

Preliminary result of research observation for reconstruction of the past environment in the Okhotsk, Bering and Chukchi Seas

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Marginal seas such as the Sea of Okhotsk, Japan, and Bering Seas are the lowest latitude seas whose sea surfaces become covered with ice. Their sea ice areas are significant barometers of the climate change, as they are sensitive to the warming and cooling on the global level. In contrast, the surface temperature of the southwest Sea of Okhotsk invokes the creation and development of high pressure above it during the summer. Since the Okhotsk high pressure results in cold summer in Far East Asian region such as Japan, the conditions of the Sea of Okhotsk surface significantly impact the climate change of this region. In addition, the high-latitude area of the North Pacific including its marginal seas such as the Okhotsk Sea, and the Arctic area, is closely related with climate variations of Asian countries. Consequently, understanding the changes of surface conditions of marginal seas including the Okhotsk Sea would also mean to understand climate change of both global and regional including Far East region of Eurasian continent.

The aim of this research observation is understanding of glacial and inter-glacial climate changes and abrupt changes in the above area, especially the sea surface temperature and salinity changes and impact of the Amur discharge on the thermohaline circulation and sea-ice and dense shelf water formation in the Okhotsk Sea. In addition, we investigated the Arctic area and the Bering Sea to understand the abrupt climatic and biodiversity changes during the near past 100 year. The observation in the Bering Sea had another aim to understand the ventilation changes at the middle depth (800-1200m), which is thought to be a source depth of intermediate water mass. In this presentation, we will introduce the outline of this research observation and show preliminary results.