

Can we use GRACE to understand GIA?

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The times series of GRACE monthly solutions of now about 7 years allows to determine the long-term component of mass variations quite well. These observed mass variations are an integral effect of processes in the atmosphere, hydrosphere and geosphere. Depending on the signal of interest the other signals must therefore be subtracted from the observed gravity trend in order to isolate the selected one. Regarding e.g. glacial isostatic adjustment (GIA), hydrological contributions in North America and Fennoscandia and ice mass changes in Greenland and Antarctica have to be removed when focusing on one of the regions. This makes high demands on the analysis method, the filtering technique and the reduction models, and there is much debate which approach is the best.

In the last years, a number of works have been dedicated to GIA investigation with GRACE data in the regions mentioned above, and their number will definitely increase within the next. The talk will give an overview of several works, and will address topics such as the knowledge so far, (problems with) the separation of the GIA signal from GRACE data, the contribution of hydrology in North America and Fennoscandia, the comparison to model results, and other interesting problems that should be solved.