



## Volcanic and Magmatic Studies Group

February 2016 Newsletter (No. 30)

### Welcome to the first edition of the 2016 VMSG newsletter!

VMSG got off to a great start for 2016 with the hugely successful annual conference taking part at Trinity College Dublin. For those that could not attend the conference, this edition contains a summary of the proceedings along with many other articles and upcoming events of interest to the community.

### VMSG Conference 2016 - Dublin

By Emma Tomlinson

Trinity College Dublin hosted the 52nd annual meeting on 6-8th January 2016. The meeting attracted 170 delegates, mostly from the UK and Ireland but with a strong international presence from across Europe and as far afield as the USA and South Africa. The delegate gender balance was 55% male to 45% female. We had a perfect 50:50 split of students and senior researchers and students gave a third of the talks (16 of 50) and presented two thirds of the posters (53 of 80). The research presented had a geochemical and volatile flavour, reflecting the research interests within the Geology Department at TCD, but aimed to provide a platform for integrating geochemistry with experimental and geophysical research. Thus, we had sessions on LIPs and geochemical cycling in the mantle, new views on subduction zone magmatism, magmatic histories, the effects of volatiles on magmatism and volcanism as a hazard and an environmental agent. The word cloud logo was assembled from the submitted keywords.

Each day featured a keynote presentation, starting with our own Balz Kamber (Trinity College Dublin) speaking about the potential role of impact magmatism on the early earth, and continuing with Prof. Jon Blundy, (University of Bristol), who talked about magma buoyancy as a driving force behind artesian volcanic eruptions, and Prof. Guido Giordano (University Roma Tre) on the interplay between magma degassing and rheology. We were honoured to hear Prof. David Pyle (University of Oxford) give the 2016 Mineralogical Society Hallimond Lecture on understanding the environmental impacts of volcanic eruptions. The VMSG award was given to Yan Lavellée, who, in a first for VMSG, accepted his award live

from the field in Guatemala and also treated us to some drone footage of Santiguito activity.

In order to give posters greater prominence, poster sessions were held during extended lunch sessions with food being served in the poster area. In addition, we trialed 2-minute lightning talks for posters; this was a popular option and was taken up by 31 poster presenters.



Yan Lavellée accepts the VMSG award from Guatemala

### Student prizes

*Bob Hunter Prize for Best Oral Presentation* - Emma Liu (Bristol)  
*Runner Up* - Lois Salem (Cambridge)  
*Honourable Mentions* - Lawrence Percival (Oxford), Lauren Marshall (Leeds)

*Geoff Brown Prize for Best Poster Presentation* - Victoria Honour (Cambridge)  
*Runner Up* - Ben Clarke (Edinburgh)  
*Honourable Mentions* - Nathan Magnall (Lancaster), Martin Mangler (Imperial), Paul Wallace (Liverpool), Pamela Rattigan (Undergraduate, Glasgow)

### Other conference activities

On the social side, we showcased Trinity's beautiful and historic campus with a geology-themed campus tour (led by

Patrick Wyse Jackson) finishing at the Museum building. The museum building was also the venue for the icebreaker social. Jamesons Distillery provided the venue for the conference dinner. On the tour of the old distillery one group of delegates quizzed a poor tour guide on the stone used for milling and the proportion of condensate in the distilling vats. The tour was followed by dinner and then Irish music and dancing.

VMSG2016 kicked off with a workshop on trace element mapping of igneous minerals by laser ablation ICP-MS. Attendance for 24 students and postdocs from across Europe was free (courtesy of sponsorship by Teledyne-Cetac Technologies) and included hands-on practical work in the local geochemistry facilities, tutored by Trinity staff. The resulting maps of an augite antecryst from Mt Etna were on display during the icebreaker event. Teledyne and Trinity also sponsored a two-day free-access voucher for the LA-ICP-MS facility for which 1-page research proposals were solicited. The winner was Melanie Ray from Birkbeck-UCL.

Sixty delegates, a third of those attending VMSG2016, braved the weather and the 7.30 am start to visit the Giants Causeway on the post conference field trip. Discussions centred around the heterogeneity of the basalt columns, cooling histories and the role of external water. The field trip was led by Stephen Daly and Ian Meighan and supported by the Geological Survey of Northern Ireland and University College Dublin.



