# VMSG

## Volcanic and Magmatic Studies Group

*February 2018 Newsletter (No. 38)*

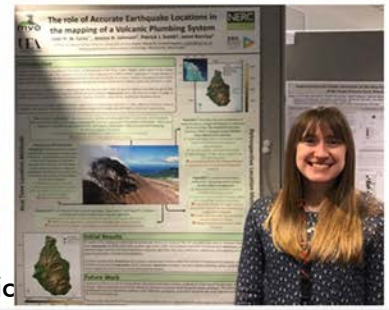
### Welcome to the February VMSG newsletter!

Dear VMSG members, welcome to the first newsletter of 2018 and a late Happy New Year to all from the committee. In this issue we have had a great range of content sent in, so a big thank you at the outset to all those who have contributed! In the newsletter you will find a summary of the Leeds conference, award winners, honours, some great short articles, upcoming conferences and sessions, along with a new 'Impact in Focus' section.

### VMSG Annual Conference 2018 - Leeds

The annual VMSG conference was held in Leeds this year and saw 2018 kick off to a great start with a well organised and highly rewarding meeting showcasing the cutting edge of VMSG related research by students and academics in the UK and further afield. This year saw the conference return to a single SIG event after the joint meeting the previous year, with a total attendance of 195, with 48 oral presentations (28 student talks) and 85 posters (73 students). We would like to commend the student presentations and posters and in particular those presenting for the first time; the overall research ongoing, so congratulations and keep up the good work!! The academic presentations were of course excellent too, but we kind of expect this:)

The conference was held in the Leeds City Museum, which proved to be a unique and interesting venue with the end of day drinks reception being held amongst the museums natural history exhibitions each evening. Oral presentations took place in the impressive Brodrick Hall and included keynote talks by Dr Madeleine Humphreys (***Amphibole reveals the hidden complexity of lower crustal magma plumbing systems at arcs***) along with this year's Willy Aspinall prize winner, Dr William Hutchison (***New geophysical and geochemical constraints on the plumbing of Ethiopia's restless rift volcanoes***). Two great talks highlighting top science from the community. Sadly, this year's VMSG award winner, Hugh Tuffen, could not attend the conference to give his keynote talk due to his ongoing recovery, but the hope is he will be able to give this next year. Each of the sessions included a wide range of studies, completing a well-balanced and thought-provoking meeting.

standard of both were very high with some fantastic

Another feature of the meeting was the one-minute lightning talks associated with posters which were given at the end of each session, in the main hall accompanied by a single slide. I personally thought this worked very well and avoided some of the issues associated with hearing people in a bustling poster hall. On this note I would like to commend in particular the undergraduates from Hull University (Pedley, et al.,) who got up and presented their combined project results together, a really great effort and also excellent to see undergraduates attending VMSG!

The conference dinner was held at the Leeds Marriott Hotel which went smoothly and was very nice, I certainly had a great evening, as with everyone else I spoke to. The conference was a great success and the perfect opportunity as usual to catch up with colleagues, meet new enthusiastic people and to get interesting new insights into the current state of the art research in our field.

Additional to the main scientific program, several workshops were also run as part of the conference, which form valuable training opportunities for students and researchers alike. The workshops included:

**Workshop 1**: PhD writing and how to get your paper published (*led by: Dr Olga Degtyareva*)

**Workshop 2**: An introduction to diffusion modelling in crystal systems: volcanic timescale recovery (*led by: Dr Dan Morgan*)

**Workshop 3**: Volcano Seismology (*led by: Professor Jurgen Neuberg*)

**Workshop 4:** InSAR 101: Interpreting interferograms for volcanologists (*led by: Dr Susi Ebmeier*)

We hope that many of you gained valuable insights and new skills that will help you in your research. The VMSG workshops have proven to be highly successful over the last years and would not be possible without the kind offers of time and preparation by the workshop leaders who are willing to share their expertise and experiences. A fantastic feature of the VMSG winter meeting and long may they continue.

