

CCCESD – REVIEW OF DEPARTMENTS – 2012

MEMORIAL UNIVERSITY OF NEWFOUNDLAND, Earth Sciences

Earth Sciences Dept., News & Developments 2011-12

• *Students*

	Total Enrollment		Notes
	2012-2013*	2011-2012**	
2 nd year	68	49	See footnote***
3 rd year	35	43	
4 th year	33	33	This number does NOT include honours students.
Honours	18	21	
TOTAL UG	154	146	
MSc	59	59	
PhD	23	24	
TOTAL GRAD	82	83	These numbers do not include graduate students on a Leave of Absence in that semester.
TOTAL STUDENTS	236	229	Total # of undergrad & grad students registered in our academic program in that year.

* Following the “Last date to add/drop courses” in the Fall 2012 semester

** Following the “Last date to add/drop courses” in the Fall 2011 semester

*** This number is unusually high due to the large number of students that failed 2nd yr in 2011 and are repeating. This can be seen by the lower number of students in 3rd year in 2012 as compared to the number of students in 2nd yr 2011.

Stats compiled by M. Miskell, October 11, 2012

• *Faculty Interests and Research*

29 current faculty members ([including 4 emeritus] and one Honorary Research Professor and three University Research professors)

2 CRC Chairs, three Tier II.

Two faculty searches currently underway. One regular tenure track position in Petroleum Geology and Chevron IRC in Reservoir Characterization, HMDC Chair (below) being formalized

• *External Support for Teaching and Infrastructure*

\$420K from HMDC for field school and field safety training

\$2.4M from HMDC for electron microprobe and field emission SEM and

laboratory renovations

\$1M for partial support (Chevron & RDC) for Chevron IRC in Reservoir Characterization

\$500K for partial support for HMDC IRC in Petroleum Geosciences

• *Challenges*

- Problems with start up funds for new faculty given the mandate established by the Research and Development Corporation of Newfoundland & Labrador (the main source of start-up funds for all MUN faculty)

- Replacement of aging equipment given CFI and NSERC RTI-1 funding constraints.

- Retaining faculty

- Attracting high quality applicants for faculty positions.

John Hanchar

CAPE BRETON UNIVERSITY, Geology

This is my first year as a faculty member at Cape Breton University. It has been a number of years since there was a full-time permanent geologist at CBU. I’m in the process of developing new courses for future years, and redesigning the ones currently offered to reflect the interests and requirements of both the engineering programme and the Department as a part of the School of Science and Technology. There is support within the School of Science and Technology for the development of new Earth Science courses that can be of interest to other departments (e.g. Chemistry, Engineering) and support for upgrading the teaching laboratories and redesigning the current course offerings to better serve the needs of a diverse student body. The most important plan for the Department with respect to geology this year is to hire a full time laboratory instructor to start in July 2013. The instructor will be responsible for teaching laboratories in all courses, and will be able to develop a laboratory program and teach introductory courses.

Excerpted from the Mathematics, Physics and Geology Department’s Draft Academic Plan:

“This department represents the other sciences which do not have enough faculty members to form individual departments. Most of the department are involved in teaching courses from the B.Sc. in Mathematics, but Physics is growing and now can offer an 18 credit minor. The plan for Geology is to develop it following a similar trajectory to that of Physics over the coming years. Five tenured faculty, two tenure-track faculty, one instructor and two laboratory instructors currently make up the department, the only current vacancy is for a Geology lab instructor position which will be advertised soon and be filled in the summer of 2013.”

From our current Chair: "The department was pleased to have a number of good applicants for the position and are very happy that Deanne van Rooyen accepted our offer. We look forward to seeing the number of students and courses in Earth Sciences increase over the coming years."

Many students from other departments take courses in our areas, including Bachelor of Engineering Technology students fulfilling their Math, Physics and Geology requirements and students in the B.A. using Physics or Geology as their 6 credits of a laboratory based science. Currently we have about 50 students enrolled in geology classes.

Courses taught right now include two first year physical geology courses, engineering geology, and hydrogeology. All courses currently have labs. The engineering geology and hydrogeology are primarily targeted at the engineering students who transfer to Dalhousie for years 3 and 4 of their programmes. As such, these two courses follow the general template of engineering geology requirements as established by Dalhousie University in order for students to be able to complete their transfers.

Deanne van Rooyen

DALHOUSIE UNIVERSITY, Earth Sciences

In 2011-12, the Dalhousie Earth Sciences department was reviewed by Internal and External Review Committees. The meetings and reports were positive and constructive, with 105 recommendations in total. In particular, the recommendations concerning space seem to have been taken seriously by the university administration, although a solution remains several years away. The department is now addressing other aspects of the reports, particularly with respect to workloads, outreach, and our graduate programme.

The department has undertaken a substantial revamping of its field schools, with changes to the 2nd- and 3rd-year field schools implemented in 2011 and 2012 respectively, and changes to the 4th-year field school planned for 2013. Enrolment in upper-year classes remains stable (20-25 in 3rd year, 15-20 in 4th year), but current figures suggest a substantial increase in 2nd-year enrolment (from 30-35 to 40-45). This welcome development is straining our classroom and lab capacity. Graduate enrolment is up slightly, from 31 last year to 38 this year. Inadequate graduate funding remains a critical problem, with no viable solutions proposed by the University beyond finding externally funded international students.

Faculty strength remains stable at 12 professors (2 untenured) and 5 instructors (equivalent to lecturers). There is currently a hiring freeze at Dalhousie, expect for externally funded positions. In September 2012 we submitted a proposal to NSERC for an Industrial Research Chair in Salt and Continental Margin Tectonics, with funding from Encana; if successful, the appointment will be effective 1 July 2013.

