# COUNCIL OF CHAIRS OF CANADIAN EARTH SCIENCE DEPARTMENTS
# CCCESD

## UNIVERSITY OF OTTAWA
## FRIDAY NOVEMBER 16TH, 2007

Notes from meeting

Present: Ihsan Al-Aasm (Windsor), Emmanuelle Arnaud (Guelph), Hugo Beltrami (St. F.X.), John Blenkinsop (Carleton), Bruce Broster (UNB), Nancy Chow (Manitoba), John Cox (Mount Royal), Sandy Cruden (Toronto), Janis Dale (Regina), Bob Dalrymple (Queen's), Stan Dosso (Victoria), Dave Eaton (Calgary), Carolyn Eyles (McMaster), Martin Gibling (Dalhousie), John Greenough (UBC-Okanagan), John Hanchar (Memorial), Keiko Hattori (Ottawa), Alfred Jaouich (UQàM), Pierre Jutras (St. Mary's), Elisabeth Kosters (CFES), Rob Raeside (Acadia), Martin Sharp (Alberta), Paul Smith (UBC), John Stix (McGill), Keith Tinkler (Brock), Barry Warner (Waterloo), Ian Young (CFES)
Regrets: K Ansdell (Saskatchewan), J McConnell (York),

MORNING SESSION—**CAREG 107**

**Introduction and welcome**
Paul Smith (chair) welcomed attendees, noting momentum, opportunities involving other groups, especially CFES, and introduced Ian Young (president) and Elisabeth Kosters (managing director).

**News and views from the Departments – issues arising**
Most departments submitted an outline in advance (published separately). Other departments noted issues about rising overseas student fees in Ontario. In addition two other reports were given orally for UNB and St. Francis Xavier University (incorporated into departmental notes).

Some of the common themes arising were money, cuts, getting money from government and industry, space, undergraduate enrolment concerns, environmental science, earth system science, graduate students concerns (flat enrolment, serious regional issues, recruitment, provincial pressures to grow, access to foreign students, foreign student fees), faculty recruitment and retirement strategies.

**CCCESD business** (Raeside, Greenough)
Rob Raeside (re-)distributed the enrolment statistics collected at the end of 2006, noting the on-going slow increase in undergraduate students, the dramatic increase in service courses, and the newly reported age break-down of faculty. Bob Dalrymple requested information on time-in-program for graduate students, a number which was previously reported by dividing the number of enrolments in a program by the number of graduates from the program. This yielded a result of 4-5 years for an MSc and erratically 5-9 years for a PhD over the past decade (this analysis is available from the 2005 and older graphs at http://ace.acadiau.ca/cccesd). Also requested was information on the numbers of sessional professors, foreign *vs* Canadian student numbers and fees.
[Note added after meeting: in 2006, among the 30 school that were able to distinguish nationality, 688 Canadian students and 154 international students were registered in MSc programs, and 408 Canadian and 235 international PhD students were registered.]

John Greenough reported on the budget, with a balance of $16,661.88. Paul Smith requested authorization to pay a membership fee to CFES of $500 subject to annual approval. Moved by Paul, seconded by Keiko Hattori; carried.

**Upcoming conferences**

Paul Smith noted the upcoming GeoCanada 2010 conference in Calgary and a Nuna-Gussow conference in 2008. One possibility is a special session on geological education at the GeoCanada 2010, to which CCCESD has been invited to contribute. A consensus developed that there is enough interest to continue. A Nuna-Gussow conference (organized by GAC and CSPG) on the Geoscience of Climate Change will be held in October 2008 in Banff, chaired by Andrew Miall, incoming RSC chair, as part of IYPE. CFES will participate. A follow-up may be planned in Toronto.

**Professional registration**

Sandy Cruden reported on the 20 October meeting of CGSB in Toronto and distributed the current version of the recommended minimum knowledge standards. A key message delivered to the CGSB was to ensure flexibility of programs, to the level of accepting courses in statistics, chemistry, taught in geoscience departments. Other changes include the requirement of first year level Biology in the Environmental Geoscience stream, and the removal of a rock properties course from the Geology stream (as this material is included in the subject "Mineralogy"). Course names are not mandatory: many courses will incorporate a 'philosophy statement' which will provide a statement of course content. Bruce Broster also noted the possible introduction of a Limited Licensure for university teachers of Geology. Feedback should be directed to the provincial representatives on CCPG.

**News from the Geological Survey of Canada**

Richard Grieve gave a presentation of an overview of issues arising from the GSC. He noted the challenges the Survey faces with a constant A-base budget, prohibition of lay-offs, and no inflation adjustment. As a result C-based (project-oriented) funding is the main source of revenue for operations. He noted the high number of expected retirements, with 45% of the scientific staff expected to reach this age within 10 years.

As a response to these pressures a Human Resources Renewal Plan has been developed for ESS (which includes the GSC and Geomatics Canada), creating a research scientist pool (10 people this year, 20 next year); the Research Affiliates Program has been established to allow students to work up to 25 hours/week (this has posed some problems where students are no longer considered as such by their universities); and a targeted increase of NSERC Visiting Fellows, from 14 to 30 (ESS pays 50%; this program has not proven attractive to Canadians).

