

GAC-CS NEWS

Geological Association of Canada—Cordilleran Section Newsletter

Oct 2014

Message from the president

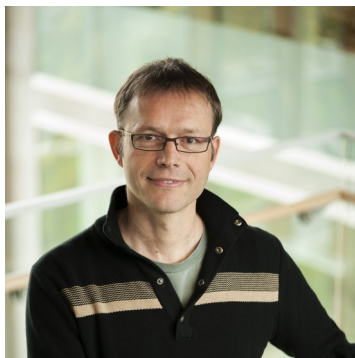
After a long beautiful summer in BC, many of us are back to the daily routine in our respective jobs. Well, unfortunately not all of us. There are still many under- or unemployed geologists out there due to the slow pace mineral exploration has had this year. There are, however, drills that are still turning and new drilling programs have initiated recently so maybe things will turn around soon. In the meantime, the younger geologists experiencing the cyclical nature of the mineral exploration business for the first time probably have received the well-meant recommendation to go back to school for a MSc or PhD degree several times by now. This is reflected in the number of inquiries into potential projects and funding my colleagues and I receive at MDRU, elsewhere at UBC and in other universities in BC. Unfortunately we can only accommodate a fraction of those who inquire about a post-graduate degree, not least because government research funding has been declining and the research budget of many companies is one of the first things to be cut when budgets are tight. All the more important to take advantage of the opportunities [that do exist](#). I can already hear the voices asking us for skilled young geologists next time the industry desperately needs them (whenever that may be). Yes, this lack of a longer term vision (although fundamentally un-geological) has always been part of the mineral industry (and some governments) and one can only just adopt the “too bad, but get on with it” attitude.

However, let's use the opportunities we, at the GAC-CS (together with other entities such as AME-BC), have to bring students and prospective students together with individuals from industry and academic institutions. Maybe, just maybe, this will lead to the skilled geologist with an MSc degree that your company will desperately want to hire in 2016. To that end, GAC-CS will continue supporting student groups such as the [SEG-GAC student chapter at UBC](#). We will also continue organizing [breakfast talks](#) on recent early-stage exploration successes and there will be several additional talks open to the GAC-CS membership and beyond.

Apart from that, GAC-CS continues supporting the [Hope Mountain Center](#) and the [International Volcano Monitoring Fund](#). Last, but definitely not least, the [annual meeting of the Geological Society of America](#) (GSA) will be held in Vancouver October 19th-22nd and provides this season's first high-profile event that brings the geological community together.

The GAC-CS is a volunteer organization and we critically depend on member feedback and participation. If you would like to make something happen through GAC-CS, please get in touch with one of us at the council.

Thomas Bissig



Thomas Bissig

In This Issue

- Giving back: reports from the **International Volcano Monitoring Fund** and the **Hope Mountain Centre** (p. 2 & 3)
- **Geoscience BC** — 2014 recap and 2015 activities (p. 4-5)
- New MSc opportunity (p. 5)
- **SEG-GAC UBC** chapter update (p. 6)
- **BCIT** announces new part-time studies classes (p. 7)
- Upcoming meetings (p. 8).

GAC-CS supports the Santiaguito Volcano Observatory in Guatemala

By Jeff Witter

Santiaguito volcano, located in southwestern Guatemala, is one of the most active and dangerous volcanoes in Central America. On May 9, 2014, the growing lava dome at Santiaguito collapsed on its eastern flank. This collapse generated pyroclastic flows, which travelled 7 km down a jungle-clad river valley filling it with rock debris and charred tree trunks. It was the largest volcanic event at Santiaguito in nearly a century. In June, the International Volcano Monitoring Fund (IVM-Fund) received a request for assistance from Guatemala's chief volcanologist to help them respond to the acute volcanic hazards created by aftermath of the dome collapse and the ongoing activity at Santiaguito volcano.

Over the last several months, a crisis has been developing at Santiaguito volcano. The dome collapse event in May filled the river valley with loose volcanic debris. Wet-season torrential rains have remobilized the loose material repeatedly sending mud, boulders, and tree trunks further downstream as boiling lahars. These lahars fill up the river valley downstream, overtop riverbanks, and threaten people and infrastructure. OVSAN personnel have been documenting this lahar activity and use this information to inform authorities and nearby communities about the lahar hazards. Unfortunately, due to the harsh working conditions some of the electronic instruments they use are no longer functioning and need replacement. The IVM-Fund is working with our Guatemalan colleagues to provide them with the needed replacement equipment.



