



**Project acronym:** WarmTraits

**Project title:** How does climate warming duration affect above- and belowground plant traits and overall tundra ecosystem functionality?

**Project leader:** Casper Tai Christiansen, University of Copenhagen, Denmark

**Discipline:** Earth Sciences & Environment: Ecosystems & Biodiversity

**Station(s):** Abisko Scientific Research Station (Sweden)

In this project, we use a rare opportunity to sample destructively in a long-term field experiment where mini-greenhouses have warmed arctic tundra plots for 2, 12, and 22 years. Here, we investigate how increasing climate warming duration affects a very comprehensive set of the most important leaf, stem, and root functional traits that link to plant performance and to ecosystem function. We use a trait sampling methodology that accounts for both interspecific and intraspecific variation across space and time, and this allows us to investigate the importance of both species-turnover and genotypic plasticity in regulating functional community responses to environmental change. In addition, we will quantify how experimental climate warming duration, and associated responses in plant functional diversity, affect annual shoot and root growth, plant and soil microbial nitrogen uptake and allocation (using stable isotopes), and litter and soil decomposition rates.