



Operational Wave Forecast in Mediterranean Coastal Areas

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The Mediterranean Coastal Wave Forecast system (MCWAF), which will be operational from January 2012, has been implemented and tested extensively in the past two years on more than 40 key studies. The operational version of the system will soon replace the old SIMM-Poseidon forecast system, in use since 2000 at ISPRA. The aim of the project is to provide reliable forecasts on several selected coastal areas in the Mediterranean Sea using a combination of different third generation spectral wave models. The basin-scale implementation of the WAM model covers the whole Mediterranean Sea and includes the assimilation of satellite data and the coupling with currents. In order to have realistic simulations in coastal areas, not only it is necessary to run the models on parallel machines, but also to undergo two different levels of nesting. The basin-scale implementation produces high resolution boundary conditions for the regional implementations which simulate the wave evolution and propagation on intermediate resolution regional-scale zones. The SWAN model is nested on the high-resolution regional WAM grids and simulates the physical processes typical of the propagation in shallow waters. On the whole, the system is organized in a modular way, such that it is rather easy to add or modify grids at the regional or local level of nesting. The wind used is generated at ISPRA by an updated, high resolution version of the BOLAM regional meteorological model. A special effort is made to have an optimal bathymetry representation on the coastal, very high resolution, grids. Currents are provided by the Mediterranean Forecasting System in the framework of the MyOcean project. In this study we discuss the implementation of the operational version of MCWAF and present some results of the simulation of recent storms in the Ligurian and Northern Tyrrhenian Sea, showing the comparison with available observations.