

The Rock Record – March 2006

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Please contribute to the SGS
Newsletter

The SGS Newsletter is produced by the SGS executive. Letters, announcements, notices, comments, photos, news and information about SGS members, etc. are always welcome. Call an executive member or write to us at:

**Saskatchewan
Geological Society
P.O. Box 234
Regina, SK S4P 2Z6**

SGS e-mail address:
info@sgshome.ca

SGS Website:
www.sgshome.ca

All advertising inquiries should be directed to Jeff Coolican

In This Issue

- **Speaker Program Announcements & Abstracts** p. 1-3
- **Other Events, Photo Contest** p. 4
- **SGS Membership Form** p. 5

SGS PHOTO CONTEST **SEE PAGE 4 FOR DETAILS**

Friday, March 10th

Urban Geochemistry: Is There a Problem with Soil Lead in St. John's, Newfoundland?

**Presented by:
Stacy Campbell
MSc. Candidate
Environmental Science Program
Memorial University of Newfoundland**

Lancaster Room, Royal Canadian Legion

Cash Bar: 11:30; Lunch: 11:50

Meeting: 12:15 – 13:00

Members \$7.00, Non-members \$11.00

Contact: Cameron Bartsch 787-2506

By NOON, Thursday, March 9th, 2006

Thursday, March 23rd

AAPG Distinguished Lecturer From Deep Water Exploration to Tar Sand Production: Bugs, Biodegradation and the Origin of Heavy Oil

**Dr. Steve Larter
University of Calgary**

Lancaster Room, Royal Canadian Legion

Cash Bar: 11:30; Lunch: 11:50

Meeting: 12:15 – 13:00

Members \$7.00, Non-members \$11.00

Contact: Cameron Bartsch 787-2506

By NOON, Wednesday, February 22nd, 2006

Luncheon Talk Friday, March 10th

**Urban Geochemistry:
Is There a Problem with Soil Lead in St. John's, Newfoundland?**

Stacy Campbell

MSc. Candidate

Environmental Science Program

Memorial University of Newfoundland

Abstract

From the air we breathe to the water we drink, the quality of our environment has a significant impact on our health. Even the chemical components in the soil around us can influence our well-being; entering our bodies through the ingestion of particles on our hands and the inhalation of dust.

Human health was one of the motivating factors for the geochemical survey conducted in St. John's, Newfoundland from 2003 to 2005. A total of 1488 samples were collected. Background samples taken from the C horizon free from human influence indicate that the natural lead concentrations in St. John's soil are well within the published range for North America, averaging around 20 ppm. However lead concentrations in surface samples taken in the downtown core are greatly elevated, sometimes 100 fold higher than natural levels. High lead concentrations may be due to several historical sources including the deposition of vehicular exhaust from the era of leaded gasoline, the weathering of old leaded paint on wooden houses, and the combustion of coal which was used extensively for home and industrial purposes in St. John's. These sources of lead may well be present in older areas of other cities in Canada.

Some urban soil samples also exceed the Canadian Council of Ministers of the Environment guideline for lead in residential soil of 140 ppm. This has raised concern that there may be health consequences for those individuals exposed to these soils, especially young children who are particularly susceptible to lead's neurotoxic effects. Environmental lead data from soil and indoor dust will be combined with community housing and demographic data and information from the literature to assess the potential health risk of lead exposure to children in St. John's.



Luncheon Talk Tuesday, March 21st

2005-06 AAPG Distinguished Lecture

Abstract

STEVE LARTER

University of Calgary
Alberta, Canada

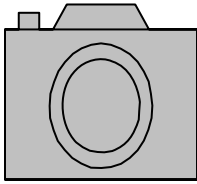
Funded by the AAPG Foundation through the Allan P. Bennison Endowment

From Deep Water Exploration to Tar Sand Production: Bugs; Biodegradation, and the Origin of Heavy Oil

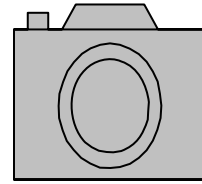
Microbial action has destroyed or altered most of the world's petroleum resources, producing heavier and more acidic crudes. While this has been known for a long time, the rates at which this happens, the reactions and organisms involved, and the nature of the alteration process have remained shrouded in mystery. We now know that the major reactions involve microorganisms carrying out hydrocarbon-water reactions producing methane as a major end-product as well as heavy oil. We know that the processes take place under anaerobic conditions without the need for free oxygen and we know how fast the process happens. We have even isolated some of the DNA from organisms that carry out the processes. We think that the oil degradation floor at 80°C probably represents the base of life in the crust and it seems the microorganisms in the reservoirs are slowly evolved descendants of those deposited with the reservoir rather than organisms carried down from the surface into the reservoir. It typically takes up to about 10Ma to destroy the n-alkanes in crude oils causing commercial problems in deep water production settings and the Canadian Tar sands could have reached the state they are in around 35Ma or less after reservoiring. The principle control on fluid properties such as viscosity or API gravity is the mixing of fresh oil into actively degrading oil contained in reservoirs. I describe how, using these concepts, fluid properties can be predicted predrill using basin modeling approaches and how the processes of heavy oil origin produce systematic variations in fluid properties that are predictable on reservoir thickness, field and even regional scales. These in-reservoir fluid heterogeneities can be used to design and enhance production programs and solve many practical problems associated with heavy oil exploration and production. Further, since the production of methane is often a common process during biodegradation of oils in deep reservoirs this raises the exciting possibility that if this process could be accelerated, heavy oil or tar sand bitumens, or even residual oils in conventional oilfields, could be recovered as methane on production timescales.

Other Events

Time to renew your memberships. A membership form is attached to this Rock Record and you can also download a copy at www.sgshome.ca.



SGS Photo Contest and Calendar



We have decided to run an SGS photo contest. If we can secure some corporate sponsorship (HINT), we plan to turn the winning entries into a 2007 SGS calendar. The SGS will be accepting photo entries starting immediately, up until August 30th, 2006. The photos must be of Saskatchewan and feature landscape of geological subject matter. You can submit photos digitally or as a hardcopy. Unfortunately we cannot guarantee that you will receive your photos back, so if you are sending a hard copy, make sure you keep the original. For digital photos please try to reduce the resolution to limit the file size. If we select your photo for the calendar we will request a higher resolution version for printing.

Submit Photos to:

Kate MacLachlan or Jennifer Smith
Saskatchewan Industry and Resources
2101 Scarth St.
Regina, SK
S4P 3V7

Or email photocontest@sgshome.ca



Geologists – start your cameras!

SGS MEMBERSHIP FORM – 2006

(If you have access to electronic mail, please provide your e-mail address in the space provided below)

I, _____, wish to renew my/apply for a membership in the SASKATCHEWAN GEOLOGICAL SOCIETY for 2006.

MY STATUS IS (please check one): ACTIVE (\$25.00) STUDENT (\$5.00)
 ASSOCIATE (\$25.00) LIFETIME (\$350.00)
 AMATEUR (\$10.00)

MY CURRENT MAILING ADDRESS IS: No change from last year
 New address (please print):

Please provide your e-mail address:

Your SGS newsletter will automatically be sent to you by e-mail as an attachment in MIME format. Note that you'll receive it sooner this way than by regular mail.

please check, if you **do not** want to receive the newsletter by e-mail

I am enclosing _____ along with the renewal form.

RECEIPT REQUESTED (please check, if required)

Mail to:
Saskatchewan Geological Society
P.O. Box 234
Regina, SK S4P 2Z6

SGS email address:
info@sgshome.ca

Thank You

(SIGNATURE)