



The Canadian Geomorphology Research Group
Le Groupe Canadien de Recherche en Géomorphologie

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LE PAYSAGE CANADIEN
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Ribbed moraines, eskers and peat polygons in northern Manitoba

Photograph by Martin Ross.



President's Message Mot du Président

Duane Froese, CGRG President

Welcome to the Winter issue of *The Canadian Landscape*. At the outset, I want to thank Steve Wolfe for the considerable work he has done this past year on our behalf. Few may realize just how dire things were just over a year ago when the CGRG lost its status as a Division of the Geological Association of Canada (GAC). This could have affected our bottom line (we get about 50 members through the GAC membership), and endangered support through liability insurance for our CGRG-sponsored field trips and other joint activities and meetings with GAC. The loss of Division status largely reflected our outdated constitution and, according to GAC's insurers, undue risk for the organization since many of our members were not GAC members. But through Steve's work with GAC to rewrite our constitution (and approved by our members this past spring), our linkage has been re-established and we are now in good standing. This was no small effort and my sincere thanks go to Steve for his contributions.

This has been a very good year for the CGRG following our joint meeting with the Canadian Quaternary Association at Simon Fraser University.

Bienvenue au numéro d'hiver du bulletin *Le paysage canadien*. Tout d'abord, j'aimerais remercier Steve Wolfe pour le travail considérable qu'il a effectué pour nous durant la dernière année. Peu réalise à quel point la situation pour le GCRG était précaire il y a environ un an suite à la perte de son statut de Division de l'AGC. Cela aurait pu avoir un impact sur nos cotisations (nous avons environ 50 adhérents par le biais des membres de l'AGC) et remettre en cause les assurances pour nos excursions de terrain parrainées par le GCRG ainsi que pour les autres activités et réunions conjointes avec l'AGC. Les statuts désuets du GCRG furent la cause de la perte de notre statut de Division, selon les assureurs de l'AGC, le groupe représentait un risque excessif pour l'organisation puisque plusieurs de nos membres n'étaient pas des adhérents à l'AGC. Heureusement, suite au travail de Steve et de l'AGC qui ont réécrit nos statuts (approuvés par nos membres le printemps dernier), notre lien avec l'AGC a été rétabli et nous sommes maintenant en bonne position. Ce ne fut pas une tâche insignifiante et mes remerciements sincères vont à Steve pour son travail considérable pour le groupe.

The joint CGRG-CANQUA meetings are amongst my favourite to attend, and I want to extend appreciation to Brent Ward, John Clague, Lionel Jackson, Jeremy Venditti, Tracy Brennand, Olav Lian, Gwen Flowers, and the special session organizers for such an exceptional meeting.

This coming spring, we will hold our annual general meeting joint with the Canadian Association of Geographers at the University of Regina from June 1-5. There are already two CGRG special sessions (that will be announced soon) and three fieldtrips through southern Saskatchewan. The deadline to propose special sessions has not yet passed so I would encourage you to think about organizing a session and contact Kyle Hodder (Kyle.Hodder@uregina.ca) for more information. I would also add for those of you thinking about organizing a geomorphology-related session at a national or regional meeting this coming year, keep in mind that CGRG provides a range of sponsorship options for sessions, including Slaymaker and Trenhaile awards for students. If you have a special session coming up, please contact me for more information.

Our executive has undergone its annual change, and we have lost one of our big contributors, Andrée Blais-Stevens, who decided it was time to move her energies into other pursuits. She has been our Secretary-Treasurer over the last several years and done a wonderful job keeping the CGRG on a firm footing. On behalf of the CGRG I thank Andrée for her service. As for the new executive, we welcome Greg Brooks (Geological Survey of Canada) to the position of Vice-President, Nicole Couture (GSC) to the position of Secretary-Treasurer, and Andrew Stumpf (Illinois State Geological Survey) and Thomas Buffin-Belanger (Université du Québec à Rimouski) as members at large. We are fortunate Scott St. George is continuing on as our newsletter editor, after having raised the bar so high.

I also note the passing of one of our members this past year, Bruce Rains, former professor in Earth and Atmospheric Sciences at the University of Alberta. Bruce passed away this past summer after a lengthy illness. For those who had the great pleasure to be on fieldtrips across the prairies with Bruce over the years, it is safe to say that he will be fondly remembered.

Visibility of our discipline

As I get past the news portion of our newsletter, I would like to talk about some areas that are perhaps less tangible than drumlins and sandsheets, but will, I think, be important to the continued vitality of our discipline. Geomorphology is healthy in Canada, and the CGRG seems to be holding strong with about 280 members in 2008 (of which just over 100 are student members). However, like most areas where considerable funds come from government coffers, I suspect we will be in for leaner times ahead. As a 'younger' researcher this leads me to think about how can we, collectively, position ourselves for the future.

