



Structural Geology
& Tectonics Division



Winter 2013

<http://gac.esd.mun.ca/sgtd>

THE MAIN THRUST

**NEWSLETTER OF THE CANADIAN TECTONICS GROUP & THE
STRUCTURAL GEOLOGY AND TECTONICS DIVISION OF THE
GEOLOGICAL ASSOCIATION OF CANADA**

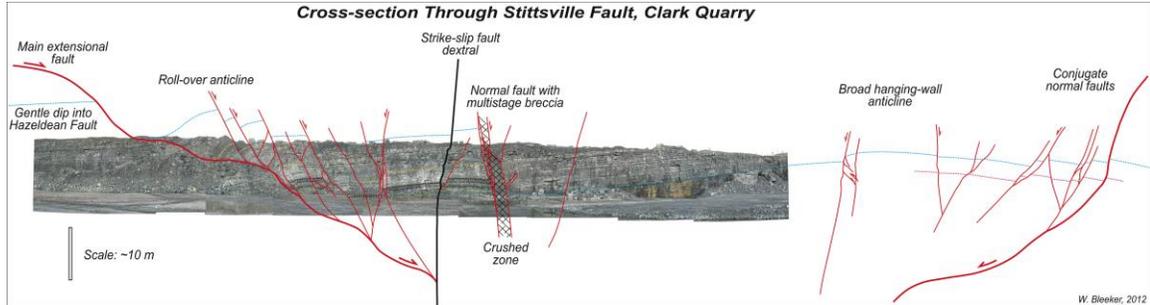


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1. 2012 CTG/SGTD Workshop

The annual CTG field meeting and workshop was held in Ottawa from October 26-28 2012. The meeting was ably organized by Wouter Bleeker, Geological Survey of Canada. Approximately 70 attended, and were treated to a broad variety of talks, and an excellent field trip in the Ottawa-Bonnechère Graben.



Cross-section through Stittsville Fault, Clark Quarry



Members in action, at the Canadian Tectonics Group field trip.



Group photograph at the CTG field trip, Stittsville Quarry.

2. Students: apply for a grant of up to \$1000 to attend GAC-MAC in Winnipeg

CTG/SGTD will once again provide support to enable students to attend the GAC-MAC annual 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 below). Students should contact the chair (john.waldron@ualberta.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 how you expect to benefit from it;
- A transcript or transcripts of your academic record.

Deadline: March 15th 2013.

3. Tectonics and structural geology at the Winnipeg GAC general meeting

The 2013 GAC-MAC joint annual meeting will be held in Winnipeg from May 22 to 24, preceded and followed by field trips. The following field trips are sponsored by the CTG/SGTD:

- C3. The Volcanological and Structural Evolution of the Paleoproterozoic Flin Flon Mining District: The Anatomy of a Giant VMS System *Harold Gibson, Bruno Lafrance, Sally Pehrsson, Michelle DeWolfe, Kelly Gilmore, Renée-Luce Simard*
- C4. Metamorphosed Alteration Zones and Regional Metamorphism: Examples from the Trans-Hudson Orogen *Chris Couëslan, Doug Tinkham, Al Bailes, Simon Gagné*

For further details, see the GAC MAC website at: <http://gacmacwinnipeg2013.ca>

4. CTG/SGTD 32nd Fall Workshop

Plans for the next fall workshop of the CTG are at a preliminary stage. In the normal rotation, the 2013 meeting would occur in western Canada. John Waldron agreed to contact potential organizers in western Canada with the intent of having a definite proposal by the 2013 GAC meeting.

5. Winners of Jack Henderson awards for best theses

The following awards were made for theses defended in 2010 or 2011.

PhD thesis prize:

Grégory Dufrécho, Institut national de la recherche scientifique, Centre - Eau Terre Environnement, for the thesis: Origine et implications tectoniques de structures transverses profondes interprétées à partir de données de champ potentiel, Province de Grenville, Canada

Supervised by Lyal Harris and Louise Corriveau

The MSc thesis prize:

Chris Yakymchuk, Geological Sciences & Geological Engineering, Queen's University, for the thesis: Tectonometamorphic evolution of the Greater Himalayan Sequence, Karnali Valley, Western Nepal

Supervised by Laurent Godin

Congratulations to both winners!

6. Call for Submissions for the Jack Henderson Best MSc Thesis Award and Best PhD Thesis Award.

We are calling for submissions for the **Best MSc Thesis Award** and the **Best PhD Thesis Award**. Theses submitted to a Canadian university and successfully defended in the 2012 calendar year are eligible. **Submissions must be received by February 15th, 2013.** A submission can be made by the thesis supervisor, by the student, or by any member of the division. It should include a "statement of nomination" letter from the supervisor or a thesis examiner, stating that the thesis was successfully defended in 2012, outlining the key contributions that it makes to structural geology and/or tectonics, and identifying a chapter or chapters in the thesis that are of particular excellence. In the case that the student submits a copy of the thesis, the onus is on the student to make sure that the supervisor (or a member of the examination committee in the case that the supervisor is not available) submits the nomination letter. Theses for which we receive no nomination letters will not be considered for an award.

