

# Nova Scotia Offshore Geoscience

The Nova Scotia Offshore Energy Geoscience Community Quarterly Newsletter

## What's New

The Offshore Energy Technical Research Association (OETR) is pleased to announce the release of *"Nova Scotia Offshore Geoscience"*, the first Nova Scotia offshore energy geoscience community quarterly newsletter. The objective of the newsletter is to keep you informed on the latest news with regards to the geoscience community, as we collectively look to help renew exploration interest in Nova Scotia's offshore.

In this issue, you will learn more about

the geoscience community, the OETR Association and Nova Scotia Offshore Basin Forum 2007, which OETR hosted on October 1 and 2 in Halifax, Nova Scotia.

OETR invites you to join our contact list, and pass the newsletter on to anyone who you think would be interested.

To be put on the contact list for further OETR communications go to [www.offshoreenergyresearch.ca](http://www.offshoreenergyresearch.ca) and click on "Register".

## In this issue:

- Feature: Nova Scotia Offshore Basin Forum 2007
- OETR Projects
- President's Message
- Event Listings & More!

## Uniting the Geoscience Community

As you may know, the OETR Association, Canada-Nova Scotia Offshore Petroleum Board, Geological Survey of Canada, Petroleum Research Atlantic Canada, the Nova Scotia Department of Energy and universities in Nova Scotia have been collaborating to develop a petroleum geoscience community of interest that fosters coordinated geoscience-related research and development efforts necessary to better understand the petroleum geology of offshore Nova Scotia.

The Nova Scotia Offshore Basin Forum was an important part of this collaborative effort.

## Feature Story:

### Nova Scotia Offshore Basin Forum 2007

The Forum brought together geoscientists and other key players in the energy industry to review current information and discuss issues, challenges and knowledge gaps in Nova Scotia's offshore geology. Closing these gaps is a critical part of the Province's effort to attract new exploration investments.

The theme of the Forum was "Uncovering Our Resources Through Geoscience". Forum sessions included discussion on basin structure and depositional history, petroleum systems, international perspectives, and OETR initiatives and current research.



Delegates listen to Jack MacDonald

More on the Forum inside



## OETR Association

The OETR Association is a not-for-profit corporation dedicated to fostering research to enhance petroleum exploration and development of Nova Scotia's offshore. OETR's members are Dalhousie University, Saint Mary's University and the Nova Scotia Department of Energy. Funding for OETR activities and research comes from grants totaling \$2.85 million from the NS Department of Energy.

## Feature: Nova Scotia Offshore Basin Forum 2007

### Who Attended



In total, the Forum brought together 102 participants. They were largely made up of academia (both researchers and students) from Dalhousie University, Saint Mary's University and Memorial

University; Government representatives from the Canada-Nova Scotia Offshore Petroleum Board, the Canada Newfoundland and Labrador Offshore Petroleum Board, the Nova Scotia Department of Energy and the Geological Survey of Canada; Industry

representatives from Husky Energy, Geophysical Service Inc., Corridor Resources Inc., Geotours Consulting Ltd., Chevron Canada Ltd., ExxonMobil Canada Ltd., Canadian Superior Energy Inc. and McGregor Geoscience Ltd.; and Association representatives from Petroleum Research Atlantic Canada, the Canadian Association of Petroleum Producers and the Offshore Technology Association of Nova Scotia.

We also had representation from abroad including: TGS Geological Services and Products, TGS Consulting Services, GB Petroleum, Paras Consulting, all located in England, as well as participants from GX Technology Corporation and Repsol E & P USA Inc., both based out of the United States.