### *ThermoFisher Scientific VMSG Award 2018*

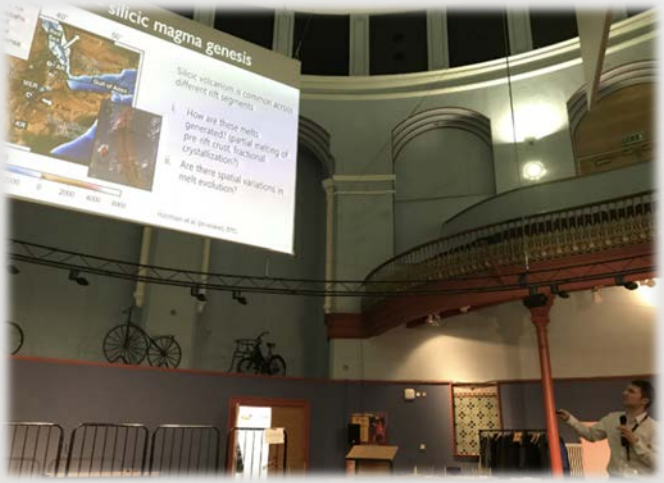
The ThermoFisher Scientific VMSG Award is bestowed annually on an individual who is deemed to have made a significant contribution to our current understanding of volcanic and magmatic processes. The 2018 ThermoFisher Scientific VMSG award winner is Dr Hugh Tuffen of Lancaster University.

*Hugh Tuffen, recipient of the 2018 VMSG award.*

Hugh became fascinated by rocks as a kid growing up amongst the Cumbrian fells, and caught the volcano/magma bug from David Pyle and Sally Gibson as a dishevelled geology undergraduate at Cambridge. After a Masters in Volcanology at Clermont-Ferrand, Hugh relished a fascinating PhD project supervised by Dave McGarvie (OU), alongside Harry Pinkerton and Jennie Gilbert at Lancaster, which investigated the enigmatic products of rhyolitic eruptions beneath Icelandic glaciers. Stints busking in Devon and assisting Magnús Guðmundsson with geophysical surveys in Iceland were followed by research fellowships in Munich, UCL and Lancaster, where Hugh studied magma fracture, healing and degassing alongside Don Dingwell, Peter Sammonds and others. He was then be awarded a Royal Society University Research Fellowship at Lancaster in 2010, with a little assistance fromEyjafjallajökull, which erupted the day before his interview. Hugh is now a Reader in Volcanology and primarily works on conduit processes in rhyolitic eruptions, volcano-ice interactions and lava flow emplacement. He has directed Lancaster's successful MSc in Volcanology and Geological Hazards since 2010 and is thrilled to see so many alumni join the volcanology community. Outside of work Hugh loves spending time with his three children, playing cello and riding his bike, occasionally a little too fast!

*Citation taken from VMSG Leeds Abstract volume, picture from VMSG twitter feed.*

### *Willy Aspinall Prize*




*Will Hutchison (St Andrews) presenting work that saw him awarded the first ever Willy Aspinall Prize.*

### *Bob Hunter Prize for Best Oral Presentation*


***Winner:*** **Claire Harnett**, University of Leeds
**Title:** *A discrete-element approach to modelling lava dome stability*
**By:** Claire Harnett, Mark Thomas, Matt Purvance, Jurgen Neuberg and William Murphy
***Honourable Mentions***: **Amelia Bain** (University of Edinburgh); **Ery Hughes** (University of Bristol)

### *Geoff Brown Prize for Best Poster Presentation*


***Winner:*** **Camilla Imarisio**, Royal Holloway University of London
**Title:** *Double Trouble: A crystal's-eye view of Torfajökull-Veiðivötn twinned eruptions*
**By:** Camilla L. Imarisio, Christina J. Manning, Peter Burgess and Dave Mcgarvie
***Honourable Mentions***: **Sandy Drymoni** (Royal Holloway University of London); **Sam Bell** (University of Manchester)

### Local organising committee

It just leaves me, on behalf of the VMSG committee and the community, to extend a huge thank you along with congratulations, to the local organising committee (Vern Manville, Juergen Neuberg, Dan Morgan, Dave Ferguson, Mark Thomas, Susi Ebmeier, Andy Hooper, Ivan Savov, Claire Harnett et al.) for all your efforts involved in bringing VMSG to Leeds, and making the conference a big success!

It is also important to highlight that the VMSG annual conference receives generous sponsorship each year with a list of the sponsors for the Leeds conference highlighted below.

**VMSG 2018 Leeds Meeting Sponsors**

UNIVERSITY OF LEEDS
Springer
COMET
CENTRE FOR OBSERVATION & MODELLING OF EARTHQUAKES, VOLCANOES & TECTONICS
JOURNAL OF PETROLOGY
Nikon
TESCAN
PERFORMANCE IN NANOSPACE
ThermoFisher SCIENTIFIC
ELSEVIER
The Geological Society
serving science and profession

## Sir Steve Sparks Knighthood

Professor Stephen Sparks FRS CBE from the University of Bristol was awarded a knighthood in the Queen's New Year Honours list. A huge credit to and role model for the discipline of volcanology and geology in general.

