



## **Internal waves in the Aral Sea: the first direct observations**

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At present time the Aral sea represents an ultrahaline basin (maximum of salinity is about 120 g/kg) characterized with sharp vertical stratification, which implies development of baroclinic processes. In October 2013 during the latest expedition of the Institute of Oceanology at Large Aral Sea observations aimed specifically at investigating the internal waves were conducted for the first time. The measurements were performed using 4 moored stations equipped with thermistor chains. Moored stations were located at the vertices of a rectangle with sides 10 and 13 km, so that 2 stations were situated at the western and 2 stations at the eastern shores of the basin. The stations were installed at a depth of 23-25 m. Recording was carried out continuously with sampling rate of 30 seconds during 6 days. During the observation, the position of thermocline was at a depth of 20-21 m, with a maximum depth of the sea 37 m. According to the wind conditions, all measurement period was divided into 3 parts. At first, the weather was calm, but after a few days there was a 1 day long intensification of the southwestern wind. Then there was a period of calm wind again. Both long-period and short-period internal waves were identified in the data record. In particular, we observed internal seiche oscillations with a period of 10-11 hours and vertical displacements of about 5 m. Short-period internal waves with periods from several minutes and heights of 1 m and less were also registered. After the period of strong wind, at one station periodically appearing and disappearing temperature inversions were observed. Temperature records of thermistors were analyzed in detail. Frequency and spatial spectral analysis of internal waves was performed. Dispersion curves for the real stratification of the Aral Sea were calculated and compared with the experimental data. This work was partly supported by the Ministry of science and education of the Russian Federation and Russian Foundation for Basic Research (project 13-05-01106).