



**NEWSLETTER OF THE CANADIAN  
GEOMORPHOLOGY RESEARCH GROUP**

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

Number 24

May 2008

**PRESIDENT'S MESSAGE - MOT DU PRÉSIDENT**

Welcome to the winter edition of the CGRG Newsletter. As per usual this time of year, this is a busy time for the CGRG community with conference travel and upcoming fieldwork. During the winter though, the executive made some progress on different files in order to pursue the on-going evolution of the association. For instance, we have clarified our position in relation with the different prizes offered by the organization. To avoid any confusion with the Olav Slaymaker Awards, which are presented for the best student oral paper and best student poster presented at the CGRG Annual Meeting, we have created a new award called "Regional Student Awards" that will be presented to the best student oral and poster presentations at a CGRG-sponsored session at national or regional meetings held with or without affiliated organizations. Winners of the Olav Slaymaker Awards will still receive a cheque for \$250, a certificate, and the opportunity to include the honour in their resumé, while winners of the Regional Student Awards will receive a CGRG T-shirt and a mention on both the CGRG newsletter and website. The Executive have also placed the current value of the J.Ross Mackay Award at up to \$500 to assist in travel costs for the recipient, in addition to a plaque and a token of recognition.

On another note, I would like to acknowledge the wonderful work made by Dan Smith and his group at UVic for continually updating the website and for putting in place a new server "CGRG3" to host the CGRG webpage and bibliography. As Dan mentioned lately, the CGRG Bibliography is presently archiving almost 23,000 records and more than a million and half searches were performed since its inception. In my opinion, this is one of the greatest tools that we (Geomorphologists) have to make an impact on the broad scientific community.

During the winter, we also had to reiterate our willingness to pursue our affiliation with the Geological Association of Canada (GAC) as a division of GAC. Some people had a different reading of the changes that were made a few years ago in our constitution. I cannot confirm right now that the case is settled, but I can assure you that both executives are working together to reach an agreement that will be beneficial for both organizations.

I would like to invite you to our various scientific venues that are scheduled this year, which consist of the joint CGU-CGRG meeting, in Banff, on May 10-14th, the

CGRG-sponsored session at the CAG meeting in Quebec City, on May 20-23rd, and the CGRG-sponsored sessions at the AQQUA meeting in Baie-Comeau, on August 19-22nd. Don't forget that the CGRG AGM will be held in Banff on Tuesday May 13 at noon. This joint meeting will be an excellent opportunity to strengthen our ties and new collaboration with CGU. I am looking forward to seeing you there.

The AGM, of course, is also the occasion for which the composition of the Executive changes. I would like to thank outgoing Past-President Dirk de Boer for his hard work on behalf of the CGRG, and I would like to extend my congratulations to some other executive members that are ready to leave after many years of contribution to the organization. These people are Scott Lamoureux as Newsletter Editor, John Gosse as Member-at-Large and Dan Shugar as Graduate student observer. Of course these resignations also mean that there are vacancies on the CGRG Executive, and I would like to invite nominations for the positions of Vice-President, Newsletter Editor, Member-at-Large and Graduate Student Observer. Being on the CGRG Executive is an excellent, rewarding way to promote and support geomorphology in Canada, so if you would like to nominate a candidate or would like to volunteer, please contact me [ymichaud@nrcan.gc.ca](mailto:ymichaud@nrcan.gc.ca) or Steve Wolfe [swolfe@nrcan.gc.ca](mailto:swolfe@nrcan.gc.ca).

I would also like to announce that the Executive has agreed to hold the 2009 AGM with CANQUA at Simon Fraser University. CGRG will be working closely with CANQUA meeting organizers over the coming year to provide sessions, workshops and/or field trips of interest to CGRG members. Anyone interest in topical

sessions should forward their ideas to Brent Ward [bcward@sfu.ca](mailto:bcward@sfu.ca) or Steve Wolfe [swolfe@nrcan.gc.ca](mailto:swolfe@nrcan.gc.ca).

