



## **Gravity Changes in the Fennoscandian Land Uplift Area as Observed by GRACE**

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During the mission duration of GRACE (about five years), a temporal geoid change of about 3.0 mm can be expected in the centre of the Fennoscandian land uplift area (the Bothnian Bay), corresponding to a gravity change of about 10  $\mu$ Gal. 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. As the Earth gravity field can be determined from GRACE data with very high accuracy at the long wavelengths, the Fennoscandian land uplift may cause a measurable signal in the observations. We show preliminary results of temporal gravity changes derived from the monthly GRACE solutions and compare them to independently obtained data and models. E.g., gravity changes can also be observed by absolute gravimetry on ground with an accuracy of  $\pm 1 \mu$ Gal. We compare recent gravity measurements from 2003 and 2004, carried out on some selected sites in Fennoscandia, with the GRACE results. Obviously, the observed signals are affected by various geophysical processes causing temporal gravity changes: e.g. atmospheric, oceanic and hydrologic effects cover the uplift signal and therefore have to be removed in advance. Spatial and temporal filtering is a further topic to be addressed in this respect.