



CANQUA

Canadian Quaternary Association
Association canadienne pour l'étude
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Greetings from the President;

I can't resist a football analogy. Our biennial meeting is CANQUA's Grey Cup weekend, without the wild parties (well maybe just not as wild). Most Canadians have minimal interest in the CFL until the Grey Cup game, which is major attraction and part of our national identity. Similarly, the identity of CANQUA seems to be related mostly to our biennial meeting, which is always very capably organized and well attended, as exemplified by the recent conference in Whitehorse. The local organizing committee, and Jeff Hunston and John Storer in particular, deserve congratulations for an outstanding scientific program, great social events and terrific field trips. Because John and Jeff agreed to a differential registration fee, membership in CANQUA increased by about 50% as a result of the Whitehorse's meeting.

Caught up in the enthusiasm at Whitehorse, the new council agreed on various initiatives:

- reports from the regional councilors on activities at the universities in their region
- promote student participation by sponsoring student-oriented activities (e.g., workshops, field trips) and allocating up to \$200 per region for these events
- identify *ad hoc* student representatives in each region
- recommend criteria for the establishment of a young Quaternary scientist award
- consult with the editors of GPQ
- review the biennial meeting guide
- upgrade the web site (<http://www.mun.ca/canqua/>) with more information on awards, meetings and membership
- make and distribute new membership renewal forms
- encourage former members them to reconsider membership in CANQUA

Note the emphasis on restoring membership to a level that is more representative of the number of Canadian Quaternary scientists and especially students. You can help in our attempt to increase membership by asking your colleagues if they belong to CANQUA and if not, then why not. Why have many of our colleagues chosen not to belong to the society that represents Canadian Quaternary science? We heard various hypotheses in Whitehorse, but from members, so we need to test these hypotheses by sampling the other population of quaternarists.

Until CANQUA's next Grey Cup game in Halifax in 2003, the Council will work behind the scenes to raise and maintain interest in the association, respond to requests for information on the Quaternary sciences in Canada, and represent CANQUA at various meetings. Since the BGM, several CANQUA-sponsored events already have been organized by or for students, a student chapter has been proposed (by some students) and Dave Liverman has

upgraded the web site. Also, I've discovered since August that the role of CANQUA president is not an idle task, so I'd like to acknowledge Dave Liverman's contributions as president for the past two years. On behalf of the membership, I'd also like to thank Steve Robinson for remaining in the post of newsletter editor, even though he has relocated to the USA.

All the best with your Quaternary teaching and research.

Dave Sauchyn

CANQUA Biennial meeting – Whitehorse – 2001 – conference report by Toon Pronk

I have been to all CANQUA meetings since INQUA 1987 in Ottawa and know why I make an extra effort to attend. CANQUA meetings have an extremely broad scope, and are attended by researchers, graduate students, and government professionals. And the manner in which

CANQUA touches down in the different landscapes of Canada has given me the opportunity to get to know this country from coast to coast. Whitehorse was no exception, with 115 participants and a high quality of presentations, great social events, and fantastic field trips. I have to limit myself in this report to one of the post conference field trip to Dawson City, the gold fields, and the Dempster Highway.



Lionel Jackson leads a preconference field trip in the Fort Selkirk area.

The meeting location in the High Country Inn suited the meeting very well. As is tradition in CANQUA, concurrent sessions were kept to an absolute minimum and one did not have to miss many of the papers.



Scott Lamoureux (l) receiving the CGRG J Ross Mackay award from Dave Sauchyn

The opening reception was held at and sponsored by the Beringia Interpretive Centre with the Yukon Breweries. The pre conference field trip arrived back in Whitehorse and was deemed very successful. As part of the opening reception a video presentation was given to elaborate on the Beringia concept. John Westgate received a Yukon Science Award (another one was to follow later).

The first day of technical sessions started with a session on Paleolimnology, Paleohydrology, and Permafrost and detailed recent research in the Canadian Arctic. Scott Lamoureux's presentation

(CGRG J. Ross Mackay Award winner) was postponed courtesy of Air Canada. During the afternoon concurrent sessions were held on Long Terrestrial Records of Plio-Pleistocene Climate Change, with several outstanding student papers, and on Economic Quaternary geology. The first session focussed on timing, stratigraphy, and extent, of the different glacial periods, primarily in north-western Canada. Duane Froese's presentation in this session on Yukon Permafrost was co-winner in the student paper category. The latter session looked at placer deposits, diamond potential, exploration, and mine reclamation. Both sessions contained papers that were excellent precursors to the post conference field trip. During the evening as part of the Yukon Science Institute public lecture series Alan Cooper of Oxford University presented a very entertaining public lecture on DNA Work on Ice Age Mammals at the Beringia Interpretive Centre. Charlie Schweger received the Yukon Science Award.

Wednesday morning started off with a Yukon Field Camp Pancake Breakfast, put on at the local Legion. This gathered all participants to the mid-conference day trips. Trips went to Fox Lake (Permafrost features), Silver Creek, Knasawa Lake fan and Archeology, Rock glaciers (Kluane Lake), and Skagway, Alaska. These mid-conference field trips are great opportunity to view some different landscapes and get to know some of the conference participants better.

Thursday morning sessions were on Long terrestrial Records of Plio-Pleistocene Climate Change (Part 2) and Geomorphology/Holocene Paleoecology. Tim Johnsen's excellent presentation on the paleoecology of Glacial Lake Deadman was co-winner of the David Proudfoot Award for best student paper. The afternoon session covered Archeology and Palaeontology.

The CANQUA banquet featured Arctic Char and Steve Porter's presentation on the Late Pleistocene Glaciation in the Pacific Northwest. The many portrait slides of the different workers in the area provided a very personal and entertaining overview of a career that spans 50 years. Scott did get to accept his award after all and Wes Blake received the CANQUA Johnston Medal for contributions to Quaternary Science of the Arctic. He was 'introduced' by John Smol. Les Cwynar read the recommendations for Derek Ford (a second Johnston Medal because of a tie in the nominations), and Gail Chmura accepted on Derek's behalf.

Friday morning was set aside for poster viewing and this really allowed presenters as well as participants to get the maximum benefit from the work presented. Joanne Livingstone won the Lortie award for best student poster presentation for her work on the Ice Jam and Flood History of the Middle Yukon River. The post conference trip stayed at Dawson City and the flood risk and remediation features that exist there shows the relevance of this kind of work.

The final session was a continuation of the Holocene Paleoecology theme. The last presentation by John Smol *et al.* on Tracking Sockeye Salmon Using Lake Sediment Records was a reflection on the quality and the applied focus of the research being carried out by the Quaternary Research groups in Canada.

At night the Yukon Science Institute public lectures continued with presentation by Natalia Patyk-Kara and Irina Spasskaya of the Russian Academy of Sciences with “Beringia and its Mineral Resources: Cenozoic History and Placer Deposits”.

Host committee chair Jeff Hunston and his team of Bruce Barrett, Jeff Bond, Greg Hare, Beth King, Bill LeBarge, Grant Lowey, Chris Marion, and John Storer are applauded for the excellent organization and smooth running of the entire conference. Many other workers helped out in many ways. With about 120 participants Whitehorse showed you can attract good numbers to out-of-the-way areas.

POST CONFERENCE FIELD TRIP

About 30 lucky conference participants went on the post conference field trip to the Klondike area. This 4-day field trip covered a lot of territory and a long period of time (Early Pliocene-Holocene). The trip was led by Duane Froese, John Westgate, John Storer and Jeff Bond, with contributions from Charlie Schweger, Alejandra Duk-Rodkin, Grant Lowey, and Rene Barendregt. Several others contributed to the field guide.