With that I would like to finish by mentioning that CGRG is always seeking new members. CGRG Executive have worked hard this year to recruit and maintain members, and to ensure that members can register through all of our affiliated associations. So, I therefore ask you to take some action within your department or organization, and urge your colleagues who have never been members, or who have let their membership lapse, to sign up again so the CGRG can have a broad base within the geomorphology community of Canada. In addition, we are always looking for feedback on how CGRG can serve geomorphologists better. Many thanks to the CGRG Executive for a successful year, and I wish all CGRG members a productive and exciting field season and academic year.

Yves Michaud  
CGRG President

Bienvenue à l'édition d'hiver du bulletin du GCRG. Comme d'habitude à cette période de l'année, la communauté du GCRG est très occupée par les voyages liés aux conférences et au terrain à venir. Toutefois, pendant l'hiver, l'exécutif a progressé dans certains dossiers, dans le but de soutenir l'évolution de l'association. Par exemple, nous avons clarifié notre position quant aux différents prix octroyés par l'organisation. Pour éviter toute confusion avec les prix Olav Slaymaker, récompensant la meilleure présentation orale donnée par un étudiant et la meilleure affiche présentée par un étudiant, qui sont présentés lors de la réunion annuelle du GCRG, nous avons créé

de nouveaux prix nommés “les prix étudiants régionaux” qui seront présentés aux meilleures présentations orale et par affiche données par un étudiant, dans le cadre d’une session parrainée par le GCRG lors de réunions nationales ou régionales organisées avec ou sans organisations affiliées. Les gagnants des prix Olav Slaymaker recevront toujours un chèque de 250\$, un certificat et la possibilité d’inclure cette reconnaissance dans leur CV, tandis que les récipiendaires des prix étudiants régionaux recevront un T-shirt du GCRG et une mention dans le bulletin et le site web du GCRG. L’exécutif a aussi assigné une valeur d’au plus 500\$ pour le prix J.Ross Mackay pour contribuer aux coûts de voyage des récipiendaires, en plus d’une plaque et d’une marque de reconnaissance.

Dans un autre ordre d’idées, j’aimerais reconnaître les efforts remarquables de Dan Smith et de son groupe à UVic pour la mise à jour en continu du site web et l’implantation du nouveau serveur “CGRG3” pour héberger le site web et la bibliographie du GCRG. Comme Dan le faisait remarquer récemment, la bibliographie du GCRG archive présentement près de 23,000 dossiers et plus d’un million et demi de recherches y ont été effectuées depuis ses débuts. Selon moi, il s’agit d’un des outils les plus intéressants dont nous, les géomorphologues, disposons pour créer un impact dans la communauté scientifique.

Pendant l’hiver, nous avons également dû réitérer notre intention de poursuivre notre affiliation avec l’Association géologique du Canada, en tant que division de l’AGC. Certaines personnes interprétaient autrement les changements qui avaient été apportés il y a quelques années à notre constitution. Je ne peux encore confirmer que tout soit rentré

dans l’ordre, mais je peux vous assurer que les deux exécutifs travaillent ensemble pour en venir à une entente qui sera à l’avantage des deux organisations.

J’aimerais vous inviter aux différentes rencontres scientifiques qui sont planifiées cette année. Il s’agit de la réunion conjointe UGC-GCRG, à Banff, du 10 au 14 mai, la session parrainée par le GCRG lors de la réunion de l’ACG à Québec, du 20 au 23 mai et des sessions parrainées par le GCRG lors de la réunion de l’AQQUA, à Baie-Comeau, du 19 au 22 août. N’oubliez pas que la réunion générale annuelle du GCRG se tiendra à Banff, le mardi 13 mai à midi. Cette réunion conjointe sera une excellente occasion de renforcer nos liens et d’amorcer une nouvelle collaboration avec l’UGC. J’espère vous y voir en grand nombre dans quelques semaines.

