The ReDeveLoP Challenge

May 2018

NewsLetter

Responsible Development of Low-Permeability Hydrocarbon Resources, an NSERC CREATE Initiative

The **ReDeveLoP Challenge 2018,** recently completed a very successful inaugural conference at the University of Calgary. The conference included students and faculty, as well as government and industry stakeholders who are supporting this new training program for young researchers – the next generation of science and engineering leaders and policy makers in Canada. The 1st Annual ReDeveLoP Innovation Conference (April 29 - May 4, 2018) was an exciting and thought-provoking experience for all participants, which included: a Dragon's Den competition, talks by invited speakers, workshops and field trips.

The Dragons, Mike Johnson (NEB), Melanie Popp (CSUR) and Jérôme Marty (CCA).

The LNG Team during the question period of Round 1 (90-s video) of the Dragon's Den competition.

What is ReDeveLoP?

ReDeveLoP is a new government-funded student training program, led by Dr. David Eaton in the Geoscience Department at the University of Calgary, partnered with U.Alberta, U.Toronto, U.Waterloo and U.Western. Specific faculty members are shown below. ReDeveLoP was designed to train young researchers in the responsible development of low-permeability hydrocarbon resources or shale gas. Collaboration with Dr. Tom O'Neill (U.Calgary Industrial-Occupational Psychology) contributes communication and conflict management training to the program.

WEBSITE LINK

What kind of support?

ReDeveLoP has secured federal funding over the next six years to provide training opportunities to students, partnered with industry and government, to produce job-ready highly qualified professionals (HQPs) in unconventional resource development. In addition to scholarships, the ReDeveLoP program provides training outside of most academic degree programs, including: communication, project management, leadership, Western Canada sedimentary basin geology, hydraulic fracturing, economics and public policy. The program also facilitates internships and international exchanges. Technological developments in the past several decades have unlocked vast energy resources in the form of hydrocarbons contained in low-permeability rock formations. Deriving full economic benefits from these unconventional resources, while also fulfilling Canada's international commitments for reducing greenhouse gas emissions, will require radical new approaches and innovative technologies. Future innovators and leaders within industry and government will rely upon technical knowledge that crosscuts

traditional disciplines, together with business acumen, a deep understanding of pertinent sociopolitical factors, including issues that particularly affect Indigenous communities, and real-world practical experience.

Who are the students? What is their commitment?

ReDeveLoP is an inter-disciplinary program, training a new cohort of students each year. The students are divided into teams and assigned an energy problem that currently impacts Canadians, like hydraulic fracturing or pipeline versus rail. Each team elects a Project Manager and conducts professional meetings on a weekly basis. The student teams take part in a competition (***The ReDeveLoP Challenge***), and the winning team is awarded a prize at our Annual Innovation Conference. Team members are introduced to university professors, industry partners and Indigenous leaders who will serve as resources and mentors along their journey.

This year, training opportunities and scholarships were provided to 28 graduate students from the disciplines of geoscience, engineering, public policy and economics across five universities. Teams of students from different schools and disciplines were formed to work on energy challenges developed with stakeholders. Here's a link to this year's competition details: ucalgary.ca/science/redevelop/challenge.

Fugitive Gas Team: Dylan Riley, Jordan Phillips, Richard Li, Tiago Morais and Victor Gallardo.

Hydraulic Fracturing Team: Henry Zhou, Leah Wilson, German Rodriguez-Pradilla, Jinghan Zhong and Linh Tran.

Induced Seismicity Team: Suzie Jia, Jieyu Zhang, Yu Wang, Scott McKean and Sobhan Iranmanesh.

Orphan Wells Team: Zhengru Yang, Gang Hui, Earl Magsipoc, Daniela Becerra and Michael Lim.

Pipeline vs Rail Team (Runner Up): Karen Grey, Volodymyr Vragov, Hossein Ahmadi and Jade McLean.

LNG Team (Winners): Aly Abdelaziz, Sarah Saad, Hanh Bui Thi and Jake Fuss (absent), with industrial partner, Colin Nikiforuk, of PTX Technologies.

What kind of training takes place?

