
**Tri-national Soil Survey: Start of a North
American geochemical data base**

ANDREW RENCZ AND PETER FRISKE
*Geological Survey of Canada, 601 Booth Street, Ottawa,
ON, K1A 0E8 Canada <rencz@nrcan.gc.ca>*

The need for soil geochemical data for assessing human health and environmental hazard risks is well recognized. However, at present there is no common understanding

of soil geochemical background variation and its origin for those agencies dealing with human health and environmental risk assessment and management. The North American Soil Geochemical Landscapes Project - a tri-national initiative between United States, Canada, and Mexico – was designed to (1) develop a continental-scale framework for generating soil geochemistry and relevant biological and organic compound data; and (2) provide soil geochemical data that are available and useful for a wide range of applications and disciplines. This project is the first multi-national multi-agency collaboration of its kind starting with common focus and protocols.

The project is based on low-density sample collection (40 km spacing) over a spatially balanced grid with a total of 13,212 sites over North America, including over 6200 samples across Canada. There is a core set of project protocols and also additional ones to meet the needs of users in each province and country. These include standardized sampling of the 0-5 cm “human health” layer, and the A-, B- and C-horizons and analysis of the < 2mm and < 0.063 mm fractions for selected trace, minor, and major elements (including Hg, Pb, As, and Cd) and limited organic components.

In the summer of 2007 a series of mini-surveys were undertaken to progress towards national geochemical coverage. A major initiative has been in the Maritimes where approximately 200 sample sites including 115 in New Brunswick, 55 in Nova Scotia and 10 in Prince Edward Island were taken. Samples in NB and NS were taken by the Ministry of Natural Resources. Similarly the USGS has covered a number of the New England states as well as a transect across Alaska. Mexico has started sampling and over 200 samples were taken.

In addition to the core set of parameters, a set of “add on” parameters will be assessed to determine if they should be added to the core protocols. The major component was analyzing for soil radon with the intention of creating maps of the potential of soil radon risk. This work includes ground based measures as well as airborne radiometric data. Results from the summer’s work will be available by the spring of 2009.