Międzynarodowa Środowiskowa Szkoła Doktorska
przy Centrum Studiów Polarnych
w Uniwersytecie Śląskim w Katowicach

ul. Będzińska 60
41-200 Sosnowiec
tel. +48 32 368 93 80
polarknow@us.edu.pl
www.mssd.us.edu.pl

Project number: IEDS/2025/IGF/C

Title of PhD project: Employing Distributed Acoustic Sensing to Enhance Comprehension of Glacier Dynamics

Providing institute: Institute of Geophysics, Polish Academy of Sciences

Requirements:

1. A master's degree in seismology, geophysics, glaciology, earth sciences, physics, mathematics, informatics, or a related field.
2. Proficiency in programming languages (e.g., Python, Matlab).
3. Strong English language skills, both written and oral.
4. Preferably, authorship/co-authorship of a scientific publication, conference presentation or participation in student project in seismology or glaciology.

Description of the tasks:

1. Development of efficient processing workflows for DAS data processing for cryoseismological applications;
2. Real-data application and interpretation of cryoseismicity of Hansbreen glacier;
3. Calibration of HSPA seismic array towards retrospective analysis of changes in Hansbreen's seismicity;
4. Preparation of publications and participation in scientific conferences;
5. Regularly reporting work progress.

Summary of the doctoral project:

This project aims to develop efficient workflows for processing large Distributed Acoustic Sensing (DAS) datasets, specifically for seismological studies of glaciers. DAS technology, which uses fiber-optic cables to measure strain along their length, enables high-resolution seismic monitoring over large spatial scales, making it a promising tool for studying dynamic glacial systems. The central hypothesis of the project is that efficient DAS data processing workflows will improve the accuracy, resolution, and interpretability of cryoseismic data. The research will focus on developing scalable workflows that can handle large volumes of data, extracting meaningful seismic signals from noise. These workflows will be applied to a recently obtained DAS dataset from the Hansbreen Glacier, Svalbard.

Międzynarodowa Środowiskowa Szkoła Doktorska
przy Centrum Studiów Polarnych
w Uniwersytecie Śląskim w Katowicach

ul. Będzińska 60
41-200 Sosnowiec
tel. +48 32 368 93 80
polarknow@us.edu.pl
www.mssd.us.edu.pl

Other information:

The work will be carried out under the supervision of:
prof. Ali Gholami, agholami@igf.edu.pl, IG PAS,
dr Wojciech Gajek, wgajek@igf.edu.pl, IG PAS

Contact to the IEDS office: +48 32 3689 380, e-mail: polarknow@us.edu.pl.

More information regarding the admission to IEDS:
https://www.mssd.us.edu.pl/en/admission-2025-2026/.