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SETTLING DIATOM FLUX REFLECTING HYDROPRAPHIC CHANGE IN THE WESTERN ARCTIC OCEAN, 2010-2012

Jonaotaro Onodera *(Japan Agency for Marine-Earth Science and Technology, Japan)*
Eiji Watanabe *(Japan Agency for Marine-Earth Science and Technology, Japan)*
Naomi Harada *(Japan Agency for Marine-Earth Science and Technology, Japan)*

onoderaj@jamstec.go.jp

In order to study the relationship between siliceous microplankton and distribution of sea-surface water masses, settling particle flux of siliceous phytoplankton were observed in the western Arctic Ocean. The studied particle samples were taken by bottom-tethered sediment trap at Station NAP (75°N 162°W, 1975 m water depth, nominal trap depth 180 m) in the southern Northwind Abyssal Plain during October 2010-September 2012. Total mass flux showed the annual flux maximum with abundant silt-clay minerals in November-December of 2010 and 2011. The observed diatoms were identified to 99 taxa. The diatoms in November-December were mainly composed of *Chaetoceros* (subgenus *Hyalochaete*) and their resting spores. These diatoms are abundantly observed in the Chukchi Sea. The characteristic abundance of lithogenic particles and coastal diatoms in the sediment trap samples suggest the significant input of shelf materials to the study area. The shelf material transportation by cold eddy to basin were figured by the sea ice-ocean general circulation model COCO 4.9. Maximum diatom flux in summer 2011 was clearly observed with dominance of sea-ice species *Fossula arctica*, whereas settling fluxes of microplankton and lithogenic materials were quite low in summer 2012. According to the physical oceanographic model, the suppressed particle fluxes in 2012 were probably due to limited nutrient supply for upper 100m water column by extent of oligotrophic surface water of the Beaufort Gyre water to Station NAP. The interannual change in the Beaufort Gyre is explained by the different atmospheric condition. Thus the observed results in settling particle fluxes are reflecting the hydrographic and climate conditions in the western Arctic Ocean.