



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

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No. of PhD project: IEDS/2023/US/02

Title of PhD project: *Debris flows in the area of Mt Babia Góra – reconstruction, characterization and modelling*

The leading unit: Institute of Earth Sciences University of Silesia in Katowice (INoZ UŚ), Sosnowiec

Requirements:

1. Master's degree in geomorphology, physical geography, meteorology and climatology, GIS and cartography, geology, geophysics or related sciences.
2. Good knowledge of programming languages and statistical packages (R or Python) or willingness and ability to quickly acquire practical knowledge in this area.
3. Good knowledge of GIS programs (SAGA GIS, QGIS, or ArcGIS) or willingness and ability to quickly acquire practical knowledge in this area.
4. Good knowledge of English in writing and speaking.
5. High motivation and no formal contraindications to work in mountainous areas (Babia Góra area).
6. High motivation to conduct research and the ability to work in a team.
7. Scientific and research achievements, in particular papers published in natural science journals and conference presentations, will be an additional asset.

Tasks description:

1. Analysis of historical and archival materials in order to develop a possibly complete chronology of debris flow episodes in the area of Mt Babia Góra;
2. Acquisition, processing and analysis of digital elevation models based on the LiDAR point clouds in the context of detection and morphometric characteristics of debris flows;
3. Analysis of topographic and meteorological conditions for the formation of debris flows in the area of Mt Babia Góra;
4. Estimation of the relative and absolute age of the debris flow relief based on historical, soil, biological and geomorphometric data;
5. Development of a map of the probability of the occurrence of debris flows in the area of Mt Babia Góra;
6. Preparation, organization and conduct of field and office research;
7. Preparation of scientific articles and conference presentations;
8. Regular progress reporting;
9. Help in everyday scientific and didactic tasks of the unit.



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Abstract:

Debris flows are an important component of the dynamics of the slopes in the area of Mt Babia Góra. However, this component of relief and surface activity has not been thoroughly and comprehensively analyzed at this site so far. Debris flows are one of the main geohazards and can cause significant losses in forests, but also in the infrastructure of the national park and forest districts, as well as, in extreme cases, human casualties. The aim of the project is to reconstruct debris flows in the area of Mt Babia Góra and to analyze the conditions that increase the likelihood of their formation. One of the important objectives is to assess the damage and consequences caused by debris flows in the ecotone zone of the upper forest zone.

Other information:

The work will be carried out under supervision of: dr. hab. Łukasz Pawlik prof. UŚ, e-mail: lukasz.pawlik@us.edu.pl, Institute of Earth Sciences, University of Silesia in Katowice and dr. Paweł Kroh, e-mail: pawel.kroh@up.krakow.pl, Institute of Biology and Earth Sciences, Pedagogical University of Krakow.

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Information on the IEDS admissions: https://www.mssd.us.edu.pl/en/admission_2023_2024-reg/