



# The Rock Record - October 2016

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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:

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## Saskatchewan Geological Society Luncheon Talk

Wednesday, October 26<sup>th</sup>, 2016

*"How do large hot orogens work? Lessons from the middle crust"*

Dr. Rebecca Jamieson

2016-17 GAC Howard Street Robinson Lecturer

### VENUE:

The Artful Dodger, 1651 11th Ave

Lunch: 11:45 a.m.

Talk: 12:00-1:00 p.m.

### For lunch the cost is:

No Lunch (Talk only): \$5.00

Members: \$15.00

Student Members: \$10.00

Non-Members: \$20.00

Please RSVP to Jason Cosford at [cosford@jdmollard.com](mailto:cosford@jdmollard.com)  
by noon on Monday, Oct. 24<sup>th</sup>, if you are going to have lunch.

**DETAILS OF Oct. 26<sup>th</sup> TALK – Dr. Rebecca Jamieson, Department of Earth Sciences,  
Dalhousie University**

**ABSTRACT – “How do large hot orogens work? Lessons from the middle crust”**

Large hot orogens are characterized by their broad areal extent, crustal thicknesses exceeding ca 60 km, central plateaux bounded by external thrust wedges, and internal temperatures high enough to promote widespread partial melting in the middle and lower crust. In these systems, melt-weakened middle crust can flow in response to a pressure gradient and/or underthrusting by a strong indenter, leading to lateral transport of ductile middle crust (infrastructure) relative to both cooler upper crust (superstructure) and stronger lower crust and upper mantle. The resulting dynamic behaviour and geological characteristics of large hot orogens are therefore fundamentally different from those of typical fold-and-thrust belts. The Mesoproterozoic Grenville Orogen of Ontario presents a superb opportunity to investigate the mid-crustal level of a large, hot, convergent orogenic system. Over the past 30 years, field, structural, petrological, and geochronological studies along the well-exposed Georgian Bay transect have illuminated the fundamental tectonic characteristics of the western end of the orogen. It was assembled by northwest-directed ductile thrusting towards the Archean foreland between ca 1100-1040 Ma, and reworked by ductile extension and flattening between 1040-1000 Ma. Widespread upper amphibolite- to granulite-facies assemblages record P-T conditions of 10-14 kb at 700-900°C. Protoliths were largely pre-1200 Ma Laurentian crust with some peri-Laurentian accreted terranes. We have also used 2D thermal-mechanical numerical models to investigate the geodynamic behaviour of the system. The results suggest that lateral flow of migmatite in the orogenic core was triggered by transport of strong lower crust beneath melt-weakened middle crust. Post-convergent flow was accompanied by ductile thinning and extension in the orogenic core and coeval thrusting on its flanks. While there is good first-order agreement between model predictions and observations, further testing against geological data is required. Comparison of model results with observations from the Grenville Orogen and similar systems suggests that significant volumes of Proterozoic orogenic crust may have been reworked by ductile lateral flow of middle crust.



## President's Message

Let me start by wishing everyone a Happy (belated) Thanksgiving! As I write this I'm just returning home with my family from a wonderful visit with my parents, siblings, nieces and nephews and a fantastic turkey dinner. Not to mention my mom's homemade apple pie for dessert. And to top it all off we got to watch the Jays finish off the Rangers to move on to the ALCS. Talk about a great day! This time of year is definitely a favourite of mine and I hope you all had a great long weekend too. Sometimes it's so easy to get caught up in the daily pressures of life, but it's nice to have these opportunities to remind us that there really is so much to be thankful for.

This month I want to focus this short message on a very important activity of the Society, that being education and outreach. When one considers the mandate of the Society to "*...promote the study and practice of the earth sciences.....*", this must truly be viewed as one of our core activities. Our Education and Outreach committee, currently chaired by Kate MacLachlan, takes on some excellent initiatives throughout the year that reach so many people that would not otherwise have exposure to the earth sciences. These activities include, but are not limited to: school lectures, public lectures, facilitation of classroom visits by geoscientists, Geoscape-related activities, and curriculum support for teachers. I've personally been involved with some of these activities over the past few years and I can honestly tell you that they are impactful and rewarding experiences. These activities provide an amazing opportunity to spark an interest in a youngster that might otherwise go unheeded.

I want to take this opportunity to recognize the amazing work this committee has done in recent years in bringing the earth sciences to kids and to the public in general. I would also like to extend an invitation to you, our members, to join this committee and help support the great work they do. It is currently a small committee of just a few members, and the addition of even a couple of new members will go a long way in supporting their work and ensuring it remains vibrant and effective. So, my request is this: whether you are a student, active or emeritus member, please consider donating some of your time and talents to help bring the geosciences to our community. If you are interested, please email us at [Sask.Geol.Soc@hotmail.com](mailto:Sask.Geol.Soc@hotmail.com) at your earliest convenience.

