

Distribution and characteristics of N3 period sediments around Habu and Ryuoazaki, southeastern Izu Oshima

*Haruki Itou¹, Kazuya Hatase¹, Syou Yatuka¹, Izumi Sakamoto¹

1. School of Marine Science and Technology, Tokai University

Izu Oshima is an active volcano mainly composed of basalt lava and pyroclastic rock. In the past 10,000 years, large eruptions have been repeatedly occurring with a cycle of about 145 years, and phreatomagmatic explosions have occurred around Habu Port and off Ryuoazaki in the southeastern of Izu Oshima. In this study, the distribution and petrological characteristics of N3 sediments around Habu and Ryuoazaki are shown, and the activity history of the phreatomagmatic explosion is clarified.

The lithologic divisions in this area are from lower to higher, Ryuoazaki lava, Ryuoazaki layer, Shimobara lava, Suribachi scoria, Suribachi breccia layers (1) and (2), volcanic silt layer 1, M layer, volcanic silt layer 2, Habu lava (N3 activity), and Habu breccia layers (1)-(6).

It is thought that Suribachi scoria erupted from the Suribachi crater during the N3 period and was fused to agglutinate. The rocks equivalent to xenoliths collected from the scoria layer were estimated to be derived from the Ryuoazaki lava based on the Mg# and whole-rock chemical composition values.

Based on the stratigraphy and lithology, the M layer was estimated to have been formed by a phreatic explosion accompanied by a surge that occurred before the deposition of the Habu breccia layers in the vicinity of the Habu / Ryuoazaki.

Habu lava was considered to have erupted due to N3 activity because its Mg# and whole-rock chemical composition were similar to Suribachi scoria, which is estimated to be an N3 ejecta.

The Habu breccia layers is divided into six parts, with the area with a high proportion of matrix as the boundary. Overall, 1) breccia, 2) no-stratigraphy, 3) various rock types, 4) upward gigantic, 5) deterioration of selection degree increased, 6) Change in layer thickness (lateral thinning), etc.

Rock fragments collected from all breccia layers were divided into four groups based on the results of whole rock chemical analysis and observation under a mirror. Three of them are assumed to be "Habu lava origin rock fragments", "Ryuoazaki lava origin rock fragments", and "Ancient Oshima Group equivalent rock fragments".

Explosion activity around Habu · Ryuzaki was thought to have occurred in the following order. 1) Ryuoazaki lava eruption, 2) Ryuoazaki layer due to phreatomagmatic explosion off Ryuoazaki, 3) Shimohara lava eruption, 4) Suribachi crater formation and Suribachi breccia layer formation in Habu area, 5) Explosive activities occurred such as formation of the M layer by phreatic explosion, 6) ejection of Habu lava, and 7) formation of Habu breccia layers by phreatomagmatic explosion. In particular, the activities 4) to 7) occurred during the N3 period, and it is considered that the explosion crater of the maar topography was formed in the habu area.

Keywords: Izu Oshima , N3 period sediments , Mg#

