



Canadian National Committee
for the International Permafrost Association
CNC-IPA - NEWSLETTER

Spring 2002

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The enclosed *Frozen Ground* issue contains an extensive report on Canadian activities in 2001. This CNC-IPA Newsletter provides additional information that we were not able to include in *Frozen Ground* due to space limitations, as well as items of more particular interest to our Canadian colleagues. Several new items that have also either since come to our attention or to fruition are also included. ***SO read on for an update from your Canadian colleagues!***

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ICOP 2003 - Deadlines and Instructions

Reminder for those preparing manuscripts or posters for next International Conference on Permafrost (ICOP 2003), in Zurich, July 2003. Guidelines for authors can be found at: <http://www.geo.unizh.ch:8080/icop/main.jsp?content=guidel.html>

International Short Course on Permafrost Engineering, April 25-30, Canmore, Alberta

The University of Alberta Geotechnical Centre of the Department of Civil and Environmental Engineering and the Cold Regions Geotechnolgy Division of the Canadian Geotechnical Society, are offering a permafrost engineering course, on Effective Design and Construction in Permafrost Regions, in Canmore, Alberta, April 25-30, 2002. Contact Dave Sego, , dcsego@civil.ualberta.ca for a course circular with and further details on content and instructors. The course fee is \$1800. You can registration by calling: 780-492-2176, or via spetaske@civil.ualberta.ca.

New NSERC Northern Chairs!

In early April, the Government of Canada announced it will contribute \$6.1 million to expand research efforts in Canada's North, through six new Natural Sciences and Engineering Research Council (NSERC) university research Chairs. The five-year investment in the new Chairs is part of an expanded commitment to Northern research promised by NSERC last year. The Northern Chairs will study changing climate in the Arctic, northern diets, forest fires, the future of fish resources, and the stability of permafrost. The funded chairs are: Dr. Christopher Burn (Carleton University), Dr. Laurie Chan (McGill University), Dr. Terry Dick (University of Manitoba), Dr. John England (University of Alberta), Dr. Serge Payette (Université Laval), and Dr. Brent Wolfe (Wilfrid Laurier University/University of Waterloo).

Dr. Christopher Burn will focus on the stability of the permafrost regions of northwest Canada. This study will look at, among other things, effects of

variable winter weather in valleys, forest fires, as well as the re-freezing of ground in the vicinity of tailing ponds. Training will be sponsored by Yukon College. Supporters and Partners of Dr Burn: Village of Mayo and First Nation of Na Cho Nyak Dun, Yukon Parks and the Water Resources Division, Indian and Northern Affairs Canada, Aurora Research Institute, Yukon College.

Contact: crburn@ccs.carleton.ca

Developments in Permafrost Regions of the Northwest Territories

There is a record amount of development activity occurring in the Northwest Territories, all of which must consider the impact of permafrost conditions. Developments include production and expansion of the Ekati (BHP) Diamond Mine, development of the new Diavik diamond mine, and oil and gas exploration in the Beaufort Delta, Sahtu and Fort Liard regions. In addition, the Mackenzie Valley Producers Group earlier this year filed a letter of intent related to the future development of a Mackenzie Valley gas pipeline. In support of all these activities, transportation systems and municipal infrastructure must continue to be upgraded and expanded to meet the increased demands resulting from the activity.

All of this development points to significant future construction in permafrost areas. Effective solutions including proper environmental protection as a result of activity in permafrost areas require appropriate scientific and engineering study. In light of these developments and to promote better understanding and information exchange related to permafrost issues, the Northwest Territories Department of Transportation is planning to hold a Permafrost Engineering Workshop in the fall of 2002. The focus of the workshop will be on the application of engineering principles and best practices in dealing with developments in permafrost regions.

Watch for upcoming details on this workshop. For further information please contact Peter Vician, Department of Transportation, Government of the Northwest Territories, at peter_vician@gov.nt.ca

Canadian Permafrost Monitoring Network

In 2001, the Geological Survey of Canada (GSC) received funding for four years from the federal government's Action Plan 2000 to develop and implement the framework and infrastructure for a national permafrost monitoring network. This initiative will address some of the recommendations and concerns raised at the Canadian permafrost monitoring workshop held in January 2000. This funding will allow a core network of federal monitoring sites to be maintained and the establishment of the data management node and web site at the GSC. The national network will also contribute to the Global Terrestrial Network for Permafrost (GTN-P). The web site is currently under development and the first phase will soon be accessible through the GSC permafrost web site (www.sts.gsc.nrcan.gc.ca/permafrost) and further information on network operation will be provided.

