**Volcanoes**

**volcano graphic for the data files.tif**

By Name

Submitted to Instructor Hutchinson

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Introduction

A volcano is a location on the surface of the Earth where magma has erupted out of the interior of the planet. Magma is molten rock, which has melted from the extreme heat (2200°C to 5000°C) and pressure that exists inside the Earth. Once molten rock has erupted onto the Earth’s surface, it is called lava. As lava spreads out on the surface, it cools and becomes solid rock again. The buildup of lava forms hills and mountains on land, and it forms islands if the volcano began on the ocean floor. The Hawaiian Islands, for example, exist because of volcanoes.

Volcano Facts

Stages of Volcanic Activity

Volcanoes are classified as active or inactive. Inactive volcanoes are older and have usually erupted many times. A volcano is described as active if it is currently erupting or expected to erupt eventually.

Eruption Stage

A volcanic eruption occurs when lava, gasses, and other subterranean matter come out of the ground. The exact location of where they come out of is called a vent. A volcano usually has more than one vent. The following table lists three volcanoes and the date of the last eruption:

Eruptions can be violent or quiet. Some eruptions send lava high above the surface in spectacular fountain shapes. Violent eruptions such as these often include chunks of solid rock that were blown off the interior walls of the vent. Quiet eruptions consist of lava simply flowing out of vents. Both types of eruptions can also have gasses, such as sulfur and fluorine gas, coming out of vents.

Cooling and Inactive Stage

Even after a volcano stops erupting, gasses and vapors are still released. Some volcanoes, however, can end one period of eruptions and begin another after many years. Eventually, the volcano reaches the cooling stage. While the volcano cools, it reduces in size from water and weather erosion.

Types of Volcanoes

There are many different types of volcanoes that form depending on the type of eruptions that occurred. These types vary in shape, structure, size, and composition. The following table lists three different types of volcanoes:

|  |  |  |
| --- | --- | --- |
| Name | Country | Volcano Type |
| Izalco | El Salvador | Cinder Cone |
| Kilauea | United States | Shield |
| Mt. Egmont | New Zealand | Composite |

Cinder Cones

Cinder cone volcanoes are formed from explosive eruptions. Because the materials are ejected high into the air from the violent eruption, they cool before they hit the ground. Any tiny, fine-grained rock is then blown away by winds. The coarser rock fragments are left behind in a cone shaped pile, which can be hundreds of meters tall.

Shield Volcanoes

Formed by frequent, quiet eruptions, shield volcanoes are much larger in width than in height. As smooth lava flows build up, a dome shape is formed. Shield volcanoes usually change shape when eruptions become explosive late in the life of the volcano.

Composite Volcanoes

Composite volcanoes are very large and are formed from alternating explosive and quiet eruptions. This results in layers of ejected material covered by the smooth lava flows. Composite volcanoes are usually symmetrical in shape and can be as high as several kilometers.

Types of Lava Rocks

Basalt

Basalt (pronounced buh-SALT) is rock composed of mostly feldspar and pyroxene. Dark in color, basalt is considered to be a fine-grained rock. There are many varieties of basalt, and some contain iron, magnesium, silica, or aluminum.

Obsidian

Sometimes called volcanic glass, obsidian (pronounced ub-SID-ee-en) is semi-translucent glass that contains a large amount of silicon. Obsidian is usually black or dark gray in color, and occasionally red or brown. Obsidian that is green is rare, but does exist. When lava cools so quickly that it does not have time to crystallize, obsidian is formed.

Andesite

Like basalt, andesite (pronounced AN-deh-site) is composed of feldspar and pyroxene and is a fine-grained rock. However, andesite is usually light to medium gray in color. Andesite is one of the most common volcanic rocks and can contain olivine, a green mineral.

Conclusion

There are many shapes and types of volcanoes. The shape and type of a volcano is dependent on the type of lava, the conditions in the Earth, and the age of the volcano. Eruption can be violent or quiet, frequent or not, and definitely unpredictable.