



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

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



IEDS/2026/US/01

Reconstruction of environmental conditions of the Lahaul and Spiti region, NW Himalayas, in the light of radioisotope dating, geochemical and sedimentological analyses

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

Requirements:

- 1) Completed a second-cycle degree (Master's degree) in physical geography, geology, geophysics, environmental hazard engineering, environmental protection, or a related field. Knowledge of research topics related to environmental reconstruction based on various data, with particular emphasis on radioisotope and geochemical data.
- 2) Knowledge of issues related to radioisotope dating and the interpretation of geochemical data in the environmental context and the weathering of bedrock.
- 3) Fluency in English, enabling presentation of research results at international conferences and the writing of scientific publications.

Tasks description:

1. Geomorphological mapping;
2. Collection of rock samples for radioisotope dating, petrographic, and mineralogical analyses;
3. Drilling and collecting cores for laboratory analysis;
4. Interpretation and analysis of research results;
5. Preparation, organization, and conduct of field and in-situ research;
6. Preparation of scientific articles and conference presentations;
7. Regular reporting of work progress;
8. Assistance with the unit's daily scientific and teaching tasks.

Summary of a doctoral project:

The NW Himalayas are a region with a rich geological and geomorphological history. The Lahaul and Spiti region, in particular, presents a zone of overlapping contemporary and relict tectonic and surface processes, making environmental reconstruction difficult in many cases. New sources of data on the region's evolution include radioisotope dating of rock surfaces, as well as thermoluminescence and radiocarbon dating of sediments. The current project aims to verify existing reconstruction models of the Lahaul and Spiti region in the NW Himalayas and develop new models of landform evolution for



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the thus defined study area. A key part of the project will be geomorphological mapping using high-resolution aerial imagery and LiDAR point clouds. Sedimentological and geochemical studies will cover a wide range of sediments, from slope sediments to glacial, fluvio-glacial, and lacustrine sediments. Geochemical analyses of sediments from glacial depressions, basins of fossil lakes, and paleochannels will provide data on the region's rich environmental history.

Other information:

The work will be carried out under supervision of:

Łukasz Pawlik, PhD, Assoc. Prof.

lukasz.pawlik@us.edu.pl

Institute of Earth Sciences, University of Silesia in Katowice

https://www.researchgate.net/profile/Lukasz-Pawlik?ev=hdr_xprf

<https://us.edu.pl/instytut/inoz/osoby/pawlik-lukasz/>

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

Website: <https://www.mssd.us.edu.pl/en/admission-2026-2027/>