

# February, 2010

## VGP Section Newsletter #39

Dear colleagues,

The first Volcanology, Geochemistry and Petrology section newsletter of the year brings you the announcement of the winners of the best VGP student presentations at Fall AGU, the latest set of VGP affiliated AGU Fellows and an update on some of the key issues discussed in San Francisco in December. However, before that, please note that the March 15th deadline for Union Medal nominations is fast approaching. The Kuno and Bowen award deadlines also are not too far away and will be in May.

Archives of newsletters and much more VGP-related information can be found at the VGP website (<http://vgp.agu.org>). Please provide any feedback to Sarah Fagents at [fagents@hawaii.edu](mailto:fagents@hawaii.edu).

In this issue:

- (1) Union Awards*
- (2) Key Issues from the AGU Fall Meeting*
- (3) Best VGP Student Presentations at the AGU Fall Meeting*
- (4) New VGP AGU Fellows*
- (5) 25<sup>th</sup> HKT Workshop, June 7-10, 2010*
- (6) VGP Sessions at the 2010 Meeting of the Americas, Brazil, August 8-13, 2010*

---

---

### *(1) Union Awards*

Please make every effort to nominate your colleagues. Instructions and eligibility criteria can be found at <http://www.agu.org/about/honors/union/nominations/>. Note the following:

1. We are woefully far short of nominating as many individuals as one might expect given the size the VGP membership.
2. It would be helpful to think broadly about which outstanding colleagues of various career stages might be good to nominate.
3. We would particularly like to see more early-career VGP individuals getting nominated for the Macelwane Award.
4. Please think globally about this; AGU awards are to recognise the most outstanding women and men scientists, and their science, from anywhere in the world.
5. If you are thinking of nominating individuals please get advice from John Eiler [eiler@gps.caltech.edu](mailto:eiler@gps.caltech.edu) (Macelwane) and Charlie Langmuir [langmuir@eps.harvard.edu](mailto:langmuir@eps.harvard.edu) (other Union Medals) who are soliciting nominations from the VGP community and may be considering the same persons.

### *(2) Key Issues from the AGU Fall Meeting*

Key issues arising from discussions at the Fall meeting for VGP members to note are as follows:

1. We want to build a stronger set of vehicles for engagement between the organisation and the membership of VGP. For example, we are proposing including more individuals at an early career stage on the VGP Exec. These could be both doctoral students and postdocs. We would like to hear your views on this so please email me ([alexh@earth.ox.ac.uk](mailto:alexh@earth.ox.ac.uk)) or Steve Sparks ([Steve.Sparks@bristol.ac.uk](mailto:Steve.Sparks@bristol.ac.uk)) directly. The workload should not be at all heavy.
2. Now that the AGU web page has been modernised and provided with far better functionality we need to consider what features we want to put in place for the VGP web pages in the future. We would like to hear your views on what would be of most use that does not duplicate the new

features appearing on the main AGU website. Please contact either Steve or me about this as well.

3. The Spring AGU meeting is being discontinued. The plan is to move all awards ceremonies (e.g. AGU Fellows) to the Fall meeting. We also plan to move the Daly Lecture to the Fall meeting.
4. We are considering what to do with our funds and one of the most attractive possibilities is to use them to jump-start a series of workshops around the time of the Fall AGU. Steve Sparks will be taking the lead with this initiative.

:

### **(3) Best VGP Student Presentations at the AGU Fall Meeting**

The VGP Education and Outreach Committee has identified the following as the best presentations by first-author students at the VGP sessions of Fall AGU meeting- 2009. There were a total of 425 first-author student presentations. Our thanks go to Larissa Dobrzhinetskaya and her colleagues for their hard work in evaluating these presentations. The winners are (3% of all evaluated presentations):

