

The sea surface dynamics in the southern Okhotsk Sea during the last 120 kyrs reconstructed by diatom assemblage in Core MD01-2412

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The piston core MD01-2412 (44 degree 31.65'N, 145 degree 00.25'E, Water depth: 1225 m, core length: 58.11 m) was raised from off Hokkaido in the southern Okhotsk Sea during the IMAGES Cruise in 2001. The Okhotsk Sea is a marginal sea in the northwest Pacific, which is characterized by the lowest latitude region with seasonal sea-ice cover in the world. Changes of sea-ice region and surface sea current have a serious effect on local and global climates. Hence, the reconstruction of the Okhotsk Sea paleoenvironment has a paramount importance. Analyses of diatom assemblages in the piston core were carried out to clarify paleoceanographic changes during the last 120 kyrs. The total diatom accumulation rate has rapidly increased in the Holocene. It is considered that the high biological production in the Holocene occurred caused by ice-associated blooms with the shortened length sea-ice ecosystem. The relative abundances of ice margined species (*Bacterosira fragilis*, *Fragilariopsis cylindrus*, *Thalassiosira antarctica*) indicate that the length of seasonal sea-ice cover in the southern Okhotsk Sea is divided into three periods. During the last 8 kyrs, the length of seasonal sea-ice cover is likely similar to the present sea-ice cover near Core MD01-2412. The southern Okhotsk Sea had frozen over about 4 or 5 months between 16 and 29 ka, compared other periods. Furthermore, the relative abundance of mingled sea and fresh water species suggests changing of salinity, and the relative abundance of warm water species indicate the influence of the Soya Warm Current. The Soya Warm Current flows into the vicinity of Core MD01-2412 since 12.0 ka.