The first day took us from Whitehorse to Dawson city from where the daily excursions would depart. On this day we stopped at Five Finger Rapids and had an overview of the Ash Bend section. The presence of several tephras and paleosols has allowed researchers to develop a refined stratigraphy for most of the Pleistocene. At the Tintina Trench lookout an overview was given of the tectonic history of the area.

Day 2 took us through the Klondike valley and the northern Klondike gold fields. We started on top of the Midnight Dome where we could look over the mist-filled valleys, and at the end of the day we returned here to have an incredible view of the Klondike and Yukon River and Bonanza Creek valleys. We looked at the Midnight Dome gravel and loess, where a 1.5 Ma record of multiple tephras, soils and interglacials is exposed. At Paradise Hill we looked at the Upper White Channel stratigraphy. The base of this contains placer gold. We discussed ice wedge casts, tephras and alteration in the gravels. At Last Chance Creek we examined Klondike Muck cryostratigraphy. The muck is ice-rich, contains many ice age mammal bones and overlies gold-bearing gravels. As a bonus thick tephras are present and a woolly mammoth tusk was embedded in the permafrost. A Quaternarist heaven. Many bones were found and identified.



The post-conference field trip took participants to Dawson.

Day 3 started off on the King Solomon Dome at a now famous lodgepole pine. From there we went to view the lode deposit at the Mitchell property. Some spectacular samples of free gold were found at this site (but not during this trip). At Quartz Creek we examined Pliocene ice wedges and Quartz Creek tephra. We visited the ‘small’ family scale Lucky Lady placer mine at Sulphur Creek. Low gold and high oil prices make mining a marginal venture. At Dominion Creek we visited the large Ross Mine where the gravel stratigraphy was well-exposed.

Day 4 provided two options for field trip participants. A helicopter excursion along the Tintina Trench to view the Tertiary and Quaternary sediments and stratigraphy. The weather cooperated and it was a very successful excursion. The 'ground trip' took us to the southern Ogilvie Mountains via the Dempster Highway. We looked at Reid ice-marginal deposits and Tombstone Mountain glacial features (North Fork Pass end moraines). Chapman Lake, a kettle lake(?), lies in an area of thick morainal deposits and for more discussion see the field guide and Brandon Beierle's paper on Chapman Lake in the conference volume. We ended the trip fairly close to the polar circle and fantastic views of an unnamed felsensmeer ridge and tor features. The colors of the tundra were already changing and it was quite beautiful.



Post-conference group hanging out at the Triple J Hotel in Dawson

On day 5, before heading 'home' to Whitehorse there was an opportunity for many to travel west along part of the "Top of the World Highway". This trip was the continuation of a great CANQUA tradition: fantastic field trips in wonderful settings. Thanks to all organizers and leaders. A special word of thanks goes also to the major sponsors of this CANQUA conference; The Yukon Heritage Branch, Yukon. Geology Program, and the Beringia Interpretive Centre. Copies of the conference proceedings as well as the field guide may be obtained from the Heritage Branch, Department of Tourism, Box 2703, Whitehorse YK, Y1A 2C6.

...for more photos visit the website

<http://www.yukonheritage.com/canqua/photoalbum.html>



NAT RUTTER APPOINTED OFFICER OF THE ORDER OF CANADA

Governor General Adrienne Clarkson recently announced the appointment of Nat Rutter as an Officer of the Order of Canada. He is a University Professor Emeritus, Earth and Atmospheric Sciences, and presently Associate Dean of Science (Interdisciplinary) at the University of Alberta. He is a leading geologist of the Quaternary Period, the study of the earth over the last two and half million years.

After graduating with a PhD from the University of Alberta, he began his career as a research scientist with the Geological Survey of Canada, and then as an Environmental Advisor with the National Energy Board. For the past 25 years he was with the Department of Geology (now Department of Earth and Atmospheric Sciences), where he was chairman from 1980 to 1989. In his research, he advocates the interdisciplinary approach in solving geological problems, which has resulted in major discoveries in dating methods, glaciation and past climate change. He has more than 200 publications to his credit. His large number of graduate students have gone on to play important roles in his field throughout Canada.

Dr. Rutter has headed numerous national and international organizations, such as the first Canadian President of the International Union for Quaternary Research, the world's preeminent Quaternary organization. He was a member of UNESCO's geological scientific board, the International Council of Scientific Union's Committee on Past Global Changes, and is founding editor of the scientific journal "*Quaternary International*". He has been recognized by his peers by receiving numerous awards and medals including Fellowship in the Royal Society of Canada, Honorary Professorship in the Chinese Academy of Sciences, and recently an honorary Doctorate of Science from the University of Alaska, where he received his Master's degree.

Upcoming Conferences and Special Sessions

The XVIth INQUA Congress will be held July 23 - 31, 2003 at the Reno Hilton Resort & Conference Center, Reno, Nevada USA. Full details of the Congress can be found on the Congress Web site:

http://www.dri.edu/DEES/INQUA2003/inqua_home.htm

Please visit this site to register your interest in the Congress and find out more about the location, scientific program, and field trips. Please also note the call for proposals for symposia, in the Scientific Program part of the web site.

'Environmental Catastrophes and Recoveries in the Holocene'



international conference on 29 Aug.-2 Sept. 2002 in West London

Inter-disciplinary investigation of past geological and environmental catastrophes and their impact on our society.

A - Geological Catastrophes, impact and recovery time: megalandslides, earthquakes, tsunamis, fires, volcanic eruptions *W. Ryan (Lamont) and S. Self (Open Univ.)*

B – Climatic and environmental causes for Civilisation collapse *H. Weiss (Yale)*

C - Climatic Catastrophes in continuous records: impact and recovery *A. Schwalb (Heidelberg)*

D – Past health and biodiversity catastrophes and recovery: extinctions, epidemics, *C. A. Roberts (Durham) and John Dodson (Perth)*

<http://www.brunel.ac.uk/depts/geo/Catastrophes/>

Suzanne Leroy and Iain Stewart, Geography and Earth Sciences,
Brunel University, Uxbridge UB8 3PH, UK

Pre-Conference Announcement (first circular to follow in Autumn 2001):

Annual meeting of the Geological Association of Canada (GAC-MAC 2002), and Canadian Geomorphology Research Group (CGRG) Saskatoon, Saskatchewan, Canada. May 26-29, 2002

We would like to bring to your attention the following General Session, Special Session and Field Trip to be held at the Geological Association of Canada Annual Meeting / CGRG Annual Meeting May 26-29, 2002. Further information will be provided as it becomes available.

