



Winter 2018

www.canadiantectonicsgroup.ca

THE MAIN THRUST

NEWSLETTER OF THE CANADIAN TECTONICS GROUP DIVISION OF THE GEOLOGICAL ASSOCIATION OF CANADA



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1. CTG has a new website!

The Canadian Tectonics Group website has moved to www.canadiantectonicsgroup.ca. Update your bookmarks! Our new site is hosted on Weebly, a relatively inexpensive and user-friendly platform. I have moved all the content from our old site over, so you can still find downloads of most of our past field trips and workshops, past award winners, etc. There is also a news page that I am updating regularly. The latest information and circulars about upcoming workshops will also be posted there. If you have any news to share with the CTG community, let me know and I will post it. Remember that this site is in complement with our LinkedIn and Facebook pages, as well as our mailing list. If there is anything you would like to see on the new site that is not already there, I am open to feedback! —Dawn Kellett

2. 2017 Canadian Tectonics Group Annual Workshop

The Canadian Tectonics Group (CTG) held another successful annual workshop from October 13 to 15, 2017. This was the 37th such workshop since CTG's formation in 1981, and was ably organized by Kyle Larson (UBC-Okanagan) and Dan Gibson (Simon Fraser U). The 40 participants who assembled in Kelowna, BC represented a slice through the Canadian tectonic community that ranged from retired professionals who had attended early CTG Workshops (Willem Langenberg, Andrew Okulitch, Fried Schwerdtner) to young geology students, with leading current practitioners from academia, government and industry filling in the rest of the spectrum. There was naturally a distinctly western concentration in domiciles but, as usual, a global scope in the research presented. The strong student representation from seven Canadian universities was one of the encouraging highlights of the weekend's activities. Attendees arrived from as far east as Halifax, as far north as Yellowknife and as far west as Vancouver.

After the informal gathering of a number of the less jet-lagged participants at the conference hotel lounge on the Friday evening, Day 1 got underway in earnest with the Saturday morning departure under Dan Gibson's guidance, for a 60-kilometer traverse across the Shuswap metamorphic core complex (SMCC). Holding the field trip on the first day and getting everyone into a single yellow school bus meant nobody could break away early and getting lost was much harder to do. Working our way from the eastern SMCC boundary near Revelstoke back to the cover of the westernmost part of the complex in the Sicamous area, the seven stops provided a look at the key components of the SMCC interior, its bounding dislocations and its lowermost cover. The road cuts at all stops were impressive for their photogenicity and viewability, leading to a general sense of admiration for past results forming the basis for current orogenic modelling of the Canadian Cordillera. Another highlight was the excellent, artisanal brown bag lunch, on a day that threatened, but did not deliver, rain and/or snow showers. Stop 1, in the fault valley containing Revelstoke's Columbia River dam, also illustrated the importance of geological knowledge for engineering megaprojects. And the Stop 6 mylonite zone outcrops at the western boundary were enough to get everyone's tectonic juices flowing even before leaving the

bus (see below, and official group photo at the top of the newsletter, which was taken in front of this outcrop).





Stop 2: Monashee Cover Gneiss

Stop 6: Mylonitic distributed shear zone

On Saturday evening, the delicious group supper at Kaya restaurant, only steps from the conference hotel, was a seemingly endless sushi feast that provided ample opportunity for participants to debrief and decompress from the day in the field and re-fuel for the upcoming Day 2 program.

Sunday, Day 2, consisted of the workshop presentations program, smoothly organized by Kyle Larson, at the UBC Okanagan campus, on the warmest and sunniest part of the weekend. It began with a hearty breakfast buffet, from the same caterer as Saturday's field trip lunches and just as good, to set people up for the day's schedule of eighteen 20-minute talks, seven poster sessions and the CTG business meeting. The range and excellence of the oral presentations and poster sessions were recognized favourably by all, specialists and generalists alike. Perhaps of greatest general interest were the talks in the third session, which provided new information about faulting and fracturing of rocks.

The field guide and the program-with-abstracts volume may be downloaded from the CTG website at http://www.canadiantectonicsgroup.ca/workshops.html. A vote of thanks needs to be extended to all the organizers and all the contributors.