### Sessions

#### Basin Structure & Depositional History

*Chairs: Rod Doane, PRAC, and Kim Doane, NS Department of Energy*

##### Crustal Structure and Basin Framework

Dr. Sonya Dehler, *GSC, NRCan*

##### A 20-Minute Overview of Scotian Margin Sedimentary Geology

Dr. Hans Wielens, *GSC, NRCan*

##### Major Depositional Environment of the Lower Cretaceous in the Stonehouse Area

Matt Tyrrell, *TGS Geological Services & Products*



Dr. Sonya Dehler and Rod Doane

##### Carbonate Platform

Les Eliuk, *GeoTours Consulting Inc.*

##### Slope/Deepwater Challenges

Brent Smith, *CNSOPB*

##### Analogue Modeling of Salt Tectonics

Dr. Juergen Adam, *Royal Holloway University*

##### Numerical Modeling of Salt Tectonics

Dr. Steven Ings, *Dalhousie University*

##### Thermal Inversion in the Scotian Basin: Evidence & Implications for the Petroleum System

Dr. Marcos Zentilli, *Dalhousie University*

##### Biostratigraphy on the Scotian Margin: Past Perspectives and Future Decisions

Dr. Rob Fensome, *GSC, NRCan*

##### Reworked Palynomorphs as Clues to Sediment Provenance in the Lower Cretaceous of the Scotian Basin

Dr. Andrew MacRae, *Saint Mary's University*

### OETR Donates to Local Charity



Mary Patterson of Bryony House and Bruce Cameron of OETR

In keeping with the tradition of other similar forums, the OETR Association, on behalf of forum delegates, looks to give back to the local community and help those in need. This year OETR chose to support Bryony House, a 24-bed shelter for abused women and their children. The transition home was established in 1978 and is the first of its kind in Nova Scotia. It offers support and services that empower women and their children to lead healthier lives and contribute to their communities.

During one of the Forum lunch breaks, OETR presented a cheque for \$1000 to Mary Patterson, Volunteer Chair of the Board for Bryony House.

## Petroleum Systems

*Chair: Brent Smith, CNSOPB*

### Conjugate Margin Petroleum Systems: Future Shallow and Deepwater Exploration Targets for Offshore Nova Scotia

Dr. Prasanta Mukhopadhyay, *Global Geoenergy Research*

### Sedimentology of Deltaic Sands: Implications for Seaward Transport and Reservoir Properties

Dr. David Piper, *GSC, NRCan*

### Diagenesis in the Scotian Basin: An Overview of Issues

Dr. Georgia Pe-Piper, *Saint Mary's University*

### Deepwater Geohazard Research in Nova Scotia: Current State of Knowledge and Future Directions

Calvin Campbell, *GSC, NRCan*

## International Perspectives

*Chair: Bruce Cameron, NS Department of Energy*

### Case Study: Petroleum Geology in the Moroccan Basins Facing Nova Scotia

Nick Cameron, *GB Petroleum plc*

### High Impact Results from Deep Imaging 2-D Seismic Data Over Passive Continental Margins

Menno Dinkelman, *GX Technology*

## New Research Initiatives

*Chair: Sandy MacMullin, NS Department of Energy*

### Analysis of Petroleum Systems on the Scotian Slope Using Thermal & Seismic Techniques

Dr. Keith Loudon, *Dalhousie University*

### Reservoir Distribution and Characterization: Shelf to Slope Linked Depositional Systems

Dr. Grant Wach, *Dalhousie University*

### River Sources and Dispersion of Lower Cretaceous Sands

Dr. Georgia Pe-Piper, *Saint Mary's University*

### Controlled Source Electromagnetic Imaging in Nova Scotia's Offshore Area

Carey Ryan, *PRAC*



Dr. Georgia Pe-Piper



Dr. Grant Wach

### The Nova Scotia Offshore Regional Geoscience Initiative

Jack MacDonald, *NS Department of Energy*

### Gap Analysis of Geoscience

Hamish Wilson, *Paras Consulting*



Nick Cameron

## Upcoming Events

[Atlantic Geoscience Society Colloquium](#)

[Central Atlantic Conjugate Margins Conference](#)

[International Geological Congress](#)

Nova Scotia Energy Research & Development Forum 2008  
(*website coming soon*)

For more information on the Forum speakers and presentations, [click here](#).

## Panel Discussion



Tony Sartorelli, Hamish Wilson, Dr. David Piper, Nick Cameron and Dr. Grant Wach (L-R)

The final session of the Forum was a panel discussion which included representatives from industry, academia and an international consulting firm. The objective of the session was to seek the opinions of panelists on what they consider to be some of the more critical issues facing geoscience research in Nova Scotia, and what can possibly be done to enhance exploration interest. With this as a starting point, Forum participants were given the opportunity to ask questions and offer their own thoughts on these very important matters.

