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Seasonal Variability of the Caspian Sea Circulation

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The climatic circulation of the Caspian Sea and its seasonal variability does not known well yet, in spite of more than fifty years history of observations. Most part of direct current measurements were rather short and executed near the coast. Simulations of currents by means a diagnostic method based on the known temperature and salinity distributions have shown substantial seasonal variability of the Caspian Sea circulation. The use of prognostic models has shown that the current structure substantially depended on the quality of the wind fields.

The reconstructionl of the current fields of the Caspian Sea by means of assimilation of monthly climatic arrays of temperature and salinity in the 3D primitive equation is the goal of t our work.. The algorithm of adaptive statistics is used which makes possible to take into account evolution of errors of forecast during the simulations. Dispersions of errors of forecast is corrected in the moment of mastering of information according to the Kalman filter approach.

The results of simulations show, that the most intense circulation on all depths of the basin is observed in February. An average speed of the sea surface wind and its vorticity have a maximum at this time. The less intense flow is observed in March-June with the minimum of kinetic energy at the beginning of April. This period corresponds to the most calm weather. In Noticeable increase of the wind intensity above middle and south Caspian is observed in July-November with the maximum of wind speed in July. Basin - average kinetic energy of currents in July obviously predominates as compared to neighbouring months. Autumn month November is marked as the period of h relatively weak intensity of circulation, that corresponds to weaker November

winds. The simulations are compared with the direct observations of surface currents by drifting buoys which were launched in the basin in the first decade of November 2006.