

Horizontal distribution of diatoms in the western Bering Sea surface waters

*Aika Yamamoto¹, Yusuke Okazaki²

1. Department of Earth and Planetary Sciences, Kyushu University, 2. Department of Earth and Planetary Sciences, Graduate School of Science, Kyushu University

Diatoms are phytoplankton with biogenic opal ($\text{SiO}_2 \cdot n\text{H}_2\text{O}$) frustules. A variety of diatom species live in various aquatic environments sensitively responding to environmental change. Diatom's reproduction rate is notably rapid due to their reproductive cycle by combining asexual cell division and sexual reproduction to restore the cell size. Diatoms are major primary producer in the present hydrosphere. The Bering Sea is a margin sea of North Pacific with northern continental shelves and southern basin. The Bering Sea is characterized by high productivity mainly by diatoms. In particular, pronounced high productivity area called the Bering Sea Green Belt is distributed along the edge of the continental shelves. Productivity in the Bering Sea has strong seasonality with primary spring peak and secondary fall peak due to insolation and nutrient availability in the euphotic zone. Purpose of this study is to clarify the horizontal distribution of diatom assemblages in western Bering Sea. Surface water samples were collected at 30 stations in the western Bering Sea during Mu18 cruise by *R/V Multanovskiy* in summer 2018. The seawater samples were filtered onboard. After disembarking, scanning electron microscopic observation for diatom assemblages was performed using the filter samples. A total of 15 genus 9 species were identified. Clear differences of diatom assemblages were found between basin and continental shelf stations. Major diatom taxa in basin stations were *Nitzschia* spp., *Fragilariopsis* spp., and *Neodenticula seminae*. On the other hand, major diatom taxa in continental shelf stations were *Nitzschia* spp., *Thalassiosira* spp., and *Arcocellulus* spp. Most of *Fragilariopsis* spp. encountered in this study were markedly small probably proliferated by asexual reproduction. Among *Thalassiosira* spp., *T. cf. oceanica* were commonly found at most of the shelf stations except for stations with low temperature and high salinity where *T. nordenskiöldii* and *T. pacifica* were abundant.