



**Centre
for Polar
Studies**

Centre for Polar Studies
ul. Będzińska 60
41-200 Sosnowiec
POLAND
polarknow@us.edu.pl



PhD student position at environmental Interdisciplinary Polar Studies

in Centre for Polar Studies, Leading National Scientific Centre (KNOW)

Reference No: CSP/2015/US/3

Title of PhD project:

Functioning of the nival system in polar environment basing upon Svalbard as an example

Location: Centre for Polar Studies/ Faculty of Earth Sciences, University of Silesia

Deadline: 15th August 2015 r.

Interviews: 10th – 13th September 2015, venue will be indicated later

(http://www.polarknow.us.edu.pl/wp-content/uploads/Location_CPS_partners.pdf)

In the case of students from abroad the interview will be performed in the form of video conferencing.

Mode of study: full-time

Degree to be obtained: Doctor of Philosophy in Earth Sciences, discipline – Geography

Duration: 4 years (8 semesters), from October 2015

Language: Polish and English, Polish is not obligatory for students from abroad

Scholarship: citizens of Poland, EU citizens and owners of Card of the Pole can apply for scholarships funded by the KNOW (Leading National Scientific Centre) 2 000 – 4000 PLN/month (paid no longer than during four academic years)

Fees applicable: EU citizens applying on a regular basis – no fees; Non-EU citizens: 3 000 EUR per year; More information are available on website <http://admission.us.edu.pl/english/admission-rules>

Required documents and registration online:

http://www.polarknow.us.edu.pl/en/isp_eng/required-documents-and-registration-online/



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Conditions of recruitment:

1. The final result of the completion of the candidate's higher university degree (maximum 6 points, the conversion of diploma ratings: 6.0 (excellent) - 6 pts.; 5.0 - 5 pts. ; 4.5 - 4 pts.; 4.0 - 3 pts.; 3.5 - 2 pts.; 3.0 - 1 point).
2. Interview with a candidate will assess the knowledge, skills (an ability to design experiments to investigate new phenomena, test hypotheses and solve experimental problems), knowledge of English and scientific level of the submitted project of the doctoral dissertation (maximum 15 points).
3. The minimum number of points, which has to be obtained to be selected for the studies, is at least 14 points.
4. Eligible for studies shall be a person who obtain the highest number of ranking points up to fill the limit of places, subject to point 3.
5. Project implementation of doctoral dissertation (max. 2 pages) must be submitted by 15th August 2015.

Requirements:

1. MSc degree (or equivalent) in Geography, Geophysics, Physics of Atmosphere, Meteorology Ecology, Environmental Chemistry or Computer Science or equivalent science discipline. A candidate may submit application if the MSc Degree will be received not later than on 9th September 2015.
2. Knowledge on glaciology, meteorology and climatology enabling to understand processes of the snow accumulation, metamorphism and decay of the snow cover.
3. Ability to organize individual work and teamwork skills.
4. Willingness to engagement in research and organizational works in the unit.
5. Creativity and receptiveness to the new scientific challenges.
6. Appropriate physical fitness allowing to conduct fieldwork in polar conditions.
7. Skills in programming language (e.g. FORTRAN, MATLAB or C++), remote sensing and GIS software are welcomed.

Tasks description:

1. Conducting of glacio-meteorological studies on Spitsbergen using high frequency radar, automatic weather stations and geodetic instruments; conducting fieldworks on physical and chemical properties of snow cover.
2. Maintenance of meteorological and geophysical equipment in the field (AWS, GPS & GPR).



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3. Acquiring, compilation (creation and managing of data bases) and processing of meteorological, glaciological, geophysical and topographical (digital elevation models) data.
4. Modelling of snow evolution processes as well as development of snow cover spatial distribution models.
5. Regular implementation of the program of Interdisciplinary Polar Studies and reporting the progress of the study course.
6. Presentation results of the study on conferences, preparation and publishing papers in the JCR journals.
7. Engagement in the day-to-day research and organizational work at the Department of Geomorphology of the University of Silesia in Sosnowiec including teaching duties and responsibility for the research equipment.

Abstract

The snow cover is an element that integrates different polar environments. For several months a year the snow in the Arctic forms a continuous layer starting from the sea ice, through unglaciated shore planes, mountains to glaciers. The snow properties influence numerous processes related to the surface energy balance, the heat exchange with the ground or glaciers, plants vegetation conditions, functioning of terrestrial as well as marine fauna ecosystems or a wide range of human activities. Spatial distribution and evolution of snow cover in the polar environment is a function of topoclimatic conditions (eg. the air masses properties, precipitation, temperature, wind speed and direction, surface topography). The project aims to evaluate a comprehensive model of functioning the nival system in the polar area of southern Spitsbergen. The purpose is to indicate the relations between snow complexes on glaciers, unglaciated areas, icy surfaces of water basins and others, that conventionally are considered separately. Studies will involve the feedbacks occurred between nival processes meteorological and topoclimatological conditions and importance of snow cover features for periglacial, glacial as well as marine environments. On this background the special attention will be paid on the state of nival system under observed changes of polar environment [a może: polar climate?]. The range of activities within the project will involve both the fieldwork, tending to determine physical and chemical properties of the snow cover in spatial perspective, and the analysis of the temporal evolution. Collected data will be used for validation of remote sensing data and prepared models.

Other information:

1. The thesis supervisor will be **Dr. hab. Bogdan Gądek and Dr. Mariusz Grabiec** (Faculty of



Krajowy Naukowy
Ośrodek Wiedzący

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Earth Sciences University of Silesia).

2. In addition to the candidate's application submitted to the KNOW it would be mandatory to send CV with a list of publications or other papers and the motivation letter with a summary of proposal of research in the project (max. 2 pages) to:
mariusz.grabiec@us.edu.pl.
3. Contact: polarknow@us.edu.pl – Leading National Research Centre (Ph.D. D. Ignatiuk)