

Volcanic Eruption: A Cause for Earth's Destruction

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DESCRIPTION

A volcano is an opening or hole in the earth's surface through which magma (hot liquid or semi-liquid rock), volcanic ash, and gases can escape. They are most commonly seen where tectonic plates collide or divide, but volcanic hotspots can also cause them to form in the midst of plates. When lava and gas are ejected explosively from a volcano, it is known as a volcanic eruption. A volcanic eruption is a spectacular demonstration of the Earth's might. While eruptions are fascinating to witness, they can also result in catastrophic loss of life and property, particularly in highly populated areas. They can be preceded by emissions of steam and gas from minor vents in the earth, which can start with an accumulation of gas-rich magma (molten underground rock) in reservoirs near the Earth's surface.

Types of volcanic eruptions

Volcanologists have identified several types of volcanic eruptions in which lava, tephra (ash, lapilli, volcanic bombs, and volcanic blocks), and other gases are ejected from a volcanic vent or fissure. There are three different types of eruptions:

- Magmatic eruption is the most well-known type of eruption. They involve the gas within magma decompressing and propelling it forward. Hawaiian eruption, Strombolian eruption, Vulcanian eruption, Peléan eruption, Plinian eruptions are examples of magmatic eruptions.
- Phreatic eruptions (also known as steam-blast eruptions) are a type of eruption that is fueled by steam expansion. When cold ground or surface water meets hot rock or magma, it superheats and explodes, splitting the surrounding rock and ejecting a mixture of steam, water, ash, volcanic bombs, and volcanic blocks.
- The compression of gas within magma drives phreatomagmatic eruptions, which is the polar opposite of the process that drives magmatic activity. Surtseyan eruptions, Submarine eruptions, and Subglacial eruptions are the three main forms of phreatomagmatic eruptions.

What causes volcanoes to erupt?

Deep under the Earth, temperatures are so high that some rocks slowly melt, forming lava, a sticky fluid. Magma is lighter than the surrounding solid rock because of this it rises and accumulates in magma chambers. Through vents and cracks, some of the magma finally makes its way to the Earth's surface. The term "lava" refers to magma that has erupted. Explosive and non-explosive volcanic eruptions are both possible. The composition of the magma determines the explosivity of an eruption. If the magma is thin and fluid, gases can emerge very quickly. As the volcano erupts, this type of magma rushes out. Lava flows rarely result in human fatalities because they move too slowly for people to avoid them. Gases cannot easily leave viscous, sticky magma. The gases violently escape and explode as the pressure rises. Volcanic eruptions have the potential to be incredibly destructive and deadly. They can release hot tephra clouds from a volcano's side or top. These raging storms tear through the mountains, annihilating whatever in their path. Ashes have fallen to Earth like powdery snow after exploding from the sky. If ash blankets are thick enough, they can suffocate vegetation, animals, and humans. When heated volcanic debris collides with water from streams or melted snow and ice, mudflows form. Mudflows have buried entire cities near active volcanoes.

Why do volcanoes erupt?

Depending on individual seismology, the Earth's mantle within the crust is divided into several regions. These include the upper mantle, which spans 8-40 km to 415 km; the transition zone, which spans 415 to 650 km; and the lower mantle, which spans 650 to 2891 km. From the crust to the mantle, the circumstances are drastically different. The pressures grow dramatically, and temperatures reach 1000 degrees Celsius. Large chambers within the Earth's crust collect this viscous and molten rock. Because lava is lighter than the surrounding rock, it floats to the surface, looking for fissures and weaknesses in the mantle. After reaching the surface, it ultimately bursts from the volcano's peak. The molten rock is known as magma when it lies beneath the surface and explodes as ash when it rises.

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Health threats from a volcanic eruption

Volcanoes release extremely flammable gases, ash, lava, and rock, all of which are extremely dangerous. Humans have died as a result of volcanic eruptions. Floods, mudslides, power outages, poisoned drinking water, and wildfires are all potential health

hazards from volcanic eruptions. Because of the ash's slippery, foggy conditions, infectious disease, respiratory illness, burns, injuries from falls, and car accidents are all concerns following a volcanic eruption.