1) General Geomorphology Session

Co-organizers: S. Wolfe (GSC Ottawa), A. Aitken (U. Saskatchewan)

Sponsored by: Canadian Geomorphology Research Group

Presentations in the general session will be arranged into sub-disciplines, as follows:

Process Geomorphology

Quaternary Geology and Geomorphology

Techniques in Geomorphology (modelling; GIS; remote sensing; field and lab techniques)

2) Special Session SS2: Great Plains Geomorphology and Environmental Change Co-organizers: S. Wolfe (GSC Ottawa), A. Aitken (U. Saskatchewan) and D. Sauchyn (U. Regina) Sponsored by: CGRG, GSC and IGCP-413. Keynote speaker: David S.G. Thomas. Sheffield Centre for International Dryland Research

Interest in environmental change on the Great Plains continues to be driven, in part, by uncertainty in the effects of global climate change and impacts at regional levels. Understanding past environmental change brings us closer to understanding the full range of potential impacts, and how natural systems have responded to change in the past; and new studies are constantly revising the extent, frequency and magnitude of past environmental change on the Great Plains. This session will provide a venue for presenting recent findings in eolian, slope and fluvial processes, various proxy records of environmental change, and insights gained from geoarchaeology. With the session held in Saskatoon, Saskatchewan, participants can anticipate a focus on northern Great Plains issues, but contributions from the Central and Southern Great Plains are strongly encouraged. The session will include both oral and poster presentations. In addition, a pre-conference field trip will highlight the geomorphology and environmental change along the lower South Saskatchewan River Basin.

3) Field Trip A4: Holocene Geomorphology and Environmental Change in south-central Saskatchewan, Friday May 24 to Sunday May 26, 2002:

A two-day field trip will examine geomorphological features in the Saskatoon area, and the evidence for climate change recorded in these features. The trip will include visits to active and stabilized sand dunes at Pike Lake and Douglas Provincial Park, glacial features such as recessional and hummocky moraines, spillways (Blackstrap and Last Mountain Lakes), and the basin of Glacial Lake Saskatchewan, cliff-top dunes and mass wasting along the South

Saskatchewan River, and the Gardiner Dam. The trip will be preceded by an ice-breaker, Friday evening (May 24) at Wanuskewin Heritage Park, including dinner and self-guided tour of the archaeological site, and an overnight stop at Manitou Springs Resort to take in the "Healing Waters" and have a lively discussion of salt-lakes.

*Estimated cost of \$240 CDN will include taxes, meals, transportation, accommodation and guidebook. Field trip commences and ends in Saskatoon. Preview the Field Trip tour at the following web-site, courtesy Jeff Ollerhead, Mount Allison University: http://www.mta.ca/~jollerhe/trip_a4/trip_a4.html

Conference Information:

Abstracts will be accepted from November 1, 2001 until January 15, 2002. Digital submissions only. Further conference and abstract details will be provided at the meeting web-site in Autumn 2001. Web-site address: <http://www.usask.ca/geology/sask2002>

THE PALYNOLOGY AND MICROPALAEONTOLOGY OF BOUNDARIES

Palynologists and micropalaeontologists working in all geologic eras are invited to participate in a Special Session (#22) to be held at the annual meeting of the Geological Association of Canada (GAC/MAC 2002), Saskatoon, Saskatchewan, Canada. May 26-29, 2002

The session is entitled "The Palynology and Micropaleontology of Boundaries".

Boundaries in time and space can leave distinct signatures in the palynological record. Diffuse or sharp, gradual or abrupt, boundaries can tell us much about the response of biotic systems to environmental change in both marine and terrestrial realms. Sponsored by the Canadian Association of Palynologists (CAP), this Special Session explores the identification and characterization of boundaries through palynology and micropaleontology.

The session is being co-convened by Alwynne Beaudoin (Provincial Museum of Alberta, Edmonton, e-mail: abeaudoi@gpu.srv.ualberta.ca) and Martin J. Head (University of Cambridge, UK, e-mail: mh300@cam.ac.uk). Anyone interested in participating is invited to contact either of the convenors.

A symposium volume is planned. Please indicate whether you wish to contribute to this volume. Papers not presented at the symposium may also be considered for inclusion.

Additional information about the Canadian Association of Palynologists can be found at the new website at <http://www.scirpus.ca/cap/cap.htm> On-going details of this Special Session will also be posted there.

32nd ARCTIC WORKSHOP, 2002: INSTAAR, UNIVERSITY OF COLORADO

The 32nd Annual International Arctic Workshop will be held March 14-16, 2002, at the Institute of Arctic and Alpine Research (INSTAAR), University of Colorado at Boulder. This workshop has grown out of a series of informal annual meetings sponsored by INSTAAR and other academic institutions worldwide. In keeping with this tradition, there are no formalized topics, and the workshop is organized around themes developed from the abstracts submitted for presentation and poster display. We hope to build upon the increasing breadth and success of past years for a rewarding interdisciplinary meeting on a variety of Arctic research themes.

WHEN:

Reception and Registration: Wednesday evening March 13th, 5pm-8 pm.

Main program: March 14th to March 16th.

WHERE:

Boulder, Colorado, Institute of Arctic and Alpine Research, University of Colorado East Campus (30th and Marine), Research Buildings #1 and #3.

ABSTRACTS:

Information on submission of abstracts will be posted by December 15th, 2001 on our www site <http://instaar.colorado.edu/meetings/AW2002> (note that "AW" is capitalized). Deadline for abstracts will be February 22nd, 2001. Presentations: You will be able to choose either a poster or a talk, but probably not both.

REGISTRATION:

Graduate registration will be \$50. We have a limited amount of NSF money on hand for Graduate support and we have asked NSF for further support of Graduate student attendance at the Workshop. But, given the uncertain international climate and its impact on the US government's budget it is difficult to predict when we might learn whether we have additional funds. Professional registration will be \$80 if paid by March 7th, 2002. After that date, professional registration will be \$90, including payment at the time of the workshop. If you have questions please email us at ArcticWS@colorado.edu.

RESEARCH THEMES:

Arctic Workshops have traditionally included a broad spectrum of talks and posters. However, we have also accommodated specific themes. We can also accommodate small group meetings but it helps if we have notice and a preferred time so we can book the room(s). Please identify any special topics or needs by emailing John Andrews at: andrewsj@colorado.edu.

The Program Committee for the next INQUA Congress, which will be held in Reno in late July 2003, is seeking proposals for poster sessions. Poster sessions can be organized on any aspect of Quaternary science. They will be featured at the Congress -- no other activities will take place during poster sessions. Some poster sessions will introduced by a 30-minute oral presentation by the conveners in a lecture hall immediately before the session.

If you would like to organize a poster session, please contact the Program Committee Chair, John J. Clague (e-mail jclague@sfu.ca, phone 604-291-4924).

RECENT AWARDS and CALLS FOR NOMINATIONS

WA Johnston Medal Awarded to Wes Blake, Jr. and Derek Ford

The 2001 WA Johnston Medal was awarded to Dr. Wes Blake, Jr. and Dr. Derek Ford during ceremonies at the banquet of the CANQUA Meeting in Whitehorse, Yukon Territory. Ford, who could not be present at the ceremony, sent a note of acceptance read by Dr. Gail Chmura. Dr. Les Cwynar read a statement from Dr. Henry Schwarz who cited Ford's pioneering research on caves and speleothems as recorders of climate and geomorphic evolution. The Johnston Medal will be presented to Ford during a special ceremony at McMaster University.



Dr. John Smol, speaking on behalf of Blake's nominators, highlighted Blake's contributions over 50 years of arctic fieldwork, much with the GSC, during which he encourage many young scientists in arctic research. Smol also noted Blake's once controversial proposition of the now generally accepted Innuitian Ice Sheet. Those of us who have served on

CANQUA and INQUA Council recognize Blake's tremendous contributions to CANQUA, many behind the scenes (he performed an essential role of coaching at least this past-past president through her job!). Full statements from awardees and nominators will be published in a future issue of GPQ.

