



*Newsletter of the Volcanology and Igneous Petrology Division
Geological Association of Canada*

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Hello VIPers! By now, most everyone should have their field plans in the final stage, if you aren't already in the field! Environment Canada is predicting a hot summer, although I still don't see how they can do that and not get tomorrow's forecast straight..... In any case, best of luck to everyone in your endeavours this summer. Remember, if you have some good field stories to tell when you get back, be sure to submit a couple-of-paragraph-long blurb and a couple of photos to the Editor of Ashfall so that you can share your good times with us all.

The Montreal GAC-MAC annual meeting wrapped up almost a month ago, and congratulations to all those who led short courses, symposia, special sessions and field trips. We all benefit from your efforts! Summaries of some of the field trips are included later in Ashfall. The annual VIP business meeting was held on the Wednesday at noon, and was well attended. In addition to the awarding of Gelinus medals to the best VIP students in Canada, the Career Achievement Award was given to Rob Kerrich. In addition, a new executive was elected that will take charge as of July 1, 2006. Jarda Dostal is our new Chair, Wulf Mueller is now Past-chair, Glyn Williams-Jones the new Vice-chair, and Pete Hollings is our new Secretary-Treasurer and Editor of Ashfall. Be sure to give them all the support that they deserve!

As most of you know, Merapi Volcano in central Java has been very active over the past month or so. Merapi is certainly one of the nastiest volcanoes on the planet, with the distinction of having produced the most nuees ardentes of any volcano – 32 during the last 67 historic eruptions. Most of the nuees ardentes are the result of dome collapse. The city of Yogyakarta, centre of a recent M6.2 earthquake, is located only 30 km south of the volcano, and the volcano flanks are studded with farms due to the very fertile soils that result from Merapi's volcanic eruptions. Some 70,000 people live along the flanks of the volcano! For more information, check out the Volcano World web site, and for excellent photos of the current eruption go to <http://mdn.mainichi->

msn.co.jp/photospecials/graph/0515volcano/index.html. Here are a couple of the more spectacular photos (AP Photo):



Two photos of the ongoing eruption at Merapi, central Java (AP Photos). At left, a small ash column. At right, glowing lava flows advancing down the volcano flanks. Both photos were taken from the outskirts of Yogyakarta.

This Editor was invited to do a live interview on CTV's Canada AM on Wednesday, June 7th, concerning the recent activity at Merapi. You can catch the video of the interview on the Canada AM website (you have to wait through two other interviews prior to mine). It is an unusual feeling to be alone in a room with a TV camera, and your only connection to the TV show is an earpiece! I goofed at the end of the interview – the time lapse between the current 1983-present activity at Kilauea and the prior major eruption was only 10 years, not 20. But if you go through Kilauea's historic record of eruptions, there is no event anywhere near as long as the current one!

VIPers in the News

I was perusing the Prospectors and Developers Association of Canada web site a couple of months ago and noticed that one of our past Gelinias Award winners was doing extremely well. Michelle DeWolfe, winner of the Bronze Gelinias Award in 2002, was awarded the Mary-Claire Ward Geoscience Award for 2005! This award is given to a student who "is likely to increase our knowledge of the geological history of Canada through mapping." From those who did not know about Michelle's success, including me, a belated Congratulations to Michelle!

Message from the Chair

Well, two years have past and we have voted in a new executive at the Montreal meeting. Please look at our website to see how things have evolved in the last two years (check out the special sessions and field trips). The new executive with Jarda Dostal (chair) Glyn Williams-Jones (vice chair) and Pete Hollings (secretary treasurer) well certainly be as dynamic and active as the last. I hope you have enjoyed your Ashfall as much as I have, as Brian Cousens has done a great job keeping us informed. Thanks Brian, it has been great working with you and Jarda. Brian has stepped down after 5 years, and I have passed on the torch to Jarda (also five years). It has been a pleasure serving all of VIP

community and I hope for better things to come. Keep informing the executive of new exciting things happening as you did with us. After having worked on Archean volcanoes all my life maybe I look at a real one.....Unzen and Japan here I come!

Cheers, Wulf Mueller

Montreal GAC-MAC

It was a bit soggy, but the annual GAC-MAC meeting held in Montreal last May was a great success. Seeing old friends and catching up on what is going on in the Earth Science world is always fun. The annual VIP business meeting was held at the new Science complex at the Université du Québec à Montréal at 11:30 on Wednesday, May 17th. Just over thirty VIPers attended the meeting.

Brian Cousens presented a summary of the VIP-sponsored short course in “Submarine Volcanism and Mineralization – Modern to Ancient” to be held at the Yellowknife GAC-MAC in 2007.

