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The Aral Sea internal wave structure in autumn 2006.

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Filtered deviations from equilibrium of surface level allow to study the internal motions. The method resulting from the consideration that internal oscillations are accompanied by oscillations at lake surface level, typically 1/1000 smaller in amplitude, was initially proposed by Mortimer (1963) and later used by different authors, i.e. Caloi *et al*., 1986, Sirkes, 1987 and Lemin *et al.*, 2005. Forcat et al. (2011) applied the method to numerical results obtained by the Princeton Ocean Model for a Mediterranean reservoir and it was found that the results adequately reproduce all the significant modes observed and showed the importance of rotational modes. In the present work the structure of internal waves at the Eastern basin of the Large Aral at the end of September 2006 is presented based also on numerical simulations with POM. Initial stratification was that measured in situ and the system was forced by reanalysis wind data. The sub-daily modes which have been identified are close to the main peaks observed on the spectral analysis of the water surface level which was measured during a couple of days at the shore of the Sea and correspond to a combination of first and second vertical and horizontal modes with no rotational behavior. Modes with longer periods, which are the most energetic, are however found to rotate clockwise.

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