ASH FALL

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

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Hi everyone, and welcome back from the bush! I hope that everyone had a great summer, saw some spectacular rocks, and is looking forward to working up the results over the next few months! Hopefully we will get to hear about it at Halifax 2005, so get your abstracts ready.

So, heard about any volcanoes in the news lately????????? I'm no fan of the TV show, Survivor, but for those who don't know the latest installment of the "reality" TV program is situated in Vanuatu. The opening clip for Episode 1 was pretty spectacular – Jeff Proebst, the host, gave an introduction to the show while standing on the edge of a crater belching steam and ash! Very cool – but I wonder if anyone told Jeff that it was a bit dangerous?

Each episode includes several clips of mild eruptions, such as the two on the following page. My wife loves the show – I just love the scenery!

Besides the volcanoes of Vanuatu, there has been lots to pay attention to on the west coast of North America: Yes, Mt. St. Helens is active again, and the photography has been terrific. Both Associated Press and the Seattle Times have kept a good photo library of the recent eruptive activity, as has the Cascade Volcano Observatory. Gotta love the webcam! Like many of you, I'm in the middle of teaching igneous petrology in my Introductory Geology class, so the timing of this eruptive activity was perfect.

Photo by USGS personnel installing GPS unit of Mt. St. Helens steam and ash eruption, October 2004. Photo courtesy of Scott Hassler.

So what else is going on in the Volcanology and Igneous Petrology world? Read on!

The Changing Of The Guard: Your New VIP Executive

President: *Wulf Mueller*, Université du Québec à Chicoutimi
Vice-president: *Jarda Dostal*, St. Mary's University, Halifax
Secretary-Treasurer: *Brian Cousens*, Carleton University, Ottawa

Message from the President

This year is the changing of the guard, with former president John Stix now on a well deserved sabbatical in Wales. John headed the division for three years in a sound and professional manner. Thanks John, great working together with you, and all the best on your sabbatical. The new VIP-counsel has the following constellation with me, Wulf Mueller, heading the division, Dr. Jarda Dostal as new vice-president, and Dr. Brian Cousens, who saved us by continuing on as secretary-treasurer. Our aim is to continue on serving the geological community, especially those active in physical volcanology and igneous petrology by diffusing new information concerning relevant meetings or conferences of national and international calibre, inviting geoscientists to participate on VIP-sponsored excursions at GAC-MAC, and keeping you informed of the winners of the Gélinas medals, which as you know, highlights the top academics in our field at the PhD-, MSc- and BSc-levels. It is this new dynamic generation that we must foster, because they represent the future and will improve our renommée. Also, and this has lagged somewhat behind, Ashfall is our medium to make intentions and research collaborations known, so all us should use this efficient (and inexpensive) way of disseminating our ideas. Ashfall presents our interests and should be used to our advantage. Any news in our division should be published- remember publish or perish!! Ashfall can be easily disseminated to other foreign colleagues who might not be aware of certain interesting excursions, so let's optimize our use of Ashfall.

I hope many of you will be present at Halifax, the site of the next GAC-MAC-meeting in 2005. WE need more input from our membership, and to do this a meeting like the GAC-MAC is the best venue. In addition, VIP-sponsored excursions are great loci to interact in a casual way with colleagues, while being eaten alive by bugs, a natural OIC non-sanctioned supplement. For 2005 for example is would be great to have a strong turn out for the following excursions at the Halifax GAC-MAC meeting "Volcanology of the Jurassic North Mountain Basalt" organized by Dan Kontak, John Greenough and Jarda Dostal, and " Accretion of peri-Gondwanan terranes, northern mainland Nova Scotia and southern New Brunswick" organized by Sandra Barr, Susan Johnson, Brendan Murphy, Georgia Pe-Piper, David Piper and Chris White. The next GAC-MAC meeting is in Montreal and we must start considering special sessions and excursions. So in order to motivate people, I guess I should set an example. At the next Halifax VIP session, as proposed at the St Catherine's GAC-MAC meeting, I would like to conduct a special session and excursion on the physical volcanology of komatiite and komatiitic basalts in the Abitibi greenstone belt. The special session would be on a world-wide basis. I would like to have this overlap whereby the field excursion compliments the special session.