As I attend the annual meetings of the CGRG, I'm struck by the high quality of research that I see. We tackle some of the most pressing issues facing society, and we have the benefit of having a discipline that's relatively

Suite à notre réunion avec CANQUA à l'Université Simon Fraser, l'année s'est avérée très bonne pour le CGRG. Les colloques CGRG-CANQUA sont parmi mes préférés et j'aimerais remercier Brent Ward, John Clague, Lionel Jackson, Jeremy Venditti, Tracy Brennand, Olav Lian, Gwen Flowers et les organisateurs des sessions spéciales à CANQUA pour avoir organisé une réunion exceptionnelle.

Le printemps prochain, nous tiendrons notre assemblée générale annuelle conjointement avec l'Association canadienne des géographes à l'Université de Regina du 1er au 5 juin. Il y a déjà deux sessions spéciales du CGRG (qui seront annoncées bientôt) et trois excursions de terrain dans le sud de la Saskatchewan. La date limite pour proposer des sessions spéciales n'a pas encore été fixée donc je vous encourage à contacter Kyle Hodder

(Kyle.Hodder@uregina.ca) si vous envisagez organiser une session. J'aimerais aussi ajouter que, pour ceux d'entre vous qui pensez organiser une session « Géomorphologie » à un congrès national ou régional cette année, le CGRG offre des options de parrainage tel que les prix étudiants Slaymaker et Trenhaile. Si vous organisez une session spéciale bientôt, s'il vous plaît communiquez avec moi pour plus d'information.

Le changement annuel de notre comité exécutif a eu lieu et cette année nous avons perdu une grande collaboratrice. En effet, Andrée Blais-Stevens a décidé qu'il était temps pour elle de mettre ses énergies dans d'autres activités. Elle a été notre Secrétaire-Trésorière pendant plusieurs années et a fait un travail fantastique en gardant le CGRG sur des bases solides. De la part du CGRG, je remercie Andrée pour ses services. En ce qui a trait au nouveau comité exécutif, nous souhaitons la bienvenue à Greg Brooks (CGC) au poste de Vice-président, Nicole Couture (CGC) au poste de Secrétaire-Trésorière, ainsi qu'à Andrew Stumpf (Commission géologique de l'état de l'Illinois) et Thomas Buffin-Bélanger (UQÀR) en tant que membres actifs. Cette année encore, Scott St. George a accepté de demeurer éditeur de notre bulletin après l'avoir si bien restructuré.

Je souligne aussi le décès l'année dernière de l'un de nos membres, Bruce Rains, ancien professeur au département « Earth and Atmospheric Sciences » de l'Université de l'Alberta. Bruce est décédé l'été dernier à la suite d'une longue maladie. Pour ceux d'entre vous qui, au fil des ans, ont eu le grand plaisir de participer à ses excursions dans les prairies, vous vous souviendrez de lui avec affection.

Visibilité de notre discipline

Maintenant que la portion « nouvelles » du bulletin tire à sa fin, j'aimerais discuter d'un sujet qui, pour la vitalité de notre discipline, est peut-être moins concret mais tout aussi important que les drumlins et les couches de sable. Au Canada, la discipline de géomorphologie se porte bien et le CGRG semble tenir la route avec 280 adhérents en 2008 (desquels un peu plus de 100 étaient des membres étudiants). Toutefois, comme tous groupes dont la majorité des fonds proviennent des coffres du gouvernement, j'anticipe des années à venir plus maigres. En tant que « jeune » chercheur,

understandable to an interested public. I think most people see the inherent value in studying rivers, permafrost, natural hazards, environmental change and the suite of surface processes our members are expert in. But with only a few exceptions, how much of this makes it to the public? I can only think that if we are more effective in placing geomorphologic issues to the forefront (even if the public doesn't necessarily know what geomorphology is), this will benefit our discipline. As I review grants for NSF and NERC, the public outreach component is explicit in these proposals, which for the most part I still don't see happening in Canada. And I don't think this issue is unique to the academic members of our organization.

From my own experience, occasionally working across disciplinary boundaries, I am struck by the differences in the approach to media and science. I recall early on when working with colleagues from other fields, as papers were nearing completion the discussion turned to who would prepare the press materials, and what should be included in the media kit. Most of our papers will probably not lend themselves to this, but some do- and when they do- I would encourage you to think about increasing their profile. Some may scoff at self-promotion and instinctively reach for their soil auger, but I think this view of the media is old-fashioned. While some journals and institutions have effective press machines, for the most part I sense researchers still wait for the media to somehow find an issue of *CJES* and discover some interesting story to report. And while we might think it's a page-turner, we know that it is perhaps not the easiest read, and a short summary might be more effective for broader distribution. I think the increase in awareness of geomorphology will only benefit us collectively over the long term.