Efforts over the next year will focus on the compilation of site metadata for active layer and thermal monitoring sites, and the development of data submission formats. Requests for candidate sites and metadata will be sent to the Canadian permafrost community in the next month. Metadata have already been compiled for several Canadian sites which have been nominated for the borehole monitoring component of the GTN-P and have been posted on the GTN-P web site (<http://sts.gsc.nrcan.gc.ca/gtnp/>). ***Investigators are reminded to check the metadata for errors and to submit metadata for those sites that still require it.*** The GSC will install snow sensors at a number of permafrost monitoring sites over the next three years in collaboration with Environment Canada's the Meteorological Service of Canada snow cover monitoring network. Initial sites include Alert and Baker Lake. **Contact:** *Sharon Smith at ssmith@nrcan.gc.ca*

Permafrost and Peatlands Workshop March 2002

Scientists studying changes in vegetation, hydrology and carbon flux in permafrost-affected peatlands in response to climate change met at a workshop sponsored by the Canadian Forest Service and the Panel for Energy Research and Development in Montreal, March 21-22, 2002. A major objective of the workshop was to foster

closer collaboration among scientists examining northern peatlands. Participants presented recent results and described ongoing research. Round table discussion focused on: critical processes driving permafrost aggradation/degradation and associated impacts on peatlands and their carbon budgets; identification of critical knowledge gaps concerning the stability of permafrost affected peatlands and research priorities; the formation of a working group on northern peatlands to focus research on the permafrost/peatland dynamics. **For further information contact Jag Bhatti, Canadian Forest Service at jbhatti@nrca.gc.ca or Stephen Robinson at srobinson@stlawu.edu.**

Canadian Coastal and Marine activities

Coastal and marine permafrost investigations were undertaken during the 2001 field season by the Geological Survey of Canada (GSC). Coastal stability was the focus of field work by S. Solomon at Tuktoyaktuk and Kittigazuit, funded by the Panel on Energy Research Development (PERD) and the Inuvialuit Social Development Program (ISDP). The objectives of the field work were to continue to document the effects of a large storm in August 2000 at Tuktoyaktuk and to determine the erosion sensitivity of archaeological sites in the Kittigazuit region. An associated study involving the Department of Fisheries and Oceans (DFO), Parks Canada, GSC and the U.S. Fish and Wildlife Service, uses small pressure gauges to monitor storm surges along the Beaufort Sea coast. Offshore permafrost stability and nearshore oceanography are being investigated in another collaborative project involving the GSC and DFO. Average annual nearshore seabed temperatures are being monitored using 18 moorings deployed along two onshore-offshore transects in the vicinity of the Mackenzie delta.

A study to determine the coastal impacts of sea level changes was initiated this year in a joint effort between the GSC and the Geodetic Survey of Canada. This involved the establishment of GPS monuments at Inuvik, Holman and Resolute with permanent GPS receivers to determine the vertical motion of the earth surface in a west-east transect. The contact person is Don Forbes (GSC-Atlantic).

A ship-based investigation of ice-keel scouring, granular resources and seabed mapping was undertaken by S. Blasco, funded by Indian and Northern Affairs Canada. This investigation saw the first use of multibeam sonar mapping in the region, which revealed exciting new information about gas venting from the sea floor. **Contact: Steve Solomon, GSC Atlantic, ssolomon@nrca.gc.ca**

Canada - EU Northern S&T Collaborative Projects funded by DFAIT

In March 2002, two Geological Survey of Canada projects with EU partners were supported by the Department of Foreign Affairs and International Trade (DFAIT) under the Northern Dimension of Canada's Foreign Policy (NDFP). One project, with Steve Solomon (GSC Atlantic) and a German partner (Volker Rachold) at the Alfred Wegener Institute, involves the Arctic Coastal Dynamics project, and coastal mapping along the Beaufort and Laptev Seas, and database development. The other project, involving with Sharon Smith and Margo Burgess (both GSC Terrain Sciences, Ottawa) and a Danish partner (Hanne Christiansen) at the Danish Technical University, deals with permafrost data rescue, compilation, submission to the GTN-P, and comparative analysis of Greenland and adjacent Canadian Arctic data. The small collaborative S&T projects will be completed in 2002/03.

