



**NEWSLETTER OF THE CANADIAN
GEOMORPHOLOGY RESEARCH GROUP**

**BULLETIN DU GROUPE CANADIEN DE
RECHERCHE EN GEOMORPHOLOGIE**

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PRESIDENT'S MESSAGE - MOT DU PRÉSIDENT

Welcome to the summer issue of the CGRG newsletter. In May we held our AGM at the Geological Association of Canada's annual conference in Montreal. The lunchtime meeting followed two CGRG-sponsored events: a special session on *The dynamics of the St-Lawrence River and its tributaries* and the J. Ross Mackay Award lecture by Duane Froese, University of Alberta. Thanks to Pascale Biron, Concordia University, and André Roy, Université de Montreal, for organizing the special session. Pascale's report appears on page 14 of this newsletter, along with the announcement of Lise Lamarche as the Olav Slaymaker student award winner for best presentation during the session – congratulations Lise. The citation by the 2006 Mackay Award committee for Duane Froese appears on page 5.

The President's and Secretary/Treasurer's reports were tabled at the AGM and are available for viewing on the CGRG website. One important achievement this year was the unanimous approval by the membership of some necessary constitutional changes and the terms of our new association with the Canadian Geophysical Union. Another achievement for which the executive is particularly proud was the quadrupling of our student membership, which we

promoted through the elimination of annual fees. With the help of our new student executive member, Dan Shugar, we hope to develop and promote specific initiatives for our student members.

At the AGM we launched two related new initiatives for which we would like to encourage membership participation. The first involves our contribution to the *2008 International Year of Planet Earth*. This year-long celebration aims to demonstrate the great achievements made in the geosciences and to urge politicians and decision-makers to apply such knowledge for the benefit of humankind. See further details at their web site (www.yearofplanetearth.org). Over the next 6 months or so the geoscience community will be discussing how best to promote and celebrate this international event in Canada. CGRG executive would like to receive ideas on how we should celebrate and promote geomorphology in Canada, especially to decision-makers and the general public. Cheryl McKenna Neuman and I will coordinate CGRG's initiatives – please email us with your suggestions.

The second initiative involves a new promotional item (now that you have your CGRG t-shirt) – a CGRG calendar

displaying 12 or more landscape/geomorphology photographs submitted by members. We would like to launch the calendar as part of our *2008 Year of Planet Earth* celebrations, so please consider submitting that favourite field photograph when we announce details of the calendar contest this fall.

The CGRG executive approved sponsorship of geomorphology-themed sessions at national (Rivers – CANQUA 2007) and regional (Canadian Water Resources Association, geomorphology subcommittee) conferences, support of student prizes (t-shirts) at three regional CAG meetings (Atlantic, Ontario, Western), and partial sponsorship of an international conference in Canada (Alluvial Fans 2007). The executive welcomes sponsorship applications for geomorphology sessions at upcoming national and regional meetings (e.g. GAC Yellowknife 2007, GAC Québec 2008; CAG Saskatoon 2007, CAG Québec 2008; AQQUA and CGU annual meetings in 2007 and 2008).

This column marks the end of my year as CGRG president and I proudly hand over the tiller to Dirk de Boer, University of Saskatchewan. I would like to thank the executive for their help and support and pay particular tribute to Cheryl McKenna Neuman for her 3-year term on the executive. At this time I would also like to welcome back Yves Michaud, Geological Survey of Canada, formerly newsletter editor, as our new Vice-President. I wish everyone a safe and relaxing end to the summer and look forward to meeting you at next year's AGM at the CANQUA meeting in Ottawa (<http://www.mun.ca/canqua/>).

Trevor Bell
CGRG President

Best wishes for 2007,
Trevor Bell
tbell@mun.ca
CGRG President

Bienvenue à l'édition d'été du bulletin du GCRG. Notre réunion générale annuelle s'est tenue en mai dernier à Montréal lors de la conférence annuelle de l'Association Géologique du Canada. La réunion du midi faisait suite à deux événements parrainés par le GCRG, soit une session spéciale sur *La dynamique du Fleuve St-Laurent et de ses affluents* et la présentation du Prix J. Ross Mackay par Duane Froese de l'Université du Manitoba. Je tiens à remercier Pascale Biron de l'Université Concordia et André Roy de l'Université de Montréal pour l'organisation de cette session spéciale. Le rapport de cette session se trouve en page 14 de ce bulletin, conjointement à l'annonce du discernement de la bourse étudiante Olav Slaymaker à Lise Lamarche pour la meilleure présentation lors de la session - félicitation à Lise. La citation de Duane Froese par le comité du Prix Mackay 2006 apparaît en page 5.

Les rapports du Président et du Secrétaire/Trésorier ont été rendus public lors de la réunion générale annuelle et sont disponibles sur le site internet du GCRG. Cette année, le consensus relatif aux changements nécessaires de la constitution et des termes de notre nouvelle association avec l'Union Géophysique Canadienne a été un accomplissement important. La multiplication par quatre du nombre de nos membres étudiants est un second accomplissement dont le comité exécutif est particulièrement fier. Cette augmentation a été facilitée par l'élimination des frais annuels pour les étudiants. Nous espérons

développer et promouvoir des initiatives spécifiques pour nos membres étudiants grâce à l'aide de notre nouveau membre exécutif étudiant, Dan Shugar.

