

A MULTI-SENSOR APPROACH TOWARDS COASTAL OCEAN PROCESSES MONITORING

J. BOUFFARD ⁽¹⁾, A. PASCUAL ⁽¹⁾, S. RUIZ ⁽¹⁾, G. VIZOSO ⁽¹⁾, J. TINTORÉ ⁽¹⁾

⁽¹⁾ IMEDEA (CSIC-UIB)

The coastal ocean is of crucial societal importance. A quantitative understanding of the physical processes impacting the coastal region is necessary to determine how the sea level and current variability will affect coastal systems. Dynamics along the continental slopes are difficult to observe given the wide spectrum of temporal and spatial variability of physical processes which occur. Thus, studying such complex dynamics requires the development of synergic approaches through the combined use of modelling and observing systems at several spatial/temporal sampling level requirements.

The objective of this work is to develop coastal operational oceanography on the basis of adequate observing systems which can be integrated into coastal circulation models. Specifically, it is intended: (1) to process, validate and intercalibrate multi-sensor datasets dedicated to coastal ocean studies. In this context, we will implement the technological existent advances in satellite altimetry in the coastal area, that up to now it has not been possible to be used for coastal applications due to relatively poor sampling and inaccuracy of corrections. An ongoing work consists in applying improved altimeter corrections (tidal model, mean profile, T-UGOm HR, troposphere correction), high frequency sampling data and reviewing the data recovery near coast. In the meantime the so far unexploited possibilities from the merging of existing in situ (glider, tide gauges, drifters) data sources with remote sensing data (SST, altimetry) to monitor coastal dynamics will be investigated. The developed system will be implemented initially in the coastal area of the Balearic Islands where the scientific knowledge and the necessary data exist. A second (2) objective consists in scientific applications i.e. to exploit multi-sensor data (in situ and remote sensing) in the context of regional hydrodynamic modelling of shelves and coastal circulation, with focus in the North Western Mediterranean (NWMED).

These activities are in line with the new OceanBIT Coastal Observing and Forecasting System, a new facility that will address scientific and technological coastal ocean international priorities. The System will be based in the Balearic Islands but will have a more general Mediterranean / Global Ocean interest (the Mediterranean as an ideal, small scale ocean).