

Preliminary results on radiolarian changes in depth transect cores obtained from the Bering Sea during the cruise MR06-04, Leg 2

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The Bering Sea, the largest marginal sea of the boreal North Pacific, is located at the end of the global circulation, and characterized its surface water by lower temperature and high biological production. The oceanographic condition in this area has also close relation to the Arctic climatic change, although the past oceanographic condition in this sea has been little known.

For paleoceanographic study, piston cores were obtained from three sites 23 (1002 m), 24 (850 m) and 25 (1170 m) of the northern slope in the Bering Sea, so-called cores PC-23B (14 m), PC-24B (17 m) and PC-25B (15 m), during the research cruise MR06-04, Leg 2 (August 2006-September 2006) by R/V Mirai of JAMSTEC. In this study, we will show preliminary results on radiolarian stratigraphic changes for these cores.

It is known that two species *Lychnocanoma nipponica sakaii* and *Antarctissa setosa* disappeared from the North Pacific at 5 ka and 8.5 ka, respectively. For cores we examined, the former bio-event was recognized from all sites, and the latter one was recorded in only core PC-24B. In addition, the relative abundance (%) change of *Cycladophora davisiana* in the total fauna during the late Pleistocene can be correlated within the subarctic Pacific, and it is also available in the Bering Sea. This correlation indicated that the sedimentation rate might be quite slow or almost stop during Holocene at the all three sites. According to above bio-events, it seems that the age of core bottom reached to 11 ka for core PC-24B and to 6 ka for cores PC-23B and PC-25B.

Cycladophora davisiana, a species living in intermediate depth, can be also used as a paleoceanographic proxy. It is known that the relative abundance of this species is closely related to (1) the well-ventilated intermediate water with low temperature and high oxygen, which is formed with brine rejection from the sea-ice, and (2) higher supply of organic materials into the intermediate depth. Therefore, the abundance of this species is quite high in the present Okhotsk Sea, which has formed such intermediate water, however, it occurs very few in the Bering Sea with a few ventilation in spite of the subarctic marginal sea like the Okhotsk Sea. On the other hand, high abundance of *Cycladophora davisiana* recognized in Marine Isotope Stage (MIS)-2, middle part of MIS-3, MIS-4 and MIS-5b implies that the well-ventilated intermediate water liked the present Okhotsk Sea intermediate water was present in the Bering Sea during this period. It might be resulted from active ventilation with tremendous cold climate and large expansion of sea-ice in the Sea.