 km	-93°C to 1800°C

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