Contributions of dinoflagellate cysts and ciliates to the sediment flux in the Beaufort Sea (Arctic Ocean): one year sediment trap record

Vera Pospelova¹, Catherine Lalande², Maija Heikkilä³, and Louis Fortier²

¹University of Minnesota, Department of Earth & Environmental Sciences, United States of America (vpospe@umn.edu)
²Universite Laval, Departement de Biologie, Quebec, G1V 0A6, Canada
³University of Helsinki, Environmental Change Research Unit, Department of Environmental Sciences, P.O. Box 65, 00014, Finland

Studies of dinoflagellate cysts or ciliates in sediment traps provide essential information on weekly, monthly, seasonal, annual, and/or multi-annual changes in their fluxes in relation to measured or implied environmental parameters. Such information is essential for understanding ecological preferences of individual taxa which is the foundation for performing reliable (paleo)environmental high-resolution regional reconstructions. Up to date, sediment trap studies are rare, and only three of those deal with dinoflagellate cysts production in ice-covered conditions: in Antarctic waters (Harland and Pudsey, 1999); Arctic fjords in the Svalbard archipelago (Howe et al., 2010); and Hudson Bay (Heikkilä et al., 2016). All these studies consistently show a very limited or no cyst recovery from the samples that were collected during the ice-covered intervals. However, the timing of individual species production (e.g. cysts of Pentapharsodinium dalei, Islandinium minutum, and Spiniferites elongatus) within the ice-free condition is inconsistent as it varies from region to region. In this session, we will present our preliminary results on dinoflagellate cyst continuous bi-weekly record at the Beaufort Sea shelf break from September 2014 to August 2015.