

Establishment of tephra database in and around the Izu Islands – a case of the Daisan-yama site on Niijima

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Tokyo Metropolis has the twenty-three wards, the Tama district, and the islands area. The population of the islands area is 25,695 (1st January 2018). The islands area, namely, the Izu-Ogasawara Islands consist of many volcanic islands and seamounts, excluding some islands. For residents in this area, volcanic disasters are always the threat. Accordingly, to integrate the fundamental information for preventing volcanic disasters, we investigate the history of volcanic activities, the pattern of each eruption, and the mass volume of erupted tephtras and try to establish the high-resolution tephrochronology (Kobayashi *et al.*, 2018; Nishizawa *et al.*, 2018; Ito *et al.*, 2018, this session).

The Izu-Ogasawara islands is the islands arc which is approximately 1100 km long and 300 km to 400 km wide. The Sagami trough off the southeastern Izu Peninsula is connected to the Ogasawara Trench to the southward. This island arc consists of the Ogasawara ridge running parallel to the west of the Ogasawara trench, westly the Sichito-Iwoujima ridge across the Ogasawara trough, and more westly the Nishi-Shichito ridge on the east of the Shikoku basin. The most active volcanic belt belongs on the Sichito-Iwoujima ridge, and the northernmost Izu-Oshima is located at 110 km south from the Tokyo Metropolitan Government building, the southernmost Minami-Iwoujima is located at 1281 km south. The north part of the Nishi-Shichito ridge has the several seamount chains, and the northernmost and largest chain is the Zenisu ridge. Next, the summary on the location of seven main volcanic islands belonging to the Izu Islands is as follows. Izu-Oshima, Niijima, and Kozushima are located on the Zenisu ridge from east to southwest. Furthermore, from Izu-Oshima, Toshima is located 25 km southwest, Miyakejima is 72 km south, Mikurajima is 96 km south, and Hachijyojima is 179 km south. Four islands, Izu-Oshima, Toshima, Niijima and Kozushima, are located within 60-km radius, and six islands adding Miyakejima and Mikurajima somewhat southward to above four islands are located within 100-km radius. Tephtras provided by the large eruptions from each island and volcanos on the Japanese mainland would spread across the sea and deposit on the plural islands. Such tephtras reported in Sugihara *et al.* (2005) and Saito *et al.* (2006) have been useful as the key bed to correlate the stratigraphy between islands. On studying tephrostratigraphy in and around islands, it is difficult to try tracking survey on the distribution and thickness of each tephtra in the distance, therefore the tephtra correlation is on the basis of the petrographic description and geochemical data. This project focuses on establishing the database of tephtras collected from each island of the Izu Islands and their petrographic description and geochemical data. Also, it was likely that such tephtra across the sea would deposit in the hemipelagic sediment around volcanic islands. Our tephtra database of the Izu Islands should be a powerful tool for marine tephtra correlations in future. Today, we present the result of tephtra analysis at the Daisan-yama site on Niijima as the part of on-going database project.

At the southwestern slope of the Daisan-yama in Niijima, we can find at least seventeen visible tephtra layers, consisting of the tephtras including Fujimi-pass tephtra group from Niijima, the tephtras from Kozushima, and thin basaltic tephtras (Kobayashi *et al.*, 2018). After tephtra samples were washed by the ultrasonic cleaner, we collected the description of petrographic characters, major-element chemistry determined by EDS and refractive indices of volcanic glass shards in each tephtra. Also, AT and K-Ah

tephra were detected as cryptotephra from loam samples. Tephra records during the last 30 ka at this site is one of the important information to construct the high-resolution chronology in the area.