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A H-N model for the calculation of steady wind- and density-driven circulation in the Baltic Sea. 2. Density - driven currents. Circulation in the summer season.
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Abstract

The article is a continuation of the author's paper [7] and presents the application of the H - N model for calculating steady density flows in the Balic in the summer. The density field of water was worked out using a method of parametrising the vertical temperature and salinity distribution [8] from observations [1,11] of the temperature and salinity fields in August.

The results of the calculations are shown as maps of mass transport, sea level and current vectors at the surface and at the bed of the Baltic. Vertical distributions of the components of the current velocity vector complete the spatial picture of the field of flows.

Analysis of the wind and density flow obtained indicates that the water density field and the sea bed topography are the most important factors in the formation of current fields, especially in deeper water.

Comparison of these calculated currents with the field measurements made on board of lightships has shown a certain agreement as regards velocities; however, the directions of the calculated and measured currents showed a greater divergence..

The uniqueness of the solution of the system of equations for mass transport and sea level with assgned boundary and initial conditions was demonstrated.

The correlation of eddy vectors on the fields of mass transport and currents with regions of low or high concentration of nutrients suggests that the results of model calculations could be used to estimate the transfer of passive substances in the Baltic.