On the academic front, the changes in NSERC will most likely have an influence on us - and by association students wanting to study geomorphology. The end of the NSERC reallocation exercise couldn't have come sooner for the earth sciences, but it remains to be seen what impact the new conference model of evaluation of Discovery grants will be. If, as I read it, this means more evaluation coming from non-earth scientists, I think we are going to need to be more effective in communicating the importance of what we do outside our discipline. We study some of the most exciting aspects of the natural sciences, we just need to make sure others know this too. I would be interested to hear your thoughts.

je me demande ce que nous pourrions faire collectivement afin d'assurer notre stabilité future.

J'ai été impressionné par la grande qualité de la recherche présenté lors du colloque annuel du GCRG. Nous avons abordé des questions parmi les plus pressantes auxquelles fait face notre société et nous avons l'avantage d'avoir une discipline facile d'accès pour un public averti. Je pense qu'on comprend pourquoi il est important d'étudier les cours d'eau, le pergélisol, les dangers naturels, les changements environnementaux et tous les processus de surface dont nos membres sont les experts. Mais, à part quelques exceptions, est-ce que ces questions sont présentées au grand public de façon pertinente? Si nous faisons un meilleur travail à faire réaliser aux canadiens et canadiennes l'importance sociétale des problèmes que nous étudions cela serait bénéfique pour notre discipline. Lorsque j'évalue les demandes de financement pour NSF et NERC, la composante « activité de liaisons » est un élément important dans ces propositions de recherche; de manière générale, je ne vois pas la même chose du côté canadien. De plus, je ne pense pas que ce problème soit unique aux membres académiques de notre organisation.

Après avoir travaillé occasionnellement avec d'autres disciplines, je suis frappé par les différentes approches utilisées face à la science et aux médias. Je me souviens il y a plusieurs années lorsque nous travaillions avec les collègues d'autres disciplines et que les articles de recherche étaient presque sous presse, nous avions une discussion afin de déterminer qui préparerait le matériel pour les médias et qu'est-ce qui serait inclus dans la trousse médiatique. La plupart de nos articles ne se prêtent probablement pas à ce type de communication, mais, lorsque c'est le cas, je vous encourage à les mieux faire connaître. Certains dédaigneront peut-être ce type d'autopromotion et mettront instinctivement la main sur leur tarière, mais je crois qu'une telle perspective des médias est démodée. Bien que certaines revues scientifiques et institutions aient des processus efficaces de communication avec la presse, j'ai l'impression qu'en général les chercheurs attendent encore que les médias mettent la main sur un numéro de la *RCST* et découvre une histoire intéressante à raconter. Bien que nous trouvions la *RCST* captivante, nous savons que ce n'est peut-être pas une lecture très facile et qu'un résumé succinct pourrait être plus efficacement distribué à grande échelle. Je pense que sensibiliser le public à la géomorphologie ne peut que nous être bénéfique à long terme.

Du côté académique, les changements au CRSNG nous influenceront certainement et, par association, auront un impact sur les étudiants qui désirent se spécialiser en géomorphologie. La fin de l'exercice de redistribution du CRSNG arrive à point pour les sciences de la terre, mais reste à voir quel sera l'impact du nouveau modèle d'évaluation pour les Subventions à la découverte. Tel que je le comprends, si cela veut dire un plus grand nombre d'évaluations venant de scientifiques d'autres disciplines que les sciences de la terre, je pense que nous devons communiquer l'importance de notre recherche plus efficacement à l'extérieur de notre discipline. Nous étudions les aspects les plus excitants des sciences naturelles, nous ne devons pas oublier de le promouvoir au reste du monde. Je serais intéressé à recevoir vos commentaires.



