



## **Small scale spatial variability of temperature and salinity in the Kara Sea basing on observations in September, 2011**

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The Kara Sea, the marginal sea in the Arctic Ocean, receives a large volume of freshwater (1290 km<sup>3</sup>/year on long term average) from the Ob, Yenisey and other rivers. In consequence, a large part of sea's area is influenced by fresh water discharge. Spreading in the surface layer of the sea, continental runoff largely modulates spatial variability of temperature and salinity. Depending on geographic location, atmospheric forcing conditions, water circulation etc., this variability is characterized by different scales. The objective of the study is the estimation of thermohaline variability scales in the surface layer and its connection with governing factors.

The study is based on the results of the latest (September, 2011) survey of the Shirshov Institute to the Kara Sea (59th cruise of the RV Akademik Mstislav Keldysh). Data used in this study includes high-resolution (frequency 4 Hz) measurements of temperature and salinity at the surface of the Kara Sea conducted using a pump-through CTD system. These measurements were conducted along the vessel track, covering the whole area of the sea, during 24 days period and allowed for horizontal resolution as high as ~100 m. Additionally, the principal meteorological parameters such as temperature, pressure and wind velocity and direction were recorded by a shipboard automatic meteorological station.

Basing on the obtained measurements, we determine the representative water types at the surface of the Kara Sea for the fall season. Processing of such a detailed data allows us to indentify regions of the sea, where the thermohaline characteristics have the most intense variability. We also investigate the dependence between wind conditions and magnitude and scales of the thermohaline variability. Finally, we find the typical spatial scales of the variability for different parts of the sea.