

MEMBER COUNTRY:

CANADA

National Report to SCAR for year:

2008–2009

Activity	Contact Name	Address	Telephone	Fax	Email	web site
National SCAR Committee						
Canadian Committee on Antarctic Research		Suite 1710, 360 Albert Street, Ottawa, Ontario, K1R 7X7, Canada	[1](613)943-8605	[1](613)943-8607	mail@polarcom.gc.ca	www.polarcom.gc.ca
	Prof. Marianne S.V. Douglas	CCAR Chair, Director, Canadian Circumpolar Institute, University of Alberta, 1-37 Pembina Hall, Edmonton, Alberta T6G 2E1, Canada	[1](780)492-0055	[1](780)492-1153	marianne.douglas@ualberta.ca	www.uofaweb.ualberta.ca/polar
	C. Simon L. Ommanney	CCAR Secretary, 56 Spinney Road, P.O. Box 730, R.R. #1, Glenwood, Yarmouth County, Nova Scotia B0W 1W0, Canada	[1](902)643-2527		simon.ommanney@ns.sympatico.ca	
SCAR Delegates						
1) Delegate	Steven Bigras	Executive Director, Canadian Polar Commission, Suite 1710, Constitution Square, 360 Albert Street, Ottawa, Ontario, K1R 7X7, Canada	[1](613)943-8605	[1](613)943-8607	mail@polarcom.gc.ca	www.polarcom.gc.ca
	2) Alternate Delegate	C. Simon L. Ommanney	Secretary, Canadian Committee on Antarctic Research, 27 Glen Davis Crescent, Toronto, Ontario, M4E 1X6, Canada	[1](902)643-2527		simon.ommanney@ns.sympatico.ca
Standing Scientific Groups						
Life Sciences						
1) Chief Officer	Dr Kathleen Conlan	Canadian Museum of Nature, Life Sciences, P.O. Box 3443, Station D, Ottawa, Ontario, K1P 6P4, Canada	[1](613)364-4063	[1](613)364-4027	kconlan@mus-nature.ca	www.nature.ca
	2) Member	Prof. Marianne S.V. Douglas	Director, Canadian Circumpolar Institute, University of Alberta, 1-37 Pembina Hall, Edmonton, Alberta T6G 2E1, Canada	[1](780)492-0055	[1](780)492-1153	marianne.douglas@ualberta.ca
3)						
4)						
Geosciences						
1) Member	Prof. Wayne H. Pollard	Department of Geography, McGill University, Burnside Hall, 805 Sherbrooke Street W., Montréal, Quebec, H3A 2K6, Canada	[1](514)398-4454	[1](514)398-7437	wayne.pollard@mcgill.ca	www.geog.mcgill.ca/mag2/pollard.htm
	2) Member	Dr Peter L. Pulsifer	Geomatics and Cartographic Research Centre, Carleton University, B349 Loeb, 1125 Colonel By Drive, Ottawa, Ontario, K1S 5B6, Canada	[1](613)761-7995	[1](613)520-2395	pulsifer@magma.ca
3)						

Activity	Contact Name	Address	Telephone	Fax	Email	web site
Physical Sciences 1) Member 2) 3) 4)	Dr Thomas S. James	Geological Survey of Canada, Natural Resources Canada, 9860 West Saanich Road, P.O. Box 6000, Sidney, British Columbia, V8L 4B2, Canada	[1](250)363-6403	[1](250)363-6565	tjames@nrcan.gc.ca	www.pgc.nrcan.gc.ca/geodyn/people/tj_home.htm
Scientific Research Program						
ACE 1) 2) 3) 4)						
AGCS 1) 2) 3) 4)						
EBA 1) Ex Officio 2) 3) 4)	Dr Kathleen Conlan	Canadian Museum of Nature, Life Sciences, P.O. Box 3443, Station D, Ottawa, Ontario, K1P 6P4, Canada	[1](613)364-4063	[1](613)364-4027	kconlan@mus-nature.ca	www.nature.ca
ICESTAR 1) 2) 3) 4)						
SALE 1) 2) 3) 4)						

