Université du Québec
Institut national de la recherche scientifique
Eau, Terre et Environnement

490, rue de la Couronne
Québec, (Québec), G1K 9A9
Canada
Téléphone: (418) 654 3870
Télécopieur : (418) 645 2600
www.inrs-ete.uquebec.ca

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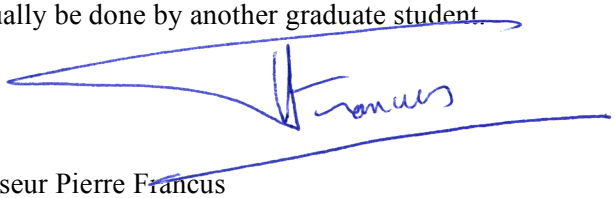
Nunavut Research Institute
Box 1720, Iqaluit, NU X0A 0H0

Annual Summary Report for project 02 078 10N-A

This project is a study of two lakes located close to the Strathcona Fjord, on Ellesmere Island (78°33'N, 81°55'W). The goal of this field season was to retrieve short sediment cores from the small, shallow (14 m) and organic-rich lake at the head of Strathcona Fjord. It was important to act as soon as possible as the fluvial erosion near the lake might cause its disappeance. Two miles to the east there is a large, deep detritic lake where we wanted to obtain bathymetric measures and collected as well short sediment cores to ascertain the presence of sedimentary lamination. The overall goal of this research is to understand how wheater and climate varied over long period of time, before the availability of instrumental records in the Arctic and before the influence of climate by humans.

A crew of three people went to both lakes, using a Twin-Otter for transportation from Resolute Bay to Strathcona. First, the bathymetry of the lakes was done. Then, sediment cores from the bottom of the lakes were retrieved directly through the lake ice with portable gravity and percussion corers made of nylon. Four cores from the small organic-rich lake were retrieved (lenght of the core up to 1.5 m) and eight others from the larger detritic lake (lenght of the core up to 1.5 m). Our goals on the field were achieved during this field expedition.

All sediment cores were brought back intact to our laboratory. They will be analyzed in order to provide multidisciplinary paleoenvironmental reconstructions. Sedimentological analyses and biological analyses will be done on the sediment, in order to quantify the past climate and to compare environmental conditions to natural variability. Data from the small organic-rich lake, mainly general sedimentological analyses and analyses of insects and algae (but not limited to), will be analyzed by Vicky Tremblay in the frame of her Ph.D. thesis project. Preliminary data from the large detritic lake (mainly advanced sedimentological analyses) will be analyzed by two undergraduate students supervised by professor Pierre Francus. Subsequent analyses will eventually be done by another graduate student.



Professeur Pierre Francus
Phone: 1-418-654-3780
Fax: 1-418-654-2600
Email: pfrancus@ete.inrs.ca