

Category

BE Biology, Ecology, Ecosystems, Biodiversity

Session Number

BE-4

Session Title

Climate change and ecosystems: physiology, biodiversity and ecological functions

Session Description

Global change will affect biodiversity and ecosystem functions in many ways and thereby alter the complex balance of biogeochemical and -physical cycles and climate feedbacks. The fast rates of climate change in polar and alpine systems may challenge organisms. Ecosystems may approach tipping points, where irreversible shifts in biodiversity and ecosystem functions could occur. The ability of ecosystems to cope with this change will depend both on physiological and behavioral plasticity of current populations and their evolutionary potential. In this session, we are interested in integrating latest results on the biodiversity of polar and alpine marine and terrestrial ecosystems and how they are structured, the functioning of ecosystems and the provisioning of ecosystem services under current and future conditions. We solicit contributions based on experiments, models, and observations, from gene to ecosystem level, integrated across temporal and spatial scales. Our goal is to highlight existing research, propose new avenues, identify knowledge gaps, and outline international research opportunities. Specific topics include:

- 1) Effects of multiple drivers on polar marine organisms (e.g. phyto-, zooplankton), assemblages and ecosystems (e.g. SCAR AnT-ERA, AntEco).
- 2) Biodiversity and ecosystem functioning of Arctic, Antarctic, and alpine tundra under past, current and future climate.
- 3) Arthropod ecology in tundra systems (related to NeAT, a network for tundra arthropods).

Keywords: Ecology, Ecosystem services, evolution, resilience, adaptation, plant traits, freshwater, marine, terrestrial

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