



On the validation of a realistic model of mesoscale coastal circulation in the Western Iberian Peninsula

Jesus Dubert, Nuno Cordeiro, and Rita Nolasco

CESAM and Physics Department, Aveiro University, Portugal (jdubert@ua.pt)

Realistic simulations of the circulation off the Western Iberian Peninsula, for the period 2001-2009 are compared against satellite observations of sea surface temperature (SST), for the summer upwelling season. This was done by means of comparisons of climatological means of monthly sst, standard deviation, and monthly anomalies obtained from satellite, and from the numerical model. Also, the observed mesoscale structures like filaments, are also compared with those obtained with the model, for the same period.

The model consists in a ROMS-AGRIF configuration at ~ 3 km resolution, forced with 6h NCEP2 reanalysis and Quikscat forcing for winds for the referred period, in the presence of river inflow for the main rivers of the region. The boundary conditions are obtained by offline nesting from a configuration of a larger domain, forced in the same way, and offshore Levitus climatological boundaries.

The filament characterization for the satellite data, and the outputs of the numerical model, was done based on an automatic data treatment, which allows to study the filaments seasonal and interannual variability for the studied period.

It was also made a study and a discussion of the surface climatology based on the satellite images and the model, in order to characterize, the surface temperature field, the monthly means, standard deviation and the deviations from the mean. In order to explain the observed and modelled anomalies, NCEP winds reanalysis are used in several points in the studied domain.

The main purpose of this study is a step forward in the validation of the numerical configuration resolving mesoscale in the Western Iberian Peninsula, and to is to determine whether or not the model is able to reproduce the observed mesoscale features, the monthly anomalies of sst, and the monthly climatology.