Pyroclastic flows from Santiaguito volcano © INSIVUMEH

Malfunctioning equipment is not their only problem. The OVSAN building itself sits on the edge of the valley down which the lahars have been travelling. Lahars have reached within 18 m of the front door of OVSAN and are getting closer. In addition, lava has been pouring out of the dome since May and is flowing down the same valley as the lahars. Since May, the lava has travelled ~3.5 km down the valley – halfway to OVSAN. If current trends continue, the OVSAN building could be overwhelmed with lava by January. There is also the ongoing threat of a lava dome collapse. The current location of the observatory is clearly not safe and OVSAN needs to be re-located. Our Guatemalan colleagues continue to work out of the observatory during the day but they do not sleep there. They are presently searching for a new location for OVSAN and hope to find one in the next few weeks. Guatemala's chief volcanologist has specifically requested financial assistance from the IVM-Fund for the relocation and reconstruction of the new OVSAN. Other international aid agencies are involved in this effort and the IVM-Fund intends to make a valuable contribution that will help put OVSAN on safe ground.

The IVM-Fund is very grateful to GAC-CS for their unflagging support of our Guatemalan volcano monitoring support programs. Without the support of GAC-CS, much of our work in Guatemala would not be possible. We intend to use the most recent GAC-CS donation to support OVSAN's immediate needs: replacement of broken equipment and relocation of the observatory. We look forward to continuing to inform our donors of our activities in Guatemala especially the positive impact we have on the Guatemalan volcanology community and the volcanically-threatened towns and villages who they serve.

The Hope Mountain Centre

The mission of Hope Mountain Centre for Outdoor Learning is to provide outdoor education and ecological awareness opportunities in the watersheds of southwest British Columbia. Our mandate is to provide a common meeting ground for our membership, which includes representatives from industry, the provincial and federal governments, educational institutions and the general public.

Hope Mountain Centre for Outdoor Learning
PO Box 115
Hope, BC V0X 1L0
Canada
604-869-1274
info at hopemountain.org
<http://hopemountain.org/>

School of Rock

By Kelly Pearce

Since 2010, Simon Fraser University professor John Clague has led a popular series of fieldtrips across Southwestern British Columbia, teaching geology to the general public. Organized by the Hope Mountain Centre (an educational non-profit) with support funding from the GAC Cordilleran Section, "School of Rock" celebrated its 5th anniversary this summer.

The occasion was marked with a two-day bus tour stopping at a dozen different



Dr. Clague describes the river terraces and other post-glacial features along the Thompson River near Spences Bridge.

landscape features between Hope, Lytton, Spences Bridge, Cache Creek, Pavilion, and Lillooet. In that 450-kilometre journey, an exciting mix of topics were explored, including; BC's Cordilleran assembly, glacial history and river development, post-glacial landforms, landslides and earthflows, and volcanic ash layers from the ancient eruptions of Mount Mazama and Mount St. Helen's.

For a detailed photo gallery of the trip, visit: <https://www.flickr.com/photos/hopemountain/sets/72157645702848852/>

Past trips have toured the Fraser Canyon, Coquihalla Highway, and the "fire and ice" landscape of the Sea-to-Sky Highway. On every trip, Dr. Clague reveals the many natural hazards that impact human infrastructure in BC, reminding us that the landscape where we live is not static, but dynamic and evolving.



Dr. Clague describes the landscape above the Thompson River near Ashcroft, where a landslide in 1880 temporarily dammed the river.

2015 will be the 50th anniversary of the Hope Slide, so next summer's School of Rock will explore that dramatic event and other features along Highway-3 and Manning Park.

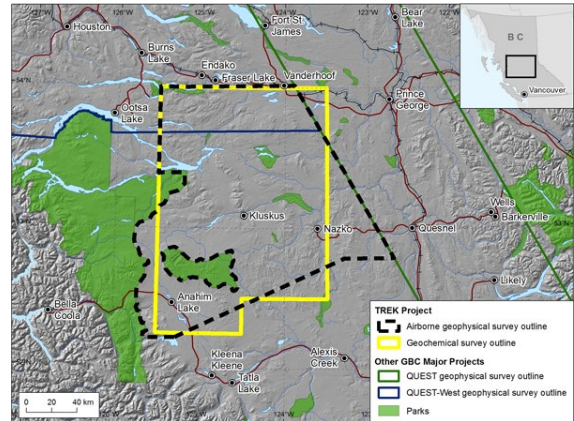
Dr. Clague has a knack for making geological concepts understandable to the layperson. He's written two popular books on BC geology, has taught at SFU since 1998, and regularly educates the public via radio, television, and

presentations to schools and community groups. His skills as a communicator are key to the popularity of School of Rock, and the program's success demonstrates that the public has an appetite for educational trips that use the outdoors as a classroom for geology.

