

**Features of the Black Sea general circulation emerging from recent surveys and climatological data**

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Analyses of data from three different sets of basin-wide surveys (September 1990, June 1991 and September 1991) and other limited surveys along the Turkish coast (1987-1989) are combined with analyses of the climatological data to describe the Black Sea general circulation. It is shown that above 400 dbar, the main features of the Black Sea circulation generally agree with the traditional schemes of circulation, and appear to be persistent on a seasonal and interannual basis though modified in size, position and intensity.

The most conspicuous feature of the upper layer general circulation is the cyclonic meandering current confined essentially to the shelf-slope topography encircling the basin. It has a width of 50-100 km, with current speeds of 100 cm/sec and an average speed of about 25 cm/sec on its main axis. The interior of the Rim Current contains a series of cyclonic mesoscale eddies which occasionally merge into one elongated cell covering the entire basin interior, or become separate from each other by anticyclonic eddies pinched off from the Rim Current. The anticyclonic eddy occupying the southeastern corner of the basin constitutes the most persistent, quasi-permanent feature of the general circulation. Shoreward of the Rim Current is occupied by anticyclonic eddies with typical size of 100 km, generated by topographical irregularities and/or barotropic and baroclinic instability mechanisms. Two of the anticyclonic eddies are located to the northwest of the Bosphorus exit and in the vicinity of the Sakarya Canyon region. Two other anticyclonic eddies observed along the southern coast of the Black Sea are situated on the western and eastern sides of the Cape of Sinop. These coastal eddies are observed consistently in all the hydrographic surveys and in the satellite imagery and reproduced partially by the various numerical modeling studies. Along the northern coast of the Black Sea, the most pronounced quasi-permanent feature is the one observed in the relatively smooth continental slope topography of the Danube Fan, to the west of the Crimean peninsula. Three other anticyclones are found along the Caucasian, Crimean and Bulgarian coasts.

Contrary to the findings of the earlier studies, the recent surveys possess important vertical structure in the Black Sea general circulation. The intermediate-depth circulation between 500 dbar and 1000 dbar pressure levels does not show the Rim Current. The circulation consists of several sub-basin scale gyres.

The anticyclonic coastal eddies, aligned along the coast of the basin, appear to play fundamental role on the ultimate distribution of the Cold Intermediate Water. They are advected and entrapped by these eddies, and are continuously modified throughout the year. They often interact with the interior of the basin through the filaments and transverse jets.