*VMSG descend on the basalt columns at Giants Causeway*

VMSG2016 was organized by Emma Tomlinson, Balz Kamber, Teresa Ubide, John Caulfield, Clare Stead, Carolina Rosca and Nancy Riggs and was run with the help of a fantastic team of student helpers and technical staff. The meeting was supported by Teledyne Cetac Technologies (Platinum), ThermoFisher Scientific (Gold), Cameca (Silver), Oxford instruments (Bronze), Springer (Bronze), the Geological Survey of Ireland (Bronze), and the Geological Society of London and VMSG who provided student prizes.

The VMSG committee would like to thank the organisers and supporters of VMSG 2016 for all their effort in arranging an excellent meeting.

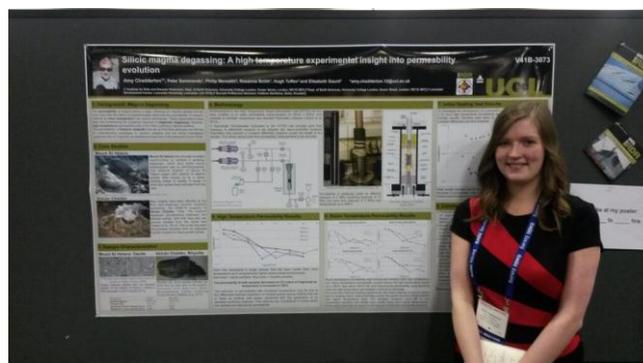
## Student activities

### **Amy Chadderton**

In December I was lucky enough to attend my first AGU Fall Meeting with the help of the VMSG Conference Bursary. Having heard many stories from colleagues about how fantastic the atmosphere at AGU was I was eager to experience it for myself. It didn't disappoint. It felt great to be at the centre of geophysics, with many of the world's top scientists presenting cutting edge research. As a member of the Institute for Risk and Disaster Reduction at University College London my interests are wide ranging and go beyond the topic of my PhD. Attending AGU gave me the rare opportunity to explore many of my areas of interest within the same meeting.

As a final year PhD student AGU provided the perfect opportunity to present my data to a wider audience and obtain comments and feedback before I begin the painstaking process of writing up my thesis. As most of my time is spent in the basement labs at University College London, visiting San Francisco was an exciting opportunity to enthuse about the research I have spent the last 2 and a half years working on. The four hour marathon poster session provided an excellent chance to talk to scientists and researchers whom I have not been fortunate enough to have crossed paths with before, and also to renew acquaintances made at previous conferences closer to home. I received many pieces of valuable advice regarding my work, publication tips and career guidance which were much appreciated.

As well as the fascinating science it was also fun to catch up with old friends and colleagues from the USGS, particularly those from the Hawaiian Volcano Observatory. I would like to thank VMSG once again for helping to fund my attendance at AGU 2015 and making my visit to San Francisco possible.



### **Kyle Heron**

I was able to attend Goldschmidt 2015 in Prague this August thanks to a student bursary from VMSG. This was the first large conference I have attended during my PhD, and also the first conference that had a session dedicated to my field of work,

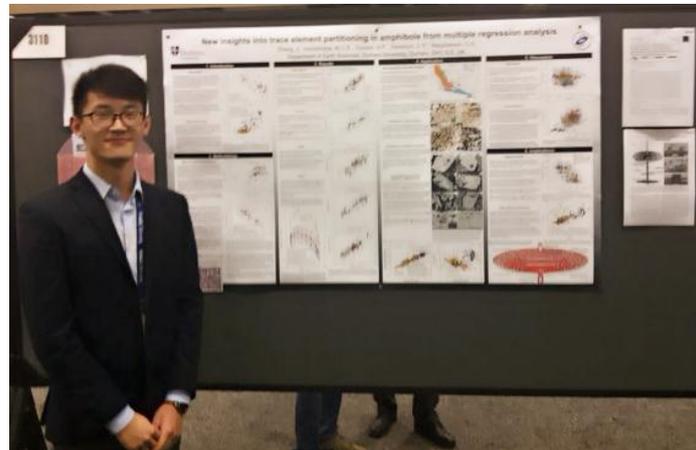
greenstone belts. I presented a poster entitled 'Origin and evolution of the Mesoarchean Aouéouat Greenstone Belt and associated magmatism', which focussed on the source and evolution of the volcanic rocks present in the Aouéouat Greenstone Belt, Mauritania, particularly through geochemistry. I was able to share and discuss my results with a number of globally recognised academics who work on greenstone belts, and this has made me aware of possible evolution models I hadn't previously considered. This is of particular use as I am now in the writing up stage of my thesis, and there are very few people working on greenstone belts in Ireland and the UK.