1. *Terence Blackburn*, MIT, Cambridge; (V52C-03: U-Pb Thermochronology of lower crustal xenoliths: creating a temporal record of lithosphere thermal evolution) Oral
2. *Sarah Brownlee*, University of California, Berkeley, Berkeley, CA; (41D-2200: Thermal history of the Ecstall, and Butedale plutons: 40Ar/39Ar thermochronology and thermal modeling) Poster.
3. *Kelsey Druken*, Graduate School of Oceanography, University of Rhode Island, Narragansett, RI; (V31D-2000: Three-dimensional laboratory modeling of the Tonga trench and Samoan plume interaction) Poster.
4. *Thomas Giachetti*, Laboratoire Magmas et Volcans, Université Blaise Pascal - CNRS, Clermont-Ferrand, France; (V13B-2019: Three-dimensional textural analysis of products from the Vulcanian explosions of Soufriere Hills Volcano, Montserrat, 1997) Poster.
5. *Christopher Hamilton*, University of Hawaii at Manoa, Honolulu, HI; (V23E-217: Explosive Lava-Water Interactions in Elysium Planitia, Mars: Constraints on the Formation of the Tartarus Colles Cone Groups) Poster.
6. *Christopher Helo*, McGill University, Montreal, Quebec, Canada; (V-21D-2029: High CO<sub>2</sub> in MORB - a link to explosive submarine eruptions?) Poster
7. *Rachel Lee*, Geology and Planetary Science, University of Pittsburgh, Pittsburgh, PA; (V13B2030: A High-Temperature Micro-Furnace for In-Situ TIR Spectral Analysis of Quartzofeldspathic Melts) Poster.
8. *Indira Molina*, Istituto Nazionale di Geofisica e Vulcanologia, Bologna, Italy; (V11B-1945: Fluid dynamic simulations of the convection at Erebus lava lake, Antarctica). Poster
9. *J. O'Neil*, McGill University, Montreal, Canada; (V13A-2000: Implications of the Nuvvuagittuq faux-amphibolite for the formation of Earth's early crust). Poster
10. *Maisie Nichol*, Dept. of Earth & Space Sciences, University of Washington, Seattle; (V23D-2113: Plenty of Deep Long-Period Earthquakes Beneath Cascade Volcanoes). Poster.
11. *V. Dorsey Wanless*, Department of geological Sciences, University of Florida Gainesville, FL; (V51A-1665: Geochemical Evidence for Crustal Assimilation at Mid-Ocean Ridges Using Major and Trace Elements, Volatiles and Oxygen Isotopes). Poster.

### **(4) New VGP AGU Fellows**

Once again AGU has announced a very impressive set of VGP scientists who will be honoured as Fellows at the AGU Fall meeting in December of this year. We extend our warmest congratulations to all of the following:

VGP Primary Affiliation:

***Richard J. Arculus***, Australian National University

*Hans Keppler*, Universität Bayreuth

*Steven B. Shirey*, Carnegie Institution of Washington

*Dominique Weis*, University of British Columbia, Vancouver

VGP Secondary Affiliation:

*Yingwei Fei*, Carnegie Institution of Washington

*Ed J. Garnero*, Arizona State University

*Bradley R. Hacker*, University of California, Santa Barbara

*Paul F. Hoffman*, University of Victoria, British Columbia

*Louise H. Kellogg*, University California, Davis

*Kevin D. McKeegan*, University of California, Los Angeles

*Scott M. McLennan*, State University of New York at Stony Brook

*Satish Chandra Singh*, Institut de Physique du Globe de Paris

*Joann M. Stock*, California Institute of Technology

*Clifford H. Thurber*, University of Wisconsin–Madison

I would like to thank Catherine McCammon and her colleagues on the VGP Fellows Committee for their hard work and attention to excellence.

***Please also start thinking about nominating your colleagues for the Bowen and Kuno Awards. The deadline will be in May.***

#### ***(5) 25<sup>th</sup> Himalayan-Karakoram-Tibet (HKT) Workshop, June 7-10, 2010***

For a quarter-century the Himalayan-Karakoram-Tibet Workshop has provided students of the India-Asia collision system a wonderful opportunity for workshop-style discussion with other colleagues working in this region. In 2010, HKT returns to North America for the first time since 1996. The 25th International Workshop will be held from 7-10th June at San Francisco State University, California - please mark your calendar and plan to attend!

<http://online.sfsu.edu/~leech/hkt25sf>

Pre-workshop field trip: 5-7 June 2010

HKT-25 workshop: 7-10 June 2010

NSF-sponsored workshop: 11-12 June 2010

#### ***(6) VGP Sessions at the 2010 Meeting of the Americas, Brazil, August 8-13, 2010***

The 2010 Meeting of the Americas will be held in Foz do Iguassu, Brazil, August 8-13. The Program Committee has developed a Union-wide science program that covers topics in all areas of geophysical sciences. Sessions of direct interest to VGP members are listed below. The abstract deadline is April 1. Further information can be found at <http://www.agu.org/meetings/ja10/index.php>.

