Queen's University

DEPARTMENT OF
GEOLOGICAL SCIENCES AND
GEOLOGICAL ENGINEERING

GEONews 2019

Greetings from the HEAD

New faculty, new staff, new ideas.... but the important things remain the same. A focus on field and lab work as the basis for learning, students, staff and faculty celebrating the end of fall classes at the Grinch Gronch, a spirit of cooperation and participation: these things are enduring.

Miller Hall turns 90 in 2020! Our venerable collegiate gothic building of local limestone, the first home to the departments of mineralogy and geology is, sadly, showing its age. While we have had some renovations to classrooms and teaching labs, the state of several research labs is critical as most have not changed since 1930. We are working on a program of retrofitting labs starting with the "Seds Lab" on the 4th floor of Miller. And like all old buildings, there are always surprises, and usually expensive surprises. In the coming months we will be inviting classes to consider joining forces and "adopting" a lab to renovate.

So far our new faculty have been willing to focus on the strength of the department and overlook the quirks of 1930's lab benches and HVAC systems! Last year we hired four new faculty members –Jennifer Day, Peir Pufahl, Christopher Spencer and Bas Vriens, and welcomed Christopher Omelon who is cross-appointed with Geography and Planning. We have just begun to review applicants for the Digital Earth Scientist/ Engineer position and we hope to have them in place by July 1, 2020.

We have about 220 students in the three years of the combined Science and Engineering programs, and about 80 of them participated in the new field school offered for the first time near Kaladar, Ontario. Those of us in the department got to participate in the excitement of field school by joining students for meals in Miller Hall before they went off for their evening's work in the Rose Innovation centre. A big and exciting change!

What doesn't change is our students' concerns for the future – is there a summer job out there? A permanent job? Students tell me that it feels like a time of uncertainty, even though we know that many of the fourth years have already committed to permanent jobs. The Garnet program we are launching in January is meant to connect undergrads and grads with young alumni to provide that extra help with polishing the all-important cover letters and resumes, to help students put their best selves forward. Some of the Garnet Alumni will be giving "Career" talks in the new year. If you would like to participate either as a mentor or by giving a talk please email garnet@queensu.ca.

And speaking of alumni, meeting you at the Teck Headframe, the Calgary GeoAlumni Renion and GeoConvention, the Ottawa Reunion, PDAC and of course Homecoming, is a highlight of this position. It was wonderful to sit with Wayne Savigny, Michelle Thompson, and Max Howarth and members of their families, at the 125 Years of Engineering event in March. Hosting Katherine and Gordon Keep for the naming of two teaching labs in Miller Hall, in honour of their gift of state-of-the-art microscopes was incredible. Students Siobahn Keane, Caitlin MacPhee, Catherine Garvaris and Matt Williams spoke enthusiastically of how the microscopes enhanced their experiences in Petrology. Thank you all for your support of our programs. Research and learning in earth sciences and engineering, from the fundamental questions of the workings of the interior of the earth, to remotely sense evidence of climate change, remains crucial to the world we live on and the earth we live off.

I hope you enjoy this new electronic format! Thank you to Lorna Dumond, back from her secondment with the Facutly of Arts and Science Marketing team, for the incredible job she does putting ideas and stories together. Thanks also to all our staff, faculty and students for their hard work, brilliance, and collegiality!

Vicki Remenda
Head of Department

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LAND Acknowledgement

Queen's University is situated on Anishinaabe and Haudenosaunee Territory. To acknowledge this territory is to recognize its longer history, one predating the establishment of the earliest European colonies. It is also to acknowledge this territory's significance for the Indigenous peoples who lived, and continue to live, upon it – people whose practices and spiritualities were tied to the land and continue to develop in relationship to the territory and its other inhabitants today. The Kingston Indigenous community continues to reflect the area's Anishinaabek and Haudenosaunee roots. There is also a significant Métis community and there are First Peoples from other Nations across Turtle Island present here today.

New FACULTY

Dr. Jennifer Day, Geological Engineering

day.jennifer@queensu.ca

Dr. Day's research is in geological and engineering characterization of rocks and rockmass systems. This research aims to improve field and laboratory assessment techniques for rock characterization and advanced numerical modelling for analysis of mechanical behaviour of heterogeneous and complex conditions. This work is applicable to mining, tunnelling, and deep geologic repositories for nuclear waste storage.