At the NRCan level (ESS being one sector of NRCan) a Science and Policy Integration Sector has been created, incorporating Human Resources, Finance, Public Relations and Information Technology. All programs come under a Program Activity Architecture with priorities in economic opportunities, clean environment, public safety and security (includes geohazards), international capacity, trade and investment (*e.g.*, assisting industry in overseas markets, CIDA), and management of issues for the Government (*e.g.* Climate Change Action Fund). These changes have eroded the A-base budget, and resulted in a cut in Canada's subscription to ICDP (International Continental Scientific Drilling Program).

Current and future initiatives include work with the Council of Canadian Academies for assessments of groundwater resources, gas hydrates as an energy source, and nanotechnology risks. Other potential initiatives include groundwater mapping (a 30-year task), the Arctic agenda (mapping, research science studies), climate change

(impacts and adaptations). Advantage Canada has also produced a significant report "Mobilizing Science and Technology", with priorities in environmental science and technology, natural resources and energy, health and life science and technology, information and communication technology, and includes a proposal for the transfer of non-regulatory laboratories to universities. The aim is to break down barriers between government, industry and academia.

AFTERNOON SESSION—**GENDRON 080**

**RESEARCH FUNDING AND THE TRAINING OF HQP**
**CCCESD-NSERC-CFES**

Additional participants:

Isabelle Blain, Vice-President, Research Grants and Scholarships Directorate
Suzanne Fortier, President, NSERC
Norman Marcotte, Director, Research Grants and Scholarships Directorate
Kenneth Rankine, Program Officer, Research Grants and Scholarships Directorate
Matthew Vincelli, Program Officer, Research Grants and Scholarships Directorate

Paul Smith spoke about the supply of personnel in the earth sciences. He reported that the discipline has been able to build capacity very well, noting the existing infrastructure, the availability of CFI awards and Canada Research Chairs, but that the fuelling capacity (Discovery Grants) was less strong. He posed the question "What additional pressures are faced by the Earth Sciences?"

- expanding demand as the discipline broadens to include/involve oceanography, atmospheric science, environmental science, climate change
- booming mineral exploration industry
- booming hydrocarbons industry
- demographic issues (retiring baby boomers)

He gave the example of UBC and demonstrated how these pressures work out in that arena.

Noting the success of Chemistry in NSERC funding (one national umbrella organization in existence since 1945 incorporating industry and academia, one well-funded office for all societies, papers and briefs provided to government departments, the 'star approach' to publicity, public relations and funding reallocations, annual meetings between CCUCC and the societies and NSERC, a united national meeting), he proposed that the Earth Sciences need to work with other science groups to increase the size of the NSERC pie overall, and to increase the size of the Earth Science slice of the NSERC pie. He observed that new applications, younger researchers and new senior applications are most seriously under-funded and called for academia and industry to present a united front to promote the Earth Sciences.

Madame Fortier spoke on the launch of the Science and Technology Strategy, emphasizing people, knowledge and entrepreneurial advantages. She anticipates new programs following the 2007 budget plans, with a particular focus on interdisciplinary and inter-council collaboration. She noted the nature of the Discovery Grant program, with its high success rates, but low individual levels of funding and wondered if this outlier in the general funding trends was a mistake or a merit. She noted that an international blue ribbon panel is currently reviewing the Discovery Grant program, with a report expected between mid-March and May 2008. She also noted that some work is being done to determine if the Grant Selection Committees are properly structured, and conducted a survey over the past summer for researchers, vice presidents

(research), etc., and detected from that a highly engaged community. She noted that four pillars exist in scientific research funding:

- direct costs (Discovery Grants)
- indirect costs of research funding to universities
- CFI
- Canada Research Chairs

These programs have propelled Canada from a low level research fund provider to the top funder among the G7 nations and the second top in the OECD. She requested input in the difficulties faced by the Earth Sciences to generate highly qualified personnel (HQP):

- competing salaries in industry
- space available in universities
- supervisor funding
- students graduating with high debt loads are reluctant to pursue graduate studies
- difficulties in obtaining funding for international work

She requested input on how many people who could apply for Discovery Grants actually do apply? (CCCESD offered to seek this information.) She concluded that NSERC grantees are at the forefront in educating the next generation of scientists.

Ian Young (CFES) then gave a presentation on the results of the Earth Sciences employment survey conducted over the past year. It is known that 7500 professionals are registered to work in geoscience and that 538 academic positions exist. He estimated there are possibly 15,000 earth scientists working in/from Canada, and that there will be a 21% anticipated growth in the personnel the next 5 years.

Promotion of Earth Science is especially important. CGEN (a member of CFES) has a membership of 250 and runs the EdGEO programs for Earth Science education of teachers. Mining Matters modules have been made available to schools, and the IYPE provides an opportunity for a particular emphasis on the Earth. The *Geological Journey* series on CBC was well received, and DVDs of it are being made available.

Lobbying is also very important. Madame Fortier noted "Don't tell the government what you need – tell them what you've done." To this end, CFES is establishing an Earth Science Advocacy and Advisory Panel, and Ian Young and Paul Smith spent the previous day visiting several offices in Ottawa (HRSDC [Human Resources and Social Development Canada], the Council of Canadian Academies, CMOS [Canadian Meteorological and Oceanographic Society], the Director of Cabinet Operations). Logan student chapters are being encouraged in universities, and a common newsletter among several earth science societies is being considered. CanGeoref is being proposed (a Canadian-specific offshoot of Georef; an equivalent AusGeoref in Australia has proven successful for use by smaller companies).

CFES will be meeting in Toronto the following day (Paul Smith will attend for CCCESD).