##### **V01 Volcanology, Geochemistry and Petrology General Contributions**

Conveners Jose German Viramonte and Guilherme A R Gualda

##### **V03 Collisional Scenarios Related to Accretion Along the Western Margin of South America**

Convener Hans-Joachim Massonne

Description: South America is composed of old cratons and crustal fragments in the west, accreted to the continent, thus, being a natural laboratory to understand accretionary and amalgamation processes. In spite of recent work from Chile to Columbia it is not clear yet, how many and when such crustal fragments were accreted. Furthermore, the nature of the collisional setting and the mechanism still remain unclear. Interdisciplinary approaches may solve such questions, and therefore, geoscientists from all fields should gather to discuss new data and ideas to better understand terrane accretion along western South America

##### **V04 Layered Intrusions: Up and Down Inside a Volcano**

Convener Nikolai Bagdassarov

Description: Layered intrusions represent a time evolution of closed crystallizing magma bodies. Pressure, temperature, oxidation state as well as magmatic fluid regime are reflected in density stratification of magmatic minerals inside magma chambers. The session is aimed to discuss petrological field observations of mineral layering in various volcanic environments, numerical and laboratory modeling of sedimentation-floating processes in magma chambers on micro and macro scales.

### **V05 LIPs and Mafic Dyke Swarms of South America**

Convener Wilson Teixeira

Description: Continental flood basalts, volcanic passive margins, oceanic plateaux, mafic dyke swarms, as well as bimodal and dominantly felsic magmatism represent the largest known intraplate-type igneous episodes on Earth. The high-quality information content of Large Igneous Provinces (LIPs) record (precise ages and piercing points, trends, paleomagnetic poles) is critical in sorting out supercontinent configurations. With the importance and potential of LIP studies in mind, this session welcomes presentations on all aspects of the Phanerozoic and Precambrian LIP record of South America, including assessment of the broader global geodynamic implications.

### **V06 Magmatism and the Evolution of Andean Type Crust and Lithosphere**

Convener Suzanne Kay

Description: Mafic to silicic Andean magmas record the thermal, mechanical and compositional state of the subducting slab, mantle wedge and crust as the modern Andes have uplifted and the subducting slab below has shallowed and steepened. This session seeks contributions from petrologic and geochemical studies that use major, trace element and isotopic data from magmas and minerals as guides to arc magma production, the role of recycled lithosphere incorporated in the mantle wedge through lithospheric foundering and forearc subduction erosion, and the relative contributions of mantle and in situ crustal sources in Andean type magmas.

### **V07 Mantle Plumes in the Atlantic Ocean**

Convener Munir Humayun

Description: This session aims to attract geologists, geochemists and geophysicists, conducting research on the mechanisms of plume generation, ridge-plume interactions, plume source compositions and plume melting dynamics, for the diverse variety of plumes encountered in the Atlantic Ocean basin. This session encourages submissions regarding physical or chemical studies that contribute to our understanding of plume generation, including the recycling of subducted slabs, or other sources of mantle heterogeneity expressed in Oceanic Island Basalts (OIB), and processes involving the impact of OIB on the mid-oceanic ridge due to ridge-plume interactions.

### **V08 Medical Geology**

Convener Ahmet Umran Dogan

Description: Medical Geology deals with health hazard minerals, elements, and fine particulates in air, soil, and water. These minerals include regulatory asbestos group minerals such as crocidolite, amosite, anthophyllite, tremolite, actinolite, and chrysotile; however, recently other minerals (termed as non-regulatory) appeared in the literature as causing a malignant

mesothelioma, a rare but deadly disease. Erionite series minerals (erionite-K, -Na, -Ca) known to be the most carcinogenic minerals for humans. These minerals are under investigation by multidisciplinary researchers, and quantitative characterization will help identifying possible mechanism(s) of their carcinogenicity.