A number of points were made during the discussion, perhaps the most compelling of which was the need for greater communication and cooperation amongst individuals and companies who are working on or interested in similar issues. A significant amount of

high-quality work has and is being done, however, the benefits of this could be enhanced if individuals with differing areas of expertise worked more closely together on research projects to solve problems. As well, models and concepts regarding the offshore may need to be “repackaged” in such a way that companies considering investing in Nova Scotia will see new impetus for doing so. Opinions on where the emphasis of geoscience research should focus vary, however, there appears to be a consensus that activity in the offshore will remain low as long as the risks are high. Risk mitigation may be accomplished in part by shifting the focus of geoscience research back to the shelf (lower exploration/operating costs, more available data) and developing methods whereby more companies, including seismic surveyors and other data holders, form part of exploration consortia.



While the panel session did not result in the identification of specific research needs (nor was it meant to), the discussion between the panelists and audience participants assisted greatly in highlighting a number of critical issues. Forum organizers and stakeholders are well-positioned to use this information to enhance future activities which will hopefully result in increased exploration interest.

## Student Poster Presentation Winner

A Poster Session was held at the Forum where students from across Nova Scotia submitted poster presentations focusing on offshore geoscience research. The OETR Association awarded a \$500 cash prize for the best poster presentation.

In total, 11 posters were submitted by students from Saint Mary's University and Dalhousie University. The posters were judged based on the following criteria:

- Relevance of the research to the Nova Scotia offshore industry
- Student's participation in the research
- Student's knowledge of the subject and ability to discuss the material
- Poster presentation layout and readability

Choosing one winner proved to be very difficult as there were a number of strong candidates. However, in the end, Kathleen Gould, a Master's of Applied Science student at Saint Mary's University, was awarded the \$500 cash prize for her poster presentation.

Kathleen is a Pengrowth scholar in the MSc program at Saint Mary's University specializing in Geology. Her master's thesis is entitled “Chlorite rims in reservoir sandstones of the Lower Mississauga Formation, offshore Nova Scotia”, under the supervision of Dr. Georgia Pe-Piper and Dr. David Piper. Kathleen is currently working at Alexco Resources, and will defend her thesis on November 23<sup>rd</sup>, graduating in 2008.

Congratulations Kathleen and thank you to all of the students who submitted posters! Best of luck in your future endeavors!



Kathleen Gould discusses her poster at the Forum

## Researcher Profiles on International Speakers



### **Dr. Juergen Adam, Royal Holloway University of London / Dalhousie University**

*London, England*

Dr. Juergen Adam is a senior lecturer and member of the Fault Dynamics Research Group at Royal Holloway University since 2007, Adjunct Professor and leader of the Salt Dynamics Group at Dalhousie University since 2004.

To read Juergen's full biography, [click here](#)

### **Nick Cameron, GB Petroleum plc**

*London, England*

Nick Cameron is a founder investor in GB Petroleum plc., an UK registered company formed in 2005 by ex-Conoco staff and which has attained its initial goal of acquiring quality acreage in its two focus areas: North Africa and Mid-Europe (Southern North Sea eastwards).

To read Nick's full biography, [click here](#)



### **Menno Dinkelman, GX Technology**

*Houston, Texas, USA*

After receiving degrees in Natural Sciences and Geology from the Swiss Federal Institute of Technology, Menno came to the USA for post-graduate studies in Geological Oceanography at Oregon State.

To read Menno's full biography, [click here](#)

### **Matt Tyrrell, TGS Geological Services and Products**

*London, England*

After receiving a Bachelor's Degree in Geography and Geology from University of Manchester, United Kingdom, Matt Tyrrell went on to complete his Master's degree in Petroleum Geoscience from Oxford Brookes University in Oxford, United Kingdom.

To read Matt's full biography, [click here](#)



### **Hamish Wilson, Paras Consulting**

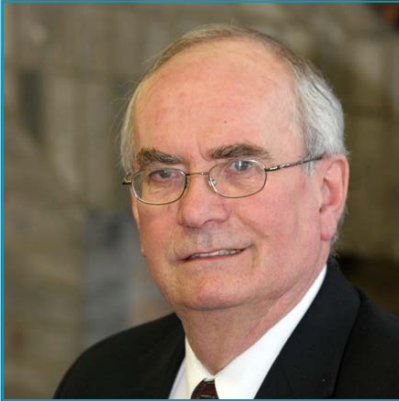
*Isle of Wight, United Kingdom*

Hamish graduated as a geologist from Edinburgh University in 1978, joining BP shortly after. Whilst at BP, Hamish worked as an exploration and development geologist before becoming project manager for corporate database development.

