

IAVCEI News 2010 No: 2

INTERNATIONAL ASSOCIATION OF VOLCANOLOGY AND CHEMISTRY OF THE EARTH'S INTERIOR

FROM THE PRESIDENT



IAVCEI President, Setsuya Nakada

People of the world became intimately familiar with volcanic disasters this April, due to the eruption at Eyjafjalla volcano, Iceland. Together IAVCEI and IUGG issued a statement on this event soon after it began. The eruption itself was not large, though the volcanic ash had impacts over a large area, and caused a variety of serious

economic problems. Even in Japan, almost opposite Iceland across the northern hemisphere, the movements of many tourists were blocked in airports for as long as a week. An automobile company, NISSAN, stopped production for awhile due to a shortage of parts manufactured in Ireland. Some medical vaccines ran short. We prepared a second statement with WOVO (World Organization of Volcano Obesrvatories, a commission of IAVCEI) and WMO (World Meteorology Organaization), in which we emphasised the importance of volcanological observation and cooperative research among scientists of the various associations within IUGG. These two statements can be seen on the web sites of IUGG and IAVCEI. I am sorry that we do not have a report on the activity of Eyjafjatlla volcano in this issue of the newsletter, although I intended to obtain a contribution from the Icelandic community.

The impact on the public of volcanic disasters is almost independent of the scale of eruption. Under impetus from the Icelandic eruption, we should discuss effective reactions of volcanologists to volcanic events themselves, and to the public's need for information. The Cities on Volcanoes 6 Conference was held in Tenerife, Spain, from May 31st through June 4th, and provided a very timely opportunity to discuss these issues. The details, including the outcomes from this meeting are reported in this News by Nemesio Perez. I would like to give our thanks to the local organizing committee which prepared a nice and compact conference, while welcoming more than 600 attendees to a very beautiful volcanic country.

The next big meeting for our community is the General Assembly

of IUGG (also of IAVCEI), to be held in Melbourne from June 28th through July 7th, 2011 (http://www.iugg2011.com/). Holding inter-association scientific sessions related to volcanology is one of the merits of such big meetings, and Joan Marti, IAVCEI Secretary General, and Ray Cas, LOC Chairman, worked hard to construct the session program. Registration for IUGG 2011 will start soon, and I again strongly urge that you click the IAVCEI button when you submit your registration. This action will determine the financial allotment from IUGG to IAVCEI for the following four years. The allotment is IAVCEI's main income.

During the General Assembly of IUGG 2011, the IAVCEI Bureau and Executive Committee members will be replaced on the basis of election results. In addition, one Wager Medal and one George Walker Award will be provided to the IAVCEI members of middle and young ages, respectively, who have made outstanding contributions to the community of IAVCEI. The announcements from the Nominating Committee of the IAVCEI Executives and the Award committee are provided in this issue.

The last announcement is the replacement of the Executive Editor of IAVCEI's official journal, the Bulletin of Volcanology (BV). John Stix has held this position since 2004, and decided to move on to other things in 2010. James White, at Otago University in New Zealand, has now taken up this position, effective from July 1st. According to the 2009 Thompson ISI citation reports, BV now has an impact factor of 3.1, up from 2.7 of 2008. ISI says BV published 75 papers, up from 59 the previous year. I want to thank John Stix for his amazingly hard work and devoted contribution to BV for 6 years.

LETTER TO THE NEWSLETTER EDITOR

10 February, 2010

In IAVCEI News 2010, No. 1, the last sentence of "FROM THE PRESIDENT" said, "I felt, however, that the data on volcanic gases emitted from major historic eruptions are insufficient for use in the climate change models." While Dr. Nakada assures me

that he did actually feel that way, meaning that the sentence is correct, his feeling was incorrect. In Gao et al. (2008), we used ice core data to produce a record of global volcanism for the past 1500 years that is now being used in the international PMIP-3 project to force climate models for this period. You can access the paper and the data at http://climate.envsci.rutgers.edu/IVI2/. These data have also been permanently archived at the NOAA World Data Center for Paleoclimatology, www.ncdc.noaa.gov/paleo/forcing.html. PMIP-3 is described at http://pmip3.lsce.ipsl.fr/. You also can find the link there for our data.