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SC-AGI						
1) Member	Dr Peter L. Pulsifer	Geomatics and Cartographic Research Centre, Carleton University, B349 Loeb, 1125 Colonel By Drive, Ottawa, Ontario, K1S 5B6, Canada	[1](613)761-7995	[1](613)520-2395	pulsifer@magma.ca	www.carleton.ca/gcrc/caap
2) Member	C. Simon L. Ommanney	CCAR Secretary, 56 Spinney Road, P.O. Box 730, R.R. #1, Glenwood, Yarmouth County, Nova Scotia B0W 1W0, Canada	[1](902)643-2527		simon.ommanney@ns.sympatico.ca	
3)						
4)						
ACTION GROUPS						
1) Antarctic Fuel Spills (AGAS)	Dr Kathleen Conlan	Canadian Museum of Nature, Life Sciences, P.O. Box 3443, Station D, Ottawa, Ontario, K1P 6P4, Canada	[1](613)364-4063	[1](613)364-4027	kconlan@mus-nature.ca	www.nature.ca
2) WCRP/SCAR IPAB Co-ordinator	Dr Christian Haas	Department Earth and Atmospheric Sciences, University of Alberta, Edmonton, Alberta, T6G 2E3, Canada	[1](780)492-8171	[1](780)492-2030	chaas@ualberta.ca	http://easweb.eas.ualberta.ca/index.php?page=14&person=haasc
3) SERCE PPG	Dr Thomas S. James	Geological Survey of Canada, Natural Resources Canada, 9860 West Saanich Road, P.O. Box 6000, Sidney, British Columbia, V8L 4B2, Canada	[1](250)363-6403	[1](250)363-6565	tjames@nrcan.gc.ca	www.pgc.nrcan.gc.ca/geodyn/people/tj_home.htm
4) SALE Code of Conduct, Chair	Prof. Warwick F. Vincent	Département de biologie, Université Laval, 1045 avenue de la Médecine, Québec, Québec G1V 0A6, Canada	[1](418)656-2131x5	[1](418)656-2043	warwick.vincent@bio.ulaval.ca	www.cen.ulaval.ca/wvvincent.html
5) ADMAP	Dr Jacob Verhoef	Director, UNCLOS Program, Geological Survey of Canada, Natural Resources Canada, 1 Challenger Drive, P.O. Box 1006, Dartmouth, Nova Scotia B2Y 4A2, Canada	[1](902)426-3448	[1](902)426-1466	jacob.verhoef@nrcan-mcan.gc.ca	
6) IPICS Steering Committee	Dr David A. Fisher	National Glaciology Program, Geological Survey of Canada, Natural Resources Canada, 562 Booth Street, Ottawa, Ontario K1A 0E4, Canada	[1](613)996-7623	[1](613)996-5448	david.fisher@nrcan-mcan.gc.ca	http://gsc.nrcan.gc.ca/glaciology/national/contact_e.php
insert others as needed						

Activity	Contact Name	Address	Telephone	Fax	Email	web site
EXPERT GROUPS						
1) IPY POLENET	Dr Thomas S. James	Geological Survey of Canada, Natural Resources Canada, 9860 West Saanich Road, P.O. Box 6000, Sidney, British Columbia, V8L 4B2, Canada	[1](250)363-6403	[1](250)363-6565	tjames@nrcan.gc.ca	www.pgc.nrcan.gc.ca/geodyn/people/tj_home.htm
2) ANTPAS Steering Committ	Dr Charles T. Tarnocai	Research Branch (ECORC), Agriculture and Agri-Food Canada, 960 Carling Avenue, Ottawa, Ontario K1A 0C6, Canada	[1](613)759-1857	[1](613)759-1926	tarnocai@agr.gc.ca	http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1181923002120&lang=eng
3) PPE	Prof. Wayne H. Pollard	Department of Geography, McGill University, Burnside Hall, 805 Sherbrooke Street W., Montréal, Quebec, H3A 2K6, Canada	[1](514)398-4454	[1](514)398-7437	wayne.pollard@mcgill.ca	www.geog.mcgill.ca/mag2/pollard.htm
4) PPE	Prof. Kevin J. Hall	Geography Program, University of Northern British Columbia, 3333 University Way, Prince George, British Columbia, V2N 4Z9, Canada	[1](250)960-5864	[1](250)960-6533	hall@unbc.ca	http://www.unbc.ca/geography/faculty/hall/
5) Human Biology and Medic insert others as needed	Dr Dave R. Williams	McMaster Centre for Medical Robotics, St. Joseph's Healthcare, 50 Charlton Avenue East, Hamilton, Ontario L8N 4A6, Canada	[1](905)522-1155x 3	[1](905)521-6197	wllld@mcmaster.ca	
SCADM						
1) Member 2)	Dr Peter L. Pulsifer	Geomatics and Cartographic Research Centre, Carleton University, B349 Loeb, 1125 Colonel By Drive, Ottawa, Ontario, K1S 5B6, Canada	[1](613)761-7995	[1](613)520-2395	pulsifer@magma.ca	www.carleton.ca/gcrc/caap
NATIONAL ANTARCTIC DATA CENTRE No centre yet established						
SCAR DATABASE insert name of database for which your country has responsibility Canada not responsible for an Antarctic database						

