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# Numerical study of the Western Alborán Gyre genesis and migration

**G. Jordà**, D. Gomis

Institut Mediterrani d'Estudis Avançats IMEDEA (UIB-CSIC), Mallorca, Spain
(gabriel.jorda@uib.es / Fax: +34 971-611761 / Phone: +34 971 601732)

The Alboran Sea hydrodynamics has been extensively studied in the past as well as the generation and evolution of the two-gyre system. Nevertheless, there is no clear consensus about the role of the different factors that have an impact on the system, specially about the generation and sporadic migrations of the Western Alborán Gyre (WAG). In this work, a high resolution 3D primitive equations model is implemented in the Alborán Sea region. The resolution of the model is 3km and the domain, extends beyond the Strait of Gibraltar, covering part of the Gulf of Cadiz. Several sensitivity tests are first carried out to ellucidate the role of each factor on essential dynamical features such as the generation and the almost-stationary location of the WAG. A special emphasis is put in the validation stage, in order to illustrate how easy is to reproduce a wrong (although apparently correct) situation. Finally, several hypotheses about the factor(s) that induce the migration are presented and discussed in the light of both, the numerical simulations and the observational evidences of the phenomenon.