For the past 1000 years (longer than the period of Mysak's lecture), the most important volcanic gas has been SO2, and then only when it is injected into the stratosphere where it can form sulfate aerosols that persist for a year or two - long enough to produce climate change. CO2 emissions from volcanic eruptions on that time scale have been so minor that they have not produced any climate change. Ice cores preserve both the sulfate and CO2 record, and so tell us this story. We DO know enough about volcanic emissions are interesting for many other reasons, but are not important for climate change. On much longer timescales, CO2 emission has been very important, but not for the historical period.

Gao, Chaochao, Alan Robock, and Caspar Ammann, 2008: Volcanic forcing of climate over the past 1500 years: An improved ice-core-based index for climate models. J. Geophys. Res., 113, D23111, doi:10.1029/2008JD010239.

http://climate.envsci.rutgers.edu/pdf/Gao2008JD010239.pdf

Sincerely,

Alm Roboth

Alan Robock, Distinguished Professor Dept. Environmental Sciences, Rutgers University

IAVCEI Awards

Call for nomination of candidates for the Wager Medal and George Walker Award for 2011

The Awards Committee invites nominations of candidates for the Wager medal and George Walker Award for the next IAVCEI General Assembly (IUGG General Assembly at Melbourne in July 2011).

Awards Committee members (2007-2011) are Charlie Bacon (USA), Don Dingwell (Germany), Setsuya Nakada (Japan, Chair), Hazel Rymer (UK), and Claus Siebe (Mexico).

WAGER MEDAL TO BE AWARDED IN 2011

The Wager Medal honors the memory of Professor Lawrence Rickard Wager of the University of Oxford, United Kingdom, who was born in 1904 and died in 1965. Professor Wager is best known for the discovery of the Skaergaard layered intrusion and the first detailed structural, mineralogical and petrological study of such intrusions. The medal is given every two years to a single scientist under the age of 43 who has made outstanding contributions to volcanology, particularly in the eight-year period prior to the Awards. Candidates must be under the age of 43 on the 31 of December of the year preceding the IAVCEI General or Scientific Assembly at which the award is made.

GEORGE WALKER AWARDS - TO BE AWARDED IN 2011

The George Walker Awards honor the memory of Professor George Walker, who was born on March 2, 1926 and died on January 17, 2005. Professor Walker's discoveries pioneered a modern quantitative approach to physical volcanology and greatly accelerated understanding of volcanic processes. The award is supported by the George Walker Fund. The award is given every two years to a single scientist under the age of 35. The award recognizes achievements of recent outstanding graduate in the fields of research encompassed by IAVCEI, or also a recent graduate whose achievements in volcanology involved operating in difficult circumstances. The winner will receive a certificate with a cash award.

Guidelines for Nomination

Nomination packages for the medal/award should include:

- (1) a formal nomination letter, not to exceed three pages,
- (2) a curriculum vitae,
- (3) at least three supporting letters originating from different institutions (two such letters are sufficient for the George Walker Awards), and,
- (4) if needed, a postulation letter describing explicitly the types of "difficult circumstances" encountered by the candidate for the George Walker Award.

* Any candidate must be a member of IAVCEI when nominated. *The winners and referees will be notified of the committee's decisions before the deadline for abstract submission to the 2011 General Assembly (February 2011). The citation and acceptance speeches will be scheduled in General Assembly, and will be published in the IAVCEI newsletter.

Send nomination packs by December 15, 2010: IAVCEI Awards Committee, c/o Setsuya Nakada (nakada@eri.u-tokyo.ac.jp, Earthquake Research Institute, University of Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-0032, Japan). They should be sent by e-mail (as PDF or DOC documents).

VHUB INITIATIVE

VHub – Cyberinfrastructure for collaborative volcano research and risk mitigation

Greg A. Valentine, gav4@buffalo.edu Center for GeoHazards Studies and Department of Geology University at Buffalo

The VHub project is building a new online platform for collaboration in volcanology research, education, and outreach, and to accelerate the transfer of research tools to organizations charged with volcano hazard and risk mitigation (such as observatories). The project is funded by the US National Science Foundation and includes a core development team at University at Buffalo, Michigan Technological University, and University of South Florida, along with a group of collaborators from the international community. To ensure that VHub evolves in a manner that is most useful for observatories, the development team is also working closely with a small group of observatory partners (Table 1 provides the current list of collaborators and partner observatories).

