



The Arctic Institute of North America presents the 2019 – 2020

# Arctic Speaker Series

## Permafrost after equilibrium

**Speaker:**

Chris  
Burn

**Date:**

Thursday,  
January 16, 2020

**Time:**

5:00 – 6:00 pm

**Location:**

University of Calgary;  
Science A 119



Photo Credit: Luther Caverly

Permafrost regions have encountered greater climate change than other parts of our world, and there are many reasons to believe this will continue to be the case. Both principal climatic indices - temperature and precipitation - are being adjusted. In the 1970s, when permafrost science matured in Canada, we considered landscapes to be in equilibrium with climate, partly because the impetus for the research then was engineering. Permafrost is a climatic phenomenon, no doubt, but it changes over longer time scales than the atmosphere and is no longer in equilibrium with it. We might expect three primary consequences: first, events that we have not encountered before, such as the 87 landslides on the Caribou Hills north of Inuvik in September 2017. Second, acceleration of processes we have recognized for some time, such as development of the mega slumps in the western Arctic. Third, gradual adjustments that ultimately will affect the integrity of permafrost, either through its bearing capacity or its ability to act as an impermeable

medium. The latter is significant for the integrity of waste sumps throughout northern Canada. Contrary to our former predictions, the effects of climate change on permafrost are locally controlled by the configuration of the environment and have become first apparent where the ground is relatively cold.

**Biography:** Chris Burn is Chancellor's Professor of Geography at Carleton University and supervisor of Carleton's Graduate Programs in Northern Studies. He held an NSERC Senior Northern Research Chair at the Department of Geography and Environmental Studies from 2002-12, throughout the program's life. He came to Canada in 1981 as a Commonwealth Scholar, and completed both the M.A. (Geography, 1983) and Ph.D. (Geology, 1986) at Carleton. He then moved to U.B.C. as a Killam fellow, to study with J.Ross Mackay, the world authority in his field. In January 2018, Chris was awarded a D.Sc. (Geography) by Durham University, after examination of his published research by an international panel. Chris received the Polar Medal from Her Excellency Rt. Hon. Julie Payette, Governor General of Canada, in November that year. In June 2020 he will become President of the International Permafrost Association.

This event is **free and open to the public**

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