Jobbnorge ID: 297435
Deadline: 4/7/2026
Website: https://www.unis.no
Scope: Fulltime
Duration: Fixed Term

About UNIS

The University Centre in Svalbard (UNIS), located in Longyearbyen at 78°N, is the world's northernmost institution for higher education. UNIS specializes in Arctic studies and offers field- and research-based courses at bachelor's, master's, and PhD level in Arctic biology, geology, geophysics, technology, and safety. UNIS makes use of its year-round presence in the unique Arctic environment, using the environment as a natural laboratory for research and education.

We attract around 700 students annually from all over the world. All teaching is conducted in English and roughly half of both staff and students are international. UNIS was established in 1993 and is operated as a state-owned company under the Ministry of Education and Research. The administrative language is Norwegian. UNIS' values are inclusion, transparency, engagement, reliability, and respect.

PhD position in Drone-based Terrestrial Snow Monitoring

About the department

The Arctic biology department constitutes 2 professors, 6 associate professors, 5 PhD students, 8 adjunct professors and 1 technician. The department conducts research and education in Arctic terrestrial and marine biology. The department focuses on an integrated approach to High-Arctic biology, within the focal research topics (1) climate change biology, (2) seasonal ecology, and (3) biodiversity.

About the position

We are seeking a highly motivated PhD candidate to join our interdisciplinary research team with the aim to advance high-resolution terrestrial snow monitoring by applying drone-based remote sensing methods.

In a warming Arctic, forecasting how future changes in snow conditions will impact ecosystems, landscapes, and communities is critical. Yet, to date, monitoring even the most basic snow characteristics, such as presence of snow cover or snow depth, remains challenging. Most available satellite-based and modelled snow data products, especially for snow depth, are too coarse in spatio-temporal resolution for most applications in the fields of ecological, permafrost, and geohazard research. For example, to capture small-scale vegetation heterogeneity or to explain herbivores space use behavior in relation to snow conditions, data is required at cm to m resolution.

This PhD project will develop and apply remote sensing methods to advance terrestrial snow monitoring at high resolution in Svalbard. To bridge the scale gap between accurate but spatio-temporally sparse in-situ, point-based snow depth measurements and large-coverage but coarse-scale satellite products, the project focusses on drone-based remote sensing methods. The PhD candidate will conduct a detailed methodological investigation of how in situ monitoring, drone mapping, and satellite data can be integrated to transfer and predict high-resolution, small-scale snow characteristics onto larger spatial extents.

Building on existing pilot drone data and an in-situ snow monitoring system operated by the Climate-ecological Observatory for Arctic Tundra (COAT) network, the candidate will develop and implement drone-based snow monitoring and associated validation workflows. Methodological challenges to be addressed could, for instance, include spatial transferability via empirical predictive modelling, upscaling and data fusion approaches (linking drone, in situ, snow models and satellite data), or secondary snow parameter modelling (e.g., deriving parameters such as snow wetness or snow density from drone-recorded snow depth data). The method development will aim to produce snow data products especially tailored to ecological and geophysical applications, to ultimately help improve the understanding of snow-related ecosystem processes and permafrost dynamics in Arctic and alpine environments. To this end, the candidate may also explore applications of the generated data products, for example to study herbivore habitat conditions or snow-permafrost-vegetation interactions.

The successful PhD candidate will be given flexibility to develop their own ideas within the proposed theme. Upon employment, they will work on the detailed project description together with the supervisor team. The candidate will be required to carry out research involving processing and geospatial analyses of drone remote sensing data, present research findings at scientific conferences, collaborate with other team members (MSc students, other PhD students, researchers) at other Norwegian and international institutions, and take part in field work in Svalbard for data collection and to obtain an understanding of the study system. The project offers strong integration within the interdisciplinary Svalbard research community. Where suitable and depending on funding, we will aim to facilitate research stays with collaborators at Norwegian institutions and/or abroad.

The PhD will be based at the Department of Arctic Biology at UNIS, and the candidate will be admitted to a PhD program at the Norwegian University of Life Sciences (NMBU). The PhD student will be supervised by Assoc. Prof. Larissa Beumer (UNIS, main supervisor) and Prof. Leif Egil Loe (NMBU, co-supervisor). Assoc. Prof. Eero Rinne (UNIS, Geophysics Department), Prof. Tobias Ullmann (University of Würzburg, Germany), senior researcher Dr. Virve Ravolainen (Norwegian Polar Institute) and senior researcher Dr. Ketil Isaksen (Norwegian Meteorological Institute) will serve as additional co-supervisors. The interdisciplinary supervision team combines expertise in (cryosphere)

remote sensing, Arctic vegetation and herbivore ecology, and snow and permafrost science. The exact role distribution within the (extended) supervisory team will be agreed upon depending on the candidate's main interests and research plan.

The four-year contract includes a year of required duties. Alternatively, the candidate may choose a three-year position which excludes these duties.

Duty work will include teaching on relevant courses (in the field and in the classroom), student supervision (for project-associated thesis projects), research support (such as data management/analysis), administration and outreach work. Required duties for the successful candidate will be specified upon employment. Other duties may be assigned by the head of department as required.