## VMSG Committee changes

After quite a number of changes, as outlined in the last newsletter, the 2018 VMSG committee consists of:

**Chair:** Sally Gibson

**Treasurer:** Vicky Smith

**Secretary:** Rich Brown

**Web Manager:** Pete Marshall

**Student Rep:** Rebecca Astbury

**Ordinary Members:**

Sam Engwell

Jackie Kendrick

Mike Cassidy

Mike Branney

George Cooper

Sami Mikhail (Social Media)

John Millett (Newsletter)

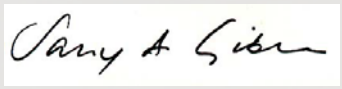
The outgoing chair, Mike Widdowson, received a warm send-off after almost 20 years on committee (since 1999) in various roles including ordinary member, treasurer (twice) and finally chair. Congratulations on a fantastic contribution to VMSG!

## VMSG Chair: Sally Gibson

Dear VMSG Colleagues

I'm delighted to take over as Chair of the Volcanic and Magmatic Studies Group. Since the beginning of my research career I've been actively involved with VMSG and its 'umberella' institutions, the Geological Society of London and the Mineralogical Society. This long involvement has enabled me to witness at firsthand how important the activities of VMSG are to promoting scientific research at all career stages. During this time I've also seen VMSG engage with an ever broadening community of researchers, and facilitate increasing scientific interaction at national and international levels. VMSG probably excels more than any other Specialist Interest Group in engaging with the younger members of its community (via fieldtrips and the winter meeting) but vital to its success is the support from established academics.

During my time as Chair of the VMSG I very much look forward to working with the VMSG Committee, and the community as a whole, in order to enable and promote the research and associated activities of volcanologists, petrologists and geochemists.



## Tuffs Found Where Least Expected

*Sent in by Richard A. Batchelor (University of St Andrews)*

The Moine (Neoproterozoic) sequence in Scotland comprises great thicknesses of psammites and semi-pelites. Within these rocks occur clusters of pale-coloured thin beds of calc-silicate rock, with sharp top and bottom contacts with their host and vary in thickness from 10 and 150 cm, with a mean thickness of 30mm.

Historically, these beds have been described as metamorphosed marls (lime-rich pelites). However, carbonate deposition in Moine rocks is notable for its absence. So, what could explain these thin beds made up of feldspar, amphibole and garnet?

With over 30 years experience of working on bentonites, I was accustomed to spotting thin beds with sharp tops and bottoms. When I first encountered these white calc-silicate beds on the Isle of Mull I wondered if they might be volcanic ashes.

*Calc-silicate bed, Arisaig, Highland Region*

I proposed this as a research topic for a Leverhulme Emeritus Fellowship which was successful. For two years I travelled the length and breadth of Scotland to collect these enigmatic rocks.

Geochemical data showed that these rocks shared characteristics with Proterozoic tuffs already described by Batchelor, R.A. et al. (2008. Geological Magazine 145, 858-867).

*Thin white calc-silicate beds, Ardalanish Bay, Isle of Mull*

Experimental petrology on proven Dalradian tuff material showed that, at amphibolite facies metamorphism, the resulting mineralogy compared favourably with the Moine calc-silicate rocks. These calc-silicate rocks also plotted in the igneous amphibolite field of an ortho/para-amphibolite discrimination diagram (Winchester, J.A. 1984. Scottish Journal of Geology 20, 37-51).

I attended and presented a poster about calc-silicate rocks as tuffs at the VMSG conference in Cambridge, January 2011.

This work resulted in a paper which proved problematical for two journals which rejected it. A third journal found it difficult to find two referees, but after 2 years, the paper has been accepted (Batchelor, R.A. 2017. "Do Neoproterozoic (Moine) calc-silicate rocks represent metamorphosed tuffs? A geochemical re-appraisal." Earth & Environmental Science Transactions of the Royal Society of Edinburgh).

So the take away story is that, if you find something that doesn't quite fit received wisdom, try, try and try again.

