



Laurentian SETAC
Laurentian Chapter of the Society of
Environmental Toxicology and Chemistry

Ottawa Pub Nights

Who: Stephanie L. Douma, MSc.

When: Wednesday February 29th
5:00 p.m. – 7:00 p.m.

Where: Clock Tower Brew Pub,
575 Bank Street

Cost: \$1 members
\$3 non-members

‘Natural toxicant’ is not an oxymoron. The need to protect by predicting. An example from New Brunswick drinking water.

Stephanie L. Douma, MSc., P.Geo., PHRAM (Cert.)

Join us for an engaging talk, good eats and fine brew.

For more info: becca.dalton@gmail.com

Visit our website: <http://www.laurentiansetac.ca>

'Natural toxicant' is not an oxymoron. The need to protect by predicting. An example from New Brunswick drinking water.

Stephanie L. Douma, MSc., P.Geo., PHRAM (Cert.)

Abstract:

Despite its potential to inform, earth science knowledge and information is slow to be integrated with environmental, ecological and human health protection initiatives. In Canada, we have significantly large areas that contain **natural toxicants** that have the potential to pose health risks to its overlying population. Yet, we are seemingly unaware, uninformed and unprotected.

Far from trivial, these naturally occurring toxicants have the potential to cause morbidity (carcinogenic and non-carcinogenic disease) that exceed those that would develop from 'a pack a day' smoking habit.


Examples include:

- Arsenic in drinking water- Cobalt Ontario, trailer park found to contain 1,000s of times higher than acceptable drinking water levels. Large areas in Alberta, Ontario, New Brunswick, Nova Scotia and Newfoundland with elevated arsenic in drinking water.
- Fluorite in drinking water naturally elevated in Waterloo.
- High chromium and nickel in soils in the vicinity of towns in Ontario, Quebec, Newfoundland.
- Uranium in lake sediments (water) in Inuit hunting grounds of the arctic with potential to affect health of hunters at their two month summer camps.

All of these toxicants are naturally occurring, present in the environment at levels that will cause harm to human health and despite each toxicant being listed Health Canada's Priority Substance List 1, there is little research in their occurrence. Health officials are not aware they exist, earth scientists are unaware of the implications of their existence.

Despite the ability to predict and manage these risk, society has chosen to ignore them. Natural toxicant is not an oxymoron. It is time to integrate earth science knowledge in our understanding of natural toxicants.

I present a modelling tool for the natural toxicant arsenic as an example of how earth sciences can be used to predict, prevent and provide ongoing health protection to Canadians. It is time for Earth and Health scientists to meet.



‘Natural toxicant’ is not an oxymoron. The need to protect by predicting. An example from New Brunswick drinking water.

Stephanie L. Douma, MSc., P.Geo., PHRAM (Cert.)

Biography:

Ms Douma has an MSc from Dalhousie University in earth sciences, is a professional geologist with the Association of Professional Geologists of Ontario and a graduate of the primarily medical-dominated program of Population Health Risk Assessment and Management (PHRAM(Cert.)) from the Ottawa University. She is the first geologist to graduate from this program. With over 20 years work experience with federal and provincial geological surveys, universities, and the private sector, she has extensive knowledge of mineral exploration and the mining sector in Canada. In her capacity as a human risk assessor she has worked in conjunction with [New Brunswick](#) and [Nova Scotia Departments of the Environment](#), Cancer Registry of New Brunswick, [USGS](#), [Institute of Population Health](#) (Ottawa University), and [Health Canada](#). Her current research focuses on probabilistic modelling of natural toxicants in the environment and risk to human health, and has developed a model for arsenic occurrence in drinking water and soil in New Brunswick. Ms. Douma is a member of [SETAC](#), [International Medical Geology Association](#), and secretary to the [Canada Chapter of Systems Safety Society](#).