Geoscience BC Update By Andrea Clifford

Since 2005, Geoscience BC has generated minerals and energy earth science information and delivered this information publicly through its website, workshops and outreach efforts. Geoscience BC's minerals projects have been geared toward attracting investment to British Columbia by funding projects that are innovative and reduce exploration risk.

Geoscience BC's TREK project, short for Targeting Resources through Exploration and Knowledge, is one of these projects, aimed at generating geoscience data in B.C.'s Interior Plateau region. TREK entered its second field season in 2014 with geochemical sampling programs, which included basal till sampling, and geochemical sampling to assess geothermal potential around the community of Nazko. The Geology and Integration component of the TREK project was also initiated in summer 2014 by the Mineral Deposit Research Unit (MDRU) at the University of British Columbia. Program updates are pending for each of these components.



In May 2014, a Minerals Geoscience Request for Proposals (RFP) was issued that favoured the following topics:

Outline of the TREK project area © GBC

- Integration of Geoscience BC data with existing publicly available or industry-available geoscience data, including existing geophysical, geochemical and geological datasets, drill hole information from ARIS reports and MINFILE information
- Analysis of new Geoscience BC data to increase its usefulness, i.e. geophysical inversions
- New projects focused on understanding geological processes; i.e. geochemical transport, biogeochemical transport and hydrogeochemical studies
- Other value-add projects to complement publicly available datasets.

Some of the new minerals projects that Geoscience BC is now funding as a result of this RFP include:

- Productivity analysis of stream sediment data for North Vancouver Island;
- Historic exploration data capture, a pilot project to deliver best methods for digitizing geological information from ARIS reports;
- Geological mapping and mineral evaluation of Penticton Map Sheet 082E/East;
- Proof-of-concept study using a portable photometer to undertake a hydrogeochemical study at Poison Mountain;
- Improved interpretation of bedrock geology and structure under drift cover in the central QUEST area; and,
- Geological mapping, rock geochemistry and mineral potential of Middle Aldridge formation vent systems in southeastern British Columbia.

Geoscience BC Update continued

Stay tuned for Geoscience BC's annual Summary of Activities volume, coming out Roundup 2014, for more information on these new Geoscience BC projects and more details on the TREK project work done this past summer.

Geoscience BC will be exhibiting at GSA 2014 at the Vancouver Convention Centre in October and also at Minerals South in Nelson in November. A paleomagnetic study undertaken within the Hughes Range in southeast B.C. began last summer as part of the SEEK project (Stimulating Exploration in the East Kootenays). Results from this project are expected to be released at the Minerals South conference.

In addition to new minerals projects, Bruce Madu started as Geoscience BC's Vice President, Minerals and Mining in June. Prior to Geoscience BC, Bruce served as the Director of the BC Geological Survey, Mineral Development Office (MDO) in Vancouver. Over the course of his career, he has held several positions as a geologist within the provincial government in the Kamloops, Prince George and Smithers regions. As VP, Minerals and Mining, Bruce will provide minerals and mining-related scientific and technical leadership to Geoscience BC and direct new and existing Geoscience BC initiatives related to the exploration and development of mineral resources in British Columbia. Bruce and the minerals Technical Advisory Committee are currently developing a new regional minerals project in B.C.



2014-15 Exploration Breakfast Talk Series Coming Soon!

If your company is interesting in highlighting and discussing its early-stage exploration project, please contact Chris Leslie, cdleslie@gmail.com,

M.Sc. Project in Exploration Seismology

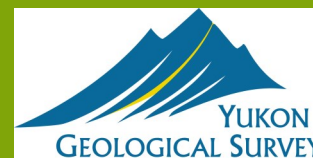
Applications are invited for a proposed M.Sc. Project starting in September 2015, which will involve Simon Fraser University, the Geological Survey of Canada, and the Yukon Geological Survey. The project objective will be the discrimination of lithologies in the Whitehorse Trough, YT using seismic velocity models. These models will be derived by tomographic inversion of first arrivals recorded in two seismic reflection lines over this interior sedimentary basin. Final interpretation will require integration of the velocity models with seismic reflection images and regional potential field data. The project is suitable for students seeking a career in the oil exploration industry.