At the business meeting we learned that next CTG Workshop (2018) will be held in the Sherbrooke area, Québec's Eastern Townships. The first circular has been posted here on the CTG website by organizers David Corrigan and Alain Tremblay. We look forward to seeing everyone next year in La Belle Province.

See you in October 2018!

Dennis Waddington and Fried Schwerdtner

(Note: this workshop report also appeared in GEOLOG, v. 46, no. 4, 2017, p. 12-13).

3. Students: apply for a grant of up to \$600 to attend Resources for Future Generations in Vancouver, BC, June 16-21.

CTG will once again provide support to enable two students to attend the GAC-MAC Meeting. Priority will be given to a student or students who are presenting talks or posters, and who wish to attend either of the sponsored field trips (see Section 3 below). Students should contact the CTG Chair (dawn.kellett@canada.ca), attaching a copy of a submitted abstract, together with a short cover letter including:

- A budget of the costs associated with attendance, including travel, and other sources of funding available;
- A statement indicating why you wish to attend the meeting and field trip, and how you expect to benefit from them;
- A transcript or transcripts of your academic record.

Deadline: March 31, 2017

4. Tectonics and structural geology at the 2018 Resources for Future Generations (GAC) conference, Vancouver, BC.

CTG SPONSORED SESSIONS

EA6: Archean Evolution and Ore Deposit Models: Is Plate Tectonics the Key to the Past: A Session to Honour the Career of John Percival – This session in honor of Dr. John Percival invites professionals who have worked with Dr. Percival, relied on his scientific outputs or share his interest in the Archean and ore deposits to share the outcomes of their own work with fellow like-minded colleagues in a memorable session down memory lane that covers the remarkable three decade career of this GSC scientist.

EA8: Resources in Paleozoic Orogenic Belts and Associated Sedimentary Basins: Challenges and Opportunities for Multidisciplinary Tectonics - Sophisticated technology is being increasingly applied to the study of the tectonics and resources of Paleozoic orogenic belts and associated sedimentary basins. This session will emphasize the importance of geological mapping and accurate field-based observations as the underpinning of the technology and as the basis for the interpretation of multidisciplinary geoscience datasets.

EA30: Tectonics and Metallogeny of Cordilleran-Type Orogens: A Celebration of the Career of JoAnne Nelson - JoAnne Nelson has been a pillar of the Cordilleran geoscience community for over 30 years. In recognition of her influential career, we seek contributions that explore the tectonics and metallogeny of Cordilleran-type or accretionary orogens. Diverse and interdisciplinary studies that combine aspects of bedrock mapping, stratigraphy, structural geology, economic geology, petrology, geochemistry, and geochronology are particularly welcome.

EA32: From EarthScope to the Canadian Cordillera Array: Integrated Earth Systems Observatories – This session welcomes presentations summarizing EarthScope results, possibilities for the CCArray, in addition to Critical Zone, Magnetosphere and other possible applications for this proposed integrated observing network.

EA33: Fault and Shear Zone Processes Across Space and Time – Recent advances in geochronology, high resolution topography, subsurface imaging, interpretation of geological structures, and tectonic geomorphology have greatly contributed to our understanding of faults and shear zones across broad temporal and spatial scales. We invite contributions from structural geology, geomorphology, rock mechanics, laboratory experiments, geophysics, and geochronology with applications to the formation and evolution of faults and shear zones across scales that span grains to plates, and seconds to millions of years.

EA34: New Perspectives on Archean Geology: Evolution from Vertical to Horizontal Tectonism? - The evolution of Archean lithosphere is controversial. This session invites contributions on Archean geology based on field investigations, structural geology, geochronology, petrology, geochemistry and theoretical modelling. Particular attention will be paid to evolution of granitoid-greenstone terranes, evidence for vertical tectonism, evidence or lack of evidence for uniformitarian plate-tectonics and the timing and nature of the potential geodynamic transition from vertical to horizontal tectonism. Contributions on implications of Archean tectonic processes for mineralization are also welcome.

CTG SPONSORED FIELD TRIPS

Pre-conference field trip: The Cretaceous-Cenozoic Coast-Cascade Orogen: The Chilliwack Valley Harrison Lake Connection - Chilliwack, British Columbia – led by Dan Gibson (SFU) and Jim Monger (GSC).

