

Project acronym: KOPPS

Project title: Kola Peninsula Plant Success

Project leader: Gareth Marshall, British Antarctic Survey, Cambridge, UK

Discipline: Earth Sciences & Environment

Station(s): Khibiny Educational and Scientific Station

The Arctic has seen the most rapid climate change anywhere on Earth, with associated environmental changes including altered geographical ranges of vegetation biomes. The KOPPS project will study the impact of these changes on plant success and how to best remotely monitor their effects on vegetation distribution in the Russian Arctic. It is based in the Khibiny Mountains as this region provides marked changes in elevation and thus a range of vegetation types, from forest to tundra. It follows and expands upon the INTERACT-funded ECAPS project.

KOPPS comprises two principal work packages (WPs). In WP1 we will deploy four monitoring stations along an upslope transect in the Polar Alpine Botanic Garden-Institute (PABGI) in Kirovsk, which encompasses a number of different biomes and ecotones. Local mountain rescue personnel will be employed to transport the equipment up the steep terrain. WP1 forms the start of a long-term study with PABGI, analysing the relationships between plant success and local meteorological conditions, in particular snow cover.

In WP2 we will collect hyperspectral reflectance data, using a UAV mounted camera and ground-based spectro-radiometers, and phytomass samples from different flora. Field sites will include PABGI and a range of additional valley sites within the Khibiny Mountain Massif. WP2 represents a continuation of work undertaken in ECAPS but with an emphasis on the utilisation of coarser satellite data in generating vegetation classification and condition data. The field measurements will be upscaled to refine the broader regional picture of snow and vegetation distribution provided by the satellite data.