The Past-president of CANQUA has the privilege of overseeing the selection process for the biannual Johnston Award. The past-president has no vote, but solicits volunteers to serve on the review committee, organizes and distributes nomination packages and the final vote. Then, of course, she has the great pleasure of notifying the award recipient! As usual, the award committee was faced with a tremendous challenge to rank a list of nominees - all of exceptional calibre, hence this year's double award. The Johnston medal was first awarded in 1987, and there have been only seven opportunities to recognize all the truly meritorious

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Canadian Quaternarists. The interdisciplinary nature of our field and requirements that the award recognize contributions to student training as well as scientific advances further adds to the challenge.

This year's committee was representative of the diversity in our discipline, as well as geography, language and gender. (It also included the requisite past award winner.) I am most grateful to the 2001 committee for their thoughtful reviews and quick responses. For their service CANQUA is indebted to Andree Bolduc, (Commission geologique du Canada), Ian Campbell, (Canadian Forest Service), John Clague (Simon Fraser University, Dept. of Earth Sciences), Les Cwynar (University of New Brunswick, Dept. of Biology), Wayne Pollard (McGill University, Dept. of Geography).

submitted by now Past-past President Gail Chmura

THE J ROSS MACKAY AWARD

The J Ross MacKay award is to be presented annually by the CGRG in recognition of a significant achievement by a young geomorphologist within Canada. The purpose of the award is to foster the development of geomorphology in Canada and to provide recognition of young scientists in this field.

This years deadline for nominations is November 19, 2001. Please forward nominations to the committee chair:

Dr. Joe Desloges
desloges@geog.utoronto.ca

Department of Geography
University of Toronto
Toronto, ON
M5S 3G3
fax 416-978-6729

An award made this year will be presented at the Annual General Meeting of CGRG at the joint CGRG-GAC/MAC conference in Saskatoon.

Nomination criteria can be found both below and at: <http://cgrg.geog.uvic.ca/jrm1.htm>

CRITERIA

1. The award is to be given for a significant contribution to geomorphology, which may be a synthesis or a regional study, a new concept, a significant advance in a subfield of geomorphology, or the development of a technique.

2. Recipients of the award must be:

a member of one of the following: CGRG, AAQUA, CAG, CANQUA, or GAC.

a Canadian citizen or resident working in Canada.

within 12 years of graduation from a Ph.D., Masters or undergraduate program, OR under the age of 40 on December 31 of the year of the award.

NOMINATION

Nominations are to be made in a letter to the Chair of the Award Committee signed by two members of the CGRG. The letter of support should first identify the nominees' contribution in a concise statement. The reasons why the contribution is considered significant should then be given. Nominations should be accompanied by a current c.v. and five (5) copies of a publication or part of a publication presenting the contribution.

OTHER SUBMITTED ANNOUNCEMENTS

A message from Alwynne Beaudoin WEB-BASED RESOURCES HAVE MOVED
The web-based resources that I have compiled and manage have moved from their location at the University of Alberta to a new location at <http://www.scirpus.ca/>

All resources can be reached from the URL above or from direct URLs as given below:

The Canadian Association of Palynologists Home Page
Now at <http://www.scirpus.ca/cap/cap.htm>

A Dictionary of Quaternary Acronyms and Abbreviations
Now at <http://www.scirpus.ca/cgi-bin/dictqaa.cgi>

The Dung File (on-line bibliography)
Now at <http://www.scirpus.ca/dung/dung.htm>

E-SCAPE (Edmonton component of SCAPE project)
Now at <http://www.scirpus.ca/escape/escape.htm>

The SCAPE File (on-line bibliography) Now at
<http://www.scirpus.ca/escape/bibintro.htm>

Please update your links and bookmarks. The pages at UofA will remain available for some time but will not be maintained or updated. I welcome comments on any aspects of these presentations

Alwynne B. Beaudoin abeaudoi@gpu.srv.ualberta.ca

CREATION OF A CANADIAN GROUP FOR IGCP 449
GLOBAL CORRELATION OF LATE CENOZOIC FLUVIAL DEPOSITS

Dear colleagues,

This a call for the creation of a Canadian group of IGCP 449 Global Correlation of Late Cenozoic Fluvial Deposits

1) INFORMATION ON IGCP 449

IGCP 449 aims to set up a worldwide database on Late Cenozoic fluvial record and to study tectonic and climatic forcings on the fluvial environment. A better description can be read at the site <http://www.qra.org.uk/FLAG/FLAGIssue5.PDF>

IGCP 449 is animated by

David Bridgland (Project Co-leader)

Sampat Tandon (Project Co-leader)

Liping Zhou (Project Co-leader)

Darrel Maddy (International Secretary)

IGCP 449 is closely linked to the very active and successful FLAG research group, initiated by our colleagues David Bridgland and Darrel Maddy from UK. The inaugural meeting was organized in Prague, in April 2001, followed by an excursion. The Czech colleagues did a wonderful job and received the participants magnificantly. Beside the international scientific exchange, discussion groups worked on several projects: Database (content and form), Data providers (a strong will to have the contribution of under-represented countries), Deadlines and Schedule.

The target of Phase 1 database is Western Europe.

The target of Phase 2 (2002-2003) are Eastern and Southern Europe, N Africa and N America.

An IGCP 449 related meeting is organized at Kanpur, India, in December (see site <http://www.iitk.ac.in/infocell/announce/cenozoic/circular.htm> and Annex 1)

Another IGCP meeting is planned for July 2002 in China. A joint FLAG-INQUA meeting is planned at Clermont-Ferrand, in September 2002.

IGCP 449 was also represented at the Internatioanal Conference on Fluvial Sedimentology in Nebraska (6-10 August), the International Congress on Geomorphology at Tokyo (August 23-28), and the Conference of the INQUA Subcommittee of European Quaternary Stratigraphy in Kiev (September 2001).

2) PROPOSED OBJECTIVES OF THE CANADIAN PARTICIPATION

Canada can bring original contributions to the Global Correlation of Late Cenozoic Fluvial Deposits program, for example (but not exclusively) with studies on the series mostly controlled by past glaciations and glacio-isotasy in the St. Lawrence, Mackenzie, and James Bay valleys and basins, and the series in Yukon. Researches carried out of Canada by Canadian researchers could also be a significant contribution.

The main objective is to create an active group on fluvial sedimentology , stratigraphy, geomorphology, biostratigraphy, models, archeology and chronology, and to favor exchanges in Canada between the active members. The Canadian group has to get a national visibility. This objective could be attained through special sessions in congresses and meetings organised by the AQQUA, CANQUA, CGRG, GAC-MAC associations, and eventually by specific meetings of the IGCP-449 group.

The last objective aims to give international visibility of the research done in Canada. The IGCP-449 group will encourage the participation of Canadian researchers at the IGCP meetings and to the related publications, and the organisation of one or two IGCP international meetings held in Canada, for example in the St. Lawrence or in the Mackenzie areas (depending on funding). The Canadian group will have to participate to the Database (final format under preparation).

For 2001, the total budget allowed to the IGCP-Canadian National Committee, to support 21 projects, was 12,000 \$ (twelve thousands). The Committee could allocate a few hundreds to the IGCP 449 project (which are not used). The activities of the IGCP 449 group will have to be self-sustained.

3 CREATION OF THE CANADIAN GROUP OF IGCP 449

3.1 Membership

The colleagues interested in IGCP 449 are invited to send me (by email without attachment...) their name and postal address, mail address and a very short comment on their interests, speciality, projects, suggestions, proposal (meeting, circulars), etc., I'll prepare a list and spread it.