## Volcanic field expedition to the remote Andes

*Sent in by Mike Cassidy (University of Oxford)*

In early January, I decided to leave the UK's bleak midwinter, and venture to the southern hemisphere summer. The justification: an AGU Chapman Conference to understand large silicic magma systems, and a field expedition to sample the eruptive products of an intriguing Chilean volcano. Quizapu volcano, (~300 km from Santiago) had one

*Images from fieldwork on Quizapu volcano, Chile, Mike Cassidy.*

of the most explosive eruptions in the 20th century, erupting 9.5 $km^3$ of dacite in 1932. This differed somewhat from the effusive activity in 1846/47, involving 5 $km^3$ of dacitic lava flows. We went there as an international team (myself, Philipp Ruprecht, Joe Dufek, Rebecca Carey, Pablo Salas Reyes, and Bruce Houghton). Our team goals were diverse; I was aiming to sample the effusive and explosive eruptions to look for apatite crystals to understand the volatile evolution prior to the different styles of eruptions, as part of my NERC fellowship. Others were interested in pyroclastic density currents and how they evolved, whilst some were studying the 'ultra-proximal' record on the crater rim, which preserves thick deposits from the 1932 eruption, a rarity for such an explosive eruption. Quizapu volcano is located in a remote part of the Maule region in Chile and is, as a result, very tricky to get to. The sound of two days on horseback just to get to our field area didn't sound too appealing, so we opted for a helicopter to get us, and all our kit, to the summit. Evidence for the voluminous explosive eruption was everywhere; pumice coated the landscape in a moon-like environment, which has experienced little erosion of this deposit since it was emplaced 86 years ago. Our camp was at 3000 metres where we stayed for 6 nights in a very dusty, desert environment. We endured high winds and sub-zero temperatures at night, and lived off a nearby snow patch for our water supply. The rock exposure was excellent, with very little vegetation, a complete contrast to the volcanic field areas in Indonesia, where I've most recently worked. Thankfully on the last day our helicopter came to pick us up at the designated time, and brought us back into a more hospitable environment. It was an excellent expedition, the rocks I brought back will certainly help us understand how volatiles control eruptive style, and it's a trip I won't forget for a while!

## Impact in Focus

In this section we ask a VMSG researcher to share a key paper that helped shape their understanding of volcanic or magmatic processes. Each issue, we will ask for a new member nomination from the last contributor, and I will hassle them for a paper recommendation:)

A big thank you to **Dr. Malcolm Hole** (University of Aberdeen) for agreeing to get us started:

*Ponded columnar jointed tephrite, Elgar Uplands, Alexander Island. The rock is packed full of lherzolite xenoliths, BAS fieldwork, Malcolm Hole.*

***Citation:*** Barker, P.F. 1982. The Cenozoic subduction history of the Pacific margin of the Antarctic Peninsula; ridge crest-trench interactions. Journal of the Geological Society, London, 139, 787-801. Link.

***Recommendation:*** The publication influenced me on several levels.

Peter Barker was the head of the Antarctic Marine Geophysics Group at Birmingham University when I was an undergraduate and MSc student. In 1981, Peter gave me my first paid job as a graduate geologist, and I was tasked with producing petrographic descriptions of dredge samples from extinct spreading ridges along the Antarctic Peninsula. This was my first introduction to Antarctic geology, which was eventually to become an important part of my early career.

The paper covers some fundamentals of plate tectonics. Barker and co-workers recognized the asymmetry of magnetic anomalies along the Antarctic Peninsula passive margin at a time when the rest of the scientific world was engrossed in symmetrical anomalies at spreading ridges. The seafloor magnetic anomalies off the Antarctic Peninsula young towards the continental margin, exactly the opposite of that expected for a passive margin. The explanation is quite simple (with hindsight). There were a succession of near orthogonal, northward-younging collisions between a ridge crest and the subduction trench. One side of each ridge crest was abandoned at the continental margin after each collision event. However, because the subduction rate up until the time of collision was half the spreading rate, when the collision took place subduction also ceased. Easy to write down now, but when you start considering the intricacies it is actually a very complex plate tectonic problem. From Barker's work it was even possible to calculate (quite accurately) the age of the subducted slab at any point and depth along the margin for the entire Cenozoic.

In 1994, I was privileged to be invited, along with Barker, to contribute to the Penrose Conference on triple junctions, which was held, appropriately, on the Mendocino Triple Junction in northern California. Here we gave consideration not only the collisional history but also to the magmatism that occurred immediately after ridge collision. The resolution of the chronology of events leading up to ridge crest-trench collisions remains the best there is globally. At VMSG 2018 the Antarctic post-subduction basalts raised their ugly heads once more, and plans are currently afoot to generate some more data on these fascinating rocks.

Sadly, Peter Barker passed away in 2012, and this is also partly my personal, if belated, appreciation of his work.

