

First results of seismo-infrasound monitoring of Svalbard glaciers with new PYR station

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Kola Branch of Geophysical Survey of the Russian Academy of Sciences has been conducting seismic and infrasound monitoring in Svalbard since the end of 2011. Since that time we have made 3 summer experiments for seismo-infrasound monitoring of glaciers situated at the Northern Coast of Isfjorden. In June 2015 we installed new seism-infrasound station PYR in the settlement of Pyramiden, Spitsbergen. The PYR equipment consists of 3 microphones for recording infrasound signals and 3-component seismic sensor Guralp 6T for recording signals of ground oscillation velocity. During the summer-autumn of 2015 the PYR recorded more than 3000 infrasound events, most of their backazimuths directed to the East at glacier of Nordenskiöldbreen. More than 100 from these 3000 events have a seismic pair recorded by PYR seismic station. We located these events by joint use of the seismic and infrasonic data. Most of the epicenters are in the glacier of Nordenskiöldbreen. The presence of both seismic and acoustic signals is a reliable proof that these events were icequakes. We consider the icequakes from the edge of a glacier as a seismo-infrasound response of calving and events from the glacier body are due to crevassing. Here we describe a new methodology for detection and location of the events using seismic and infrasound data and present some results of seismo-infrasound monitoring in Spitsbergen obtained with new PYR seismo-infrasound station.