



“Tropical” atmospheric cyclone in the Western part of the Black Sea and its influence on the marine environment.

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Intensive Atmospheric cyclone occurred under the western part of the Black Sea and affected on the sea during September 25-29, 2005. Analysis of the satellite and meteorological data allowed to investigate cyclone development and changes of the sea upper layer properties.

AVHRR, MODIS, Quikscat and Jason 1 satellite data were used for investigation together with NCEP reanalysis data.

Shape of the coast line, large scale atmospheric circulation and breeze phenomenon favored to formation of the atmospheric cyclone. Top clouds temperature corresponds to the tropopause temperature.

Wind speed in the cyclone by Quikscat data exceeded 25m/s. Calculated from wind stress curl values for W_{Ekman} correspond $4.5 \cdot 10^{-5}$ m/s (typical for the Black sea - $1-2 \cdot 10^{-6}$ m/s). After the cyclone shift cold water spot with diameter ~ 200 km formed in the area of cyclone forcing. SST in the center of cold area was lower 10° C with surrounding waters SST 24° C. Analysis of the two subsequent passes of Jason 1 shown decrease of the sea level in the center of the cold waters area up to 25 cm. Chlorophyll concentrations in the upwelling waters was lower with respect to surrounding during three weeks. Restoration of the disturbed area induced bloom of the coccolithophores in the investigated area. Interpretation of the processes for nutrient supply into the boundary zones was done.