



Twenty years of search for the true crustal deformation in Fennoscandia from the BIFROST project

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The BIFROST (Baseline Inferences for Fennoscandian Rebound Observations Sea Level and Tectonics) project was started in 1993. The first primary goal was to establish a new and useful three-dimensional (3D) measurement of the movements in the Earth's crust based on Global Navigation Satellite System (GNSS) observations, able to constrain models of the GIA (glacial isostatic adjustment) process in Fennoscandia.

We will present GNSS 3D velocity solutions derived from a complete re-processing applying state-of-the art processing strategies and using the GIPSY/OASIS as well as the GAMIT/GLOBK software packages, and we compare these to recent GIA model predictions. The step where velocities are derived from daily position results also calls for some attention. Here we apply a time-series analysis, where we identify outliers and shifts in the time series, and we also evaluate characteristics of the random noise. In addition, we compare our results to velocity estimates from within the GLOBK (where the complete network is considered compared to the time-series analysis which is done station by station).

Of special interests in activities like BIFROST are issues regarding reference frames, which are especially important while searching for true vertical velocities and while comparing to GIA models, as well as long term stability in the observation system including new generation of satellites and changes in the ground segment. These issues will also be discussed in the poster.