Nine of our 12 eligible faculty hold NSERC Discovery Grants, with the department average close to the discipline average (ca \$32000/y). We have also been successful in recent CFI applications, although delays in awarding matching funds continue to be a problem. We have recently received industry funding from Encana (for the IRC), ExxonMobil (for the Basin and Reservoir lab), and Shell (Campus Ambassador Program). Given recent changes to NSERC programs and the medium-term need to replace aging equipment, we are concerned about the prospects for stable research funding from NSERC and other sources.

Becky Jamieson

SAINT MARY'S UNIVERSITY, Geology

Jacob Hanley recently replaced Pierre Jutras as Chair of the Geology Department at SMU.

New provincial policies regarding University subsidies in Nova Scotia have resulted in a state of panic regarding budget. However, with the reshuffling and rationalization of resources that ensued, we have managed to acquire an additional half-time technician position in exchange for a diversification of the duties of our departmental secretary, who now devotes only 60% of her time to matters of the Geology Department. Additionally, discussion with the Dean of Science is leading in the direction of an increase of our allotment by one half-position through the hiring of a cross-appointment with our Environmental Science Program. A proposal for this position is being developed presently currently and will be brought to budget in January.

In terms of numbers of Geology majors, we are now experiencing an unprecedented increase, with enrollments that are 60 to 100% higher than usual in our second and third year courses. We believe that this is partly caused by a new Geology requirement in our Engineering Program, which gives us more exposure. We have seen many students switch from Engineering to Geology.

Our graduate enrollment (M.Sc. in Applied Science) has been relatively steady. Currently there are 9 graduate students in the Geology Department at various stages in the completion of their degrees.

A new School of the Environment was recently formed at Saint Mary's, which includes a pre-existing BSc in Environmental Science (formerly Environmental Studies), pre-existing BSc and BA programs in Geography, and a new Bachelor of Environmental Studies (B.E.S.). Although the Geology Department took a leading role in establishing the BSc program two decades ago, it was not strongly involved in the establishment of the new School, which we fear will have a diluting effect on the Environmental Science enrollment. Future changes to the Environmental Science course calendar will consider some GEOL courses as mandatory rather than elective in this program.

Regarding the concerns over NSERC's recent policy changes, we went from 5/5 NSERC-funded faculty members six years ago to 2/5, plus one funded Emeritus. However, faculty have also been successful with other research funding initiatives, with major, multi-year projects sponsored by Vale Canada, Encana, OETRA, the Geological Survey of Canada, and other industry giants.

Jacob Hanley

ACADIA UNIVERSITY, Earth and Environmental Science

The university has experienced a 20% student enrolment increase in 4 years, and the department a 30% increase. No replacements of retiring/departing faculty have been authorized in 4 years and the effects are now becoming extreme, with severe pressure to enlarge classes, reduce sections and limit elective options. We were able, however, to replace a technician – a first in the faculty in 6 years. Supervision of honours and masters students is also now being impacted.

The E&ES Department is now the second largest enrolment in Science with 130 majors split equally between Geology and Environmental Science programs, and thanks to large service courses sees well over half of all students at Acadia taking a course in Geology. Following a retirement in the Environmental Science side, the department has adjusted to its downsizing with considerable reshuffling of teaching and administrative responsibilities.

Our entire graduate program finished together between May and August, and the incoming crop of graduate students have had to pick up the pieces without any hand-on of advice. They seem to be adjusting well.

Rob Raeside

UNIVERSITY OF NEW BRUNSWICK, Earth Sciences

Undergraduate enrolment is up by around 30 % compared to the period 2008-2010. Graduate enrolment is stable.

We have opened a museum (Quartermain Earth Science Centre) together with a new teaching laboratory (sponsored by Tech) and a computing lab (sponsored by Goldcorp).

In 2011 we received a \$500,000 gift from Graham Farquharson of Strathcona Mineral Services. This comes in \$100K installments over 5 years. We have used the first installment to purchase a new set of teaching microscopes. Next year we plan a purpose-built microscopy facility for undergraduate and graduate teaching.

Budget cuts remain an ongoing issue and we are still in a hiring freeze, though I have some hopes that we may finally get a full time instructor position in the next few months. Operating budgets have been cut by the usual 3-5 percent per year and this looks like it will continue. We have tried to implement a lab fee for all science courses but have so far not been successful in getting this past the university management committee.

NSERC results have been poor across the board at UNB – of 3 applications last year only one was funded. This seems about par for the course for UNB.

Cliff Shaw

UNIVERSITÉ DU QUÉBEC À CHICOUTIMI – Sciences Appliquées, secteur sciences de la terre.

Staff: This year we regained one of our professorial positions and engaged Romain Chesnaux in hydrogeology. He has worked here as a PDF for two years. Our sector now has 10 professors, 3 sessional lecturers and 3 PDFs, and two researchers.

Students: This fall we had 27 students starting in our geology and engineering geology programs – the most for many years.

Research: Our hydrogeology consortium PACES has received major funding from the provincial and municipal governments for another 3 years, this time for a survey of the groundwater resources of the Charlevoix and upper north shore region. Our mineral exploration consortium (with UQAM) 'Consortium de recherche en exploration minérale' (CONSOREM) has been renewed for three years by the provincial government. Sarah Barnes is a member of a pan-Canadian CREATE teams which has been funded for 3 years.

Equipment: Paul Bédard has acquired a hand-held XRF and a new giant cell for our Laser-ICP-MS.

On March 16th we will celebrate our 40th anniversary. We expect over 200 people at the 'Retrouvailles de SCT'.

Michael D Higgins

McGILL UNIVERSITY, Earth and Planetary Sciences

One of our young faculty, an expert in cosmogenic dating and the evolution of orogenic relief, resigned last year to take up a position at a small teaching college in the United States. We are currently in a search to replace her with a researcher in the general area of Surface Processes.

