



## NEWSLETTER 3

# North American Soil Geochemical Landscapes Project

## Canadian Project Update, December 2007

### Briefly.....

- Time for the 2008 field season is rapidly approaching. In this newsletter we are presenting some ideas for new tri-national surveys for 2008.
- Tri-national samples collected in 2007 in the Maritimes and northern Canada are being prepared for geochemical analysis at the Geological Survey of Canada laboratory in Ottawa.
- The first sets of geochemical data from a test suite of samples sent to several commercial laboratories for analysis using tri-national protocols have been received and results are being compared.
- The first call for Canadian Initiative - Workshop II was sent in mid-October. The Workshop will be held in Ottawa on February 27-28, 2008. Participants involved with last summer's sampling in the Maritimes and northern Canada will present first stage results. Participants will plan for the 2008 field season and seek new collaborative partnerships.
- We have been meeting with our counterparts in Mexico and the United States and have news to report.



*Luke Howitt prepares tri-national samples at the Sedimentology Laboratory, Geological Survey of Canada, Ottawa. Luke is a co-op student from Fanshawe College.*



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# MORE DETAILS.....

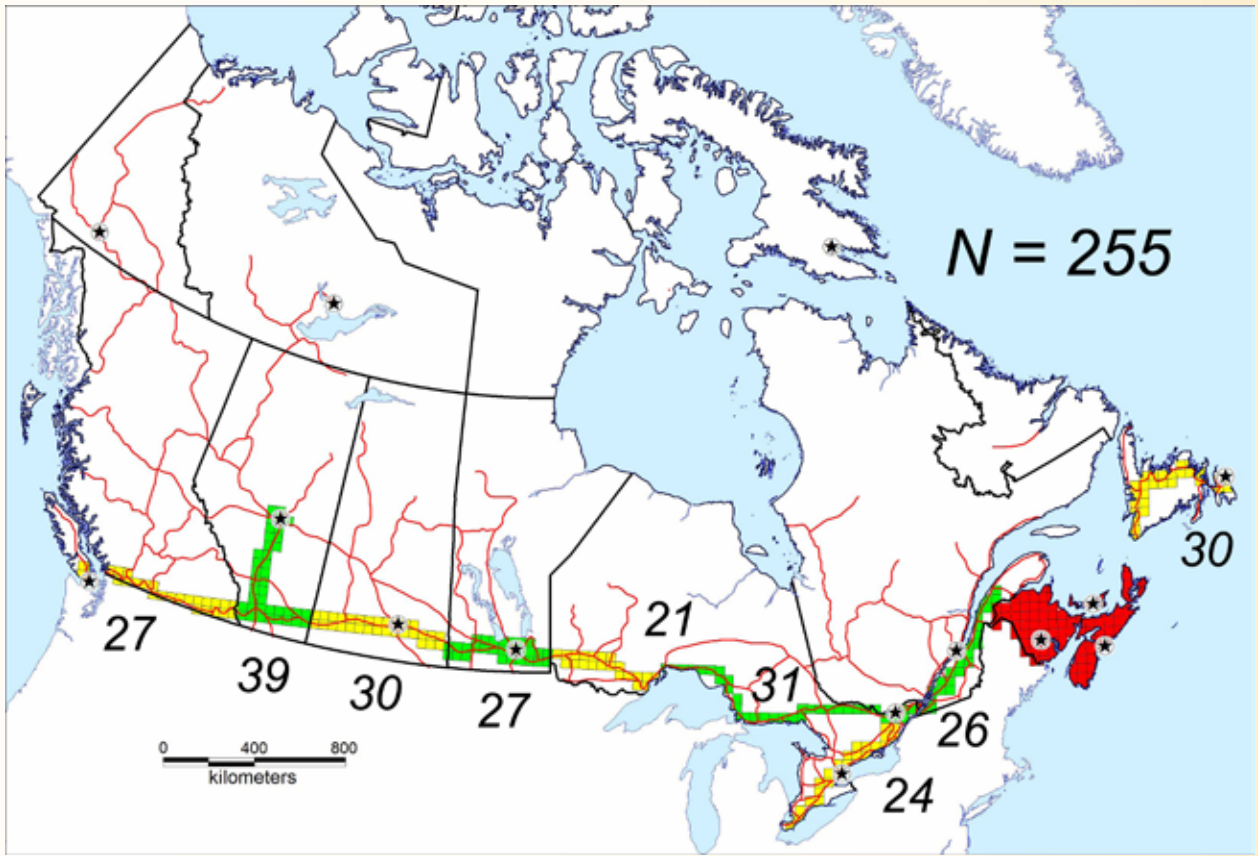
## IDEAS FOR NEW 2008 TRI-NATIONAL SURVEYS

A new year and field season is fast approaching. We are aiming to match our accomplishments for 2007 in 2008. Below are some ideas for new tri-national surveys. These will be discussed at Workshop II to be held in Ottawa on February 27-28, 2008. We are looking for feedback on these suggestions before and during the meeting and some indication of your interest in participating.

