Abstract
First results of extensive ADCP and CTD measurements, performed in the Adriatic shelf-break area between February and September 2006, are presented. Pronounced diurnal oscillations were observed, apparently related to internal tides and periodic upwelling and downwelling events. Moreover, inertial oscillations were documented. Finally, summertime change of the east-coast inflow to the Adriatic was recorded, lasting only one month at two ADCP stations, three months at one station.

Keywords: Adriatic Sea, Circulation, Upwelling, Tides.

The presentation focuses on the Adriatic shelf-break area. Previously, it has been found that the along-basin flow there is oppositely directed in the winter and summer seasons, that seasonally dependent circulation contributes to a strong temporal variability of thermohaline properties, and that barotropic-like currents reverse on a few-day scale [1]. More recently, it has been shown that during the stratified season diurnal internal tides are generated in the area by the interaction of diurnal barotropic tides with topography [2]. As the previous detection of internal tides was based on a limited data set, the project entitled “Internal Tidal Hydrodynamics and Ambient Characteristics of the Adriatic (ITHACA)” was initiated in order to provide a more complete information. The aim of the project was also to consider the way changes of background stratification and currents modify internal waves, and vice versa - to address a possible influence of internal waves on deductions based on measurements that are scattered in space and time.

The project was successful, as all the instruments were recovered except one of the thermistors. Preliminary analysis of the data collected has shown that diurnal temperature oscillations were particularly strong at one of the islands (Lastovo) and that corresponding baroclinic current variability was largest at a nearby ADCP station (Figure 1). Apparently, the diurnal signal was related not only to internal tides but also to periodic upwelling and downwelling events that were especially pronounced in July 2006. Inertial oscillations were also well visible in both the temperature and ADCP time series. Lower frequencies were dominated by the east-coast inflow to the Adriatic, which, however, underwent a summertime change - recorded in July 2006 at two of the ADCP stations, between May and July 2006 at one station.

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References