Short Course: Oceanic Volcanism and Mineralization: Modern vs. Ancient

Sponsor: Volcanology and Igneous Petrology Division, GAC

Organizers: Wulf Mueller and Brian Cousens

The Volcanology and Igneous Petrology Division will sponsor a short course entitled “Oceanic Volcanism and Mineralization: Modern vs. Ancient” at the 2007 Annual GAC-MAC meeting in Yellowknife. The goal of the short course is to recap recent advances in the physical volcanology and geochemistry of seafloor volcanic suites and to contrast modern volcanic examples with those in the rock record (Archean through Phanerozoic). The link between known or inferred tectonic setting and the style of hydrothermal (and other) mineralization will be emphasized. The material will be aimed at the non-specialist in both the fields of petrology and ore deposits, and one goal of the course is to bridge the professional gap between these two groups. The short course volume will be peer-reviewed, and the volume is to become a publication of the VIP/GAC or VIP/MDD subsequent to the 2007 meeting and will hopefully gain an international readership.

To date, six potential presenters have been identified and invited to participate. They are James White, a specialist in explosive volcanism and seawater-magma interaction; David Clague, reknown for his work at Hawaii, mafic pyroclastic volcanism, and hydrothermal mineralization on the seafloor; Wulf Mueller, with extensive experience in caldera systems and Archean through modern mineralization; Steve Piercey, who applies field, geochemical (major, trace, REE), stable (C-O-H-S) and radiogenic isotopic (Nd-Sr-Pb) techniques to understanding problems in economic geology, petrology and tectonics; Tim Kusky, a specialist in ophiolite complexes; and Mark Hannington, an economic geologist with extensive experience in mid-ocean ridge, island arc and back-arc systems and associated mineralization.

We are currently planning a two-day short course, with a second-day field trip to the superb Giant Section and other volcanological highlight in the Yk town area.

At present, we are looking for financial collaboration, in order to lower the cost of attendance. If MDD is willing to sponsor the short course with a cash contribution of \$2,000, this would allow us to offer reductions in air fare to four of the six presenters that would not normally attend the meeting (high air fare is clearly one of the bigger obstacles to attracting presenters). VIP Division would cover accommodation expenses for the same four presenters for the first night of the conference, as well as conference registration fees for all six presenters.

In addition, VIP Division is extremely interested in getting help with publication of the short course volume (suggested by Hendrik Falck, member of LOC for Yellowknife 2007 and past-President of MDD). MDD clearly has the most experience within GAC in terms of the actual schedule of publication, unlike the VIP Division, and we would sincerely appreciate help in getting the volume printed. VIP Division will be responsible for editing the material submitted for the volume, unless MDD members wish to be involved in this process, with advice from MDD on any production issues'

Subsequent to the meeting, both financial and publication support were offered by MDD, exactly as outlined above. Two editors were selected for the volume, Steve Piercey from MDD and Brian Cousens from VIP. We are looking for potential reviewers of the short course chapters, and anyone who is interested should contact Brian Cousens (brian_cousens@carleton.ca). Any offers of help will be heartily accepted!

Sessions for Quebec 2008 are already well advanced, and you can look at the meeting plan on the GAC meetings website. It is still not too late to propose sessions for Quebec, however. Toronto will be the venue for the GAC-MAC meeting in 2009, and now is a good time to ponder potential field trips and topical sessions. Pete Hollings was asked if he could lead a trip to the Midcontinent Rift volcanic rocks around Lake Superior, for example.

The budget is fine, as you see below. The short course in Yellowknife will initially deplete our cash holdings but will ultimately boost them as revenue from short course volume sales come in.

2005 Volcanology and Igneous Petrology Division Financial Summary

Balance January 1, 2005	3947.21	
	Credits	Debits
Dues	804.49	
Annual Business Meeting , lunch		189.88
Newsletter		0.00
Postage, Copying, Miscellaneous		
Office		78.15
VIP Award Medal Engraving		206.30
Bank Charges		46.80
Totals	804.49	521.13
Balance December 31, 2005	4230.57	

Career Achievement Award: Rob Kerrich, University of Saskatchewan

Citation by Ali Polat:

Professor Robert Kerrich has established an extremely creative, productive, and innovative lifetime career in earth sciences. In particular, he has contributed significantly to the field of volcanology and igneous petrology, and is a fitting nominee for the Career Achievement Award.

Kerrich received his Ph.D. from the Imperial College of London in 1975. He began his career in 1977 as an Assistant Professor at the University of Western Ontario, where he became a full professor in 1986. He joined the University of Saskatchewan in 1987, where he holds the George J. McLeod Chair.

