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A numerical model of the circulation in the NW Mediterranean.

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Abstract
We present a costal, high-resolution, one-way-nested thermo-hydrodynamical model of the NW Mediterranean, based on the code SYMPHONIE (Marsaleix et al, 2008).
The model provides the three velocity components, the free surface elevation, and the temperature and salinity fields.
It solves the Reynolds-averaged Navier-Stokes equations, using the hydrostatic and Boussinesq approximation, and the equations of the mass and tracers' conservation. The turbulence closure is achieved through a prognostic equation for the turbulent kinetic energy and a diagnostic equation for the mixing and dissipation length scales.
A generalized vertical coordinate and a staggered horizontal grid are used. Computation costs are limited thanks to a time splitting technique
that allow to compute the vertical shear of velocity and the three depth-averaged components separately with appropriate time steps.
Radiation conditions combined to restoring terms to the large-scale circulation (Mediterranean Forecasting System data) are applied at the open boundaries, and bulk formulas are used for the meteorological forcing (Météo-France data).
A ten-year simulation (2001-2009) is available at COM. The model data are proposed for a comparison with the ANTARES observations in order to both validate the model, in particular in the deep layers, and to use its information for future observations planning.

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