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Earthquake seismology in Greenland - improved data, better results

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Almost every year new temporary BB seismographs are installed in Greenland as part of various research projects. The first permanent BB seismograph in Greenland was installed jointly by GEOFON, IRIS and Danish seismologists at Kangerlussuaq (SFJ) in 1996. In the ten years that have passed, a total of 29 different locations in Greenland have been equipped with BB sensors for shorter or longer periods of time, 5 of them on the ice sheet. Four of the seismograph stations are permanent.

The data are utilised in many different ways. Structural studies have been the focus for most of the deployments, and both receiver function (RF) analysis and surface wave tomography have proven effective in obtaining first order models for crust and upper mantle. Every time a BB seismograph at a new location has collected enough data, RF analysis is performed to obtain the depth to Moho. Even this basic parameter is unknown in large parts of Greenland.

The improved seismograph coverage of Greenland also enhances our knowledge of the local seismicity. The epicentres for local earthquakes can be determined much more accurately than before, enabling us to make connections to local geological structures, and to obtain a better understanding of the regional stresses. Recently the BB data from Greenland have found a new application in the study of glacial earthquakes.