Post-conference field trip: The southern Canadian Rocky Mountains - Front Ranges and Foothills - Calgary, Alberta - led by Paul MacKay (Shale Petroleum).



5. 38th CTG Fall Workshop in 2018

We are pleased to announce that David Corrigan (Geological Survey of Canada) and Alain Tremblay (UQAM) will host the 38th Annual Canadian Tectonics Group workshop in Sherbrooke, Eastern Townships, QC.

The field trip will explore the stratigraphy and structure of the Ordovician Ascot Complex volcanic arc and overlying Magog Group forearc deposits of the Appalachian orogen. The day will include a visit of the Capel mine, with geological and historical perspective.

The workshop will be in October, but precise dates are still being considered, and should be announced by the Resources for Future Generations meeting in June.

6. Winners of Jack Henderson awards for best theses

The following awards were presented for theses defended in 2015 or 2016:

PhD thesis prize:

Diane Skipton, University of Ottawa for the thesis: "Paleoproterozoic Metamorphism, Deformation and Exhumation of Mid-Crustal Rocks of the Trans-Hudson Orogen on Hall Peninsula, Baffin Island"

Supervised by David Schneider and Marc St.-Onge.

MSc thesis prize:

Benoit Charette, University of Waterloo for the thesis: "Long-lived Anatexis in the Exhumed Middle Crust from the Torngat Orogen and Eastern Core Zone: Constraints from Geochronology, Petrochronology, and Phase Equilibria Modeling"

Supervised by Carl Guilmette.

Congratulations to both winners and their supervisors, and thanks to all our readers!

7. Winner of the David Elliott Best Paper award

The Dave Elliott award for best paper in Canadian structural geology and tectonics, with publication year 2016, was awarded to:

Mirko van der Baan, David W. Eaton, and Giona Preisig, for the paper entitled "Stick-split mechanism for anthropogenic fluid-induced tensile rock failure" published in Geology, 2016, volume 44, 503-506, Congratulations to Mirko and coauthors!

Many thanks to those who read papers and submitted nominations. Without your work this award would not be possible.

Forthcoming Dave Elliott Best Paper Award

We are calling for submissions for the 2017 Dave Elliott Best Paper Award. Your councillors will prepare a shortlist of papers written by authors based in Canada or dealing with Canadian topics and with a publication date in the 2016 calendar year. Priority will be given to peer-reviewed publications. Submissions from the membership are also welcome and should include a PDF file of the paper in PDF format. Submissions by the authors will also be considered. We will appoint a small committee of individuals not involved with any of the shortlisted papers to review the shortlisted papers and select a winner. These submissions should be sent before March 15, 2018 to: Dawn Kellett (CTG Chair): dawn.kellett@canada.ca

8. CTG Business Meetings

Business meetings of the CTG were held at the GAC-MAC meeting in Kingston, Ontario, and at the CTG workshop in Kelowna, British Columbia in 2017. Minutes are included below.

The next CTG business meeting will be held at the Resources for Future Generations GAC meeting in Vancouver, BC in June 2018.

CTG business meeting Kingston, Ontario; May 2017

Date: May 17, 2017

Location: KIN 106, Queen's University

Present: 27 members

Meeting Chaired by: Dawn Kellett, CTG chair
Minutes taken by: Dazhi Jiang, CTG vice-chair

The meeting was called to order at 1:02 pm.

Agenda

1. Approval of Minutes of last business meeting at CTG, Bracebridge, on Oct 22, 2016

The Minutes were circulated by email in April and some hardcopies were available at the meeting.

It was moved by Laurent Godin, seconded by Jamie Kirkpatrick, that the minutes be approved. All were in favor.

The motion was carried.

2. Matters arising, not covered below

None

3. Financial report

Treasurer's report (Submitted by A.V. Okulitch May 7, 2017)

\$ 3782.59 Balance, 31 Dec 2016: Bank charges: - 9.00 Interest: +0.01PhD thesis award: - 500.00 Student travel to CTG: - 1200.00 MSc thesis award: - 200.00 - 200.00 Best paper prize: CTG meeting reimbursement: - 0.00 CTG meeting fees: +0.00+0.00CTG meeting surplus: Membership dues 2016: +0.00*Interim balance 07May17:* \$ 1573.60

The above financial report was presented at the meeting. Dawn commented that the current financial status is in good shape. Dazhi added that the annual spending of CTG (on students' travel awards to GAC, best PhD and MSc theses, and best paper) is about \$400 over the annual membership dues, based on last dues we obtained from GAC. The financial situation will be monitored once we get last year's dues from head office.

