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Seismological monitoring in the Arctic: An introduction to INTAROS

Zeinab Jeddi (1), Mathilde Sørensen (1), Peter Voss (2), and the Seismological section of INTAROS

(1) University of Bergen (UiB), Earth Science Department, Bergen, Norway (zeinab.jeddi@uib.no), (2) Geological Survey of Denmark and Greenland (GEUS), Copenhagen, Denmark

The Arctic is experiencing the rapid changes in the climate system. Accordingly, several natural disasters, e.g. landslides or earthquakes among others, are likely to increase together with the expected changes in the climatic conditions in the Arctic.
To study the temporal variations of the Arctic seismicity and assess the seismic hazard in the area, a unified earthquake catalogue is required. Many datasets are currently available through national and international monitoring networks, however there has been little effort to integrate these data and make it available to the scientific community. Eu-funded INTAROS project (Integrated Arctic Observation System) is expected to assess the strengths and weaknesses of the existing observing systems, and contribute with innovative solutions to fill some of the critical gaps in the in situ observing network. The seismological session of the INTAROS is focused on creating a baseline earthquake database, and in this regard a catalogue of seismological monitoring capabilities was developed for the Arctic region between 1960 – 2016, together with relocations and new focal mechanism calculations for larger events.
To improve the existing catalogue and fill part of the large observational gap in the offshore regions of the Arctic (mainly due to the harsh weather conditions), Ocean Bottom Seismometers (OBS) were deployed in the Fram Strait near the Northern Mid-Atlantic Ridge during summer 2018 and will sit on the sea floor for one year. The improvement of the monitoring coverage will provide a new dataset which will enable us to lower the earthquake detection threshold in the study area.