Major components of VHub include:

- Model warehouse A clearinghouse for computational models of volcanic processes, documentation of those models, and capabilities for online collaborative groups focused on issues such as code development, configuration management, benchmarking, and validation. Groups can establish appropriate levels of privacy control.
- Simulation tools A subset of models will be available for online execution, eliminating the need to download and compile locally.
- Data warehouse VHub will host some datasets and databases, and will have temporary storage available for some large datasets that are being used for a specific purpose such as a code benchmarking exercise. More importantly, the VHub team will be implementing iRODS middleware (see irods.org) that allows a user to access data from a "cloud" of databases as if they were a single virtual database. This means that databases stay with their owners/maintainers, but are much more accessible to the user community (i.e., users do not have to learn the access procedure and format of multiple databases). Again, individual data owners determine the level of privacy, whether open to the world or only to a limited number of collaborators. For this approach to be successful the community will need to define standards and protocols for metadata, and we are working with major database projects to develop workshops and online discussions around this topic.
- Teaching materials, workshops, and training VHub will be a platform for sharing simulations, calculational exercises, presentations, and other items useful in teaching university-level volcanology. VHub can also be a site to post videos and presentations from workshops and training events, and to have wikis and blogs around specific topics.
- Stakeholder outreach The visualization and project tools that will be available through VHub should be useful for communicating with stakeholder groups and decision makers in areas around volcanoes. In addition to showing complex data and model results, there is potential for stakeholders to use automated project documentation/design software and online simulation tools to test their own hypotheses about how their volcano works.

The VHub development team is currently focused on getting the software and hardware infrastructure in place to support these (and other) capabilities. We will be "seeding" vhub.org with some modeling tools (e.g., the Tephra2 fall model, and the Titan2D model of mass flows) and datasets. In addition, an online collaboration group will be formed around multiphase models such as mfix. The collaborators in Table 1 will be using VHub to disseminate a wide variety of models ranging from tephra fall to Bayesian event tree analysis, as well as addressing data and database linkages. The VHub servers reside at Purdue University and the basic software infrastructure (see hubzero.org) is also maintained there.

Our Advisory Team (see Table 1) brings a range of experience and perspectives to help guide the development of VHub, including volcanic crisis response, collaboration and communication, advanced computational fluid dynamics, and geoinformatics. This group is already providing important input on many issues, including how we take advantage of other geoinformatics and cyberinfrastructure projects.

A more detailed description of the project can be found at geohazards.buffalo.edu/vhub. The VHub platform (vhub.org) will soon be broadly available online – watch for announcements via the volcano listserve and the IAVCEI website. VHub has potential to open the volcanology community to a new, global level of collaboration - the approach has already proven very successful in other disciplines. The VHub project is funded for four years, and ultimately its long-term success will depend upon the community as a whole "taking the driver's seat," while the development team just sets the stage. Please contact Greg Valentine or any member of the development team (see Table 1) if you are interested in learning more about or in using VHub.

VHub collaborator institutions and partner observatories (as of March 2010) and advisory team

Institution	Primary contact(s)
Collaborating research groups Istituto Nazionale di Geofisica e Vulcanologia (Rome, Pisa, and Naples; Italy)	W. Marzocchi, A. Neri, A. Costa
Bristol University (UK)	R.S.J. Sparks
Massey University (New Zealand)	S. Cronin
Geological Survey of Japan	S. Takarada
Institute of Earth Sciences 'Jaume Almera' (Spain)	J. Marti
Institut de Physique du Globe de Paris	JC. Komorowski
Université Blaise Pascal, Clermont Ferrand (France)	T.H. Druitt
Earthquake Research Institute (Japan)	T. Koyaguchi
Instituto de Geofísica, Universidad Nacional Autónoma de México	J.L. Macias
Arizona State University (USA)	A. Clarke
Los Alamos National Laboratory (USA)	S. Dartevelle
Università degli Studi de Napoli Frederico II (Italy)	C. Scarpati
Université de Genéve (Switzerland)	C. Bonadonna
Universität Hamburg (Germany)	M. Hort
Barcelona Supercomputer Center (Spain)	A. Folch
U.S. Geological Survey – Cascade Volcano Observatory (USA)	L. Mastin
Smithsonian Institution (USA)	L. Siebert
Partner observatories Osservatorio Vesuviana (Italy)	A. Costa
Observatorio Vulcanológico y Sismológico – Pasto (Colombia)	M. Calvache
Montserrat Volcano Observatory	P. Cole
Advisory team J. Eichelberger (USGS Volcano Hazards Program) S. Nakada (Earthquake Research Inst. & IAVCEI President)	J. Barclay (Univ. East Anglia) C. Baru (San Diego Supercomputer Center) J. Dufek (Georgia Tech)
Development team University at Buffalo	G. Valentine, M. Jones, S. Gallo, E. Calder, M. Bursik, B. Pitman, D. Moore-Russo, C. Renschler, M. Sheridan, J. Bajo, S. Melander
Michigan Technological University	S. Carn, W. Rose
University of South Florida	C. Connor, L. Courtland