4. Awards presentations

a. GAC Student support:

Each year CTG supports a few students to encourage them to present their research in the GAC/MAC meeting and to participate in the field trips. An email to solicit applications is sent out in January.

This year, Eric Thiessen and Lianna Vice, both from Simon Fraser University are each awarded \$600 to subsidize their participation at GAC and a Field trip. Both students were present at the meeting and received the checks from Dawn Kellett. Congratulations!

b. Dave Elliott award for best paper

The 2017 Dave Elliott Award for the best paper goes to Mirko van der Baan, David W. Eaton and Giona Preisig for their paper "Stick-split mechanism for anthropogenic fluid-induced tensile rock failure" published in Geology, volume 44, 503-506.

David W. Eaton, one of the co-authors, received the award from CTG Chair Dawn Kellett.

Congratulations to the authors! Many thanks to those who have submitted nominations and/or read the papers. Without your work this award would not be possible.

c. Jack Henderson best theses award:

The 2017 best PhD thesis prize goes to: Diane Skipton (University of Ottawa) for the thesis: "Paleoproterozoic Metamorphism, Deformation and Exhumation of Mid-

Crustal Rocks of the Trans-Hudson Orogen on Hall Peninsula, Baffin Island". The thesis was supervised by Dave Schneider.

The 2017 best MSc thesis prize goes to: Benoit Charette (University of Waterloo) for the thesis: "Long-lived Anatexis in the Exhumed Middle Crust from the Torngat Orogen and Eastern Core Zone: Constraints from Geochronology, Petrochronology, and Phase Equilibria Modeling" The thesis was supervised by Carl Guilmette.

Diane Skipton (Best PhD thesis awardee) received the award and check from Dazhi Jiang.

In the absence of Benoit Charette (Best MSc thesis awardee), the thesis supervisor Carl Guilmette received the check from Dazhi Jiang. The award certificate has been sent to the awardee by mail.

Congratulations to Diane Skipton and Benoit Charette!

Many thanks to all who submitted theses to the competition. It was an impressive selection to evaluate. It is heartening to see the excellence of research involving structural geology and tectonics in Canada and that it is alive and strong!

Thank you all who have assisted in the review and evaluation process. Without your hard work we would not be able to make these awards.

5. CTG fall meeting 2017 announcement

Kyle Larson (UBC-O) and Dan Gibson (SFU) are organizing the 37th CTG workshop in Kelowna, BC on <u>October 13-15, 2017</u>. Information was distributed in a first circular to the CTG mailing list, and can be found at the website <u>ctgkelowna.weebly.com</u>.

This year's meeting will be held at the Four Points Kelowna Airport. It is a short walk/shuttle/cab from the airport and hosts an excellent restaurant. They are also offering a conference rate on rooms; please quote "XYZ" when booking.

There will be an 'Ice Breaker' on Friday evening with an introductory talk about the field trip, which will take place on Saturday October 14th. It will follow a transect west to east across the width of the Shuswap metamorphic complex, focusing on the transition from lesser deformed, lower grade metamorphic rocks of the superstructure to higher grade, partially melted and penetratively-deformed rocks of the infrastructure for the southern Canadian Cordillera. Oral and poster presentations will take place on Sunday.

According to the CTG pattern, the 2018 workshop will be held in "central" Canada. We are currently seeking volunteers to organize this.

6. RFG-GAC 2018 – Vancouver BC. CTG sponsorship of Special Sessions

Dawn Kellett asked the members to think ahead to propose special sessions and field trips that CTG could sponsor.

Dan Gibson remarked that he will be chair of the field trip committee. People who can lead field trips, internationally or in Canada, in structural geology and tectonics or metamorphic petrology, please volunteer and get in contact.

The Canadian Journal of Earth Sciences is interested in publishing special sections and issues derived from GAC/MAC special sessions.

