The Rock Record – February 2007

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

In This Issue

Tuesday, February 13TH
AAPG DISTINGUISHED LECTURE TOUR

An Exploration Case History: How we Made a High-Impact Gas Discovery in a Maturing Basin (Western Canada).

Dr. Marian Warren
EnCana

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: Jeff Coolican 787-0651
By NOON, Monday, February 12th , 2007

Wednesday, February 26th
GAC HUTCHISON MEDAL LECTURE TOUR

Fingerprinting glacial erosion and till production for drift-prospecting: combining cosmogenic nuclides and ice sheet modeling in the central Arctic

Presented by
Dr. John Gosse
Dalhousie University

***NOTE TIME & LOCATION*: CW115 (College West), University of Regina**
Time: 5:15 - 6:15

2006-07 AAPG Distinguished Lecture

Abstract

MARIAN WARREN

Encana, Calgary, Alberta, Canada

Haas-Pratt Funded Distinguished Lecturer

An Exploration Case History: How we Made a High-Impact Gas Discovery in a Maturing Basin (Western Canada).

EnCana's 2001 gas discovery at Ferrier, Alberta in the lower Mississippian Banff Formation was a significant new pool discovery in a long-active, competitive part of a maturing basin. Subsequent development of the pool has produced > 50 Bcf equivalent gas + condensate, at gross production rates of up to 100 mmcfe/day. The gas has been produced from dolomitized crinoidal grainstone reservoir, with up to 30% porosity and several hundred mD to several Darcies permeability.

Most drilling east of the foothills in western Canada pursues stratigraphic plays. Earlier drilling in the Ferrier area focussed on subcrop plays in younger Mississippian carbonates, and on overlying Mesozoic clastic plays. A few deepened wells encountered dolomite porosity in the Banff formation, significantly down-dip from its subcrop edge, culminating in local development of three 20-30 Bcf pools in the 1990s. Further exploration drilling encountered only wet porosity or tight limestone.

We used a regional, interdisciplinary exploration approach to high-grade the most prospective play fairways. EnCana's discovery, the largest pool in this new play, was significantly down-dip from known wet porous trends. Our strategy focussed on defining regional stratigraphic, structural and diagenetic fairways, in order to locate 3-D seismic surveys to best image the Banff porosity. Conventional amplitude and AVO analysis, coupled with a regional sequence stratigraphic model, have been critical in distinguishing Banff Formation shales from reservoir, and thus dramatically reducing the initially high reservoir risk on this play. We adjusted our exploration approach and business strategy as our understanding of other play risks, reserve distribution and play fairway evolved.

NATIONAL LECTURE TOURS:
Hutchison and Howard Street Robinson

Hutchison Medal Lecture Tour

2006 - 2007 Hutchison Medal Lecturer
John Gosse

The W.W. Hutchison Medal is named after Dr. William W. Hutchison in recognition of his many contributions to the Geological Association of Canada and to Canadian and international geoscience. The medal is awarded to a young individual for recent exceptional advances in Canadian earth science research. It was awarded for the first time in 2004, replacing the Past-Presidents' Medal.

John Gosse of Dalhousie University is the 2006 winner of the W.W. Hutchison Medal. John is recognized as a world leader in the development, refining, and application of terrestrial cosmogenic nuclide exposure dating, which is revolutionizing the study of Quaternary landforms, processes and landscape evolution.

Fingerprinting glacial erosion and till production for drift-prospecting: combining cosmogenic nuclides and ice sheet modeling in the central Arctic

Dr. John Gosse Canada Research Chair and Associate Professor Department of Earth Sciences Dalhousie University, Halifax Nova Scotia

