



Sub-basin scale operational system in the Balearic Sea

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Operational oceanography requires the combination of real-time measurements and numerical models. We present an operational system in the Balearic Sea (North-western Mediterranean). This system is applied using a management sub-system based on GIS technology which aids for decision support to provide response to SAR operations or oil spill accidents. The Balearic Sea is an area characterized by a high spatial and temporal variability, and thus, it is crucial to resolve all scales as well as the complex interactions among them. The IMEDEA sub-basin scale operational system is conformed by a set of nested models: the Global MFSTEP/MERSEA model (10 km resolution), the Harvard Ocean Prediction System -HOPS- (2 km resolution) sub-basin model and HOPS local models (300-600m). These local models, when needed, are coupled, at selected areas, to the sub-basin model by two-way nesting. Atmospheric forcing used by the sub-basin and local models is provided by the HIRLAM (0.05° resolution) model from the Spanish Meteorological Agency (INM). The observational component of the system has been recently improved. In the frame of EU MERSEA Research project, a new tool for data collection has been implemented into the system. The SLOCUM glider from Webb Research Center is a new ocean observing platform able to carry out oceanic cruises continuously and autonomously providing Conductivity-Temperature-Depth (CTD) data. All available data is assimilated into the HOPS model using an optimal interpolation technique. The overall system has been tested in the frame of the SASEMAR-ESEOO (Spanish National Science Plan) experiment that took place in South Mallorca on May 2005. CTD data from a Rapid Response cruise was assimilated into the local model and currents from the system were used to forecast buoy trajectories. The results were encouraging and allow us to identify the parts of the system that will be improved in the next future.