2009 J. Ross Mackay Award Steve Kokelj, Indian and Northern Affairs

Dr. Steve Kokelj, a permafrost scientist with Indian and Northern Affairs Canada, is the 2010 J. Ross Mackay Award recipient. The award is given in recognition of his exemplary contributions to field studies of important periglacial processes in the Mackenzie Delta region. Dr. Kokelj has demonstrated an ongoing commitment to communication of results to northern residents, to agencies involved in environmental assessment and regulation, to the scientific community through an impressive body of peer-reviewed journal papers and other contributions, and through mentoring of the next generation of northern geomorphologists. His work on near-surface ground ice, active layer dynamics, thaw slump processes, ice-wedge development, tundra hummocks, sediment yield and active-layer detachment sliding has important implications for ecological integrity and

environmental sensitivity of permafrost terrain. Whereas these accomplishments amply merit him the J. Ross Mackay Award, the following paper is singled out for the award as advancing the understanding of a periglacial process widespread in the Canadian arctic and potentially hazardous to nearby infrastructure:

Kokelj, S.V., Lantz, T.C., Kanigan, J.C.L., Smith, S.L. and Coutts, R. 2009. Origin and Polycyclic Behaviour of Tundra Thaw Slumps, Mackenzie Delta Region, Northwest Territories, Canada. Permafrost and Periglacial Processes, 20: 173-184.

Thaw slump initiation and development had until recently tended to be considered as a single event lasting from initiation through to final stabilization, and thaw slump dynamics has tended to concentrate on the behaviour of the headscarp. This paper explains the common observation of rejuvenated thaw slumps and considers the thermal regime of the entire feature. The two most unique parts of the study are tying in the lake bathymetry as a control on talik growth, and the use of the temperature data to model temperature differentials as a control on thaw-slump reactivation (or poly-cyclic behaviour). Consequently, the role played by a pond or lake that usually adjoins a thaw slump can no longer be ignored in anticipating the initiation of a thaw slump or the potential for reactivation.



International Geomorphologists gather in Melbourne, Australia

Jeff Ollerhead, Mount Allison University

The 7th International Conference of the International Association of Geomorphologists took place in Melbourne, Australia in July. It was the first time the International Conference on Geomorphology has been held in the southern hemisphere since the series began almost 30 years ago. Our host for the meeting was the Australian and New Zealand Geomorphology Group. The meeting was well organized and held in brand new Melbourne Conference Centre. Although expensive, it was professionally run and well attended.

The scientific program included numerous papers, both oral and poster, in 37 themed sessions along with field trips and social events. The meeting also included 2 meetings for national delegates to the International Association of Geomorphologists (IAG/AIG). Meeting goals included hearing from the many working groups of the IAG/AIG, electing a new executive, and deciding on the locations of the next regional and international meetings. For those who may not know, the IAG/AIG is "a scientific, non-governmental and non-profit organization, whose principal objectives are development and promotion of geomorphology as a science through international co-operation and dissemination of knowledge of geomorphology" (from the IAG/AIG website: <http://www.geomorph.org/main.html>).

At present, 58 countries are affiliated with the IAG/AIG through their National Scientific Members. New members joining at this meeting included Ethiopia, Greece and Indonesia. I attend the IAG/AIG meetings as Canada's delegate. Minutes from these meetings are not yet posted, so a brief summary is provided here:

- A number of new working groups were created (~ 8) and others were extended for another (4 year) term.
- A new executive was elected as follows:
 President: Prof. Michael Crozier (New Zealand)
 Vice-President: Prof. David Dunkerley (Australia)
 Vice-President: Prof. Eric Fouache (France)
 Vice-President: Prof. Piotr Migon (Poland) - Working Groups Officer
 Secretary General: Prof. Morgan De Dapper (Belgium)
 Treasurer: Prof. Francisco Gutiérrez (Spain)
 Publications Officer: Dr. Sunil Kumar De (India)
 Co-Opted Members: Bianca Carvalho Vieira (Brasil), Prof. David Higgitt (Singapore) - Public Relations Officer, Prof. Yoshimasa Kurashige (Japan), Prof. Lothar Schrott (Germany/Austria), Prof. Mauro Soldati (Italy) - Young Geomorphologists Training Officer, Prof. Xiaoping Yang (China), and Prof. Zbigniew Zwolinski (Poland) - Webmaster

The next Regional meeting will be held in Addis Ababa, Ethiopia in 2011.

The next International meeting will be held in Paris, France in 2013.

Finally, it is with pleasure and pride that I report that Dr. Olav Slaymaker (UBC) was made an Honorary Fellow of the IAG/AIG at the meeting. Congratulations Olav and thank you for many years of dedicated service to your discipline and your colleagues.

CGRG sets strong example for Study Groups within the CAG

Greg Brooks, Vice-President

CGRG is formally a 'study group' Canadian Association of Geographers (CAG). At the recent CAG annual conference held at Carleton University (May 25-30, 2009), I represented CGRG at the Study Group Chairs Luncheon which provides a venue for the CAG Executive to interact directly with the CAG study groups. Each of the ten (or so) working groups represented at the meeting were asked to give a brief report of their activities over the past year and their number of members.

