# Paleoenvironment of the Japan Sea during the last 48 kyr: A preliminary result from a piston core from off Akita

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We have been studying a piston core recovered from off Akita (KY-04-09; 39.5N, 139.4E, water depth of 860 m) in 2004 for the purpose of high-resolution reconstruction of the paleoenvironment of Japan Sea during the last 48 kyr. Chronology for this core was reconstructed based on both AMS radiocarbon dates for planktonic foraminifera (G. bulloides) at seven intervals and correlation with a well-dated core from Oki Ridge (Yokoyama et al., 2006). We determined oxygen and carbon isotopic composition of planktonic foraminifera (G. bulloides) at 300 intervals during the last 48 kyr. We observed about 2.5 per mil negative excursion in the foraminiferal oxygen isotopic record from 30 to 18 kyr. Overall fluctuation pattern and isotopic values can be well correlated with that observed in the sediments from Oki Ridge determined previously (Oba et al., 1991; Y. Yokoyama et al., unpub results). The foraminiferal carbon isotopic record exhibited a large negative shift down to -2.6 per mil around 17 kyr. To examine whether or not the negative excursion was resulted from methane release from the sea floor, we analyzed archaeal lipids in the sediment. Although we observed both acyclic and cyclic biphytanes derived from archaea, the molecular composition suggested them to be originated from planktonic archaea. Furthermore, the carbon isotopic compositions of these biphytanes range from -23.7 to -21.4 per mil, that is the typical range for planktonic archaea rather than methanotrophic archaea. We have no evidence supporting the contribution of methane oxidation archaea.

The fluctuation of the lightness of the core agreed with that of the oxygen isotopic composition of GISP2 ice core collected at Summit, Greenland. It implies that Dansgaard/Oeshger events appeared in GISP2 were recorded as dark layers in our sediment.