A BRIEF SUMMARY OF SCIENTIFIC HIGHLIGHTS:

Canadian research in the Antarctic continues to be strongly influenced by the ability of individual scientists to develop partnerships within the scientific programs of other Antarctic nations. Their assistance is greatly appreciated. Canadian work fits within the broad categories of the three Standing Scientific Committees, but is not necessarily specific to any group or project. As reflected in the attached bibliography, been active in the analysis of Antarctic data and publication of results.

One highlight of the past year was a Canadian IPY University Antarctic Expedition run in partnership with the Students on Ice organization. A total of 71 students (including 4 international and 18 from high school), with an educational staff of 17, joined the *M/V Ushuaia* on a study cruise to the Antarctic from 16-26 February 2009. Students registered at four universities, Carleton, Concordia, Alberta and Northern British Columbia, were able to obtain credit for courses offered on board.

LIFE SCIENCES

Dr Kathy Conlan (Canadian Museum of Nature: kconlan@mus-nature.ca) was elected Chief Officer of the LS-SSG.

Between 2004 and 2008, Drs Brian P. V. Hunt (bhunt@eos.ubc.ca) and Evgeny A. Pakhomov (epakhomov@eos.ubc.ca), of the University of British Columbia, participated in the Lazarev Sea Krill Survey (LAKRIS), a component of the German Southern Ocean GLOBEC program. Although LAKRIS focused on krill, macrozooplankton samples were collected during each of the four surveys. As far as is known, these are the first detailed seasonal data for macrozooplankton collected in this region of the Southern Ocean. A report has been prepared on the abundance, distribution and reproductive biology of the salps *Salpa thompsoni* and *Ihlea racovitzai*, and implications for the long term establishment of *S. thompsoni* in the high Antarctic. During 2007/08 a total of 88 Continuous Plankton Recorder tows were conducted over 23 transects in the Southern Ocean by eight vessels from seven nations. There is no large-scale longitudinal separation of regions, and latitudinal biogeographic zones in general show circum-Antarctic consistency. A manuscript on these results is in preparation, and the detailed analytical outputs are to be used to inform bioregionalization networks for the Southern Ocean.

Drs Émilien Pelletier (emilien_pelletier@uqar.qc.ca) and Serge Demers (serge_demers@uqar.qc.ca), from ISMER of the Université du Québec à Rimouski, in a joint project with colleagues from the Instituto Antártico Argentino (Drs Walter P. Mac Cormack and Antonio Curtosi) are assessing anthropogenic activities and environmental effects at Argentine stations, and the role of the permafrost layer as a frontier to the mobility of pollutants in Antarctic soils. Other colleagues, Drs Irene R. Schloss (irene_schloss@uqar.qc.ca) and Gustavo A. Ferreyra (gustavo_ferreyra@uqar.qc.ca), are studying the impact of glacier melting on phyto-, microzoo- and zooplankton in coastal waters off the Antarctic Peninsula.

Dr Steven D. Siciliano (steven.siciliano@usask.ca), and colleagues at the University of Saskatchewan (UofS), have developed an instrument that provides real-time information on greenhouse gases; used to assess the geospatial dependency of the gases and microbial populations in polar ecosystems. In 2008, it was tested by Dr Ian Snape of the Australian Antarctic Division on MacLaurie Island. Scientists at UofS continue to process samples collected in 2005, 2006 and 2007.

Dr John M. Terhune (terhune@unbsj.ca), of the University of New Brunswick, is examining underwater Weddell seal vocalizations previously recorded near Mawson (2002), to determine the source levels (amplitudes) of the different call types.

Dr Warwick F. Vincent (warwick.vincent@bio.ulaval.ca), of Université Laval, chaired the SCAR Action Group established to develop a 'Code of Conduct' for Antarctic subglacial lake exploration and research. The final report to SCAR is now under consideration by the ATS.