As well as having the opportunity to present and discuss my own work, I was able to attend sessions devoted to specialist topics that I work on, in particular those related to the early Earth, and learn a great deal about what other eminent researchers are doing in my field of study, and where the future of the science is heading. This should help greatly with my development in finding future positions where I can continue and develop on the work I am carrying out for my PhD. As well as the geochemistry, a large part of my project is focussed on U-Pb dating, and by being able to attend Goldschmidt I was also able to partake in a workshop on LA-ICP-MS in which there was a discussion session on a technique I have worked on and developed throughout my PhD – 'chemical abrasion'. This allowed me to see some of the areas that need to be focussed on with future developments in the technique, something else I plan to work on in the future.

I would like to thank VMSG for their kind support, which went a long way to enabling me to attend such a valuable conference at an important stage of my career.

### **Jing Zhang**

I am Jing Zhang, final-year PhD student from volcanology research group of Durham University. I appreciate VMSG Student Conference Travel Bursary (£300.00) for supporting me attending the 2015 AGU Fall Meeting during 12th-18th, Dec, 2015 in San Francisco, USA. This is me standing in front of my poster, entitled 'New insights into trace element partitioning in amphibole from multiple regression analysis' co-authored with Madeleine Humphreys, George Cooper, Jon Davidson and Colin Macpherson, all of whom are regular VMSG attendees!

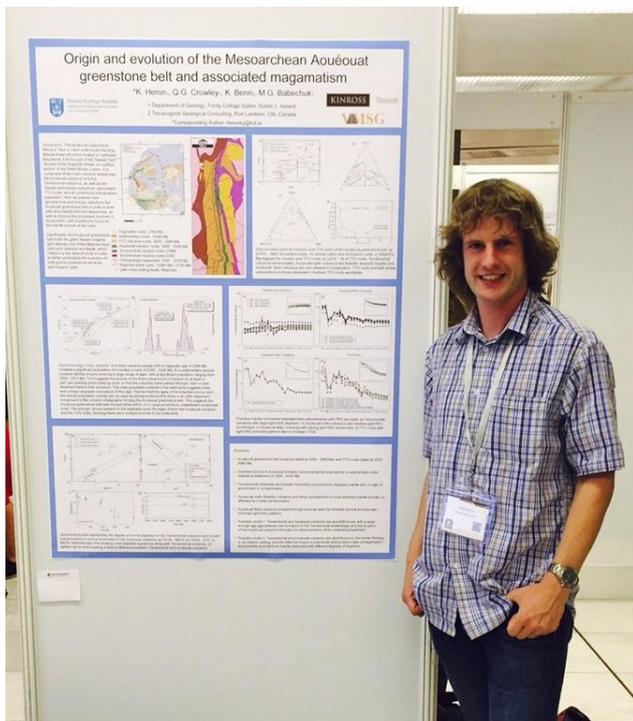


### **Michael Stock**

I was awarded a Student Travel Bursary by VMSG, to present work from my PhD at the 2015 AGU Fall Meeting in San Francisco. I gave an oral presentation at the conference, entitled: "Apatite: A New Tool For Understanding The Temporal Variability Of Magmatic Volatile Contents". This was a great chance to share my ideas with the international scientific community and to promote a recent publication. I had a fantastic time and, as well as receiving useful feedback on my work, I met some new people that I hope to work with in the future. I'm really grateful to the VMSG committee for giving me the opportunity to attend this meeting.

