PhD student in soil biogeochemical modelling

Ref. No. SU FV-0171 -21

At the Department of Physical Geography. Closing date: 31 March 2021.

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 1000 students annually. Education is oriented towards geography, geosciences, biology-earth sciences 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. We offer a stimulating and friendly environment in a very diverse and international department.

Project description
The PhD project focuses on modelling soil microbial processes and/or microbial-plant interactions. Microbial processes have global-scale impacts, including climate regulation and provision of nutrients to plants, but how microbes respond to changes in soil resources remains challenging to understand and quantify with models. We thus need to improve the predictability of carbon and nutrient cycling. To address these challenges, this PhD project will explore theoretical approaches towards a holistic description of microbial processes in soils; and how microbial-plant interactions shape ecosystem dynamics.

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 geoscience, environmental science or other relevant natural or engineering science. The qualification requirements must be met by the deadline for applications.

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 the 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 developing theory and linking models and empirical data in the context of soil biogeochemical cycles (including microbial-plant interactions). Proven experience in developing mathematical models (e.g., dynamical system theory, mass and energy balance equations), and working knowledge of Matlab, R, Python, Mathematica, or other programming languages for model implementation are required. A MSc thesis or any publications demonstrating these mathematical and modelling skills is a merit.

Admission Regulations for Doctoral Studies at Stockholm University are available at: www.su.se/rules and regulations.

Terms of employment
Only a person who will be or has already been admitted to a third-cycle programme may be appointed to a doctoral studentship.

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
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Union representatives
Ingrid Lander (Saco-S), telephone: +46 708 16 26 64, saco@saco.su.se, Alejandra Pizarro Carrasco (Fackförbundet ST/Lärarförbundet), telephone: +46 8 16 34 89, alejandra@st.su.se, seko@seko.su.se (SEKO), and PhD student representative, doktorandombud@sus.su.se.

Application
Apply for the PhD student position at Stockholm University’s recruitment system. 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, including personal motivation for applying to this specific position
- CV – degrees and other completed courses, work experience and a list of degree projects/theses
- Project proposal presenting the applicant’s view on:
  - state of the art on the project topic described in the advertisement (max half page)
  - knowledge gaps that need to be addressed (max half page)
  - proposed approach to fill the identified gaps and how it is related to the applicant’s knowledge/expertise and previous experiences (max one page)
- 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 6 files)
- Degree projects/theses (no more than 6 files).

The instructions for applicants are available at: How to apply for a position.

You are welcome to apply!

Stockholm University contributes to the development of sustainable democratic society through knowledge, enlightenment and the pursuit of truth.

Closing date: 31/03/2021

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