3.2 Immediate request

As a co-ordinator, I have to send a report to the IGCP 449 leaders (for the end of past September!, see annex 2 for the content) and another to the IGCP-CNC national secretary-treasurer (by mid-October). Please send me, by October 15, any abstract, report, recently published paper, project, and/or email message of a few sentences that I could mention in the reports as a Canadian contribution to fluvial studies. Email texts and attachments are recommended in .rtf format. For the Mac users, save in rtf format and please add .rtf at the end of the name of the attachment. At this stage , this should not need more than one hour of

your time. This request is not a pre-requisite to be a member of the group. Please send the documents directly to;

Serge Occhietti 414 Wiseman OUTREMONT QC H2V 3J8 Phone 514 276 8216
occhietti.serge@uqam.ca

3.3 Aims

Create the group, have a first thematic symposium during the coming GAC-MAC 2002 meeting at Saskatoon (a local organiser would be welcome), have Canadian participants to the coming IGCP 449- FLAG international meetings in India, in China, in France, and later in Reno (INQUA Congress), organize a specific meeting in Canada with an invitation to the international participants of IGCP 449, contribute to the Database.

3.4 Leadership

Unless a volunteer wishes to take the leadership now, I will take in charge the coming 2001 reports, the creation of the group (and of an informal volunteer board), send informal circulars to our email list, spread all the information, suggest symposia and field trips for the coming year. My professional status is changing and a colleague with a strong institutional support is welcome any time. Depending on the membership, co-leaders with different specialities or themes could be in charge.

PLEASE ANSWER NOW

Best regards
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ALBERTA CANQUA NEWS – submitted by Alejandra Duk-Rodkin

John Clague, Rene Barendregt, and Randy Enkin are studying the magnetism of Lake Missoula backwater flood deposits (the so-called “Touchet beds”) in southeastern Washington. They have collected, and are now analyzing, sequences of samples from three sections, including the famous Burlingame Canyon exposure. The objective of this study is to resolve the long-standing issue around the number of floods recorded by the Touchet beds—one or a few floods, as argued by some (e.g., Baker, Shaw), or more than 40 floods as concluded by others (e.g., Atwater, Waitt). Stay tuned for the answer!

Natalya Patyk-Kara and Irina Spasskaya (Russian Accademy of Sciences) spent nine days at the GSC-Calgary after participating in the CANQUA conference activities in Whitehorse

and post conference field trip to the gold fields. Their interest in the Klondike triggered a new study on morphology and structural setting of placers. The main results so far are two offset block structures with placer accumulation along their extreme opposite sides. It will be interesting to see the final results.

Paul Matthews, University of Alaska is visiting Alberta at this moment. He is giving presentations on his favorite research subject "Paleodiets and Paleoecology of Pleistocene Mammals in Alaska and the Yukon: Insights from Stable Isotopes". His lecture will be presented at Calgary and Lethbridge universities.

Surficial geology, Fort Liard and La Biche River. Quaternary mappers, Jan Bednarski (Fort Liard map area) and Rod Smith (La Biche River map area), had a successful field season logging sections, measuring glacial flow directions and collecting various samples. (Any excuse to bash through the bush under the din of various parasitic beasties. . .) This work was done as part of the Central Foreland NATMAP Project. In the Fort Liard map area (95 B), the last glaciation saw the Laurentide ice sheet flow out of the northeast. About twenty to thirty kilometres west of Fort Liard, the ice flow swung westward and then northwestward over Fisherman Lake. This unusual deflection in flow coincides with northeastern flow of mountain ice in the La Biche map area, and points to the collision of the two ice masses. Once the floating logs had cleared, Bednarski navigated the Petitot and Laird rivers, where extensive deposits of glacial and glaciofluvial deltaic sediments are found. Most of these sediments were deposited after the Laurentide ice sheet had retreated eastward, causing the Laird River valley to flood. The search for dirt and all things glacial was also well met in the La Biche River map sheet (95C). Initially focused in C/5 and C/4, Rod Smith's field work identified the presence of a granite (Laurentide) erratic near the western border of the La Biche map sheet. This and subsequent investigations point to a maximum Laurentide ice advance that overtopped the La Biche Range (and all others to the east) and extended lobes well up the Beaver, Crow and Whitefish rivers. The lobate flow also clearly indicates that the Laurentide advance predated the advance of Cordilleran ice (which itself eventually overtopped parts of the La Biche Range). Permafrost was found to be extensive throughout C/4, the western parts of C/3 and the southern reaches of C/5. Its distribution appears to correlate with the thick till blanket (and obvious boggy terrain) in this region, and is noted as yet another potentially serious hazard to development in this region.

A side project was also initiated to address concerns raised by some local Ft. Liard residents about water quality issues in Fisherman Lake. Two cores were extracted from the lake, and analyses of the diatom remains this winter will be used to assess changes in the aquatic ecology (pH, nutrients, temperature, etc.) over the past ~100 years. While conducting the coring, gas bubbles were noted to be coming from a linear path in the sediment near the boat launch. These will be sampled next summer and isotopically analyzed in order to determine whether they represent a seep of natural gas into this basin.

Duane Froese is finally giving up his life as an eternal student. His Ph D. thesis defense is set for the end of November. It is going to be an open defense so everybody is welcome. Then he is moving to Vancouver to work with John Clague at Simon Fraser University as a post doctoral fellow.

We welcome a new scientist to Alberta. Shawn Bubel is a geoarchaeologist at the University of Lethbridge. She is presently finishing up her dissertation on the effects of bioturbation on the archaeological record from the Katholieke Universiteit Leuven in Belgium. She also teaches at the Dept of Geography under a two year term contract but hopes to stay there after the contract is finished (we will help by keeping our fingers crossed). Shawn has been mainly working on Old World archaeological sites throughout Europe for the last 4 years but now that she is back in Canada would like to get back to some North American archaeology - and the older the better. She has many different research interests but would like to concentrate on natural formation processes (including geomorphological and pedological factors surrounding an archaeological site), postdepositional processes, landscape/environmental reconstruction, excavation methods and Prehistoric archaeology. She loves being in the field so she is hoping to be able to begin a project in southern Alberta soon.

Fred Philips (New Mexico Tec) and Rene Barendregt started a new research project to determine C136 ages for buried boulders in till. So far, results are promising. Preliminary results show a clear difference between the lowermost Labuma and surficial Buffalo Lake tills.

Canada Foundation for Innovation (CFI) funded “Boundary Layer Airflow and Sediment Transport” (BLAST) Research Unit comes to UVic Geography

The Department of Geography at the University of Victoria, British Columbia is pleased to announce the development of a CFI-funded Boundary Layer Airflow and Sediment Transport (BLAST) Research Unit. Headed by new faculty member, Dr. Ian J. Walker, the BLAST unit will include state-of-the-art field equipment and a supporting research laboratory for the study of aeolian (wind) processes in coastal and semi-arid sedimentary environments across North America. The general objective of the program is to determine how sedimentary environments such as beach – dune systems and continental dunefields respond to variations in local wind characteristics, sediment supply conditions, land use impacts, and potential climate change effects. Walker’s BLAST program brings to Western Canada much needed research expertise in wind erosion and sedimentary processes and will expand knowledge in this significantly understudied area of Canadian environmental research. The BLAST unit significantly enhances the Department of Geography’s research capacity in geomorphology and adds a new dimension to the strong research program in Earth and Ocean Systems at the University of Victoria. The interdisciplinary and collaborative nature of the BLAST program will reinforce Walker’s existing research links with researchers from the University of Guelph, Trent University, Mount Allison University, and Massey University, New Zealand while establishing new initiatives with Parks Canada, the Geological Survey of Canada, and the Oregon Dunes National Recreation Area. Dr. Walker and the department would like to express their appreciation to the Canada Foundation for Innovation (www.innovation.ca) and to the University of Victoria for their generous support. Please direct any comments or inquiries to:

