Friends & alumni of the Department of Geological Sciences and Geological Engineering

GEONEWS 2016

Greetings from the Head of Department

Dear GS&GE alumni and friends:

It is my great pleasure to provide you with greetings from the Department. As you will read in the following pages, the department has continued to flourish this year, with lots of activity. Student employment is up this year in mineral industry related jobs, and we hope that the oil and gas sector will soon follow suit.

We are very pleased to announce that due to the wonderful generosity of Gord and Katherine Keep, our long held objective to replace the dilapidated and steadily diminishing numbers of teaching microscopes has finally been realized! Gord and Katherine's donation funded the purchase of 30 petrographic and 30 binocular microscopes which were installed in our mineralogy and petrology labs this fall, much to the delight of the faculty and students. One faculty member broke into a dance of joy at the news of the donation! This gift has transformed teaching in many of our undergraduate labs by providing state of the art microscopes, and the ability to collect and project images for collaborative discussion.

Our latest alumni event was held on Friday November 11th, in the department. Alumni, faculty and students enjoyed browsing the beautiful displays in the annual Gem and Mineral show and sale run by alumni Brad Wilson and Darryl MacFarlane, and participated in the official opening of the new teaching and historical displays funded by the W A Gorman Teaching Legacy fund. Located in the busiest corridor of our buildings, these displays have been designed to support the undergraduate curriculum, and to provide scientific information to members of the visiting public, about a number of the important earth resources we work with as scientists and engineers, including base and precious metals, diamonds, uranium and oil and gas. The displays also reflect Al's interest in historical information, including some wonderful early instruments used in mineralogical evaluation. As the historian for the department, we think he would be delighted by the articles on display, commemorating the early history of the department in this the 175th anniversary year of Queen's founding. We were very pleased to listen to remarks made by a number of people at the event, including recollections by Sandra McBride of Al's love of teaching, and Al's daughters Barb and Judy of Al's interest in his students. Photos can be found on the back page.

The new Masters of Earth and Energy Resources Leadership will kick off this January, with our first group of professionals starting work on the excellent suite of courses developed for this program. Instructors have been drawn from across the campus and beyond, providing a truly multi-disciplinary program for a wide range of professionals working in the resource industries, including geologists and engineers, legal and financial, policy and politics and social engagement. With limited face to face requirements, and mostly on line content, this program is designed for the student who wishes to remain at their current job while taking the 5 term Masters program.

We are very happy to announce that we have several opportunities for new positions in the 2017 year: an analytical geochemist will be hired to work in the multi-disciplinary team funded by the recently announced $60 million+ CPARC award to the Physics Department at Queen's. Working in the Queen's Facility for Isotope Research (QFIR) in our department, the geochemist will conduct scientific work on ultra low backgrounds of a variety of elements and radioelements required for the SNO+ effort. We have also been invited to apply for funds for two other positions, and hope to be able to make announcements in the next newsletter about our success in these competitions!

And finally, we are continuing to develop our renewal plan for the department for the coming years. Included in this are initiatives to support graduate education in field trips and courses, and to continue to curate and provide access to world class teaching and research samples. We are also gradually working through the renovation and modernization of the teaching laboratories in the Bruce Wing and Miller Hall – we have completed the 1st year geology teaching classroom, and the MinEx collection room, following on from Price lab renovation completed several years ago. Next we have the four remaining teaching laboratories, where first year engineering geology, sedimentary geology, geophysics and many other courses are taught.

I will complete my 2nd term as Head of the Department on June 30th, 2017, and look forward to returning to more teaching and research, once my administrative duties are lightened. It has been my great pleasure to meet so many wonderful alumni and friends of the department over the past 8 years of my Headship. Your recollections of the educational excellence, and the fun that you had at Queen's, learning about the science and engineering of the earth, in the lab and in the field, with so many interesting people, have been so heart warming and energizing to me over the years. Your enduring interest in and financial support of the department has made a transformational difference, as you will see within these pages.

Thank you so much for your support.