COV 6 REPORT

Cities on Volcanoes 6-Tenerife 2010

by Nemesio M. Pérez

The sixth edition of the largest international conference on volcanic risk management "Cities on Volcanoes" was recently held at Puerto de la Cruz (Tenerife, Canary Islands, Spain) from May 31 to June 4, 2010. CoV6-Tenerife 2010 was organized by Fundación Canaria ITER and the Cabildo Insular de Tenerife and co-hosted by the Comission of Cities and Volcanoes (CaV) of the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI) as well as several international (International Society of Rock Mechanics, ISRM), national (Spanish Volcanological Society, SVE; Spanish Society of Rock Mechanics, SEMR), regional (Canarian Association of Volcanology, AVCAN) and local (The City of Puerto de la Cruz, Instituto Tecnológico y de Energías Renovables, ITER) organizations and institutions. The aim of the conference was to bring together geoscientists working on active volcanoes, authorities, civil protection specialists, city planners, social scientists, economists, psychologists, educators, health specialists, engineers, mass media and general members of communities living in active volcanoes to exchange and understand their experiences and knowledge in order to evaluate and improve prevention/mitigation actions, land-use planning, emergency management, and all required measurements to improve volcanic risk management in densely populated volcanic regions.

CoV6-Tenerife 2010's Open Ceremony was chaired by Ricardo Melchior (President of the Cabildo Insular de Tenerife), Domingo Berriel (Minister for the Environment and Land Planning of the Government of Canary Islands), Marcos Brito (Mayor of the City of Puerto de la Cruz), Setsuya Nakada (President of the IAVCEI), and Luis Lamas (Secretary General of the ISRM). One major issue to highlight from the Open Ceremony was the announcement made by Ricardo Melchior of the launch of the Canarian Volcanological Institute (Instituto Volcanológico de Canarias, IVC) in June 2010 following the unanimous decision of the Spanish Senate in 2005 to improve and optimize the management of volcanic risk in Spain.

Tenerife, an active volcanic and densely populated island with a low volcanic risk perception among its inhabitants, was a marvellous place to run this open scientific and technical discussion on volcanic risk management. In addition, CoV6-Tenerife 2010 was also an ideal forum to discuss about the plus side of living in active volcanoes since the short-term hazards posed by volcanoes are strongly balanced by benefits of volcanism over geologic time. Therefore, CoV6-Tenerife 2010 scientific and technical sessions were organized into 4 major symposiums: The science of volcanoes (symposium 1); How to live with volcanoes: the risks (symposium 2); How to live with volcanoes: the opportunities (symposium 3); Recent eruptions received 653 contributions (17 plenary talks, 238 oral and 398 poster presentations) and ~ 500 drawing and models of volcanoes made by primary and high school students from Tenerife. The CoV6 abstract volume and the meeting programme can be actually downloaded from the CoV6 web page (www.citiesonvolcanoes6.com). A total number of 863 participants from 53 different countries (Argentina, Australia, Belgium, Bolivia, Brasil, Cameroon, Cape Verde, Colombia, Comores, Costa Rica, Cuba, Chile, China, Dominican Republic, Ecuador, El Salvador, France, Germany, Guatemala, Hungary, Iceland, Indonesia, Iran, Ireland, Italy, Japan, Kenya, Luxembourg, Mexico, Monserrat, New Zeland, Nicaragua, Nigeria, Norway, Papua New Guinea, Peru, Philippines, Portugal, Puerto Rico, Russia, Rwanda, Saudi Arabia, Singapore, Spain, Switzerland, Taiwan, Tanzania, The Netherlands, Tunisia, Turkey, U.K., U.S.A., and Venezuela) were registered for CoV6-Tenerife 2010.