For further information, contact: Nathan Hayward (Nathan.Hayward@NRCan-RNCan.gc.ca) or Andrew J Calvert (acalvert@sfu.ca)

For application information and forms see: <http://www.sfu.ca/admission/graduate.html>, or contact the Graduate Secretary (eascgsec@sfu.ca), Department of Earth Sciences, Simon Fraser University, 8888 University Drive, Burnaby, BC, V5A 1S6, Canada

Applications should be received by February 6th, 2015

Preference will be given to Canadian citizens.



UBC SEG-GAC Student Chapter Update

By Kaleb Boucher

The University of British Columbia's SEG-GAC Student Chapter recently held its annual International Field Trip to Namibia, Africa from April 30th to May 15th, 2014 which was a tremendous success. Each year, the Student Chapter organizes a trip with industry members and students to an international destination to tour various mines and exploration projects, as well as to enjoy some of the geology-related attractions in the area. A total of 20 participants attended this year's trip, which included eleven UBC students, eight industry members, and one student from Queens University.

Beginning in Namibia's capital city of Windhoek, the group visited the Geologic Survey of Namibia, which included the fantastic displays at the National Earth Science Museum. The group then traveled to southern Namibia for a tour of Teck Resources Ltd.'s Haib Porphyry-Cu project and an underground mine tour of the Rosh Pinah Pb-Zn mine. The excursion to the southern part of the country finished with some hiking and the spectacular views of the Fish River Canyon, the second largest canyon system in the world.

After returning to northern Namibia, the group visited B2 Gold's early-staged Otjikoto mine. This was followed by a day of touring the historic Kombat Copper Mine and the nearby Gucab Copper deposit of Sabre Resources. Continuing the journey to western Namibia, the group also got a chance to see the Hoba Meteorite, the Tsumeb Museum, and the karst-formed Otjikoto Lake.

After taking a short hiatus from visiting mines, the group spent a day connecting with Namibia's famous wildlife in Etosha National Park. Heading south of the park, the group took a tour of Namibia Rare Earth's exploration-staged Lofdal Rare Earth Property which was followed by a visit to the unique, uraniferous granite-hosted, Husab Uranium Property of Swakop Uranium. Participants spent the final day in Namibia with a trip to the world famous sand dunes of Swakopmund before returning to Windhoek and concluding this year's international field trip.

The Student Chapter has several upcoming events lined up for this fall, including a Student-Industry Mixer planned for late October, a Fall Field Trip to a local mine in BC in early November, and a Job Fair hosted at UBC on November 26th. Weekly Friday Talks will also continue starting in October, with a variety of economic geology-related talks from industry members and UBC researchers. All those interested are welcome to join

the Friday Talks and other events hosted by the Student Chapter. We hope to see you there!



UBC SEG-GAC Student Chapter annual international field trip to Namibia

To receive more information on upcoming Student Chapter events, please send an email to seggac at eos.ubc.ca, to be put on the emailing list.

If you wish to contribute something to the newsletter, please send it to the editor:

[news at gac-cs.ca](mailto:news@gac-cs.ca)

New part-time studies classes launched at BCIT

By Russell Hartlaub

The Department of Mineral Exploration and Mining and The Center for Mine Economics and Business at BCIT would like to announce the launch of several new short courses for the fall of 2014. To register, or see additional courses, please visit bcit.ca/mining



BEHIND THE NEWS RELEASE (MINE 1011)

This course will provide an overview of the requirements for public disclosure of technical information as well as an understanding of scientific and geological terms in news releases. Participants will follow a mineral exploration project through its life cycle, including targeting, exploration and project development. Triggers for the requirements for public technical disclosure, both under securities law and for various Canadian stock exchanges, will be discussed. Examples of poor technical disclosure will be provided to assist in understanding correct and incorrect technical disclosure. This course is aimed at non-geologists who write or vet news releases with technical disclosure, as well as geologists who wish to know more about technical disclosure requirements.