There is certainly room for more volcanological excursions in the Abitibi greenstone belt and Eastern Townships: new suggestions are welcome and solicited.

Wulf Mueller

Your outgoing 2001-2004 Executive at the VIP meeting in St. Catharines: from left to right, Wulf Mueller (VP), John Stix (Prez), and Brian Cousens (Sec-Treasurer).

A Brief Blurb on the New Exec…..

President, Wulf Mueller

Wulf Mueller has been working primarily in Precambrian terranes such as the Abitibi and Wabigoon Subprovinces of the Superior Province, and the Slave Province, for the past 20 years with special emphasis on volcanic-sedimentary processes and sequences. Other study areas include the Paleoproterozoic Ketilidian Mobile belt of Greenland and the Neoproterozoic Gariep belt of Namibia and South Africa. Recent studies include low-volume, subaqueous eruption-fed density current deposits from Surtseyan-type eruption (Ketilidian Moible belt and Gariep belt), but also subaqueous felsic fire-fountaining eruptions (Abitibi greenstone belt). Apart from explosive subaqueous volcanism, new work includes the physical volcanology of komatiites in discrete flow fields, and bimodal volcanism in Archean strike-slip basins. A common

misconception of Archean volcanology is the poor preservation and high degree of deformation but in contrast many of the sequences are very well preserved. Dr. Mueller hopes to convince participants at the 2006 GAC-MAC meeting and associated field excursion on komatiites that 'old can be good'.

Vice President, Jarda Dostal

Jarda Dostal is a specialist in the geochemistry of volcanic rocks, and has worked on volcanic rocks of a variety of ages in Africa, both coasts of North America, Greenland, Mexico, French Polynesia, and Sardinia. Dr. Dostal manages the superb geochemistry facility at St. Mary's University.

Secretary-Treasurer, Brian Cousens

Brian Cousens is a radiogenic isotope specialist and igneous petrologist, and has worked in a variety of modern volcanic settings, including Hawaii, the Canary Islands, the northern Juan de Fuca Ridge, Gulf of Alaska seamounts, and the southern Cascade Range. He also enjoys investigations of older volcanic and plutonic sequences in Nunavut and the Northwest Territories, where he gets an impression of the applicability of modern volcano models to ancient sequences. Much of his work includes evaluating the origin of ore deposits and the mobility of heavy metals in the hydrosphere.

Wulf Mueller mapping in the Koivib Mountains, Namibia, summer 2004.

Brian Cousens at the summit of Mt. Etna, Sicily, spring 2004.

2004 GAC-MAC Annual Meeting, Brock University, St. Catharines, On.

The 2004 GAC meeting was not a huge gathering point for VIP members, unlike Vancouver'03. The highlights included successful Short Course and session on infrared spectroscopy in the Earth Sciences and a special session on the Grenville Province.

The VIP annual meeting was poorly attended – just seven souls. A summary of the meeting is as follows:

New Business:

Halifax 2005: special session on "rift-related magmatism"; field trip to North Mountain basalt

Montreal 2006: proposed session topics – International Ocean Drilling Program in Canada; alkaline rocks; anorthosites; greesntone belts; komatiites (plus field trip)

Yellowknife 2007: proposed session topics – kimberlites; greenstone belts (and field trip?)

Geoscience Canada VIP series: 2 papers published, 1 in press, 1 submitted, 10 yet to be submitted.

Volcanological Photos CD-ROM collection: ready for Sept. 1, 2004.

Financial Report:

2003 Volcanology and Igneous Petrology Financial Summary

2003 Financial Report	Balance	Credits	Debits
Opening Balance January 2003	3383.71		
Dues		822.00	
Publication Sales		65.97	
Ash Fall Newsletter (copy, postage)			8.76
Gelinas Medal boxes, engraving			207.58
Bank Charges			48.00
Totals		887.97	264.34
Closing Balance December 2003	4007.34		

Please note the significant balance in the bank: if you have a good idea as to how to spend this money to the benefit of the overall membership, please contact Brian Cousens.

Gelinas Medals:

2004 Léopold Gélinas Gold Medal awarded to Alison Rust, citation by John Stix

I am pleased to award the 2004 Léopold Gélinas Gold Medal for best Ph.D. thesis in volcanology and igneous petrology to Alison Rust, University of Oregon, for her thesis entitled, "Viscosity, deformation, and permeability of bubbly magma: applications to flow and degassing in volcanic conduits".

