

Inertial Frequency Band Oscillations in the Northern Adriatic

J.W. Book and H. Perkins

During winter/spring 2001 a bottom mounted ADCP was deployed at 57 meters in the Western Adriatic Current (WAC) as a part of a planning study that preceded a large international program studying the northern Adriatic Sea. The variability of the currents at the mooring site was dominantly driven by bora wind events. These intense, cold and dry wind events produced low frequency current bursts that enhanced the strength of the WAC and also produced bursts of energy in the inertial frequency band. The inertial oscillations primarily developed later in time than the low frequency bursts and persisted for several days after the low frequency bursts had decayed. The time averaged negative rotary spectrum has broad peaks centered on $f/2\pi$ with peaks near the surface and near 40 meters. Stronger events occurred around March and April 1st. During the later event, the depth nodal point of the oscillation deepened over the course of the event from 12 to 30 meters. An extremely strong inertial event, possibly driven by a different type of forcing, occurred in early June. Inertial band-passed filtered currents reached speeds of 44 cm/s during this event. The recently recovered array of bottom mounted ADCPs and other measurements from fall to spring 2002/2003 will provide further spatial and temporal data on the physics of inertial oscillations in the northern Adriatic.