Thanks in advance, and have a great month!

Ryan Morelli



## OTHER NEWS AND EVENTS

### Membership Renewals PLEASE

If you haven't already done so, it's time to renew your membership for 2016. The most convenient way to renew your membership is to do it online and pay by Paypal; you do not need a PayPal account to do this: <http://sgshome.ca/membership>.

### 30<sup>th</sup> Annual SGS Golf Tournament & BBQ

The annual golf tournament and BBQ was held on Friday, Sept. 9<sup>th</sup> and was another great event this year. We had 9 teams come out for golf and it turned out to be a very pleasant day, with only one brief rain shower to contend with. The winning team was one of our student teams, consisting of Austin Guillemin, Stephanie Sawchuck, Bryn Gelowitz and Jared Noll. Dillon Johnstone and Kathy Bethune took home longest drive honours, while John Kelley and an unidentified lady (please let us know if you recall who won this!) took home the closest-to-the-pin prizes. The BBQ took place at Dave and Alice MacDougall's house afterwards and a fun time was had by all. The hard work of many people made this a fun and successful event again this year. A huge thanks goes out to Dave and Alice MacDougall for hosting the BBQ, to Monica Cliveti and Maria Velez for donating their time to make delicious homemade treats for prizes, and to Malty National Brewery Corp. for donating growlers for prizes. See you all out again next year!

### Upcoming Talks

Here is what's in the works for the months to come, submitted by Jason Cosford and Mike Thomas:

List of some upcoming speakers:

- Cees van Staal, Geological Survey of Canada (Nov. 16<sup>th</sup>, location tbd)
- Dave Thomas, Cameco (Nov. 23<sup>rd</sup>; location tbd)
- Charlie Harper (Dec. 14<sup>th</sup>; location tbd)
- Colin Card, SK Geological Survey (tbd)
- Peter Hill, SK Geological Survey (tbd)
- Jessica Flynn, SK Geological Survey (tbd)
- Chris Johnson, South Dakota School of Mines (tbd)

Suggestions for other potential speakers are always welcome. Please contact either Jason Cosford or Mike Thomas with your ideas.

### 2017 Saskatchewan Geology Wall Calendar – Update

The 2017 Geology Calendar for the province has been sent to the printer and will be available soon! All who bought last year's calendar will know that it is as much decorative as it is educational. The main photos are a good representative selection of geoscience images that include landscape shots, detailed outcrop and mineral shots, aerial and satellite images, and fossils. The images are also geographically balanced, with photos from Uranium City, Reindeer Lake, Chaplin, the Frenchman and many more locations. And you will learn a lot about Saskatchewan geoscience. So get your calendar as soon as it becomes available. It will make a great Christmas present.



As last year the calendar can be purchased in Regina at the U of R bookstore, the Museum of Natural History, the MacKenzie Art Gallery. In Saskatoon it is available at the U of S bookstore. You can also obtain it directly from one of the committee members. It will be available after Oct 15. The cost is \$10 (1-4), \$8 (5-9), and \$6 (>10).

Your Calendar Committee: Ralf Maxeiner, Jason Cosford, Ken Ashton, Janis Dale, Monica Cliveti, Michelle Hanson, Kevin Ansdell, Tim Prokopiuk

### News from the D.M. Kent Club

The Kent Club had a fantastic September, and is looking forward to a busy October. We have a multitude of events planned including our first annual Student-Industry Geoscience Roundtable. This event will be bringing in geoscientists from all over the province to provide mentorship and insight into the future for our students, and we are thrilled to be putting it on. We will be hosting a mini-social in the owl after the event and would like to extend an invitation to anyone who might like to attend, to visit with some of our 3rd and 4th year students as well as the presenters. Please contact John Kelley at [dmkentclub@gmail.com](mailto:dmkentclub@gmail.com) if you would like more info. We would also like to invite everyone to our first fundraiser of the year, back by popular demand - a Bushwackers Steak Night! Come on out November 15th for a great meal at a great price. For \$25 you will receive a 6oz steak, fries, garlic toast and a 12oz Bushwackers beer! With a great price, and profits going to the Club to fund our trips, conferences and academic events. If you would like tickets please contact John Kelley at 306-596-5231 or at [dmkentclub@gmail.com](mailto:dmkentclub@gmail.com). We hope to see you out!



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