

Category

BE Biology, Ecology, Ecosystems, Biodiversity

Session Number

BE-6

Session Title

Ongoing change in terrestrial and freshwater ecosystems of Polar Regions

Session Description

Terrestrial and freshwater ecosystems of polar regions have been subject to substantial change or disturbance over the past several decades, particularly in the face of climate change. The drivers and responses to these changes are mixed, but may have unexplored similarities in Arctic and Antarctic systems, and may define how these regions respond to and amplify global warming. Polar regions are underlain by permafrost, which is warming and thawing at high rates, and which is critical to ecosystem structure and function as it limits to shallow depths the infiltration of rain and snowmelt. These shallow flow paths result in magnified physical, chemical, and biological connections among landscapes, streams, and lakes. The session will further address how these climate-induced changes in landscape-level processes affect the biological communities and biogeochemistry of lakes and rivers. The freshwater group of the Circumpolar Biodiversity Monitoring Plan (Arctic Council: Conservation of Arctic Flora and Fauna) has recently completed circumpolar assessments of the status and trends in freshwater flora and fauna as well as of their biogeochemical habitat of Arctic freshwaters. The evaluations, the most extensive assessment of freshwater monitoring data from the Arctic to date, include examination of data from both historical (paleolimnological data and records from 1800 to 1950) and contemporary time scales (post-1950), as well as traditional ecological knowledge of Arctic peoples.

Keywords: biodiversity, biogeochemistry, freshwater, terrestrial, land-water connectivity, ecosystem structure and function, ecosystem response to change

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