

## Tephrostratigraphy of drilled core C9010E off the Boso Peninsula: the discovery of the new-face tephra described on the Toshima and the tephra provided from the Asama volcano-

\*Kaori Aoki<sup>1</sup>, Takayuki Takahashi<sup>1</sup>, Makoto Kobayashi<sup>2,1</sup>, Masanori Murata<sup>1</sup>, Takehiko Suzuki<sup>1</sup>

1. Research Center for Volcanic Hazards and Their Mitigation, Tokyo Metropolitan University, 2. Fujisan World Heritage Centre

We present a part of the result of tephra correlations intervening in the sediment core off the Boso Peninsula, on the basis of the geologic, petrographic and geochemical characters of tephra samples collected at the reference sites on land. The sedimentary core C9010E was drilled at the site (34°33.46'N, 139°53.38'E, water depth: 2027.25 m) of about 40 km south of Boso Peninsula by the D/V Chikyū in 2009. The length of all core is 190.38 m. We collected 314 samples for tephra analysis from this core, including 161 tephra samples described (Tsuchiya et al., 2009). The major-element chemistry of volcanic glass shards in the fraction of 63-125  $\mu\text{m}$  for all samples have been determined by EPMA of the Center for Advanced Marine Core Research, Kochi University.

Aoki et al. (2019a) showed the core C9010E included tephtras from Mukaiyama tephra (AD886) to Akasakimine tephra series at ca.15-20 ka of the Niiijima Volcano origin (Aoki et al., 2019b), besides Kozushima Tenjyosan tephra (AD838) and Od-1 which the Omurodashi Submarine Volcano provided at 13.4 ka (Saito and Miyairi, 2008). Today, we present on two tephtras at the depth of 32.965-33.185 m (CSF-A) and at the depth of 41.21-41.23 m (CSF-A).

The tephra bed of the 22 cm thickness at 32.965-33.185 m (CSF-A) was described as three layers; the lower part of 5 cm thickness was a bit fine, the middle part of 9 cm thickness was coarse, and the upper part of 8 cm thickness was fine. Three layers include much white pumice-type volcanic glass shards, plagioclase, quartz, orthopyroxene, hornblende, and cummingtonite. Totally, black scoria grains of the diameter of 2-4 mm were included. Especially, gray lapilli grains of the maxim diameter 6 mm were recognized in the middle layer. Major-element composition of volcanic glass shards in this tephra beds showed typically rhyolite which  $\text{SiO}_2$  was 77.1-78.0 wt%. However, the content of  $\text{K}_2\text{O}$ , which was 3.11-3.15 wt%, was remarkably lower than the content of  $\text{K}_2\text{O}$  (3.45-4.15 wt%; Aoki et al., 2019a) of Niiijima and Kozushima Volcanoes. Furthermore, it was not correlated to the tephra provided from the Omurodashi Submarine Volcano, because the content of  $\text{K}_2\text{O}$  in the volcanic glass shards of the Omurodashi origin correlative tephra was 1.22 wt% (Aoki et al., 2019a). Takahashi et al. (this conference) reports Tos2 in the Toshima Island as such characteristic tephra. Also, in their report, Tos2 deposited under Tos3 in the Toshima Island correlated to Akasakimine tephra series provided from the Niiijima Volcano. This result agrees to the tephrostratigraphy of the core C9010E.

The tephra spot at the 41.21-41.23 m (CSF-A) consisting of fine volcanic ash was analyzed. Major-element composition of volcanic glass shards and refractive indices of volcanic glass shards and orthopyroxene indicated that it was correlated to Asama Itahana Kasshoku (Brown) tephra group (As-BP; Arai, 1962; Aramaki et al., 1998; Takahashi et al., 2003, Takahashi et al., 2018).

The major-element composition of volcanic glass shards in the As-BP tephra group was in the range of dacite to rhyolite, because the content of  $\text{SiO}_2$  was 67.9-78.1 wt% and that of  $\text{Na}_2\text{O}+\text{K}_2\text{O}$  was 5.59-7.13

wt% (Aoki, 2020). The lower part of the As-BP tephra group was remarkably rhyolitic. The content of  $K_2O$  in the lower part of the As-BP tephra group (3.25–3.42 wt%) was higher than that of the other Asama origin tephtras. On the other hand, the middle part of the As-BP tephra group was characterized by a dacitic composition, the contents of mafic elements ( $FeO^*$ ; 3.18–3.78 wt%,  $MgO$ ; 3.30–5.39 wt%) were higher than the other Asama origin tephtras, and  $CaO$  (0.85–1.25 wt%) was twice that of the lower part of the As-BP tephra group. The tephra spot in the C9010E would be correlated to the middle or upper part of the As-BP tephra group.

Keywords: tephra, Izu Islands, marine sediments