In her thesis, Alison addresses many fascinating and related topics of magma degassing and bubbly magmatic materials. She first conducted a set of experiments to examine bubble behaviour in shear flows. In a second set of experiments, she developed expressions for viscosity at variable rates of shear. She then applied these experimental data to deformed bubbles in obsidian, in order to predict the shear regime of magma flow. In a complementary fashion, she measured volatile contents in obsidian from pyroclastic deposits, demonstrating that this obsidian forms by shear at conduit walls. She also presented an elegant case history of degassing at Newberry volcano in Oregon during its most recent eruption 1,300 years ago. Finally, she extended this work on conduit flow and degassing to develop a flow-induced mathematical model of volcanic tremor.

I think you will agree with me that this thesis represents a massive amount of highly original, quite diverse, yet complementary work. Please join me in congratulating our 2004 Gélinas Gold Medal winner, Alison Rust.

2004 Léopold Gélinas Silver Medal awarded to Crystal Mann, citation by Brian Cousens

It is a great pleasure to award the Silver Medal for the best M.Sc. thesis of 2003-04 to Crystal Mann of McGill University for her thesis "Intracaldera geology of the Ilopango caldera, El Salvador, Central America". Crystal reconstructs the history of Ilopango Caldera by examining the geology of the caldera interior. Most of the rocks were emplaced under subaqueous conditions, implying that a caldera lake existed for an extended pereiod of time. One unit undergoes a progressive change from explosive to effusive volcanism under subaqueous conditions. TRhe geochemical evolution of the rocks do not evolve towards more silicic compositions with time, but arte buffered at a dacitic composition by recharge of more mafic magma. The evidence of magma recharge plus the continued presence of the lake suggest that future eruptions will be largely explosive in nature. The capital city, San Salvador, is situated next to the lake, and thus the caldera is a significant hazard. In addition to her thesis work, Crystal has been actively developing a program of public education on volcanic hazards in the area (see Ashfall 57). On behalf of the VIP membership, congratulation to Crystal on a superb job.

2004 Léopold Gélinas Bronze Medal awarded to Marc-Antoine Longpré, citation by Wulf Mueller (citation lost)

B.Sc. thesis title: "Ground deformation, seismicity, and pit crater collapse associated with the November 2002 eruption at Piton de la Fournaise volcano, La Réunion

Island." Congratulations to Marc-Antoine on his B.Sc. thesis work, and best of luck in the future.

Please note that a list of all past Gelinas Award winners is kept on the GAC website.

New Officers: Wulf Mueller is new President, John Stix is new Past-President. Many thanks to Georgia Pe-Piper who steps down as Past President.

Other business: VIP archive files will be sent from Ned Chown in Kingston to Brian Cousens in Ottawa.

Congratulations to Shannon Johns, Herb Helmsteadt, and Kurt Kyser of Queens University for winning the Silver Jerome Remick poster award at the 2004 GAC-MAC meeting! Great job!

Meeting Closed at 1:30PM. See you in Halifax!

Upcoming Halifax 2005 Events!

During the GAC-MAC-GSPG Halifax 2005 meeting in May 2005, the VIP Division is organizing/sponsoring a Special Session (SS-1) entitled "Rift-related Magmatism and Associated Mineralization". The session will focus on various types of magmatic activities which are related to rifting, including those associated with the opening of the Atlantic. It will deal with magma generation, magma evolution, lithospheric interaction, intrusion mechanisms, volcanism and mineralization associated with these magmatic processes. Both oral and poster presentations are welcome. Organizers are J. Dostal, D. J. Kontak and J. D. Greenough. The session is complemented by the "North Mountain Basalt" field trip.

Carleton University Fourth-year Field Camp: Active Volcanoes of Southern Italy

(article from "Carleton Now" research newsletter, June 2004)

There are few ways to better cap off an undergraduate degree than with molten lava. For students in the Earth Sciences program at Carleton, this year's fourth-year Field Geology course gave them precisely that opportunity.

Each year students can register in the course which will take them out of the textbook, beyond the classroom, and into the field that truly brings their subject to life.

