

Influence of physical oceanographic condition to transportation of biosiliceous particles in the Pacific side of the Arctic Ocean

*Jonaotaro Onodera¹, Eiji Watanabe¹, Satoshi Kimura¹, Kohei Mizobata², Yuichiro Tanaka³, Naomi Harada¹

1. Research and Development Center for Global Change, JAMSTEC, 2. Dept. Ocean Sciences, School of Marine Life Science, TUMSAT, 3. Geological Survey of Japan, AIST

Under the changing physical oceanographic condition in the Arctic Ocean, transport condition of biogenic particles from shelf to basin in addition to vertical settlement of in situ biogenic particles may affect the ecosystems for deeper water mass and sea floor in the southwestern Canada Basin. In order to monitor the lower-trophic marine ecosystems in changing Arctic Ocean, we have studied the relationship between physical oceanographic condition and settling fluxes of biogenic particles mainly composed of diatom and silicoflagellate. Settling particle samples were collected using time-series sediment trap off the north of Barrow Canyon (NBC: 72.472N 155.407W, 2000 m water depth) and the northern part of Hanna Canyon (NHC: 73.303N 160.782W, 450 m water depth) in the southwestern Canada Basin from fall 2015 to summer 2017. Diatom settling flux increased in summer as a reflection of seasonal productivity increase. The assemblages of settling diatom particles at NBC for the first and second deployment periods was characterized by relative dominance of *Thalassionema nitzschioides*, which is sometimes observed in southwestern Canada Basin water, and sea-ice related species such as *Fossula arctica*, respectively. The relative abundance of sea-ice related species was higher at NHC, probably because of the NHC mooring position in more nutrient-rich condition compared to that at NBC. Diatom and silicoflagellate settling-fluxes at NBC also increased with particulate organic carbon in early winter 2016/2017. This reflected the temporal lateral advection of Pacific-origin waters from shelf to basin as the result of temporal changes in atmospheric and physical oceanographic condition.

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