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RECENTLY COMPLETED THESES

Brown, K.J., 2000. Late Quaternary Vegetation, Climate, and Fire History and GIS Mapping of Holocene Paleoclimates on Southern Vancouver Island, British Columbia, Canada. PhD thesis, University of Victoria. Supervisor: Richard Hebda

ABSTRACT

Pollen and microscopic charcoal fragments from seven sites (East Sooke Fen and Pixie, Whyac, Porphyry, Walker, Enos, and Boomerang lakes) were used to reconstruct the post-glacial vegetation, climate, and fire disturbance history on southern Vancouver Island, British Columbia, Canada. A non-arboreal pollen and spore zone occurs in the basal clays at Porphyry Lake and likely represents a tundra or tundra-steppe ecosystem. This zone precedes the *Pinus contorta* (lodgepole pine) biogeochron that is generally considered to have colonised deglaciated landscapes and may represent a late Wisconsinan glacial refugium. An open *Pinus contorta* woodland characterised the landscape in the late glacial interval. Fires were rare or absent and a cool and dry climate influenced by “continental-scale katabatic” easterly winds dominated. Closed lowland forests consisting of *Picea* (spruce), *Abies* (fir), *Tsuga heterophylla* (western hemlock), and *Tsuga mertensiana* (mountain hemlock) with *P. contorta* and *Alnus* (alder) and sub-alpine forests containing *Picea*, *Abies*, and *T. mertensiana* with *P. contorta* replaced the *P. contorta* biogeochron in the late Pleistocene. Fires became more common during this interval even though climate seems to have been cool and moist. Open *Pseudotsuga menziesii* (Douglas- fir) forests with *Pteridium* (bracken fern) in the understory and *Alnus* in moist and disturbed sites expanded westward during the warm dry early Holocene. At this time closed *Picea*, *T. heterophylla*, and possibly *Alnus* forests grew in the wettest part of the southern Vancouver Island at Whyac Lake. At high elevations, forests consisting of *T. heterophylla* and *P. menziesii* coupled with *Alnus* expanded during the early Holocene. Fires occurred frequently in lowland forested ecosystems during this interval, although East Sooke Fen in a dry, open region experienced less fire. At high elevations, charcoal increased somewhat from the late Pleistocene, indicating slightly more fires and reflecting continued moist conditions at high elevations. The mid and late Holocene was characterized by increasing precipitation and decreasing temperature respectively. Mid Holocene lowland forests were dominated by *P. menziesii* with *T. heterophylla* and *Alnus* in southeastern regions, *T. heterophylla* and *Thuja plicata* (western red cedar) in southern regions, and *T. heterophylla* and *Picea* in southwestern regions. An overall decrease in charcoal influx suggests a decrease in lowland fires, although locally

isolated fire events are evident in most sites. *Quercus garryana* (Garry oak) stands spread westward during the mid Holocene, attaining maximum extent between East Sooke Fen and Pixie Lake, approximately 50 km beyond its modern limit. Lowland sites record a general decrease in fires at this time. At high elevation, mid Holocene forests were dominated by *T. heterophylla*, *Picea*, and *Abies* with *Alnus*. An overall increase in charcoal influx at high elevations likely reflects an increase in the number of charcoal fragments entering the basins by overland flow as opposed to an increase in fire incidence because climate was moister. In the late Holocene extant closed *T. heterophylla* and *T. plicata* forests became established in wetter western regions, *P. menziesii* forests occupied drier eastern portions, and *T. mertensiana* and *Cupressaceae*, likely *Chamaecyparis nootkatensis* (Alaska yellow cedar), forests were established in sub-alpine regions. Lowland fires were infrequent in wet western regions but frequent in drier eastern regions. A slight reduction in charcoal influx generally occurs at high elevations, implying fewer fires. A recent increase in charcoal influx at East Sooke Fen and Whyac, Walker, Enos, and Boomerang lakes may reflect anthropogenic burning. Holocene paleoclimates were reconstructed at 1,000 year intervals through a geographic information system (GIS) using contemporary climate data and surface and fossil pollen assemblages by establishing empirical regression equations that calibrated contemporary precipitation and temperatures to present day Douglas-fir-western hemlock (DWHI) and *T. heterophylla*-*T. mertensiana* (THMI) pollen ratios.

Doner, L.A., 2001. Late Holocene Paleolimnology and Paleoclimatology from Sub-Arctic Lakes in Nunavut, Canada and Iceland, PhD thesis, Geological Sciences, University of Colorado, Boulder, Colorado, USA. Supervisor: John T. Andrews

ABSTRACT

Sediment cores from five lakes in the western North Atlantic region were studied to establish a detailed record of regional climate change during the past two millennia, against a backdrop of more localized limnological changes. To accomplish this, proxy-climate records from three varved-sediment lakes on Baffin Island, Ogac Lake, Upper Soper Lake and Winton Bay Lake, were compared to similar records from two lakes in northwest Iceland, Vatnsdalsvatn and Thi riksvallavatn. These records include results from environmental magnetism, ICP-OES geochemistry, carbon content, C/N, and pollen analyses. AMS ^{14}C and ^{210}Pb analyses provide chronologies for each site. The longest records, from Baffin Island, cover the interval from the mid-20th Century to 1900 BP. The records from Iceland extend from the mid-20th Century to 950 BP, at Vatnsdalsvatn, and to about 500 BP, at Thi riksvallavatn. On Baffin Island, sediment, diatom and pollen analyses reveal gradual changes associated with lake uplift and marine isolation, and relatively rapid changes associated with climate changes at the beginning and end of the Medieval Warm Period (MWP), from about 1250-650 BP, and the Little Ice Age (LIA), from about 550-100 BP. High resolution (20-40 year/sample) pollen records from each of the Baffin Island sites reveal these climate changes in both local (low-Arctic) and exotic (Boreal Forest) pollen assemblages, aided by multivariate clustering and detrended correspondence analyses (DCA). Enhanced algal productivity and higher levels of sedimentary carbon occur during the LIA at Ogac and Upper Soper lakes on Baffin Island, and at Vatnsdalsvatn, on Iceland. Human disturbance is not a distinguishable factor in the Iceland records, except for abrupt changes in lake

chemistry and sediment influx after a dam was constructed at Thi riksvallavatn. Geochemistry changes in the Iceland lake, associated with erosion, show a 100-130 yr. periodicity, lasting over nine centuries at Vatnsdalsvatn and over four centuries at Thi riksvallavatn. These erosion cycles may be associated with long-term stability in the positive mode of the North Atlantic Oscillation.

Dirszowsky, R.W., 2001. SEDIMENT ROUTING APPLIED TO PALEOENVIRONMENTAL RECONSTRUCTION IN THE UPPER FRASER RIVER WATERSHED, BRITISH COLUMBIA, PhD thesis, Graduate Department of Geography, University of Toronto. Supervisor: Joseph Desloges.