The basal thermal regime of ice caps and sheets control rates and styles of glacial erosion and till production. In north-central Baffin Island we classified regions of past cold-based (ice frozen to substrate) or warm-based (sliding on and within bed) glacier cover on the basis of sedimentology (clast angularity, matrix characteristics), clast provenance (abundance of exotic lithologies), and geomorphology (e.g. lateral meltwater channels). Tills from 19 sites were analysed for cosmogenic ^{10}Be and ^{26}Al to test the hypothesis

that areas of cold-based (less erosive) ice should retain pre-glacial concentrations of the terrestrial in situ cosmogenic nuclides (TCN). At all sites the TCN concentrations reflected the degree of glacial erosion, with more than two orders of magnitude difference in concentrations between the end-member classes (normalized to sea level and adjusted for small amounts of post-glacial TCN production). A clear relationship between $^{26}Al/^{10}Be$ and classified thermal regime support these findings by showing that the cold-based regions experienced pre-glacial exposure interrupted by a long period(s) of burial, presumably by ice, whereas the warm-based zones had simple exposure histories with no evidence of burial. Three sites had features of both cold-based and warm based conditions, and the TCN concentrations and 26Al/10Be indicate an intermediate history of exposure and shorter burial than pure cold-based end member sites. In a separate experiment, samples 20 m apart within and adjacent to a mapped ice stream deposit in central northern Baffin had a similar TCN relationship that reflected greater erosion in the high velocity zone. UMISM, a finite element thermomechanical ice sheet model predicts the same basal conditions and is used in conjunction with the TCN to help resolve paleo-glacier dynamics and till provenance. The implication for drift prospecting is that TCNs can be used to examine the spatial and temporal variation in glacial erosion and improve exploration efficiency. The measurement of minimum ice burial durations of ~3 Myr, suggesting that recently deglaciated surfaces near modern ice caps may have been covered since the Pliocene, may be a remarkable account of the impact of the current climate change on Baffin Island ice caps.

Talks in March:

MARCH 1ST: Donna Whitney, University of Minnesota; U of Regina, CW115, 5:15-6:15

MARCH 15TH: Dr. Rob Rainbird, GAC, Ancient pancontinental river systems revealed by detrital zircon geochronology of Proterozoic cratonic sheet sandstones; U of Regina, CW115, 5:15-6:15.

MARCH 23RD (to be finalized): Dr. Jacab Lowenstern, AAPG Distinguished Lecturer; Lancaster Room, Royal Canadian Legion Hall, 12:00 to 1:00.

Don't forget to renew your SGS Membership!!! .

Use the mail in form on the following page, or renew online at www.sgshome.ca and follow the membership links

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The Burgess Shale: Evolutions Big Bang

The SGS has agreed to sponsor an exhibit from the Smithsonian Institute, hosted by the Diefenbaker Canada Center at the University of Saskatchewan in Saskatoon. The exhibit will be on display from February 10th to May 13, 2007. The Society is planning a day trip to see the exhibit and asks anyone interested to email info@sgshome.ca and let us know if there are particular days that work best. Transportation will be provided. The date of the trip as well as departure and return times are still to be determined. For more information on the exhibit see: http://www.usask.ca/diefenbaker/

On January 27th at the 2006 SGS Annual General Meeting and Awards Banquet three new members were inducted into the SGS Honour Roll.

- **Dr. F.H. " Harry" Edmunds**
- **Dr. Les Beck**
- **Dr. Zoltan "Zoli" Hajnal**

In addition,

Chad Glemser of the University of Saskatchewan was awarded the Lazlo Fusezy award for the Best Graduate Student poster at the 2006 SIR Open House.

Jeannette Marcotte of the University of Regina was awarded the President's Award for the Best Undergraduate Student poster at the 2006 SIR Open House.

Earline Mack was awarded the Rober Milner award to the Most Outstanding Undergraduate Geology Student at the University of Regina.

Virginia Chostner was awarded the Walter Kupsch Award as the Most Outstanding Undergraduate Student at the University of Saskatchewan.

Congratulations to all award recipients. The students each received $150 and the SGS Publication of their choice.

OTHER EVENTS AND NOTICES:

3rd Annual SGS Curling Funspiel 2007

The Funspiel will be held at the Tartan Curling Club on Broadway Avenue on Saturday Feb. 24th at 7:00pm. You can sign up individually or as a team. There will prizes and munchies (pizza) available throughout the evening, so when you're not curling you can socialize (bar will be open). The cost will be $10 per person, which includes brooms, sliders and munchies. To sign up, please contact Steve Whittaker swhittaker@capitalenergy.ca or 352-5919).