Dr. Christopher Omelon, Geomicrobiology, Cross Appointed

c.omelon@queensu.ca

The goal of Dr. Omelon's research is to understand geomicrobiological and biogeochemical dynamics in aquatic and terrestrial habitats, chemical activity and interactions at the microbe-mineral interface, and resulting impacts on the natural environment through examination of both microorganisms and associated biomaterials and biomarkers. This work includes both fieldwork and laboratory experiments that cover disciplines in geomicrobiology, low-temperature geochemistry, molecular biology, and hydrogeology.

Dr. Peir Pufahl, Sedimentary Geology

pufahl@queensu.ca

In his research, Dr. Pufahl explores the interfaces between biological element generation, the evolution of life and the production of sedimentary deposits that are crucial to our modern industrial economy including phosphorites, iron, and hydrocarbons. His work indicates that there is a connection between coupled iron and phosphorous cycling and oxygenation that could have played a centrally important role in establishing the bottom-water conditions that directly affected the evolution of life.

Dr. Christopher Spencer, Tectonics and Geochemistry

chris@travelinggeologist.com

In his research, Dr. Spencer seeks to understand the formation, destruction, and secular evolution of the continental crust. He is a tectonochemist with research that is rooted in fieldwork and utilises igneous petrology, geochemistry, and geochronology to elucidate orogenic processes and secular change. His current focus is using stable and radiogenic isotopes coupled to igneous geochemistry to trace for modern tectonic processes along with tracking the oxidation of the atmosphere and its reflection in the geologic record.

Dr. Bas Vriens, GeoEnvironmental Engineering

bas.vriens@queensu.ca

Dr. Vrien's research interests are in biogeochemistry and contaminant hydrogeology, especially in the sources, behavior and fate of emerging pollutants in natural and industrial contexts. Driven by a dedication to shape a more sustainable industrialized society, the goal is to optimize societal use of natural resources and to reduce the public health risks associated with environmental contamination.

New STAFF

Rebecca Dew
Adminsitrative Assistant/ Undergraduate Assistant

Alex Fox
Administrative and Research Coordinator

Brittany Jennings
MEERL Program Manager

Faculty AWARDS

Dr. Diederichs Awarded Best Paper for ISRM

Congratulations to Dr. Mark Diederichs who won the Best Paper Award at the International Society for Rock Mechanics and Rock Engineering (ISRM) 2018 Symposium in Singapore.
Dr. Diederichs's paper was chosen out of 600 refereed papers submitted and published in the proceedings.

Professor Rob Harrap Receives SSHRC Funding

Professor Harrap is working with historians, geographers, archeologists, computer scientists and a wide range of groups and companies in Canada and the UK on the SSHRC project "Environments of Change: Digitizing Nature, History and Human Experience in Late Medieval Sussex". The project examines the region around Herstmonceaux Castle, the Bader International Centre, as an analog for community resiliance in long-term climate change scenarios, and examines how to use modern technology to both inform and communicate complex historical narratives. The 2.5M$ project is the first Social Sciences and Humanities Research Council grant in the Department.

Dr. Anna Harrison Receives John R. Evans Leaders Fund

Congratulations to Dr. Anna Harrison! Anna is the recipient of a John R. Evans Leaders Fund (JELF) from the Canada Foundation for Innovation (CFI) for her project "Gas-fluid-mineral Interactions: Implications for element cycles and CO2 storage". The JELF provides infrastructural funding to help researchers become leaders in their fields.

Dr. Jean Hutchinson Named Glossop Medal Lecturer

Congratulations to Dr. Jean Hutchinson who has been named the 2019 Glossop Medal Lecturer, sponsored by the Engineering Group of the Geological Society (UK). Jean presented the 20th Glossop Lecture in mid-November 2019 in London, England.

Dr. Heather Jamieson Awarded Rick Hutson Mentorship

Heather was among only 50 scientists (and 1 of 7 earth scientists) invited to pose BIG Science Questions at the New Science Frontiers (2019) workshop at Brookhaven National Lab (New York). The three questions she and Queen's colleagues posed were: How can we produce metals and energy without environmental contamination of water, air and soil? How can we mitigate and adapt to climate change? How do micro-organisms control mineralization and element cycling? Heather has been named to the Science Advisory Committee of Canada's synchrotron, the Canadian Light Source located in Saskatoon.

Dr. Nicholas Vlachopoulos Receives Thomas Roy Award from CGS

Congratulations to Dr. Nicholas Vlachopoulos who is the recipient of the 2019 Thomas Roy Award from the Canadian Geotechnical Society (CGS). Dr. Vlachopoulos received the award for "outstanding contribution to Engineering Geology in Canada". The Thomas Roy Award is the premier Engineering Geology Award in Canada. Dr. Vlachopoulos was presented the award at the Annual CGS conference in St. John's, Newfoundland.

