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GRACE derived geopotenial models on regional and global scales

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GRACE derived geopotential models provide detailed geo-dynamic information about the static and, for the first time, also of the time-variable gravity field of the Earth. It delivers the most accurate map to date of the Earth's long wavelength gravity field. The temporal variations of GRACE have provided outstanding results for Earth system modeling.

In recent years, GRACE global geopotential modeling has experienced substantial improvements from better data pre-processing, new conventions and standards, better static and time-variable background models (tidal and non-tidal oceanic and hydrological variations), enhanced de-correlation and de-aliasing, as well as improved algorithms and computational facilities. Besides that, innovative concepts such as Kalman filtering and regularization along with regional modeling have shifted temporal and spatial resolution towards new frontiers.
Since the GRACE mission is presently undergoing a complete reprocessing and is nearly reaching for the first time the anticipated pre-launch simulated baseline error of the gravity recovery, we will investigate mass transport and distribution based on small scales and regional context using multi-satellite data processing by reproducing kernels and integral equations.