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Numerical Analysis of the Hydrological Mode in the Upper Layer of the Black Sea for Spring Season

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By means of the 3-D baroclinic model of the Black Sea dynamics developed at M. Nodia Institute of Geophysics (Tbilisi, Georgia) some peculiarities of the forming of the vertical structure of the Black Sea hydrological regime for transitive (April) climatic conditions are investigated. Investigations are carried out with consideration of both the nonstationary atmospheric wind and thermohaline forcing. Herewith the atmospheric thermohaline action is tested in the model by both the Dirichlet conditions through setting the temperature and salinity at the sea surface and the Neumann conditions through setting the heat fluxes, evaporation, and atmospheric precipitation. In the performed numerical experiments wind driven action is reduces to alternation of different climatic wind fields.

The performed numerical experiments have promoted the primary role of the thermohaline impact on formation of the vertical structure of the Black Sea circulation within upper 0 - 136 m layer for transitive climatic conditions. Besides the thermohaline action plays an important role on the horizontal heat transport intensity within upper 2-26 m layer.