Staff AWARDS

Larke Zarichny Receives Staff ward

Congratulations to former Undergraduate Program Assistant, Larke Zarichny, on receiving a University Staff Recognition Award in December 2018. She received the award for 37 years of helping students succeed.

Larke will be officially retired as of Dec. 31, 2019, and will transition to the role of Geo-Alumni Resource Network (GARNET) Coordinator.

Geological Sciences and Geological Engineering - "The Earth and Beyond"

RETIREMENTS

Dr. Douglas Archibald

Dr. Doug Archibald ran the Ar-Ar Laboratory and had a long-standing interest in applying geochronology and thermochronology to problems in the general fields of regional tectonics and ore deposits. For many years, he taught Geological Field Methods (GEOE/GEOL 221) and the Geological Field School (GEOE/GEOL 300) held in the eastern townships of Quebec, and supervised or co-supervised B.Sc. theses (GEOL543) and 4th-year geological engineering design projects (GEOE 446/447).

Dr. John Hanes

In his nearly 40 year career, John Hanes very likely taught more Queen's Engineers than any other instructor. Estimates are that the legendary "Hockey Stick Hanes" has taught more than 30,000 engineering students since he first took over the first year Earth Systems Engineering course in about 1980. John was awarded the inaugural Applied Science First year teaching award in 1998, and won again in 1999, 2002, and 2008. He was nominated twice for the University wide Frank Knox award (2003, 2008), and was awarded at least one Golden Apple. In 2008 John Hanes was named the recipient of the Alumni Award for Excellence in Teaching. We celebrated John's retirement on the evening of the day he received the 125 Award this past fall. John contributed above and beyond to the education of Queen's students.

Dr. Ron Peterson

Dr. Ron Peterson served as Undergraduate Chair, Geological Sciences from 2003 to 2017. Ron pioneered the wildly successful "Gems" course, aka GEOL 102 : The Art, History and Science of Precious Materials (enrollment of 160 in 2017) and built 500 Rox Box teaching kits for Ontario Schools, which included hand samples, maps and lesson plans for Grade 4 teachers. Ron is an outstanding teacher and mentor, which is exemplified by his role in inspiring students (as above), the several nominations for Faculty teaching awards, and being consistently above the very high departmental USAT average

We REMEMBER

Mabel Corlett

It is with great sadness we share the passing of alumna Dr. Mabel Corlett on Sunday, April 14, 2019.

In 1960 Mabel was the first woman to obtain a BSc in Geology at Queen's University. She earned her MSc and PhD at the University of Chicago, returning to Queen's in 1969 to teach Mineralogy. She made great strides as the department's first female professor. She resigned in 1986 to start her own business, the Wool Room.

Mabel will be deeply missed by her former students and colleagues.

Stephanie Maunder

It is with great sadness we share the passing of third year geology student Stephanie Maunder on Sunday, April 28, 2019. She died following a brief journey with cancer.

Stephanie was a gymnast and longtime coach in Kingston; she volunteered at Nightlight, a local drop-in centre, and did mission work in Ecuador last spring.

Stephanie will be deeply missed by the Department of Geological Sciences & Geological Engineering.

From Field Methods To Field Mapping: Ontario Rocks!

By Dr. Jenn Day, Dr. Laurent Godin, and Rob Harrap

While some things change, others stay the same, including our emphasis on field learning. The essential introduction to field work happens in Field Methods and Field School, and both of these courses have been updated! Dr. Jenn Day, BSc'11, PhD'16, who has returned to the department after a three year professorship at the University of New Brunswick, brings a fresh perspective and a new energy to these courses.

Students getting feedback on their maps at fieldschool

In Field Methods, we have improved safety at road side stops and instructors Jenn Day and Rob Harrap, BSc'86, have repurposed and redesigned field exercises, including adding a trip to Canadian Wollastonite, a small local and nearly zero-waste mine. Students benefitted from guest lectures by other members of the department, and especially Post Doctoral Fellow Ted Matheson, BSc'12, MSc'15! Mapping, from urban "geology" to exploration geochemistry, geophysics, geotechnical engineering, and structural geology, is crucial to developing three-dimensional thinking required for competency as geologists and geological engineers.

Jenn Day and Rob Harrap have been refocusing and repurposing key stops and key resources, with generous help from a local mine (Canadian Wollastonite) and visits from our very supportive faculty (a big shout out to PDF Ted Matheson this year). We've also incorporated a number of classroom guest speakers encompassing the range of 'mapping' from urban geology to exploration geochemistry, geophysics, geotechnical engineering, and structural geology.

