Downward continuation of gridded and reprocessed GOCE gravitational gradients

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We investigate the downward continuation of reprocessed and gridded GOCE gravitational gradients in the terrestrial reference frame. The main motivation for the continuation of potential fields arises from a need i) to emphasize phenomena in signal (increasing the magnitudes and/or spatial resolution), ii) to avoid a use of the global gravity field models that can smooth the GOCE signal in a particular region.
The proposed algorithm consists of two steps. First, the data are projected onto a mean orbital sphere where they are interpolated onto a regular grid. Second, the grids with the gravitational or disturbing gradients are continued downward by an iterative approach based on the Poisson integral. The results are compared with the results from recent GOCE-only gravity field models and discussed.