Lors de la réunion générale annuelle, nous avons lancé deux nouvelles initiatives pour lesquelles nous aimerions encourager la participation de nos membres. La première a trait à notre implication lors de l'*Année Internationale de la Planète Terre* en 2008. Cette célébration a pour but de présenter les grands accomplissements réalisés en géoscience ainsi que de presser les politiciens et autres preneurs de décisions d'appliquer ces connaissances au profit de l'humanité. Pour de plus amples informations, vous pouvez consulter leur site internet à www.yearofplanetearth.org. Au cours des six prochains mois, la communauté géoscientifique pourra discuter de la meilleure façon de promouvoir et de célébrer cet événement d'envergure internationale au Canada. Le comité exécutif du GCRG aimerait recevoir vos idées relativement à la célébration et à la promotion de la géomorphologie au Canada, spécialement au niveau des preneurs de décisions et du public en général. Cheryl McKenna Neuman et moi-même coordonnons les initiatives du GCRG alors faites-nous parvenir vos idées par courriel.

La deuxième initiative est de développer un nouvel objet promotionnel, soit un calendrier du GCRG comprenant 12 photographies ou plus soumises par nos membres et illustrant des paysages et des processus géomorphologiques. Nous aimerions lancer ce calendrier dans le cadre de nos célébrations de l'*Année Internationale de la Planète Terre* en 2008. Veuillez donc considérer la soumission de votre photo de terrain favorite lorsque nous

annoncerons les détails du concours cet automne.

Le comité exécutif du GCRG a approuvé le parrainage de sessions ayant la géomorphologie pour thème lors de conférences nationales (Rivières – CANQUA 2007) et régionales (L'Association canadienne des ressources hydriques, sous-comité en géomorphologie), le soutien matériel (chandails) pour des prix étudiants lors de trois réunions régionales de l'ACG (Atlantique, Ontario, Ouest) ainsi que le parrainage partiel d'une conférence internationale tenue au Canada (Alluvial Fans 2007). Le comité exécutif vous invite à présenter une demande de parrainage pour des sessions spéciales lors de futures réunions régionales ou nationales (ex.: ACG Yellowknife 2007, ACG Québec 2008, ACG Saskatoon 2007, réunion annuelle de l'AQUA et de l'UGC en 2007 et 2008).

Ce message marque la fin de mon année en tant que Président du GCRG. Je passe fièrement le relais à Dirk de Boer de l'Université de Saskatchewan. Je tiens à remercier les membres du comité exécutif pour leur aide et leur support en portant une attention particulière à Cheryl McKenna Neuman pour ses trois années au sein du comité. J'aimerais souhaiter la bienvenue à Yves Michaud de la Commission Géologique du Canada qui, ayant participé en tant qu'éditeur du bulletin par le passé, nous reviens cette année en tant que Vice-Président. Je souhaite à tous et à toutes une fin d'été sécuritaire et reposante en espérant vous revoir à la prochaine réunion générale annuelle de la CANQUA à Ottawa (<http://www.mun.ca/canqua/>).

Meilleurs voeux pour la nouvelle année
Trevor Bell

ICOMING PRESIDENTS MESSAGE

I would like to take this opportunity to extend on behalf of the executive the very best wishes for 2007 to all members of the CGRG. In 2007 we have a number of excellent meetings on the agenda, such as GAC/MAC in Yellowknife from May 23 through May 25, and CANQUA in Ottawa from June 4 through June 8. For CANQUA, a number of special sessions that will be of interest to the geomorphology community have been planned, and the CGRG sponsors a special session on “Rivers and Fluvial Processes” organized by Greg Brooks. Fluvial geomorphology has been the focus of a number of excellent special sessions at various national meetings in Canada, and the upcoming special session at CANQUA continues this rich tradition. I invite all of you with an interest in any aspect of fluvial geomorphology to participate, and I extend a special invitation to students, as student oral and poster presentations in this session are eligible for the Olav Slaymaker Award. In addition, we hope to see many of you at our AGM which will be held at CANQUA. The CGRG is your organization and needs your active participation to remain vital and prosper. I am looking forward to working with the executive and you this coming year to move forward on the activities set in motion last year under the leadership of the now Past-President Trevor Bell. Thanks Trevor, for a job well done!

Best wishes for 2007,
Dirk de Boer
dirk.deboer@usask.ca
CGRG President

Au nom du comité exécutif, j'aimerais profiter de cette opportunité pour souhaiter une bonne année à tous les membres du GCRG. Nous avons plusieurs excellentes rencontres à l'agenda de 2007, telles que celle de l'ACG/AMC à Yellowknife du 23 au 25 mai ainsi que la CANQUA du 4 au 8 juin à Ottawa. Plusieurs sessions spéciales ayant un attrait pour la communauté intéressée à la géomorphologie ont été planifiées à l'occasion de la CANQUA. Le GCRG y parrainera une session spéciale intitulée « Rivers and Fluvial Processes/Rivières et processus fluviaux » organisée par Greg Brooks. La géomorphologie fluviale a été l'objet de plusieurs excellentes sessions spéciales lors de récentes rencontres nationales et la session spéciale qui sera tenue lors de la CANQUA permettra la poursuite de cette riche tradition. J'invite tous ceux et celles qui ont un intérêt dans un aspect de la géomorphologie fluviale à participer et j'étends cette invitation spéciale aux étudiants, les présentations orales et par affiches de cette session étant éligibles au Prix Olav Slaymaker. J'espère de plus voir nombreux à notre AGA qui sera tenue lors de la CANQUA. Le GCRC vous représente et a besoin de votre participation afin de demeurer actif et prospère. C'est avec optimisme que j'entrevois la poursuite du travail amorcé l'an dernier sous la direction de notre ex-président Trevor Bell. Merci Trevor pour le bon travail!