Runs - Oct 23rd and 24th (Downtown Vancouver) Instructor: Sally Gillies (TSX-Venture Exchange)

MINING LAW AND LEGAL AGREEMENTS (MINE 1012)

An introduction, for non-lawyers, to the business of mining from a legal perspective. It will provide an overview of the primary sources of law affecting participants in the mining industry including business organizations and corporate law principles. It will also examine the legal considerations for raising alternative sources of money to finance exploration and development activities and provide an overview of the key business agreements such as option agreements, joint ventures and royalty agreements. This course is geared towards both individuals that are new to the mining industry as well as experienced mining professionals that wish to obtain a better understanding of the key legal concepts and issues that impact upon their industry

Runs - November 18th to 27th (Downtown Vancouver) Instructors: Sam Adkins and Shawn Doyle

Mining and the Environment – The Britannia Mine, A Case Study (Mine 1009)

This two day course will be composed of two parts. Day one will consist of in-class discussions covering the background topics of geology, mining, and the environment ending in a discussion of the history of the Britannia Mine. During the second day, students will visit the Britannia Mine, near Squamish, BC. An overview of current regulatory permitting requirements and commitments for sustainability (e.g., the concepts of a Social License to Operate and Corporate Social Responsibility) will be included.

Runs – November 22nd and 23rd. (BCIT Campus, Burnaby) Instructor – Steve Atkin (Golder Associates)

MINERAL ECONOMICS (MINE 1014)

Economic modeling and valuation are at the core of mining investment decisions. This course introduces concepts and methods that will allow participants to understand mine economic valuation techniques and conduct basic project evaluations. Topics covered include: time cost of money, discount rates, cash-flow statements/diagrams, valuation metrics (NPV, IRR, payback), mine value drivers, capital and operating cost estimation, sensitivity analysis, simulation techniques, and evaluation-related risk analysis. Participants will learn how to use and interpret an economic model in MS Excel.

Runs – November 6th and 7th (Downtown Vancouver) Instructor: Craig Rice (PDO Solutions Inc.)

Upcoming Meetings

GSA Annual Meeting

The Geological Society of America is holding their Annual Meeting and Exposition in **Vancouver, British Columbia (19-22 October, 2014)**. One of the largest geoscience research conferences in the world, the meeting will attract an international group of geoscientists from academia, industry, and government. Through the efforts of the local organizing committee and the field trip, workshop and session chairs, the program features diverse themes, many of them of interest to the local cordilleran community. Check out the meeting agenda (<https://gsa.confex.com/gsa/2014AM/webprogram/start.html>), which includes **T13. Tectonics of the Northwest Cordillera I: A Session in Honor of the Career Contributions of Ned Brown, Jim Monger, and Glenn Woodsworth**, among a host of other excellent sessions.

www.geosociety.org/meetings/2014/



AME BC Roundup

AME BC's Mineral Exploration Roundup conference brings together prospectors, geoscientists, investors, suppliers and those interested in the mineral exploration industry. Mineral Exploration Roundup 2015, with its theme "Intelligent Exploration", will highlight our renowned Technical Sessions, Core Shack, Prospectors' Tent and Map Tent, where you will learn about the latest discoveries and the strategies used to uncover mineral deposits. Join us at AME BC's Mineral Exploration Roundup 2015: Intelligent Exploration, from January 26 to 29, 2015, under the Canada Place sails at the Vancouver Convention Centre East.

<http://www.amebc.ca/roundup-2015-home>



*The GAC-CS wishes you a great fall and winter
and we'll be back in the spring with our next
issue!*

Council

President: Thomas Bissig
(UBC—MDRU)

Past-President: Jim Ryan
(GSC)

Vice-President: Russell
Hartlaub (BCIT)

Secretary: Tyler Ruks
(West Cirque Resources)

Treasurer: Peter Friz
(Hatch)

Membership/Website:
Glyn Williams-Jones
(SFU)

Newsletter: Nathalie
Vigouroux (Douglas Col-
lege)

UBC Student Rep:
Graham Leroux (UBC-
MDRU)

Councillors:

Carl Verley (Amerlin Ex-
ploration Services)

Chris Lesley (Tower Re-
sources)

Erica Williams (Riverside
Secondary School)

Contact Us

For more information
about the GAC-CS and to
become a member, con-
tact us at:

Email: webmaster at gac-
cs.ca

<http://www.gac-cs.ca>

Mail: PO Box 398
Station A Bentall Centre
Vancouver, BC
V6C 2N2