### 1) *The Trans-Canada Swath*

The sampling “swath” is two 40 km grid cells wide and roughly follows the Trans Canada highway, excluding the part through the Maritimes where sampling is completed. Samples would be collected at 255 primary tri-national sites as shown below. The count for Ontario includes an offshoot from the main transect along Highway 401 and in Alberta there is another offshoot between Calgary and Edmonton.

The proposed sampling is an important step towards generating a consistent set of soil geochemical data for the most populated regions of Canada. Data from the new survey combined with data from the Maritimes would provide a first set of national-scale data. These data are needed to develop collaborative efforts with federal and provincial agencies working on issues related to the environment and human health protection.

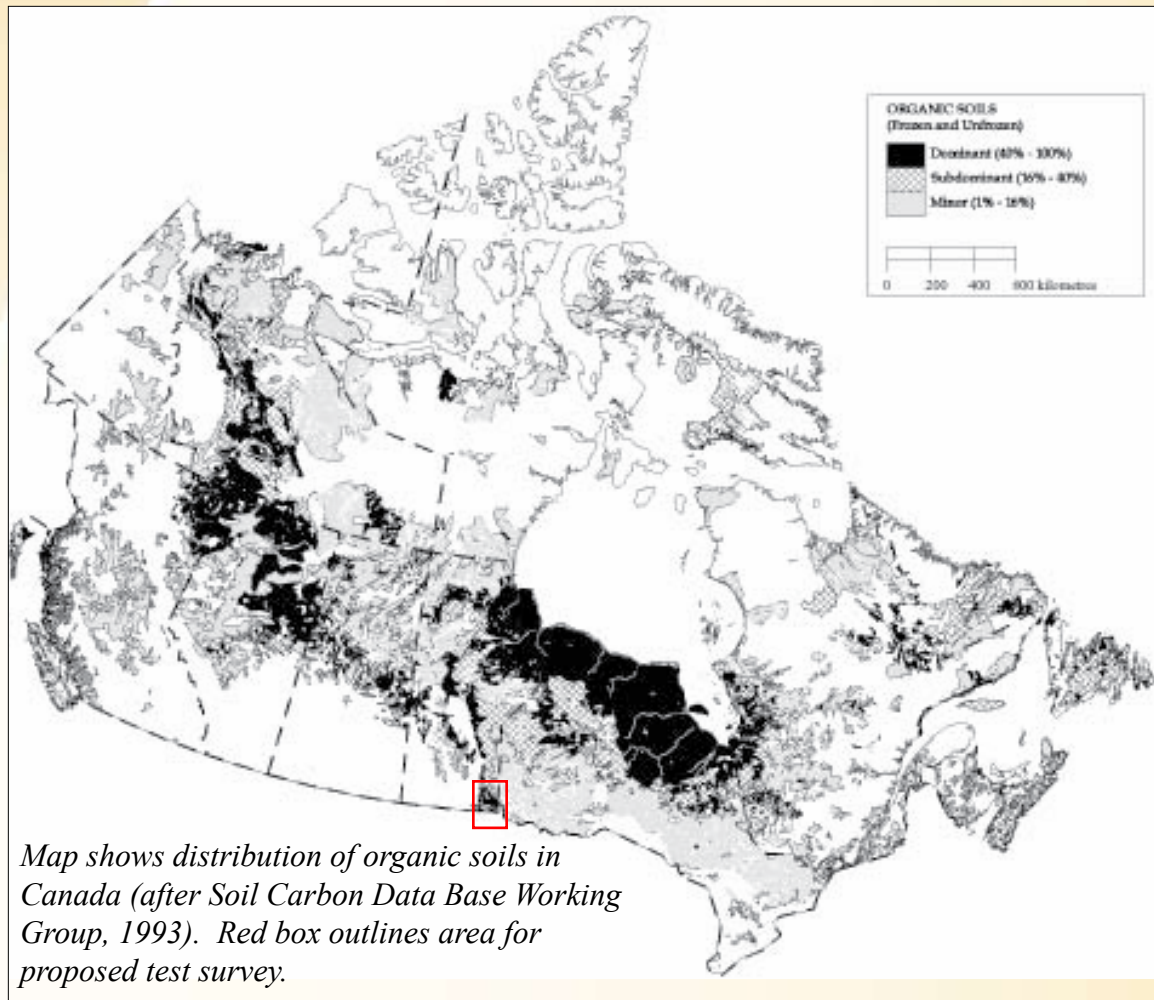




## IDEAS FOR NEW 2008 TRI-NATIONAL SURVEYS

In addition to having a preliminary set of trans-Canada data, there is a need to develop sampling protocols for some major (and difficult) types of terrane.

### 2) Peatland Survey for Testing Protocols



Organic soils cover  $1.23 \times 10^6 \text{ km}^2$ , or 14 % of the soil area (excluding water, bedrock and glaciers) of Canada. As a result there will be an estimated 840 trinational sites located in peatlands. The composition of organic soils reflects the decomposition state and types of vegetation that characterize the accumulation layer. Within the uppermost metre of organic soils sudden changes in each are common. Further work is needed to determine what layers or intervals in organic soils should be sampled and how.