We prefer to receive theses as pdf documents by mail on a CD or DVD. Please send the theses to:

John Waldron (SGTD Chair) Department of Earth & Atmospheric Sciences
University of Alberta, Edmonton AB T6G2E3 E-mail:john.waldron@ualberta.ca

Deadline: submissions must be received at the above address by Feb 15th, 2013

7. Winners of the David Elliott Best Paper award

The Dave Elliott award for best paper in Canadian structural geology and tectonics, with publication year 2011, was awarded to:

Elena Konstantinovskaya and Jacques Malavieille: Thrust wedges with décollement levels and syntectonic erosion: A view from analog models. *Tectonophysics* 502 (2011) 336–350.

Many congratulations to both the authors.

Abstract: Analog sandbox models have been set up to study the impact of syntectonic erosion on thrust wedges with one and two décollement levels. Different accretion mechanisms are activated depending on interactions between surface processes and wedge mechanics: frontal accretion, backthrusting, underthrusting and underplating due to décollement induced duplex formation at depth. These mechanisms may function simultaneously, being located at different parts across the wedge. For all the experiments, a high friction is imposed at the base of models and the volume of eroded material remains equal to the volume of newly accreted material, maintaining a constant surface slope during the shortening. Erosion limits the forward propagation of thrust wedges and favors the underthrusting of basal layers allowing duplex formation. Erosion promotes development of major backthrusts in the thrust wedges without or with one décollement, but no backthrusts was formed in the wedges with two décollements. Slow erosion allows lower extent of basal underthrusting in comparison with regular-rate erosion. Variations in the erosion taper lead to changes in duplex geometry and exhumation rate in thrust wedges with one or two décollements. The 6° erosion taper promotes formation of antiformal stack at the rear part of thrust wedge, high rate of basal underthrusting and high extent of erosional removal. The cover layers are nearly completely eroded above the antiformal stack and form the synformal klippe in frontal part of thrust wedges. The 8° erosion taper allows development of individual ramp-anticlines and active forward thrusting of cover layers above the décollement and low rate of basal underplating below it, with consequent low extent of erosional removal. The results of our experiments support the observations on structural evolution and erosion in the Alberta Foothills of the Canadian Rockies.

8. Forthcoming Dave Elliott Best Paper Award

We are also interested in submissions for the **Best Paper Award**. Your councilors will prepare a shortlist of papers written by authors based in Canada or dealing with Canadian topics and with publication date in the 2012 calendar year. Priority will be given to peer-reviewed publications. Submissions from the membership are also welcome, and should if possible include a PDF file of the paper. Submissions by the authors will be considered. We will then appoint a small committee (of individuals not involved with any of the shortlisted papers, or course) to review the shortlisted papers and select a winner. These submissions should go, before February 15, to: John Waldron (SGTD Chair) john.waldron@ualberta.ca

9. SGTD Business Meetings

Business meetings of the SGTD were held at the GACMAC meeting in St. John's NL, and at the CTG workshop in Ottawa. Minutes are included below.

The next business meeting will be held at the GAC annual meeting 2013 in Winnipeg, Manitoba

SGTD business meeting St. John's NL; May 2012

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

SGTD meeting at GAC-MAC, St. John's 2012

Present: 11 members

Chaired by John Waldron

Minutes taken by Shoufa Lin

1. Approval of minutes:

Moved by Joe White. Approved unanimously.

2. Election of new councillors:

All existing councillors have agreed to stay on except Edith Martel.

Moved by John Waldron and seconded by Mary Louise Hill, Lori Kennedy was elected unanimously as a new councillor.

Moved by Mary Louise Hill and Seconded by Stephen Johnston, John Waldron's current term as SGTD Chair was extended by six months.

3. Treasurer's Report

The division currently has about \$10k in the account. We spend >\$1000 a year, and receives ~\$1000 a year. It is agreed that we continue with the current practice of spending money. The Treasurer's report was accepted unanimously.

4. Best MSc and PhD thesis awards and Best Paper Award

The selection process was discussed.

5. Student travel award

\$1000 was awarded to one student for field trip this year.

It is suggested that we need a criteria for such an award. Suggestions include: taking into consideration of the travel cost; requesting a statement from the applicant and giving priority to applicants who make the best case; asking applicants to include a budget, academic record and a support letter.

6. Next CTG

To be organized by Wouter Bleeker in Ottawa or Timmins.