Canadian Geotechnical Society, Cold Regions Division

Kevin W. Jones, P.Eng., from EBA Engineering Consultants Ltd. has been nominated as the next Chairman of the Cold Regions Geotechnology Division (CRGD) of the Canadian Geotechnical Society (CGS) and has agreed to stand for a three-year term. He took over the role from Richard Fortier, Assistant Professor, Université Laval in January 2002. Mr. Jones looks forward to the challenge of strengthening the division, particularly in light of the tremendous interest in northern oil and gas development in North America once more. He will need some inputs and involvement from the cold regions engineering and sciences community to create a strong division. Any CRGD member can be involved in the executive committee and we are

looking for a Co-Chairman. **Contact the new CRGD Chairman, Kevin Jones (KJones@mail.eba.ca)**, if you are interested.

IPA's Global Geocryological Database and Production of a CAPS v2 CD-Rom

As part of the continued development of the Global Geocryological Database (GGD), the IPA Standing Committee on Data, Information and Communication (SCDIC) is expanding the Circumpolar Active-layer Permafrost System (CAPS) data holdings. The World Data Center (WDC) for Glaciology at Boulder, in collaboration with the International Arctic Research Center (IARC), are spearheading the effort to produce the second CAPS CD-ROM (CAPS v2). Staff of WDC for Glaciology are collecting data and information from the frozen ground research community, developing a new Web-based Frozen Ground Data Center, and producing the expanded and updated CAPS v2 CD for release at the ICOP2003 conference in Zurich.

WDC staff recently met in Boulder with Margo Burgess and Sharon Smith of the GSC, and Jerry Brown (IPA), to review the status of GDD and its input to CAPS v2. The plan is to update data sets already on the first CAPS, add new data sets and products, and make them accessible online. If you have or can identify new Canadian data, information and maps that should be submitted, or have revisions to data on the first CAPS CD, please contact Sharon or Margo. Contributions from individuals or research institutions will be specifically credited. Metadata will be required for all new data and information, as well as revisions to existing data. CAPS v2 will include digitized maps by country and region.

Several major data sets are being organized and updated through existing IPA and GCOS/GTOS initiatives, and information and data relevant to these programs (e.g. CALM, GTN-P, ACD, Cryosols) should continue to be sent to their designated contacts. For more information on GGD and CAPS v2 please contact Mark Parsons at WDC, at +1-303-492-2359(tel), parsonsm@nsidc.org, or visit the new Frozen Ground Data Center web site at

<http://www.nsidc.org/frozenground/>.

Upcoming Workshop - Science Gaps in Northern Energy Developments in the Mackenzie Valley

The Federal Government established a Federal Northern Oil and Gas Science Steering Committee in 2001, involving DIAND, NRCan, DFO, EC and NEB, with linkages to NRC, Parks and IC. Their mandate is to identify science gaps and develop a federal action plan. Science information is critical to ensuring that all governments and stakeholders are able to make informed decisions, to respond to environmental assessment and regulatory processes and to meet their commitments to sustainable development. In working towards the development of a five year federal action plan, the Steering Committee is planning a workshop in the North in the fall of 2002. The workshop will involve experts and representatives from government, industry, Aboriginal communities, resources management and environmental assessment boards, research institutions and non-governmental organizations. The focus will be on biophysical issues in the Mackenzie Valley (exclusive of the Mackenzie Delta) related to hydrocarbon developments and the potential natural gas pipeline. Research gaps within the following areas are to be discussed: terrain/permafrost; air quality; water (surface and subsurface); fish and their habitat; wildlife and their habitat; biodiversity; resource and land use, including protected areas; climate change; and cumulative effects. Both western and traditional knowledge science will be presented. Workshop participation will be by invitation. For further information **contact: Ruth McKechnie, Department of Indian and Northern Affairs, at mckechnier@inac.gc.ca.**

Climate and Cryosphere Project (CliC)

The "Climate and Cryosphere" (CliC) project, approved in March 2000, is a core project of the World Climate Research Programme (WCRP). CliC encourages and promotes research into the cryosphere, in both hemispheres, and its interactions as part of the global climate system. CliC seeks to focus attention on the most important issues, encourage communication between

researchers with common interests in cryospheric and climate science, promote international co-operation, and highlight the importance of this field of science to policy makers, funding agencies, and the general public.