We maintained stable enrollment in the Graduate Program this academic year but a slight drop in undergraduate enrollment, which we attribute to low numbers applying from the francophone CEGEPs as a consequence of the strike in the late winter and spring of last year.

Andrew Hynes

CARLETON UNIVERSITY, Earth Sciences

We have this year 153 undergraduate and 38 graduate students. Our student population has seen a steady, healthy growth since 2003, with no sign yet of reaching a plateau. At the undergraduate level, the gradual introduction of our new curriculum over the years 2010-11 and 2011-12 is now completed.

Resources have not followed the enrolment trend. Our faculty complement has been stable at 10.5 for many years. One faculty member in geochemistry

retired in 2011, and a new faculty member representing this discipline will join us as of 1 January 2013 (there was a one-year gap between the retirement and the replacement, which is normal procedure at Carleton). We are at the limit of our resources regarding administrative staff and teaching equipment. There are encouraging developments, however, on the issue of space. Three floors will be added on a wing of the building we are occupying, so new space will become available for the Faculty of Science in 2015. We have been identified as one of the Department which will be granted additional space, mostly for faculty and graduate student offices, and for 4th year B.Sc. Honours projects. The issue of adequate storage for our collections remains unresolved.

On the research front, our metamorphic petrologist, Dr. Fred Gaidies, got CFI funding to set up a micro-computed tomography laboratory.

Alumni relations are strong and vibrant, and we continue to carefully cultivate them. Our two main events this year are the F.K. North public lecture (15 November 2012) and the Ottawa-Carleton Geoscience Centre reception at PDAC (4 March 2013).

The Department is currently undergoing a periodic review, following a new Quality Assurance process defined at the university level. We have almost completed the graduate review, done in collaboration with the University of Ottawa; the undergraduate review is in progress.

Claire Samson

UNIVERSITY OF OTTAWA, Earth Sciences

The Department of Earth Sciences at uOttawa has 15 faculty (including the recent arrival of Jack Cornett and Jonathan O'Neil), 4 postdocs and research associates, 51 graduate students, and 92 majors and honours undergraduate students (+ another 140 students in the environmental science program). Undergraduate program enrolment and service course teaching remain stable, but the graduate program enrolment increases by about 15% this year. There is no change in our support staff (administration: 3; teaching: 2; research: 9). The new Advanced Research Complex (ARC; \$60 million) will be ready for occupation in April 2014. ARC will be home to all our geoscience laboratories including the Canada's only accelerator mass spectrometer. The team that has been working with the current mass spectrometer at the University of Toronto for more than 30 years will move to Ottawa once ARC is open and the new instrument is operational. Major renovations are planned to our existing building; teaching, research, and administrative functions of the department should be completely reorganized by that time.

André Desrochers

QUEEN'S UNIVERSITY, Geological Sciences and Geological Engineering

The Good News:

Undergraduate enrollments are at an all-time high, having stabilized over the past few years with between 45 and 55 Geological Engineering students in each year, and 30 to 40 students in a GEOL concentrator.

Field Education. The endowed Field Education Fund, started 9 years ago by our Geology Council, is now approaching the first \$2 million target. In addition, Shell Canada contributes an annual fee to support the two trips most heavily focussed on sedimentary geology. This fall the new 3rd and 4th year trips were launched, to great success. The prime objective of the reorganization was to limit the trip to one bus per class so that students had the opportunity to view the outcrops and hear the teaching staff and guests. The Geological Engineering 4th year trip had 49 students and 2 buses, with at one point, 4 distinct groups heading off to different mine tours in Timmins - logistics!

Faculty Complement. Since my last report, we have added one new faculty position, and had one Continuing Adjunct appointed, and one retired. The new faculty position is for Applied Geophysics (P.Eng.), which was awarded from the Principal's Reinvestment Fund. Short-listed candidates will be interviewed this fall. Dr. Sandra McBride retired, and Rob Harrap, P.Eng. was converted to a Continuing Adjunct.

Engineering Accreditation. Full six year accreditation was granted this past year, with no comments at all from the visitor. Ours was the only department at Queen's without comments. Our continued accreditation success depends greatly on the fact that CEAB is reviewing the program and not the department, and we in turn rely on other departments to offer courses to our students both in core and elective courses. Collaboration on advance structures and tectonics teaching and geophysics field school with other Universities is also very important – both in terms of the breadth of the program and with respect to interactions between different instructors and student groups.

NSERC success. To date, all but one of our Department members have been awarded NSERC Discovery Grant renewals. Two faculty members (out of a total of 12.5 eligible for NSERC) received the added bonus of a Discovery Accelerator Supplement.

The Bad News:

Number of Full-Time Faculty members. In spite of some modest gains, the faculty complement will still be less than 14. Approximately one third of the faculty members are eligible to retire within the next 5 years, and the current policy is still to collapse all positions upon retirement or resignation, with limited to no replacements being permitted in the Faculty of Arts and Science. This has been a relatively long-standing policy, and is largely independent of the strategic importance of the research and teaching lost.

Declining funding for TAs. The on-going budget cuts are rapidly eroding TA budgets across the Faculty, as this is the only remaining discretionary budget item for most departments, and ongoing cuts are forecast (another 5% a year for the next three years). However, we engaged in a "Named TA" fund raising campaign two years ago, and are now able to fund approximately over 40% of the TA budget from donations – both corporate and individual.

Loss of Technical Staff. The University has been funding technical positions, in some areas, for three year term contracts, and not returning them as permanent, full time positions. This is a troubling trend, given that the laboratories in question contain equipment that must be maintained and managed from both a safety and training perspective. At this point, the department has 1.5 full-time technical staff positions remaining, in addition to the Museum Curator and the IT technician.

