Optimization of mooring observations in the Arctic Ocean.

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We investigate the problem of the optimal sampling strategy for moored current velocity observations in the Arctic Ocean. First, we present the results of the analysis of dynamically induced correlations in the North Bering Sea currents and conduct their sensitivity analysis to optimize positions of a limited number of moorings.
Computations reveal four major regions in the North Bering Sea basin that are highly correlated with the Bering Strait transport.
Results of the sensitivity analysis are tested within the framework of twin data experiments for the examples of the quasi-stationary and oscillatory background circulations.
The similar approach was applied for the study of the efficiency of the current mooring conducted in the Arctic Ocean. We show that the adjoint sensitivity analysis can be applied for optimization of the observational system designed for the monitoring the large scale circulation in the Arctic Ocean.