

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 caused by the sudden **electrostatic discharge** (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** - Main cause as the collision that occurs between ash particles within the volcanic plume, 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:
 - At the dense ash clouds located **closer to the ground**, 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 in thunderstorms.

- **Concerns & Warning system** - Dangerous lightning show can also be viewed as a flashy warning.
- **Obstruction on aeroplanes pathways** - The volcanic ash generated from eruptions poses a great risk of engine failure 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](#)