The Not So Sure News:

We are about to head into a new, attributes based budget. The formulas are not yet known, but will primarily be based on revenue from student numbers and costs based on space. While we have a lot of students by historical standards, we are a relatively small department in terms of enrollment. In addition, we have huge offices, because the buildings were built in the 1930's and 70's, and large amounts of research space taken up by our labs.

Jean Hutchinson

UNIVERSITY OF TORONTO, Earth Sciences

We have changed the name of the department from "Geology" to "Earth Sciences" and have added a number of faculty appointments who voluntarily moved from the Departments of Geography (physical geography) and Physics (geophysics). This comes about as a result of our own ambitions over the ~past decade and an initiative from the Dean's office for consolidating Earth sciences in the Faculty of Arts and Science. Furthermore, across FAS we are restructuring our programs (and governing structures) related to the environment and resources. Decisions are still pending, but this may include for example an overarching School of the Environment to enhance teaching and research in these fields among member departments (e.g., Geology, Geography, Ecology and Evolutionary Biology, Physics, Chemistry).

This brings our faculty complement up 18 tenure stream research faculty on the St. George campus. In addition, a faculty search is underway for someone in "geology applied to the formation/evolution of the Earth's solid crust, preferably those related to metamorphic processes", ostensibly to be filled by July 2013. There are currently four faculty members at UTM (including a new hire in palaeontology last year) and three at UTScarborough within the broader graduate Department of Geology at U. of T. In addition there are 8 cross appointed faculty to Geology from physics, engineering, geography and the Royal Ontario Museum.

Our undergraduate enrolments continue to rise. With similar increases in engineering enrolments (students in a separate faculty, but taking a number of our core geology courses), we're facing extreme pressures on teaching resources. In particular, TA time is really stretched, aging microscopes are too few, extra lab sections have been added across the board, physical room space is not sufficient. The faculty at U. of T. negotiated a new "Workload Agreement" with the university that formally sets teaching loads for ES faculty, this agreement means retaining an annual faculty teaching load of two undergraduate "half courses" (i.e., single term courses) plus a graduate half course.

Graduate enrolments are increased this year, with an intake of about 20 new grad students (of a total population of about 40; ~75% of which are Ph.D.; the others M.Sc. and M.A.Sc.). Funding is adequate for graduate student support, but we're trying to contain continually rising costs and external factors (flat TA budget, anomalies in NSERC support, rising tuition/fees). The RA component of support for grad students--the only component of student funding that supervisors are required to pay from these funding packages was increased to \$8500 (from \$7500 in the previous two years) for all graduate programs (domestic and international) in the department.

Russell Pysklywec

UNIVERSITY OF WATERLOO, Earth and Environmental Sciences

We have had a number of new faculty members arrive in the department this past year. Our new Canada Excellence Research Chair in Ecohydrology, Dr. Philippe Van Cappellen, has settled in. Drs. Lingling Wu (aqueous geochemistry, isotope geochemistry, and geomicrobiology), Nandita Basu (contaminant fate and transport, watershed modeling, and water resource sustainability), Raoul-Marie Couture (fate of nutrients and trace-elements in aquatic ecosystems), and Hans Duerr (ecohydrology and biogeochemistry) have joined the department in support of the CERC initiative. Dr. Brian Kendall (sedimentary geochemistry, metal abundances, and metal isotopic composition of sedimentary rocks) joined us in April and Dr. Carl Guilmette (petrology and economic geology of metamorphic rocks) joined us in September. Dr. Changcheng Li (structural geology, field mapping) joined us in September too.

The good news is both undergraduate and graduate enrollments continue to increase which we hope will continue to grow once the new arrivals settle in.

A big project this past year has been assembling data and compiling the report for our Departmental Review of Programs. We continue to develop a new long-term Strategic Plan to align ourselves with the university's transition to new "activity based" budget models.

A new Undergraduate Advisor and Outreach Coordinator was hired. Corina McDonald will take over as curator of the Earth Sciences Museum from Peter Russell who has been the driving force behind the Museum for the last 37 years.

Barry Warner

McMASTER UNIVERSITY, Geography and Earth Sciences

Faculty/staffing: The School of Geography & Earth Sciences has a full-time faculty complement of 30, almost half of which were appointed between 2000 and 2012. Dr. Bruce Newbold is the new Director of the School (appointed July 1, 2012). Bruce also serves as the Director of the McMaster Institute for Environment and Health, and has research interests in spatial analysis and environment and health. Dr. Darren Scott is Associate Director (Geography) and Dr. Altaf Arain is Associate Director (Earth Sciences). Our faculty complement has been reduced this year by the resignation of Dr. Ulrich Riller who has returned to Germany, and by the sad loss of Dr. Susan Vajoczki who passed away in early October. The search is on-going for the Susan Cunningham Research Chair in Geology. This position is being supported by a donation of \$1 Million to School of Geography and Earth Sciences by Susan Cunningham, Senior Vice President, Exploration, Noble Energy Inc. and we are seeking a candidate with research experience in sedimentary basin analysis, petroleum geology, and/or seismic/sequence stratigraphy.

Undergraduate matters: The total number of student units (1 student taking a 3-unit course) taught in SGES courses during the 2011-12 academic session was 10302, registering a 9.9% reduction from the previous year. Approximately 30% of the student units were for students enrolled in service courses offered to the university community by SGES. 7175 of the student units were for students registered in core program courses and of these, 1214 student units represent registration in the three Level I Environmental/Earth Science courses (1A03, 1B03, 1G03). In total we have 206 students registered in B.Sc. programs (Level II and above; B.Sc., Environmental Sciences, Hons Earth & Environmental Sciences, Hons Environmental Sciences, Hons Geography & Environmental Sciences, Hons Biology & Environmental Sciences), an increase of 22 students from the previous year.

