# THERMOHALINE AND ENERGETIC CHARACTERISTICS OF ANTICYCLONIC GYRES IN THE WESTERN PART OF THE BLACK SEA

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## ABSTRACT

The North-West part of the Black Sea is characterized by a relatively wide shelf, and complicated geometry of the coastal line and shelf slope. The main part of the river inflow of the Black Sea enters this area. It is known that, the interaction between the fresh surface nearcoastal and the open sea waters is an important factor for the formation of the Black Sea water masses and circulation. The shelf waters are a source for the cold intermediate intermediate layer waters, which are formatted during winter over the shelf and sink down to depths of about 80 m in the open sea area. The offshore transport of cold and relatively fresh waters and their penetration and mixing into the open sea waters is an important and still not well understood process which is related to the formation of intermediate cold layer, vertical buoyancy flux and dispersion of the pollution entering the shelf with the river inflow. It is well known from previous studies, that one of the significant hydrodynamic features of the area between the shelf and main rim current, where this transport occurs is almost permanent existence of anticyclonic gyres over the shelf slope.

The results from study of thermohaline properties and energetic characteristic of the north-west shelf and shelf slope areas are presented. For these propose the data from CoMSBlack program expeditions are used. The initial data are temperature and salinity and ADCP velocity measurements over the north-west shelf and shelf slope and during the period from 1991 to 1995. The distribution of main thermohaline characteristic on neutral surfaces and their variability during different years are described and their relation with the observations of velocity field are analyzed. The available potential energy evaluated from the measurements is compared with other experimental and model data for the energetic of the Black Sea. The contribution of the area of the anticyclonic gyres to the total potential energy of the basin is discussed.

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# ABSTRACTS

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