Last year we said goodbye to Sutton, and this past summer embraced a fantastic new field site known as "Ore Chimney", near Kaladar, Ontario, for the third year field school. In late August, students spent days mapping in the field and evenings interpreting their data and completing assignments in the Rose Innovation Centre, located in the new Mitchell Hall on campus. The final weekend saw the students defending their maps and finishing their geological reports, which underscores

Field activities are integral to our programs. Field trips for one or two days, and one to two week Field Schools provide excellent learning opportunities. Donations to the Geological Field Studies Fund subsidize about 20% of the costs of field education for each and every one of our students. The generosity of our alumni makes all the difference for students who are already struggling to pay for textbooks, rent, food and so many other expenses. Thank you.

Taylor Morrell, undergraduate student

the idea that while the location has changed, the fundamentals of field learning have not.

A special acknowledgement of the hard work of Taylor Morrell (Class of 2020) who assisted Dr. Laurent Godin in the initial field mapping of and development of field exercises for Ore Chimney. These courses continue to be affordable for our undergrads because of generous gifts from our alumni.

In the summer of 2020, we plan to launch the inaugural offering of GEOL 400, a core course for upper year Geoscience students. Our plan is that this senior field course will move around to key sites elsewhere in Ontario.

Stay tuned for further updates on field learning and remember our young geologists and geological engineers are eager to get field experience on real jobs, so if you are hiring, consider hiring at Queen's!

Students on theGEOL/E 300 field trip

FIELD STUDIES

STUDENT Accomplishments

Two Graduate Students Awarded SEGCF Student Research Grants

Graduate students Emma Scanlan and Colin Aldis received Student Research Grants (SRG) from the Society of Economic Geologists Canada Foundation (SEGCF) to help fund their research in economic geology.

MSc Student Alison Martin Wins Two Research Grants

MSc candidate Alison Martin received two awards, from the Geological Society of America (GSA) and the Mineralogical Association of Canada! Alison is the recipient of a Graduate Student Research Grant from the GSA and a Travel/Research Grant from the Mineralogical Association of Canada. Alison is at UC Santa Barbara to further the geochronology aspect of her MSc project.

Postdoctoral Fellow Renaud Soucy La Roche Wins Award for Best Journal Paper

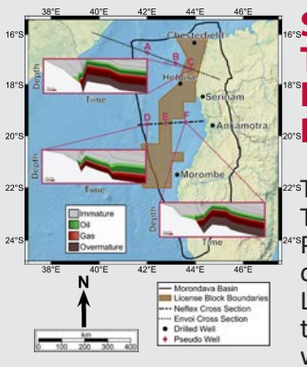
Postdoctoral Fellow Dr. Renaud Soucy La Roche, PhD 2018, has received the 2019 David Elliott Prize for best journal paper in structural geology or tectonics from the Canadian Tectonics Group Division of the Geological Association of Canada. The paper was co-authored by Dr. Laurent Godin, Dr. Dawn Kellett, and Dr. John Cottle, and is titled "Preservation of the Early Evolution of the Himalayan Middle Crust in Foreland Klippen: Insights from the Karnali Klippe, West Nepal", published in *Tectonics*, 37(5).

MSc Student Mark Ahenda Wins Award for Best MSc Thesis

MSc graduate student Mark Ahenda received a distinguished prize from the Geological Association of Canada (GAC). Mark is the recipient of the Jack Henderson Prize for Best MSc Thesis of 2018 for his thesis "Protolith affiliation and tectonometamorphic evolution of the Gurla Mandhata core complex, NW Nepal Himalaya" in *Structural Geology and Tectonics*.

Undergrad Student Awarded Young Mining Professionals Scholarship

4th year Geological Engineering student, Caitlin Fischer is the recipient of a Young Mining Professionals scholarship award. These scholarships are distributed to Canadian students pursuing careers in the mining industry.



Science and Technology for Exploration & Production Solutions

The STEPS (Science and Technology for Exploration & Production Solutions) program offered by Halli-burton Landmark allows students the opportunity to work with industry on real-world projects. I recently undertook a 16-week project between July 2019 and November 2019 where I evaluated the hydrocarbon source rock maturity offshore Madagascar. Halliburton Landmark gave access to data and software including interpreted well logs, cross sections, and the basin modeling software Permedia. The project was supervised by Colin Saunders, Christine Yallup (Halliburton Landmark) and Alexander Braun (Queen's University).