As part of our regular curriculum review, and to assist in the preparation of a self-study report for our upcoming program review in 2014 (undertaken as part of the Institutional Quality Assurance Process (IQAP)), we are currently reviewing the objectives and learning outcomes for each of our programs. We are also generating a map of how our students meet the UDLES (Undergraduate Degree Level Expectations) with the aim of identifying overlaps/omissions. We also plan to identify courses and elements of courses that can be delivered in either blended learning or on-line formats. Funding for fieldwork is a serious issue and we are investigating ways to reduce fieldwork costs for undergraduate students.

Graduate matters: As of October 2012, SGES has total 63 full time graduate students (33 PhD, 23 MSc and 8 MA) and 14 part-time graduate students (7 PhD, 3 MSc and 4 MA students). Approximately 50% of our graduate students are supported by external (NSERC, SSHRC, OGS) scholarships. A team of four

graduate students competed for the AAPG/CSPG Imperial Barrel Award in Calgary in March 2012. No major changes to the graduate curriculum are planned at this time.

Carolyn Eyles

BROCK UNIVERSITY, Earth Sciences

The Department of Earth Sciences at Brock University offers two undergraduate programs (Earth Sciences and Environmental Geosciences), both designed to exceed the minimum knowledge requirements defined by APGO, as well as a research-based MSc program. The Department continues to have relatively healthy undergraduate enrolments, with 85 majors (roughly 2/3 in Earth Science, 1/3 in Environmental Geoscience) and well-subscribed courses. Our MSc program is struggling somewhat, with 9 students- largely due to low levels of research funding to our faculty over the last few years. Nonetheless, we remain research-active, as well as contributing to the Geoscience community, as members of professional boards (e.g. Greg Finn as Pat-President of Geoscientists Canada, Martin Head as Chair of the subcommission on Quaternary Stratigraphy of the International Commission on Stratigraphy), Francine McCarthy as Finance Chair of the Geological Association of Canada and editorial boards (U. Brand as Editor in Chief of *Chemical Geology*). We have (nominally) a faculty complement of 10, but Greg Finn has been Vice Provost and Associate Vice President- Academic since 2007, and Rick Cheel was Associate Dean of the Faculty and Mathematics & Science since 2008 and Interim Dean since February, 2010, and returns to our Department in January 2013.

News items:

We were recently successful in hiring an Economic Geologist, a position that we had been unable to get approval to advertise for since the death of Simon Haynes in 2002. Dr. Nigel Blamey, from South Africa, joined us in September, and is the lead behind a proposed Professional MSc program in Economic Geology targeted to the international market.

Our volcanologist, Dr. Mariek Schmidt, is at NASA's Jet Propulsion Laboratory in Pasadena, Calif., part of an international team of scientists and engineers guiding *Curiosity* in examining minerals for insights into the environmental history of Mars. Analyzing the information sent back from Gale Crater will be the major research focus for Mariek and her students over the next several years.

Our biogeographer, Dr. Dan McCarthy, was awarded a Best in Science Grant from the Ontario Ministry of the Environment, allowing his group to explore the use of tree bark as a biomonitor of nutrient hypertrophication. This work will characterize ecological stress in Ontario's urban and rural forests and establish a baseline against which air quality changes can be tracked and mapped.

Francine McCarthy

UNIVERSITY OF WESTERN ONTARIO, Earth Sciences

Our department has enjoyed some stability, and even some limited growth in the past two years. We saw the departure of our Dean of Science to Memorial University as Provost/VP-Academic, and the arrival of Charmaine Dean from Simon Fraser University.

Budgets have been flat; Western has moved to an enrollment-based revenue sharing model - the full implications at the department level are not yet clear.

Western has major concerns regarding recent political moves by the Ontario Government to re-define the role of the Universities in Ontario.

Faculty complement (currently 25 full-time faculty members)

Departure of Wayne Nesbitt (retirement) and Gordon Southam (Leave of absence, quite likely permanent).

New faculty members Audrey Bouvier (CRC Tier 2), Tony Withers (limited term) and Phil McCausland (limited term).

Staff complement

Very few department-funded technical positions remain. We have a thin-section technician, a machine shop technician, and a geophysics/electronics technician.

All other technical positions in the department are funded on soft money.

Research themes

Earth and Planetary Systems - a growth area, especially for graduate students enrolled in the collaborative program in Planetary Science. One recent IRC awarded, one CRC Tier 2 about to arrive.

Resource Geoscience - also a growth area, with two externally funded chairs in Economic Geology and in Petroleum Geology hitting their stride.

Tectonic Processes and Natural Hazards - an area of consistent strength, strong graduate student numbers and research activity and funding. One CRC Tier 1

Earth Evolution: Surface, life and climate - also an area of growth with the return of Fred Longstaffe (CRC Tier 1) to full time research activities.

Enrollment

Grad student enrollment has peaked at about 100 students, undergraduate enrollment showing steady increases over the past 2-3 years. We currently have about 100 undergraduates enrolled in years 2, 3 and 4. Our new degrees "for professional registration" have attracted these increased enrollment figures.

Challenges

Space is a major challenge as mid-level faculty members expand operations and respond to the push for Research Partnership Programs (CRD's, Engage, IRC's etc). Research groups are growing, and there is no space to put people in spite of fully renovating the Biological and Geological Sciences building in 2008-09.

Gerhard Pratt

LAKEHEAD UNIVERSITY, Geology

In 2012/2013, our enrollment of majors continued to increase with 140 currently enrolled. 71 are enrolled in the HBSc Geology with the others in Environmental Earth Studies, Water Resource Science and the BSc degree. In addition we currently have 18 MSc students in our program, however, even with these numbers we are still experiencing troubles recruiting enough graduate student teaching assistants to cope with the high undergraduate numbers. This is in part because the university will not provide teaching assistantships for international students.

