



UMEÅ UNIVERSITET

## PhD position in ecology with focus on carbon cycling in arctic terrestrial ecosystems

**Apply for position**

### Umeå University, Faculty of Science and Technology

**Umeå University** is one of Sweden's largest institutions of higher education with over 35,000 students and 4,200 faculty and staff. We are characterised by world-leading research in several scientific fields and a multitude of educations ranked highly in international comparison. Umeå University is also the site of the pioneering discovery of the CRISPR-Cas9 genetic scissors - a revolution in genetic engineering that has been awarded the Nobel Prize in Chemistry.

At Umeå University, everything is nearby. Our cohesive campus environment makes it easy to meet, collaborate and exchange knowledge, which promotes a dynamic and open culture where we rejoice in each other's successes.

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The Department of Ecology and Environmental Science at Umeå University, Sweden, invites applicants for a PhD position in ecology, with focus on carbon cycling in arctic terrestrial ecosystems. The position is one of three PhD positions within a project on seasonal dynamics of plant-soil-microbe interactions in arctic ecosystems from molecular to landscape scales, based at the Climate Impacts Research Centre in Abisko and Umeå University, Sweden. Start date will be according to agreement. Application deadline is February 14th, 2022.

### Project description

The position is part of a large interdisciplinary project funded by the Wallenberg Foundation and running 2021-2026 (<https://kaw.wallenberg.org/en/research/winter-studies-arctic-yield-new-insights-greenhouse-gas-emissions>). The project aims to understand and quantify how processes during the arctic winter may be decisive for overall feedbacks from arctic tundra to the global climate. Arctic ecosystems store large amounts of organic carbon in plants and soil. Uptake of carbon by arctic plants is strongly limited by their access to nutrients, especially nitrogen, due to competition by microbes. Year-round carbon and nitrogen balances thus depend on the seasonality of the activities of plant and microbial communities, and their synchronization. In the Arctic, climate change is especially pronounced during autumn, winter and spring, which may cause asynchronies of these processes, leading to increased carbon and nitrogen losses and positive climate feedbacks. This large interdisciplinary project will advance basic knowledge of synchronies in plant and microbial activities during the cold season. The project will further assess the environmental drivers and community traits that may be used to up-scale and predict effects of asynchronies on year-round carbon and nitrogen balances of tundra.

### Work tasks

We are now inviting applicants for a PhD-position within the above project. The holder of the position will investigate year-round seasonal (a)synchronies in plant and microbial carbon cycling and how these change with altered winter, spring and autumn climate or across different vegetation types.

The project will benefit from ongoing collaborations between plant ecologists at Umeå University and fungal and microbial ecologists at SLU in Uppsala, and will use techniques from plant ecology, soil molecular microbiology, biogeochemistry (including isotope-based techniques), and up-scaling based on drone technology and satellite imaging. The project will involve a research team of about eleven senior and postdoctoral scientists, four PhD students and two technical staff. Most of the experimental work will be based in the subarctic/alpine tundra and at the research facilities of the Climate Impacts Research Centre and the Abisko Scientific Research Station in northern Sweden. The position will be based in Abisko, Kiruna municipality, with courses and administration in Umeå.

The position is financed by the Knut and Alice Wallenberg Foundation and Umeå University. The supervisors will be Dr. Ellen Dorrepaal and Professor Johan Olofsson.

### **Qualifications**

To be admitted for studies at third-cycle level the applicant is required to have completed a second cycle level degree, or completed course requirements of at least 240 credits, of which at least 60 credits are at second-cycle level, or have an equivalent education from abroad, or equivalent qualifications.

To fulfil the specific entry requirements to be admitted for studies at third-cycle level within the subject of ecology, the applicant is required to have completed courses within a first-cycle subject relevant to ecology comprising at least 120 credits. At least one course at second-cycle level in a subject that is central to the doctoral student's planned specialization shall have been completed, as well an independent piece of work (degree project) with relevant specialization of at least 15 credits.

The recruitment procedure for the position is in accordance with the Higher Education Ordinance (Högskoleförordningen Chapter 5 and 7). The requirements should be met at the time of acceptance to doctoral studies.

We are looking for a person with field experience and interest in carbon cycling in arctic terrestrial ecosystems, and an academic background in Ecology, Physical geography or similar field. Additional requirements are good knowledge of techniques used to study ecosystem carbon cycling and demonstrated experience of ecological fieldwork. The successful applicant should further have good ability to write and speak in English, creativity, power of initiative, independence, good interpersonal skills and ability to collaborate. Strong merits are knowledge of arctic terrestrial ecosystems, terrestrial biogeochemistry, experience in the use of stable isotopes and statistics, experience with outdoor activities under arctic winter conditions, and a driving license for cars.

Evaluations will be based on the application, references, and interviews.

### **Terms of employment**

The employment is expected to result in a doctoral degree and the main assignment for the doctoral student is thus to be part of the research education, which includes participation in the described research project but also to take relevant courses. Teaching and other departmental work (up to a maximum of 20%) can be included. The employment is limited to four years at full time or up to five years if teaching and other departmental work is performed. The salary is fixed according to the established salary level for doctoral students.

### **How to apply**

You apply through our recruitment system on February 14th, 2022 at the latest. The application, written in English or Swedish, should include:

1. A short (max 2 pages) description of why you are interested in and suitable for the position  
CV
2. Certified copies of degrees and certificates from higher education
3. List of completed university courses and the grades
4. Copy of degree thesis and possibly other scientific publications
5. Names and contact information of three reference persons
6. The documents should be in MS Word or PDF-format.

### Contact

If you have questions regarding the position, please contact Ellen Dorrepaal, [ellen.dorrepaal@umu.se](mailto:ellen.dorrepaal@umu.se) or Johan Olofsson, [johan.olofsson@umu.se](mailto:johan.olofsson@umu.se)

The Department of Ecology and Environmental Science (EMG) is both a research and teaching Department situated within the Umeå University campus. The Department has approximately 120 staff members, of which 24 are PhD students. For more information, visit <https://www.umu.se/en/departments-of-ecology-and-environmental-science/about-the-department/>. The Climate Impacts Research Centre (CIRC) is part of the Department and undertakes research in how climate and environmental changes affect the ecosystems of the north. Part of the staff of CIRC is stationed year-round in Abisko, Kiruna municipality. For further information, see [www.arcticcirc.net](http://www.arcticcirc.net).

Umeå University wants to offer an equal environment where open dialogue between people with different backgrounds and perspectives lay the foundation for learning, creativity and development. We welcome people with different backgrounds and experiences to apply for the current employment.

We kindly decline offers of recruitment and advertising help.

<b>Type of employment</b>	Temporary position longer than 6 months
<b>Contract type</b>	Full time
<b>First day of employment</b>	According to agreement
<b>Salary</b>	Monthly salary
<b>Number of positions</b>	1
<b>Working hours</b>	100%
<b>City</b>	Abisko
<b>County</b>	Norrbottens län
<b>Country</b>	Sweden
<b>Reference number</b>	AN 2.2.1-37-22
<b>Union representative</b>	<ul style="list-style-type: none"> <li>• SACO, 090-786 53 65</li> <li>• SEKO, 090-786 52 96</li> <li>• ST, 090-786 54 31</li> </ul>
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