The hydrocarbon exploration interests in the Western Madagascan margin are mainly due to two reasons: (i) The proximity to the East African margin which has proven successful offshore hydrocarbon reserves and (ii) The upcoming license blocks within the Morondava basin. Several hydrocarbon exploration successes along the East African margin have triggered renewed interest in the equivalent Madagascar margin. Both were connected as part of Gondwana in the Early Jurassic. Madagascar separated form East Africa in the Mid Jurassic, however, related tectonic processes introduced unknown risks for hydrocarbon exploration throughout the region. The new Madagascan government elected in 2019 suspended the 2018/2019 licensing round for land in the offshore Morondava basin which should have ended in May of 2019. Thus there are currently 44 upcoming blocks for bidding which cover 63,296 km2 in the offshore Morondava basin (Figure 1).

The project included an assessment of the hydrocarbon maturity throughout the Morondava basin. Firstly, the tectonostratigraphic history of the region was

PhD Student Callum Walter Wins Best Technical Paper Award and Grant

PhD student, Callum Walter received the Best Technical Paper Award from Unmanned Systems Canada / Systèmes Télécommandés Canada (USC-STC). Callum is also the recipient of the Hugo Dummett Mineral Discovery Fund Grant from the Society of Economic Geologists Foundation, Inc (SEGF SRG). This award is granted to those focused on mineralogy exploration and was presented to Callum based on his research on technological innovation in exploration!

MSc Student Kelsey Grimes Wins Award at the Canadian Paleontology Conference

MSc candidate Kelsey Grimes received the Thomas E. Bolton Award for presenting the best student poster at the recent (August 23-25) Canadian Paleontology Conference in Toronto. Kelsey's poster on "Elongate Ediacaran fronds from Newfoundland and South Australia" is based on her current MSc research program.

Two Undergraduate and Three Graduate Students Win KEGS Foundation Scholarships

Undergraduate student Rachel Bourassa is the recipient of the Limion Scholarship. Undergraduate student Jack Fitzgerald is the recipient of the CGG Scholarship. Drew Branson, Fouad Faraj, and Sara Pieczonka are the graduate recipients of KEGS Foundation Scholarships.

MASc Student Drew Branson wins Geoscience BC Scholarship

Graduate student Drew Branson received a Geoscience BC scholarship of $5000 to support his MASc research on "Geophysical Prospection for Antimony and Chromite in the Quesnel Terrane, BC". The project is supported by a Mitacs Accelerate grant with Redline Minerals Inc., and the first field survey which took place in June 2019 with magnetometry, EM, and Res-IP surveys. The Geoscience BC scholarship will be used to fund at least two field campaigns.

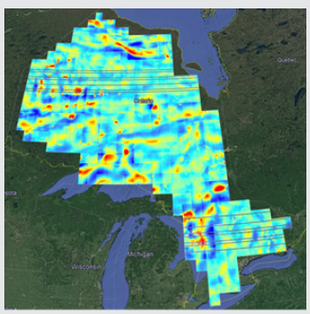
PhD Student Kaj Sullivan Wins the MITACS Globalink Research Award

Ph.D. Candidate Kaj Sullivan is the recipient of the MITACS Globalink Research Award. This award funds 12-24 weeks of research at overseas universities. Kaj went to Imperial College London to conduct research. He explains he will "work on a project investigating whether a zinc isotopic effect accompanies a 20% decrease in zinc concentration observed in the serum of healthy humans in the several hours after consuming a meal."

reconstructed and incorporated into 1D basin models. Secondly, the 1D basin models were developed and calibrated using well logs from a few drilled wells in the region. Finally, using provided cross sections, pseudo wells were modelled to assess the hydrocarbon source rock maturity throughout the basin (Figure 1).

All estimated hydrocarbon maturity parameters from the 1D basin models show potential for both oil and gas with a decreasing hydrocarbon maturity deeper offshore. If the other required petroleum system elements (traps and seals) are in place, the hydrocarbon exploration successes in the East African margin can potentially be replicated in the Western Madagascan margin.

- By Fouad Faraj, MASc student



GEOL/E 439 – Advanced Applied Geophysics – Geophysical Design Projects for the 21st Century

Students in GEOE/L 439 were tasked with solving a real-world problem using geophysical methods from the idea, through survey design and execution, processing and interpretation, to presentation and a final journal style paper delivered to the stakeholders. The following provides a brief summary of the projects using a wide range of geophysical tools. We like to thank Dr. Terri Brannan, Bill Linnen, Paul MacLatchy, Sue Bazely, and Michael Whittaker for their support of the projects. **Read more.**

Master of Earth and Energy Resources Leadership

Members of MEERL'20

Welcome MEERL '21

In August 2019, we welcomed 11 new students into the MEERL program. These students are from across Canada, South America, the United States, Africa, and Iran. They are scientists and engineers, project managers and financial analysts. They work for energy regulators, private and public companies on a variety of projects including pipelines, mine exploration, water management, and more. We are looking forward to othe next 20 months with these exceptional individuals. In the coming months, MEERL'21 students enrolled in the elective sector-focused project will begin work on individual research topics. If you have ideas for industry projects, please email meerl@queensu.ca.