With thanks and very best wishes,

Jean Hutchinson

In this issue

DEPARTMENT NEWS

Keep up to date with the department by visiting the departmental website **queensu.ca/geol**

Transformational Gift from Alumni

Thank you to Queen's University alumni Gordon, Sc'79 and Katherine Keep Arts'81, for donating a new suite of microscopes to the department of Geological Sciences and Geological Engineering. Gord and Katherine have donated 30 binocular and 30 reflecting and transmitting light microscopes. Two classrooms will be renovated to house the new microscopes and will be used to accommodate two students to a microscope. This is truly a transformative gift for the Department which will have a great impact and enrich students' experience for years to come.

This donation will permit the department to re-introduce ore related microscopy into the 4th year class.

In addition, this gift marks one of the largest donations ever to the department.

"Mineralogy is essential to furthering our understanding of earth systems and to applying to exploration, mining and remediation of ore deposits, microstructural/geomechanical and environmental studies. The optical microscopes (reflected and transmitted light) will allow for training of undergraduate and graduate students in optical identification of the various minerals and in determination of their textural and microstructural relationships. The microscopes will be used in second, third and fourth year mineralogy, petrology, structural geology and advanced petrology and metallogeny courses, in engineering design projects and honours theses, as well as in graduate courses in applied mineralogy and ore deposits. These microscopes were in much need to complement our teaching laboratories and provide the important skills to our geologist and geological engineering students." Dr. Gema Olivo

Speaking about the old microscopes, Dr. Ron Peterson notes, "Every graduate has used these microscopes in at least 3 of their undergraduate courses and often more. The number of microscopes decreases each year as we cannibalize the worst microscopes for parts to keep the others functioning. Of the microscopes that are still working, the bearings on the stage are worn so that the stage wobbles, and the objective turrets don't lock, so the field of view drifts."

Thank you to Gord and Katherine for their generosity and for a truly transformational gift.

Dr. Narbonne Spearheads UNESCO World Heritage Site Proposal

Congratulations to Dr. Guy Narbonne, who played a lead role in the naming of Canada's latest UNESCO World Heritage site, Mistaken Point, Newfoundland. According to Daniel Woolf, Queen's Principal and Vice-Chancellor, "Professor Narbonne's work at Mistaken Point is not only first class science; it has helped significantly to revive the fortunes of the town by drawing global attention to it as an important heritage site."

Mistaken Point is the first Precambrian fossil site ever nominated for inclusion on the UNESCO World Heritage list.

An article with details about the site and Dr. Narbonne's role can be found in the Queen's Gazette. Articles have also been published in the Globe and Mail and on CBC.ca. Links and further information can be found at: **www.queensu.ca/geol/mistaken-point**. Congratulations to Dr. Narbonne and all involved!

Dr. Diederichs Receives Prize for Excellence in Research

Nominated by their peers, the prize recognizes and rewards researchers, in any faculty, for major contributions to their field - either completed in recent years or recognized in recent years. The award also recognizes the impact of their study and celebrates research performed while the scholar has been at Queen's. Dr. Diederichs' research focuses on the failure of rock, and on safe engineering design for excavations in challenging geological conditions at great depth. Continually advancing standards of practice in underground engineering, he has published 240 contributions, has given numerous invited keynote lectures and is sought after to instruct industry short courses. Congratulations Dr. Diederichs!

Master of Earth and Energy Resources Leadership

Overview: Queen's new Professional Master's Degree in Earth and Energy Resources Leadership (MEERL) launches in January with the first cohort of students. A second cohort will arrive in September and the program will have an annual September start date thereafter. The program springs from the need to develop future leaders and decision-makers who can effectively deal with the increasing rate of change and complexity of developing and producing natural resources. Demands leaders face include:

- increased interest by stakeholder communities to be more involved in decision-making;
- the imperative to more fully understand and effectively manage the entire life-cycle of resource development within the context of both sustainability and commercial viability;
- the need to address up-front the concerns about potential environmental impacts of resource extraction and use;
- doing business in a global marketplace; and
- incorporating new technology to interpret very large datasets for optimizing operations.

