



## **Central-eastern Greenland's lithospheric structure from surface wave tomography and receiver functions**

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We present models for the crustal and upper mantle structure for a 200 km x 600 km large area in central-eastern Greenland based on surface wave tomography and receiver functions (RF). Our objectives are to understand the processes behind the recent substantial uplift around the North Atlantic ocean. This requires detailed knowledge of the lithospheric structure, which is so far barely available for the interior of Greenland due to logistic problems related to the up to 3.4 km thick ice cap. The TopoGreenland seismic data acquisition forms the first regional seismic array in this region.

Base for our calculations are data from 28 broadband seismometers. These are 22 temporary stations which were deployed between June 2009 and May 2012, partly on the ice cap (10 stations) and partly on bedrock (12 stations). 16 of those were installed on a 600 km long profile at 70°N, starting at Scorsbysund at the east coast going to close to the centre of the ice cap. The other 6 stations cover a 200 km wide area north of this profile. Furthermore data from 6 permanent and longterm stations, mainly from the GLISN network, are integrated.

Here we present models derived from RF calculations and Rayleigh wave tomography. The final model from the RF calculation is used as well constrained input parameters for the tomography, which we use to obtain information of velocity perturbations in the crust and upper mantle.

The results will, together with a seismic refraction profile acquired in the same area, be compared to prominent tectonic features and topography to achieve knowledge of the crustal isostatic balance and linking it with the uplifting of mountain chains and earlier rifting and break-up.