



## **Improvements in the Mediterranean Sea geostrophic circulation using GOCE data**

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A mean dynamic ocean topography (MDT) has been computed in the Mediterranean Sea using a GOCE (Gravity field and steady-state Ocean Circulation Explorer) gravity model and a given mean sea surface obtained from satellite altimetry. The use of GOCE gives the possibility of determining a medium-high resolution geoid model independent from existing circulation models and in-situ data. Since the GOCE gravity model is truncated at a maximum harmonic degree of 250, corresponding to a spatial resolution of about 70 km at Mediterranean Sea latitudes, the MDT has to be consistently filtered. This can be done either globally using the spherical harmonic representation or locally using spacewise filters. An alternative is to complete the GOCE information at high frequencies for instance using the EGM2008 ultra-high resolution global model.

In order to assess the accuracy of the obtained results for oceanographic purposes, geostrophic currents are computed from the MDT and compared to those obtained with independent observations. It comes out that the resulting circulation is consistent with the known dynamic features in the Mediterranean Sea.