ABSTRACT

Closely related floodplain and delta sites near Moose Lake, British Columbia (Canadian Rocky Mountains) are examined for evidence of environmental change and to assess the effects of upstream storage and reworking of sediment on downstream sedimentary records. The simultaneous development of composition-based provenance techniques facilitates the interpretation of downstream sediments in terms of source area, sediment production processes and hydroclimatic forcing.

Initially, Fraser River bed material is used to characterize upstream source areas and to estimate mixing of source materials downstream. Although sedimentary rocks provide minimal contrast in terms of geochemical trace elements, it is possible to distinguish sediments from two main watershed source areas based on major elements associated with carbonate and aluminosilicate bedrock lithologies. Complications arise due to the effects of particle size, hydrodynamic sorting, and transport-related and post-depositional alteration. Currently the Moose River sub-basin contributes a greater proportion of the total and fine-grained sediment load delivered to Moose Lake than expected based on catchment area. The imbalance is related to greater elevations, runoff, and glacier cover in the sub-basin.

A substantial area of the Moose Lake-Fraser River delta-top floodplain derives from the early half of the Holocene, and is characterized by fragmentary, low-discharge paleochannels containing bed materials characteristic of the uppermost Fraser River. Most floodplain development since *ca.* 4 ka BP records persistently higher sediment loads, aggradation and larger, more active channels. Detailed variations in the composition of laterally and vertically accreted floodplain sediments and of channel morphology reflect regionally documented glacier advance and retreat stages. Except for possible till deposits in the northwest, most valley-fill below Moose Lake and the delta is glaciolacustrine in origin, deposited rapidly as ice retreated up-valley at the end of the Wisconsinan. A large proportion of the delta was apparently constructed prior to *ca.* 10 ka BP and is either paraglacial or deglacial in origin. It is estimated that progradation and channel shifting on the delta surface could account for a gradual increase of up to 21% in distal lacustrine accumulation rates over Neoglacial time. More episodic variations likely occurred due to channel splitting and meander cutoff on the floodplain.

Hodder, K.R. 2001. Holocene and recent sedimentation record from glacier-fed Mud Lake, British Columbia, Canada. Unpublished M.Sc. thesis. Department of Geography, University of Toronto. Supervisor: Joseph Desloges

ABSTRACT

Proglacial Mud Lake, in the Monashee Mountains of British Columbia, Canada, consists of two sub-basins. Settling from suspension dominates contemporary sediment delivery to the western sub-basin, while gravity flow deposits (slumps and turbidites) dominate in the eastern sub-basin. Deposits in the western sub-basin are couplets of coarse, light coloured laminae alternating with thinner, finer grained and dark coloured laminae and are inferred as varved. The majority of suspended sediment is currently delivered through overflow events during late spring and early summer. A multiple regression model including mean daily temperature in winter, mean daily precipitation in spring, total winter precipitation and mean daily March temperature explains 55% of the observed variation in varve thickness since 1929 AD ($\alpha=0.05$). Glacial activity in the Mud Lake watershed, as indicated by varve thickness, shows no consistent trend since 1820 AD. Thick deglacial and early post-glacial sediments account for over 65% of infill thickness and contain thick, coarse-grained Bouma-type sequences.

Paulen, R., 2001. QUATERNARY GEOLOGY OF THE TIMMINS AREA, NORTHEASTERN ONTARIO., MSc thesis, University of Waterloo, Waterloo, Ontario. Supervisor: Paul Karrow.

ABSTRACT

This study improved understanding of the stratigraphy in the Timmins area through surficial mapping and analysis of the Timmins overburden drillhole database. Clarification of the complex stratigraphy will aid in mineral exploration through drift prospecting and define the lateral and vertical extent of marker units. Older units predating the last glaciation occur in low-lying bedrock topography comprising metavolcanic rocks. Ice flow indicators conform to the established chronology of glacial events. The glaciolacustrine sediments of Lake Ojibway were found underlying and overlying Cochrane Till. The last glacial event deposited Cochrane Till as a lodgement diamicton. Varve chronology shows that the sediments overlying Cochrane Till are contemporaneous with the upper sequence of the Barlow-Ojibway Formation south of the Cochrane limit. Strandlines and wave-cut benches formed on Cochrane Till, providing minor refinements of Lake Ojibway water planes and defining more precisely the ages of the Cochrane surge and the draining of Lake Ojibway.

Beecher, C.B., 2001. MODERN POLLEN AND VEGETATION RELATIONSHIPS IN BAY OF FUNDY SALT MARSHES. MSc thesis, Department of Geography, McGill University, Montreal. Supervisor: Gail Chmura.

ABSTRACT

This study examines modern relationships between salt marsh plant species and their pollen in three salt marshes located on the northwest coast of the Bay of Fundy, New Brunswick. Linear regression analysis of pollen in 35 surface sediment samples and vegetation cover on small (<15 m) and broad (>15 m) scales show that, with the exception of Poaceae and Chenopodiaceae, pollen corresponds well with fine-scale patterns of salt marsh vegetation. Scatter diagrams of paired pollen and cover data illustrate that cover of *Triglochin* is over-represented by its pollen, *Glauca* is under-represented, and Poaceae, Chenopodiaceae, and *Plantago* are inconsistent. Tidal mixing and differential inputs from local, regional, and extra-regional sources with elevation limit the establishment of plant-pollen relationships for Chenopodiaceae and Poaceae but not for other taxa. Comparison of 35 modern analogs from five vegetation zones using squared chord distance show that zones are distinct such that the marsh-terrestrial interface can be tracked with the highest degree of certainty in a salt marsh paleo-ecological record and other marsh zones can be tracked when a conservative threshold of dissimilarity is used.

Résumé

Cette étude examine les relations modernes existant entre les espèces floristiques de marais salants et leurs pollens dans trois marais salants situés sur la côte Nord-Est de la Baie de Fundy, au Nouveau Brunswick. Les résultats des régressions linéaires entre la composition du pollen de 35 échantillons de surface et la composition floristique à petite (<15m) et grande (>15m) échelles démontrent, à l'exception de Poaceae et Chenopodiaceae, l'abondance de pollen correspondent bien à la composition floristique à petite échelle. Les graphiques de l'abondance de pollen en fonction de la composition floristique démontre que *Triglochin* est sur-représenté par rapport à son pollen, *Glauca* est sous-représenté et Poaceae, Chenopodiaceae, et *Plantago* sont inconsistents. L'action des marées ainsi que la contribution différentielle des sources de pollen locales, régionales et extra-régionales en fonction de l'élévation du marais limite l'établissement de relations plantes-pollens de Chenopodiaceae et Poaceae, sans toutefois limiter l'établissement de telles relations pour d'autres espèces de marais salants. La comparaison avec 35 analogues modernes représentés par cinq différentes zones de végétation en utilisant la méthode du 'squared chord distance' démontre que les différentes zones ont une signature palynologique distinctes de sorte que l'interface marais-terrestre peut être identifiée avec un grand degré de certitude pour les données paléo-écologiques de marais salants. Les autres zones de marais peuvent également être identifiées si des critères de dissimilarité plus conservateurs sont utilisés.



A couple of issues ago we started a series of profiles of newly-appointed Quaternarists at Canadian universities. This issue introduces all of us to Dr. Roland Hall of the Department of Biology at the University of Waterloo....take it away Roland....

Dr. Roland Hall

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Research interests: Paleolimnology, paleoclimatology, applied aquatic ecology, diatoms, chironomids, eutrophication, acidification, effects of multiple stressors on aquatic ecosystems.