Several pre-, intra-, post- conference field trip and activities were also conducted at CoV6. Taking into account that Tenerife is yearly visited by 4-5 million tourists, a workshop on volcanoes, volcanic risk management and tourism was organized for the local tourist professional sector by the CoV6 organization prior to the conference as well as a workshop on volcanoes, volcanic risk management and communication for journalists. Beside these activities two field trips were also conducted prior to the conference. "Management and exploitation of groundwater resources in an active volcanic island: the case of Tenerife" lead by Juan J. Coello and Ricardo Bacells (both at the Water Resources Department of Tenerife Island), and "Gravitational landslides in the volcanic island of Tenerife" lead by Luis González de Vallejo (Univ. Complutense de Madrid) and Mercedes Ferrer (Spanish Geological Survey, IGME). A total number of 50 participants were registered for these pre-conference field trip and activities.

Beside the CoV6 scientific and technical sessions, several specific workshop and discussion forums were addressed during the conference (i) Forum on "Assessment of volcanic ash threat: learning and considerations from the 2010 Eyjafjallajökull eruption" by Arnau Folch (Barcelona Supercomputer Center), (ii) Forum on "Volcanic landslides" lead by Luis González de Vallejo (Univ. Complutense de Madrid) and Mercedes Ferrer (Spanish Geological Survey, IGME), (iii) Forum on "Outreach" lead by Carolyn Driedger (USGS), and (iv) the UNESCO Workshop "International mobile early-warning system(s) for volcanic eruptions and seismic activities (IMEWS)" lead by Kristine Tovmasyan (UNESCO) and Roberto Scarpa (University of Salerno, Italy).

In addition to these activities a specific programme for the general public and local population entitled "Volcanes de Película" was carried out by the CoV6 Organization at the local Cinema in Puerto de la Cruz. The objective of this programme was to contribute to greater public awareness about the meaning of living

since CoV5-Shimabara 2007, and volcanic crisis management in special settings (symposium 4).

CoV6-Tenerife 2010 was in general a successful meeting which



with volcanoes. During the conference this program showed several movies and documentals related to volcanoes, and volcanic activity such us "Understanding Volcanic Hazards", "Reducing Volcanic Risk", "Pompeii: The Last Day", "Mararia", "Dantes Peak", "Eruptions at the sea (Reunion)", "Living with Usu Volcano", "Monserrat Andesite Volcano", "Chinyero: 100 years of silence", "When time Ran Out", and "Supervolcano". A total number of 1704 participants did attend this volcano movie programme.

From May 31 to June 4 several intra-meeting field trip and activities were organized by CoV6. Volcano field trips were conducted in all the islands with historical volcanism (Lanzarote, Tenerife and La Palma). Cumbre Vieja field trip (La Palma) was lead by Simon Day (Univ. College, London) and Eleazar Padrón (ITER) while Timanfaya (Lanzarote) field trip was lead by Carmen Romero (Univ. of La Laguna). In the case of Tenerife the field trips to Las Cañadas caldera and the summit cone of Teide volcano were lead by José A. Volcanological Institute (IVC), which was written and signed by Hans-Ulrich Schmincke (Germany), Setsuya Nakada (Japan), Steve McNutt (USA), Chris Newhall (Singapore), Kenji Notsu (Japan), Franco Barberi (Italy) and Hiroshi Wakita (Japan) "The establishment of the Canarian Volcanological Institute (Instituto Volcanológico de Canarias, IVC) as a joint effort of different



Rodríguez Losada (Univ. of La Laguna), Rodrigo del Potro (Univ. Bristol), Pedro A. Hernández (ITER) and David Calvo (ITER). Other intra-meeting activities at Tenerife were the Visit to Civil Protection Coordination Center (1-1-2) at Tenerife Island and the Cultural trip about volcanoes & wine at Tenerife.

After June 4, 2010, "Tenerife's explosive volcanism field trip" lead by Ray Cas (Monash Univ., Australia) and Adrian Pittari (The University of Waikato, New Zeland), and the "Ash Fall Impacts Working Group Workshop" lead by Kristi Wallace (USGS/Alaska Volcano Observatory, USA), Graham Leonard (GNS Science, New Zeland), and Tom Wilson (University of Canterbury, New Zeland) were the post- activities offered in the CoV6 framework. A total number of 70 participants were registered for these post-conference field trip and activities.

