

Hachimantai's Volcanic Rocks and Magma

The Hachimantai area has some four active volcanoes, including Mt. Yakeyama. These volcanoes are part of the mountainous terrain that forms the backbone of Japan's northeastern Tohoku region; they are also a segment of the northeastern Japan arc of active volcanoes.

Volcanoes come in various shapes, many of which can be observed in this area. Mt. Iwate is a conical stratovolcano, Hachimantai is a flat shield volcano, Onigajo on Mt. Yakeyama is a lava dome volcano, and Mt. Chausudake is a cinder volcano.

Likewise, volcanic rock comes in different forms, which can be broadly divided into two categories: lava or pyroclastic. Lava rock starts as magma that erupts from the Earth's surface, and then cools and hardens. If the material from which the magma is composed rises to the Earth's surface slowly, the water, carbon dioxide, and other gases contained within dissolve as the magma escapes, resulting in solid lava with few cavities. When it rises quickly, foaming occurs, and the resulting lava rock is light and porous.

Pyroclastic rock is magma that fragments after being ejected in an explosive eruption, or lava that, in the process of cooling and hardening, fragments as it crashes down a volcano's slopes and then accumulates.

The shape of a volcano is primarily determined by the viscosity of the magma involved in the eruption, which varies depending on its chemical makeup. For instance, magma with a high silicic acid content will have a high viscosity, and thus will tend not to flow far, resulting in the formation of a lava dome volcano.