

Opinion Article

Volcanic eruption: the reason for earth's devastation

Alexander John *

Department of Geography, Maharshi Dayanand University, Rohtak, India.

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DESCRIPTION

A volcano is an opening or hole on the surface of the earth through which gases, volcanic ash, and hot liquid or semi-liquid rock can escape. Although volcanic hotspots can sometimes cause them to emerge in the middle of plates, they are most frequently observed when tectonic plates clash or separate. Volcanic eruptions occur when lava and gas are blasted violently from a volcano. A volcanic explosion is a magnificent display of the power of the Earth. Although interesting to observe, eruptions may also cause devastating loss of life and property, especially in densely populated places. They may be preceded by small earthen vents emitting steam and gas, which may begin with a build-up of gas-rich magma (molten rock) in reservoirs close to the Earth's surface.

Types

A variety of volcanic eruptions in which lava, tephra (ash, lapilli, volcanic bombs, and blocks), and various gases are thrown from a volcanic vent or fissure have been classified by volcanologists. Three main types of eruptions exist.

- The most well-known form of eruption is magmatic eruption. They entail the gas within the magma decompressing and accelerating it. Examples of magmatic eruptions include the Hawaiian eruption, Strombolian eruption, Vulcanian eruption, Peléan eruption, and Plinian eruption.
- The expansion of steam is the source of phreatic eruptions, commonly referred to as steam-blast eruptions. A combination of steam, water, ash, volcanic bombs, and blocks are ejected together with hot rock and/or magma when cold groundwater or surface water hits hot rock or magma.
- Phreatomagmatic eruptions are caused by the compression of gas within magma, which is the exact opposite of the mechanism that causes magmatic activity. The three primary types of phreatomagmatic eruptions are Surtseyan eruptions, Submarine eruptions, and subglacial eruptions.

Causes

Temperatures are so high deep below the Earth that certain rocks slowly melt, creating lava, a viscous fluid. Since magma is lighter than the solid rock around it, it rises and gathers in magma chambers. Some of the magma eventually finds its way to the Earth's

surface through fractures and vents. Lava is the name given to erupting magma. Volcanic eruptions can be explosive or non-explosive. The explosivity of an eruption depends on the magma's composition. Gases can develop quite fast from thin, fluid magmas. This kind of magma flows out during the eruption of the volcano. Human fatalities from lava flows are uncommon because they travel too slowly for anyone to prevent. It is difficult for gases to escape viscous, sticky magma. As the pressure builds, the gases violently escape and explode. Volcanic eruptions might cause a great deal of destruction and death. They can vent heated tephra clouds from the summit or side of a volcano. These violent storms destroy everything in their path as they rip across the highlands. Ashes have detonated in the sky and then plummeted to earth like fluffy snow. Ash covers may suffocate vegetation, animals, and people if they are thick enough. Mudflows develop when hot volcanic material strikes water from streams or melting snow and ice. Near active volcanoes, entire communities have been buried by mudflows.

The Earth's mantle within the crust is classified into a number of areas depending on the seismology used. These cover the transition zone, which extends from 415 to 650 km, the lower mantle, which covers 650 to 2891 km, and the upper mantle, which covers 8-40 km to 415 km. The conditions are very different from the crust to the mantle. Temperatures rise above 1000 degrees Celsius, and pressures increase considerably. This molten, viscous rock is gathered in enormous chambers deep under the crust of the Earth. Lava rises to the surface in search of cracks and holes in the mantle because it is lighter than the surrounding rock. When it finally reaches the surface, it erupts from the volcano's top. As the molten rock is below the surface, it is referred to as magma, and when it rises, it erupts as ash.

Health threats

Extremely hazardous gases, ash, lava, and rock are all released by volcanoes, along with other combustible materials. Volcanic eruptions have resulted in the deaths of humans. Volcanic eruptions may cause floods, mudslides, power outages, contaminated drinking water, and wildfires, among other significant health risks. Following a volcanic eruption, concerns include infectious disease, respiratory sickness, burns, injuries from falls, and automobile accidents due to the ash's slippery, foggy conditions.

*Corresponding author: Alexander John, Email: johnalex5445@gmail.com