

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

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From the President

I hope that everyone had a great summer and I also hope you are having a wonderful fall! I would like to briefly summarize, particularly for those who could not attend the annual meeting in Quebec City, the activities of our division over the past year.

As usual, most of our divisional activities centred on the GAC/MAC annual meeting. This year, in Quebec City, the division sponsored a short course entitled “Submarine Volcanism and Mineralization: Modern through Ancient”. The aim of the course, organized by Brian Cousens and Steve Piercey, was 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). This two-day short course included a day of lectures with a second-day field trip to the Thetford Mines ophiolite. The past-chair of the division, Wulf Mueller, together with his colleagues from UQAC, Réal Daigneault, Vital Pearson and Damien Gaboury, ran a four-day field trip dealing with effusive and explosive subaqueous volcanism in the Abitibi greenstone belt. The trip focussed on the recently discovered Blake River Megacaldera complex with subaqueous mafic pyroclastic deposits as well as significant intrusive-effusive units that help define the various caldera-forming events.

In addition, at the GAC/MAC annual meeting, the division sponsored three special sessions: “Anorthosites to Rapakivi Granites: a Tribute to the Career of Ronald F. Emslie” organized by Mike Hamilton, James Scoates and Tapani Rämö (University of Helsinki), “Effusive and Explosive Volcanism” led by Wulf Mueller and John Stix, and finally, “Bimodal Magmatism: Petrogenesis and Tectonic Setting” organized by Brendan Murphy and me. All these events were well attended.

The highlight of the business meeting was the distribu-

tion of the divisional awards. The 2008 Career achievement award in recognition of the lifetime scientific contribution to the discipline went to Sandra Barr. The Gelinias Gold medal for the best PhD thesis in Volcanology and Igneous Petrology was awarded to Yana Fedortchuk (University of Victoria-Dalhousie University; supervisor Dante Canil) for her thesis entitled “Emplacement conditions of some Lac de Gras kimberlites and their effects on the resorption of diamonds” while the winner of the Gelinias Bronze medal for the best BSc thesis was Kristy-Lee Beal (University of New Brunswick; supervisor Dave Lentz). Her thesis was entitled “The Zealand Station beryl (aquamarine) deposit, West-Central New Brunswick: mineralogical, geochronologic, and petrogenetic constraints”. During the meeting Dave Lenz was elected to the executive as Councillor East.

For many participants, the most lasting impression, other than the conference, may have been the splendour of Quebec City celebrating its 400 year anniversary.

The division has been busy with other activities as well. About one year ago, Patricia Corcoran organized “Archean Symposium 2007: A global comparison of Archean Terranes” sponsored by our division at the University of Western Ontario. The symposium included a two-day conference which was followed by a two and half-day field trip to the Abitibi greenstone belt led by Wulf Mueller.

Among other divisional activities, Georgia Pe-Piper is finishing editing a series of volcanology/igneous petrology papers for a special Geoscience Canada volume. Most papers were already individually published and the volume will be going to press shortly. Glyn Williams-Jones, a vice-chair of the division, is keeping our website continuously updated and in excellent shape (www.vip-gac.ca). Our primary informational tool for members of the division is our divisional newsletter, Ashfall. Pete Hollings is doing a great job of editing and publishing Ashfall three times a year.

However, he needs the help and support of members of the division to provide him with contributions. These contributions could include descriptions of research activities at the universities and government organizations, interesting research results, reports on field activities, reports on field trips particularly those run by universities, and any other similar topics. If you are interested in contributing, please email Pete at peter.hollings@lakeheadu.ca

Our division would like to see an increase in the mem-

Dynamic Taiwan: a researcher's delight in the South China Sea

J. Gregory Shellnutt

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Taiwan is one of the most geodynamic places on Earth situated between the passive margin of Asia to the west, the Ryukyu volcanic arc to the north, the convergent margin of Asia and the Philippine Sea plate to the east and is home to 23 million people. Currently in Taiwan active subduction, orogenesis, accretion, volcanism, orogenic collapse and passive margin formation are all ongoing along with frequent earthquakes, typhoons and tsunamis. In fact, while I was writing this piece typhoon Jangmei was making landfall at the same time as hurricane Kyle was reaching Atlantic Canada (28/09/08).