Congratulations to MEERL '19

In June 2019, we celebrated the first official graduates of the MEERL program. Their time with us was incredibly valuable in shaping what the program looks like today.

MEERL '19 has told us that the program more than delivered on what was promised. We expected to help students develop an interdisciplinary view of the resource industry and stronger leadership skills. What we didn't foresee was that the MEERL students are learning more about themselves as individuals and leaders in their professional worlds. They have a better understanding of their own capabilities, who they want to be in their careers, and the difference they can make within the mineral and energy sectors.

We are excited to see what the future holds for these emerging leaders.

MEERL Celebration!

Thank you to Sue Riddell Rose and Mike Rose who hosted an event for members of MEERL '20, some MEERL '19 graduates, and faculty, during the Calgary residential in June 2019.

MEERL is always interested in guest presenters and panel members for "MEERL Cafe", the collaborative discussion forum to engage all students, faculty and guests.Email meerl@queensu.ca.

*"MEERL has more than delivered on
enjoyed seeing the mining, oil and g
of perspectives, understanding the d
different actors in the industries, and
academics, and industry professiona*

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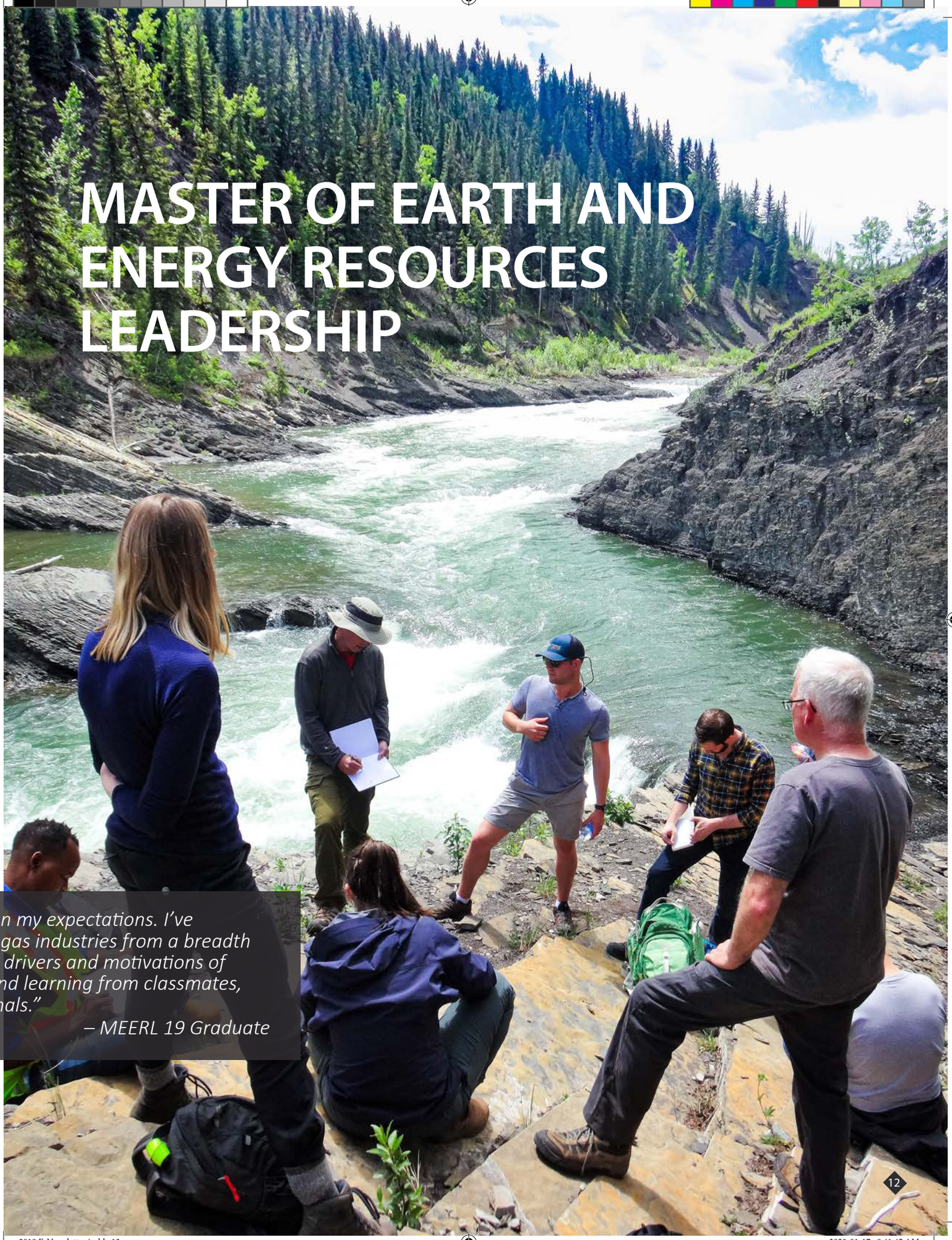
Students on the second in person session near Clagary

