



Thermohaline and hydrochemical structure of the deep waters in the eastern basin of the Black Sea observed in 1997-2005.

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The hydrographic and hydrochemical structure of the deep and bottom waters in the Black Sea was studied from 1997 to 2005 on four sections in the eastern part of the sea. The analysis of thermohaline characteristics over the sections showed that the thickness of the bottom convective layer (BCL) in the study region varies notably. The depth of its upper boundary changes from 1600 to 1800 m. The depth of the upper boundary of the BCL did not practically change on the repeated stations during study period. The most probable cause of the spatial variability of the BCL thickness is the distribution of geothermal heat flux anomalies. It was found that at the upper boundary of the BCL a maximum of thermohaline stability and an increase in the hydrogen sulfide concentration gradients are observed together with an increase in the gradients of temperature and salinity. Neutral and weakly negative thermohaline stability of waters is observed within the BCL. We note that the maximum concentrations of H₂S are found in the regions of increased BCL thickness. According to the data obtained in 2002, lenses or thin layers of anomalously warm waters, presumably of the Bosphorus origin were found in the eastern basin at depths of 150-500 m. We considered some aspects of diffusive convection concept in the light of new field data analysis.