

ACID RAIN

DEFINITION

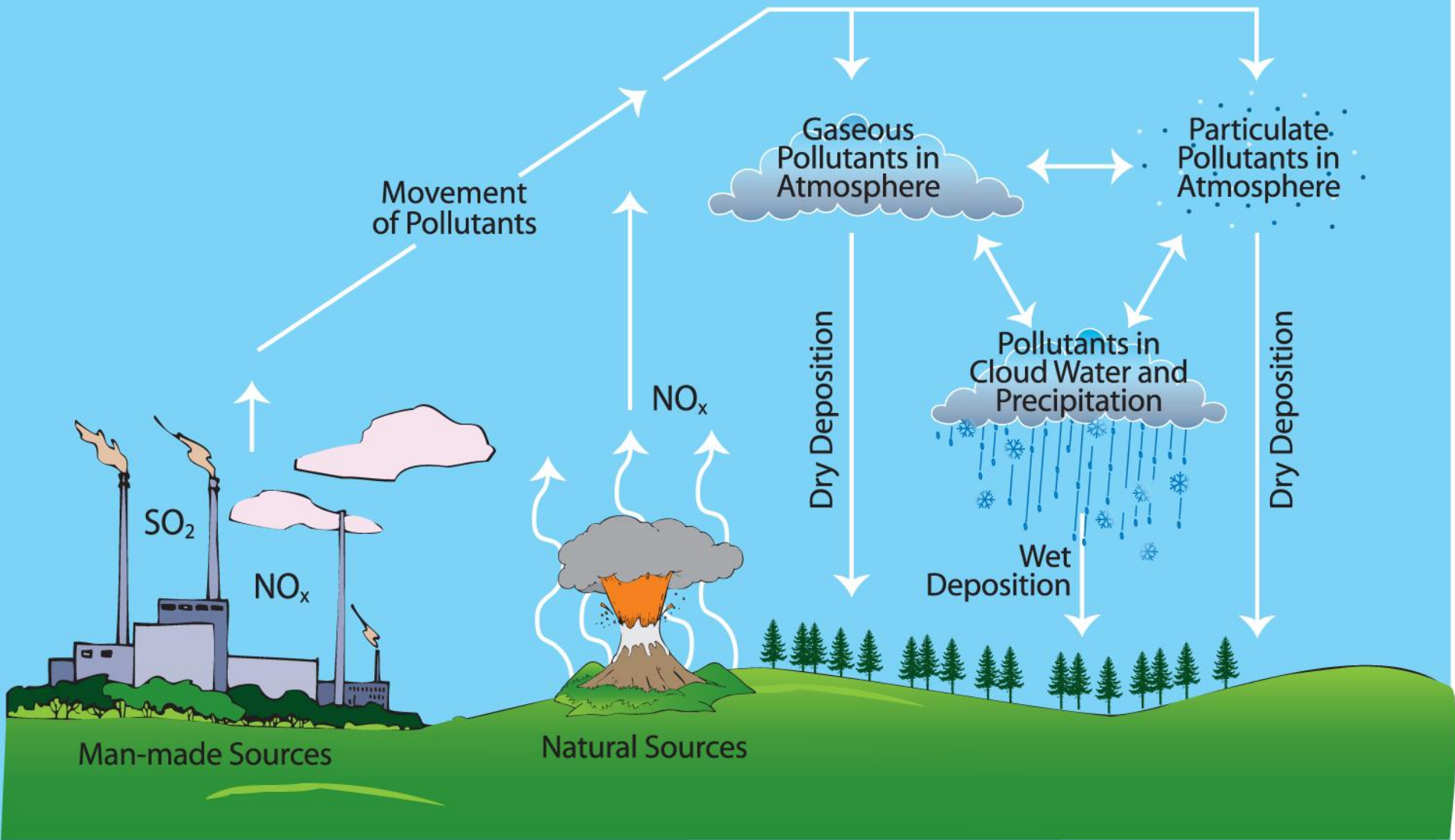
- The term acid rain means any form of precipitation like rain, fog, snow, or hail that contains harmful substances such as nitrogen and sulphur oxides.
- It is a precipitation that is very acidic – $\text{pH} < 5$ which has harmful effects on plants, aquatic animals and buildings.

CAUSES OF ACID RAIN

- Oxides of sulphur (SO_x)
 - Oxides of nitrogen (NO_x)
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- These are emitted primarily from automobiles and industries.
 - It is due to fossil fuel burning which emits these dangerous air pollutants.

Effect of Pollutants

- These pollutants coming down with rain is called **wet deposition**.
- The same pollutants reaching the ground by gravity during dry intervals is called **dry deposition**.
- They are carried over thousands of km by wind and get deposited on soil, vegetation, water and property causing great damage.



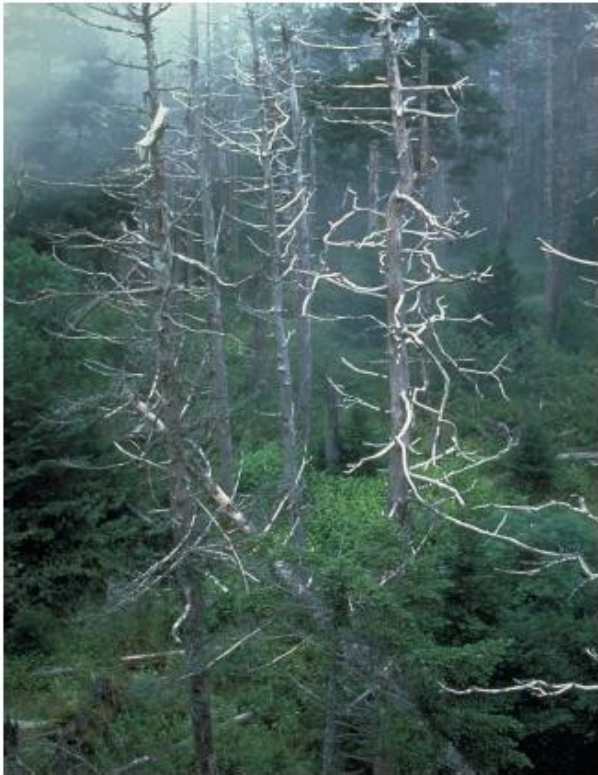
Reactions taking place...

- $\text{SO}_2 (\text{g}) + \text{H}_2\text{O} (\text{l}) \rightarrow \text{H}_2\text{SO}_3 (\text{l})$
- $\text{SO}_3 (\text{g}) + \text{O}_2 + \text{H}_2\text{O} (\text{l}) \rightarrow \text{H}_2\text{SO}_4 (\text{l})$
- $\text{NO}_3 (\text{g}) + \text{O}_2 + \text{H}_2\text{O} (\text{l}) \rightarrow \text{HNO}_3 (\text{l})$
- $\text{HCl} (\text{g}) + \text{H}_2\text{O} (\text{l}) \rightarrow \text{HCl} (\text{aq})$

EFFECTS OF ACID RAIN

- Affect the growth of aquatic life
- Retardation of terrestrial growth
- Contamination of air, water and food
- Corrosive to metals, buildings, limestone, marble, etc
- Increases acidity of the soil
- Accumulation of toxic elements

Effect on plants...



Effect on buildings...



Effect on aquatic life...