To read Hamish's full biography, [click here](#)

For more information on [Nova Scotia Offshore Basin Forum 2007](#), [click here](#).

## President's Message from Dr. Carl Breckenridge



Welcome everyone to the first of hopefully many OETR Offshore Energy Geoscience Research Community Newsletters.

Thank you to all who participated in Nova Scotia Offshore Basin Forum 2007. From the speakers and session chairs to the delegates and OETR staff - the Forum would not have happened without you!

Going forward, I hope the Forum provides the geoscience community with an outlet to work collaboratively towards the common goal of generating renewed exploration interest in the Nova Scotia

Offshore through our ground-breaking geoscience research.

In an effort to bridge the gap between government, academia and industry, and to encourage growth back into our offshore oil and gas development, the Province of Nova Scotia felt that we needed to gain a better understanding of Nova Scotia's petroleum geology through offshore energy research.

In March 2006, the OETR Association was created to foster research and development related to offshore petroleum and the diffusion of that knowledge, including research work that builds geoscience knowledge about Nova Scotia's offshore oil and gas potential, as well as research that reduces the technical and engineering barriers to the development of discovered reserves. Where consistent with these goals, OETR wants to encourage building research capacity in Nova Scotia.

I'm very excited about the future of OETR as we are involved in a number of areas of research priority including geoscience studies and data acquisition through the research we are presently funding, and conferences such as the Nova Scotia Energy Research and Development Forum in May 2008 and the Central Atlantic Conjugate Margins Conference in August 2008.

Until next time,

A handwritten signature in black ink, appearing to read "Carl Breckenridge". The signature is stylized and written in cursive.

## OETR Projects

Over the next five years, the OETR Association expects to fund a number of research projects and initiatives that will result in renewed private sector investment in exploration for oil and gas offshore Nova Scotia. To date, OETR has funded over \$1 million to four research projects.

Here is a brief description of each project:

*Analysis of petroleum systems on the Scotia shelf using thermal & seismic techniques*

This project was funded to Dr. Keith Loudon, Professor of Oceanography at Dalhousie University that will lead to a better understanding of the nature of basement and salt structures and their effect on petroleum maturation.

*River sources & the transfer of sands to the deepwater Lower Cretaceous Scotia Basin*

This project was funded to Dr. Georgia Pe-Piper, Professor of Geology at Saint Mary's University, for a study that will define the distribution systems for sand and help industry explorers refine their exploration targets and better

understand the quality of underground petroleum reservoirs.

*Reservoir distribution & characterization: Shelf to slope linked depositional systems*

This project was funded to Dr. Grant Wach, Professor of Petroleum Geology at Dalhousie University that will investigate reservoir distribution within the petroleum system. It will provide industry with the groundwork for a better understanding of petroleum reservoirs.

*Archiving & reprocessing of seismic reflection datasets in offshore Nova Scotia*

This project was funded to Kelman Technologies Inc. for a study that will be made available to the public and interpreted so as to obtain a better understanding of the geology and of potential new plays and prospects.



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## Nova Scotia Energy Research & Development Forum 2008

**Practical Research to Help Secure Nova Scotia's Energy Future**

May 21 and 22, 2008  
at St. Francis Xavier University,  
Antigonish, Nova Scotia Canada

Hosted in association with:

[www.offshoreenergyresearch.ca](http://www.offshoreenergyresearch.ca)

**NOVA SCOTIA'S ENERGY**  
Securing Our Future

**NOVA SCOTIA**  
Department of Energy

Nova Scotia Offshore Geoscience is OETR's quarterly newsletter focusing on Nova Scotia's Offshore Energy Geoscience Community. To submit newsletter ideas, an article or announcement, contact John Cianfaglione, Communications Coordinator, at (902) 424-2493 or e-mail [cianfaj@gov.ns.ca](mailto:cianfaj@gov.ns.ca).