Coastal ocean forecasting advances and recent applications of the Western Mediterranean Operational modelling system (WMOP)

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This presentation will highlight the recent advances and applications of the WMOP regional forecasting model developed at SOCIB (Balearic Islands Coastal Observing and Forecasting System). WMOP is a 2km-resolution model downscaling the Mediterranean model simulations of the Copernicus Marine Service over the Western Mediterranean Sea. WMOP assimilates along-track satellite altimetry data, SST maps, ARGO temperature and salinity profiles, moorings measurements and Ibiza Channel High-Frequency (HF) radar surface currents. It provides every day a 72-hour prediction of ocean temperature, salinity, sea level and currents aiming to represent the ocean variability from the coastal to the meso- and subbasin-scales. It is also used to generate reanalysis simulations of past periods, with the possibility of grid refinement through two-way nesting procedures.

This contribution will (1) present the main characteristics of the system including evaluations of the model performance, and (2) provide an overview of its recent applications. These applications include fine-scale ocean process studies, real-time support of field experiments and glider navigation, evaluation of the impact of HF radar observations and analysis of Lagrangian trajectories applied to the dispersion of fish larvae, pathogens, marine litter and surface drifters.