



A new joint Polish-Norwegian broadband seismic station at Hornsund (Svalbard)

W. Dębski (1), J. Schweitzer (2), G. Lzurek (1), T. Kvaerna (2), P. Wiejacz (1), Ł. Rudziński (1), and J. Suchcicki (1)

(1) Polish Academy of Sciences, Institute of Geophysics, Warsaw, Poland (lzurek@igf.edu.pl), (2) NORSAR, Norway

The seismic station at Hornsund has been in operation since 1978. The initial deployment was a short-period analogue instrumentation which was operational until 2002, when a modern digital station was established.

Within an International Polar Year project, a new temporary broadband station was installed as a joint effort between NORSAR and Institute of Geophysics Polish Academy of Sciences. Currently there are ongoing activities to provide a more robust infrastructure as part of an effort to convert the temporary deployment to a permanent broadband station. The main goal of the upgraded permanent Hornsund station will be recording of local earthquakes of tectonic and glacial origin from the Svalbard region. In addition, high quality recordings of teleseismic events have been demonstrated, and the Hornsund station will be one of a few seismic facilities in the polar-Atlantic area with a free data access. The station proved its merit on 21st February 2008 when, as the closest station, it provided high quality recordings of a magnitude $M_w = 6.0$ event located in Storfjorden off Svalbard. The station has also recorded numerous ice-quakes that may be connected to glacier shrinking. Study of these events can be important in view of recent climate changes.

Integration of data from the Hornsund station into the joint automatic processing of the SPITS and ARCES arrays may significantly improve the quality of the event locations in this region