Meilleurs souhaits pour 2007,
Dirk de Boer
dirk.deboer@usask.ca
Président du GCRC

J. ROSS MACKAY AWARD

Dr. Duane Froese, an Assistant Professor in the Department of Earth and Atmospheric Sciences at the University of Alberta, is the 2006 J. Ross Mackay Award recipient. The award is given in recognition of his important contributions to our understanding of the late Cenozoic environmental history of eastern Beringia, one of the oldest landscapes in Canada. His contributions include (1) confirmation of the hypothesis that the Yukon River reorganized itself in response to continental glaciation about 2.6 million years ago, (2) demonstration that continuous permafrost was established in the Yukon by about 3 million years ago based on the presence of relict periglacial features in the Klondike, (3) the discovery of relict ground ice that is nearly 1 million years old in the same region, and (4) the recognition that organic beds in reworked loess deposits in eastern Beringia are the interglacial deposits formed under boreal forest conditions.



Dr. Froese is described by the nominators for the award as a brilliant young scientist and leader, one of the most dynamic and promising young Quaternary researchers in Canada, and a well-informed spokesperson for Canadian geomorphology and Quaternary studies. Although he obtained his PhD from the University of Calgary in 2001, just 5 years ago, Dr. Froese already has a total of 12 papers in monographs and top-quality journals. His approach is multidisciplinary, and he is well known for

his capability to serve as a catalyst in multifaceted research projects.

Through having contributed an impressive body of work on Beringian paleoenvironments, Dr. Froese's nomination singled out the following publication as having greatest significance.

Froese, D. G., Westgate, J. A., Preece, S. J., and Storer, J. 2000. Paleomagnetic evidence for multiple late Pliocene-early Pleistocene glaciations in Yukon Territory. *Canadian Journal of Earth Sciences*, 37: 863-877.

As summarized by the Mackay Award Committee, this paper integrates original



field observations and paleomagnetic data with an extensive body of previous literature to provide a well constrained chronostratigraphic framework for the Yukon extending well into the Pliocene. It establishes the earliest evidence of permafrost in northwestern North America and the timing of the first regional glaciation. The framework presented in this paper is of broad applicability throughout

Beringia, as demonstrated by a number of subsequent publications by Froese and others. The paper also has significant implications for understanding of global climate regimes and the initiation of late Cenozoic glaciation.

At the [2006 CGRG AGM](#) Dr. Froese presented his J. Ross Mackay lecture

entitled “Toward a history of permafrost in the western Arctic and its long term survival over the last 700,000 yrs”.

Cheryl McKenna Neuman
Chair, J.R. Mackay Award Committee

CALL FOR NOMINATIONS FOR THE J. ROSS MACAY AWARD

The J. Ross Mackay award is to be presented annually by the CGRG in recognition of significant achievement in research by young geomorphologists within Canada. The purpose of this award is to encourage and foster the development of geomorphology in Canada and to provide public recognition of young scientists in this field.

Criteria

The award is to be given for a significant contribution to geomorphology. It may constitute either a single publication appearing within a five-year period previous to the nomination, or a body of work. The candidate’s contribution(s) may include a synthesis or regional study, a new concept, a significant advance in a subfield of geomorphology, or the development of a technique. In the case of contributions with multiple authors, the candidate must have assumed a lead role in the development of the work, and this role must be clearly explained in the nomination letter.

The recipient normally will be: (1) a CGRG member or a member of one of the supporting societies; (2) either a Canadian citizen or resident and working in Canada; (3) within 10 years of graduation from a PhD or Masters or undergraduate program, exclusive of periods relating to parental or

medical leaves. The award can be made to an individual or research team, providing that the principal investigators fulfill these criteria. Full details are provided on the CGRG website:

<http://cgrg.geog.uvic.ca/jrml.htm>

Nominations for the Award

Nominations shall be made in writing to the Chair of the J. Ross Mackay Award Committee by February 28, 2007 and sent to:

Dr. Trevor Bell
Chair, J.R. Mackay Award Committee
c/o Dept of Geography,
Memorial University of Newfoundland
St. John’s, NL
A1B 3X9

Nominations should be made by two CGRG members and must be accompanied by an up-to-date CV for the nominee. Letters of support by the Proposer and Seconder should outline the basis for the nomination (see criteria above). The Proposer and Seconder may not have acted as supervisors (or directors) of the nominee's research; however, additional supporting letters may be included with the nomination.

OLAV SLAYMAKER AWARD

Lise Lamarche, from the Département des sciences de la Terre et de l'atmosphère, Université du Québec à Montréal (UQAM) was awarded the 2006 Olav Slaymaker award. The title of her presentation at the CGRG St. Lawrence Special Session at the GAC-MAC meeting in Montréal was:

“Dating Holocene sediments and landforms using luminescence and radiocarbon: a tool for deciphering the recent evolution of the St. Lawrence River drainage system.”

Congratulations Lise!



Trevor Bell and Pascale Biron present the Slaymaker award to Lise Lamarche (centre)

CGRG STUDENT PRESENTATION AWARDS AT WDCAG

The winners of the coveted CGRG t-shirt at the WDCAG meeting March 11-12, 2006 in Kamloops were:

1) Undergraduate student presentation -
Melanie Grubb

Late Pleistocene glacier advance in the
Middle Coast Mountains, British Columbia

2) Best graduate student presentation -
Rebecca Cumming

Fetch length and driftwood-induced
roughness effects on airflow dynamics over
a macro-tidal beach-dune system: NE
Graham Island, British Columbia, Canada.