The geological and geographic disposition of Taiwan is the reason why the potential for geo-hazards is high. The Institute of Earth Sciences of Academia Sinica (AS) was established in 1973 as an earthquake monitoring facility which was expanded into a full geological and geophysical research institute to assess the potential geo-hazards of Taiwan. Academia Sinica is the umbrella organization which was originally founded in 1928 by the Republic of



Photo 1: Sitting on the Permo-Triassic boundary in Kashmir (NW India).

bership to promote and support volcanology and igneous petrology in Canada. Please pass the word on to your colleagues and students to become members (it is free for student GAC members!). Finally, I would like to thank all members who have contributed to the activities of the division and to Ashfall over the past year. Many thanks also to the Executive, especially Pete Hollings and Glyn Williams Jones whose hard work has kept the division run smoothly.

Jarda Dostal

China (ROC) as the preeminent research institute of China. After the Chinese civil war (1945-1949) many academics fled mainland China with the Kuomintang (Chinese Nationalist Party) to Taiwan and re-established AS in Taipei. Academia Sinica has 25 research institutes and six research

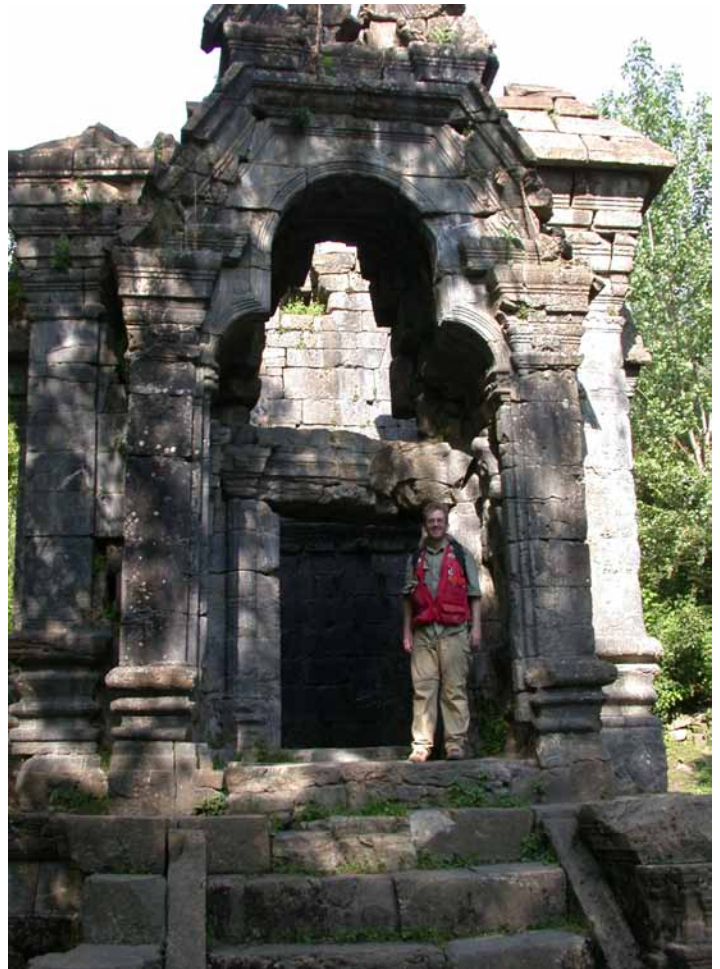


Photo 2: Standing next to 1300 year old Hindu temple made from limestone (Kashmir).

centres which cover physical, mathematical and life sciences and the humanities and social sciences. Unlike other research institutes or Universities in Taiwan, AS is directly responsible to the ROC President and thus has complete academic freedom to determine its own research initiatives. In other words, there are enough research funds available to research just about anything as long as it is warranted!

The Institute of Earth Sciences (IES) has grown over the years not only in geophysics, remote sensing and GPS



Photo 3: 2000 Year old Hindu temple made from Panjal traps flood basalt. Now being used as a military outpost.

studies but also in petrology, geochemistry and structural geology. Analytical equipment at IES includes TIMS, GSMS, MC-ICP-MS (Nu Plasma), Sector ICP-MS (Element II) and JEOL EPMA JXA-8900R. Also, IES has a research relationship with the Department of Geosciences, National Taiwan University, where complementary analytical facilities are available (e.g., XRF; Varian-MAT VG1200 mass spectrometer).