A Scientific Steering Group (SSG) and a number of working panels advise on specific areas of research and coordinate CliC activities. Barry Goodison (EC) and Margo Burgess (NRCAN) are current Canadian members on the SSG. The CliC Science and Co-ordination Plan is available for downloading on the CliC website at: <http://clic.npolar.no/>. Further details on the goals and activities of CliC and the SSG are also located there. The SSG met in Halifax in October 2001, and the report of this meeting will be made available on the web.

A current CliC priority is the completion of the implementation plan (IP). The CliC IP lays out activities where CliC can lead, co-operate, coordinate, and/or partner to meet the goals of the Science Plan. A "commitments conference for CliC" is proposed for fall 2003. Canada is looked upon to take an active role, because of the importance of the cryosphere in our country and surrounding waters and our expertise. This will require having the Canadian cryosphere community's collective ideas, projects and collaborators identified in advance. For further information contact Barry.Goodison@ec.gc.ca.

National GCOS plan for the Cryosphere

One of the projects under the CCAF science component was the development of a National GCOS plan for the Cryosphere. The Cryosphere plan has just been completed, but as yet there currently is no formal publication plan for its release and distribution. The report's citation is:

Brown, R. and D. O'Neill (eds), 2002: National Plan for Cryospheric Monitoring - A Canadian Contribution to the Global Climate Observing System. Unpublished Report, Meteorological Service of Canada, Downsview, Ontario, 81 pp. **Contact Ross Brown for details: ross.brown@ec.gc.ca**

CRYSYS

The 7th annual CRYSYS (CRYosphere SYStem in Canada) meeting, organized by EC-MSC, was held March 24-26 in 2002 in Victoria. CRYSYS brings together a network of Canadian Cryospheric researchers focusing on climate change and the cryosphere, often, but not solely, with an emphasis on remote sensing aspects. Visit the CRYSYS web site for more information on this meeting and reports/extended abstracts of previous meetings: <http://www.crysys.uwaterloo.ca/>

Report to UNFCCC on Canadian Contributions to GCOS

Canada recently submitted a national report to the United Nations Framework Convention on Climate Change (UNFCCC): *The Canadian National Report on Systematic Observations for Climate - The Canadian Global Climate Observing System (GCOS) Program*. The report, which includes a discussion of permafrost contributions, is in the process of being translated and will be placed on the UNFCCC website in both official languages. Contact Ted Yuzyk, ted.yuzyk@ec.gc.ca, for further details.

Canada's Climate Change Action Fund

The Government of Canada established the Climate Change Action Fund (CCAF) in 1998, to engage Canadians in partnerships leading to a deeper understanding of the climate change issue, as well as to take early and meaningful actions to reduce greenhouse gas emissions and adapt to the impacts of climate change. The first three years of CCAF funding came to an end in March 2001. The Science, Impacts and Adaptation component held evaluation workshops in the fall of 2001, in Calgary, on projects funded during the first phase. Summary presentations were given on several permafrost or permafrost related projects. The federal 2000 budget extended the CCAF for three more years to 2003-2004 at \$50 million a year. More details about scheduled calls for proposals and funded projects are available on the Impacts and Adaptation program web site: <http://adaptation.nrcan.gc.ca> or contact the Adaptation Liaison Office at (613) 943-0650. For further information on Science, contact the Science Liaison Office at (819) 997-2724; or visit the web

site: <http://www.ec.gc.ca/climate/CCAF-FACC/Science/lang.htm>

CNC-IPA News

It is with regret that we inform you that Michel Allard has stepped down as Chair of the CNC-IPA. We wish to thank Michel for his contributions to the CNC-IPA and wish him all the best as he focuses on increased responsibilities at Laval University. Margo Burgess will be serving as Interim Chair until the fall of 2002.

CNC-IPA committee members are appointed for a four year term. Current members, whose term expires in Dec. 2003, are:

- Margo Burgess (Secretary and Interim Chair), Geological Survey of Canada, mburgess@nrcan.gc.ca
- Michel Allard (Past Chair), Université Laval, michel.allard@cen.ulaval.ca
- Don Hayley, EBA Engineering Consultants Ltd., hayley@eba.ca
- Richard Fortier, Université Laval, richard.fortier@ggl.ulaval.ca
- Al Hanna, AGRA Earth and Environmental Ltd., ahanna@agraee.com
- Brian Moorman, University of Calgary, moorman@acs.ucalgary.ca
- Steve Solomon, Geological Survey of Canada-Atlantic, ssolomon@nrcan.gc.ca
- Peter Vician, GNWT Transportation, peter_vician@gov.nt.ca

Please feel free to contact any one of the members.