Dan Smith

LOGAN AWARD

The Logan Medal, the highest award of the Geological Association of Canada is presented, usually annually, to an individual for sustained distinguished achievement in Canadian earth science.

Claude Hillaire-Marcel of the University of Québec à Montréal has been selected as the 2006 winner of GAC's Logan Medal for

sustained, distinguished achievement in Canadian earth science. He is cited for his unique contribution in developing isotope geochemistry as a tracer in studies of the Earth system, and conducting groundbreaking fundamental and applied research on the environment, climate change, and oceanography.

GAC Press Release

E.R. WARD NEALE AWARD

John Clague of Simon Fraser University has been named the 2006 winner of the E.R. Ward Neale Medal for sustained outstanding efforts in sharing earth science with Canadians. John has made outstanding contributions to public awareness of earth science across Canada through a remarkable

range of significant activities: as a prolific public lecturer and spokesperson to Canada's media, as an inspired innovator and pioneer of Geoscape, and visionary leader of Canadian geoscience societies.

GAC Press Release

CANQUA W.A. JOHNSTON MEDAL NOMINATIONS

Canadian Quaternary Association is currently seeking nominations for its highest award, the W.A. Johnston Medal. This award, bestowed by CANQUA, recognizes professional excellence in Quaternary research. Complete nomination packages must be received by the 2007 Committee Chair, Dr. Les Cwynar, at the address below before **19 February 2007**.

Criteria and other details concerning the Johnston Medal may be found on the CANQUA web page at:

<http://www.mun.ca/canqua/johnstonnom.html>

Questions or comments concerning the Johnston Medal nomination process should be directed to Les Cwynar.

Les Cwynar
Biology Department,
P.O. Bag Service 45111,
Fredericton, N.B. E3B 6E1

DERALD SMITH'S RETIREMENT PARTY

Friends, colleagues and former students gathered on April 14th to celebrate Derald Smith's 'official' retirement after 35 years of service in the Department of Geography at the University of Calgary. A near-standing room only crowd shared stories, presented gifts and thanks.

Derald began in the department in 1971, while still completing his PhD with Gordon Wolman at Johns Hopkins University on the 'braided' Alexandra River a few hours west of Calgary. It seems surprising now, knowing Derald's productivity over the last

30 years, but he was several years in publishing that work which formed the early basis for his model of anastomosing rivers; an idea he's returned to several times over the last 30 years and probably the single work that he's most recognized for. But therein is the trouble of trying to capture a research career in a paragraph. Derald was, and is, above all else interested in ideas, and at the root of what seems a fairly diverse career lies the river. His 100-plus research publications span fields ranging from riparian ecology, reservoir management, application of shallow geophysics to fluvial

deposits, river ice, post-glacial fish dispersal, tidal estuarine sedimentation, basin analysis, placer gold deposits, modern analogues to hydrocarbon reservoirs, large rivers, and the list goes on and will keep going on long after 'official' retirement has started.



Photo: Tim Fisher

Many of his former students made the trip to the party, and many recounted their own versions of infamous though sometimes confusing encounters. Above all though, everyone expressed their thanks for his mentorship. As for the party, stories were told of (mis)adventures on field trips, which from today's perspective of risk management must be considered as folklore or the geographic equivalent of urban myth. Recounted here in true Smith-fashion, to reinforce that field trips are things worth doing if for no other reason than because, 'they give you something good to talk about'. It should be noted that all involved reportedly survived, and only names have been omitted. Highlights included: arrested students (*more detained than technically arrested*); late night conflicts between Pincher Creek ranch-hands and Calgary undergraduates; neck-deep chest-waders

(*he's now an Associate Professor- clearly he lived*); a punctured zodiac on an open lake crossing in a storm (*clearly an indication of the superiority of DGPS over a theotolite stand*); lost outboards (*but never without a paddle*); stolen fuel lines (*see paddle*), sunken rafts (*don't sleep on the raft*); Professors sleeping on floors (*but never Smith*); the wisdom of keeping your tent high on a river bar (*they can come up at night too, you know*); tipped outhouses (*the victim is now teaching somewhere in BC*); bears, bears, bears; and even, imagine this administrators, taking an entire class of 75 students out on a real glacier! Above all though, one point was clear, Smith is the consummate field scientist and trip leader who always stressed the importance of tying geomorphology to, well, landforms and things that occur outside.

In the end all wished Derald good luck and good boating into his retirement, knowing he would increase his skiing days with the completion of his teaching, while still maintaining his research program. As he mentioned, 'there are still graduate students to get through the door, a new PDF just arrived, and I've got an idea that I want to check out this summer'. I remember when I arrived as a graduate student, Derald explaining, or at least saying, to me that he approached research the way he ski-raced - 'just like Earl Scruggs played the banjo'. I remember being a bit perplexed, but now understand a little more about what he meant and I am sure his retirement will be no different.