As a post-doctoral fellow, I have been able to develop new projects in India (Kashmir & Ladakh) and continue my work in SW China which is fully supported by IES. There is a concerted effort by the Taiwan government to maintain and improve output in all areas of research. Academia Sin-

cia is a world class research institute and it is well respected throughout Asia. International collaborations at AS are encouraged and many scientists from the EU, US, Russia, Japan, China and India are full time researchers or spend up to one year visiting. Taiwan is not the only place in East Asia where the Earth Sciences are receiving more attention. Korea has the BK21 program and China has been investing heavily in research infrastructure for more than a decade. The demand for commodities, geo-hazard assessment and high quality research is triggering a dramatic increase in geoscience research output. Just like Taiwan the geological landscape in Asia changing very quickly and it is very nice to be a part of something so dynamic.

Current Research

I am continuing my work in SW China on Permian Fe-Ti oxide deposits and have recently started two new projects in northern India. The first project focuses on the Permo-Triassic boundary and the petrogenesis and economic potential of the Late Permian Panjal flood basalts. The second project focuses on Middle Cretaceous volcanic-arc rocks within the Karakorum region of the Himalaya. Fieldwork was completed this past summer and our preliminary results will be available in 2009. A new project focusing on the Akiyoshi terrane of SW Japan is under development.

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Photo 4: Looking west along the Karakorum fault of the Himalaya in the Nubra river valley (Ladakh, NW India). The volcanic-arc rocks are ~20 km west and on the north side of the valley.

SFU Iceland Field School

Glyn Williams-Jones
 Department of Earth Sciences, Simon Fraser University

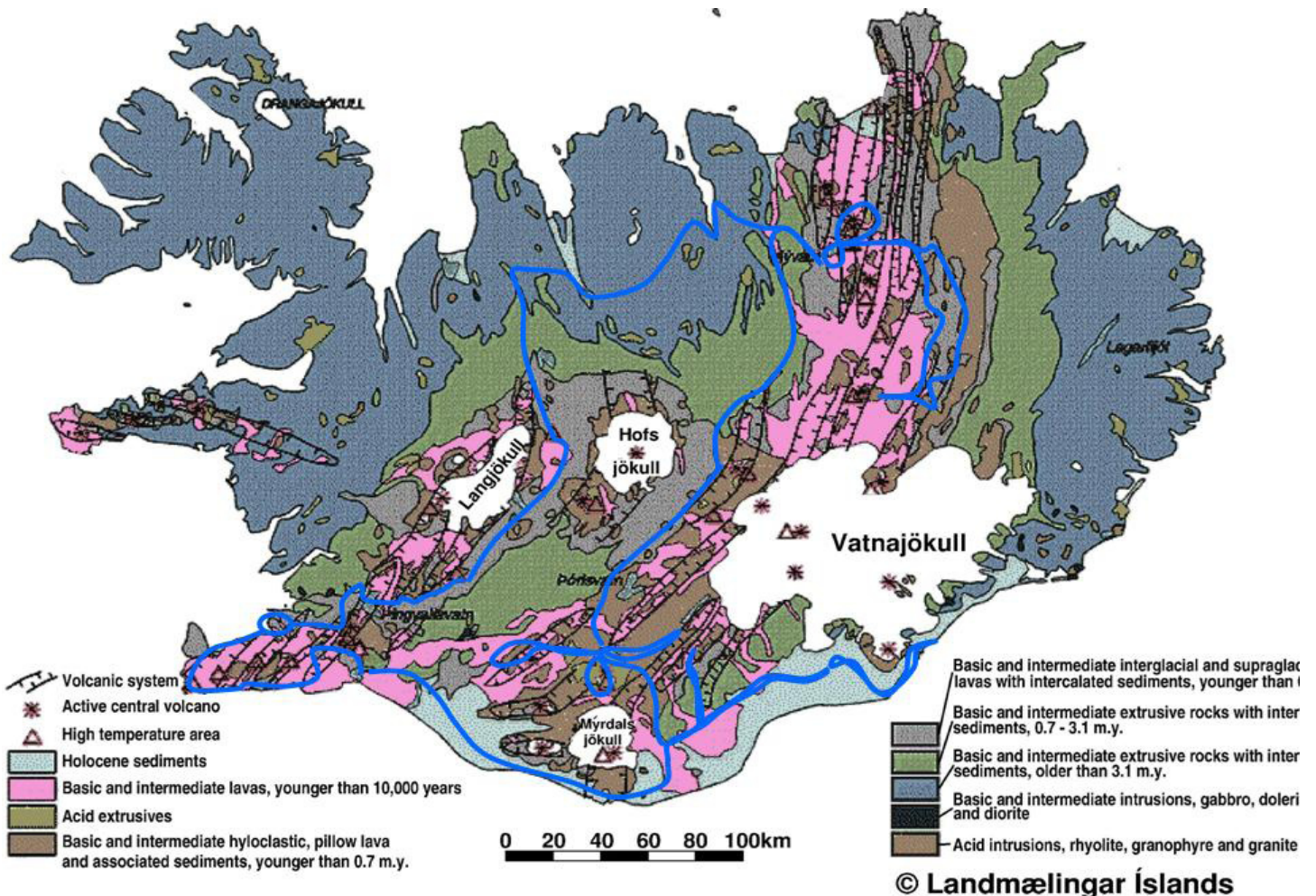
Ten Earth Sciences students from Simon Fraser University, accompanied by Gwenn Flowers and Glyn Williams-Jones, convened in the land of sagas, basalt and rotten shark for EASC 406 (Field Geology III) this August. The two-week student-led tour of Iceland took the group from the capital city, Reykjavík, around the country and through the interior highlands. Applying an academic twist to the pervasive “fire and ice” theme in Iceland, the group investigated sites of scientific significance related to subglacial volcanic features, central volcanoes, geothermal activity, magma-groundwater interactions, groundwater geochemistry, the Iceland mantle plume, seismicity in Iceland, glacial history and isostasy, and glacier outburst floods.

