

Today's Outline

- Where Do Volcanoes Occur?
- Nature of Volcanic Eruptions
- Materials Extruded During an Eruption
- Types of Volcanoes and other Landforms
- Plutonic Igneous Activity

Where Plutonic and Volcanic Activity Occur

(1) Convergent Margins within the Volcanic Arc

(2) Divergent Margins at the Mid-Ocean Ridge

(3) Hotspots

Composition	Silica Content	Viscosity	Gas Content	Tendency To Form Pyroclastics	Volcanic Landform
Mafic (Basaltic) magma	Least (~50%)	Least	Least (1-2%)	Least	Shield Volcanoes Basalt Plateaus Cinder Cones
Intermediate (Andesitic) magma	Intermediate (~60%)	Intermediate	Intermediate (3-4%)	Intermediate	Composite Cones
Felsic (Granitic) Magma	Most (~70%)	Greatest	Most (4-6%)	Greatest	Volcanic Domes Pyroclastic Flows

Definition of Viscosity -

Factors Affecting Viscosity

- (1) Composition
- (2) Temperature
- (3) Amount of Dissolved Gases

Materials Extruded During An Eruption

Lava Flows –

Basaltic Lava flows (Hawaiian-Type) 2 Types

(1) Pahoehoe flows –

(2) Ah-Ah Flows –

Lava Tube –

Skylight –

Gas Content



Pyroclastic Material- Ejected Material

Ash Fall- fragments ejected into the air. Fragments range in size from dust-size to meters in diameter. Fragments of molten rock that are ejected into the air are referred to as bombs. They have a projectile (stream-like) shape to them.

Pyroclastic Flows - (nuee ardente) - swiftly moving, turbulent flow composed of gas, and rock fragments

Mudflow (Lahar) – Landslide or mudflow composed of pyroclastic material.

Three Types of Volcanoes

1. Shield Volcanoes

2. Composite Volcanoes

3. Cinder Cones

Cinder Cone – built from ejected fragments of lava.

Composite Volcano (also known as Stratovolcanoes)

Composed of alternating layers of pyroclastic deposits and lava flows

Shield Volcano - a large, broad, slightly domed volcano composed of low viscosity basaltic lava flows, with minor amount of pyroclastic material.

Calderas – a crater larger than 1 kilometer in diameter. They usually form by collapse following an explosive eruption.