

Types of volcanic eruptions

The most common type of volcanic eruption occurs when magma is released from a volcanic vent and becomes lava. Eruptions can be effusive, where lava flows like a thick, sticky liquid, or explosive, where fragmented lava explodes out of a vent.

Volcanologists classify eruptions into several different types.

Hawaiian eruption

In a Hawaiian eruption, fluid basaltic lava is thrown into the air in jets from a vent or line of vents at the summit or on the flank of a volcano. The jets can last for hours or even days, a phenomenon known as fire fountaining. The spatter created by bits of hot lava falling out of the fountain can melt together and form lava flows, or build hills called spatter cones. Lava flows are very fluid, so they can travel miles from their source before they cool and harden. Hawaiian eruptions get their names from the Kilauea volcano on the Big Island of Hawaii, which is famous for producing spectacular fire fountains.

Strombolian eruption

Strombolian eruptions are distinct bursts of fluid lava (usually basalt or basaltic andesite) from the mouth of a magma-filled summit conduit. The explosions usually occur every few minutes at regular or irregular intervals. The explosions of lava, which can reach heights of hundreds of metres, are caused by the bursting of large bubbles of gas, which travel upward in the magma-filled conduit until they reach the open air.

This kind of eruption can create a variety of forms of eruptive products like spatter, scoria, lava bombs, ash, and small lava flows. Products of an explosive eruption are often collectively called tephra. They are one of the least violent of the explosive eruptions, although they can still be very dangerous if bombs or lava flows reach inhabited areas. Strombolian eruptions get their name from the volcano on the Italian island of Stromboli, which has several erupting summit vents.

Vulcanian eruption

A Vulcanian eruption is a short, violent, relatively small explosion of viscous magma (usually andesite, dacite, or rhyolite). This type

of eruption results from the fragmentation and explosion of a plug of lava in a volcanic conduit, or from the rupture of a lava dome. Vulcanian eruptions create powerful explosions in which material can travel faster than 350 metres per second and rise several kilometres into the air. They produce tephra, ash clouds, and pyroclastic density currents.

Vulcanian eruptions may be repetitive and go on for long periods, or they may precede even larger explosive eruptions. They derive their name from the Italian island of Vulcano, where a small volcano that experienced this type of explosive eruption was thought to be the vent above the forge of the Roman god Vulcan.

Plinian eruption

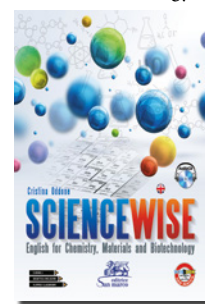
These are the largest and most violent of all the types of volcanic eruptions. They are caused by the fragmentation of gassy magma and are usually associated with very viscous magmas (dacite and rhyolite). They release enormous amounts of energy and create eruption columns of gas and ash that can rise up to 50 km high at speeds of hundreds of metres per second. Ash from an eruption column can drift or be blown hundreds or thousands of miles away from the volcano. The eruption columns are usually shaped like a mushroom, similar to a nuclear explosion. Pliny the Younger, a Roman historian, made the comparison while viewing the 79 AD eruption of Mount Vesuvius.

Plinian eruptions are extremely destructive, and can even destroy the entire top of a mountain. They can produce falls of ash, scoria and lava bombs miles from the volcano.

Lava domes

Lava domes form when very viscous, rubbly lava (usually andesite, dacite or rhyolite) is squeezed out of a vent without exploding. The lava piles up into a dome, which may grow by inflating from the inside or by squeezing out lobes of lava. These lava lobes can have different shapes.

They are not just passive piles of rock: they can sometimes collapse and form pyroclastic density currents, extrude lava flows, or experience small and large explosive eruptions. A dome-building eruption may go on for months or years, but they are usually repetitive.



Surtseyan eruption

Surtseyan eruptions are a kind of hydromagmatic eruption, where magma or lava interacts explosively with water. In most cases, Surtseyan eruptions occur when an undersea volcano has finally become large enough to break the water surface. Water expands when it turns to steam, so when getting into contact with hot lava it explodes and creates plumes of ash, steam and scoria. Lava created by a Surtseyan eruption tends to be basalt, since most oceanic volcanoes are basaltic.

The classic example of a Surtseyan eruption was the volcanic island of Surtsey, which erupted off the south coast of Iceland between 1963 and 1965.

(adapted from www.geology.com)



ACTIVITIES

1 Read the text and fill in the table with the information required.

Type of eruption	Product	Frequency/duration	Name origin

2 Use the information gathered in the table to write a short paragraph on the main types of volcanic eruptions.

3 Use a monolingual dictionary and explain the following words or phrases.

- | | |
|--------------------------|-------------------------------------|
| 1 Vent | 7 Plug of lava |
| 2 Fire fountaining | 8 Pyroclastic density current |
| 3 Jet | 9 Rubbly |
| 4 Spatter | 10 Lava lobe |
| 5 Scoria | 11 Plumes of ash |
| 6 Lava bombs | 12 Steam |

4 How many volcanoes are there all over the world? Which countries have the most volcanoes? Use the Internet to look for information then write a short paragraph.