La réunion générale annuelle est aussi l’occasion de changer la composition de l’exécutif. J’aimerais remercier le président sortant Dirk de Boer pour son travail assidu au nom du GCRG, et j’aimerais aussi féliciter d’autres membres de l’exécutif qui s’apprêtent à partir après avoir agi plusieurs années au sein de l’organisation. Il s’agit de Scott Lamoureux, en tant qu’éditeur du bulletin, John Gosse, en tant que conseiller, et Dan Shugar, en tant qu’étudiant gradué observateur. Évidemment, ces départs signifient qu’il y a des postes vacants au sein de l’exécutif du GCRG, et j’aimerais inviter les mises en candidatures aux postes de vice-président, éditeur du bulletin, conseiller et étudiant gradué observateur. Le fait de siéger sur l’exécutif du GCRG est une excellente façon de promouvoir et de supporter la géomorphologie au Canada. Alors, si vous désirez mettre un candidat en nomination, ou si vous désirez vous impliquer, veuillez me contacter

ymichaud@nrcan.gc.ca ou contacter Steve Wolfe swolfe@nrcan.gc.ca.

J'aimerais aussi annoncer que l'exécutif a accepté de tenir la réunion annuelle conjointe de 2009 conjointement avec la CANQUA, à l'Université Simon Fraser. Le GCRG travaillera étroitement avec les organisateurs de la réunion de la CANQUA au cours de la prochaine année pour fournir des sessions, des ateliers ou des excursions susceptibles d'intéresser les membres du GCRG. Toute personne intéressée à une thématique de session devrait transmettre ses idées à Brent Ward bward@sfu.ca ou Steve Wolfe swolfe@nrcan.gc.ca.

Sur cette note, j'aimerais terminer en mentionnant que le GCRG est toujours à la recherche de nouveaux membres. L'exécutif du GCRG a travaillé fort cette année pour recruter et maintenir les

membres et pour s'assurer que les membres puissent adhérer auprès de toutes nos associations affiliées. Par conséquent, je vous demande de vous impliquer au sein de votre département ou votre organisation, et d'inciter vos collègues, qui n'ont jamais été membres, ou qui ont suspendu leur adhésion, à se réinscrire, pour que le GCRG élargisse sa base parmi la communauté canadienne de géomorphologie. De plus, nous sommes toujours intéressés à obtenir de la rétroaction sur les services que le GCRG rend aux géomorphologues. Je remercie l'exécutif du GCRG pour une année fructueuse et je souhaite à tous les membres du GCRG une saison de terrain et une année scolaire productives et excitantes.

Yves Michaud  
Président du GCRG

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## J. ROSS MACKAY AWARD 2008

Citation for Dr. Brian P. Menounos  
Assistant Professor  
Geography Program  
University of Northern British Columbia

Dr. Brian Menounos (PhD 2002, University of British Columbia) is the recipient of the Canadian Geomorphology Research Group J. Ross Mackay Award for 2008. Dr. Menounos's research involves the extraction of paleoenvironmental proxy data from annually layered clastic lake sediments in the Coast Mountains of southern British Columbia. For his research, Dr. Menounos combines the analysis of the microstructure of individual varves with the analysis of hydro-meteorological and hydro-geomorphological data and patterns of extreme weather events. The nominators

highlighted two publications of particular merit, the first of which is:

Menounos, B., Clague, J. Gilbert, R., and Slaymaker, O., 2005. Environmental reconstruction from a varve network in the southern Coast Mountains, British Columbia, Canada. *The Holocene* 15: 1163-1171.

This paper describes a study of the depositional response to climate and geomorphic change over the past 120 years based on varves from five lakes in the southern Coast Mountains of British Columbia.

A second publication to which the nominators drew attention was:

Menounos, B., Schiefer, E., and Slaymaker, O. 2006. Nested temporal-scale sediment yield estimates, Coast Mountains, British Columbia, Canada. *Geomorphology* 79: 114-129.