Duane Froese



Photo: Cheryl Pearce

SPECIAL SESSION: RIVERS UNDER THREAT AT CWRA CONFERENCE

As part of the Canadian Water Resources Association (CWRA) BC Branch 2006 Conference themed "Water Under Pressure: Balancing Values, Demands and Extremes", the Canadian Geomorphological Research Group co-sponsored a day and a half of geomorphology themed presentations which were put on by the CWRA Geomorphology Sub-Committee. The geomorphology technical presentations were book-ended by keynote addresses. To start the sessions, Dr. Peter Klingeman gave a presentation entitled "Rivers Under Threat" which explored the effect of human development on fluvial geomorphology and vice versa and encouraged a shift in thinking from traditional riverbank erosion protection practices to approaches which included active preservation of rivers and their floodplains. The sessions ended with a presentation by Dr. Mike Church who explored gravel management issues and also

touched on the need to manage rivers in a way which included the floodplain and allowed for sustained natural channel development through natural river processes in order to maintain habitat function and flow capacity. In between, the technical sessions explored facets of riparian vegetation controls on river stability, gravel and sediment supply management, regime-based modelling of stream stability and the effect of human development on rivers. The talks also included presentations on lake shore erosion management and the development of tidally-influenced channels. The Geomorphology Sub-Committee of the CWRA looks forward to their next endeavour: a proposed 2-day field workshop on fluvial geomorphology at Carnation Creek on Vancouver Island. Dates, program and registration information will be forthcoming.

Rowland Atkins

RESEARCHER PROFILE

Dr. Brett Eaton

Born in Vancouver, BC, Brett Eaton began his academic career in History at Queen's University, but an introductory course in physical geography taught by Robert Gilbert quickly convinced him that geomorphology was much better suited to his interests. He then came back west to work on a combined undergraduate honours degree in geography and geology at the University of British Columbia (UBC). As an undergraduate, Brett originally hoped to work in the North on periglacial processes, but upon applying for a summer research assistant position with Ross MacKay, he was told he was too heavy to be transported by helicopter and would probably eat too much anyway. In the end, he found a position working in the field for Michael Church and his graduate students, studying various rivers in BC. This early exposure to fluvial research quickly generated Brett's profound and continuing fascination with stream channels and their associated landforms, a fascination that underpins all of his research interests.



Following completion of his B.Sc. in 1995, Brett attended McGill University, in Montreal, where he completed his M.Sc. in geography in 1999, under the supervision of Michel Lapointe. After leaving McGill, Brett worked as a consulting geoscientist in the interior of British Columbia for four years. This experience convinced him that the scientific basis upon which existing environmental management practices were based needed to be improved, particularly

with respect to stream channel dynamics. With this objective in mind, Brett undertook a Ph.D. at UBC with Michael Church, which he completed in 2004. He then accepted an assistant professorship in the Department of Geography at UBC, where he has been teaching geomorphology and pursuing his research on stream channel dynamics ever since.



Research Interests

During his undergraduate and Master's M.Sc. theses, Brett conducted research on the interaction between fluvial processes in gravel bed streams and the quality of salmonid habitat in the streams. This work included the documentation of geomorphic effects produced by the disastrous Saguenay flood in 1996. The relations between stream channel dynamics and the nature of the aquatic habitat they produce continues to be an interest that Brett hopes to pursue further.

Brett's Ph.D. dissertation investigated the potential use of 1D semi-theoretical models (called rational regime models) to develop a meaningful framework for understanding reach-scale stream channel response to environmental changes. The primary historic impediment to the general acceptance of regime theory is that they require some sort

of optimality criterion to be analytically closed, and most of the previously proposed criteria are conceptually unsatisfactory. Working with Robert Millar (Civil Engineering, UBC), Michael Church, and Timothy Davies (University of Canterbury, New Zealand), Brett has identified a physically meaningful optimization based on flow resistance maximization for the *fluvial system*. By maximizing flow resistance, the energy available to further deform the channel is minimized, thereby producing the most nearly stable, hence most likely configuration. The paper presenting this theory won the 2004/2005 Wiley Award for best paper in the journal *Earth Surface Processes and Landforms*. Brett is currently extending this theory by refining the bank stability analyses and rigorously testing the model against stream channels in the field.

The primary field location for this testing is Fishtrap Creek, located near Kamloops, BC. The stream has a Water Survey of Canada gauge at the downstream end of the study reach, which was burned by an intense forest fire in 2003 that killed nearly all of the trees and shrubs on the floodplain. It is expected that the dramatic change in the strength of the stream banks due to a loss of root strength will result in substantial stream channel change over the next decade, thereby providing (hopefully) an excellent opportunity to document changes in stream channel morphology and to compare the observed changes against modelled predictions.



During his PhD, Brett also conducted laboratory experiments in order to test the theoretical implications associated with the maximum flow resistance criterion. These experiments involved stream channels with fully alluvial bed and banks, and streams with non-erodible banks and an alluvial bed. The results of both sets of experiments are consistent with the concept of aggregate, system-scale flow resistance being the key to understanding channel stability. Currently, Brett and his graduate students are continuing to investigate the way in which system scale flow resistance changes in experimental stream channels.

A relatively small stream tray—measuring 1 m wide and 7 m long—is being constructed at UBC in order to conduct a series of experiments on stream channel stability. In these experiments, Brett and his graduate students will attempt to replicate a layered floodplain stratigraphy that includes the

equivalent of suspended sediment deposits over top of bed material deposits. These experiments will also help clarify the issues related to the scale at which the physical models are constructed and the range of processes they faithfully reproduce.

Other ongoing projects include investigations of sediment transport in steep mountain streams, the ongoing geomorphic response of the Peace River to changes in

the flow regime following dam construction, and the testing of simple, time-aggregated suspended sediment samplers.

Brett's research program is funded by an operating grant from NSERC, as well as an infrastructure grant from the Canada Foundation for Innovation and the BC Knowledge Development Fund to build a computer laboratory for digital photogrammetry.