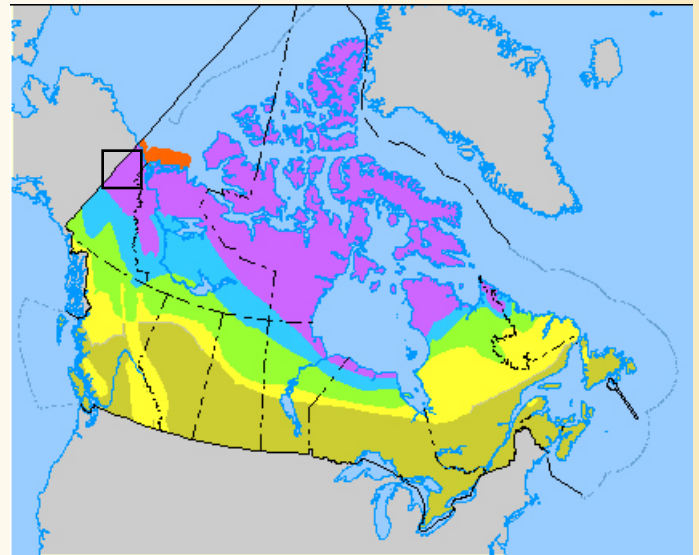
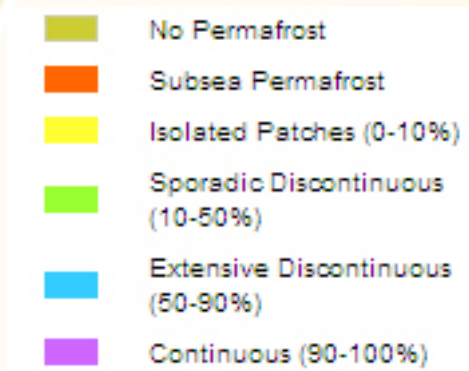
There is a large peatland area that straddles the Canada-United States border covering parts of southeastern Manitoba and northwestern Ontario and northern Minnesota. This area would be ideal for developing organic protocols in a joint effort with our counterparts from the United States Geological Survey.





## IDEAS FOR NEW 2008 TRINATIONAL SURVEYS

### 3) Permafrost Survey for Protocol Development



Map shows permafrost distribution in Canada (from Atlas of Canada website: <http://atlas.nrcan.gc.ca/site/english/maps/environment/land/permafrost>). A possible area for the proposed study is outlined in black.

An estimated 42% of the Canada landmass is underlain directly by permafrost (GSC Current Research 1997-E, p. 109-115). Based on this estimate, there will be more than 2500 tri-national sites in permafrost areas. In addition, there are strong interrelationships between the distribution of peatlands and permafrost because of the insulating properties of peat and the poor drainage conditions in peatland. Sampling frozen soils and, in many cases, frozen organic soils is challenging. Additional work is needed to develop tri-national protocols for sampling permafrost-affected soils.

In 2007 some samples were collected at isolated tri-national sites by sharing logistics with a Yukon government geochemical survey. A continuation of sampling in the northern Yukon and northern Mackenzie valley is expected in 2008. Similar to the proposed peatland survey, an effort will be made to co-ordinate protocol development work in the Yukon with similar work being undertaken in adjoining areas of Alaska.

We would appreciate suggestions and comments pertaining to this survey.

## NEWS FROM OUR INTERNATIONAL PARTNERS

### **United States**

Dave Smith from the United States Geological Surveys reports that sampling was completed in Maine, New Hampshire, Vermont, Connecticut, Rhode Island, Massachusetts, and New York. It was also finished in the western part of Nebraska. A very successful first summer for our American partners.



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## NEWS FROM OUR INTERNATIONAL PARTNERS

### **Mexico**

In November Andy Rencz and Peter Friske from Natural Resources Canada and a group from the United States Geological Survey visited scientists working on the tri-national project in Mexico. The group was hosted by Dr. Marcos Monroy and Jorge Chipres from the University of San Luis Potosi and Dr. Juan Carlos Salinas from the Servicio Geologico Mexicano. There were several field excursions where samples were collected to confirm that sampling protocols are used consistently in the three countries. Andy and Peter report that excellent progress is being made on the Mexican component of the project.



*Tri-national participants from Canada, Mexico, and United States discuss sampling protocols at a soil pit in Mexico in November, 2007.*



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*Tri-national participants from Canada, United States and Mexico in Mexico in November, 2007. Back row from left - Dave Smith (USGS), Jean Weaver (USGS), Juan Carlos Salinas (SGM), Alfredo De La Callejo (SGM), Laurel Woodruffe (USGS), Andy Rencz (NRCan-GSC), Front row from left - Peter Friske (NRCan-GSC), Jorge Chipres (University of San Luis Potosi), Jesus Hernandez (SGM).*



## **For More Information or To Make Submissions to the Next Newsletter**

To request information or send comments or activity updates, please contact us:

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