



A new high resolution global gravity field model from the combination of GRACE satellite mission and altimetry/gravimetry surface gravity data

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With the GRACE satellite mission, a new generation of global gravity field models from space became available. Here the latest results of the processing of 16 months of GRACE tracking data are presented and compared with outcomes of former analyses. Especially the exploitation of GRACE low-low satellite-to-satellite tracking data allows to recover the gravitational potential down to wavelengths of 330 km or in terms of spherical harmonics almost up to degree/order 120.

On the other hand, surface gravity data derived from altimetry and gravimetry are globally available, providing a higher resolution but lacking the high precision in the long-wavelength part. In an optimal approach the GRACE- based and latest surface gravity data sets are combined to derive a global high-resolution gravity field model keeping the high precision and homogeneity in the long- to medium-wavelength part and extending the resolution to a wavelength of 100 km and degree/order 360, respectively.