### **V10 Monitoring of Volcanic Gases and Their Atmospheric Interactions and Impacts**

Convener Lizette Rodriguez

Description: Observations of volcanic degassing are key to understanding magmatic processes, modulation by a hydrothermal system and lithosphere-atmosphere exchange. The measurement of volcanic gases has undergone significant advances in the last decade, with innovations both in the direct and remote measurements, including applications in Differential Optical Absorption Spectroscopy, satellite remote sensing, and electrochemical sensors, amongst others. This session wants to bring together those interested in all aspects of volcanic gas measurement to present their observations and interpretations and learn about recent advances.

### **V11 Monogenetic Volcanism**

Convener Miguel J. Haller

Description: Monogenetic volcanism – characterized by small, predominantly basaltic volcanoes – occurs either in intraplate settings or in association with larger, polygenetic volcanoes. Such volcanism commonly forms as clusters or fields of individual small volcanoes due to dispersed plumbing systems feeding discrete batches of magma to the Earth's surface. Monogenetic volcanoes form during single, relatively short-lived eruptions. This Session will address key questions pertaining to monogenetic volcanism integrating field, geochemical, geophysical and geochronological data to define and understand the evolution and transport of basaltic magma of small volume magmatic systems.

### **V12 New Developments in Non-Traditional Stable Isotope Geochemistry**

Convener Franck Poitrasson

Description: Studies of natural fractionation of non-traditional isotopes (i.e., everything but H, C, N, O, and S) have flourished over the past decade. Many newly discovered isotopic signatures are developing into tools that are being increasingly integrated into low- and high-temperature geochemistry research. This session will gather the 'non-traditional isotope geochemists' to highlight developments arising from advanced analytical techniques, theory, experiments, and applications. Topics of interest range from meteorites to planetary cores, mantles, magmas, waters, soils and biospheres.

### **V14 Understanding Magmatism: From Crystals to Provinces**

Convener Olivier Bachman

Description: Understanding magmatic systems requires combining information from a variety of disciplines (petrology, geochemistry, geophysics, geochronology), using a variety of approaches (from field work to modeling), and in a variety of scales (from individual crystals to entire provinces). This session aims to bring together researchers studying multiple aspects of magmatic systems. We are interested in (1) emphasizing the relationship between plutonic and volcanic rocks, (2) using mineral compositions to record magmatic conditions (3) unraveling the chronology of events, (4) using well-constrained modeling, and (5) exploring eruption triggers

### **U03 Flood Basalts and Mass Extinctions**

Conveners Vincent E Courtillot, Marcia Ernesto, Paul Renne

Description: Throughout geological time, several major mass extinction events are recognized. Among the most widely supported mechanisms is the emplacement of large igneous provinces, which are implicated in at least three of the most severe biological collapses recognized at the end of the Permian, Triassic, and Cretaceous Periods. However, the scientific challenge of explaining how massive volcanism impacted the biosphere so catastrophically is still open. This session welcomes papers aiming to discuss the mechanisms (or indirect effects) through which flood basalts can be associated with mass extinctions.

#### **U09 Thermal Regimes and Orogenesis from Archean to Present**

Conveners Marcos Egydio-Silva, Alain Raymond Vauchez

Description: Accretionary and collisional orogens have contrasting styles of metamorphism, and some orogens both ancient and modern display high thermal gradients that led to anatexis at shallow depth and to a low cooling rate suggesting a stable thermal structure over tens of My. Understanding secular evolution of mantle temperature, orogenic thermal gradients, cooling rates and their effects on the rheology of orogenic domains is critical to constrain geodynamic regimes. The session will advance understanding of metamorphic and orogenic processes by integrating data and models from field studies, geochemistry, geochronology, geodynamics, geophysics, petrology and tectonics.

#### **U10 Natural Hazards and Disaster Risk in Latin America and the Caribbean**

Conveners Alik Ismail-Zadeh, Ilya Zaliapin, Omar Cardona, Jaime Urrutia Fucugauchi

Description: The session is intended to contribute to better understanding of physical phenomena behind natural hazards and to disaster risk analysis in Latin America and the Caribbean region; it also will promote further research in an interdisciplinary framework focused on natural hazards, risk assessment and reduction. The session's topics includes geophysical hazard processes associated with risk and disasters in the region; analysis of disaster risk causes, drivers and impacts; understanding the factors and processes that contribute to the social construction of risk; and climate change adaptation and disaster risk reduction.