

Volcanic Eruptions

Deep inside the Earth, magma rises upwards, gathers in pools within or below the crust and tries to get to the surface. Cracks provide escape routes and the magma erupts as a volcano. Steam and gas form clouds of white smoke, small fragments of rock and lava blow out as volcanic ash and cinder, and small hot bombs of lava shoot out and harden. Not all lava is the same. It may be thick and sticky or thin and runny. Lava thickness or viscosity determines the type of volcanic eruption and the kind of rock that forms when the lava hardens. Some volcanoes are active, erupting at any time; some are dormant or cold, waiting to erupt; others are dead or extinct. Volcanoes have shaped many of the Earth's islands, mountains and plains. They have also been responsible for changing weather, burying cities and killing people who live nearby.

THE INSIDE STORY

This cross-section shows the inner workings of a volcano and what happens during an eruption.

Side vent

Under pressure, this side vent branches off from the central vent and carries lava upwards through cracks in the rocks to ooze out the side of the volcano.

WHY PEOPLE LIVE NEAR VOLCANOES

For centuries communities have grown up in the shadows of volcanoes. In Iceland, people use the energy from their island's many volcanoes to provide heat and power. Other people live near volcanoes because the soil is rich and farmers grow crops and graze their herds on the slopes. In Indonesia more people live on the islands with active volcanoes than on the islands with none. Shown here are lush rice terraces growing on the fertile ground near the volcano Mt Agung in Bali, Indonesia.



From the top

A white, smokelike mixture of steam, ash and gas is blown into the air. Hard bits of lava called bombs shoot out from the top while molten lava flows down the sides of the volcano.

Crater

This funnel-shaped opening at the top of the volcano enables lava, ash, gas and steam to erupt.

Cone

The cup-shaped cone is built up by ash and lava from a number of eruptions.

Central vent

The main vent or chimney rises from the magma chamber below. Magma flows up the vent to erupt on the surface as lava.

Sill

Magma does not always find an outlet to the surface. Some gathers, cools and becomes solid between two underground layers of rock.

Magma chamber

Thick molten magma travels upwards from the mantle and collects in large pockets in the crust where it mixes with gases and water. Under pressure from heat in the mantle the magma forces its way through vents to the surface.

Fissure eruption

Some magma forces its way upwards through vertical cracks in the rock and erupts on the surface.