

Tephrostratigraphy of the 250m borehole core from the lower to middle Pleistocene Inubo Group in the Boso Peninsula, Japan

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The Inubo Group distributed in the Choshi region in the Boso peninsula consists of homogeneous shade green mudstone-sandy mudstone. The depositional age of the Inubo Group and comparison between the Inubo Group and the Kazusa Group was clarified by the examination of the microbiostratigraphy and the magnetic stratigraphy (Sakai 1990; Sato et al., 1988, etc.). The comparison is done directly with the Kazusa Group based on the major element chemical composition and the petrographic properties of tephtras in the Inubo Group recently (Hisamitsu and Okada, 1997; Sato, 2002). Nakazato and Sato (1998) clarified that the uppermost part of the Inubo Group indicated the age of Shimosa Group.

It is known that the depositional speed of the Inubo Group is smaller than that of the Kazusa Group, and is expected an oceanic change of the lower to middle Pleistocene to be efficiently interpretable with high resolution by obtaining continuous samples. Therefore, the core of 250m (Choshi core) was gathered by ORI in the Morito-cho, Choshi City in 1998. This report compares the vitric tephtras intercalated in the Choshi core and the Kazusa Group tephtras based on the refractive indices of the volcanic glass shades, and clarifies the depositional age of the Choshi core.

The 77 horizons of tephtra were identified from the Inubo Group in the Choshi core, and the vitric tephtras were 35 horizons. The following tephtras were able to be identified by analyzing petrographic properties of tephtras. Shimosa Group Jizodo Formation: J4up, J4; Kazusa Group Kasamori Formation: Ks10, Ks11, Ks12, Ks13-15, Ks18; Chonan Formation: Ch1, Ch2, Ch3; Kakinokidai Formation: Ka1; Ka2B; Kokumoto Formation: Ku1, Ku2A, Ku3, Ku4, Ku5A, Ku6C; Umegase Formation: U1, U4, U6B, U6D, U7, and U8.

By examining the above-mentioned tephtra comparison and the oxygen isotope curve from the core, it was clarified that the Inubo Group in the Choshi core occupied the range of Stage 23-11 (about 0.9Ma-0.4Ma) (El-Masry, 2002). The B/M boundary position in the Choshi core is about 168m in depth (Okada and Maruta, 2002), and this horizon is between Ku2A and Ku3. However, the TTT tephtra placed between the B/M boundary horizon in the Kazusa Group is not able to be found from the Choshi core. A remarkable low water temperature period of the Stage 16 corresponds to the horizon of Chonan Formation shown by Ch1-Ch3. Two low water temperature periods were recognized in depth about 30m and about 70m above Stage 16 horizon. The upper period of about 30m in depth is thought to be Stage 12, and this horizon corresponds to the boundary of the Shimosa Group and the Kazusa Group. Comparison between the low water temperature period about 70m in depth and marine isotope stage 15-13 should examine in the future due to the problem of the horizon of the Nagahama unconformity.