In addition to the planned itinerary constructed around sites proposed by the students, there were spontaneous daily lessons in geology offered by the landscape, as evidence of both solid earth and surface processes are on display in abundance across the country. Among these



Volcanic bomb found on the flanks of Hekla.

highlights were the discovery of a large and intact “bomb” on the flanks of the infamous Hekla volcano, juxtaposed chaotic and planar cooling features within a basalt section exposed in a rivercut, and massive flood deposits attributed to prehistoric subglacial outbursts that excavated some of the country’s largest canyons. Among the instructional methods tailored to the course this year were the evening



EASC 406 route (blue line) superimposed on geological map of Iceland.



Columnar basalt formations – entablature above colonnades

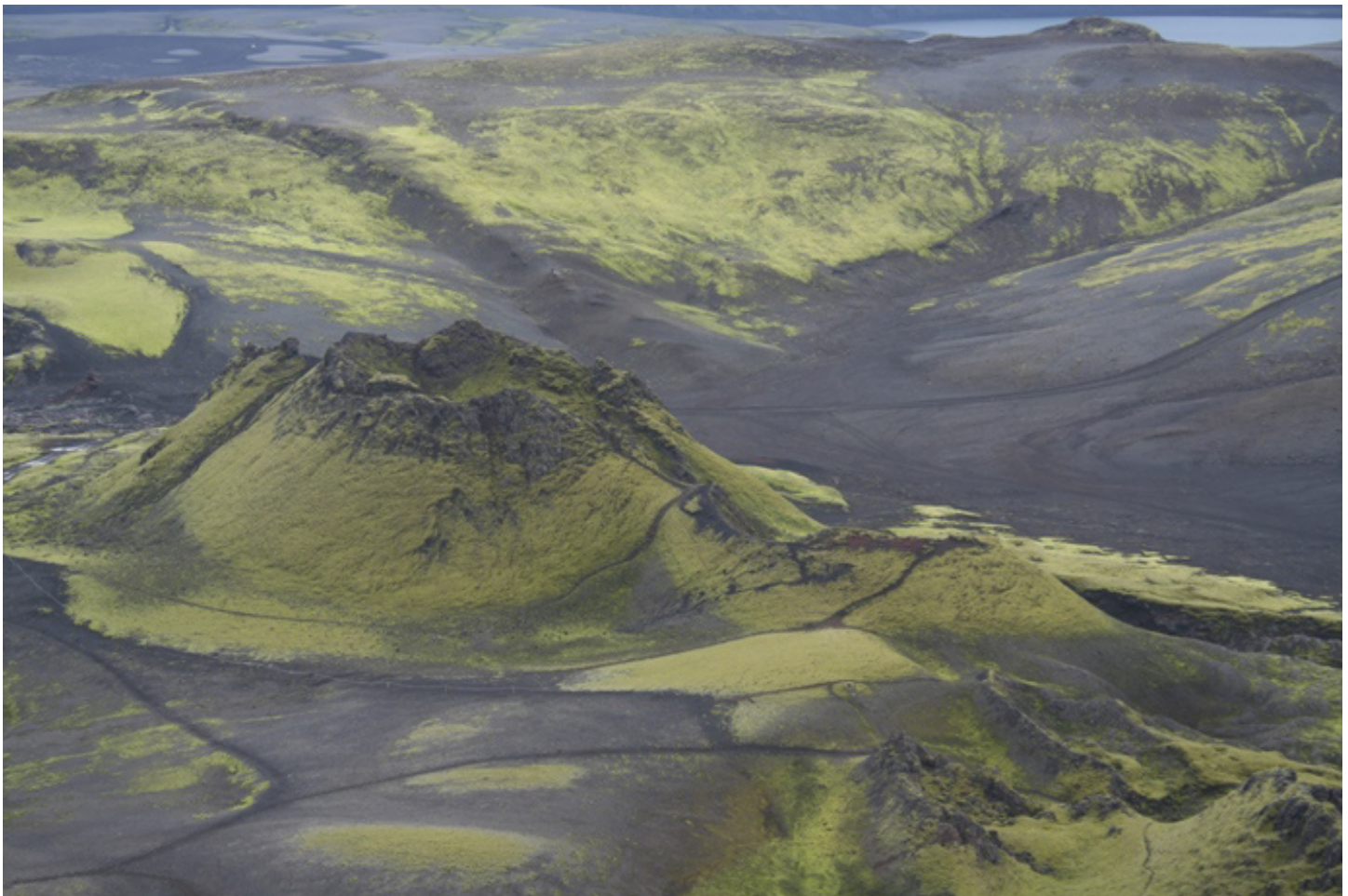
“debriefing” sessions, usually held in the local geothermal pool or hot spring, in which the group reviewed the day’s learnings until the water got too hot.

Though the itinerary was packed, the group set aside one evening for the cultural indulgence of a traditional Icelandic feast. Thanks to the resourcefulness of the bus driver, many of the traditional foods were collected along our route, including smoked leg of lamb, blood and liver pudding, singed sheep’s head, rotten shark, and pickled rams’ testicles. Shared in a traditional turf-roofed stone



EASC 406 students and instructors at glacier lagoon Jökulsárlón