INTERNATIONAL YEAR OF PLANET EARTH 2008

The International Year of Planet Earth aims to demonstrate the great achievements made in the geosciences and to urge politicians and decision-makers to apply such knowledge for the benefit of humankind. Now that this IUGS and UNESCO initiative has collected the political support of 191 UN member countries, our fund-raising campaign will begin with approaches to a broad sweep of the private sector including extraction industries, governments, foundations, insurance companies, banks *et cetera*.

The International Year of Planet Earth will soon be incorporated as a legal entity with tax exempt status for donations. It will consist of a Board of Stakeholders (IUGS, UNESCO, Chairs of the Outreach, Science and Development Committees, Founding Partners, Sponsors, donors and regional representatives) and a Secretariat.

The Secretariat will be outsourced, and the call for proposals will be open until 15th of April 2006. We invite all professional geoscientific and other qualified bodies to consider hosting the International Year's Secretariat. For more details, please go to the Year's website:

www.yearofplanetearth.org.

National implementation of the Year of Planet Earth is essential for its success. We kindly invite all of you to approach your national IUGS representative, UNESCO Commission or any other relevant geoscience body in your country to start preparations for your own national Year of Planet Earth in connection and cooperation with the International Year's Secretariat. For that purpose you may wish to select 2007, 2008 or 2009, as best suits your national needs. As the preparation for UN proclamation and promotion of the International Year has been the joint responsibility of IUGS and UNESCO and of the Founding Partners, we propose that representatives of these bodies be included in your National Committee. In order to maximize advantages to be gained from the International activities and the services provided by the international Secretariat of the Year's Corporation, as well as adding an international dimension and outreach component to your national activities, we propose to formalize such relations through written agreements. Suggestions for developing national committees for the Year

of Planet Earth can be downloaded from the Year's website: www.yearofplanetearth.org.

Calls are open now for submitting *international* project proposals on the outreach programme and on selected science themes. Again, please go to our website for downloading Expression of Interest forms and submit these to the (IUGS) Secretariat.

Finally, I invite you to 'spread the word' about this major global event in the history of the Earth Sciences; never before have all nations of the world explicitly invited our geoscience communities to convey their

knowledge to society with a view to having decision-makers and governments make use of that knowledge for the benefit of all humankind. Let us work hard together to ensure that this unique triennium will be the greatest (geo)show on Earth!

Eduardo F.J. de Mulder
Chair of the Management Team
International Year of Planet Earth
Past-President IUGS

ST. LAWRENCE RIVER AND TRIBUTARIES CGRG SESSION AT GAC-MAC

Organisers:

Pascale Biron and André Roy

Two sessions with a total of 9 papers covered a wide range of issues on the current, past and future dynamics of the St. Lawrence River and its tributaries. The first session focused on the hydrology of some of the tributaries of the St. Lawrence River. The St. François River, which drains into the environmentally sensitive Lake St. Pierre, has been studied by a network of researchers, one of whom is Diane Saint-Laurent (UQTR) who showed that flooding problems have increased in the last few decades, possibly due to climatic change, and are particularly affecting areas of rapid urbanization (Sherbrooke, Drummondville), and potentially affecting the sedimentation rate in Lake St. Pierre. Hydrological changes in the St. François watershed were also examined by Ali Assani (UQTR) who found a shift from a dry period to a wet period after 1970. Canonic correlation was used to determine factors that control discharge in the specific cases of rivers with dams, which are very frequent within the St. Lawrence

watershed, but where there is often a lack of long-term hydrological data (Martin Matteau, UQTR). One of the difficulties in watershed management is to predict how climatic change will affect these rivers in the near and long-term future. Isabelle Chartier (IREQ/Ouranos) has developed a methodology to predict daily discharge in the next decades for five tributaries of the St. Lawrence River (Yamachiche, St-Maurice, Batiscan, Richelieu and St-François) based on three climate change models and two GHG scenarios. Although the long-term models for the St. Lawrence River predict a decrease in discharge, the trend is not as clear in the tributaries, where some models predict an increase of up to 12%, but others show a decrease of the same magnitude. Similar hydrological predictions have been used by Jean-François Cyr and his team (CEHQ) to examine how potential problems of water supply for irrigation due to climatic change in the Rivière des Anglais watershed (near Châteauguay), where surface water may soon no longer provide sufficient supply for farmers. The second session started by examining water level

variation at a much longer time scale, as Lise Lamarche (UQAM) was able to date the fluctuations over the last 10,000 years of Lake St. Pierre using K-feldspar infrared stimulated luminescence and radiocarbon. This revealed, surprisingly, that there were times in the recent past (e.g. 1,000 years BP) where the St. Lawrence level was at the same elevation or even lower than today. Optically stimulated luminescence was used to analyze the rapid progression of the Yamachiche delta, on the north shore of Lake St. Pierre. This datation method showed that the delta is young (around 200 years BP), and that the increase in sediment input in the river during this period is likely related to the settlement of most of the cities in this area in the 19th century. The detailed sedimentological, morphological and flow dynamics information collected in the

Yamachiche River as well as in four other tributaries studied by Isabelle Chartier was described by Claudine Boyer (Université de Montréal). This field dataset is used by Patrick Verhaar (Université de Montréal) to predict changes in longitudinal profile and bedload transport in these tributaries in the 21st century using a 1D numerical model, based on the climatic change predictions provided by Ouranos. The model predicts an increase in sediment input from the tributaries, which may increase the sedimentation rate in the shallow Lake St. Pierre. Thanks to all participants who have provided us a very exhaustive perspective on the St. Lawrence system.

