

## **Benthic fluxes in the Kara Sea and the Gulf of Ob**

E. PROTSENKO<sup>1\*</sup> AND S. PAKHOMOVA<sup>12</sup>

<sup>1</sup>Shirshov Institute of Oceanology, 36, Nakhimovski prosp.,  
Moscow, 117997 Russia (\*correspondence:  
elisaveta.pro@gmail.com)

<sup>2</sup>NILU, Postboks 100, 2027 Kjeller, Norway, svp@nilu.no

Studying the processes in the sediment-water interface is a basis of our understanding in cycling of matter in our planet. This interface is a zone of top gradient for physical, chemical and biological properties. Since the Arctic is the region most sensitive to the Global Changes, it is highly important to know the biogeochemical processes occurring at the boundaries between water and sediments.

On the base of the studies of chemical parameters distributions in the sediments and in the bottom water (with vertical resolution of several cms) performed in the expedition on RV Akademik Mstislav Keldish in 2011, were calculated fluxes of chemical compounds in the pore water of sediment, at the sediment-water interface and in near- bottom water.

The fluxes in pore water were calculated, using the modified Fick`s first law of diffusion (Boudreau, 1997). The diffusion coefficient for pore water was calculated on the basis of tortuosity and the substance-dependent diffusion coefficient in free solutions of sea-water (Schultz and Zabel 2005). To estimate the role of bioturbation in exchange processes in such region were calculated fluxes for same data with additional diffusive flux, caused by bioturbation. An application of the BROM model (Biogeochemical RedOx Model) allowed to simulate the similar features of the biogeochemical parameters distributions and to numerically demonstrate the role of bioturbation. The results of these calculations allowed to estimate vertical changeability of fluxes of biogeochemical components at different depths and to reveal layers of potential sinks or sources.