In this paper, Dr. Menounos and his co-authors describe a comparison of suspended sediment yields determined from the volume of sediment accumulated in a lake basin with estimates based on monitoring the main inflow to the lake. One of the findings of the study was that in this 178 km<sup>2</sup> mountainous basin it takes approximately 50 years of suspended sediment monitoring to reduce the uncertainty of the sediment yield estimate to 37% of its average value.

All nominators remarked on the fact that, despite being in the relatively early stages of his scientific career, Dr. Menounos has played a leading role in establishing the Western Canadian Cryospheric Network (WC2N). This project is funded by the Canadian Foundation for Climate and Atmospheric Sciences, and will assess the past, current, and future extent of glaciers in the western Cordillera through a combination of remote sensing, GIS, modelling, and field studies. Ultimately this project will provide a better understanding of the response of glaciers and streamflow to climate variability over the next 50 to 150 years.

Dirk deBoer  
Chair, J.R. Mackay Award Committee

#### **CANQUA/CGRG CONFERENCE ANNOUNCEMENT**

The CANQUA 2009 organizing committee would like to invite you all to Simon Fraser University from May 3 to May 8th for the biennial conference. We are planning a number of exciting field trips including a CGRG sponsored pre-conference trip to the interior of British Columbia to explore glacial history and paleo-ice sheet dynamics, a post conference trip to the Channeled Scabland in northwestern United States, and a number 1-day mid-conference trips. We are also planning a 1 day short course to be given by Dr. John Gosse on the applications of terrestrial cosmogenic nuclides to Quaternary research. No official theme has

been set for the conference and we are requesting input from members for special sessions; suggestions will be vetted by the organizing committee. Please mark May 3–8, 2009 on your calendar as we plan on having an informative and exciting meeting.

Brent Ward and John Clague co-chairs  
Core Organizing committee:  
Tracy Brennand  
Gwenn Flowers  
Lionel Jackson  
Olav Lian  
Dan Shugar  
Jeremy Venditti



Congratulations to Ian Walker, 2006 Mackay Award winner.

#### MEMBERSHIP UPDATE

There are 176 members who have signed up this year up to now. Of these, 85 are students. Additional memberships continue

to arrive from our affiliated associations GAC and AQQUA.

Andrée Blais-Stevens

#### CGRG SESSIONS AT CAG, QUEBEC CITY 2008

CGRG sessions are also being planned to be held in connection with the 2008 Meeting of the Canadian Association of Geographers (CAG) in Quebec City, May 20 to 24, 2008. One session already in the works is a joint session with the Canadian Dendrochronology Research Group (CDRG)

focused on dendrogeomorphological applications of tree ring studies.

For more information on the special sessions, please contact Yves Michaud [YMichaud@nrcan.gc.ca](mailto:YMichaud@nrcan.gc.ca)

## RESEARCHER PROFILE

### Dr. Chris Hugenholtz



Chris grew up in Ottawa. He earned his undergraduate and Master's degrees in the Department of Geography, University of Ottawa. While in the final phases of his MSc thesis, Chris took a position at NRCan and gained experience in the areas of polarimetric synthetic aperture radar, emergency mapping and aeolian geomorphology. Chris and his wife Kerri moved to Calgary in the fall of 2002 to undertake his PhD in the Department of Geography with Brian Moorman. After completing his PhD in 2006, Chris received a NSERC postdoc to work with Derald Smith on near-surface geophysical applications in geomorphology.

In 2007 Chris joined the Department of Geography, University of Lethbridge. Two days after arriving in Lethbridge Chris and Kerri added a new member to the family – Karsten Hugenholtz. Fatherhood has changed Chris' research in some ways. Now bottles and diapers are among the list of items brought into the field.

