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Hydrological state of the Large Aral Sea in the fall season of 2013

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We report here the results of the latest expedition of the Shirshov Institute to the Aral Sea. The survey encompassed 8 field days in October-November, 2013. Direct measurements of thermohaline characteristics and water currents were conducted in the western basin of the Large Aral Sea during the expedition. Vertical profiles of temperature and salinity were obtained using a CTD profiler at 9 stations, situated on two cross-sections of the western basin. Four mooring stations equipped with current meters, as well as pressure gauges, were deployed for 4-6 days on the slopes of the deepest portion of the western basin. A portable automatic meteorological station, continuously recording the variability of wind and principal meteorological parameters, was installed near the mooring sites.
Analysis of the current measurements data along with the meteorological data records demonstrated the current velocity and level anomalies responded energetically to winds. Correlation analysis of the velocity series versus the wind stress allowed to quantify the response of the system to the wind forcing. Together with the similar results of more earlier surveys, recently collected data shows that the mean surface circulation of the western basin remains anti-cyclonic under the predominant winds. Character of the interannual variability of salinity values in the Aral Sea water manifested increase in the surface layer during last 5 years. On the other hand, salinity values in the bottom layer appear to be decreased due to ceasing of the influence of the interbasin water exchange since 2010. Water level of the Large Aral Sea is still falling. Assessment of the on-going changes holds promise to help predicting the subsequent state of the Aral Sea region.