Kerrich's primary research interests are in the field of igneous petrology, geochemistry, geodynamics, structural geology, mineral deposits, and analytical chemistry. He has made important contributions to all of these fields. Particularly, Kerrich has been a pioneer in stable isotope and trace element studies of Archean volcanic, intrusive, and sedimentary rocks. His studies have revolutionized our understanding of Archean igneous petrology and crustal growth. In addition, he has pushed the frontiers of the study of mineral deposits, specifically lode gold and VMS deposits. He has published over 130 peer-reviewed papers in first-class journals, written over 30 chapters in books and monographs, and authored numerous technical reports.



Rob Kerrich (left) and Ali Polat, citationist.

Rob is not only an internationally-recognized scientist, but also is an excellent lecturer, mentor and supervisor. He has supervised and co-supervised over 30 graduate students. He strives to bring excitement to research and teaching. Rob Kerrich always cares about his science and loves to serve the community. He served on the editorial/advisory boards of the Canadian Journal of Earth Sciences. He has demonstrated strong leadership at both national and international levels that inspired many graduate students and post-doctoral fellows from around the world to join his lab.

Throughout his career, Rob Kerrich has received many honours and awards, including the Past-President's Medal of the MAC (1989), the Willett G. Miller medal of the Royal Society of Canada (1999), and Duncan Derry Medal of the GAC (2003). Kerrich was elected as a Fellow of the Royal Society of Canada in 1992 and as a "foreign" Fellow of the Geological Society of America in 1998.

Throughout his professional career, Rob Kerrich has addressed first-order fundamental questions, approached problems in original ways, and challenged the conventional wisdom in earth sciences. Through the MITEC (CAMIRO)-funded project on VMS, he has built a bridge between academia and industry. I strongly recommend the recognition of Rob Kerrich for his outstanding achievements as an igneous petrologist, training earth scientists, and serving his community.

Gold Gelinás Medal, Best Ph.D. Thesis of 2005: Venessa Bennett Memorial University

Citation by Wulf Mueller

The Gold Medal Gélina's winner for the best PhD thesis in Volcanology and Igneous Petrology goes to Venessa Bennett of Memorial for her thesis entitled " A multidisciplinary investigation of the formation, growth and evolution of Neoproterozoic crust, Snare River Terrane: southwestern Slave Province". Venessa has truly conducted a multidisciplinary investigation by combining grass roots field work with innovative techniques to unravel the evolution of the Neoproterozoic Snare River terrane in the Slave craton. The Snare River terrane represents an oceanic setting that collided with Neoproterozoic continental crust (Central Basement complex). The thesis is divided into publication chapters, which include tectonics, geochemistry, and innovative analytical techniques such as TIMS, LAM-ICP-MS, and SEM to determine the ages of primary and inherited zircons in specific magmatic units. Venessa has proven she can handle numerous disciplines and is hence a more than worthy candidate. Venessa, I wish you all the best for the future and I am sure you will succeed.



Venessa Bennett (left) and Wulf Mueller, citationist

Silver Gelinás Award, Best M.Sc. Thesis of 2005: Warná Downey, UNB

Citation by Brian Cousens

The Silver Medal Gélina's winner for the best MSc thesis in Volcanology and Igneous Petrology goes to Warná Downey of the University of New Brunswick, supervised by Dave Lentz and Steve McCutcheon. Her thesis is titled "The geological setting, petrology and facies analysis of the Nepisiguit Falls Formation, Bathurst Mining Camp: An example of a deep submarine pyroclastic eruptive sequence". The goals of the thesis

were to determine if pyroclastic rocks were primary or reworked, and if primary at what water depths were the flows erupted and emplaced? Finally, how do the felsic rocks relate to the location of sulphide mineralization in the area? Warne used field work and drill core analysis to develop a volcanic facies model for the formation, determine the locations of felsic volcanic centres, and relate these centres to sulphide ore bodies. Then litho-geochemistry was used to establish the depositional environment and tectonic setting of the formation. Third, Warne modeled the eruption of pyroclastic flows in deep water settings using CONFLOW modeling, and dispels the notion that explosive eruptions cannot occur on the deep sea floor. Three manuscripts are in the mill, which is remarkable for an M.Sc. thesis. Congratulations Warne!



Warna Downey (left) with Brian Cousens, citationist

Bronze Gelinus Medal for Best B.Sc. thesis, 2006: Émilie Bédard

Citation by Jarda Dostal

It is my great pleasure to announce the winner of the Bronze Gelinus medal for the best B.Sc thesis in 2005-2006 Émilie Bédard from Département de géologie et de génie géologique, Université Laval. Her thesis dealing with volcanoclastic rocks of upper crustal section of the Asbestos ophiolite complex at Burbank Hill (Quebec) was supervised by Réjean Hébert. The thesis is a comprehensive study which combines mapping, physical volcanology, petrology and geochemistry. Émilie demonstrated that the rocks are composed of fragments of continental material as well as ultramafic and mafic rocks including arc tholeiites and boninites and inferred that the ophiolite was formed close to the continent margin and represents a sliver of an arc sequence. The depth of the thesis is exemplary. Congratulations, Émilie!