At UofL Chris established an Applied Geomorphology Research Lab, which includes a number of field goodies (GPR, met. stations, cup and sonic anemometers, dusttraks, saltation sensors, blowing snow sensors, laser particle size analyser, RTK dGPS, etc.). These tools help Chris and his students pursue a wide range of ideas/questions regarding geomorphic systems in western Canada. They are also integrated into Chris' teaching strategy and provide students with practical skills that are transferable to careers in earth and environmental sciences.



### Research Interests

Chris' main research focus is the interaction between wind and the landscape. Over the last six years his research has focused on the dynamics of inland sand dune systems in the northern Great Plains (NGP). Sand dunes are an important component of biodiversity in the NGP, supporting a large number of sensitive and endangered species. Currently, Chris is investigating the ways in which airflow, topography, vegetation and surface conditions interact to maintain dune activity in vegetation-stabilized landscapes. Over the next five years Chris will focus on airflow

and sediment transport in blowouts and parabolic dunes, resolving seasonal changes to entrainment thresholds and measuring the effects of vegetation on dune morphodynamics. This research program is supported by NSERC Discovery and RTI grants.



As a component of Chris's dune research he is collaborating on a project to reactivate dunes and restore habitat for endangered species in Alberta. This research comprises a series of experiments involving artificial (wind erosion pits) and natural techniques (grazing and fire) to destabilize and reactivate dunes. On-site meteorological and sediment transport measurements are being used to evaluate the effectiveness of these techniques. The goal is to develop land use management strategies that conserve dune activity and biodiversity.

Chris is also involved in a research project investigating aeolian-fluvial interactions along several major rivers in the Rocky Mountains. Fine-grained sediment exposed on large channel bars during low water levels is readily entrained by the wind and transported into the adjacent riparian zone. Several unique ecosystems have developed in response to this large, seasonal influx of

aeolian sediment. In collaboration with Stephen Wolfe (GSC) and others, Chris is investigating the rates and controls of aeolian-fluvial processes and the paleoenvironmental records persevered in thick dune and loess deposits.

As one of the windiest inland locations in Canada, Chris is able to conduct a number of process studies within an hours' drive of Lethbridge. Several nearby projects underway include blowing snow fluxes, dust emissions from reservoirs, cliff-top aeolian processes and wind-forced convection in coarse blocky material. Through these field projects Chris has gained an appreciation of the importance of wind in the landscape of southern Alberta, particularly given that winds regularly exceed 50 km/h.



Aeolian processes are the main focus of Chris' long term research program, but he will also continue to seek diversity in the questions he asks. To this end, Chris will continue to pursue research projects regarding mass movements, Martian surface processes, GPR and Quaternary environments.



## STUDENT PROFILE

### **Peter Morse, Ph.D. candidate, Carleton University**

From his youth in Annapolis Valley, Nova Scotia, to his current PhD research in the western Arctic, working outdoors has been a constant in Peter Morse's life. Growing up in Grand Pré, N.S., Peter took an early interest in the outdoors as a member of the Scouts. Upon entering Acadia University in Wolfville, he enrolled in Biology but quickly switched to the newly developed Environmental Science program because it offered more field courses. During a co-op work placement at Acadia, he worked on Heckman's Island on Nova Scotia's south shore, examining the hydrological, geophysical, geological, and geochemical properties of the aquifers at the Morton Centre for Environmental Study at Lunenburg. The data gathered during this experience formed the basis for Peter's undergraduate thesis.

He graduated from Acadia in 1999, but his future wife, Molly Morse (Miranda), was a year his junior, and Peter decided to stick around the Valley for another year until she graduated. With a year to fill, Peter decided to add another feather to his cap and enrolled in the Centre of Geographic Sciences' post-graduate Diploma program in Remote Sensing. Not only would training in remote sensing complement his background in environmental science, but the field work opportunities to ground truth the imagery were exciting to Peter. After graduating in 2000, he worked a summer as a junior hydrographer on a multi-beam sonar survey of German and Georges Banks, south of Nova Scotia, with the Canadian Hydrographic Service, and later as a Remote Sensing Specialist with Canadian Geomatics

Solutions Ltd. (now Colt Geomatics Solutions Ltd.) in Alberta. Peter then made the move to Intermap Technologies Corporation and worked with the Position and Navigation Group as a Data Analyst.



