

Volcanic Lightning

Prelims: Current events of national and international importance | Geography

Why in News?

Volcanoes cause hazardous natural phenomena of volcanic lighting.

• **Volcanic lightning** – It is a powerful barrage of lightning that occurs, not through thunderstorms, but rather *during volcanic eruptions*.

Normal lightning is <u>caused by the sudden electrostatic discharge</u> (the sudden flow of an electric current caused when two differently charged objects come together) **between two electrically charged regions of a cloud**.

- Occurrence At the early stages of a volcanic eruption.
- Causes <u>Main cause as the collision that occurs between ash particles</u> <u>within the volcanic plume</u>, while its overall mechanism and process are still being studied.
- **Mechanism** The collision and rubbing of ash particles together lead to the generation of static electricity, which, in turn, builds up charges and creates flashes of lightning.
- Location can be found in two places:
 - \circ At the dense ash clouds located ${\bf closer}\ {\bf to}\ {\bf the}\ {\bf ground},\ {\bf volcanic}$ lightning is an incredibly dangerous on the surface.
 - **Higher up, in the eruption plume**. Here, ice particles form (from water vapourised from the magma) and collide, building electric charges and creating lightning visible strikes at higher levels.

Water content found **in volcanic plumes** is **higher than** that <u>in</u> **thunderstorms**.

- Concerns & Warning system Dangerous lightning show can also be viewed as a flashy warning.
- **Obstruction on aeroplanes pathways** The volcanic <u>ash generated</u> <u>from eruptions poses a great risk of engine failure</u> if they are ingested and solidifies on the turbine blades.
- When these systems track the lighting patterns, they send out alerts to the residents to evacuate well before the actual eruption begins.

The **World Wide Lightning Location Network (WWLLN**) is one of the most notable warning system.

• The first volcanic lightning - The earliest eruption described by Pliny the Younger, a lawyer and magistrate of Ancient Rome, from Mount Vesuvius in Italy in 79 AD.

Reference

The Hindu Volcanic Lightning

