

## Broadband seismic observation on the Greenland ice sheet

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The Greenland Ice Sheet monitoring Network (GLISN) is a new, international, broadband seismic capability for Greenland being implemented through the collaboration of Denmark, Canada, France, Germany, Italy, Japan, Norway, Poland, Switzerland, and USA. Glacial earthquakes have been observed along the edges of Greenland with strong seasonality and increasing frequency since 2002 (Ekstrom et al, 2003, 2006) by continuously monitoring data from the Global Seismographic Network (GSN). These glacial earthquakes in the magnitude range 4.6-5.1 may be modeled as a large glacial ice mass sliding downhill several meters on its basal surface over duration of 30 to 60 seconds. The detection, enumeration, and characterization of smaller glacial earthquakes are limited by the propagation distance to globally distributed seismic stations, i.e., the Global Seismographic Network (GSN) with the International Federation of Digital Seismograph Networks (FDSN). Glacial earthquakes have been observed at seismic stations within Greenland (Larsen et al, 2006), but the current coverage is very sparse. In order to define the fine structure and detailed mechanisms of glacial earthquakes within the Greenland Ice Sheet, a broadband, real-time seismic network needs to be installed throughout Greenland's Ice Sheet and perimeter. National Institute for Polar Research and Japan Agency for Marine-Earth Science and Technology are members of GLISN project. We have installed the ice sheet station, called ICE-S, in 2011 in collaboration with IRIS PASCAL project. The station equipped with CMG-3T broadband seismometer and Quanterra Q380 data logger. We will introduce a settlement of broadband seismometer on the ice and data transmission from the mid of Greenland ice sheet.

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