



Glider Data Based Rapid Environmental Assessment (REA) in the Northwest Mediterranean Sea

Reiner Onken and Baptiste Mourre

NATO-STO Centre for Maritime Research and Experimentation (CMRE), La Spezia, Italy (onken@cmre.nato.int)

In September 2012, the CMRE conducted a REA experiment off the French Provence coast, the major elements of which were a ship-based oceanographic survey, the deployment of a fleet of underwater gliders and now-cast/forecast studies with the Regional Ocean Modeling System (ROMS). The objective was to provide in-situ data for assimilation in ROMS and to validate the ROMS forecasts against the observations. The observational data consisted of 63 CTD (Conductivity-Temperature-Depth) casts, data from six simultaneously operating Slocum gliders, trajectories of 19 surface drifters, time series data from seven moorings, and underway measurements with shipborne ADCP (Acoustic Doppler Current Profiler) and thermosalinograph. ROMS was set up with 32 layers in the vertical and ~ 1.9 km horizontal resolution, it was one-way nested in the Mediterranean Forecast System (MFS at 1/6 degree resolution), and the surface boundary conditions were provided by the COSMO atmospheric prediction model. Three different forecast strategies were pursued: (1) ROMS initialization from MFS and without assimilation of observations, (2) initialization from a quasi-synoptic data set of CTD and glider data, melded with MFS, and (3) initialization from MFS and with assimilation of glider data. The major intent of the first strategy was to demonstrate the impact of higher resolution, and to provide a background for the comparison with the other strategies. All three strategies performed well; the evaluation of the individual forecast skills of either strategy and the comparison among each other is in progress.