My presentation was at 9.15 on Monday morning- right at the beginning of the conference. Having never attended AGU before this was a daunting prospect and I really wasn't sure what to expect. Never the less, I scouted out the lecture room the day before and, after a night of nervous/jet lag-inhibited sleep, I managed to get to my talk in good time. I have to confess, the talks before mine are a bit of a nervous blur but, before I knew it, I was on stage running through my presentation. In the end, it all went pretty smoothly. I think that the adrenalin kicked in as I got up on stage and I was aware of my tiredness, which caused me to speak slowly and clearly. I think I stuck pretty much exactly to time, and was able to answer a couple of questions at the end. By this time though, I was just pleased to have got the thing over with!

The really useful feedback came after my talk- I was aware that there were a number of people in the audience that specialised in apatite and in the behaviour of magmatic volatiles. I was pleased to find that my presentation had drawn



attention to my work, and for the rest of the week I enjoyed scientific conversation with people that either had questions or insightful feedback. I'm now coming to the end of my PhD and discussions that I had at AGU have been absolutely invaluable in my thesis write-up.

I just want to thank the VMSG committee one more time for the financial support that made this possible. It was a real highlight of my PhD!



## Mineralogical Society News

By Kevin Murphy

### EMC 2016



The European Mineralogical Congress 'Minerals, Rocks and Fluids: alphabet and words of planet Earth' will take place from 11th September to the 15th September 2016 at the Palacongressi of Rimini, Italy. The national mineralogical societies of Europe are coming together for the second time, in Italy. Up to 1000 scientists are expected to attend. This will be the Mineralogical Society's main meeting for 2016.

The conference will cover areas such as Mantle petrology and geochemistry, Magmatism and volcanology, Metamorphism, Applied mineralogy and material science, Thermodynamics, kinetics and mineral physics, Mineralogical crystallography. For a detailed list of sessions and more on registration and submitting an abstract, please go to: <http://emc2016.socminpet.it/>

### Society Awards

Nominations for Society Awards are sought:

- Max Hey Medal
- Collins Medal
- Mineralogical Society-Schlumberger Award
- Best paper award

Details at: <http://www.minersoc.org/awards.html>

### Society books and journals

Don't forget to check out:

Mineralogical Magazine

(<http://www.minersoc.org/minmag.html>)

Clay Minerals

(<http://www.minersoc.org/clay-minerals.html>)

and the MinSoc book titles:

such as EMU Notes in Mineralogy series

(<http://www.minersoc.org/EMU-notes.html>)

and other publications [including DHZ]

(<http://www.minersoc.org/publications.html>)

### VMSG PhD Graduates

A new section in the VMSG newsletter to celebrate and acknowledge those volcanic and magmatic geoscientists who have recently graduated from their PhD. As a first, this edition hosts a numbers of graduates from 2015 and 2016. Well done to all!

#### Dr M. Éva Jankovics

Eötvös Loránd University, Doctoral School of Earth Sciences, Geology-Geophysics Doctoral Programme, Budapest, Hungary  
*Petrogenesis of the basaltic magmas feeding the monogenetic volcanic fields of the Bakony-Balaton Highland and Kemencesalja (in Hungarian)*

16/06/2015

#### Dr Ben Manton

Cardiff University

*The Mechanics of Sill Propagation and Associated Venting, Investigated using 3D Seismic Data from Offshore Norway*

08/15

#### Dr Nina Jordan

University of Leicester

*Pre-Green Tuff explosive eruptive history, petrogenesis and proximal-distal tephra correlations of a peralkaline caldera volcano: Pantelleria, Italy*

01/03/2015

#### Dr David Budd

Uppsala University, Sweden

*Characterising volcanic magma plumbing systems: a tool to improve eruption forecasting at hazardous volcanoes*

22/01/16

#### Dr Harriet Rawson

Department of Earth Sciences, University of Oxford

*Volcanic history and magmatic evolution of Mocho-Choshuenco Volcano, Southern Chile*

21/01/16

**Dr Martin Airey**

University of Oxford, Dept. of Earth Sciences  
*Volcanism as an Active Planetary Process on Venus*  
12/15

