

Observing Fennoscandian Geoid Change for GRACE Validation

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Tide gauge records, multi-epoch precise levelling, and time series of GPS data have revealed both vertical and horizontal movements of the Fennoscandian crust due to glacial isostatic adjustment. The oval-shaped uplift area has a linear extension of 1750 km along the major axis (oriented approximately northeast) and 1000 km along the minor axis. Maximum uplift (1 cm/yr) is observed in the northern part of the Bothnian Bay.

Existing time series of relative and absolute gravity for a few sites and GIA model calculations indicate an annual gravity change of $-2 \mu\text{gal}$ and a geoid rate of 0.6 mm/year in the central uplift area. Gravimetric detection of this phenomenon is within reach of FG-5 absolute gravimeters, but may require a time series of 5 years or more. Similarly the geoid rate may be determined by the gravimetric satellite mission GRACE. Terrestrial observations may thus be used for validation purposes.

Initiated by *Institut für Erdmessung*, a multi-national cooperation has been set up for frequent collection of absolute gravity data in a dense Fennoscandian network. Three recently acquired FG-5 absolute gravimeters will visit 30 sites annually in Denmark, Finland, Norway, and Sweden, some by several instruments for comparison purposes. The first observing run was carried out in 2003, which also included the participation of BKG, Germany. The campaign has been continued in spring and summer 2004. The national mapping agencies in all four countries have made observing sites available to the project, and even prepared new sites. This poster describes the present status of the project.