

PhD student in Physical Geography in the area: soil biogeochemical modelling

at [the Department of Physical Geography](#). Closing date: 15 February 2017.

The Department of Physical Geography is one of the major departments within the Faculty of Science. The department has approximately 135 employees and educates approximately 2 000 students annually. Education is oriented towards geography, geosciences, biology-earth sciences, and environmental protection and environmental management. The main research areas are: Biogeography and Geomatics, Climate science and quaternary geology, Environment, resource dynamics and management, Geomorphology and glaciology, and Hydrology, Water resources and permafrost.

Project description

The position will be associated with the project “Scaling up soil carbon dynamics from microbial cells to ecosystems for next-generation Earth System models”.

Predicting emissions of greenhouse gases from soils is a major challenge in climate change research. It is challenging because emissions originate from microbial processes at microscopic scales that we cannot readily observe and scale up. In this project, we will evaluate processes at the microscale and describe mathematically how soil micro-organisms use soil resources at a larger scale. Experiments using high resolution soil imaging as well as thermodynamic and biochemical techniques will specify relations between the soil structure and microbial activity, and these empirical data will support the theoretical developments of carbon cycle models that are the ultimate aim of the project. New theories linking micro- and macro-scales will provide novel mathematical formulations, allowing more accurate predictions of climate change, its effects on ecosystems and serve as a foundation for development of alternative management practices in agriculture and forestry.

Qualification requirements

In order to meet *the general entry requirements*, the applicant must have completed a second-cycle degree, completed courses equivalent to at least 240 higher education credits, of which 60 credits must be in the second cycle, or have otherwise acquired equivalent knowledge in Sweden or elsewhere.

In order to meet *the specific entry requirements*, and to fulfil the general syllabus for doctoral studies in the field of physical geography, the candidate for this position should have acquired a total of 240 higher education credits (of which at least 60 at advanced level), or acquired in some alternative fashion, the equivalent knowledge in engineering science, applied mathematics, physics, geoscience, or environmental science.

Only a person who will be or has already been admitted to a third-cycle programme may be appointed to a doctoral studentship. The primary assessment criteria in appointing a doctoral student should be the capacity to benefit from the training.

Selection

The selection among the eligible candidates will be based on their capacity to benefit from the training. The following criteria will be used to assess this capacity: the candidates’ documented knowledge in a relevant field of research, written and oral proficiency in English, the capacity for analytical thinking, the ability to collaborate, as well as creativity, initiative, and independence. The assessment will be based on previous experience and grades, the quality of the degree project, references, relevant experience, interviews, and the candidate’s written motivation for seeking the position.

Specifically, the candidate should be interested in linking theory and experimental approaches in the context of the project, and is expected to lead part of the experimental activities with project collaborators at the Swedish University of

Agricultural Sciences (SLU). The candidate should have experience in developing mathematical models (e.g., dynamical system theory, mass and energy balance equations), and working knowledge of Matlab, Mathematica, or other programming languages for model implementation.

Admission Regulations for Doctoral Studies at Stockholm University are available at: www.regelboken.su.se.

Terms of employment

The term of the initial contract may not exceed one year. The employment may be extended for a maximum of two years at a time. However, the total period of employment may not exceed the equivalent of four years of full-time study.

Doctoral students should primarily devote themselves to their own education, but may engage in teaching, research, and administration corresponding to a maximum of 20 % of a full-time position.

Please note that admission decisions cannot be appealed.

Stockholm University strives to be a workplace free from discrimination and with equal opportunities for all.

Contact

For more information, please contact senior lecturer Stefano Manzoni, telephone: +46 764960952, stefano.manzoni@natgeo.su.se

Union representatives

Anqi Lindblom-Ahlm (Saco-S) and Lisbeth Häggberg (Fackförbundet ST and Lärarförbundet), telephone: +46 8 16 20 00 (operator), seko@seko.su.se (SEKO), and PhD student representative: fredrik.c.l@sus.su.se.

Application

Apply for the position at Stockholm University's recruitment system by clicking the "Apply" button. It is the responsibility of the applicant to ensure that the application is complete in accordance with the instructions in the job advertisement, and that it is submitted before the deadline.

Please include the following information with your application

- Your contact details and personal data
- Your highest degree
- Your language skills
- Contact details for 2–3 references

and, in addition, please include the following documents

- Cover letter
- CV – degrees and other completed courses, work experience and a list of degree projects/theses
- Research proposal (no more than 3 pages) describing:
 - why you are interested in the field/project described in the advertisement
 - why and how you wish to complete the project
 - what makes you suitable for the project in question
- Degree certificates and grades confirming that you meet the general and specific entry requirements (no more than 6 files)
- Letters of recommendation (no more than 3 files)
- Degree projects/theses (no more than 3 files).

The instructions for applicants are available at: [Instructions – Applicants](#).

You are welcome to apply!