The degree of activity was surprisingly broad, ranging from essentially inactive (few members, no newsletter, no meetings, no sponsored sessions, no student awards, in danger of being shut down by the CAG Executive) to extremely active (in excess of 230 members, biannual newsletter,

multiple sponsored sessions and field trips at conference, student awards). I am pleased to state that CGRG represented the most positive extreme of this spectrum of activity!

The CAG Executive emphasized that study groups should offer free memberships to students (CGRG already does this). There were also reminders that the working groups need to submit a financial statement and an annual report to the CAG by each December 31 (CGRG is up-to-date), and there was a request for items for the CAG newsletter, particularly relating to announcing student awards. Overall, my distinct impression was that CGRG is a very strong study group within the CAG.



A triumvirate of Mackay winners:

Thomas Buffin-Belanger, Brian Menounos and Ian Walker accept their J. Ross Mackay Awards at SFU. Photograph by Dan Shugar.

Simon Fraser hosts CGRG and CANQUA Joint meeting highlights sand, ice and water

Stephen Wolfe, Past President

This year's annual general meeting was held in conjunction with the Canadian Quaternary Association at Simon Fraser University. Over 185 people attended the week-long meeting on summit of Burnaby Mountain. Prior to the meeting, Olav Lian and Tracy Brennand led a dozen participants on a CGRG-sponsored four-day field trip through BC's Southern Interior. CGRG also sponsored two other mid-meeting field trips on landslides hazards on the Sea-to-Sky highway, lead by Andrée Blais-Stevens, and Fraser River morphology and dynamics, lead by Jeremy Venditti. Good weather and good company was enjoyed on all field trips.

This year's meeting provided an ample selection of diverse sessions and short courses, along with over 100 presentations and 50 posters. As is typically the case at CANQUA-CGRG meetings, the conference provided an excellent integration of geomorphology and Quaternary geology.

For CGRG, this year's highlight was the presentation of the three J. Ross Mackay Award lectures, representing winners from 2007, 2008 and 2009. Ian Walker, Brian Menounos, and Thomas Buffin-Belanger provided a diverse suite of talks on eolian, glacial and fluvial geomorphology. All speakers were highly motivated in knowing that a complementary bottle of single-malt scotch was waiting for them after their presentations.

CGRG also sponsored three special sessions, including a session in honour of Bob Gilbert, another on sedimentary

processes and landscape evolution, and a third on natural hazards. Student presentations in these sessions were eligible for the Olav Slaymaker Award. This year's awards included certificates personally autographed by the distinguished geomorphologist himself, and were presented to Tom Barchyn of the University of Lethbridge for best student talk, and James McDonald of Simon Fraser University for best student poster. Although the autographed certificates are in themselves, invaluable, each student also received fifty dollars from CGRG. Thanks to Scott Lamoureux, Brian Menounos, Joe Desloges, Jeremy Venditti, Dan Shugar and John Clague for organizing the sessions.

Finally, special thanks to Brent Ward for organizing and surviving the meeting, and for arranging a delicious banquet spread!



Photograph by Dan Shugar.



Left: James McDonald and Tom Barchyn receive CGRG's Slaymaker Awards for best student contributions. **Above:** Olav Slaymaker. Photographs by Dan Shugar.

Work on wind erosion, landslides take 2009 Slaymaker awards

Here are the winners of the 2009 Olav Slaymaker Awards that were announced at the joint CANQUA/CGRG meeting in Vancouver. Congratulations to Tom and James!

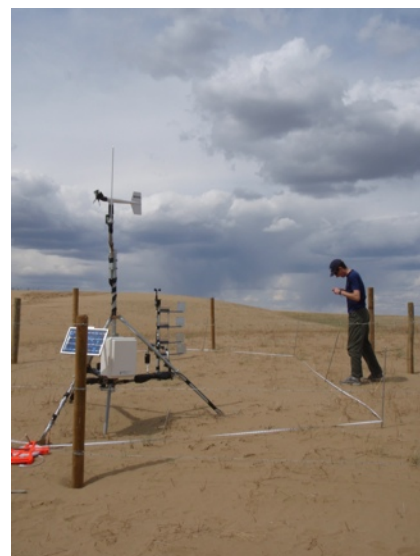
Best oral presentation

Tom Barchyn, University of Lethbridge, for his presentation (co-authored by Chris Hugenholtz), *Surface controls on aeolian sand transport in a cold-climate dunefield.*

