



## Rayleigh wave attenuation in Greenland

**T.M. Jorgensen** (1), T.B. Larsen (2), S. Gregersen (2), P. Voss (2), O. Gudmundson (1), Trine Dahl-Jensen (2), F. Darbyshire (3), Winfried Hanka (4).

(1) Niels Bohr Institute, University of Copenhagen, Denmark, (2) Geological Survey of Denmark and Greenland, Denmark, (3) Geological Survey of Canada, Canada, (4) Geoforschungszentrum Potsdam, Germany

Rayleigh wave attenuation in Greenland is studied for the first time ever. Using a two-station method, apparent values of  $Q$  are calculated across Greenland in the period range from 25 to 150 seconds. Data are primarily from the GLATIS project (Greenland Lithosphere Analysed Teleseismically on the Ice Sheet, Dahl-Jensen et al, 2003), using temporary and permanent broadband seismographs in Greenland. 969 seismograms were visually inspected and 163 were selected for further analysis. A clear Rayleigh wave arrival was required, as well as great-circle alignment of events with two stations within a 5 degrees tolerance. Selected data was filtered twice, first to remove instrument responses, and then, with phase-matched filters, to reduce effects of noise and multipathing. Measurements of amplitudes were attempted with both spectral estimation and multiple filter analysis, with the later being the more stable method. The seismograms are filtered with narrow bandpass filters peaked at selected frequencies between 0.005 and 0.04 Hz, and the maximal Rayleigh wave amplitudes are measured. Average interstation values of  $Q$  are calculated and linearly inverted. The resulting surface maps of apparent  $Q$  are compared with Rayleigh wave velocities from the same region.