MASTER OF EARTH AND ENERGY RESOURCES LEADERSHIP



on my expectations. I've
d gas industries from a breadth
e drivers and motivations of
and learning from classmates,
onals."

– MEERL 19 Graduate

Alumni REUNIONS and NEWS

6th Annual Calgary GeoConvention: May 14, 2019

Ottawa: May 30, 2019

Thank you to everyone who came out to GEO alumni events this year! Although there are no photos, the annual PDAC Toronto and Vancouver RoundUp reunions were also a great success.

We look forward to seeing many of you in 2020!

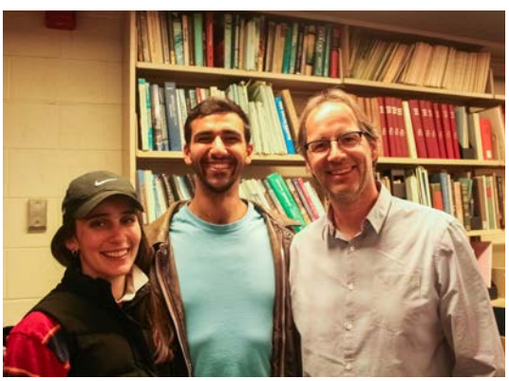
Confirmed events 2020:

- RoundUp reception- Jan 21
- PDAC reception- March 3

Please RSVP to geolalum@queensu.ca if you plan to attend these events.

Homecoming: October 19, 2019

Gord and Katherine Keep/Fiore Management Lab Naming during Homecoming



Calgary 17th Annual Reunion: Nov. 2, 2019

Royal Society of London

Dr. Michael Kendall, Sci '84, Ph.D. '91, was made a Fellow of the Royal Society of London and has taken up a position of Professor of Geophysics at the University of Oxford.

Order of St. George

Former Adjunct Professor, Ben Whiting received a Knighthood from the Order of St. George, the Canadian Priory.

Underway in the Miller Museum of Geology

The Museum Committee, including our curator Dr. Linda Tsuji, Paul Bass, Brad Wilson and Rob Harrap, have plans to refresh the displays in the front lobby of Miller Hall early in the New Year.

In April 2020 we hope to unveil Phase 1 of the Educational Rock Garden on the front lawns of Miller Hall. The very first boulder, an impressive specimen of Matchewan Porphyry selected by the Museum Committee, is called affectionately "Stephanie's boulder" by the GEO students who have been raising funds to support the transportation and placement of the boulder. We love that the rock garden will provide a lasting memorial to one of our students, and will be an opportunity for learning, reflection and outreach.

And as always, we are working on a digital strategy to laser-scan and carefully document information about our museum holdings, to provide access to our world class specimens for research and teaching.

Advancement PRIORITIES

As always, donations, donations to the Field Fund, the Geology Trust, and the Named TAships are very welcome and help us provide our students with the best earth science education in the country. Please follow this link: www.givetoqueens.ca/geological to donate to any one of these funds in the department.
Our newest priority is to renovate research laboratories. Why lab renovations? Great faculty are attracted to places where they can flourish which in the academic world that means teaching and research. The exciting research of today, whether it is tunneling through the Alps or simulating the formation of deltas in large three-dimensional flumes or measuring CO2 sequestration by minerals, lead to the research and design projects and lectures of tomorrow. Is there a better way to engage students than to show them the excitement of discovery and ask them to participate? That is why lab renovations are so crucial, and of course, because some of our lab space, especially in Miller is nearly un-useable.

We are inviting classes to "adopt a lab" for renovations. For example, would the Class of '70 or '85 be willing to join forces to raise the funds to redo one of the un-useable labs on the third floor of Miller Hall? Together with the undergraduate student government, the Miller Club, we will be inviting members of the Class of 2020 to make a donation of $20.20 to start the ball rolling. We will provide more information on these initiatives in the coming months.

