



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

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Hello all! The annual GAC-MAC meeting is fast approaching, and that means that the once-a-year annual VIP lunch and business meeting is a do-not-miss item to mark on your (busy) calendars. Besides finding out what the exec has in mind for new projects over the next couple of years and checking on the progress of old ones, there is the lunch that is paid for out of YOUR DUES – so be sure to attend and speak your mind.

In the meantime, it has been a lousy winter for the eastern half of this country, and I for one am really happy to see the end of the snow in Ottawa. I hope that it stops blizzarding in Halifax before GAC-MAC, otherwise we will all need brooms to clean off the outcrops on the field trips!

I took advantage of not teaching this semester to take a winter vacation to –where else? – Hawaii in early March. Along with my wife, Caroline, and two friends, we left Ottawa in a snowstorm for two weeks on Maui and the Big Island. Although it has been a relatively wet winter in the islands, we had spectacular weather. It has been wet enough that there was snow capping Mauna Kea AND Mauna Loa, a first for me.



Here are two views of the Big Island from the top of Haleakala volcano. The photo on the left shows both Mauna Loa (right) and Mauna Kea (left), whereas the photo on the right is a telephoto image of Mauna Kea as seen through a notch in the crater wall atop Haleakala. Note that the top of Haleakala is about fifty miles from Mauna Kea.

Of course, Kilauea is still leaking into the ocean and Mt. St. Helens decided to puff some steam and ash while I was on the islands. Unlike politicians, there *some* things that you can have faith in.....

PRESIDENTS MESSAGE

Well the new executive has now worked together for almost one year and things are progressing well. For one, the VIP-website has been revamped thanks to the excellent conceptual work of Marg Brazil (GAC- headquarters). Thank you Marg, you are an ace! The VIP counsel hopes to see you in numbers at our annual meeting, this time in Halifax. The meeting is on Wednesday 18th May at 12:15PM (details are below). The luncheon is free of charge. It is important that many attend because we have quite a heavy agenda this year, and should discuss new avenues of making us more known to the international community. Also this year we have to vote for new section councilors, and if you can't come and vote, please send a message via one of your colleagues or an e-mail to the VIP executive. The more input from our members the better the VIP counsel can represent you: participation is the word!

Wulf Mueller

HALIFAX 2005

I hope that many of you are planning to attend the upcoming GAC-MAC meeting in Halifax. There are several sessions and field trips of interest to igneophiles, such as:

Symposium SM-1b: From Magmas to Massive Sulphides - The North Atlantic Perspective (part of the North Atlantic Minerals Symposium)

Symposium SM-3: Contaminated Granites

Symposium SM-4: From Cratons to Carats: A Symposium to honour the Career of Herwart Helmstaedt

Symposium SM-6: Early to Mid-Proterozoic Crustal and Lithospheric Evolution - The Dawn of Modern-day Tectonics

Special Session 1: Rift-related Magmatism and Associated Mineralization

Special Session 6, Part 2: Thermochronology, Application of High Temperature Studies to Tectonic and Crustal Evolution

Special Session 17: Partial Melting and Its Role in the Evolution of Mountain Belts

General Session GS-4: Igneous Petrology, Volcanology and Metamorphic Petrology

Short Course 2: Thermochronology: new advances and applications to geoscience

Field Trip A-1: Contamination in the South Mountain Batholith and Port Mouton Pluton, southern Nova Scotia

Field Trip B3: Volcanology of the Jurassic North Mountain Basalt, Nova Scotia

Plus lots more to keep you busy for a week – not including catching up with old friends over a pint or two!

VIP ANNUAL GENERAL MEETING

The annual VIP General Meeting will be held on Wednesday, May 18th, at 12:15PM, in the Milligan Room on the top floor of the Life Sciences Building, Dalhousie University. Please note that we will be discussing how your dues are to be spent over the next few years, so come and have your say. In addition, many positions within the VIP organization are now open, and we will be recruiting new volunteers to fill these positions. Students, note that this is a free lunch, so don't be bashful.....

FINANCES

The VIP Division is in excellent shape financially – which means that we need to consider how to better invest our finances to promote the VIP community. This is why it is important for members to attend the upcoming Annual Meeting in Halifax. Below is the Financial Report for 2004.

GAC Volcanology and Igneous Petrology Division 2004 Annual Financial Report		
Opening Balance:	4007.34	
	Credits	Debits
Dues	684.00	
Publication Sales	170.36	
Annual Mtg		512.90
Ash Fall newsletter		34.79
Office/postage/photocopying		159.54
Award Medal		
Engraving		159.86

Bank Charges		47.40
Total	854.36	914.49
ClosingBalance	3947.21	

NEW AND IMPROVED VIP WEBSITE

Hopefully, a few of you take the time every now and then to visit the VIP website. The website has been maintained by Kelly Russell at UBC for many years, but Kelly has already paid his dues in terms of working on the VIP executive and it was time to take this task off of his hands. The VIP website is now hosted on the GAC server in Newfoundland, and you can now check us out at gac.esd.mun.ca/VIP/ (note no “www” preceding the address) or via the link on the main GAC website. Many thanks to Kelly for keeping up the website for all these years, with no recognition, and kudos to Marg Brazil in St. John’s for working so closely with Wulf Mueller to produce the spectacular new web site for the division.

MEMBERS IN OUR SPOTLIGHT

In this issue, we profile three VIP members; Derek Thorkelson at Simon Fraser University, Ian Coulson at the University of Regina, and Charlie Harper of Saskatchewan Industry and Resources.

