

Volcanic activity and eruptive products of Kuchinoerabu volcano within the last 10,000 years

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Kuchinoerabujima volcano is an andesitic composite volcano locating on the volcanic front of the Ryukyu arc. Kuchinoerabujima volcano is a swarm of the stratovolcanoes, such as Shintake, Furutake and Noike, and recent eruptions occurred at Furutake and Shinatake cones in the central part of the volcano. During the last century, frequent explosive eruptions are recorded. The last eruption occurred 1980 from a fissure at the summit of Shintake.

Two major sub-Prinian eruptions around 10,000 years ago are recognized. Lower tephra distributes in the north – northeastern slope of Noike volcano. Distribution of this tephra shows that this tephra was erupted from the summit of Noike volcano in the central part of the island. Upper tephra consists of andesitic scoria and distributes mainly in the eastern flank of Furutake volcano and partly welded. No major pumice eruption is recognized after these eruptions.

Volcanic edifice of Furutake is divided into two parts, bordered by sector collapsed scarp. Main part of younger Furutake grew after K-Ah eruption at Kikai caldera ca 6300 yrBP. Many andesitic lava flows distribute in the flank of younger Furutake though their eruption ages are not decided. Summit area of younger Furutake is widely covered with pyroclastic surge deposit. This pyroclastic surge deposit covers youngest lava of Furutake. A ¹⁴C age of ca. 1060 yrBP was obtained from a charcoal collected from this pyroclastic surge deposit. Some block-and-ash flow deposits distribute in eastern flank of Furutake showing the eruption with pyroclastic flow. Shintake sits in a sector collapsed part of Furutake. Edifice of Shintake consists of thick lava flows (Shintake lava) ca 1000 years old and pyroclastic cone on the lavas. All the recorded eruptions occurred from the summit of Shintake.

Some lithic rich tephra distribute mainly in the eastern flank of Furutake and Shintake. These tephra cover K-Ah tephra. A remarkable lithic-rich tephra ca 35000 yrBP is recognized all over the island, suggesting the high activity. These tephra contains fresh andesitic block with cooling joint, suggesting magmatic explosive eruption. Some tephra in the southwestern flank of Furutake are dated less than 1000 years. One of the youngest tephra is considered as a product of the 1966 eruption, which is a last major explosive eruption in Shintake summit crater. This tephra is also rich in fresh andesitic block with cooling joint and this suggests the possibility of the magmatic eruption during the 1966 activity.