



## **The diagnosis and forecast system of hydrometeorological characteristics for the White, Barents, Kara and Pechora Seas**

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The diagnosis and forecast system for simulating hydrometeorological characteristics of the Russian Western Arctic seas is presented. It performs atmospheric forcing computation with the regional non-hydrostatic atmosphere model Weather Research and Forecasting model (WRF) with spatial resolution 15 km, as well as computation of circulation, sea level, temperature, salinity and sea ice with the marine circulation model INMOM (Institute of Numerical Mathematics Ocean Model) with spatial resolution 2.7 km, and the computation of wind wave parameters using the Russian wind-wave model (RWWM) with spatial resolution 5 km. Verification of the meteorological characteristics is done for air temperature, air pressure, wind velocity, water temperature, currents, sea level anomaly, wave characteristics such as wave height and wave period. The results of the hydrometeorological characteristic verification are presented for both retrospective and forecast computations.

The retrospective simulation of the hydrometeorological characteristics for the White, Barents, Kara and Pechora Seas was performed with the diagnosis and forecast system for the period 1986–2015. The important features of the Kara Sea circulation are presented. Water exchange between Pechora and Kara Seas is described. The importance is shown of using non-hydrostatic atmospheric circulation model for the atmospheric forcing computation in coastal areas. According to the computation results, extreme values of hydrometeorological characteristics were obtained for the Russian Western Arctic seas.