

Master thesis opportunity: Functional ecology of arctic mosses – how to quantify a key ecosystem component?



Left: Small rodents regularly remove large quantities of mosses from Low Arctic snow bed habitats; in the High Arctic geese have a similar effect. **Right:** moss carpet is a key modifier of soil temperatures in the High Arctic.

The research team of Climate-ecological Observatory for Arctic Tundra (COAT) at the Arctic University of Norway (UiT) and the Norwegian Polar Institute (NPI) is looking for highly motivated students for a Master's project in ecology in Arctic Norway.

Background and aim:

Mosses have several important functions in arctic ecosystems, where they are often more abundant than vascular plants. They strongly influence nutrient, carbon and water cycling, as well as thermoregulation of the active layer of permafrost. All these processes are dramatically influenced by climate change. In spite of being nutritionally poor, mosses are also an important component of several arctic herbivores diet. Yet, functional ecology of mosses is little developed, and methods for quantifying moss biomass are cumbersome.

In the present MSc project, we will:

- Test and implement a fast, non-destructive method for quantifying moss functional group abundance in the Arctic
- Develop functional grouping of arctic mosses to encompass food web interactions (food quality for herbivores, growth substrate quality for plants) as well as other ecosystem functions (interaction with permafrost)
- Describe the functional composition of mosses in arctic plant communities

The project aims to encompass both high and low Arctic moss communities, and field work will consequently be done both on Svalbard and at the Varanger peninsula in Norway. Quality analyses of mosses will combine Near Infrared Spectroscopy (NIRS) with traditional laboratory analyses.

The MSc project is associated with the Climate-ecological Observatory for Arctic Tundra (COAT). For more information on COAT, see www.coat.no. The project is connected to several of COAT research modules, in particular "Moss tundra" and "Small rodent". The project will be supervised by researchers at UiT and NPI.

Requirements:

- Bachelor level studies in ecology or similar field
- Physical fitness and motivation for working long days in the field
- Good collaborative skills
- Proficiency in written and spoken English
- Prior field experience from northern environments is an advantage
- You're not afraid to learn statistics and computer coding

Interested? Send your CV and a short letter of motivation to:

- Virve Ravolainen, virve.ravolainen@npolar.no
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