The work was interesting, but remote sensing had morphed from one tool in Peter's belt to his bread and butter, and he never got out to the field. In search of more responsibility and a job that would require getting out from behind the desk, he decided to go back to school. An opportunity allowing Peter to combine remote sensing with fieldwork arose, and Peter jumped at the chance to work with Carleton University Geography Professor and NSERC Northern Chair Chris Burn. In Fall 2004, Peter began studying for his MSc. Peter investigated snow and vegetation relations at the Kendall

Island Bird Sanctuary (KIBS), Mackenzie Delta, NWT, to better understand the impacts of environmental disturbance on the ground thermal regime. The purpose of the research project was to determine if vegetation structure is the most significant control on snow distribution at the sanctuary within both the lowland and upland areas.



Peter had a successful academic year and his winter and summer field work went well, but he felt that the snow-vegetation project didn't go deep enough. Since environmental change affects ground temperatures, it therefore affects permafrost stability. When the ground is ice-rich, it also affects terrain and ecological stability. In order to assess potential impacts, one needs to determine the relations between the environmental setting, ground temperatures, and permafrost ground-ice contents. Peter applied to Carleton's PhD program in Geography with ideas about literally digging deeper, and was allowed to upgrade into the Doctoral program. Peter proposed to develop a hybrid

model of permafrost ecology, based on field measurements of environmental variables, remotely sensed estimates of those variables with surface expression, and a distributed snow model, to predict the effects of environmental change on near-surface permafrost at KIBS.



Peter enjoys this line of work because of the challenges posed by working in, and thinking about, a dynamic environment like the western Arctic. When he isn't thinking about frozen ground, his mind is occupied with thoughts of the impending arrival of his and Molly's first baby in mid-September. "Only 13 or 14 years to go before I have a free field assistant!" he jokes. Peter always seems to find time to stoke up his smoker BBQ for friends and family, but if he can squeeze it in, he loves to mash the pedals on his mountain bike, head out camping with his brother, or hit the slopes on his snowboard.

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](mailto:dshugar@sfu.ca).

## CGRG SERVER AND BIBLIOGRAPHY OF CANADIAN GEOMORPHOLOGY

The CGRG has an established internet presence thanks to a PC-based server hosted in the University of Victoria Tree-Ring Laboratory, Department of Geography, University of Victoria. The server is used to maintain the CGRG homepage and acts as a platform for the Bibliography of Canadian Geomorphology. The bibliography is continuously updated with the citations distributed on the CGRG listserv as 'Recent Publications in Canadian Geomorphology'.

The CGRG server continually logged visitors from Dec 19, 2002 to April 16, 2008. Over that period the site received over 5.5 M hits from almost 400,000 unique IP addresses. On any given day the site is viewed by just over 1000 visitors from around the globe. Rank ordered from most frequent country of origin to the least frequent, the top 50 countries of origin include: United States; Canada; United Kingdom; France; China; Germany; Japan; Australia; Sweden; Netherlands; Italy; India; Korea, Spain; Poland; Philippines; Taiwan; Norway; Malaysia; Iran; Brazil; Ireland; Belgium; Switzerland; Mexico; Turkey; Thailand; Russian Federation; New Zealand; Hong Kong; South Africa; Singapore; Finland; Indonesia; Romania; Denmark; Austria; Israel; Argentina; Portugal; Greece; Egypt; Czechia; Saudi Arabia; Chile; United Arab Emirates; Morocco; Nigeria; Colombia.

