



Microbial Ecology in Permafrost

9B - Microbial Pattern and Process in Permafrost Affected Ecosystems

Leewis Mary-Cathrine¹, Jessica Ernakovich², Sam Bratsman³

¹Agriculture and Agri-Food Canada, Quebec City, QC, ²Center of Soil Biogeochemistry and Microbial Ecology, University of New Hampshire, Durham, NH, USA, ³Natural Resources and Earth System Science, University of New Hampshire, Durham, NH, USA

Microbial communities in permafrost-affected ecosystems—from soils to wetlands to rivers and lakes—are a critical component of biogeochemical cycles because they drive the transformation of elements from local to global scales. It is increasingly recognized that studies focused on microorganisms and how they interact with their environment are essential because of the vital role microbes play in driving ecosystem processes. The understanding of the response of microorganisms and their functions to disturbance (such as permafrost thaw, wildfire, shrubification, lake drainage, and glacier retreat to name a few) is limited, however important patterns are beginning to emerge. Major processes which are critical for understanding the effects of disturbance can be categorized as those which explore the interactions of permafrost-affected microorganisms with (1) other microorganisms (e.g., bacteria, archaea, viruses, and fungi) and soil fauna; (2) plant communities; (3) soil minerals; and (4) soil water and ice.

This session invites interdisciplinary submissions exploring the complexity of microbial patterns and processes in northern latitude ecosystems. This session invites microbial ecologists and biogeochemists with expertise in laboratory, field, and modelling approaches to explore how interactions between microbial communities and other components of permafrost-affected ecosystems influence cryosphere processes under global change.

Keywords: Microbial Ecology, Biogeochemistry, Ecosystem Function

Contact: Jessica Ernakovich: jessica.ernakovich@unh.edu