Reconstruction of paleoclimate in the seas around Japanese Islands

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[1] none

(1) The sea surface temperatures (SSTs) (^{o}C) were estimated based on the ratio of warm- and cold-water diatoms (*Td'* ratio) in the surface sediment samples from 123 sites in the Tohoku Area and Japan Sea (Koizumi, submitted). The SSTs are not intra-annual but inter-annual variations on the basis of the 'Fall Dump' (Kemp et al., 2000), which is a new perspective on the role of a 'shade flora' in the annual cycle of diatom production and in the export flux.

(2) The annual *Td'* -derived SSTs could be compared with the delta^{18}O of benthic foraminiferal tests (Oba et al., 2006) and $U^{k'}_{37}$ derived SSTs (Yamamoto et al., 2004; Isono et al., submitted) in the core MD01-2421. Annual *Td'* - derived SSTs decreased by 7-9^{o}C in core MD01-2421 and 6-9^{o}C in core DGC-6 during the period from the Younger Dryas to the Present. The three cooling phases are recognized during the Jomon transgression. After the Hypsithermal period at ˜8 ka, annual *Td'* -derived SSTs fluctuate with durations of 1000 and 500-400 years in the limit of 15-2^{o}C, and cold and warm phases are correlated each other.

References :

Isono, D., Yamamoto, M., Irino, T., Oba, T., Murayama, M., Nakamura, T., Kawahata,

H., submitted. The 1,500-year climate oscillation in the mid-latitude North Pacific during the Holocene. Geology.

Koizumi, I., 2007. Climate variations and changes in world history. Jour. Geography 116, 62-78.

Koizumi, I., submitted. Refinement of diatom SSTs (*Td'* ratio) off Japan reveal a warmer mid Holocene (8.2-3.3 cal kyr BP) (+1-2^{o}C) suggesting an antiphase relationship with the northeast Pacific. Marine Micropaleontology.

Oba, T., Irino, T., Yamamoto, M., Murayama, M., Takamura, A., Aoki, K., 2006. Paleoceanographic change off central Japan since the last 144,000 years based on high-resolution oxygen and carbon isotope records. Glob. Planet. Change 53, 5-20.

Yamamoto, M., Oba, T., Shimamune, J., Ueshima, T., 2004. Orbital-scale anti-phase variation of sea surface temperature in mid-latitude North Pacific margins during the last 145,000 years. Geophy. Res. Lett. 31, L16311.