**Dr Julie Boyce**

Monash University, Melbourne, Australia  
*Stratigraphy, geochemistry and origin of products of complex volcanic centres, Newer Volcanics basaltic field, Victoria*  
12/15

**Dr Börje Dahrén**

Uppsala University, Sweden  
*Magma Plumbing Architecture in Indonesia and the North Atlantic Igneous Province*  
28/01/16

**Dr John Browning**

Royal Holloway, University of London  
*Thermo-mechanical effects of magma chambers and caldera faults*  
01/16

**Notices**

***The Sixth Element: 57th Annual Bennett Lecture by Professor Andy Saunders***

**Monday 7th March, 6 pm, Lecture Theatre 1, Bennett Building, University of Leicester LE7 7RH.**

Carbon is fundamental to life on Earth. Not only is it an integral part of all known organisms, but it also exerts a powerful influence on the composition and thermal regulation of the atmosphere and oceans. The geological past is littered with examples where major and rapid changes of the carbon cycle are associated with mass extinctions and global oceanic anoxic events. This talk will look at the characteristics of these changes and explore a possible cause: venting of carbon from the deep Earth via catastrophic flood-basalt volcanism. It will also consider the question: does our current profligate use of hydrocarbons pose the same threat to the global environment that flood basalts did in the past?

All welcome. For further details please contact Gail Andrews: [ga16@le.ac.uk](mailto:ga16@le.ac.uk)

***AAPG Interpretation Special Volume***

*Subsurface expression of igneous systems and their impacts on petroleum systems*

Magma commonly forms during continental breakup in response to stretching and thinning of the lithosphere, and decompression melting of asthenospheric mantle. This magma

may stall during its ascent and intrude the upper crust, and/or may be expelled at the earth's surface. Because continental stretching precedes the formation of continental margins, the emplacement of intrusions and extrusions are common during continental breakup, with igneous products being particularly common in some of the world's most prolific hydrocarbon provinces (e.g. offshore circum-South Atlantic, NW Shelf of Australia, NE Atlantic Margin). Petroleum systems in provinces such as these can be negatively and positively impacted by breakup-related magmatism.

We are seeking submissions on related topics including but not limited to the following:

- i) impact of igneous activity on basin thermal evolution and source rock maturation
- ii) physical compartmentalization of reservoirs by igneous intrusions
- iii) deformation associated with igneous activity and trap formation
- iv) reservoir properties of igneous intrusions
- v) petrophysical characterization of igneous rocks
- vi) case studies

Details can be found at:

<http://www.seg.org/resources/publications/interpretation/specialsections/2016/subsurface-expression-igneous-systems>

Submission deadline: 1<sup>st</sup> July 2016

Kind regards,

Chris Jackson ([c.jackson@imperial.ac.uk](mailto:c.jackson@imperial.ac.uk)), Craig Magee, Nick Schofield, Simon Holford, Qiliang Sun, and Stuart Archer

***American Mineralogist Special Volume***

We are pleased to announce that the Special Collection on the theme "***Dynamics of magmatic processes***" is now active on American Mineralogist. The aim of the Special Collection is to shed new light on the complexity of magma chamber dynamics and on the relative timescales. We welcome contributions on the following topics:

- i) field evidences, experimental, analogue, geochemical and/or numerical modelling of magma mixing;
- ii) micro-analytical investigations of physical and chemical disequilibrium in minerals and between minerals and melt;
- iii) diffusion modelling in melts/minerals and timescale estimation using both elemental diffusion modelling and radiogenic isotopes;
- iv) analytical, experimental and computational approaches leading to new insights on the timescale of magmatic processes, magma ascent and eruption.

We invite you to consider this Special Collection for your future works and please submit your manuscript when you are ready. To submit to the Special Collection please select “regular article” or “letters”, and then choose “Dynamics of magmatic processes” in the Manuscript Information section.

Please find the instructions for authors at the following link:  
<http://www.minsocam.org/MSA/AmMin/instructions.html>

An important fact is that American Mineralogist is very flexible with no need to wait for the entire issue. Indeed, each article is published as soon as it is accepted with a heading referring to the special section. Each paper is obviously subjected to the high standard of peer review. Please feel free to contact us if you need any further information.

