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# Geostrophy in the Mediterranean Sea based on GOCE geoid and altimetry data.

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The altimetrically determined “geoid” includes errors due to permanent ocean currents, hence cannot be used for studies of ocean circulation. Instead, independent geoids are required. In recent years, with the CHAMP and GRACE gravity space missions the accuracy of the geoid has increased tremendously. GOCE mission will describe the geoid globally with an unprecedented accuracy of 1-2 cm and with a spatial resolution of 100 km. Currently the GRACE mission has been measuring the time-variable gravity field of the earth, since its launch in 2002. The long period GRACE measurements have also been used to estimate the static gravity field of the Earth, i.e. the static geoid. For example, the first static geoid, GGM01S, estimated from 111 days of GRACE measurements enhanced the previous best geoid model, the EGM96, in more than one order of magnitude. In the future, the GOCE derived geoid, and those derived from the combination of the three gravity space missions, are expected to contribute noticeably in our knowledge of the geoid, and then of the geostrophic currents. In this communication we present the preliminary results of the study that we are carrying out of the surface current for the Mediterranean sea from multi-satellite altimetry regional solutions and the best available geoid.