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

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

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

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<thead>
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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 - (nuée 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.