



The structure of long-term ice cover variability in the Western Arctic and its statistical models.

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The North European Basin is characterized by the greatest seasonal and long-term ice cover variability. It is well known that this region is very sensitive to the climate change. The increase of surface temperature causes ice cover reduction.

In this study, the unique data set of the AARI is firstly considered together with new satellite data for the period of 1930-2017. The structure of long-term ice cover variability in the Western Arctic is analyzed. The clusters of seasonal cycles are identified. The presence of ice cover «memory» is found. Diagnostic models are developed (correlation coefficient it is about 86). For diagnostic analysis we used the identified factors causing periods of co-directed anomalies, and correlations analyzed with the MLR. With respect to contribution of hydrometeorological factors, the ice area is determined: Atlantic waters and ice cover prehistory (about 50% of the total dispersion), index Arctic Oscillation (about 20%) and heat balance (about 20%).

The results of the study of the seasonal and inter-annual variability of the ice cover provide a good basis for the development of statistical models of diagnosis and forecasting not only long-term ice cover variability in the Western Arctic, but also climate changes.