

## NUMERICAL METHODS FOR OCEAN COASTAL AND INTERNAL WAVES MODELLING

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### ABSTRACT

A new generation of High resolution Ocean General Circulation Models (OGCM) (km on horizontal, meter on vertical) inlighted the importance of mesoscale and submesoscale vortices and waves in the ocean turbulence, with significant impact on interannual variability and vertical turbulence. In particular, the eddy resolving models completely changed the understanding of climatic dynamical systems from quasi laminar low resolution OGCM to chaotic eddy permitting ones. Moreover, the numerical resolution of eddies, filaments and ocean long waves allowed a much better prediction of vertical mixing for dispersion or retention of biogeochemical quantities of importance for climatic (Carbone budget), environmental (waste and spills) and economic (fisheries and tourism) purposes.

In the same time, new generation of numerical models for Navier Stokes and Shallow Water equations (RANS, LES and DNS) have been developed including parallel computing, GPU programming and unstructured grids.

This minisymposium aims to report recent results concerning Rossby and coastal trapped waves, inertial and internal waves in the ocean and provide exchanges between scientists working at different scales.

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