

The Rock Record – Sept 2005

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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:

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All advertising inquiries should be directed to **Andre Costa**

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Wednesday, October 5th

Touring the Caribbean Through the Eyes of a Geologist

Don Kent

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, Tuesday, Oct 2, 2005

Wednesday, October 26th

Of Reefs and Rocks: A Fractured Perspective of the Western Canada Sedimentary Basin, Alberta, Canada

Darcie H. Gregg

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, Tuesday, Oct 24, 2005

Touring the Caribbean Through the Eyes of a Geologist

Don Kent, D.M. Kent Consulting Geologist Ltd.

Abstract

The proto-Caribbean seaway first came into existence during the break-up of Pangaea. Eastward migration of volcanic arcs that now make up Cuba, Jamaica and the Antilles began in Late Albian time. The creation of the Costa Rica-Panama arc in Early Campanian time split the Caribbean Plate from the Cocos Plate. By the Late Miocene the Costa Rica-Panama volcanic arc had docked into its present position creating the Caribbean region, as it is known today.

The tour will emulate a fifteen-day cruise with stops at Jamaica, Grand Cayman, locales on the coasts of Yucatan, Central America and South America as well as Barbados, Dominica and St. Thomas. Significant characteristics of the geology, archaeology as well as other features will be discussed from the viewpoint of a touring geologist.

Of Reefs and Rocks: A Fractured Perspective of the Western Canada Sedimentary Basin, Alberta, Canada

Darcie H. Greggs, Department of Geology and Geophysics, University of Calgary

Abstract

Basement structures have been identified in the Buffalo Lake – Red Deer River area of east-central Alberta, through an integration of drill core data, isotope work, high resolution aeromagnetic data, aerial photographs and reflection seismic data. These structures, which include near-vertical faults bounding fault blocks, synforms and antiforms, have reactivated through time in response to both far-field and intraplate stresses. A key lithological marker bed has been identified in the cored Devonian units that substantiates the structural interpretation. This unique crenulated unit was originally flat-lying and of broad areal extent. This unit now shows substantial vertical offset between wells (298m), and has been identified in wells as far apart as 7.5km.

Brittle deformation features observed in Frasnian “reefal” rocks (Leduc and Nisku formations) include shear and conjugate fractures, tension gashes and brecciation. Fractures have frequently undergone solution-enhancement and contribute substantially to reservoir porosity and permeability. Fracture type and density vary with proximity to the large basement structures, as does the occurrence of brecciated intervals that may function as sealing units. Isotope data confirm a hydrothermal contribution to the formation of secondary cements.

Comparison of Frasnian subsurface units is made to the Frasnian Cairn Formation biostromes exposed south of Canmore, in the Canadian Rocky Mountains, suggesting that their origin may not always be an organic buildup. This research will enhance reservoir characterization models as well as contribute to the elucidation of the structural history of the Western Canada Sedimentary Basin.

SGS Annual Field Trip to Jasper, Alberta

John Lake, Field Trip Coordinator

This year's SGS Annual Field trip ventured to Jasper, Alberta from August 19th to 23rd. Dr. Ben Rostron of the University of Alberta showed us the geology of the Rocky Mountains. Seven society members met up with Ben at Elk Island Provincial Park east of Edmonton. We viewed a deposit of quicksand on the east side of the park after scaling the fence to avoid paying entrance fees. Ben and his students routinely study the fluid dynamics of the region. We entered Jasper National Park on day 2 and were introduced to the Devonian stratigraphy at Roche Meitte and saw the Palliser/ Mount Hawk Formations sitting on top of the Perdreux; thrusting and crustal shortening was well exposed at the Pyramid Thrust along the highway north of Jasper Townsite.

On day 3 we backtracked north of Jasper and climbed on Chetamon Mountain to see the entire Mississippian section in continuous outcrop (thrusting has brought the section to near vertical dip). The access was along the old Jasper Highway and we got an appreciation of the Cambrian thickness in the Pallisades area. (Banff, Pekisko, Shunda, Turner Valley, Mount Head and Etherington formations were all exposed.)

We traveled down the ice field parkway on Day 4 to Lake Louise. On the way we walked on the Athabasca Glacier and hiked just to the north to see the Devonian Grotto and Arcs members' reef buildups. At Canmore, we climbed up to see the stromatoporoid reef buildup at Grassi Lakes which provides a great example in outcrop of what the prolific Leduc reefs look like.

The weather really cooperated. Ben, who prepared an excellent field guide, had learned a great deal about the geology of Jasper from Dr. Eric Mountjoy who is among the most respected mountain geologists of the area. We thank Ben for his enthusiastic leadership of the trip.



Field Trip participants saving valuable society dollars by hitching a ride with a passing vehicle.



Group Photo of Field Trip participants after posing behind sign they didn't bother to read.

Other Events

Student – Industry Night

For the second year in-a-row, the SGS is sponsoring a student industry night at the University of Regina, October 27th. This event, which was very well received last year, brings in earth scientists working in mining and hydrocarbon industries to provide career information for upper year undergraduate and graduate geology students. The society provides beer and pizza for the students, along with an opportunity to speak with professional geoscientists about work expectations in an informal setting. Industry representatives this year are Ken Wheatly (Cogema, Saskatoon) and Chris Coolican (EOG Resources, Calgary). Faculty and society members are welcome to attend the event which runs from 7:00 to 9:30 at the University Club on the University of Regina campus.
