



Numerical investigation of the surrounding relief on distribution of wind field over the Black Sea

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By numerical integration of the non-adiabatic, non-stationary and non-linear equations of atmosphere hydrothermodynamics the influence of the surrounding relief on a space distribution of wind field over the Black Sea is investigated. The dimensionless vertical coordinate, which in numerical experiments enables approximate the relief with high accuracy, is used. The air motions over the Black Sea in presence of large-scale background western, eastern, northern and southern winds are simulated. It is shown that the action of the relief on the basic four types of large-scale movements can cause essential changes of a current field over the Black Sea surface and form mesoscale circulation systems.

In case of the western background wind the southwest wind is obtained over western and central parts of the Black Sea. In the east part of the Black Sea the wind gradually changes direction, first turn into the south and then - into the southeast. In case of east background wind the air motion over the Black Sea basin is divided into two streams – with cyclone and anticyclone vortexes. In case of background northern wind the wind obtained over the Black Sea mainly has the north-south direction in the east part of the basin. Over the central and east parts of the Black Sea the cyclone vortex is formed. In case of the background south wind over east and central parts of the basin the southeast. wind is obtained. At west coasts of the sea the wind has the south-north direction.