



Modelling the Tyrrhenian sea circulation: the relative role of remote transports and local winds

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The high-resolution three-dimensional POM model has been implemented in the region of the Tyrrhenian sea in order to describe aspects of the circulation of the basin. In this framework this work is thought to be devoted particularly to study aspects of the winter circulation. This modelling efforts can be also considered a good prerequisite to setting a modelling tool for operational oceanography applications. The stratification used as initial conditions is obtained by the winter climatological MED6 data sets and the atmospheric forcing is a wind representing a climatological typical winter case. No surface heat and freshwater fluxes are used although the surface climatological temperature and salinity restoring is applied. Quasi-steady scenarios of the circulation representing the local manifestation of the large-scale Mediterranean conveyor belt are obtained by imposing baroclinic and barotropic time - independent transports along the three natural open boundaries which are the Sardinia channel, the Corsica channel and Sicily channel. The sensitivity experiments to the remote transports shows that for realistic values of these transports the model captures the main features of the observed circulation. The model also shows a strong mesoscale activity superimposed to the mean flow influencing both MAW and LIW layers particularly in the central part of the basin. The advection of MAW inside the basin is found to be important to modulate the variability of the northern gyre. The LIW transport inside the basin is found sensible to the remote barotropic transport at Sardinia channel.