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A System of Oceanic Reanalysis (SOR) fot the Nordic Seas

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A system of oceanic reanalysis of the Nordic seas (Norwegian, Greenland and Barents seas) directed to the investigations of long period changes in the oceanic climate of the Arctic sub-polar seas was developed. The system of oceanic reanalysys (SOR) includes hybrid coordinate 22-th level ocean model HYCOM [Bleck,2002] and modern oceanographic data assimilation technique based on spectral nudging method. A series of test experiments was carried out and optimal parameters for assimilation routine were choused. These parameters take into account the accuracy of spatial restoring by means objective analysis procedure and phase distortion in modeling fields during monotonous assimilation of monthly distributions.

On the basis of modeling results a set of monthly mean hydrological distributions of thermohaline parameters was created for the Nordic seas that was used for climatic field compilations on the standard levels for period 1957-1990. The data of reanalysis system projections allow us to restore the information about structure and dynamic of oceanographic fields for the periods and areas with a small number of direct measurements, for example East-Greenland currents area, north and north-east parts of the Barents sea. A series of additional experiments with SOR were performed directed to the simple assimilation of sea ice concentration data.

A significant improvement of the system of objectively analyzed field preparation was done during 2008 including additional validation procedure of gridded arrays with using the direct data of oceanographic stations.

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