Project Profile

Project Name:	Permafrost Ecosystems in Transition
Project Number:	EI-2016-11
Proponent:	Wilfrid Laurier University
Funding Envelope:	Environmental Impacts
Timeframe:	September 1, 2015 – April 30, 2016

Project objectives

The objectives of this 3 year project include the following:

1) Map the changing spatial distribution of permafrost, wetland and forest coverage over the past 60 years;
2) For different ground thaw and moisture conditions, conduct field studies to improve the understanding of the volume and timing of runoff;
3) Simulate the major water flux and storage processes controlling runoff;
4) Improve our ability to characterize permafrost impacts at larger scales through field investigation and subsequent adaptation of the a regional-scale permafrost model; and
5) Estimate future quantities of runoff and surface water storage within Boreal and subarctic landscapes with discontinuous permafrost under possible scenarios of climate warming and human disturbance.

Project background

The border region between Northeastern British Columbia (NEBC), southern Northwest Territories and Northwestern Alberta are among the most rapidly warming regions on Earth, and are also experiencing unprecedented industrial expansion. Climate warming and human disturbance in the border region has led to widespread permafrost thaw and land cover change that has disrupted the hydrological cycle and the ecosystems and human activities that depend on it. This project will investigate hydrological and ecological changes resulting from permafrost thaw in the border region, develop and mobilise knowledge of these changes, develop predictive modelling tools, and provide interactive training on these tools to our partners in industry (specifically shale gas developers who already present in the region), government, First Nations and local communities.

Project deliverables

The deliverables from this project include the following:

1. Year-end report documenting the activities in the year.