7. GAC-MAC

2013 in Winnipeg: possibilities to sponsor sessions and field trips

2014 in Fredericton: time to propose sessions and field trips.

8. Graham Leslie suggests that CTG can liaison with TSG in UK. Use SGTD money to send students to TSG.

9. Motion to Adjourn: Moved by Becky Jamieson, seconded but Joe White.

SGTD business meeting Ottawa ON 27 Oct 2012

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

Chaired by John Waldron, minutes taken by Jürgen Kraus

12 eligible members present!

1. Approval of last meeting minutes: deferred, as the note taker at the GAC/MAC business meeting is presently in China – but the notes are in Canada.

2. Financial updates: SGTD has ca. \$ 8200 in the bank. John Waldron suggested to use the accumulated surpluses from previous October workshops (ca. \$1000) to cover some of the students costs of the present workshop. Wouter Bleeker supported this. John Waldron wanted to inquire with treasurer Andy Okulitch about these surpluses. [Andy had rolled these CTG surpluses into the general SGTD account]. Phil Simony suggested to give the surplus from one given year to the organizers of the workshops in the following year. It will have to be established from the bylaws whether any of these is possible.
3. Awards: The question was raised how the SGTD's money should be spent on student participation: approximately \$1000 per year in membership are taken in per year, and \$1000 to \$1500 are being spent for awards per year. Consensus was established that the current system is generally accepted. A lifetime achievement award medal was once again mentioned, considering that the sedimentology division gets much publicity from their lifetime award. It was suggested to form a group to develop this award, potentially with Shoufa Lin and Willem Langenberg as members.
4. Student awards for GACMAC; at present these are adjudicated based on the abstracts and other information received from the student applicants. Jürgen Kraus expressed his concerns that abstracts contain more than one author and are so polished by others that the true value of the student's contribution cannot be adequately assessed based on this criterion alone. Marie Louise Hill suggested that funds should be split equally between students. Student members present were asked and the opinion was expressed that one or two larger, competitive awards were preferred over a small contribution to all. Lyle Harris noted that students are to be encouraged by the award and he volunteered to serve on the selection committee. A second judge will be required for the case Lyal's students apply. It was therefore agreed to continue the present system in the coming year.
5. Sessions and field trip to be sponsored by SGTD at GAC/MAC 2013 in Winnipeg: The Volcanological and Structural Evolution of the Paleoproterozoic Flin Flon Mining District: The Anatomy of a Giant VMS System Harold Gibson, Bruno Lafrance, Sally Pehrsson, Michelle Dewolfe, Kelly Gilmore, Renée-Luce Simard 2. Metamorphosed Alteration Zones and Regional Metamorphism: Examples From the Trans-Hudson Orogen Chris Couëslan, Doug Tinkham, Al Bailes, Simon Gagné; these two field trips are sponsored by the SGTD.
6. CTG 2013: John Waldron suggested that he could organize a trip in Nova Scotia or Newfoundland, as had been discussed at a previous meeting. However, according to the traditional cycle, it should be held in western Canada next year. Wouter Bleeker suggested to send an email request to inquire for volunteers to organize next year's workshop in western Canada. Paul Williams suggested Jim Ryan, Cees van Staal and/or Dan Gibson to collectively assemble the 2013 workshop. These people should be talked to first. In 2014, the CTG and Friends of the Grenville could hold a joint workshop. An answer to these questions is expected for well before the 2013 GAC/MAC spring meeting.
7. There is a call for sessions at the 2014 GAC/MAC in Fredericton. Joe White was asked to assemble a session on strain. Cathy Boggs suggested a Google Earth session: its use in Structural Geology research and teaching. Both suggestions are to be forwarded to the organizing committee. A possible session on structural controls on ore deposits was discussed. John Waldron may consider a session on salt tectonics.
8. John Waldron's term as chair expires at the next AGM at the GACMAC meeting in Winnipeg. Wouter Bleeker and Laurent Godin agreed to serve as a nominating committee to find nominees for chair and any vacant councillor positions.

10. Current SGTD Executive and Councillors

Chair: *John Waldron*, University of Alberta, Edmonton

Vice Chair: *Bruno Lafrance*, Laurentian University, Sudbury

Secretary: *Jürgen Kraus*, Mortal Oil Ltd. Calgary

Treasurer: *Andy Okulitch*, Geological Survey of Canada (Vancouver)

Dan Gibson, Simon Fraser University, Vancouver

Normand Goulet, Université Québec à Montreal

Mary Louise Hill, Lakehead University, Thunder Bay

Lyal Harris, Institut national de la recherche scientifique, Québec

Lori Kennedy, University of British Columbia

Joseph C. White, University of New Brunswick, Fredericton