Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

MIS23-P05 Room:Convention Hall Time:May 21 17:15-18:30

Paleoceanographic change in the eastern margin of Japan Sea, based on oxygen and carbon isotope during the last 130 kyr

ISHIHAMA, Saeko[1*], OI, Takeshi[2], HASEGAWA, Shiro[2], MATSUMOTO, Ryo[3]

[1]Kanagawa Prefectural Museum of Natural History, [2]Kumamoto University, [3]University of Tokyo

The eustatic sea level changes in the Late Quaternary has strongly affected the hydrography and environment of Japan Sea because of its geographical condition. During the Last Glacial Maximum (LGM), freshwater input to the Japan Sea has been assumed to cause the large negative excursion in $d^{18}O$ of planktonic foraminifera. The severe anoxic conditions eliminated most benthic fauna due to a well-stratified water column and limited vertical circulation (Oba et al., 1991). However, some recent studies have cleared the existence of benthic foraminifera also during LGM, particularly around methane seep area.

In June 2010, R/V Marion Dufresne sailed the eastern margin of Japan Sea (MD179 Japan Sea Hydrates cruise) and recovered sediment cores. We analyzed oxygen and carbon isotope of both planktonic and benthic foraminifera with selected 2 cores from off Joetsu (MD179-3312, water depth 1,026 m; MD179-3304, water depth 896 m). Both cores are more than 30 m length, and considered to record continuous paleoceanographic change without large sedimentary gap.

Both cores can be correlated Marine Isotope Stage (MIS) 1 to 5 from $d^{18}O$ of planktonic foraminifera. One core (MD179-3312) shows the peak of MIS 5e with the existence of *Globigerinoides ruber*, *Neogloboquadrina dutertrei* and *Neogloboquadrina incompta* (dextral), so its bottom is considered to reach MIS 5e to 6. $d^{13}C$ of planktonic foraminifera varied roughly in synchrony with $d^{18}O$ of planktonic foraminifera.

We can recognize a number of benthic foraminifera during LGM from MD179-3304 core, which locate relatively near active methane seep area. During LGM, $d^{18}O$ of benthic foraminifera shows negative excursion in parallel with planktonic foraminifera. This fact shows fresh water input or/and some environmental change affected not only surface water but also deep water column. Negative trend in $d^{13}C$ of benthic foraminifera may show a possibility of relationship to methane seepage or gas hydrate dissolution event during LGM.

This study has been financially supported by the cooperative research project of the MH21 Research Consortium Japan, and isotopic analysis was performed under the cooperative research program of Center for Advenced Marine Core Reaserch (CMCR), Kochi University (Accept No. 11A011, 11B011).

Keywords: Japan Sea, planktonic foraminifera, benthic foraminifera, oxygen isotope, carbon isotope, gas hydrates