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On the reprocessing of GOCE gravity gradients

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The GOCE satellite was launched in March 2009 and collected a unique gravity gradient dataset at a mean altitude of 260 km, later descending to 228 km, until re-entry in November 2013. The gravity gradients are not measured directly, but calculated from the measurements of six accelerometers that form the gravity gradiometer and three star trackers. Recent investigations on the calibration and processing of those measurements resulted in a significant improvement of the entire gravity gradient dataset. In particular the perturbation that affected the cross-track gravity gradient Vyy in the regions around the geomagnetic poles is reduced to a large extent. These achievements lead to the decision to perform a full reprocessing of the GOCE mission dataset, starting from accelerometer and star tracker measurements and processing all the way to global gravity field models.

In our presentation, we will explain the new calibration approach for the star tracker and accelerometer measurements and highlight the essential differences to the previous approach. Furthermore, we will outline the revised processing scheme and focus on the key changes. Finally, we will demonstrate the improvement of the reprocessed GOCE gravity gradients and inform about the schedule of the reprocessing.