These demands require professional development that more fully prepares participants with the broad, cross-disciplinary training needed to make sound decisions regarding resources. The MEERL Degree focuses on enhancing integration across multiple fields within earth and natural resource management, including the geosciences, engineering, and the legal, policy, business and finance realms. This degree will allow candidates to build on their experience and expand their perspective through examination of the opportunities and challenges involved in sustainable energy, mineral, and related water resources management.

Logistical Aspects: The program is intended for early, to early mid-career, professionals(3 to 10 years' work experience), in a range of positions in the energy and mineral resource field (commercial, governmental, non-profit). The program is 20 months in length part-time, and intended to be completed while the student remains employed. The program features a blended delivery mode of 20% residential and 80 % online, designed to make it flexible for young professionals.

Structure and Curriculum: The unique interdisciplinary curriculum design features the fundamental earth science and engineering aspects of the resource development life cycle as the center of the program.Each phase of this life cycle will be viewed through 4 lenses: - Economic and business lens; - Operating framework of legal, policy, regulatory, and ethical lens; - Strategic leadership and management lens; - Stakeholder engagement and communication lens.

Key features of this unique program include:

- Top quality, experienced professors from a diverse range of academic disciplines and practice,
- A seminar-based course focused on state-of-the-art technology and innovation.
- Flexibility with electives that provide in-depth examination of energy, and/or minerals, a field-based course, and sector-focused project.
- Strong industry interface with sector leaders and experts serving as Adjunct Faculty, guest lecturers, and project advisors/mentors..
- Real-life case examples for student dissection, discussion, analysis and decision recommendations given in a business format.
- Hands-on applied approach providing tools and methodologies for integration and for making complex decisions
- Non-advocacy- a balanced approach to sustainable resource development with consideration of environmental impact.

Earth Systems and Sustainable Resources

If you are, or know someone, who could benefit from this exciting new program, please refer them to the website:
www.queensu.ca/earthenergyleadership/

A special Thank You goes out to members of the Geology Council, along with other alumni, and former and current faculty of the Department for your strong support of this program!

Fur Cup 2016
Although they didn't win this year, Geology put up a great fight with the help of Hockey Stick Hanes and Dr. Ron Peterson.

Miller Museum of Geology Curator, Mark Badham, received the Distinguished Career Award of Excellence from the Ontario Museum Association (OMA)

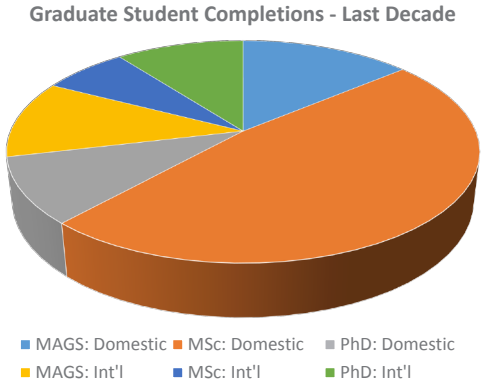
Queen's to Host GAC-MAC 2017

The 2017 Annual meeting of the GAC/MAC in Kingston will coincide with the 175th anniversary of the founding of the GSC in Kingston. The Geological Survey of Canada, Canada's oldest scientific agency, was established by the legislature of the Province of Canada in 1842, in Kingston, Canada West. The Department of Geological Sciences & Geological Engineering at Queen's and the GSC will be hosting this celebratory event at Queen's University.
Please join us at the conference May 14-18, 2017. Visit **kingstongacmac.ca** to register.