We have six faculty, including one new hire, with sessional help in only two courses. One faculty member is scheduled to retire at the end of June, 2013 and we are awaiting approval on the replacement position. In addition we are currently advertising for a Tier II CRC in Mineral Deposit Research. The department is currently the hub for the proposed Centre of Excellence in Mineral Exploration and Sustainable Mining Development, an initiative that is receiving strong support from senior administration.

Pete Hollings

UNIVERSITY OF MANITOBA, Geological Sciences

1. Personnel and department direction

a. Four full-time faculty members joined the Department over the last two years. The first is Dr. Søren Rysgaard, CERC in Arctic Geomicrobiology and Climate Change. The second is Dr. Zou Zou Kuzyk, a faculty member affiliated with the CERC program. Zou Zou's research is in biogeochemistry of Arctic continental margins and her initial undergrad. teaching duty is our Geomorphology course. The CERC program has also added two new faculty members, with expertise in sea-ice and biological production, and a research position in oceanography, to the Dept. of Environment and Geography.

b. The third new Geological Sciences faculty member is Dr. Geneviève Ali who is a Junior Chair in Watershed Systems Research, a provincially-funded program. Geneviève's research includes catchment hydrology and hydrologic connectivity. Geological Sciences is working with other departments to coordinate offerings of water science courses. It will take over the teaching of an undergraduate Hydrology course (presently taught by Geography) adding to a recently introduced course in Hydrogeology.

c. The final faculty member is Ms. Karen Ferreria, an Instructor who has previously held sessional and term appointments. Karen's teaching includes mineral and communication courses. The Department has taken over the teaching of a Mineral Resource Development course from the Natural Resource Institute, and Karen is developing a course in Mineral Exploration Techniques. She also teaches a third-year course in Communications in the Geological Sciences, and a final-year Technical Report course, a required one-term project course for Major students.

d. Geological Sciences continues collaboration with the Northern Manitoba Mining Academy in Flin Flon. It is offering two first-year correspondence courses at NMMA this term and next term it will provide a face-to-face offering of the first-year lab-based Dynamic Earth course.

2. **University administration.** The U. Manitoba President is driving a decrease in the number of faculties in the university. The Department is presently located in a small and very dynamic Faculty of Environment, Earth, and Resources. Future options include amalgamation with a Faculty of Agricultural and Food Sciences. Implications for the Department are not yet fully defined, but there will likely be pressure to increase size through amalgamation.

3. **Student numbers.** Undergrad. numbers remain high. We remain close to a cap of two lab sessions per course, for courses involving microscopes, field trips, and geophysical equipment.

4. **NSERC.** Disruptions associated with the Discovery Grant program continue, with the 2011-2012 competition seeing two more faculty members no longer being funded, the third and fourth in the last three years, and another faculty member being awarded only a one-year grant. This year we had 7 Discovery Grant applications (two new faculty members, one normal renewal, one renewal after a one year grant, and three re-applications after previous loss of grant) and four RTI applications. There is continued success in CRD applications.

5. **Other.** To great relief, work associated with construction of the CERC facility, is within a few months of completion. Excitement (and stress) associated with the Department's cohosting of 2013 GAC-MAC increases. *Ian Ferguson*

UNIVERSITY OF SASKATCHEWAN, Geological Sciences

I am pleased to say we are increasing our faculty complement. Last year we advertised for a new position in geochemistry. We ultimately hired an excellent young geochemist who fits our requirements perfectly. This person will be expected to apply for an IRC chair with initial funding from Syncrude.

We have a vacancy at the moment in structural geology and have made an offer. I hope to have our offer accepted very soon.

On Oct 4 the establishment of the Murray W Pyke chair was announced in Calgary. Murray was a graduate (BA 1956 and MA 1958) from our Department. He had successful careers in mineral exploration in the NWT as well as in petroleum in Calgary. Murray died in 2009 and his family has donated funds to the university to establish the Murray W Pyke Chair in hard rock geology. The Pyke family goal was to expand capacity in the department with an endowed chair who would conduct high profile research, contribute to teaching and engage with industry. We are working on the draft for an ad, which will probably identify Ore Systems as the area of interest. We hope to fill that position by July 2013. The addition of that position will bring our faculty complement to seventeen, the level we were at in 1985.

Our student numbers continue to grow. Last spring we graduated 24 geologists and 8 geophysicists. Another 12 will receive their degrees at the fall convocation on Oct 27.

Undergraduate numbers have increased again. There are now 175 students who have declared either geology or geophysics as their major. This is up from about 150 two years ago. Service teaching to engineering has been steady at about twenty in the core second year geology classes, but that is forecast to grow by 20% over the next few years as geological engineering expands and a new environment engineering option ramps up. Graduate student numbers have also increased to 57 from 44 two years ago.

Rob Kerrich, George McLeod Chair, won the Logan medal from the GAC this year, as well as the Penrose medal from the Society of Exploration Geologists.

There have been some provincial developments that will impact the department. On May 14, the provincial government announced the founding of the International Minerals Innovation Institute with fourteen million dollars in start-up funding from industry. *Jim Merriam*

UNIVERSITY OF REGINA, Geology

The Department trains Geology students at undergraduate (BSc & BSc Honours) and graduate (MSc & PhD) levels. The Department also offers a co-op and internship program for geology majors. Students completing our geology degree are eligible to apply for professional accreditation with the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS).

The Department has 9 faculty members, including 4 full professors, 3 associate professors, one assistant professor, and one lecturer. Our programs have been assisted by two fulltime Geology Lab Instructors and 11 adjunct professors.

In the fall semester of 2012, there are 138 geology undergraduate majors, 19 MSc students, and 5 PhD students. In addition, we hosted 4 visiting scholars and visiting PhD students in 2012.

