PhD student in Environmental Science focusing on Isotopic fingerprinting of methane emission sources in the Siberian Arctic Ocean Stockholm

Ref. No. SU FV-0848-20

Apply at the Department of Environmental Science. Closing date: 15 May 2020.

The Department of Environmental Science is one of the biggest departments in the Faculty of Science. The department consists of four units with more than 170 researchers, teachers, doctoral students and technical/administrative staff from over 30 countries. Research and teaching focuses on atmospheric science, biogeochemistry, chemical contaminants and (eco)toxicology. As a Ph.D. Student and full employee at the Department of Environmental Science you will be part of a dynamic environment and research with a strong international profile.

Research in the Biogeochemistry Unit focuses on the biogeochemical cycles of carbon, nitrogen and metals in soils, freshwater bodies, the ocean and the atmosphere. The unit has a strong and long-standing research focus on the impact of global warming on Arctic environments, and can offer well-equipped analytical facilities for addressing these questions with biomarker and isotopic tools, as well as extensive sample archives from previous expeditions and a large, international collaborative network providing access to remote Arctic field sites.

Project description
The Arctic, including permafrost systems, store large amounts of carbon and preformed methane that might be thawed and released as greenhouse gases as temperatures rise, and thereby induce an enhancing feedback to global warming. Despite the increasing scientific and public attention to this question, current estimates of future greenhouse gas emissions from the Arctic still have large uncertainties.

One of the largest challenges is thawing coastal and subsea permafrost, disintegrating methane hydrates and deep petroleum reservoirs that are releasing methane to overlying water and atmosphere on the shallow yet extensive East Siberian Arctic Ocean, the World’s largest shelf sea system. There is a large uncertainty of the relative contributions of these sources, how this subsea system operates, the fate of the released methane and how these fluxes will develop over coming decades-century.

The PhD project offers the possibility to source apportion the methane currently being vented from the subsea system by applying triple-isotope fingerprinting of methane from Arctic samples, some already collected others to be collected in the near future on international field campaigns. Targeted samples are from both subsea permafrost drill cores, from ship-based collection of seawater, and from land/island-based observatory collections of air. In addition to possible field work, the position involves active work on vacuum and gas handling systems, laser spectroscopy and gas chromatography – (isotope) mass spectrometry.

Our group has extensive experience with chemical and isotopic analysis as well as with Arctic field work. The project offers opportunities for the Ph.D. student to influence direction and approach of research; a detailed research plan will be developed by the Ph.D. student together with the Ph.D. advisors.

Our research in this area is primarily financed by the European Research Council (ERC) through an Advanced Grant and by the Swedish Research Council (VR).

Qualification requirements
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, for doctoral studies in Environmental Science, at least 45 of the credits at the second cycle must be in one of the natural sciences (Biology, Chemistry, Earth Sciences, Physics, or Meteorology) including a 30 credits thesis project. The applicant should also have 30 credits in other natural science subjects different from the major.

Selection
The selection among the eligible candidates will be based on their ability to successfully pursue the research education. Special emphasis is put on the applicant’s knowledge and skills within the subject area, ability to express her/himself verbally and in writing, analytical aptitude, creativity, initiative and independence, and a capacity for working together with others. The evaluation will be made based on the relevance of past education and experience, grades from previous university courses (in particular at the advanced level), the quality and ambition of the independent project work, references, a cover letter motivating the candidate’s interest, and interviews.

We are seeking a highly motivated person with a strong interest in both the basic functioning of the environment / earth system, chemistry, and perturbations of the environmental/climate system in the Arctic and elsewhere. A background in e.g. Environmental/Geo/Atmospheric Sciences, Chemistry, Physics or Engineering may be suitable. Collaborative skills and proficiency in English are required.

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
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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 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 motivating your interest for this position
- CV – degrees and other completed courses, work experience, and a list of degree projects/theses
- Degree certificates and grades confirming that you meet the general and specific entry requirements (no more than 6 files)
Optional letters of recommendation (no more than 6 files)
Degree projects/theses (no more than 6 files).

The instructions for applicants are available at: [Instructions – Applicants](https://www.su.se/english/about/working-at-su/phd?rmpage=job&rmjob=11925&rmlang=UK).

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:** 15/05/2020

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