

Eruption ages of rhyolitic volcanoes based on AMS-14C dating of charcoal and paleosols from Izu-Oshima and Niijima Islands

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The Izu Islands consist of a number of active volcanoes basaltic and rhyolitic in composition. Basaltic volcanoes such as Izu-Oshima, Miyakejima and Hachijojima locate along the volcanic front at the northern part of Izu Arc, while Omurodashi, Niijima and Kozushima are rhyolitic and sit on the Zenisu Ridge which lies oblique to the Izu volcanic front. Knowledge on the eruption history of these volcanoes is indispensable to reveal the evolution of magma plumbing system and also disaster prevention and mitigation on the isolated islands.

Previous workers have described eruption history and ages of these volcanoes. Tephra stratigraphy has been clarified on Niijima Island but its systematic age control is not given enough. The eruption of submarine Omurodashi Volcano is poorly understood.

Rhyolitic eruptions are highly explosive and ashes are widespread. Correlation of rhyolitic ashes that have already been reported about and dating of rhyolitic ash ages has high potential to bring detailed chronicles of Northern Izu Islands and vicinity areas.

In this study, to give age data of rhyolitic eruptives from Omurodashi and Niijima volcanoes, twelve samples from Izu-Oshima and Niijima Islands were measured by AMS at MALT, the University of Tokyo. One charcoal material and five paleosols were sampled from O58-O54 (after Uesugi *et al.*, 1994) in Older Oshima Group on Izu-Oshima Island. O58 rhyolite ash came from Omurodashi Volcano (Saito *et al.*, 2006) and O55-2 rhyolite ash corresponds to Niijima Miyatsukayama tephra (Sugihara *et al.*, 2005). Six paleosols were sampled from Niijima Island. These are samples directly from below Miyatsukayama, Shikinejima, Niishimayama and Wakago tephtras (after Yoshida, 1992). The ^{14}C dates of soil samples are almost consistent with tephra stratigraphy (Okuno *et al.*, 1998) and are thought to represent the ages of tephra ejections. Close attention was paid not to contaminate with modern carbon. Paleosols were sieved and separated from modern carbon by dense liquid before ^{14}C measurement.

After calibration to calendar year (using the INTCAL04 datasets: Reimer *et al.*, 2004), we obtained the eruption ages of Omurodashi and Niijima Miyatsukayama, Shikinejima, Niishimayama and Wakago events.

Among these the eruption age of Omurodashi Volcano, 13.4ka, can be applied to understand the volcanic history of Izu-Oshima and Toshima Volcanoes in higher resolution. Niijima Miyatsukayama eruption took place 12.8ka ago and ashes of this event are also identified in Izu-Oshima, Toshima and Boso Peninsula.