MAGS Program

An update on the one year Master's Degree in GS & GE

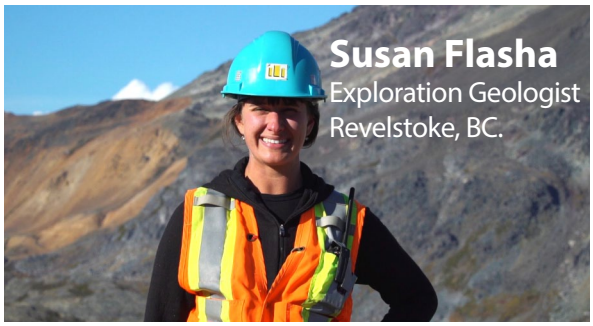
The Master of Science in Applied Geology is a one-year, course-based program leading to enhanced knowledge in mineral exploration/resource geology or geological engineering. The program normally commences in September and can be completed by the end of April of the following year. This program option compliments the department's two year MASc and MSc programs, in addition to the new professional master's program in Earth and Energy Resources Leadership.



Hodgson Metallogeny Teaching Lab

The newest departmental initiative is to raise funds to name a new teaching lab in honor of Jay Hodgson. The space would consist of two rooms. The first room would be used for sample storage, data collection and as a teaching lab. The second room would be used as a graduate seminar room. Additional funds will be used for curation of the teaching lab. The department would like to raise $200,000. For more information and to help create the Hodgson Metallogeny Teaching Lab in honor of Jay, please visit: **www.givetoqueens.ca/geological.**

MAG Alumni Spotlight



Susan's Background

In 2003, I graduated with a B.Sc. in Earth and Environmental Sciences from Okanagan University College (now UBC Okanagan). It took me 8 months after graduation to find work in the industry, at which point I was offered a two week GIS position with consulting geologist, Charles Greig, in my hometown of Penticton. Over those two weeks of work, I proved myself valuable and I was able to continue working with Mr. Greig until I went back to university, 5.5 years later. During those +5 years, the majority of my time was spent working on precious- and base-metal grassroots exploration projects in BC and Ontario, with less time spent in Quebec and the Yukon. I was also able to gain a few weeks of experience with more advanced projects in Mexico and Eritrea. Over the years, my work involved soil and silt sampling, prospecting, mapping, drill program management, assessment report and proposal writing, as well as a considerable amount of GIS work to report results and assist with exploration planning.

Susan's Queen's Experience

My overall experience was excellent. At Queen's University I was surrounded by motivated classmates who brought global mineral exploration experience to classroom discussions, adding to the strong foundations each professor provided for the courses. The faculty exceeded my expectations in their ability to make teachings valuable, engaging, and practical for my industry focus. The classroom and geology department setting was always very inclusive and supportive, from which I gained confidence for my future work and great friends.

Since Completing the one year Master's at Queen's

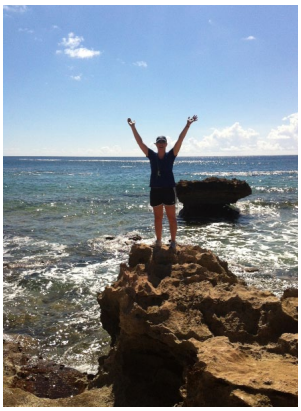
In 2011, I started working for Pretivm Resources Inc, as Senior Project Geologist on the high-grade gold Brucejack Project in northern BC, and I have worked with the company continuously since then. My key responsibility has been to manage the exploration program on-site, in collaboration with the directives coming from our Chief Exploration Officer (Ken McNaughton) and Chief Geologist (Warwick Board) in Vancouver. In the past year, this has involved managing a group of about ten geologists and a dozen geotechnicians, working in the field and in the core shack, in addition to coordinating pad builders and multiple drills, with a constant influx of new data to interpret.
The last 5 years with Pretivm and the Brucejack project have provided me with the invaluable experience of transitioning from exploration to development, with the ultimate goal of being a fully operational underground gold mine in 2017.

For additional alumni spotlights, visit:
www.queensu.ca/geol/alumni-spotlights
We would be delighted to receive suggestions for other alumni to include in this series. Please contact: geolalum@queensu.ca.

Learning. Experience. Hands on. Results.