The competition contains four milestones that each team must complete. They research and write a **technical paper**, a **policy article**, a **Wikipedia page** and create a **presentation** and **video** to summarize their work. Along the journey to complete these milestones, students will learn literature review and writing skills and how to conduct an interview. They improve their communication skills through group discussions, building confidence as they form opinions about what they learn and endeavour to understand all perspectives. The ReDeveLoP HQPs learn to conduct themselves as professionals, meeting regularly, recording their successes and failures during those meetings and using social and traditional media as tools in their work.

They also receive opportunities to attend professional training workshops put on by ReDeveLoP, pursue internship opportunities with industry partners and attend field trips to geological, research and industrial sites. This year's field trips included: (1) Geology tour of Kananaskis and Banff, led by Dr. Per Pedersen and Dr. Paul McKay, and (2) Tour of the Badlands and the CMC Research Field Site, operated by Dr. Don Lawton and Kirk Osadetz, of the Containment and Monitoring and the Carbon Capture and Conversion Institutes.

Paul McKay and Per Pedersen explaining the significance of the Montney Formation at a roadside outcrop.

What about Indigenous inclusivity?

ReDeveLoP academics, partnered with the Indian Resource Council (www.irccanada.ca/) and the Government of the Northwest Territories, have formed an Indigenous Strategy Team to work with Indigenous community leaders, industry and the Native Centre at the University of Calgary on the recruitment and retention of Indigenous students into geoscience, engineering and ReDeveLoP at both the graduate and undergraduate levels. This is an integral part of the six-year ReDeveLoP Program.

Steve Saddleback (Indian Resource Council), Shawna Cunningham (Director of the University of Calgary Indigenous Strategy Team) and Dr. David Lertzman (Haskayne School of Business) gave informative talks at the inaugural ReDeveLoP Conference.

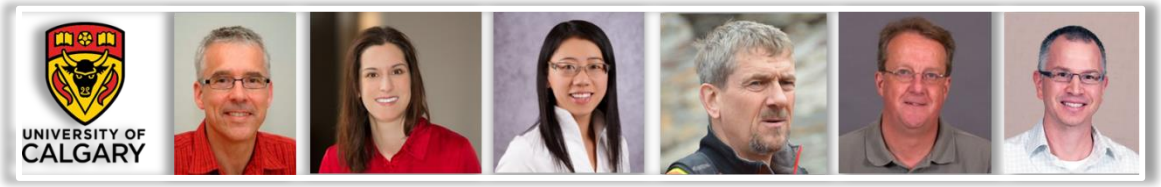
What does ReDeveLoP ask of Industry Partners?

ReDeveLoP has launched an ongoing campaign to recruit government and industry partners to collaborate in the training and support of the HQPs. With the help of Mitacs (https://www.mitacs.ca/en/programs/accelerate), the objective is to facilitate an internship for as many ReDeveLoP HQPs as possible in year two of the program. These individuals will serve as ambassadors of the ReDeveLoP program and mentors for next year's cohort.

Negative effects on the Canadian economy, particularly in Alberta, have had a direct impact on energy-sector job opportunities for new graduates. Alberta Oil Magazine and The Huffington Post have commented on how low oil prices are linked to cutbacks in oil and gas exploration, suspension of summer jobs, co-ops, and internships, and loss of job security for petroleum geoscientists. The Globe and Mail reported that job-readiness of new graduates was the responsibility of both academia and industry, notwithstanding that employer investment in training has fallen by about 40% since 1993. *When you become a leader, success is all about growing others* – J. Welch

Interested students and stakeholders are please contact:
Dr. Celia Kennedy, Program Manager (celia.kennedy@ucalgary.ca) or Dr. David Eaton, Chair (eatond@ucalgary.ca).

Five-University Research Team



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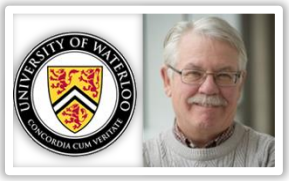

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2018 ReDeveLoP Conference Invited Speakers:

Brad Hayes
PRC and CSUR

Dan Allan, CSUR

Joe Devlin, ECCC

Jeff Gaulin, CAPP

Alex Shrake
Energy Minute

Joule Bergerson
UoC Engineering

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