The Canadian National Committee for the International Permafrost Association (CNC-IPA) is Canada's official adhering body to the International Permafrost Association (IPA). Through formal agreement and partnership, the National Research Council (NRC) pays the annual membership dues to the IPA, while the GSC is responsible for and supports the CNC-IPA.

In May 2001, the CNC-IPA participated in the National Research Council's CNC-Partners and Ciset (Advisory Committee on International Science, Engineering and Technology) Joint Meeting, held in Ottawa. Margo Burgess represented

the CNC-IPA and submitted a report on CNC-IPA activities and issues (contact Margo if you are interested in obtaining a copy of the report). The CNC-IPA faces many similar issues to other CNCs - competing interests with other societies or conferences, national coordinating bodies often unable to attract new and young members and grass roots support - hence dwindling numbers and "fatigue" in the system, cost recovery pressures and associated accountability for time create difficulties for mobilizing people, data dissemination/archiving/cost recovery.

CNC-CODATA (Committee on Data for Science and Technology, an interdisciplinary committee of the International Council for Science (ICSU)) convened a separate meeting later in the year, on November 9 in Ottawa. Dr Sharon Smith, of the GSC, represented CNC-IPA and gave a presentation on databases, data rescue, national and international networks, archiving, web enabling of data. For more information on CNC/CODATA visit its web site at www.codata.org/canada.

The CNC-IPA held its annual meeting in Calgary on September 30 2001, to coincide with the Climate Change Action Fund Arctic Climate Science, and Impacts and Adaptation Evaluations Workshops.

Regional Climate Change Posters

A series of seven educational posters depicting the regional impacts of climate change in Canada have been produced with funding support from CCAF, and through the collaboration of numerous partners. Permafrost is featured on the Yukon/NWT poster and the Nunavut poster, as well the Quebec and the Prairie Provinces posters. To obtain a copy of any of the posters, contact the GSC bookstore: gsc_bookstore@gsc.nrcan.gc.ca. The posters are also available for viewing on-line at <http://adaptation.nrcan.gc.ca/posters/>

Canadian Membership on IPA Committees and Working Groups The CNC-IPA welcomes news

from Canadians involved in any of the IPA Committees, Task Forces and Working Groups. For a list of CNC-IPA members and other Canadians serving on IPA committee consult the 2001 CNC-IPA Newsletter at: <http://iss.gsc.nrcan.gc.ca/cncipa/>. Please contact any of these individuals for further information on their groups' activities.

CNC-IPA Newsletter

The CNC-IPA Newsletter is distributed each year along with *Frozen Ground*. Beginning in 2000, the CNC-IPA Newsletter is also available electronically through the GSC's permafrost web site at: <http://iss.gsc.nrcan.gc.ca/cncipa/>. The CNC-IPA distributes its newsletter to some 350 recipients. Please remember, if your address has changed, to take a moment to fill out the address form at the end of this newsletter.

Frozen Ground - The Newsletter of the IPA

Frozen Ground, the News Bulletin of the International Permafrost Association, is published annually. The enclosed volume 25, December 2001, is also available electronically on the IPA web site (<http://www.geodata.soton.ac.uk/ipa/>). If you have any items (e.g. research activities, conference/workshop reports) that you would like to forward to the CNC-IPA for inclusion in the Canadian report in the next *Frozen Ground* issue, scheduled for December 2002, please send these along to Margo Burgess (mburgess@nrcan.gc.ca), by Sept. 15, 2002.

Distribution:

Copies of this issue of *Frozen Ground*; are being distributed to all Canadian permafrost scientists and engineers on the mailing list of the (CNC-IPA), and to various libraries across Canada. Persons or institutions interested in receiving copies are asked to contact the Secretary, CNC-IPA, at the address below. Persons or institutions no longer wishing to receive copies should also contact the CNC-IPA Secretary.

Back Issues: Limited numbers of back issues of *Frozen Ground* No's 8 through 23 are available, on a first come, first served basis. Issues No. 7 and earlier are out of print, but photocopies can be provided. Recent issues are posted on the IPA web site.

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