

Pumice deposits of the pre-Ofunato stage distributed in northwest of the Miyake-jima volcano, northern Izu-Bonin Arc

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Miyake-jima Island, a volcanic island of the northern Izu-Bonin Arc, is located in the northwestern Pacific Ocean, approximately 180 km south of Tokyo. A pale-orange-tuff layer had been reported by Issiki (1960) on coastal cliff in the northwestern part of the island. The aim of this study is to clarify (i) distribution, (ii) stratigraphic position, (iii) sedimentary structure, (iv) petrological features, and (v) mineralogical features, for this pyroclastic deposit in more detail. The layer was re-defined as "Miyake-jima Ofunato Pumice deposit: OFP". The OFP is distributed from western to northern parts of the island. The OFP exists below the Aira-Tn tephra, erupted at 30 ka. The sedimental facies of OFP deposits suggest it formed as a pyroclastic flow deposit.

The relation between K₂O and FeO concentrations in the OFP is characterized by higher FeO wt.% and lower K₂O wt.%. Tsukui et al. (2006) and Saito & Miyairi (2008) showed that the chemical trends in the volcanic products of forearc of Izu-Bonin Arc such as Izu-Oshima and Hachijo-jima are characterized by high FeO wt.% and low K₂O wt.%, and those of the backarc Izu-Bonin Arc such as Nii-jima and Koju-shima shows low FeO wt.% and high K₂O wt.%. Consequently, chemistry of the OFP suggests that it was originated from forearc of Izu-Bonin Arc.

This paper concludes that the activities of the Miyake-jima volcano around 30 ka are characterized by a production of pumice by the eruption at the northwestern part of the present island. The current stage of this study, it is not possible to discuss the source vent of the OFP in detail and specify the type of the volcanic eruption produced the OFP. In future, we attempt to find a clue to account for these two problems by the detailed study on the OFP with referring to its facies like a pyroclastic flow deposits.

Keywords: Miyake-jima volcano, Pumice, Miyake-jima Ofunato Pumice deposit, Northern Izu-Bonin Arc