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Mid-late Pleistocene tephrostratigraphy of C9001C and C9002A/B cores off Shimokita, Tohoku Japan

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We report the tephrostartigraphy in the core C9001C and C9002A/B corrected by RV CHIKYU off Shimokita Peninsula. The recovery of sediment at Hole C9002A is 0 - 26.2 mbsf, Hole C9002B is 23.3 -70.8 mbsf and Hole C9001C is 0 - 365 mbsf, respectively. The upper part of sediment of the Hole C9001C, 0 -158 mbsf, was correlated to the core C9002A/B by two widespread tephras, Spfa-1 and Aso-4, completely (Aoike et al., 2010). Domitsu et al.(2010) integrated the age model based on the oxygen isotopic stratigraphy of foraminiferal fossils and tephrochronology, microbiostratigraphy, and magnetostratigraphy and mentioned to the core C9001C covered mid-late Pleistocene and the bottom age of the core C 9001C was the base of the Brunhes Chron.In this study, we observed sediment cores, and described tephra deposits in detail. Some of them are overlooked at the initial core description.

Tephra deposits are fine ash layer to pumice layers, the sand layer which heavy minerals concentrated, and bright layer and spots which suggested that fine volcanic glass shards fall out. We corrected eleven samples from the core C9002A, twenty samples from the core C9002B, and thirty-six samples from the core C9001C. Tephra samples were dissolved in water and washed by ultrasonic cleaner. After decantation, the upper water was discarded and deposited samples were dry up. All samples are sieved by 63 micrometer, 125 micrometer, 250 micrometer and observed by stereomicroscopy. When the need arises, major-element chemistry of volcanic glass shards determined by EPMA, and refractive indices of volcanic glass shards and heavy minerals were measured.

In the core C9002B, Spfa-1 at 30m and Aso-4 at 53m have already reported by Aoike et al.(2010). Tephra layer at 52.8m is correlated to tephra provided from Kuttara volcano based on the major element chemistry of volcanic glass shards. Tephra at 52.8m just above Aso-4 at 53 m should be correlated to Kt-6 or Kt-7. In the core C9001C, Two tephra bed provided from Osore volcano and Shiobara-Otawara tephra provided from Shibara caldera in north Kanto district were detected. Suzuki et al. (2012, JpGU) discuss about these correlations in detail.

Chronology of Shiobara-Otawara tephra and two tephras from Osore volcano were discussed with widespread tephras in Kanto-Kinki districts, and stratigraphy of marine terraces in Shimokita Peninsula. In this report, we cast whether there is no room for reconsideration about the boundary of MIS8/7 settled by Domitsu et al.(2010), or not.

Keywords: Chikyu, Shimokita Peninsula, tephrochronology, Kuttara volcano, Osorezan-Tanabu tephra, Shiobara-Otawara tephra