## Scientific Drilling Opportunities

*Thanks to Jochem Kück (OSG at ICDP)*

The ICDP (International Continental Scientific Drilling Program https://www.icdp-online.org/), is a non-for-profit organization to support international science teams with a proven need for land-based drilling. For those of you who are not so familiar with the program, it is at the forefront of continental scientific exploration, and has the potential to answer questions that are often impossible by surface investigations alone. So, if you are at proposal stages for research projects, perhaps it is worth some extra consideration as to whether including drilling could bring your proposal up to the next level. Various volcanic and magmatic associated projects ranging from drilling the deep HSDP borehole on Hawai'i to drilling a shallow borehole at Surtsey last year have been completed. There are also a number of present proposals relating to volcanic processes currently in the system e.g. see below. Visit the website and see if your research could collaborate with ICDP now or in the future!

Krafla Magma Drilling project, Iceland. https://www.icdp-online.org/projects/world/europe/krafla-iceland/

Newberry Deep Drilling Project NDDP, Central Oregon, USA. https://www.icdp-online.org/projects/world/north-and-central-america/newberry-usa/

BICDP Bushveld Igneous Complex Drilling Project, ZA. https://www.icdp-online.org/projects/world/africa/bushveld-s-africa/

NE Japan, JBBP Japan Beyond Brittle Project. https://www.icdp-online.org/projects/world/asia/ne-japan/

## GSA Joint Meeting of Rocky Mountain and Cordilleran Sections

*Sent in by Michael S. Petronis*

Dear colleagues,

We would like to encourage you to submit an abstract to the T14 session at GSA Joint Meeting of Rocky Mountain and Cordilleran sections (**Flagstaff, Arizona, 15-17 May 2018**).

Paleomagnetic, Structural, and Geophysical Data Applied to Intrusive and Extrusive Igneous Systems, Tectonic Applications, and Paleoclimate Studies

**Conveners:** Michael S. Petronis (New Mexico Highlands University), Filip Tomek (Czech Academy of Sciences) and Jennifer Lindline (New Mexico Highlands University)

**Session description:** This session will focus on recent advances in the application of geophysical and structural techniques to igneous systems, tectonic processes, and paleoclimate studies. We hope to bring together a diverse mix of geoscientists to discuss physical emplacement and deformational models of igneous rocks, regional strain accommodation in the upper crust, and secular variation studies to constrain paleoclimate history. Our aim is to bring about a greater appreciation of the utilization of geophysical and structural methods applied to a diverse array of geologic studies.

The abstract submission deadline is **20 Feb 2018**.

You can submit your abstract through this link: https://gsa.confex.com/gsa/2018RM/cfp.epl

For more information, please visit the conference webpage: https://www.geosociety.org/GSA/Events/Section_Meetings/GSA/Sections/rm/2018mtg/home.aspx

Michael, Fillip, Jennifer

## Cities on Volcanoes, Naples

*Sent in by Giuseppe Salerno*

Dear Colleagues,

We would like to announce the Session - **S1.33 Volcanic Degassing: Insights into Volcanic Processes, Impacts and Hazard** - at the next Cities on volcanoes conference held in Naples (Italy) from 2-7 September 2018. For more information on the conference, please visit: http://www.citiesonvolcanoes10.com

The deadline to submit abstracts is **10 May 2018**. For further information, please feel free to contact the convener.

**Convenors:** Salerno G., Cardellini, C., Viveiros, F., Sellitto, P., McGonigle, A, Tassi, F.

**Session description:** Volcanoes release gas, ash and aerosols particles into the atmosphere during explosive episodes and quiescent stages from vents, fumarole and soil diffuse degassing. Understanding gases dissolved in magma, and measuring their emissions is crucial to characterising states of unrest and evaluates impacts on health, atmospheric composition and the environment. Ranging from

astonishing plume emissions to silent exhalation through soils, volcanic degassing exerts a dominant role in forcing the timing and nature of unrests and volcanic eruptions.

Volcanogenic emissions have strong impacts on the Earth's radiation budget and climate over a range of temporal and spatial scales. Sulphate may lead to global dimming and a decrease in Earth's surface temperatures for years, similarly halogens can perturb the troposphere causing depletion of stratospheric ozone layer. Direct and indirect gas effects may also impact on local-to-regional air quality seriously affecting biosphere and environment, and the continuous release of gas from soil may pose long-term health-hazards in both outdoor and indoor environment.