This year the students, along with Earth Sciences Professor Keith Bell and Adjunct Professor Brian Cousens, traveled to Italy where they met up with a group of Italian university students and their professor to explore active volcanoes in Sicily, the Aeolian Islands and Pantelleria. While on one of the volcanoes, Stromboli, Bell shared many of their adventures with CBC Radio's All in a Day.

In previous years, students have visited California, Hawaii, Arizona, and France, to

name but a few locations.

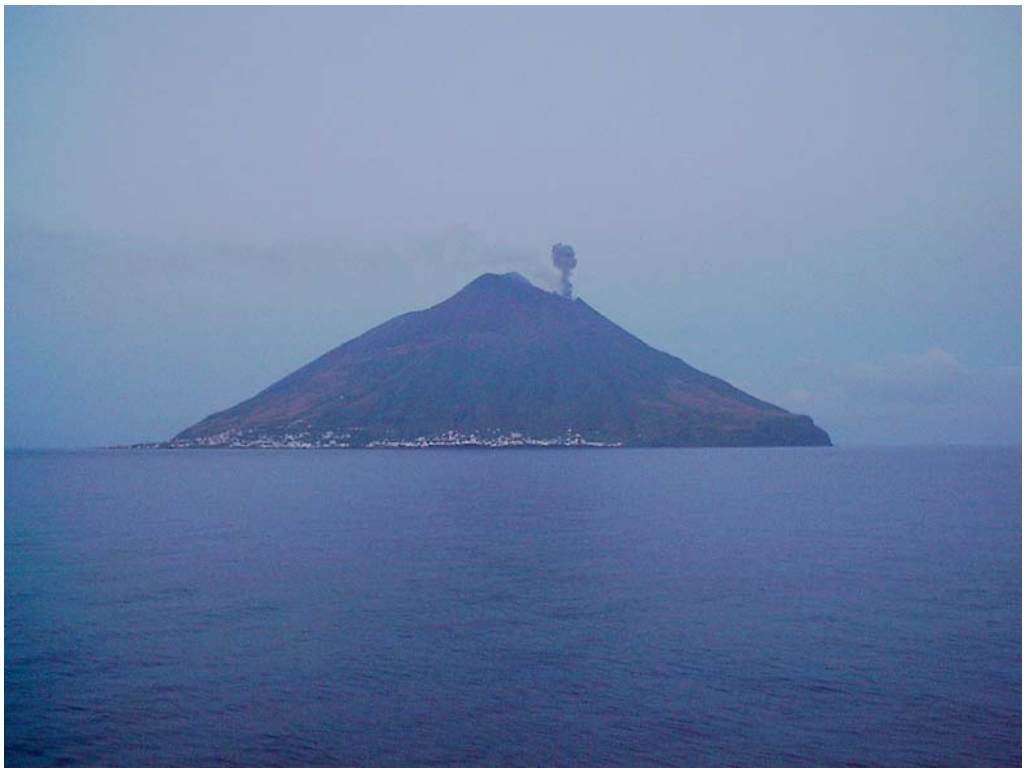
"It was great hands-on experience," says Tim Brownrigg, one of the students who was on the trip. "It let's you see what you've been talking about."

For Brownrigg, the highlight of the trip was climbing to the top of Mount Etna, the largest volcano in Europe. But that wasn't all, says Brownrigg. "To see boiling hot magma spewing out, that was surprising," he says (see photograph below). The students' safety was never at risk, however, as they were accompanied by experienced guides.

Although students were evaluated on field notes and oral presentations, Brownrigg says a physical test would not have been completely out of order.

"There was a lot of climbing," he says emphatically. "We had some eight-hour climbing days. My endurance is definitely a lot higher."

Bell, who organized the trip along with a counterpart at the University of Chieti, says this trip was one that would be the envy of most professional geologists. Although Bell has taken students abroad before, this was the first time it was combined with another university. "The interaction between the Italian and Canadian students added a great deal to the trip," he says. This was the last trip for Bell, who will retire at the end of the month.



Our first view of Stromboli on the ferry from Naples at 5:30AM. Photo by Brian Cousens.

The Carleton-Chieti group on hydrothermally altered tuffs, Lipari. Photo from Brian Cousens.

Remember, this is YOUR newsletter! Please send any contributions for the next issue of Ashfall to:

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