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# Latest Data on Thermohaline Structure and Circulation of the Dying Aral Sea

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The results of the latest expedition of the Shirshov Institute to the Aral Sea are reported. The survey encompassed 15 field days in August, 2009.
An interdisciplinary oceanographic study in the western basin of the sea was conducted during the expedition. Vertical profiles of temperature, salinity and fluorescence were obtained using a CTD profiler at 8 stations across the western basin. Two mooring stations equipped with current meters, one at the surface and one in the bottom layer at each station, as well as pressure gauges at the bottom, were deployed for 5 days in the deepest portion of the western basin. One of the stations was installed at the western slope of the basin, while the other one was positioned at the eastern slope. A portable automatic meteorological station, continuously recording the variability of wind and principal meteorological parameters, was installed near the mooring sites.
The vertical structure of the themohaline fields exhibited a 3-layered pattern, with local salinity maxima in the upper mixed layer and at the bottom. The intermediate layer was characterized by a core of minimum salinity and temperature, also accompanied by maximum fluorescence. Such a pattern indicates that the signature of the denser, saltier water originating from the eastern basin is still evident, even though the eastern basin itself dried up almost completely during the summer of 2009. The surface salinity was around 136 ppt, which constituted a notable increase for about 20 ppt since the summer of 2008. Over the same period, sea level decreased by 164 cm since the summer of 2008.
Analysis of the current measurements data along with the meteorological data records demonstrated that the mean basin-scale surface circulation of the Large Aral Sea is likely to have remained anticyclonic, whilst the near-bottom circulation appears to be cyclonic. 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.