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Crust and Upper Mantle Structure in the Sarfartoq Kimberlite Province, West Greenland: A Receiver Function Study

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A marked change in crustal thickness is seen at the deformation boundary between undisturbed Archean core in the south and reworked Archean gneiss in the foreland of the Nagssugtoqidian orogen in West Greenland. In addition, intra-crustal boundaries can be tentativly interpreted. Interpretations on upper mantle structures are less clear. This is the first information on crust and upper mantle structure in the area, which is known for kimberlite, carbonatite and ultramafic lamprophyre occurrences, and diamond exploration.

The data consists of two summer seasons of passive seismological data recorded on 5 broad-band seismological stations placed on an almost 200 km long profile crossing the deformation boundary. The stations were installed in the remote area with solar panels and batteries, and recorded two summer seasons. Between 7 and 28 events on the stations were used for the Receiver Function analysis.