

Effects of climate change on rhizosphere carbon in boreal forest soils

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Theme: [Soils and Nutrient Cycling](#)

Status: Continuing

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Participants

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Background

Continued increases in mean annual temperature threaten the boreal forest, one of Canada's greatest natural resources and the largest terrestrial store of carbon. Major changes to the boreal forest ecosystem caused by climate change, including potential vegetation changes, will require innovative management strategies. The proposed research will look at plant-soil interactions in boreal forest soils to investigate potential impacts of climate change on soil carbon fluxes. Increased occurrence of fire with climate change will likely shift forest composition to younger stands, and within the main boreal forest, deciduous trees will replace conifers. Understanding how this vegetation shift will influence rhizosphere carbon fluxes constitutes a key step towards a better prediction of boreal soil carbon response to climate change.

Objectives

Compare microbial populations between aspen and spruce trees in both natural and clearcut stands. Quantify root exudation rates and composition from aspen and spruce trees in both natural and clearcut stands. Track the spatial and temporal movement of carbon through the rhizosphere of aspen in both natural and clearcut stands.

Key Results

No results have been obtained yet as field work as not yet commenced.