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Conference Conjugates Researchers, Explorers

By Susan Eaton

Energized by the recent Statoil ASA-operated Bay du Nord light oil discovery in Newfoundland's offshore Flemish Pass Basin, earth scientists are gearing up to host the fourth Atlantic Realm Conjugate Margins Conference in St. John's, Newfoundland, Aug. 20-22.

Titled "Go Deep: Back to the Source," the conference will bring participants together from academia, government and industry to discuss the latest ideas, newest data and E&P activity pertaining to the evolution of the Atlantic conjugate margins and their petroleum systems

Located some 500 kilometers northeast of St. John's in 1,100 meters of water, the Bay du Nord well is estimated to contain 300 to 600 million barrels of 34 degree API oil recoverable. It is the largest discovery in offshore Newfoundland in 30 years, and the province's first deepwater discovery.

During the past decade, the Atlantic conjugate margins have undergone an exploration renaissance, leading to drilling successes in the intermediate and deepwater basins of offshore Brazil, Angola, Canada, Norway and central west Africa.

Improvements in 2-D and 3-D seismic data acquisition and processing techniques – and recent deepwater drilling results – are driving this exploration renaissance, and have led to the re-evaluation of the Atlantic conjugate margins' tectono-stratigraphic frameworks, source rock distribution and basin models.

Technological advances also include the acquisition of deep seismic profiles in frontier regions, which have provided new insights into conjugate margins.

Equipped with newfound knowledge, the petroleum industry is taking a new look at the hydrocarbon potential of deepwater areas of Northwest Brazil, Ireland, Morocco, Nova Scotia, Newfoundland and Labrador, Greenland, Norway, the Faroe Islands and Portugal.



Interbedded, brown weathered dolomitic siltstone, ribbon limestone and shale of the Cambro-Ordovician Cow Head Group exposed along the shoreline beneath Lobster Cove Lighthouse at Rocky Harbour, Bonne Bay, in Western Newfoundland. Photo courtesy of Larry Hicks

Evolution Continues

From its humble beginnings in 2008, the biennial conjugate margins conference has grown into a major international event.

The inaugural Central Atlantic Conjugate Margins Conference was held in Halifax, Canada; the second Central and North Atlantic conjugate margins conference took place in August 2010, in Lisbon, Portugal;

more recently, the third conference was held in August 2012, at Trinity College, Dublin, Ireland.

Some 277 delegates from 17 countries convened in Dublin, delivering 48 oral and 52 poster presentations. Attendees participated in field trips to western Ireland, northern Ireland, southern England and southern Portugal.

AAPG member Michael Enachescu, one of the co-chairs of the upcoming conference, said the term "Atlantic Realm" signifies not only the conference's coming of age, but the fact that basin evolution along the conjugate margins – from Cape Horn and Cape Good Hope to the North Atlantic – involves fundamentally similar tectono-stratigraphic processes.

Calgary-based Enachescu is the chief geophysicist of MGM Energy Corporation and an adjunct professor of geophysics with Memorial University of Newfoundland's department of earth sciences.

"The conference provides a great opportunity for basin modelers – who work on the theoretical, crustal scale – to meet with industry counterparts who work in the upper three to four seconds (two-way travel time) of the seismic data where the hydrocarbon prospects lie," he said.

"A network of intra-connected basins and sub-basins formed on the Newfoundland continental margin," he said. "While some of the basins are separated today, they were connected during the Triassic to early Cretaceous period."

Coining the term, the "Late Jurassic Superhighway," he pointed to the existence of source rock migration routes that extend from Nova Scotia to offshore Newfoundland (the Grand Banks and the Flemish Pass), and across the Atlantic to the Irish Sea and the Porcupine Basin.

The conference will feature the following thematic sessions:

- Atlantic Margins.
- Geodynamics.
- Deepwater Systems.
- Structural and Tectonic Settings.
- Petroleum Exploration.

The conference will feature several keynote speakers, an industry exhibition, and oral and poster presentations from both sides of the Atlantic, detailing new hydrocarbon discoveries and presenting newly recorded multi-client seismic data. Students are strongly encouraged to participate, and the call for papers is April 1, 2014 (www.conjugatemarginsnl.ca).

Science and G&G

Conference co-chair Ian Atkinson is chief geophysicist and research and development manager of Nalcor Energy's oil and gas operations.

Created in 2007, Nalcor, the province of Newfoundland and Labrador's nascent crown energy corporation, has the right to obtain a 10 percent equity position in offshore oil and gas projects requiring Development Plan Approvals by the federal and provincial governments. Nalcor recently acquired an interest in 47,000 kilometers of high-quality 2-D multi-client seismic data designed to attract new E&P players to the offshore.

"This conference focuses on both the science and the G&G data, which is unique," Atkinson said. "We have industry explorers who are the drivers of new ideas and researchers who are the developers of new knowledge.

"When you put these two groups together, you've got a real chance of moving the industry forward and of benefitting the Atlantic conjugate margins," he added.

Atkinson believes the conference's format and collegial environment (there are no concurrent presentations) provide a great opportunity for geoscience students and young professionals to network.

"The benefit to the students is huge," Atkinson said. "It's a big thing (for them) to present to academics, government and industry – and, it's a great forum for the petroleum industry to see these bright minds and up-and-coming earth science graduates."