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The contemporary strain rate field of Fennoscandia derived from BIFROST GPS.

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We use up to 4800 days of BIFROST GPS in Fennoscandia and surroundings in order to derive strain rates on a scale from 50 to 2000 km. Our investigations aim at discriminating limitations of current models of Glacial Isostatic Adjustment (GIA).

The BIFROST network consists of 84 continuous GNSS stations with geodetic quality sites as a backbone. The GPS data has recently been reprocessed in order to reduce errors that probably relate to technical issues with new Block IIR satellites received at low elevation at some northern sites.

We ask the question, to what extent the residual deformation could be explained by more detailed models of the ice sheet history, by lateral heterogeneities in the lithosphere/upper mantle structure and rheology, and by other (non-GIA) processes, such as contemporary tectonics?

In our strain rate processing we apply two different methods: (i) minimise a strain energy function using polynomials as base functions; (ii) employ a least-squares collocation method. The strain rate calculation is considered as an efficient amplifier of regional features of the displacement field.