Research Profile – Derek Thorkelson

Department of Earth Sciences, Simon Fraser University

Derek Thorkelson uses field methods in combination with petrology and geochronology to study igneous complexes and tectonic assemblages. His graduate work (MSc UBC, 1987; PhD Carleton U, 1992) focused on the petrology and tectonics of Mesozoic volcanic successions and accreted terranes in the Canadian Cordillera. While at Carleton, Derek also became interested in ridge-trench interactions and wrote the first in a series of provocative papers on slab windows. After a brief NSERC postdoctoral fellowship at UBC, Dr. Thorkelson accepted a position in 1992 with the Canada/Yukon Geoscience Office (now the Yukon Geological Survey, YGS). From his new base in Whitehorse he led a four-year regional mapping program on Proterozoic assemblages in northern Yukon. In 1995, he accepted a faculty position at Simon Fraser University (his present employer) where he turns undergraduate and graduate students on to the pleasures of field geology and creative geoscience.

Derek’s research program is split between the Proterozoic geology of western Canada (in cooperation with YGS), the Cenozoic evolution of the Cordillera (in conjunction with the Pacific Centre for Isotopic and Geochemical Research, UBC), and the structural and petrologic effects of ridge subduction (in cooperation with ridges and trenches worldwide). Two of his most recent contributions include a theoretical treatment of slab anatexis, “Partial melting of slab window margins: genesis of adakitic and non-adakitic

magma” (with K. Breitsprecher; *Lithos*, 2004), and a synthesis of his research in Yukon, “Early and Middle Proterozoic evolution of Yukon, Canada” (with J.G. Abbott, J.K. Mortensen, R.A. Creaser, M.E. Villeneuve, V.J. McNicholl, and P.W. Layer, *CJES*, in press). His current students include Ryan Ickert, Christa Sluggett and Dejan Milidragovic. Ryan is working on Eocene low-HREE volcanic rocks in southern BC; Christa is studying Quaternary back-arc lavas in southern BC; and Dejan is investigating Neoproterozoic lamprophyres in northern Yukon.



Above, you can see the plain reality of Derek’s situation – being carried by his graduate students! From left to right: Ryan Ickert, Julianne Madsen, Katrin Breitsprecher and John Laughton.

Research Profile - Ian Coulson

Associate Professor, Solid Earth Studies Laboratory
Dept. of Geology, University of Regina.

My research focuses on investigating the nature and origin of alkaline rocks through field and laboratory study. Current field areas include a group of petrologically zoned, Triassic-Jurassic alkaline plutons located within the Stikine and Quesnel Terranes of British Columbia; alkaline intrusions from the Proterozoic Gardar Province of southern Greenland, and Mt. Etna volcano, Italy.

At present, I have two M.Sc. level students working on related projects: Ms. N. MacLean, is studying the compositions of products from the recent 2001 and 2002/3 eruptive cycles of activity at Mt. Etna. Her work will aid in our overall understanding of the volcano’s evolution and will provide insight into the form and operation of the magmatic plumbing system (i.e., its inflation, eruption-related evacuation and replenishment of the magma-reservoir system). Ms. M. Cliveti will begin her studies in the new year and will utilise high-resolution Cathodoluminescence to investigate the evolution of Etna’s lavas with the aim of providing further insights into the working of the sub-volcanic magma chamber.



Above is a shot of my grad student, Natalie Maclean, one of our guides, and myself (from left to right) looking at the presently active south east crater, the summit area of Mt. Etna (taken in the summer of 2003).

Research Profile - Charlie Harper
Project Geologist
Saskatchewan Industry and Resources

In 2000 the Saskatchewan Geological Survey began a multi-year, multidisciplinary, multi-agency project, the Phelps Lake Project, (for which I was the project manager) in the far northeast corner of the Province. Following completion of a multiparameter airborne geophysical survey in 2000, in partnership with the Geological Survey of Canada, we carried out bedrock and surficial mapping and mineral deposit studies during the summers of 2001, 2002 and 2003. These were augmented by geochemical and geochronological and isotopic studies through 2004 and are nearing completion. The main objectives were to update the geological database of a very poorly understood part of the Precambrian Shield and assess the mineral potential of the region. This information is to be used to make recommendations on the future status of a Restricted Areas Network (RAN) site which had been proposed for this corner of the Province.

As part of the bedrock geological mapping component we were able to examine the southwest end of what was previously referred to as the Ennadai-Rankin Greenstone Belt. In northeast Saskatchewan, the supracrustal component of this Archean belt was called the Ennadai Group. The group consists of an older, ca. 2.73-2.7 Ga, predominantly tholeiitic mafic volcanic sequence and a younger, ca. 2.68 Ga, predominantly felsic calc-alkaline sequence. The older sequence contains minor felsic volcanic rocks and interlayered psammopelitic, pelitic, and banded iron formation, along with syn-volcanic mafic to ultramafic dyke and sill complexes and possible komatiitic basalts. The younger

sequence contains minor intermediate to mafic volcanic rocks, banded iron formation, and pelitic rocks. Both sequences have potential to host gold and base metal occurrences and confirmation of komatiitic rocks will bode well for Cu-Ni potential.

In addition to the main belt, where metamorphic grades were typically upper greenschist to lower amphibolite facies and primary features were commonly well preserved we were able to trace these rocks into their upper amphibolite to granulite grade equivalents. We also examined many smaller structural keels of middle to upper amphibolite grade equivalents across the region. One such area provided the focus for a BSc Honours thesis by S. Rainville, University of Regina, on the petrology and geochemistry of Ennadai equivalent amphibolites.



The photo above shows the younger felsic dominated sequence exposed on a ridge along with some intermediate volcanoclastics. The felsic rocks stand out very well.



Like most greenstone belts, the mafic volcanic rocks include beautiful examples of pillow lavas.

Research Profiles: If you have a hot new project in igneous petrology or volcanology that you would like to share with the rest of the VIP community, please contact Jarda Dostal or Brian Cousens. We would love to hear from you!

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