Qualifications

- Applicants must hold a master's degree in a relevant field, such as remote sensing and geoanalysis, or the degree must be completed by July 1, 2026.
- Admission to the doctoral programme at NMBU is a condition for the employment. This requires that (1) the applicant must have completed an academically relevant education that corresponds to a five-year Norwegian study programme where 120 credits must be at master's degree level, and (2) that the master's degree has been awarded at least an average grade B.
- Strong skills in data processing and modelling, including experience in using a programming language suitable for geospatial data analysis (e.g., R, Python).
- Experience in applying remote sensing methods, for instance in ecological, geophysical, and/or other snow-related applications.
- Experience in field-data collection.
- Keen interest in snow dynamics, snow-related processes, and ways to measure and monitor snow.
- Be able to work independently and in a structured manner, with great attention to detail.
- Demonstrate very good collaborative and communication skills.
- Proficient in both written and oral English.

You will be offered the opportunity to participate in digital Norwegian language courses during your employment.

Advantageous knowledge and skills

- A drone-pilot license (EU/EASA certificate of competency A1/A3) and experience in piloting drones for scientific data acquisition (e.g., mapping missions).
- Background knowledge in drone or satellite-based LiDAR remote sensing.
- Experience in workflows for drone data processing (e.g., Agisoft Metashape, Cloud Compare), ideally including applying high-precision positioning technology.
- Background knowledge in satellite remote sensing systems, especially those with relevance to snow monitoring.
- Experience in using GIS software (e.g., QGIS, ArcGIS).
- Basic understanding of physical snow modelling approaches and how they differ from and can complement snow monitoring (in situ, remote sensing).
- Experience in (predictive) modelling, for example machine learning approaches.
- Experience in conducting field work in polar or alpine regions.
- Strong and preferably demonstrated interest in interdisciplinary work at the interface of remote sensing, ecology, geophysics, and snow science.
- Experience in scientific writing, including authorship of scientific publications.
- Experience in outreach and science communication, incl. presentation at scientific conferences.
- Experience in (spatial) data visualisation.
- Driver's license class B (valid for Svalbard).

Motivation and personal suitability will be emphasized.

We don't expect any candidate to meet all advantageous qualifications. If you meet the required qualifications and are excited about the position, we strongly encourage you to apply.

Required documents

- Motivational letter (max. 1 page) to state your scientific and personal interest in pursuing a PhD on the announced topic, and your motivation for conducting your PhD at UNIS.
- Full academic CV.
- Transcripts and diplomas showing the completion of bachelor's and master's degrees, alternatively an official confirmation that the master's degree will be completed by July 1, 2026.
- Contact information for two references, one of which must be your master's supervisor.

All applications must be sent through our JobbNorge system. All documents must be uploaded as attachments to the application.

Applications lacking required documents will not be considered.

We offer

UNIS offers a challenging and varied job in an exciting and international environment. As an employee you will be a member of the Norwegian Public Service Pension Fund (SPK), which provides one of the best pension schemes on the market. We also offer excellent insurance schemes, coverage of travel and relocation expenses (max NOK 10.000) upon starting the position, and staff housing in accordance with current regulations.

The position is classified under the job code "Stipendiat" (PhD position, code 1017). In addition to the base salary, a Svalbard allowance of NOK 44,640 per annum is provided. A 2% contribution to the Norwegian Public Service Pension Fund is deducted from the salary. The income tax rate in Svalbard is currently 8%, and a national insurance contribution of 7,6% is also deducted.

Application process

Inquiries about this position may be directed to:

- Assoc. Prof. Larissa Beumer, larissab@unis.no
- Assoc. Prof. Eero Rinne, eeror@unis.no
- Prof. Leif Egil Loe, leif.egil.loe@nmbu.no

Application deadline: 07.04.2026

Security policy cooperation

UNIS prioritises applicants who are citizens of countries with a security policy cooperation with Norway. This mainly includes countries that are members of the EU/EEA or NATO. Employees holding citizenship from countries outside EU/EEA or NATO may encounter difficulties accessing the government infrastructure that UNIS relies on to hold our courses and perform research work.

Selection and appointment

A committee appointed by the Head of Department will evaluate the qualifications of the applicants and invite the highest ranked person(s) for an interview. The appointment will be made by the Director of UNIS based on the recommendation of the committee.

Public disclosure

It is possible to request that your name/application be exempt from public disclosure in accordance with the Freedom of Information Act (Offentlighetsloven) § 25. The request must be justified. Please note that if the request is not granted, the applicant will be contacted and given the opportunity to withdraw the application.

Diversity, Equity and Inclusion

One of the UNIS values is inclusion. We are committed to achieving diversity within the workforce and creating an inclusive working environment in the High Arctic. We therefore welcome applications from all qualified candidates irrespective of gender, sexual orientation, ethnicity, beliefs, age or other characteristics.

Additional information

Contact persons:

- Larissa Beumer, Associate Professor
  Phone: | E-mail: larissab@unis.no
- Eero Rinne, Associate Professor
  Phone: | E-mail: eeror@unis.no
- Leif Egil Loe, Professor
  Phone: | E-mail: leif.egil.loe@nmbu.no

Place of service:

Pb. 156 9171 Longyearbyen (Svalbard Municipality)