

APE031-P07

Room:Convention Hall

Time:May 25 10:30-13:00

Flux variations of biogenic opal and carbonate from the marine Plio-Pleistocene Chikura Group, southern Boso peninsula, c

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According to oxygen isotopic analyses for deep-sea sediment cores, global climate and the climatic changes prior to 3 Ma are thought to be much warmer and smaller than the present. However, it gradually begins to get cold from approximately 2.7 Ma, and the glacial / interglacial cycle of 40 kyr became marked on this boundary (*Tiedemann et al., 1994 ; Shackleton et al., 1995*). Current researches have revealed that continental ice sheets did not exist in the high latitude northern hemisphere prior to 3 Ma, but it has rapidly developed since around 2.7 Ma (NHG; northern hemisphere glaciation). Nevertheless, there is no direct evidence indicating the reason why NHG occurred at that time and it is important to know how NHG has affected the earth's climatic system at that time.

The Chikura Group distributed in the southern Boso peninsula, facing the North West Pacific Ocean, provides marine sedimentary sequences ranging over the late Pliocene / early Quaternary boundary from c.a. 3.4 Ma to 1.2 Ma. Whereas the chronostratigraphical discussion for the Chikura Group has been done by various studies, quantitative discussion for biological productivity has almost never been conducted yet. Consequently, the purpose of this study is to restore more detailed marine environment in the North West Pacific by comparing to biological productivity in other areas. This time, we report preliminary results for biogenic carbonate and opal fluxes.

Biogenic carbonate and opal fluxes vary from 1.3 to 29.1 g/cm²/kyr and from 1.0 to 12.5 g/cm²/kyr, respectively. With a few exceptions, biogenic carbonate and opal fluxes indicate a trend increasing at interglacial and decreasing at glacial. Additionally, the fluctuation of biogenic opal flux becomes greater after the start of NHG than before. We compared this trend to biogenic opal flux data from Ocean Drilling Program (ODP) Site 882 located on the North Pacific Ocean (*Swann et al., 2010*). As the result, biogenic opal indicated similar biological productivity in North Pacific Ocean and North West Pacific Ocean before NHG, but the biogenic opal flux increases and expands the fluctuation in North West Pacific Ocean, while it decreases and becomes smaller in the North Pacific Ocean after the beginning of NHG.

Keywords: flux variation, Chikura Group, biogenic carbonate, biogenic opal