



Computing and validating the bathymetric effect in smoothing gravity and altimeter data in the Mediterranean area.

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The proper modelling of the terrain effect plays a crucial role in geodetic computations. Particularly, in estimating the geoid and/or in interpolating gravity data, the high frequency components of the gravity signals are usually efficiently modelled and removed using high-resolution DTM models, e.g. the SRTM model.

The same doesn't hold for the bathymetric effect. Bathymetry models are coarser than the corresponding DTM models and are estimated by interpolating data coming from different bathymetric campaigns. In-situ bathymetry data, usually in the form of echo-sounding measurements, are in most cases inhomogeneous either in terms of their precisions and their spatial resolution. Also they are frequently referred to different coordinate systems that are not properly documented. Thus, the final gridded products that are supplied to users have quite poor standards and must be carefully checked before their use.

In this work, several bathymetric models have been tested over the Mediterranean area. The RTC effect has been computed with different methods and used for reducing marine gravity and altimetry data. Results are discussed in view of a critical use of bathymetry when computing gravity and/or altimetry data residuals.