



Seasonal variability of particulate material concentration and its composition in the Buor Khaya Gulf, Laptev Sea.

Alexander Charkin (1), Oleg Dudarev (1), Igor Semiletov (1,2), Örjan Gustafsson (3), Laura Sánchez-García (3), Jorien Vonk (3), and Andrei Krukhtmalev (1)

(1) Pacific Oceanological Institute (POI), Far Eastern Branch of Russian Academy of Sciences, Vladivostok, Russia, charkin@poi.dvo.ru / Phone +7-4232-313073 . (2) International Arctic Research Center (IARC), University of Alaska, Fairbanks, USA, (3) Department of Applied Environmental Science and the Bert Bolin Climate Research Centre, Stockholm University (SU), Sweden

Determining the magnitude of particulates (and dissolved) fluxes within old organic carbon and other terrestrial material from land is critical to constraining a range of issues in the Arctic shelf-basin system, including carbon cycling, the health of the ecosystem, and interpretation of sediment records. It has been found that increased coastal retreat rates can result in greater sediment input, including organic carbon, and pose threat to residential and industrial facilities located in the coastal zone of East Siberia (M. Grigoriev, this session). Given current and predicted dramatic Arctic climate changes, baseline measurements are critical to understanding Arctic carbon cycle feedback processes, predicting climate change response, and to understand likely ecological changes in the oligotrophic East Siberian Arctic Shelf (ESAS) under future warmer (ice-free) climate scenarios. Here we present some results of our biogeochemical and hydrological studies made over the last 10 years (1999-2009) in the Buor Khaya Gulf which is an area strongly influenced by the coastal erosion and the Lena river runoff. This study is focused on characterization of distribution of particulate material (PM), particulate organic carbon (POC), and the surface sediment organic carbon (OC), their composition, and seasonal dynamics. Peculiarities of biogeochemical transformations and sedimentation are discussed. It is shown that the coastal erosion, not the Lena River, plays a dominant role in the land-shelf export of terrestrial OC.