Statement of research interests:

My research combines analyses of sediment cores, lake surveys and multivariate statistics to address research questions at the interface of neo- and paleo-limnology, as well as fundamental paleoecology. Currently, we are engaged in two main areas of research. One main area uses a multi-proxy approach to reconstruct Holocene changes in climatic conditions, terrestrial vegetation and their effects on aquatic ecosystems. At present, we are focussing on two geographic areas. In northern Sweden, via collaboration with the Paleoecology Lab at the Climate Impacts Research Centre (CIRC) in Abisko (Sweden) and colleagues at Umeå (SE), Lund (SE) and Bergen (NO) universities, we are developing and critically assessing the use of fossil remains of aquatic biota (mainly diatoms and chironomids) to reconstruct climatic (*i.e.*, mean July air temperature) and ecological conditions in subarctic lakes. In northern Alberta, we are developing the use of multi-proxy methods to quantify the role of past climatic changes on flood regimes and ecological conditions in small lakes and wetlands.

The other main area of research attempts to quantify the unique and interactive effects of multiple stressors (e.g., acidification, climatic variability, nutrient enrichment) on aquatic communities in potentially-sensitive Precambrian Shield lakes. Currently, one MSc student is analyzing diatoms in sediment cores to assess the unique and interactive roles of acid deposition and inter-annual climatic variability on aquatic communities.

Analyses of field samples are performed at the WATER Lab (WATERloo Environmental-change Research Laboratory), located in the Department of Biology, University of Waterloo. This facility currently includes a microscope room dedicated to microfossil analyses, a lab room for handling cores and preparing samples, and a cold room for sample storage. The microscope room contains two new Zeiss Axioskop II compound light microscopes fitted with phase and differential-interference optics, and both are hooked up to a digital camera and imaging computer workstation for efficient development of taxonomic databases. We are well-

equipped with fieldwork and coring equipment, including an arsenal of gravity-, freeze-, piston- and Russian- corers. Two postdoctoral researchers, one graduate student and one technician currently work in the WATER lab. We anticipate taking on two new students at the MSc and PhD level within the next 8 months.

The University of Waterloo presents tremendous potential for collaborative multi-proxy research, as there are a number of faculty and researchers with active programs in paleoenvironmental research with whom we interact. Drs. Tom Edwards, Brent Wolfe and Sherry Schiff (Dept. of Earth Sciences) use stable isotopes to assess paleohydrological, paleoclimatic and related environmental changes. Dr. Barry Warner (Depts. of Geography and Biology), an expert in wetlands ecology, uses a variety of paleoecological methods to assess wetlands development and past environmental conditions. Within the Department of Biology six faculty members have active research programs in aquatic ecology and offer opportunities for interactions between fields of neo- and paleo-limnology (Drs. Dave Barton, Hamish Duthie, Stephanie Guildford, Robert Hecky, Ralph Smith, Bill Taylor). Future research plans include collaborative projects with Dr. Hecky, who holds the UNU (United Nations University) Chair Professorship in Great Lakes Limnology, to work at the interface of neo- and paleo-limnology on water-quality and climate change issues in the African Great Lakes.

Website: <http://www.science.uwaterloo.ca/biology/faculty/hall.html>

Employment

- | | |
|---------------|--|
| 1999- present | Assistant Professor, Department of Biology, University of Waterloo |
| 1999-2003 | Adjunct Professor, Department of Ecology and Environmental Science, Umeå University, Sweden |
| 1997- 1999 | Assistant Research Professor, Climate Impacts Research Centre & Department of Ecology and Environmental Science, Umeå University, Sweden |
| 1996 - 1997 | Postdoctoral Fellow, Department of Biology, University of Regina |
| 1994 - 1996 | NSERC Postdoctoral Fellow, Ministry of Environment, Dorset Limnological Research Centre, Dorset, Ontario |

Education

- | | |
|------|--|
| 1993 | Ph.D. Department of Biology, Queen's University.
Thesis: Paleolimnological analysis of lake-watershed interactions and long term lake trophic status. Supervisor: Dr. John P. Smol. |
| 1986 | B.Sc. (Honours) Biology, Queen's University |

Scholarships and Awards

- 1996 - 1997 Postdoctoral fellowships, University of Regina; Supervisor Dr. Peter Leavitt.
1994 - 1995 NSERC Postdoctoral Fellowships, Ontario Ministry of Environment's Aquatic Research Centre, Dorset, ON; Supervisor Dr. Peter Dillon.
1991 - 1992 R.S. McLaughlin Fellowship, Queen's University.
1987 - 1991 NSERC Postgraduate Scholarships.
1986 Gold Medal Award, Department of Biology, Queen's University.
1985 - 1986 NSERC Undergraduate Student Research Awards.
1982 - 1986 Queen's University Provincial Scholarships.

Field Research Experience

- Canadian High Arctic (Baffin Island)
- Canadian subarctic (Wood Buffalo National Park, Yukon)
- Swedish subarctic (2 full years at Abisko)
- Temperate North America (Southern Ontario, Saskatchewan, New York state)

Recent Publications

Bigler, C. and R.I. HALL. In press. Diatoms as indicators of climatic and limnological change in Swedish Lapland: A 100-lake calibration set and its validation for paleoecological reconstructions. *Journal of Paleolimnology*. Accepted March, 2000.

Larocque, I., R.I. HALL and E. Grahn. In press. Chironomids as indicators of climatic and environmental change: A 100-lake training set from a subarctic region of northern Sweden (Lapland). *Journal of Paleolimnology*. Accepted October, 2000.

Rosén, P., E. Dabak, I. Renberg, M. Nilsson and R.I. HALL. 2000. Near-infrared spectrometry (NIRS), a new tool to infer past climatic changes from lake sediments. *The Holocene* 10: 161-166.

Little, J.L., R.I. HALL, R. Quinlan and J.P. Smol. 2000. Quantifying past trophic status and hypolimnetic anoxia in Gravenhurst Bay, Ontario: Differential responses of diatoms and chironomids following nutrient diversion. *Canadian Journal of Fisheries and Aquatic Sciences* 57: 333-341.

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Dixit, A.S., R.I. HALL, P.R. Leavitt, J.P. Smol and R. Quinlan. 2000. Effects of sequential depositional basins on lake response to urban and agricultural pollution: A paleoecological analysis of the Qu'Appelle Valley, Saskatchewan, Canada. *Freshwater Biology* 43: 319-338.

Leavitt, P.R., R.D. Vinebrooke, R.I. HALL, S.E. Wilson, J.P. Smol, R.E. Vance and W.M. Last. 1999. Multiproxy record of prairie lake response to climatic change and human activity: Clearwater Lake, Saskatchewan. In Lemmen, D.S. and R.E. Vance (Eds.) *Holocene Climate and Environmental Change in the Palliser Triangle: A Geoscientific Context for Evaluating the Impacts of Climate Change on the Southern Canadian Prairies*. Geological Survey of Canada Bulletin 534: 125-138.

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HALL, R.I., P.R. Leavitt, A. S. Dixit, R. Quinlan and J.P. Smol. 1999. Effects of agriculture, urbanization and climate on water quality in the northern Great Plains. *Limnology & Oceanography* 44(3, part 2): 739-756.

HALL, R.I. and J.P. Smol. 1999. *Diatoms as Indicators of Lake Eutrophication*, pp. 128-168. In Smol, J.P. and E.F. Stoermer (Eds.) The Diatoms: Applications for the Environmental and Earth Sciences. Cambridge University Press.

The 2001 CANQUA Executive

President 2001-03

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