



GOCE++ Dynamical Coastal Topography and tide gauge unification using altimetry and GOCE.

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ESA has recently released a study on the potential of ocean levelling as a novel approach to the study of height system unification taking the recent development in geoid accuracy through GOCE data into account. The suggested investigation involves the use of measurements and modelling to estimate Mean Dynamic Topography (MDT) of the ocean along a coastline which contributes/requires reconciling altimetry, tide gauge and vertical land motion. The fundamental use of the MDT computed using altimetry, ocean models or through the use of tide gauges has values of between -2 and +1 meters at different points in the ocean. However, close to the coast the determination of the MDT is problematic due to i.e. the altimeter footprint, land motion or parameterization/modelling of coastal currents.

The objective of this activity is to perform a consolidated and improved understanding and modelling of coastal processes and physics responsible for sea level changes on various temporal/spatial scales. The study runs from October 2015 to March 2017 and involves elements like: Develop an approach to estimate a consistent DT at tide gauges, coastal areas, and open ocean; Validate the approach in well-surveyed areas where DT can be determined at tide gauges; Determine a consistent MDT using GOCE with consistent error covariance fields; Connect measurements of a global set of tide gauges and investigate trends