



Current variability and momentum balance in the along-shore flow for the Catalan inner-shelf.

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This contribution examines the circulation of the inner-shelf of the Catalan Sea from an observational perspective. Measurements were obtained from a set of ADCPs deployed during March and April 2011 at 25 and 50 meters depth. Analysis reveals a strongly polarized low-frequency flow following the isobaths predominantly in the south-westward direction. The current variance is mostly explained by the two principal modes of an empirical orthogonal decomposition. The first mode represents almost 80% of the variability. Correlation values of 0.4 to 0.7 have been found between the depth-averaged along-shelf flow and the local wind and the Adjusted Sea-level Slope. The momentum balance in the along-shore direction reveals strong frictional effects and an influence of the barotropic pressure gradients. This research provides a physical framework for ongoing numerical modelling activities and climatological studies in the Catalan inner-shelf.