The department supports 4 research labs: the "Geofluids Characterization and Modeling Laboratory", the "Geomodeling and GIS Laboratory", Organic Petrology Laboratory", and the "Scanning Electron Microscope Laboratory". *Hairuo Qing*

UNIVERSITY OF ALBERTA, Earth and Atmospheric Sciences

- The Department is celebrating the Centennial of the first appointment in Geology (J A Allan) and founding of the Department of Geology in September 1912
- Highlights have been a monthly career-oriented seminar series for undergraduates delivered by alumni, the induction of JA Allan into the

University's curatorial Hall of Fame (with 3 generations of the Allan family in attendance), Centennial weekend in early September with a gala at the Royal Alberta Museum featuring an address by Ph.D alumnus Sir Keith O'Nions, Rector of Imperial College London

- A scientific lecture series delivered by alumni that will run through the 2012-13 academic year.
- A Centennial short course series being delivered by EAS faculty to industry audiences in Calgary
- Award of an Honorary D.Sc degree to Ph.D alumnus Donald Dingwell
- Opening of a new Cambrian Exhibit in the Department's Museums
- Opening of the Geoscience Garden, a major outdoor teaching facility developed by John Waldron, Tom Chacko and Andrew Locock that seeks to reproduce the major structural and stratigraphic features of the geology of western and northern Canada through the careful layout and disposition of large boulders in area that extends across the northern edge of campus.

New Hires

- Long Li, Stable Isotope Geochemist joined us from UofT as an Assistant Professor on July 1 2012. Nominated for Tier 2 CRC
- Inga Moeck, appointed as Associate Professor and CAIP Chair in Engineered Geothermal Energy Systems effective January 1 2013. Recruited from GFZ Potsdam
- Daniel Alessi, appointed as Assistant Professor and EnCana Chair in Water Resources, effective July 1 2013. Recruited from EPF Lausanne.

Program news

- BA and BSc programs in Planning launched in September 2012. There will be 4 hires in this area. Joint programs with Faculty of Extension. Initial enrolment targets met.
- MSc in Integrated Petroleum Geosciences met its enrolment target (27) for the first time this year (joint program with Geophysics)
- Enrolments in BSc Honors and Specialisation Geology continue to sky rocket, to the point that we have had to make these programs managed enrolment programs as demand now far exceeds our ability to accommodate it in field schools and some lab-based courses.

Honors

- John England was elected FRSC in September 2012 - and retired in the same month after 38 years in the Department.
- Brian Jones was the first recipient of the Middleton Medal of CSRG for his contributions to sedimentology.

Facilities

- Work on the construction of new clean room facilities and a major new radiogenic isotope laboratory for the CERC Chair group of Graham Pearson is nearing completion
- New clean room facilities for Rh-Os work of Rob Creaser were opened this year.

Martin Sharp

UBC OKANAGAN, Earth and Environmental Sciences

Research developments in EESc (Earth and Environmental Sciences) over 2012 centered on utilizing the \$3,500,000 flagship UBC Okanagan FILTER laboratory (the Fipke Laboratory for Trace Element Research = FILTER) managed by EESc and donated by Charles Fipke. A number (6+) of manuscripts have been submitted for publication and another ~10 are in advanced stages of preparation. The lab has contributed to the training of over 30 undergraduate and graduate students who have used it in preparation of their theses. Projects presently moving through the lab are analyzing gold, silicate minerals, glasses and carbonates for up-to 50 trace elements. We are looking for collaborative projects that will help establish the facility. Capabilities of the lab expanded this year with development of analytical procedures associated with at \$1.5 M TESCAN Scanning Electron Microscope with EDX mineral analytical capabilities and training of a full-time technician. This instrumentation supports the LA ICP MS lab by providing internal standard data required for most LA ICP MS analyses. These donations reflect Dr. Fipke's goal to create the best micro-analytical geochemical laboratory in Canada.

As with last year, undergraduate enrolment approaches 90 students in 2nd, 3rd and 4th years, and we have over 20 students in graduate studies. There were ~24 graduates (undergraduate and graduate) in May 2012. These undergraduate and graduate numbers apparently make us one of the fastest-growing departments in Canada. With only 9 faculty, some with responsibilities in more than one department, we had an effective teaching force of only 6.5 people. Our enrolment successes drove the hiring of a new tenure-track professor (Dr. Kyle Larson; structural geologist and metamorphic petrologist) that will expand and regularize course offerings, taking pressure off over-worked faculty. As an aside, we had dozens of students with jobs last summer that brought in over \$25,000.00 during the summer. Some had jobs bringing in nearly \$50,000.00 (4 months) and a few graduates from last year headed up exploration programs resulting in salaries of over \$100,000.00 per year. This is unquestionably driving enrolment, but our department remains committed to long-term sustainability and so we will not diminish our commitment to the environmental side of the discipline.

John Greenough

THOMPSON RIVERS UNIVERSITY, Geology

Ken Klein retired after years of service to TRU, leaving a beautiful and well-organized teaching lab.

N Van Wagoner returned to Faculty after servicing as the Assoc VP Research and Graduate Studies and has taken over Ken's teaching. She also developed a proposal for a new geology degree program following the accreditation guidelines. The goal is to have the program approved internally by the Fall of 2013

To improve accessibility of the program the intro courses were developed as blended learning courses.

