



## **Greenland GPS Network to monitor ice mass changes under the INTAROS project**

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The Greenland GPS Network (GNET) uses the Global Positioning System (GPS) to measure the displacement of bedrock exposed near the margins of the Greenland ice sheet. We provide 3D displacement time series from GPS available at (<https://catalog-intaros.nersc.no/dataset/ice-mass-change-of-the-greenland-ice-sheet>) to study uplift in response to present-day changes in ice mass. We compare present-day 3D deformations with modeled results. To retrieve 3D elastic displacements from GPS time series, we correct our observations for glacial-isostatic adjustment and tectonic plate motion. To model 3D elastic displacements, we first estimate mass loss using 1995–2014 NASA's Airborne Topographic Mapper (ATM) flights derived altimetry, supplemented with laser altimetry observations from the Ice, Cloud, and Land Elevation Satellite (ICESat) during 2003–2009; the airborne Land, Vegetation, and Ice Sensor (LVIS) instrument during 2007–2013; radar altimetry from the CryoSat-2 satellite during 2010–2018; and European Remote-Sensing Satellite-1 (ERS-1) and ERS-2 data during 1995–2003. We convert the volume loss rate into a mass loss rate accounting for firn compaction. We predict the elastic displacements by convolving mass loss estimates with Green's functions for vertical and horizontal displacements.