



Eulerian Observations in Hellenic Seas

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Oceans are very dynamic systems with active processes that include physics, chemistry and biology. However, if these processes are to be understood, if new insights are to be gained, if quantitative models are to be validated satisfactorily, then observations are needed over the time scales appropriate to the dynamics of these processes. This approach should not be considered simply as monitoring, but instead as an active exploration of system dynamics in the time component.

The Hellenic Centre for Marine Research (HCMR) has established a network of oceanographic buoys in the Aegean and Ionian Seas, integrated into an operational system named after the ancient Greek god POSEIDON. Right from the start two major objectives were set; to provide services for maritime transport, tourism, fisheries, and environmental protection and to promote research through high frequency observations, data acquisition, model and technological developments. During the first phase of POSEIDON (1997 – 2000) 9 buoys were deployed in the Aegean Sea focusing on meteorological and hydrological measurements. Parallel to this effort, in the framework of the MFSPP project (1998-2001) a multi parameter buoy system (E1-M3A) was deployed in the Cretan Sea providing high frequency real time data for physical parameters in the upper thermocline and biochemical parameters in the euphotic zone. During the MFSTEP (2001-2005) and MERSEA (2004-2008) projects the system was upgraded while problems with biofouling and communication were solved. Having acquired a valuable experience, the E1-M3A system was rebuilt and entered into its operational phase in 2007 through integration into the national buoy network in the framework of the POSEIDON-II project (2005 – 2008). Furthermore, a sec-

ond multi-sensor mooring site (POSEIDON-Pylos) was established in the Ionian Sea focusing on water column and sea-bed coupling processes. The observatory includes a sea bottom autonomous platform equipped with sensors for physical (temperature, salinity) observations as well as a Tsunami detection module.

In the near future and within the framework of EuroSITES project the Cretan Sea mooring will be upgraded with the addition of a CO₂ sensor while the observing capacity of the Pylos mooring and bottom platform will be expanded to cover the whole water column (0-2000m) with additional CT sensors on the mooring line and the platform. Dissolved oxygen sensors will also be used for improved tracing of water masses.