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Productivity, Biodiversity & Ecosystem Shifts at Cryosphere-Ocean Boundaries (BE-5)

Category: Biology, Ecology, Ecosystems, Biodiversity

- Keywords: **Productivity, Antarctic, Arctic, Ecosystems, Biodiversity, Fjords, Ecosystem Function, Climate Warming, Glaciers, Sea Ice**
- **Lead Convener: Lee Cooper**
- Co-conveners: Monika Kędra, Craig Smith, Irene Schloss, Paul Renaud, Mikael Sejr
- **Submission deadline: 12th November 2017**

The boundaries between the cryosphere and ocean are shifting as the climate warms in both the Arctic and Antarctic. This session will explore the **possible responses of biological systems to changing ice cover**, and expand our understanding on **how climate warming is likely to further alter ecosystem processes** across this boundary. High latitude **productivity** and associated ecosystem adjustments is a key organizing principle that could help bridge information and insights from across multiple disciplines. We invite contributions from studies investigating ecosystem consequences of cryosphere changes in glacially influenced systems such as fjords and adjacent coastal ecosystems, ice shelves and underlying ocean waters, as well as continental shelves impacted by retreating sea ice, including recent changes that are already apparent. Observational, experimental, and modeling studies leading to a mechanistic understanding of processes that are related to productivity and its influences on biodiversity and ecosystem structure are equally welcome. This session aims to bring together **diverse perspectives on the future of Arctic and Antarctic productivity and impacts on ecological structure**. The session will also seek to identify knowledge and/or data gaps, which might limit our collective ability to understand connectivity across polar systems.

Antarctic and Arctic Ecosystems and their Functioning (open to anyone)

Sunday, 17 June 2018, 1pm – 5pm, Room C Aspen

contacts: Julian Gutt

other: Lee Cooper, Monika Kedra, Cinzia Verde, Ian Hogg

The SCAR Antarctic Thresholds - Ecosystem Resilience and Adaptation (AnT-ERA) research programme has been instrumental in developing a better understanding of biological responses to environmental change and the functioning of Antarctic ecosystems. Somewhat in parallel, the **Distributed Biological Observatory (DBO)** in the Arctic has been a bottom-up scientist initiative to evaluate ecosystem response to environmental change that has been supported by the IASC **Marine Working Group** and the **Pacific Arctic Group** in addition to national science agencies in six countries with Arctic research programmes in the Pacific Arctic. This meeting will bring together the science communities working at both poles who will jointly discuss topical scientific issues in Antarctic and Arctic biological processes. The major focus will be amphipolar comparisons and contrasts related to the response of organisms and ecosystems to climate change, including ocean acidification at all levels of biological organization. Core questions/issues that are anticipated for this session include increases or decreases in biodiversity and changes in ecosystem functioning (e.g. net primary production and biological CO₂ uptake). Identification of challenges for future investigations, knowledge gaps, and dissemination of results are additional goals of this session.