Dr. Dermot Antoniades (dermot.antoniades@cen.ulaval.ca), a post-doctoral researcher at Université Laval, spent November 2008 working with the Spanish IPY Limnopol program at Byers Peninsula on Livingston Island. He is investigated non-marine aquatic ecosystems to see how they respond to increasing temperature and precipitation likely to result from climate change.

PHYSICAL SCIENCES

Dr Jörn Davidsen (davidsen@phas.ucalgary.ca), of the University of Calgary, in a theoretical analysis of historic natural climate variability with scientists from the British Antarctic Survey, based on ice core records from EPICA Dome C and Vostok, has found that the volatility properties reveal a strong nonlinear component in the 5-200 ky temperature time series. Results suggest that temperature increments over these time scales appear in clusters of big and small increments - a big (+ or -) change is most likely followed by a big (+ or -) change and a small change is most likely followed by a small change.

Dr Matt Dobbs (mdobbs@physics.mcgill.ca), and his team from McGill University, in collaboration with some eight institutions in the United States, continued his work using the newly constructed South Pole Telescope which has been instrumental in discovering new galaxy clusters through the Sunyaev-Zel'dovich (SZ) effect.

As part of AGAP, led by Drs Robin Bell and Michael Studinger of the Lamont-Doherty Earth Observatory, Columbia University, Sander Geophysics Ltd's AIRGrav airborne gravity system was used to obtain 50,000 line km of high-resolution airborne gravity data that provided a detailed view of the rugged Gamburtsev Subglacial Mountains (SGL: Stefan Elieff, selieff@sgl.com).

Dr Christian Haas (chaas@ualberta.ca), of the University of Alberta, in collaboration with Drs Wolfgang Rack and Pat Langhorn, New Zealand, carried out an ice thickness and platelet ice survey of fast ice in the Ross Sea. As co-ordinator of the SCAR/WCRP International Programme for Antarctic Buoys (IPAB), he is also helping maintain a network of drifting buoys in the Southern Ocean to provide meteorological and oceanographic data for real-time operational requirements and research purposes (www.ipab.aq).

Ashley Dubnick (adubnick@ualberta.ca), of the University of Alberta, visited Garwood Valley with the NZ program in January 2009. She has reported on the characterization of organic matter from a global collection of snow, glacier ice, basal ice and glacial runoff samples that included samples from the McMurdo Dry Valleys.

GEOSCIENCES

The auroral component of the Embry Riddle aeronomy program at the South Pole was expanded in 2006 by Dr Donald J. McEwen (don.mcewen@usask.ca), of the University of Saskatchewan, with the installation of a 6-wavelength meridian scanning photometer (MSP) to record the activity of the southern lights. The study has continued through the recent Solar Minimum (2007-09) and given interesting results on quiet auroras.

In conjunction with the University of Pretoria, Dr Kevin J. Hall (hall@unbc.ca), of the University of Northern British Columbia, returned to sub-Antarctic Marion Island (Prince Edward Islands) as a follow-up to his first visit 35 years ago and subsequent visit in 1980. Glacial reconstructions and the glacio-isostatic hypothesis of interglacial volcanism were reviewed; made more exciting by the intervening loss of the ice cap which has exposed much new information regarding flow directions. In addition, studies were made of rock weathering, rock temperature, rock moisture and solar radiation. Lichens were collected from the recently deglaciated area for a study of biological weathering processes and rates.

GEOGRAPHIC INFORMATION

The Geomatics and Cartographic Research Centre of Carleton University, led by Drs D. R. Fraser Taylor (fraser_taylor@ccs.carleton.ca) and Peter Pulsifer (pulsifer@magma.ca), is maintaining the four prototype modules of the Cybercartographic Atlas of Antarctica on Territorial Claims, Antarctic Exploration, Sea Ice, and Antarctic Politics, at <https://gcr.ccarleton.ca/confluence/display/GCRCWEB/CAA+Project+Description>. New resources to further develop content and upgrade functionality have not yet been established.

OTHER

Dr Alain A. Grenier (grenier.alain@uqam.ca), of the Université du Québec à Montréal, hosts the International Polar Tourism Research Network (www.polarismnetwork.uqam.ca). This was created in August 2008 by Canadian and international colleagues, including Dr Patrick T. Maher (maherp@unbc.ca), of the University of Northern British Columbia.