

Paleoceanographic changes during the last 3000 years in the southern Okhotsk Sea

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In recent years, the scientific survey increased in the Okhotsk Sea that is characterized as follows, 1. The seasonal sea ice develops the lowest latitude in the world. 2. Distribution of the seasonal sea ice is sensitive to atmospheric changes and, influence the around terrestrial area (Aota and Wakamatsu, 1989). 3. The part of the Okhotsk Sea is of important to the formation of the Oyasio current and the North Pacific Intermediate Water (e.g. Kitani, 1973). 4. Accumulation rate of the off shore sediment in the southern Okhotsk Sea is high (1 mm/years, Shimada et al.,2000); enable paleoenvironmental reconstruction with the high resolution. 5. The investigative condition was improved from the solution of East - West relations.

The purpose of this study is to clarify paleoceanographic changes in the southern Okhotsk Sea. Description of sedimentary features and sequential analyses of carbon contents were carried out using the GH01-1011 core (L=5.07m) that taken from the off Shiretoko Peninsula by the AIST.

In the off Shiretoko core, the fluctuations of carbon contents showed in some horizons from the record during the last 3000 years. Total organic carbon contents (TOC) shows positive correlation with total carbonate carbon contents (TIC), except the sandy silt interbed layer. These change mean quantitative reduction of the biological production on a sea surface and change into oxidization environment at the submarine. The other hand, the coring point at the present time indicates the high quantity of biological production by influence of the Soya warm current and existence of the junction line between two ocean currents of the Soya warm current and an east Sakhalin current. According to this result and such a situation, the development of sea ice and weakening of the Soya warm current, these can be considered to the strengthening of the Siberian monsoon and the decline in the Tsushima warm current were revealed 200 - 700 A.D. and 1550 - 1900 A.D. These periods correspond to the Kofun Cold Period (Sakaguchi, 1983) and the Little Ice Age, respectively. These decadal-scale variations of paleo Okhotsk Sea can show detail climatic changes more than previous study, which identified such a change from deep-sea sediment on millennial-scale (e.g. Keigwin, 1996). Thus, this result has possibility of comparing with atmospheric changes, which were detected from lacustrine sediments, historical archives and instrumental records. Hereafter, We are going to investigate with more chemical analyses data.