Gases are measured and monitored via a range of direct-field, remote sensing and laboratory sampling techniques, such as to gain insights into both subterranean-surface processes and the extent of real-time and time-averaged volcano's impacts in concert with geophysical data and modelling. This session focus on the state of the art and multi-disciplinary science concerning all aspects of volcanic degassing and impacts of relevance to the volcanology, environment, atmospheric/climate science and hazard assessment. We invite contribution discussing how we go from observations to synoptic understanding of volcanic processes and their impacts.

## Short Course on Magma, Eruptions and Risk

*Sent in by Rebecca Astbury*

**Location:** Perugia, Italy

**Dates:** 20-22 March, 2018

**Deadline:** 5th of March, 2018

**Coordinators:** Francesco Vetere and Harald Behrens

**Audience:** Masters and PhD students

**Speakers:** Jacopo Taddeucci, Daniele Morgavi, Maurizio Petrelli, Guido Ventura, Diego Perugini, Harald Behrens and Francesco Vetere

**Overview:** The three days short course is aimed to provide an up to date and modern knowledge about magmatic-volcanic processes in the Earth interior, dynamics of volcanic eruptions, and their impact on society. It consists of two days with lectures in the morning and exercises in the afternoon and a one day excursion in the Roman Magmatic Province where students will be trained on how to analyse volcanic successions (explosive to effusive facies).

**Link:** http://pvrg.unipg.it/short-course-on-magma-eruptions-and-risks-mer-mar-20-22-2018/

## Other upcoming meetings

***Geochemistry Group meeting, St Andrews March 27th-28th*** https://earthsci.st-andrews.ac.uk/files/2018/01/GGRiP-Flyer-2018.pdf

***Goldschmidt 12th -17th August*** https://goldschmidt.info/2018/

***IMA Melbourne, Australia 13th-17th August 2018*** https://www.ima2018.com/

There is also a call for proposals for meetings associated with the 'Year of Carbon' in conjunction with the Geological Society of London in 2019 https://www.geolsoc.org.uk/carbon19. This would be a great thing for the VMSG community to be involved in as there is clearly a strong synergy between volcanoes, magmas and melts and the global carbon cycle. *Sally Gibson*

## Mantle Plumes Website

Whether you are for, against or indifferent to the idea of mantle plumes, this often controversial subject interacts with so many of the provinces or areas that lots of us deal with, that it is often hard to avoid. The mantleplumes.org website, setup and run by Gillian Foulger at Durham, hosts a wealth of information and recently updated features (including a related research blog, relevant meetings, and many guest papers etc.) which may be of interest to those working in plume (or not…) associated provinces, and is well worth a browse.

Many will be aware of the website, but for students who have not come across it, or those who have not visited it for some time, perhaps worth a look! As with all geology, things are perhaps not as simple as once thought, so do plumes exist, are they just less well behaved than previously thought, or are there other processes at play? I will avoid getting into hot magma here and simply mention that there is a fascinating literature and ongoing discussions, with a lot of interesting science from many sides of the discussion at: **http://www.mantleplumes.org/**

## MSc by Research (Volcanology) Programme, Durham

The Department of Earth Sciences, Durham University, is excited to offer a new **MSc by Research (Volcanology) programme** in 2018/2019 that offers graduate students year-long research opportunities in volcanology and is excellent preparation for PhD research in volcanology and allied subjects.

**A list of advertised projects can be found here**. We also welcome interest from students wishing to develop their own projects in collaboration with Durham Volcanology Group staff. Please contact the potential supervisor with the most relevant research interests.

Please visit the links above for further information.

## Notices

### *Fieldtrip Co-ordinator:*

The role of fieldtrip co-ordinator for the VMSG committee is currently being reallocated Xafter Janine Kavanagh rotated off committee, so if you are interested in running a VMSG fieldtrip, please contact any member of the current committee and we will coordinate from there. These are great opportunities to get the community together so if you are interested in getting one off the ground please do get in touch!

### *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.

### *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.

Sami Mikhail (sm342@st-andrews.ac.uk) runs the VMSG twitter account with a great range of links to papers, positions, articles/news of interest being updated on a regular basis so do follow!!

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

Go to the group homepage at www.jiscmail.ac.uk/vmsg and choose the 'Subscribe or Unsubscribe' link from that page. You will receive a confirmation email which you 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 31st May 2018, for inclusion in the next newsletter.

All previous newsletters are available for download from the website.

***John Millett*** (john.millett@abdn.ac.uk or john.millett@vbpr.no)