In cold-climate dunefields dramatic changes in surface conditions control the speed of wind required to initiate sand transport (entrainment threshold). Complex and interacting factors include ground freezing, snow cover, variable soil moisture, and seasonal changes in vegetation. Since entrainment threshold forms the basis of formulas used to estimate sand transport and landform morphodynamics, a reliable predictive model relating threshold to meteorological conditions is critical. To resolve this, we initiated a research project in 2008 with a study site located in the Bigstick Sand Hills of Saskatchewan. Data are collected by an erosion monitoring system every 5 minutes. This system measures: saltating sand, sand flux, wind speed and direction, air and ground temperature, soil moisture, relative humidity, solar radiation, and precipitation. Two sites (vegetated and bare sand) are simultaneously monitored to isolate the influence of vegetation growth and dormancy. In addition, a digital camera records photographs of surface conditions. Preliminary results reveal that the entrainment threshold varies between 5-9 m/s (measured at 2 m height). Variability occurs at sub-hour timescales throughout the day and has strong correlations with snow cover and ground freezing, and weak correlations with solar radiation and air temperature. As expected, these data demonstrate that entrainment threshold cannot be considered constant. Thus, with the creation of an empirical model, the accuracy of sand transport equations will be substantially improved, and this research will provide essential insight into how surface conditions can affect the morphodynamics of cold-climate dunefields.

Tracking erosion in the Big Stick Sand Hills.

Photographs by Tom Barchyn.



Best poster

James McDonald, Simon Fraser University, for his poster (co-authored by Brent Ward and Tom Millard), *The effects of timber harvesting and windthrow on landslide initiation, Vancouver Island, BC.*

Coastal British Columbia experienced several large storm events during the winter of 2006/2007. One storm event, causing a majority of the landslides on November 15, 2006 in the Klanawa, Sarita and Nitinat River Valleys, was accompanied by high winds in excess of 100 km/hr and rainfall exceeding 200 mm in 24 hours. Approximately 150 landslides were initiated during the winter season, of these, 48 open slope cutblock and windthrow associated landslides were investigated.

Terrain attributes and root density measurements for 24 cutblock and 24 windthrow landslides were collected in the field during the summer of 2007 and statistically analyzed. The windthrow related landslides were primarily adjacent to existing clearcuts. The clearcut related landslides were associated with concave slopes averaging 34° and morainal soils with an average depth of 1.1 m. They had an average length of 230 m and all were classified as debris flows, with a majority impacting streams. The windthrow related landslides were associated with steeper convex slopes averaging 39° and colluvial soils with an average depth of 0.6 m. They had an average length of 130 m, with 12 debris flows and 12 debris slides. Fewer of these landslides impacted streams. T-tests and chi-square tests indicate a significant difference ($p < 0.05$) between all of these variables for clearcut and windthrow related landslides.

To examine the effects of harvest age and root reinforcement several root density samples were taken at each landslide to measure the existing root density and quality. These measurements were statistically analyzed using bivariate fit tests and t-tests. Root densities in the 0-5 mm and 5-10 mm diameter classes showed a decline during the first 12 years after timber harvesting with a more gradual increase between 12 and 50 years after harvest. The 10-15 mm and >15 mm diameter classes showed limited root density change over time. The percentage of good quality roots declined during the first 12 years after harvest in the 0-5 mm, 5-10 mm and >15 mm diameter classes with an increase in root quality between 12 and 50 years after harvest in the 0-5 mm diameter classes. Other root diameter classes showed no statistical variation in root quality.



Coastal researchers have observed a basal organic soil layer associated with landslides. A basal organic soil layer, commonly overlying dense till or bedrock, was identified along the failure plane of 30 landslides. The basal organic soil layer averaged 11 cm thick in areas with morainal soils on lower concave slopes with poor drainage. Whereas it averaged 4 cm thick in areas with well drained colluvial soils on upper convex slopes. T-tests and chi square tests were carried out and showed a significant difference ($p < 0.05$) between areas with relatively thick and relatively thin accumulations of a basal organic soil layer. Loss on ignition tests identified that the organic soil consisted of between 35 and 88% organic content with an average of 66%. Shear box tests, atterburg limits and x-ray diffraction will be used to further characterize the soil for numerical modelling of the failure mechanisms involved.

The results of this research project are showing significant differences between attributes of landslides in windthrow and clearcuts as well as landslides in clearcuts of different ages.

Digging into landslides caused by windthrow in coastal BC.
Photographs by James McDonald.