Pascale Biron

GRADUATE STUDENT PROFILE

Tami Nicoll

Tami Nicoll is a second-year M.Sc. student at Simon Fraser University working on confined



river meanders. Tami grew up in Portage la Prairie, Manitoba, and developed a healthy respect for alluvial processes after witnessing the astonishing power of the Red River flooding of 1997. In fact she took time off from her high school studies to help fill sandbags in Winnipeg. Although at the time, a career studying rivers was not on her radar, she decided to major in geology after a first-year earth science course at University of Manitoba. By her second year at the U of M, her interest in geology had

slowly metamorphosed into a passion for geomorphology. She transferred programs, and schools, to the environmental earth science program at the University of Alberta where she completed her B.Sc. For her undergraduate thesis under the guidance of Dr. John Shaw, Tami used air photos to study the effects of dams on the channel morphology of the North Saskatchewan River.

After finishing her undergraduate degree, Tami worked for the Department of Environmental Protection in West Virginia as part of the stream restoration group. The legacy of coal mining in the state has left an impressive acid mine drainage problem. Her job was to sample and assess streams on both reclaimed and to-be-reclaimed sites. The so-called ‘mountaintop removal sites’ left an indelible mark in her mind. “If you haven’t heard of this, take it as the literal meaning – they bulldoze the top of the



mountain over the side into the stream valleys, leaving these massive piles of valley fill up to hundreds of meters deep” she explained. “Whenever you get a substantial rain a lot of this sediment comes down the channel and, considering that people live in pretty narrow river valleys down there, you get some significant damage and fatalities at times.” In fact, 2003, the year that Tami worked in West Virginia was one of the wettest on record. “Although I’ve always had an interest in rivers, seeing firsthand all the flooding around the state and the aftermath really kind of decided for me that I would like to get into research in fluvial geomorphology”.

Tami spent July 2004 to August 2005 working with the Northern Mapping section at the Alberta Geological Survey. There, she helped map the bedrock topography and drift thickness for parts of northern Alberta, incorporating surficial geology data,



geophysical well logs, drill cuttings and water well lithologs. The project allowed Tami to hone her GIS skills which she acquired while conducting her B.Sc. The final maps depict a network of paleochannels underneath the drift, some of which have proven sources of natural gas.

For her M.Sc., Tami is working with Dr. Ted Hickin on the confined meandering rivers of the Canadian Prairies. The project has two main goals – one aim is to quantitatively describe confined meander geometry in order to reveal planform relationships and how they may differ from those for freely meandering rivers. This will be accomplished through aerial photography with some ground truthing and field estimation of bankfull discharge. The second objective is to examine migration rates with the end goal of estimating bedload transport. More aerial photography but also significant fieldwork will be involved in the second objective. The rationale for the study is that there has not been much work done on confined meanders even though they are fairly common, particularly in mid-latitudes where paleo-meltwater channels now act as the confining valley. The work has obvious engineering and river management benefits. One hypothesis is that these rivers migrate significantly faster than their freely meandering counterparts, giving any sort of infrastructure on the floodplain a relatively short lifespan.

When not knee-deep in air photos or river meanders, Tami is found behind a potter’s wheel perfecting the art of the lopsided bowl. She is still considering her options for after graduation and is considering pursuing a doctoral degree.

If you would like to be featured in the CGRG newsletter, or know of a geomorphology student who does, please send email Dan Shugar at dshugar@sfu.ca.

STUDENT CORNER

While pondering the content for this column over the past several weeks, I kept coming back to one question: “What issues do Canadian geomorphology students care about?” I couldn’t, and still can’t, answer that question. What is most bothersome about my inability to solve such a seemingly simple question is that I didn’t even know where to look for the answer. I suppose, in part, that is why the Canadian Geomorphology Research Group is in the process of establishing a student observer on their Executive. The ultimate goal of this position is to increase the participation of geomorphology students in the CGRG, and to augment the dialogue between students and the Executive.

As geomorphology students, we have not taken full advantage of the opportunities available to us, such as the CGRG listserv. This may be due, in part, to the fact that a lot of students don’t know the CGRG exists (so spread the word!). In January’s newsletter, Trevor Bell reported on an informal survey of graduate students, in which they were asked for ideas to strengthen students’ role in the Group. I am pleased to see that students are keen to have a voice in the workings of the Group, and look forward to implementing some of the ideas, including a web forum to facilitate student-to-student discussions, as well as a web-based listing of professors looking to recruit graduate

students interested in geomorphology projects. I would like to add one more way that the CGRG might work for students – I propose a photo-of-the-day (or ‘of-the-newsletter’, as it were) where a student’s favourite geomorphology-themed photograph is published in each CGRG newsletter. While this idea may not make our fieldwork progress any more smoothly, or make our theses any easier to write, it might make us more excited to work in the field that we have all chosen. We get to work in some of the most diverse and visually arresting landscapes on Earth, and sometimes these return home with us on film. I, for one, certainly get keyed up about fieldwork when I see great photos of other people in the field, and I’ll bet I’m not alone. To start things off, Denny Capps, a PhD candidate studying glacier-dammed lakes at Simon Fraser University has submitted a photograph of Lamplugh Glacier in Glacier Bay National Park, Alaska.

If you have any student-related concerns you would like brought to the attention of the CGRG Executive, please email me at dshugar@sfu.ca. Similarly, if you have photographs from your fieldwork that you’re particularly proud of, send them to me at the same address.