7. Website

This item is concerned with the issue that CTG requires a new platform to host its website. Juergen (secretary) sent around the following email in March:

Dear CTG officers, councillors, and retired webmaster,

As you know, our website has been hosted at the MUN servers for quite some time now. Recently, MUN changed their servers and I have been unable to communicate with the new ones. Turns out that MUN reverted to IP addresses version 4 (IPv4), which had been replaced by IPv6 in 2010 worldwide. It is like opening a 4 digit code with a 6 digit combination - does not work. As a consequence, nobody off campus can access their servers anymore. In other words, our website has become a rudderless ship.

The solutions:

- 1. Find another host within the Canadian University community
- 2. Use a commercial host and get a proper domain name (<u>www.ctg.org</u>) for \$200 per year.
- 3. A combination of 1 and 2 (domain name per year: \$20)

Best Regards, Jürgen

Dawn called for volunteering or nominating students to help with website building and maintenance. She is thinking of a student that would be interested in working with Jurgen and her to rebuild the CTG website in Weebly, or Squarespace, or Wordpress or some-such.

Kyle Larson suggested that instead of being built from scratch by the local organizing committee (LOC) every year, the annual CTG meeting website should be a normal part of the website. The annual domain name cost could be rolled into the CTG workshop cost.

John Waldron remarked that we should try to find a solution that can be managed by more than one person. We should try to avoid the situation of a website built by one person using a particular software solution and then requiring a lot of work by another person with different software experience.

8. Other business

Laurent Godin remarked that he was recently contacted by Tiffany Lancaster from NSERC regarding the Discovery Grant program. In the Grant Selection Committee (GSC) membership, Structural Geology and Tectonics (very broadly defined) is very much under-represented. Part of this situation is the lack of incentive for participating in the GSC when contacted by NSERC. He called for volunteering and nominations to sit on the evaluation committee. If you or good candidates you know of, who are

broadly viewed, have open-minded approach toward science, and possess a highdegree of fairness, please contact Laurent Godin.

Sharon Carr asked if a GSC member should be a grant holder. Laurent indicated that committee members from academic institutions should usually be grant holders, but committee members from outside academia (e.g. government) do not need to be grant holders.

Becky Jamison asked if there is any consideration regarding gender balance and language balance. Laurent responded that the most important concern for now is the representation of tectonics (broadly defined) in NSERC GSC. Other factors are second.

It was moved by Phil Simony, seconded by John Waldron, that the meeting be adjourned.

All were in favour.

Meeting adjourned at 1:33pm.

CTG business meeting Kelowna, British Columbia; October 2017

(Minutes remain unofficial until approved at a following business meeting.)

Date & Time: October 15, 2017 at 1:00 pm Location: Four Points Sheraton, Kelowna, BC

Agenda

- 1. Approval of Minutes of last meeting at CTG, Kingston, ON
- 2. Matters arising, not covered below
- 3. Financial report
- 4. Upcoming awards nominations Dave Elliott and Jack Henderson awards
- 5. CTG fall meeting 2018 announcement & planning for 2019
- 6. RFG/GAC 2018 Vancouver BC. CTG sponsorship of Special Sessions and field trips
- 7. Launch of the new website
- 8. Other business

Number of eligible me	mbers present:	<u>14</u>
Meeting chaired by:		Dawn Kellett
Minutes taken by:	Dan Gibson	
1. Approval of Minus document)	tes of last meetin	eg at CTG, Kingston ON (see accompanied
Minutes were circulate	ed by email. <u>Motic</u>	on to accept minutes of previous meeting
MOVED by	Kathy I	<u>Sethune</u>
SECONDED by	Kyle Larso	<u>n</u>
VOTE (Motion CARRI	ED - unanimous)	
2. Matters arising, not Any business arising?		

3. Treasurer's interim report (Submitted by A.V. Okulitch)

Treasurer's report, 19 September, 2017

(Submitted by A.V. Okulitch)

Balance, 31 Dec 2016:	\$ 3782.59
Bank charges:	- 24.00
Interest:	+ 0.05
Membership dues 2016:	+ .00
PhD thesis award:	- 500.00
Student travel to CTG:	- 1200.00
MSc thesis award:	- 200.00
Best paper prize:	- 0.00
Balance, 19 Sep 2017 (prelim.):	\$ 1858.64

Note: Membership dues from head office for 2016 or 2017 had not been received by September. Best paper prize cheque had not been cashed.