Researcher Profile

Dr. Martin Ross

University of Waterloo

How does someone become a geoscientist? For Martin Ross, it might have all started on that summer evening of 1976 when he was staring at the full moon beside his father outside of the family home in Laval, QC. There, his father explained how just a few years earlier some astronauts had been walking on the moon taking rock samples for scientific analyses. Collecting rocks sounded like an interesting thing to do. Or perhaps it's because there was always a National Geographic magazine on the coffee table in the living room. Martin couldn't read English at the time but he was fascinated by the maps. Later, after several canoe-camping and cross-country skiing trips in eastern Canada, Martin wanted to learn more about maps and the planet we live on. He obtained a BSc degree in Physical Geography from the Université du Québec à Montréal (UQAM). By then, his interests had become more focused on Quaternary stratigraphy, sedimentology, and geochronology and he decided to pursue graduate studies in Earth Sciences. Under the direction of Michel Lamothe at UQAM, Martin studied a prominent Quaternary stratigraphic section along the Porcupine River in northern Yukon. He spent countless hours working in the Lux Laboratory



Martin Ross poses on thin carbonate till on Southampton Island, Nunavut

studying the luminescence behaviour of his samples. He also successfully dated last interglacial wood using the U-Th method with Bassam Ghaleb at the GEOTOP. After his MSc, Martin worked as an exploration geologist in northern Québec for nearly three years during which time he developed expertise in "drift prospecting". Not only did he find gold up there, he also met with the partner of his life. They left northern Québec ten years ago but if they return one day it will be for a canoe or kayak trip with their two children, now 6 and 4 years old.

Martin's PhD dissertation investigated the three-dimensional subsurface Quaternary stratigraphic architecture of a large area northwest of Montreal. This project was part of a regional hydrogeology study lead by the Geological Survey of Canada. Under the direction of Michel Parent and thanks to the outstanding training environment of this project, he learned to use high resolution seismic profiling techniques, stratigraphic data, extensive borehole databases, and state-of-the-art geomodelling software to reconstruct the regional glacial dynamics and paleogeography. He also investigated various hydrogeologic applications to his 3D regional geologic model. Martin

joined Richard Martel's Research Group at the INRS in Québec City in 2004. He contributed his expertise in 3D geologic modelling of glaciated terrains to environmental assessments of large military training ranges across Canada. This experience helped Martin further develop his knowledge of the Canadian glacial landscape.

Martin joined the Department of Earth Sciences at the University of Waterloo in 2006. He has been involved as PI or co-PI in several projects in various settings including the Canadian Prairies, northern Manitoba, Nunavut, Southern Ontario, Illinois, and Finland. His current research focuses on past glacial environments with a particular emphasis on the subglacial sediment-landsystems and the imprint of paleo-ice streams. The approach is multifaceted, involving the examination of glacial sediments directly from stratigraphic sections and borehole samples, as well as laboratory investigations and indirect approaches using geophysical tools and computer modelling. He is currently building a capacity for geomodelling glaciated terrains in three-dimensions with financial support from the CFI as well as the Ontario Infrastructure Funds.



Observing glacial features in bedrock, Southampton Island NU



Student Profile

Alan Hidy, Dalhousie University

Alan is a Ph.D. candidate working with Dr. John Gosse at Dalhousie University. Focusing on astronomy at the beginning of his academic career, he pursued and completed Bachelor's degrees in Physics and Geology at Utah State University, USA. During his final year at Utah State, Alan began an honours thesis with Dr. Joel Pederson working to obtain exposure ages for stream terraces in the Grand Canyon using terrestrial cosmogenic nuclides (TCNs). Fascinated by this emerging technique, its interdisciplinary nature, and the variety of its potential applications, Alan came to Canada in 2006 to study the method at Dalhousie's Cosmogenic Nuclide Extraction Facility.

Alan's dissertation work involves using TCNs to measure Quaternary and Pliocene basin-wide average erosion rates in order to study the response of non-glaciated landscapes to

long-term changes in climate. His study has thus far established a Quaternary erosion rate record from several river systems in central Texas, with Pliocene measurements pending. Alan is also collaborating with Duane Froese in the Klondike district of the Yukon to obtain paleo-erosion rates and burial ages for the White Channel Gravel deposits. This work will evaluate a standing hypothesis linking the emplacement of the rich placer gold deposits of the Klondike Goldfields to changes in landscape weathering and erosion.

When he's not liberating rare nuclides from rocks, Alan enjoys star gazing, a rigorous hike, playing piano, hockey, and a good ol' fashioned Texas BBQ. He plans to defend in September 2010 and pursue post-doctoral work in Quaternary science.



UVic's Bethany Coulthard hoists a cross-section from a remnant tree in the Coast Mountains of British Columbia.

Photograph by Dan Smith.

UVic student awarded Dionne prize for presentation at Geographers meeting

Bethany Coulthard, a graduate student at the University of Victoria, was awarded the CGRG's Jean-Claude Dionne Award for best oral presentation at the 2009 Canadian Association of Geographers meeting.

