2018 Summer School on Arctic Climate

August 27th- 31st 2018.

First announcement

This is a first announcement for the 2018 Bolin Centre for Climate Research’s Arctic Climate Summer School (3 HEC) to be held August 27-31, 2018.

Application Deadline: May 18th, 2018.

Syllabus:

- Overview of the Arctic climate system and its principal components
- History of climate in the Arctic from paleoproxy archives of varying time scales
- Arctic permafrost
- Climate Monitoring and Ecosystem
- Arctic hydrology

Location:

The Abisko Scientific Research Station https://polar.se/en/research-in-abisko/ is located in northern Sweden (68.21N, 18.48E). You should plan to arrive at the Abisko Scientific Research Station on Sunday August 26th, and plan your departure for the morning of September 1st.
Format:

The Arctic Climate Summer School is a week-long course offered by the Climate Research School (CRS) at the Bolin Centre for Climate Research. This year we offer a new format by adding a module of directed field studies. You will be divided into five working groups (based on student background) and conduct field studies in one of five subject areas lead by an experienced researcher in the discipline (see below). The groups will have two days to analyze and prepare their project results for an oral presentation to the rest of the class on the final day.

Group work/projects

1) Arctic Climate Variations in Tree-Rings Group (Björn Gunnarson, NG)
   
   Students will analyze tree-ring data to learn the basics of tree-ring analysis techniques and gain some appreciation for what it means to work with living biological material in the context of understanding past environmental and climate conditions.

2) Arctic hydrology (Zahra Kalantari, NG)
   
   In order to distinguish effects of climate and land use changes on hydrological flow partitioning, and more specifically on actual evapotranspiration (AET), we will estimate AET by different methods, including a water balance constrained calculation of AET based on the water budget in three basins in northern Sweden and one basin in Greenland.

3) Climate Monitoring and Ecosystem Dynamics Group (Kristoffer Hylander)
   
   Climate affects plant species performance and thus their distribution. However, many other aspects can interact with climate and it is not always the case that species move upslope when the climate gets warmer. We will explore the range shifts of a couple of plant species on Mount Njulla in Abisko in relation to local microclimate variation and climate change during the last century.

4) Arctic permafrost and variations Group (Ylva Sjöberg, NG)
   
   How does the local climate at different arctic sites impact permafrost conditions and which factors control the relationship between ground temperatures and air temperatures? Students will compare the offsets between observed air temperatures and ground surface temperatures for sites northern Sweden and Greenland, which mainly depend on snow cover and vegetation. Thereafter, they will compare the ground temperature profiles in permafrost between the sites and discuss how these are affected by differences in ground substrates and soil moisture/ice content. We will use the same sites as for the hydrology project, to facilitate fruitful discussions on climate impacts on permafrost and the water cycle between the groups.

5) Arctic Climate Variations in Lacustrine Sediments Group (Malin Kylander, IGV)
   
   Students will analyze chemical and physical parameters from sediment cores from local lakes and gain an understanding of how we use paleolimnological information to reconstruct past environmental and climate conditions.


Information on registration to follow in a second announcement.