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

Reference No: IEDS/2020/US/01

Title of PhD project: ***Permafrost and underground glaciation in and around the Chopok massif, Low Tatras, Slovakia.***

Leading unit: International Environmental Doctoral School associated with the Centre for Polar Studies at the University of Silesia in Katowice (IEDS) – Institute of Earth Sciences, the University of Silesia

Mode of study: full-time

Degree to be obtained: PhD in the field of natural sciences, in the discipline of Earth and related environmental sciences

Duration: 4 years (8 semesters), from October 2020

Language: English

Scholarship: approx. 2370 PLN (1-2nd year); approx. 3650 PLN monthly (3-4th year)

Requirements and regulations: www.mssd.us.edu.pl/kandydat-mssd/

Registration online: www.irk.us.edu.pl

Conditions of recruitment:
I STAGE: Knowledge test in the field of discipline. The test is scored on points: from 0 to 10 points.
A positive result of the test is that the candidate gets a minimum of 7 points. Absence on the test disqualifies the candidate from the entire qualification procedure.

II STAGE: a) the final result of the candidate's completion of higher education (maximum 6 points, diploma grading ratio: 6.0 (excellent) - 6 points, 5.0 - 5 points, 4.5 - 4 points, 4.0 - 3 points. 3.5 - 2 points, 3.0 - 1 point), b) for candidates (students) referred to in art. 186 para. 2 of the Act - a certificate of average grade from at least three years of uniform Master's studies, rounded to one decimal place, according to the conversion factor: 6.0 (excellent) - 6 points; 5.0 - 5 points; 4.5 - 4 points; 4.0 - 3 points; 3.5 - 2 points; 3.0 - 1 point).

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III STAGE: Interview for assessing: the candidate's intellectual level, knowledge of English, substantive level of the doctoral dissertation project, motivations and predispositions for scientific work, previous scientific achievements of the candidate (maximum 15 points).

Requirements:

1. Completed second-cycle studies (Master's degree) in geography, geophysics, or related fields.
2. Knowledge of research topics related to high mountains geomorphology, cryology / glaciology.
3. Knowledge of issues related to the occurrence of long-term permafrost in the mountain and Arctic environment, typical tools and methods used in its study.
4. Knowledge of English enabling communication, reading and writing scientific papers.

Tasks description:

1. Conducting, with cooperation, electroresistivity measurements in the ground by using ABEM tomographic apparatus.
2. Acquisition and analysis of aerial photographs, also using drones (Unmanned Aerial Vehicles).
3. Establishment monitoring of ground temperature in diferent remote locations.
4. Preparation, organization and conduct of research in the Low Tatras region, Slovakia, analysis and interpretation of obtained data.
5. Preparation of scientific articles and conference presentations.
6. Regular reporting of work progress.
7. Assistance in daily scientific and didactic tasks of the "Ice and Permafrost" University of Silesia Team, including co-care over measuring apparatus.

Abstract

The occurrence of the periglacial environment and often accompanying it permafrost is associated with both the Arctic and high-mountain environments. While in the Arctic environment these studies are already advanced and conducted for many decades, in the high-mountain environment there are still areas where the periglacial environment, and especially the presence of long-term freezing is not studied. One of the last such areas in Europe are the Low Tatras. Mountains with a characteristic high-mountain structure, where

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the average annual temperature in the highest places remains negative. This indicator, as well as other accompanying climate properties of this area, suggest that both active periglacial geomorphological processes and the presence of permafrost is possible there. In addition, in the chain of the Low Tatras and in the massif of their highest peak - Chopok, there are karst phenomena, which are accompanied by the occurrence of underground ice.
The subject of the research is an attempt to determine what processes and forms of geomorphological relief occur in the highest parts of the Chopok massif and the peaks accompanying it, and whether their development, evolution is associated with the occurrence of long-term freezing of soil. One of the most interesting issues will be an attempt to link the possible presence of permafrost occurring in the summits of the Low Tatras with underground ice occurring in the caves of the surrounding mountain ranges.
The work will involve the performance of geophysical surveys using ERT, GPR imaging, ground temperature monitoring, the use of other geophysical and geomorphological research to detect permafrost at the Chopok peak, identify landforms and their evolution in this region, as well as underground ice forms and formations in the caves.
The interested person may also present their complementary proposals for solving the research problem. Modification of the research issue is not excluded when the candidate presents a different original approach to substantial or methodological issues.

Other informations:

1. The supervisor will be dr. hab. Wojciech Dobiński, prof. UŚ, Institute of Earth Sciences of the University of Silesia, ul. Będzińska 60, 41-200 Sosnowiec, wojciech.dobinski@us.edu.pl
2. Contact to the Secretary of the IEDS Admission Committee: tel. 32 368 93 80, polarknow@us.edu.pl, www.mssd.us.edu.pl