SEMINAR

DEPARTMENT OF EARTH SCIENCES

DALHOUSIE UNIVERSITY

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"Active Marine Geohazards on the Seafloor of Eastern and Arctic Canada"

Thursday, March 22, 2018

11:30 a.m.

Milligan Room, 8th Floor Biology-Earth Sciences Wing,
Life Sciences Centre, Dalhousie University

COFFEE AND DOUGHNUTS WILL BE AVAILABLE IN THE MILLIGAN ROOM BEFORE THE SEMINAR

Active Marine Geohazards on the Seafloor of Eastern and Arctic Canada

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Submarine landslides and turbidity currents are gravity flows that transfer large amounts of sediment and organic carbon to the deep-sea. They represent major geohazards as they can sever fiber-optic communication cables, rupture subsea pipelines, and damage oil and gas infrastructures. Thus, an understanding of where, when and how they occur is critical to mitigating their impact. Because there are so few direct observations of turbidity currents and submarine landslides, the factors responsible for triggering them are poorly known and understood. This presentation will illustrate the controls governing the most recent and active geohazards observed on the seafloor of both eastern and Arctic Canada. In eastern Baffin Island fjords, the behaviour of retreating glaciers dictates the presence or absence of turbidity currents on delta fronts. In southeastern Canada, glaciers are now absent, suggesting that most geohazards occurred during the late-Pleistocene when glaciers provided large volumes of sediment to the continental slope. However, new mapping of the southeastern Canadian shelf and margin has revealed recent giant landslides and active turbidity currents. Offshore of Nova Scotia, a submarine landslide deposit the size of lake Ontario, triggered between 4 and 1.5 ka BP, was just discovered. Additionally, a monitoring program undertaken in the Gulf of St. Lawrence combining repeat mapping of the seafloor with acoustic doppler current profilers (ADCPs) revealed the recurring presence of turbidity currents that lead to the migration of bedforms on the seafloor. Geohazards in eastern and Arctic Canada, therefore, appear to be more active than previously thought; we need only look in the right locations with a fresh perspective!