Émilie Bedard (left) with Jarda Dostal (citationist)



Our award winners! Left to right, Warna Downey, Émilie Bédard, Venessa Bennett, and Rob Kerrich. Congratulations!

Election of the New Executive, 2006-2008

Chair: Jarda Dostal, nominated by Brian Cousens

Vice-Chair: Glyn Williams-Jones, nominated by Michael Higgins

Secretary-Treasurer: moved by N. Chown and unanimously approved that the position would be filled by the outgoing executive as soon as possible – position now filled by Pete Hollings

Western Councillor: Dante Canil, nominated by Jarda Dostal

Other Business

J.A. Donaldson suggested making a CD of volcanic structures; need to ascertain the status of the CD being assembled by John Stix.

T. Barressi suggested putting old issues of Ashfall on the VIP website; will be done ASAP!

B. Cousens notes that a change is necessary for the submission deadline for B.Sc. theses for consideration for the Bronze Gelinas Award. The current deadline of April 15th does not leave enough time for a winner to be chosen and for the medal to be engraved prior to the GAC-MAC meeting. This is why medals were not available at the meeting this year to be awarded in person. Cousens proposes that only theses from the previous year be considered, allowing a February submission deadline for all three thesis types.

Meeting adjourned at 1:10PM.

2006 GAC-MAC Field Trips!

Excursion A3 - GAC-MAC: <>THE KOMATIITE-KOMATIITIC BASALT-BASALT ASSOCIATION IN OCEANIC PLATEAUS AND CALDERAS: Physical volcanology and textures of subaqueous Archean flow fields in the Abitibi greenstone belt

The A3 pre-meeting Excursion from the 9-14th of May had 15 participants from the United States, Australia, Europe and Canada. The excursion focused on Archean volcanic processes emphasizing the physical features of komatiite flows, but also identifying the importance of mafic basalt systems in subaqueous Archean calderas. The classical komatiite sites which included Spinifex Ridge and Munro Township were visited. In addition, the little known 2.724 Ma komatiite-komatiitic basalt association of the Stoughton-Roquemaure Group was presented to this international group of researchers. The final day was spent discovering the mafic portions of the new identified New Senator Caldera of the Blake River Group. As you can imagine we had lively discussions, and of course everyone was of the same opinion.....! A photograph shows that one particular outcrop, let us say 4.3 (!), aroused quite a bit of interest. N'est-ce pas?

To the participants, thank you for attending and making this a great and worth while excursion.

Wulf Mueller



Photos from Field Trip A3 to the Abitibi Belt (photos from W. Mueller).

Field Trip B4: Diatremes, dykes, and diapirs: revisiting ultra-alkaline to carbonatitic magmatism of the Monteregian Hills

David Lentz (University of New Brunswick), Nelson Eby (University of Massachusetts), Serge Lavoie (École Polytechnique), Adrian Park (University of New Brunswick), Richard Faucher (NIOCAN)

The field trip was a follow-on to the three day GAC-MAC symposium "Alkaline Igneous Systems: Dissecting Magmatic to Hydrothermal Mineralizing Processes". We had forty participants from approximately 12 countries. The trip focused on magmatism in the western part of the Monteregian Hills. On Day 1 we visited several diatreme pipes, the sill at Ste. Dorothee which has played a role in various debates involving silicate-silicate liquid immiscibility, and the Oka carbonatite complex. Day 2 was spent looking at the igneous sequences on Mont Royal plus a stop at the Ile Ste-Helene diatreme breccia. Day 3 was spent looking at geologic relationships in the Poudrette quarry at Mont St. Hilaire and a brief stop to look at the mafic sequences within the Mont Royal pluton. Based on the amount of rock hauled away by field trip participants, the trip was a great success. Photos from the trip and the guidebook is available at:

http://faculty.uml.edu/nelson_eby/field_trip_photo_essays/GAC-MAC_2006/GAC-MAC_2006.htm .



Field Trip B4. Syenite veins cutting gabbro, Mt. Royal. Group photo atop Mt. Royal (N. Eby).

So this is the last issue of Ashfall that I will put together, at least for the foreseeable future. It has been a pleasure to serve the VIP division as Secretary-Treasurer for the past five years. Of course, I plan to stay involved in VIP affairs, so you haven't gotten rid of me yet...

Have a great summer!

Brian Cousens, Editor

As of July 1st, 2006
Submission to Ashfall should be sent to:

Pete Hollings
Lakehead University
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