Field Fund Update

An update on field studies in the department



Field Studies

Queen's University Department of Geological Sciences and Geological Engineering is unique in its numerous opportunities to gain field experience. These opportunities allow students to apply the knowledge and skills acquired in the classroom in a real world setting and help them secure a job during the summer months and after graduation. Most students in the department gain over 240 hours of experience on various field trips. This is made financially possible by the contributions to the Geological Field Studies Fund. Thank you to all alumni and friends who continue to support field studies in the department.

Student Contributions

To support field studies, students have been contributing funds from the Better Education Donation (BED) Fund, a student initiative that aims to improve engineering education at Queen's by purchasing cutting edge equipment and technology for the use of undergraduate students. In addition students pay anywhere from 65% to 90% of the cost of each trip they attend.

Paddon Thompson Memorial Geological Field Studies Fund

Thank you to everyone who has contributed to the field studies fund in memory of Paddon Thompson, BSc'10. The departmental IT Services Technician, Rob Renaud, set up a coffee fund in Fall 2013 with all proceeds going directly to the Paddon Thompson Fund. Over the 2015-16 academic year, the cofffee fund raised over $1,000.

Graduate Field Trips

The two graduate field trips this year travelled to the Southwest US for a MinEx focus and to Sardinia for a structural geology / geotechnical focus. Two trips were required to provide the large number of students with this exceptional hands-on opportunity.

Retirements

Congratulations to Bob Dalrymple and John Dixon on their recent retirements after 36 years and 42 years, respectively.

Dr. Robert Dalrymple

Dr. John Dixon

Visiting Speakers

Invitation for Guest Lectures

Queen's GSGE would like to extend an invitation to all alumni to come and speak to our students! The department has a regular time slot for our visiting speaker series, or you can come speak as a guest lecture for one of our undergraduate classes. We welcome both technical and career talks. If you would be interested in giving a talk, please contact: geolalum@queensu.ca

2016/17 Speakers to date have included:

Marc Legault '82, Senior-Vice President, Agnico Eagle Mines Limited

Fred Schroeder, Independent Petroleum Consultant

Laurie Weston Bellman, Geophysics and Quantitative Interpretation Director

Chris Nind, President, Canadian Exploration Geophysical Society (KEGS)

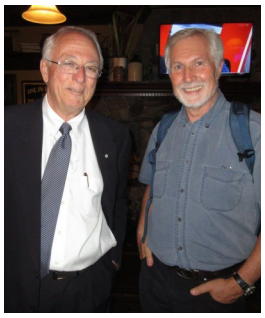
A list of upcoming and past speakers can be found at: queensu.ca/geol/visiting-speaker-series

Alumni Updates

2016 ALUMNI REUNIONS

Geoconvention



Vancouver RoundUp

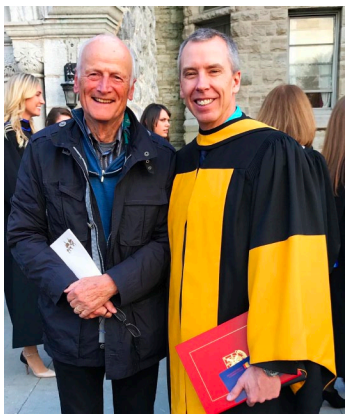



Homecoming


Calgary 14th Annual

Kingston





Andrew Feustel, PhD '95, Nasa astronaut, received an honorary degree from Queen's Universitythis week. Pictured here with Dr. Herb Helmsteadt (left).

Thank you!

The sponsorship of several of our alumni events is greatly appreciated. Colin Joudrie and Dawn Russell hosted the Vancouver RoundUp event in the magnificent Teck Head Frame. Roger and Lorna Smith hosted the parties at Geoconvention and the 14th annual reunion which was held at Dan and Wendy Polley's lovely home.

Upcoming Alumni Reunions

2017 Reunions

JANUARY - Vancouver Roundup
MARCH -Toronto PDAC
MAY - Calgary Geoconvention
OCTOBER - Queen's Homecoming
OCT/NOV - Calgary 15th Annual

www.queensu.ca/geol/alumni-friends