

Local dynamic experiment in the shelf zone of southern Crimean Coast

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Marine hydrophysical institute of the Ukrainian Academy of Sciences conducted local dynamic experiment (LODEX) in the shelf zone of Southern Crimean Coast (SCC) during the summer of 1991. The main objective of this experiment was to study the shelf flow dynamics in the presence of the developed seasonal thermocline. The principal forcing mechanism for the shelf flow in this region is a wind stress. According to this the main aims of the LODEX program were to investigate the physical processes caused by the local and remote wind forcing. Among them, an upwelling (downwelling) events and generation of subinertial coastally trapped waves are of a primary importance.

Experimental studies included:

1. Current and temperature measurements from 7 mooring buoys. Moorings were arranged along two lines oriented perpendicular to the local isobaths. One mooring buoy was placed upstream, another one was placed downstream from the experimental site.

2. Current, temperature and wind measurements from the oceanographic platform of the Experimental Department of MHI.

3. Current measurements from bottom installations on inner shelf (depths 10-15 m.). 4. 3 hydrological (CTD) surveys in the shelf-slope region of SCC from the RV "PROFESSOR KOLESNIKOV" (27 cruise), during which wind measurements and hydrochemical observations were performed as well. Surveys were organized as a system of sections which were oriented normally to the shelf break.

Obtained data have shown that the subinertial oscillations were well pronounced in the density and velocity fields on the shelf with periods of 11-12 days, 3-4 days and nearinertial one. Current oscillations at subinertial frequencies were better component, their amplitudes increased from the open sea to the coast and phase propagated from east to west which is in agreement with the properties of coastally trapped waves. These waves are essentially baroclinic because their propagation was accompanied by the temperature oscillations on the horizons below the upper mixed layer.