CoV6-Tenerife 2010's Closing Ceremony was chaired by Ricardo Melchior (President of the Cabildo Insular de Tenerife), Carlos Alonso (Vicepresident of the Fundación Canaria ITER), José Ignacio Peralta Sánchez (The Mayor of the City of Colima) and Graham Leonard (Secretary of the Comission of Cities and Volcanoes of the IAVCEI). Three major issues can be highlighted from this Closing Ceremony. One of them was the announcement of a new association, the World Organization of Volcano Cities (WOVOCI), following a proposal from the Cabildo Insular de Tenerife. This new association is a marvellous initiative and will be tremendously beneficial to enhance strategies which can help to improve community awareness about volcanoes and promote volcano cities transnational cooperation on volcanic risk management with the collaboration of the Comission of Cities and Volcanoes of the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI). The WOVOCI's main objective is the application of scientific research and knowledge to enhance the civil protection as a public policy. The WOVOCI founded members (the cities of Colima, Mexico; Kagoshima and Shimabara, Japan; Fuencaliente and Puerto de la Cruz; Spain and the Cabildo Insular de Tenerife; Spain) will do the best to involve most cities on volcanoes all over the world into the WOVOCI to promote future CoV conferences as well as other IAVCEI meetings. Another issue to highlight was the reading by Steve McNutt of a letter of support for the Canarian

institutions and administrations in Spain will be fundamental to enhance collaborative scientific efforts and to help reduce volcanic risk in the Canary Islands. We, the undersigned, strongly endorse the unanimous declaration of the Spanish Senate made on November 2, 2005, and urge the setting up of the Canarian Volcanological Institute. We support the recent public announcement by Ricardo Melchior, President of the Cabildo Insular de Tenerife, made at the Open Ceremony of the International Conference Cities on Volcanoes 6 - Tenerife 2010." Finally, the third issue to highlight was the announcement mabe by Graham Leonard (Comission of Cities and Volcanoes) about the next CoV meeting which will take place at Colima (Mexico) from November 19 to 23, 2012 (Cities on Volcanoes 7 - Colima 2012). During this Closing Ceremony, the Mayor of the City of Colima, José Ignacio Peralta Sánchez, did provide a 5 minutes talk about the City of Colima and Colima volcano inviting us to meet at Colima for the Cities on Volcanoes 7 - Colima 2012.



IAVCEI EXECUTIVE NOMINATIONS

Request for nominations to the IAVCEI Executive (2011-2015)

We are now soliciting nominations for IAVCEI executive members to serve in the upcoming term (July 2011-June 2015). The executive includes the President, two Vice-Presidents, and four Members of Executive Committee. The Secretary General was elected for two terms in 2007. The current Vice-Presidents and the Executive Committee Members are eligible for re-election. The President, Setsuya Nakada, announces the appointment of the members of the Nominating Committee for the IAVCEI executives for 2011-2015 as follows:

Nominating Committee

- Toshitsugu Fujii
- Giovanni Macedonio
- Jocelyn McPhie
- Chris Newhall
- Steve Sparks (Chair)
- The details of voting and role of the Nominating Committee are shown in the Statutes and By-Laws of IAVCEI. The following is a summary of the first step of the nomination.
- Any IAVCEI member can nominate in writing any other current member as one of the IAVCEI Executives.
- The nomination is seconded by three other IAVCEI members, each from a country other than that of the nominee. The person who is nominating can be from the same country as the person being nominated.
- The nominee, nominator, and seconders must all be from countries belonging to IUGG (paying member countries—see IUGG web site).
- No one can be a candidate for more than one position in the election.

What is required of the candidates?

Each nomination must include (i) a short statement of acceptance from the candidate, (ii) a short resume outlining the candidate's position, research interests, and activities related to the IAVCEI, (iii) one-page curriculum vitae of the candidate including key research publications, and (iv) letters from three seconders.

Deadline for nominations: December 31, 2010

The nominations should be submitted to Prof. Steve Sparks, the Chair of the IAVCEI Nominating Committee, at the following address:

Prof. Steve Sparks Dept. of Earth Sciences, University of Bristol Wills Memorial Building Queen's Road BRISTOL BS8 1RJ UK Phone: +44 (0)117 9545419 Email: Steve.Sparks (at) bristol.ac.uk



LASI 4 Workshop Physical geology of subvolcanic systems: laccoliths, sills, and dykes Moab and Mount Hillers - Utah - USA 22-26 September 2010