Queen's ENGINEERING 125th Awards

Engineering Excellence takes many forms, and the Queen's 125 Engineering Excellence award recipients were honoured this year for their commitments to engineering, to industry and business, and to their communities and to our world.

Geological Sciences and Geological Engineering is proud to announce that a number of alumni and faculty members were honored. Congratulations to Dr. Mark Diederichs, Dr. Ray Price, and Dr. John Hanes as recipients of Engineering and Applied Science's 125th Anniversary Faculty Awards! These 125th Engineering Excellence Awards recognize their leadership, and contributions to society.

left to right: Dr. Mark Diederichs, Dr. Raymond Price, and Dr. John Hanes.

Congratulations to all Geological Sciences and Geological Engineering Alumni who were honoured

Michael Chernoff, BSc'59
Michael is most proud of his grandchildren. His son Bruce Chernoff, who graduate from Chemical Engineering in '87, also received an award.

Ross Beaty, Parent
"I hope that through my gift, these collaborative activities will grow and thrive, providing researchers with the support they need to give our future generations a world they deserve."

Greg Heath, BSc'96
"In a time when there seems to be less importance placed by many on doing the right thing and caring for the community, my partner, Christina, and I are most proud of isthat all four of our children embrace generosity, empathy, and honesty towards others.

Max Howarth, BSc'14
Max is proud of his team at IBM who constantly redefine what is possible. Max and co-worker Alex Harvey, BSc'14, MASc'16, are supervising a team of Geological Engineering students in an AI-based capstone design project.

Stephen Lucas, BSc'84
Pictured with his son and current Geological Engineering student Nick Lucas.
"Queen's Engineering has had a defining role for many generations of this family."

David Malcolm, BS'80, MSc'94, in memory of Steve Rose, BSc'81
"I accept this award in memory of my partner for 30 years, Mr. Steven Rose (BSc'80), who sadly passed away in 2018. I retired in December 2018 but not before passing the reins of Malroz Engineering to two younger Queen's engineers."

Rick McCreary, BSc'85, MSc'90
Rick takes great pride in "being a very proud Kingstonian, alumnus, and son of a Queen's alumnus and former Queen's professor, Dr. Bruce McCreary.

Anne Poschmann, BSc'78
"I am most proud of the young geotechnical engineers, especially the female geotechs, who gradually joined our team in the Missisauga office of Golder Associates Ltd. over the many years I was there and who made it such a joy to work there."

Wayne Savigny, BSc'71
Wayne is most proud of "working with young engineers and geoscientists and inspiring them just as I was inspired by many wonderful mentors early in my career."

Michelle Thompson, BA'11, BSc'11
"I am the most proud of my time spent working for NASA and my ability to now train the next generation of planetary scientists and engineers."

Michael O'Connor, BSc'68, PhD'76, DSc'92
"Suffering from mono in second year, I came close to giving up and flunking out. Thanks to marvellous support from Professor Breck (Chemistry), I was able to develop a plan to continue in Sc'68.

Sue Riddell-Rose, BSc'86
Sue is most proud of "working with Queen's to develop the Master of Earth and Energy Resources Leadership (MEERL) program, which brings together multi-disciplinary facets of resource life-cycle development in a solutions-oriented approach."

Wililam (Bill) Slavin, BSc'84
"My engineering education has fundamentally influenced all aspects of my professional career. I am very proud that each of my children, Matt and Erica, have carried on the engineering tradition.

CELEBRATE 125

GARNET - Geo-Alumni Resource Network

Surrounding yourself with well-chosen mentors can dramatically change your life.Geological Sciences and Geological Engineering is seeking mentors to share their talents and expertise with current students.

As a GARNET Mentor you will provide information on your career to a current Geological Sciences & Geological Engineering student, including helping with resumes and cover letters. You will help answer career-based questions, providing insight into the job market for recent graduates. Mentors should be young GEO- alumni, having graduated from the Department of Geological Sciences & Geological Engineering within the last ten years. You will be paired with a mentee based on your area of career experience and the mentee's area of interest at the discretion of the GARNET Coordinator.

Guest Speaker Series
Within the Garnet program, there will be a Speaker Series featuring visiting speaker talks and seminars. The inaugural Garnet Speaker Series will feature Alex Wood, Class of 2016. Alex will be speaking on January 17, 2020 at 10:30 am in MIL 201. He will give a short talk about his career and his journey from a grad of 2016 to where he is today.

If you would like to participate in the speaker series, please contact Larke Zarichny at**: garnet@queensu.ca.**

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