The CGRG server provides a number of files for download. These include every newsletter prepared by the CGRG (save the first), as well as the bibliography of Canadian Subaerial Channelized Debris Flows compiled by Doug F. VanDine. The latter is a much valued resource and has been downloaded a total of 4,265 times

since it was added to the CGRG site. Although all of the newsletters continue to be downloaded and viewed, it is Volume 11 from June 1999 (2933 downloads) that is the most sought after.

The primary attraction for visitors to the CGRG server is the searchable bibliography of geomorphology that itself has experienced over 3.5M hits from some 1.6M visitors. Of the almost 23,000 records currently archived in the bibliography, the following represent the top 10 viewed:

1. McFadden, M.A.; Patterson, W.P.; Mullins, H.T.; and Anderson, W.T. 2005. Multi-proxy approach to long- and short-term Holocene climate-change: evidence from eastern Lake Ontario. *Journal of Paleolimnology* 33(3):371-391. [7675 views]
2. Perkins, S. 2002. Once upon a lake. *Science News* 162(18):283. [7419 views]
3. Jeffries, M.O. 2002. Ellesmere Island Ice Shelves and Ice Islands. *Satellite Image Atlas of Glaciers of the World. Glaciers of North America - Glaciers of Canada*. Edited by: R.S. Williams, Jr. and J.G. Ferrigno. U.S. Geological Survey Professional Paper 1386-J-1:J147-J164. [4774 views]
4. Boyd, M.; Kling, H.; McMillan, K.; and Teller, J.T. 2003. A varved paleoecological record From West Hawk Lake meteorite impact crater, Southeastern Manitoba, Canada: Initial results. Joint Annual Meeting of the Canadian Quaternary Association and the Canadian Geomorphology Research Group. Halifax, Nova Scotia, June 8-12, 2003. [4585 views]

5. Bonsal, R.B. 2002. Climate impacts on water resources of the Western Cordillera. *Climate Change and Water Resources in the South Saskatchewan River Basin*. Proceedings of the Workshop. Edited by: S.N. Kulshreshtha; R. Herrington; and D. Sauchyn. Department of Agricultural Economics, University of Saskatchewan, Saskatoon, Saskatchewan, April 2002. 109-110. [4348 views]

6. Teed, R.; Camill, P.; Umbanhowar, C.; Geiss, C.; Murphy, B.; and Dorr, J. 2004. Multi-proxy lake sediment records at the northern and southern boundaries of the aspen parkland region of Manitoba, Canada. 89th Annual Meeting of the Ecological Society of America. Portland, Oregon. [3731 views]

7. Abraham, K.F. 2000. Hudson Bay Lowlands. Quebec 2000: The Millennium Wetland Event, August 6 to 12, 2000, Quebec City, Quebec. [3451 views]

8. Gingras, D.; and Adamowski, K. 1995. The impact of El Nino Southern Oscillation

on central Canadian floods and droughts. *Canadian Journal of Civil Engineering* 22(4):834-837. [2967 views]

9. Evans, S.G.; and Couture, R. 2003. The 1903 Frank Slide, Alberta, Canada : a review of one hundred years of investigation. European Geophysical Society (EGS) - American Geophysical Union (AGU) European Union of Geosciences (EUG) Joint Assembly. Nice, France, 06 - 11 April 2003. *Geophysical Research Abstracts* 5:13193. [2961 views]

10. Ford, D.C.; Lauritzen, S.E.; and Worthington, S.R.H. 2000. Speleogenesis of Castleguard Cave, Rocky Mountains, Alberta, Canada. *Speleogenesis Evolution of Karst Aquifers*. Edited by: Klimchouk, A.B.; Ford, D.C.; Palmer, A.N.; and Dreybrodt, W. National Speleological Society. Huntsville, AL, United States. 232-337. [2427 views]

Dan Smith

## LINKS TO WEBSITES

AQQUA

<http://cgcq.rncan.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](http://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.

## CGRG EXECUTIVE 2007-2008

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**CANADIAN GEOMORPHOLOGY RESEARCH GROUP**  
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**2008-2009**

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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