Doctoral student in Environmental Science with a focus on environmental geochemistry

Kalmar

Reference number: HR-2026/1464

Welcome to Linnaeus University! Here you'll meet 2 200 staff members and 40 000 students, all united in following the vision to set knowledge in motion for a sustainable societal development. With us, research and education are conducted with an eye towards the future. Our proximity to the business world, both locally and globally, gives us a wide reach and the ability to create change that makes an impact. All that's needed is a place where ideas have the space to meet and grow. That's what we've created – and you are invited.

Change starts here!

The Department of Biology and Environmental Science is part of the Faculty of Health and Life Sciences. Research within this multidisciplinary department includes aquatic ecology, cell and organism biology, evolutionary biology, microbiology, environmental science, environmental engineering, disease ecology, animal welfare science and didactics.

Subject area for the position: Environmental science

Location until further notice: Kalmar

Term and hours: The doctoral studentship is limited in time in accordance with the Higher Education Ordinance (Chapter 5, Section 7). The studentship is full-time four years.

Starting date: Starting date according to agreement but ideally as soon as possible.

Job description

Glaciers and ice sheets in the Arctic, particularly the Greenland Ice Sheet (GrIS) and its outlet glaciers, are melting at unprecedented rates. As glacial meltwater often carries substantial loads of nutrients and fine-grained mineral particles (known as “glacial flour”), meltwater discharge from the GrIS is expected to deliver massive and rapidly increasing fluxes both to downstream fjords and adjacent coastal seas, potentially triggering profound and cascading ecological changes. Although Fe, Mn, P, and C play critical roles in the biogeochemical cycling of these rapidly changing

ecosystems, their downstream transport pathways, phase transformations, and interactions remain poorly understood, particularly at the molecular and microscale levels. Moreover, it remains largely unconstrained how these processes (together with other environmental factors) collectively influence biological community composition, nutrient cycling, and organic carbon storage at the landscape scale in these Arctic ecosystems.

To address these knowledge gaps, this PhD project focuses on the biogeochemical cycling of Fe, Mn, P, and C in the fjord-shelf systems along Greenland's northernmost coastline. Building on an extensive set of samples obtained during the GEOEO North of Greenland 2024 expedition (and relevant shipboard observations and auxiliary data from the expedition), the project aims to address the following key research questions:

1. How does glacial meltwater influence the availability and distribution of "dissolved" and particulate Fe, Mn and P in the water column across northern Greenland's fjord-shelf systems?
2. How do glacially-derived Fe, Mn, and P impact nutrient-acquisition and carbon fixation by primary producers, thereby affecting the efficiency of the "biological carbon pump" in these systems?
3. What are the dominant particulate phases of meltwater-derived Fe, Mn, and P, and how are these phases transformed down-fjord?
4. How has glacier retreat (and associated increase in meltwater discharge) over the past decades in northern Greenland influenced organic C export, burial, and preservation in downstream fjord-shelf systems, particularly through the formation of Fe- and mineral-associated organic carbon fractions (Fe-OC and MAOC)?
5. How will the phases and processes described above interact and collectively reshape the biogeochemical cycling and ecosystem functioning of northern Greenland's fjord-shelf systems under continued Arctic warming?

The forthcoming research will be conducted within the Environmental Geochemistry Group and the Polar Biogeosciences Group (PBiG), bringing together expertise from two research excellence centers at Linnaeus University (CENWIN and EEMiS). These two centers comprise a large number of professors and associate professors with extensive expertise in geochemistry, geology, environmental risk assessment, marine ecology, microbiology, and molecular (micro-)biology.

We are now seeking a motivated PhD candidate to join our multidisciplinary research environment. This is an exciting opportunity to contribute to the understanding of biogeochemical complexities and ecological impacts of melting glaciers in Greenland. You will gain hands-on experience in ship-board surveys and sampling (via participating in future offshore expeditions in collaboration with the members of PBiG), laboratory analyses (including advanced synchrotron-based techniques and stable isotope measurements), as well as the analysis and integration of diverse geochemical, oceanographic, sedimentological, biological, and spectroscopic datasets. In addition to working closely with researchers within our groups and centers, you will also have opportunities to collaborate with external researchers and research groups, particularly those involved in the GEOEO North of Greenland 2024 expedition.

The Higher Education Ordinance states that anyone who is employed as a doctoral student shall primarily devote themselves to their own studies, although they may, to a limited extent, also work with education, research, and administration. Before a doctorate has been awarded, such work may not exceed 20% of full-time work.

Eligibility

A person fulfils the general entry requirements if she/he:

- have been awarded a degree at the second-cycle level
- have at least 240 credits of passed courses, of which at least 60 credits are at the second-cycle level; or
- have acquired essentially equivalent knowledge in some other way, in or outside Sweden.

Specific entry requirements

Have completed a minimum of 90 credits in courses in geochemistry, or other closely related fields in geosciences (e.g., environmental sciences, mineralogy, marine sciences, geology, sedimentology, environmental analytical chemistry), of which at least 30 credits are at the second-cycle level, or equivalent knowledge acquired in some other way in Sweden or abroad.

Assessment criteria

The assessment will focus on the applicant's ability to successfully complete the doctoral programme. Particular weight will be given to the candidate's motivation, capacity for doctoral studies, and the breadth and composition of their prior education. It will also be an advantage if the candidate can demonstrate:

- A high proficiency in written and spoken English, with strong communication skills and the ability to collaborate effectively within a research team.
- Completed courses in, or experience of, advanced analytical techniques/instruments, such as ICP-MS, elemental analyzer (EA), liquid chromatography (LC), elemental analyzer-isotope ratio mass spectrometry (EA-IRMS), scanning electron microscopy (SEM), and synchrotron-based techniques (such as X-ray absorption spectroscopy).
- Knowledge and experience in collecting sediment (or soil), suspended particulate matter, and water samples, and analyzing/characterizing them in the laboratory.
- Experience in polar research and/or offshore research expeditions (involving such as shipboard surveys and sampling).
- Experience of scientific writing, data management, and statistical analysis.

For more information, please contact:

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Welcome with your application no later than 2026-12-06.

The application should be in English and contain a CV (with the applicant's phone number and e-mail, as well as contact details including phone number and e-mail of two reference persons), a letter describing the applicant’s research interests, motivation, and experience relevant to the position, a copy of the passport, documentation of degrees and transcripts, and any other documentation the applicant wishes to submit.

Linnaeus University has the ambition to utilize the qualities that an even gender distribution and diversity brings to the organization.

Please apply by clicking on the Apply button at the bottom of the ad. Applicants are requested to the application resolving CV, cover letter , a copy of a relevant essay , grades and certificates and other relevant documents. All documents must be attached to digital in the application. The application and other documents shall be marked with the reference number. All documents cited must be received by the University no later than 23.59 (Local time in Sweden) on the closing day.

Linnaeus University is an employer that meets the requirements of the European Charter for Researchers and follows the recruitment guidelines. Therefore, the university has received the HR Excellence in Research award.

Please note that a valid identification must be presented at the time of the interview.

Link to the application: https://lnu.se/en/meet-linnaeus-university/work-with-us/vacancies-page/?rmpage=job&rmjob=9343&rmlang=UK