shelter, this meal left many hungry for breakfast. Another of the trip’s pleasures was the unseasonably warm and calm weather, which afforded wonderful views on many occasions, including over the Laki fissure eruption site of 1783-4, at the glacier lagoon in front of Vatnajökull (Europe’s largest ice cap) where rapid isostatic uplift in response to glacier retreat is occurring, and over lake Langisjór where exceptionally low mantle viscosities have been inferred from shoreline tilting during isostatic rebound.



The site of the Laki fissure eruption.



Icebergs at Jökulsárlón



Lake Langisjór

Meeting Announcements

GAC/MAC 2009 Toronto 2009 Joint assembly



The GAC/MAC meeting for 2009 will take place as part of a Joint Assembly. The Joint Assembly will be a meeting jointly organized by the American Geophysical Union (AGU.) and Canadian geoscience associations, including the Geological Association of Canada (GAC®), Mineralogical Association of Canada (MAC), Canadian Geophysical Union (CGU), and International

Association of Hydrogeologists-Canadian National Chapter (IAH-CNC).

The meeting will last for four full days, one day longer than the usual GAC/MAC annual meeting, running from May 24 to 27, 2009.

For more details visit the [website](#)



Institute on Lake Superior Geology

The 55th Annual meeting of the ILSG will be held in Ely, Minnesota in May 2009 with field trips both before and after. Visit the [ILSG website](#) for more details.