

Review Questions Topic 9: Volcanoes

What are the five tectonic settings in which volcanoes form? Explain.

What are the upper and lower end-members of extrusive igneous rocks of intermediate composition?

What is the extrusive equivalent to granite?

What is the extrusive equivalent to gabbro?

Describe how viscosity controls the type of lava flow

What controls the viscosity of a lava?

What is the difference between a gray and a red eruption and what controls them?

How is the gas content of a lava related to its viscosity?

What are the four different types of volcanic shapes and what controls them?

Draw a diagram of a typical volcano, labelling “magma chamber, flank vent, summit vent, and crater”

Describe the FIVE major eruption styles. Which of these are typical of red, and which of gray eruptions?

Provide a real-world example of a volcano for Hawaiian and Strombolian eruption styles

What is the primary volcanic hazard associated with Peléean eruption styles?

What are the two types of lava textures?

Which eruption styles primarily produce lava bombs?

How does Pele’s Hair and Tears form?

Why is the term “volcanic ash” misleading?

Provide at least four ways in which ashfall or ash clouds are hazardous

What volcanic phenomenon was first described in the 16th century as a “glowing cloud”?

Which volcano erupted and destroyed the town of St. Pierre on Martinique in 1902?

Who was Ludgar Sylbaris?

What kind of lava “feature” was Pelée’s Spine?

What is the French word for pyroclastic flow?

Explain the four major ways by which pyroclastic flows form?

What is a lahar? What makes lahar’s and landslides unique among volcanic hazards?

What is a limnic eruption?

How can a volcano trigger a tsunami?

Describe the tectonic setting of the Cascadia Subduction Zone

Which two Cascade volcanoes erupted in the 20th century?

What other continental part of the US, other than the Cascades, Hawaii, and the Desert Southwest, is prone to volcanic eruptions?

Describe the tectonic setting of the Hawaiian Islands

What is the relationship between the Emperor Seamounts, the Hawaiian Seamounts, and the Hawaiian Islands?

What is a hot spot?

Explain how volcanism forms atop a hot spot, and how it creates "hot spot tracks"

How do the Emperor and Hawaiian Seamounts help in reconstructing the movement of the Pacific plate throughout geological time?

What are the three active volcanoes on/near Hawaii's Main Island?

How is Loihi unique?

Explain how pillow lava or pillow basalts form

What is the usual composition of the lava in Hawaii and what rock does it turn into?

What is the tallest volcano in Hawaii?

What is atypical of the Kilauea "volcano"?

For nearly 30 years, this vent of Kilauea was the "dominant face" of volcanism on Hawaii

Which Kilauea vent is found inside the Kilauea caldera?

The Lower Puna eruption of 2018 occurred along a series of?