Best wishes,

Chiara Maria Petrone ([C.Petrone@nhm.ac.uk](mailto:C.Petrone@nhm.ac.uk))

Maurizio Petrelli ([maurizio.petrelli@unipg.it](mailto:maurizio.petrelli@unipg.it))

(Guest Associate Editors of “Dynamics of magmatic processes”)

### **Upcoming conferences, workshops, & field courses of relevance to the VMSG community:**

- VMSG 2017 – Liverpool University and linked with the Tectonic Studies Group conference. Watch this space!
- 'The 2016 Goldschmidt conference will in Yokohama, Japan 26 June - 1 July.
  - There will be a theme on 'Volcanoes and Hazards'. Given the location of the conference this theme is of particular relevance and VMSG members are invited to consider proposing a session. The call for sessions will be announced before the end of 2015 and you can sign up to receive an email alert here: <http://goldschmidt.info/2016/callForSessions>  
More information about 'Volcanoes and Hazards' and all other Goldschmidt 2016 themes is here: <http://goldschmidt.info/2016/program/programViewThemes>  
Please also feel free to contact the theme co-ordinators with any questions:  
Michihiko Nakamura (Tohoku University, Japan: [nakamm@m.tohoku.ac.jp](mailto:nakamm@m.tohoku.ac.jp))  
Georg F. Zellmer (Massey University, New Zealand: [g.f.zellmer@massey.ac.nz](mailto:g.f.zellmer@massey.ac.nz))  
Tamsin Mather (University of Oxford: [Tamsin.Mather@earth.ox.ac.uk](mailto:Tamsin.Mather@earth.ox.ac.uk))
- GSA Penrose Conference 2016 to the Stillwater Intrusion: **“Layered mafic intrusions and associated economic deposits”**
  - Watch this space!
  - Conveners:
    - Alan E. Boudreau

- Eric C. Ferré
- Brian O’Driscoll
- Edward M. Ripley
- Please contact Dr Brian O’Driscoll if you have any queries ([brian.odriscoll@manchester.ac.uk](mailto:brian.odriscoll@manchester.ac.uk))

### **Post-doctoral positions available:**

- Two in igneous geochemistry at the University of St Andrews (reference numbers AR1744SB and AR1746SB).  
<https://www.vacancies.st-andrews.ac.uk/Vacancies.aspx>

### **Fieldtrip Co-ordinator:**

Janine Kavanagh has taken on the role of fieldtrip co-ordinator for the VMSG committee, so if you are interested in running a VMSG fieldtrip, please contact her for further information at [Janine.Kavanagh@liverpool.ac.uk](mailto:Janine.Kavanagh@liverpool.ac.uk)

### **Upcoming awards of relevance to the VMSG community:**

Do you know an outstanding member of the VMSG community? Please consider nominating them for awards and medals bestowed by other societies. Remember, these recognise both early career scientists as well as those well established. For example:

### **PhD studentships:**

We are collating all VMSG-related PhD studentships for dissemination. Please circulate to interested undergraduate students and others. If you want your PhD to be on the list, please let our student representative know.  
<http://www.vmsg.org.uk/students/phd.php>

### **VMSG Distribution List**

The VMSG mailing list is managed by jisc-mail. As a list member you can subscribe to the list or change all your details yourself by subscribing to jisc-mail.  
VMSG can also be found on [Twitter](#), [Facebook](#) and [LinkedIn](#).

### **How to join or leave the group?**

Go to the group homepage at [www.jiscmail.ac.uk/vmsg](http://www.jiscmail.ac.uk/vmsg) and choose the ‘Subscribe or Unsubscribe’ link from that page. You will receive a confirmation email which you will need to respond to.

### **Editorial**

Many thanks to those who have contributed to this issue. Please forward any articles, comments or notices of events, workshops and conferences before 29<sup>th</sup> April 2016, for inclusion in the next newsletter. All previous newsletters are available for download from the website.

**Dr Craig Magee** ([c.magee@imperial.ac.uk](mailto:c.magee@imperial.ac.uk))