[EJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CG Complex & General

[A-CG38]Science in the Arctic Region

convener:Shun Tsutaki(The University of Tokyo), NAOYA KANNA(Arctic Research Center, Hokkaido University), Shunsuke Tei(北海道大学 北極域研究センター, 共同), Tetsu Nakamura(Faculty of Environmental Earth Science, Hokkaido University)
Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
The Arctic and circumpolar region is the key area for the study of global change because the anthropogenic impact is projected to be the largest in this area due to the complicated feedback processes of the nature. A number of international and interdisciplinary research projects have been conducted for the studies on the land-atmosphere-ocean system. In order to understand the feedback processes occurring in the Arctic and to project the global warming in the future, we need to establish the intense observational network and to exchange the knowledge and information by combining the different scientific communities under the common interest of the Arctic. The objectives of this session are 1) to exchange our knowledge on the observational facts and integrated modelling and 2) to deepen our understanding on wide range of natural sciences related to the Arctic and the circumpolar region. Studies on humanities, social sciences, and interdisciplinary fields are also welcomed.

[ACG38-P16]Lateral advection of biogenic particles in the southwestern Canada Basin, Arctic Ocean

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Intensified sea surface circulation due to sea ice reduction changes the condition of material transportation from the Chukchi Sea shelf to the Canada Basin. This physical oceanographic change influences to marine ecosystem and biogeochemical cycle. In order to observe the relationship between the changing hydrographic condition and particle transportation from sea surface and the Chukchi Sea shelf, two moorings with sediment trap and hydrographic sensors were deployed in the southwestern Canada Basin (Station NBC: 72°28.3‘N 155°24.4’W, Station NHC: 73°18.1’N 160°47’W) from September 2015 to September 2017. Sediment trap was moored at 160-265 m depth (NBC &NHC) and 1315-1400 m depth (NBC only). Total mass flux of settling particles (< 1mm size) at shallower trap depth reached to 2,389 mg m^{-2} d^{-1} and 3,729 mg m^{-2} d^{-1} at Stations NBC and NHC, respectively. This value is one order higher than the previous data in the central Canada Basin and the Northwind Abyssal Plain. The trapped particles are mainly composed of lithogenic matters (72 wt% in all studied samples) which is shelf origin. Based on abundance ratio of biogenic and lithogenic matters for the low productivity season in winter, trapped biogenic matters were distinguished to shelf origin with lithogenic matters and upper water-column origin in study area. The abundance ratio of two different origins shows that biogenic matters of upper water-column origin were relatively abundant in summer and contribution of shelf origin was higher in fall-winter seasons. There was the high flux period of total biogenic matters at two mooring stations from late October 2016 to January 2017. This high particle flux period corresponds to the period for temporal lateral advection of Bering shelf water to 50-150 m depth at the mooring position. The settling flux of particulate organic carbon (POC) for the lateral advection event contributed 45-63% of total POC flux during the second annual deployment period since September 2016.