The CGRG sponsored a special session on 'Environmental and cultural insights from tree rings' organized by Mike Pisaric (Carleton University) and Scott St. George (Geological Survey of Canada). Presentations ranged across the breadth of dendrochronology, and showed how tree-ring data are being used to address critical issues such as the future productivity of mixed forests, changes in the frequency of cool summers, the rhythm of glacial dynamics and long-term trends in surface water resources.

Bethany's presentation was co-authored with her supervisor, Dan Smith, and was titled 'A dendroglaciological reconstruction of glacial history at the Confederation and Franklin Glaciers, central British Columbia Coast Mountains, Canada.'

Abstract

Dendroglaciological research was completed at the confluence of the Confederation and Franklin Glaciers in the central Coast Mountains of British Columbia, Canada. Most glaciers in this area reached their maximum Holocene downvalley extent during the late Little Ice Age (LLA) and have since experienced an interval of general retreat and downwasting. Today LLA landforms and deposits dominate the valleys of the Coast Mountains. At our study site, however, older Holocene-age deposits and wood detritus overrun and buried during preceding glacial advances are exposed within stream-side incisions and collapsing lateral moraines.

Our study aims to provide a late Holocene history of glacial activity for Confederation Glacier, and to develop proxy climate and mass balance records from tree-rings in the vicinity of the Confederation-Franklin confluence. The advantages of both tree ring width and tree ring density are being explored. Field investigations in July 2008 focused on surveys of glacier forefields and proximal lateral moraine deposits. Our preliminary findings provide dendroglaciological evidence for the timing of the Tiedemann and early Little Ice Age advances. We expect that our research will assist with broader-scale reconstructions of late Holocene glacier activity in the British Columbia Coast Mountains, and establish links between significant climate forcing events and late Holocene glaciological responses.



CGRG recognizes young geomorphologists with Dionne and Trenhaile Awards

Attention session organizers! Funding from the Canadian Geomorphological Research Group is available to support student awards in geomorphology and related disciplines at regional or national conferences. The awards honour two of Canada's most prominent geomorphologists and are awarded for best student presentation (The Jean-Claude Dionne Award) and best student poster (The Alan S. Trenhaile Award).

Contact CGRG President Duane Froese to add CGRG student awards to your next session!





Meeting announcement Regina hosts CGRG and CAG in 2010

The Department of Geography at the University of Regina has extended a warm invitation to CGRG members to attend 'The Prairie Summit' on June 1 to 5, 2010. The Summit will, for the first time, bring together members from the *Canadian Association of Geographers*, the *Canadian Cartographic Association*, the *Canadian Geomorphology Research Group*, and the *Canadian Remote Sensing Society*.

Dr. Kyle Hodder, who was profiled in the February 2009 issue of *The Canadian Landscape*, asks CGRG members to share their suggestions on possible thematic sessions, especially on topics that span the interests of the sponsoring associations. Kyle can be contacted via email at kyle.hodder@uregina.ca.

Field trips convened as part of the Prairie Summit will visit several sites in Saskatchewan including the Qu'Appelle Valley, Moose Jaw, the Avonlea Badlands and Claybank. An extended post-conference field trip is planned for Grassland National Park, the Cypress Hills and the Great Sand Hills.

More information is available at the conference website, www.prairiesummit.ca.

Deadline for session proposals:

February 15, 2010

Deadline for abstract submission:

March 15, 2010

Acceptance notification sent to authors by:

March 25, 2010

Author registration deadline:

April 1, 2010

(At least one author must register by this date to prevent the abstract from being removed)

Authors will have the option to submit papers to one of a number of planned special publications, including the *Canadian Journal of Remote Sensing and Prairie Forum* (published by the Canadian Plains Research Centre).



Photographs by Dan Hall.



Join the Canadian Geomorphology Research Group

CGRG was established in 1993 at the International Association of Geomorphology Congress in Hamilton, Ontario. It provides a strong voice for geomorphology in Canada. Its objectives are to advance the science of geomorphology in Canada by 1) organizing and sponsoring technical sessions, workshops, and field trips, 2) publishing newsletters twice a year, 3) operating a listserv (CANGEORG) which maintains a comprehensive bibliography of Canadian geomorphological, Quaternary, and environmental geoscience publications, 4) supporting publication of technical reports and field guides, 5) presenting the J. Ross Mackay Award in recognition of a significant achievement by a young geomorphologist in Canada, and 6) co-operating with related earth science associations within Canada (GAC, AQQUA, CAG, CANQUA, CGU).

We encourage all earth scientists with an interest in geomorphology to join CGRG.

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