Courses being taught this year are:

Fall 2012: Geol 1110: Intro to Geology; Geog 120: Earth's Land and Waters; Geog 2050 Intro to Hydrology; NRS 2000: Intro to the Study of Soils; NRS 2230: Geographical Information Systems

Winter 2013: Geol 1110: Intro to Geology; Geol 2050: Geologic Time; Geol 2110: Mineralogy; Geog 1120: Earth's Land and Waters; Geog 2700: Geographic Information Systems; Geog 3050: Physical Hydrology; Geog 3750: Applying Hydrology; NRS 2230: Geographical Information Systems; NRS 4110:

Watershed Management

Nancy VanWagoner

UNIVERSITY OF BRITISH COLUMBIA, Earth, Ocean & Atmospheric Sciences

Moving into new Earth Sciences Building (\$75Mill) which will house approx. 50% of the Department when moves are complete in December. Department housed in single complex for first time in its history. Renovations to old EOS Main building will finish in Spring. Includes renovation of museum space and reorganization of undergraduate club/social and research spaces. Fundraising for field school rebuild continues.

Changed Department Name to Earth, Ocean and Atmospheric Sciences to reflect breadth of the Department.

Undergraduate enrolment up ~8% year-to-year. Growth is in both service courses (reflecting access to larger lecture halls in new Earth Sciences Building) and in undergraduate programs. Return to discipline-specific majors programs correlates with growth areas (geophysics, oceanography). Some undergrad programs (Geological Engineering, Environmental Sciences) are at capacity. Enrolment bottlenecks are core Environmental Science courses and field schools. Total students taught will be near 10,000 this year.

Graduate enrolment surpassed 200 this past year for the first time.

Overall research funding continues to slowly increase. NSERC discovery results mixed last year, but 2 accelerator grants awarded. CREATE program in interdisciplinary applied geochemistry funded at \$2.5 Million over 6 years (multi-campus program).

Third year of new deliverables-based UBC budget model. Small budget cuts continuing (1.5% this year) reflects increasing salary costs in context of fixed revenues.

For the first time in quite a few years, we were hiring new faculty: tenure-track instructor in geological engineering, assistant professor in physical oceanography, assistant professor in geomicrobiology (CRC joint hire with Dept. of Microbiology and Immunology), and assistant professor in glaciology. Search underway for CRC in applied geochemistry. Fundraising for IRC in exploration geochemistry.

Greg Dipple

UNIVERSITY OF VICTORIA, School of Earth & Ocean Sciences

University budget cuts continue to impact our department. We have had to, over the past two years, enact a 4% budget cut. We are required cut our departmental budget by an additional 4% in the coming year (2013 / 14), and we have been instructed to plan on an additional 4% budget cut in 2014 / 15. As you might imagine, such significant budget cuts have significantly impacted our department.

Enrolment

- At the end of the 2012 spring semester 2012, our total undergraduate enrollment was 1850 (enrollments in EOS courses).
- Final undergraduate enrollment for 2010/11 was 1799, compared with 1672 from the year before. Undergraduate numbers have grown consistently since 2006
- Increases in enrollment have been distributed broadly across a range of courses over all years of study.
- Our graduate enrollment (annualized FTE) for 2011/12 is 73.7, down slightly from 81.3 last year.

Program / Course Changes

We have, in response to retirements, resignations and a reduction in our sessional lecturer budget, had to reduce the number of undergraduate courses being taught, this despite the fact that our undergraduate numbers continues to climb. This past year we have cancelled EOS 440 (Hydrogeology) and EOS 408 (Marine Geology). Budget cuts also forced us to address an ongoing budgetary over-run on TA positions. In order to continue to provide our graduate students with teaching opportunities via TA positions, we revised our first and second year labs in order to reduce the amount of time spent marking. For our first and second year courses, we moved to a system in which, after a lab is completed, students are provided with a marking key, allowing them to determine if they successfully completed the lab. Marks are not assigned for individual labs, and no longer are TAs and instructors tasked with marking labs. Lab marks are now accrued through short quizzes and exams. This change reduces the number of hours required of our TAs and instructors, allowing us to meet our budget targets, while at the same time continuing to provide our graduate students with the opportunity

to develop their teaching and scientific skills through lab instruction. These changes were implemented this September.

Faculty / Staff

In January 2012, budget cuts resulted in elimination of our systems administrator position. In November 2011, the marine/field technician resigned; the position was not filled as a result of ongoing university budget cuts. And we recently reduced our office staff by one, again in response to ongoing budget cuts. The loss of two technicians and one member of our office staff will impact on the workloads of the remaining School support staff, including the senior laboratory instructors. Our ratio of technical support to faculty is now reduced to 0.04. For comparison, the Canadian average for Earth System departments is 0.325, indicating that SEOS receives an order of magnitude less technical support than the average Earth System department.

Regarding faculty, Dr. Kevin Telmer resigned his position as Associate Professor, effective May 2012 in order to focus on his responsibilities as Executive Director of the Artisanal Gold Council. Due to a university-wide freeze on hiring, again related to ongoing budget cuts, we effectively lost the position. We have been trying to hire a Limited Term Assistant Professor in Geology, funded by Ocean Networks Canada in return for the secondment of Dr. Kim Juniper to NEPTUNE. We interviewed three candidates, and made a job offer but were turned down. The position remains open.

Issues / Challenges

Since 2006 we have lost a professor of marine geophysics (retirement); two physical oceanographers (one retirement, on resignation); two biological oceanographers (secondments to NEPTUNE and VENUS), an aqueous geochemist (resignation); and a climate modeler (resignation). While we did add one faculty member (an atmospheric scientist), the overall loss of faculty has compromised our ability to provide our undergraduate program. We remain just barely capable of providing a full Earth Science program. Further attrition (a planned 2013 retirement in geophysics) looms. Earth System departments across Canada experienced modest growth in faculty numbers (about 8%) between 2005 and 2012, whereas SEOS has contracted by 20% over this period, this despite doubling of our undergraduate population. Having to cut our departmental budget by 8% over the next two years suggests that there is little chance that we will be provided with the opportunity to address the loss of faculty. *Stephen Johnston*