Dan Shugar



Photo: Denny Capps

ALLUVIAL FANS 2007

The CGRG is sponsoring a meeting called *Alluvial Fans 2007* to be held from June 18-22, 2007, at Banff Park Lodge in Banff, Alberta, Canada. The meeting will bring together an international and interdisciplinary group of scientists interested in various aspects of alluvial fans: geology, geotectonics, sedimentology, geomorphology, hydrology, hydrogeology, engineering, resources, and forestry on fans. Studies of modern fans as well as fans that are part of the stratigraphic record will be presented. In addition to pre- and post-

meeting field trips, there will be two day-long field trips in the Banff/Yoho region during the meeting. All those interested in the study of alluvial fans are invited to attend this meeting. For more information, see the meeting website (<http://husky1.stmarys.ca/~pgiles/AF2007/AlluvialFans2007.htm>) or contact Dr. Philip Giles (Department of Geography, Saint Mary's University) at alluvialfans2007@smu.ca.

Philip Giles

CALENDAR

CANQUA Ottawa 2007, **June 4-8, 2007, Carleton University**, <http://www.mun.ca/canqua/>

IAG Large Rivers Meeting, June 24-July 1, 2007. The Rhone River, Lyon (France), jean.paul.bravard@univ-lyon2.fr or avijit@foxhill.demon.co.uk

CGU Annual Scientific Meeting, Banff, May 13-17 <http://www.cgu-ugc.ca/meetings>

LINKS TO WEBSITES

AQQUA

<http://cgcq.mcan.gc.ca/aqqua/>

Association of American Geographers

<http://www.aag.org>

British Geomorphological Research Group

<http://boris.qub.ac.uk/bgrg>

CANQUA

<http://www.mun.ca/canqua/>

Canadian Geophysical Union

<http://www.cgu-ugc.ca>

European Union of Geosciences

<http://eost.u-strasbg.fr/EUG>

Geological Society of America

<http://www.geosociety.org>

Geomorphology Speciality Group Homepage

<http://www.cla.sc.edu/geog/gsgdocs>

International Association of Geomorphologists

<http://www.geomorph.org>

International Union for Quaternary Research

<http://inqua.nlh.no>

NSF – Geography and Regional Science

<http://www.nsf.gov/sbe/bcs/geograph/start.htm>

Ouranos – Consortium en Changements
climatiques au Québec

www.ouranos.ca

Quaternary Geology and Geomorphology
Division – Geological Society of America

<http://www.ocean.odu.edu>

CONTRIBUTIONS TO FUTURE CGRG NEWSLETTERS

The CGRG newsletter is published twice annually. As with all such newsletters, its success is directly dependent on the contributions that we receive. CGRG welcomes contributions to future newsletters from any of our members. These should be of interest to the Canadian geomorphology community and could include discussions, commentaries, photographs, reviews of regional or national meetings and field trips, summaries of issues pertinent to geomorphology, and announcements of future meetings and workshops. We will also be profiling research groups, students and members of our group in future issues. Suggestions for future profiles are most welcome. Please forward your contributions to: lamoureu@post.queensu.ca

CGRG EXECUTIVE 2006-2007

Dr. Dirk de Boer, President
Department of Geography
University of Saskatchewan
9 Campus Drive
Saskatoon, Saskatchewan S7N 5A5
Phone (306) 966-5671
Fax (306) 966-5680
Email: deboer@duke.usask.ca

Dr. Yves Michaud, Vice-President
Geological Survey of Canada - Québec
Natural Resources Canada
880 ch. Ste-Foy, Bur. 840
Sainte-Foy, Québec G1S 2L2
Phone (418) 654-2673
Fax (418) 654-2615
e-mail ymichaud@nrcan.gc.ca

Kevin Driscoll, Secretary-Treasurer
71 Equestrian Drive
Kanata, Ontario K2M 1H7
Phone (613) 943-2168
Fax (613) 947-6371
e-mail kevin.driscoll@nserc.ca

Dr. John Gosse, Executive member-at-large
Department of Earth Sciences
Dalhousie University
Halifax, Nova Scotia B3H 4J1
Phone: (902) 494 - 6632
Fax: (902) 494 - 6889
Email: jcgosse@dal.ca

Dr. Patrick Lajeunesse, Executive member-at-large
Département de géographie
Pavillon Charles-De Koninck, local 6233
Université Laval
Phone: (418) 656-2131
Fax: (418) 656-3960
e-mail: patrick.lajeunesse@ggr.ulaval.ca

Dan Shugar
Graduate Student Observer
Department of Earth Sciences
Simon Fraser University
Burnaby, British Columbia, V5A 1S6
Email: dshugar@sfu.ca

Dr. Scott Lamoureux, Newsletter Editor
Department of Geography, Queen's University
Kingston, Ontario K7L 3N6
Phone (613) 533-6033
Fax (613) 533-6122
e-mail lamoureu@post.queensu.ca

Dr. Trevor Bell, Past President
Department of Geography
Memorial University of Newfoundland
St. John's, Newfoundland A1C 5S7
Phone (709) 737-2525
Fax: (709) 737-3119
e-mail: tbell@mun.ca

CANADIAN GEOMORPHOLOGY RESEARCH GROUP
Registration Form
2007-2008

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 listserver (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) cooperating with related earth science associations within Canada (GAC, AQQUA, CAG, CANQUA). We encourage all earth scientists with an interest in geomorphology to join CGRG.

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(Photocopy application form as necessary)