Still waiting for membership fees. Expecting \$4500 at year end including \$1000 surplus from workshop.

Note that we have a new annual expense with the new website. Domain name + hosting costs = \$84/year. Propose that, as discussed in May, this be rolled into workshop costs. All in attendance agreed this was a good idea.

- 4. Upcoming awards nominations Dave Elliott and Jack Henderson awards
- a. GAC Student support:
- Reminder that CTG offers 2 grants of \$600 to students to participate in CTG-sponsored field trips if they are presenting their research in a CTG-sponsored session. Please encourage your students to apply. Call will go out initially in

January, and will plan to make a second follow-up call to try to increase number of applications.

b. Dave Elliott award for best paper:

Many thanks to the CTG councilors who work hard every winter combing through all tectonics and structural geology journals for our top publications. This is a big task but a great opportunity to catch up on the recent literature. I will contact all of you to participate again this winter.

c. Jack Henderson prizes for best theses:

Reminder that the call will go out in January also for the top PhD and MSc theses of 2016, and thanks to all of you that participate in judging and reviewing these papers. These awards are important marks of recognition for early career scientists and help to launch their careers. Many of our past award winners have successfully pursued tectonics and structural geology careers in research, government and industry in Canada and internationally.

5. CTG fall meeting 2017 announcement

David Corrigan (GSC) and Alain Tremblay (UQAM) have offered to organize the 38th CTG workshop in the Eastern Townships, QC. David and Alain have sent a slide to advertise the planned field trip and workshop. Info will be presented during the workshop presentations. The date has yet to be set.

John Waldron has proposed offering an eastern Canada CTG workshop in 2019.

Dawn Kellett asked what is the general opinion about a field trip outside of Canada, perhaps sometime during the spring months. There was general enthusiasm for this idea. Kathy Bethune suggested we try linking up with the STG Division of GSA and do a co-sponsored field trip.

6. RFG-GAC 2018 – Vancouver BC. CTG sponsorship of Special Sessions

If you have a tectonics and structural geology-relevant session or field trip in RFG-GAC, please let us know and we will propose to sponsor the session.

7. Website

As mentioned at the previous meeting, CTG required a new website. Dawn Kellett explored a number of options and settled with a user friendly, visually appealing but basic Weebly site. Executive are site masters. If you have feedback on the new site, or ideas of what you would like to see there, please share it with her. She encourages members to share all CTG-relevant news with her, so that she can post it as news on the site (of course you can and should also send important info to members and

affiliates via our mailing list). She also encourages you to include a link to our CTG site on your own personal webpages, especially councillors. Jurgen continues to maintain our social media pages. As already mentioned, there is an annual cost for the platform and domain. We propose to recover this cost from our workshops as the workshop webpages will also be hosted on our site. We also ask that members include a link to the new CTG website on their personal web pages.

8. Other business

A request was put out to the participants of the meeting for someone to "volunteer" to write a summary of the workshop for submission to the newsletter and Geoscience Canada. Fried Schwerdtner and Dennis Waddington graciously offered to do it.

Meeting adjourned: TIME: <u>1:31 pm</u>

9. Current CTG Executive and Councillors

Chair: *Dawn Kellett*, Geological Survey of Canada, Dartmouth Vice Chair: *Dazhi Jiang*, University of Western Ontario, London Secretary: *Jürgen Kraus*, Franconia Geoscience Ltd., Calgary

Treasurer: Andy Okulitch, Geological Survey of Canada, Vancouver

Current Councillors:

Kathryn Bethune, University of Regina

Normand Goulet, Université Québec à Montréal

Lyal Harris, Institut national de la recherche scientifique, Québec

Mary Louise Hill, Lakehead University, Thunder Bay

Camille Partin, University of Saskatchewan, Saskatoon

Deanne van Rooyen, University of Cape Breton, Sydney

John Waldron, University of Alberta, Edmonton

Joseph C. White, University of New Brunswick, Fredericton

Laurent Godin, Queen's University, Kingston

Dan Gibson, Simon Fraser University, Burnaby

Shoufa Lin, University of Waterloo, Waterloo