

Phreatomagmatic explosion history and petrographical characteristics of Izu-Oshima at southeast

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Izu-Oshima Volcano is northernmost frontal arc volcano of the Izu-Bonin arc. The basement of Izu-Oshima is made up of three volcanos, named Okata, Gyojanoiwaya and Fudeshima Volcanos. The volcano is divided into three groups; the Senzu Group, the Older Oshima Group and the Younger Oshima Group in ascending order. Large eruption has occurred in about 150 years cycle, which include phreatomagmatic explosion around coast.

We report stratigraphic and petrographic study of the volcanic products of southeastern of Izu-Oshima volcano, especially around northeastern part of Habuminato and southwestern part of Habuminato.

Northeastern part of Habuminato

L3 lava, L2 lava, Kotoshi tuff, Ooyanokubo pyroclastic surge deposits, L1 lava, Kakiyara tuff, Sand and Scoria in ascending order.

Kotoshi tuff contain accessory rock fragments of Ryuo-zaki lava (Pl: 3.3 vol.%, Mg#=44). Kakiyara tuff is characterized by containing accretionary lapilli. Rock fragments are Fudeshima volcanic rocks in origin (Pl: 19.6-39.1 vol. %, SiO₂=49.45-50.03 wt.%).

Southwestern part of Habuminato

Shimobara lava (the Old Oshima Group), Silt, Scoria, Habu breccia (N3), Scoria & ash, and Imasaki breccia (Y4) in ascending order.

Habu breccia contain accessory rock fragments of Ryuo-zaki lava (Pl: 1.0-10.8 vol.%, Mg#=44) and Fudeshima volcanic rocks (Pl: 23.2-28.0 vol.%, SiO₂=50.8-51.7). Imasaki breccia contain not only accessory rock fragments of Shimobara lava (Pl:0.2-9.3 vol.%, Mg#=39) but essential rock fragments of Y4 stage lava (Pl:0.3-0.9 vol.%, Mg#=40).

Keywords: phreatomagmatic eruption, essential material, accessory material, basement, matrix, breccia