IAVCEI *News* 2018 No: 3

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

FROM THE PRESIDENT

Dear Colleagues,

Don Dingwell
President of the IAVCEI

What a meeting it was... The COV10 meeting at Naples was a stunning success, with record attendance and a superb swath of contributions ranging from mechanistic physico-chemical studies to social media impact studies. The participants were a striking blend of young and old, male and female, physical and social scientist, and we saw unprecedented levels of diversity. Thank you from of all of us to the relevant committees and to all who organized sessions and other activities. We who were fortunate enough to be able to attend were treated to what must surely have been a glimpse into many areas of the future of volcanic studies. Nevertheless, as I emphasized in my introductory comments, volcanology can be far more. There are vast areas of collaboration with other disciplines that remain untapped. I very much hope that we will hear more of them in our next and future meetings.

After the meeting is before the meeting. I want to encourage you as strongly as is polite to make plans to attend the IUGG meeting at Montreal next summer. It will be a celebration of 100 years of IUGG and of IAVCEI. Next to the broad palette of earth sciences offered at these IUGG meetings there will undoubtedly be some serious celebrating involved. Why miss it?

The next call for nominations for IAVCEI Awards is also just around the corner. Making a nomination of a deserving colleague for this highly prestigious recognition can be something of truly lasting impact on the individual as well as their field. Please get your nomination thinking hats on and be ready for the upcoming announcement.

D. B. Dingwell,
Munich, 4 October 2018

27TH IUGG GENERAL ASSEMBLY MONTREAL, CANADA 8 – 18 July 2019

Welcome

Beyond 100: The next century in Earth and Space Science
The **27th IUGG General Assembly** will be held July 8-18, 2019 at the Palais des Congrès in Montréal, Québec, Canada. This is a special opportunity for participants from Canada and from around the world to come together and share their science and culture. 2019 marks the 100th anniversary of IUGG; we will look back on the accomplishments of the previous century of Earth and space science research, and forward to the next century of scientific advancement. Join us for a host of scientific activities, including special public lectures, keynote Union lectures and a wide variety of themed sessions.

During your stay, you will have the opportunity to explore the city of Montréal, widely renowned across North America and around the world for its vibrant cultural, social and culinary scene. July is a particularly good time to profit from warm weather, outdoor dining and the many festivals

taking place across the city.

In conjunction with the IUGG General Assembly, a number of scientific workshops and cultural events are planned. We will also be offering the chance to explore the geological treasures of our region through a number of field trips ranging from half-day to multi-day excursions.

On behalf of the Local Organising Committee of IUGG2019, I welcome you to Montréal.

Fiona Darbyshire
Chair, Local Organising Committee, IUGG2019

Important Deadlines

October 1 2018
Online registration begins
Abstract submission begins
Online housing tool opens
Travel grant applications open

February 18 2019
Abstract submission closes
Travel grant applications close

March 30 2019
Abstract acceptance sent to participants

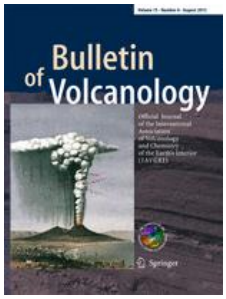
April 5 2019
Early-bird registration closes

May 31 2019
Complete scientific program details published

Registration:

http://iugg2019montreal.com/register.html

BULLETIN VOLCANOLOGY
From the Executive Editor



This year Bulletin of Volcanology has set-up a number of new initiatives in an attempt to bring the journal closer to the membership of the society that the Bulletin represents (i.e., IAVCEI). The first initiative was the launch of a "most-cited author of the year" award scheme. Granted annually, the awards will come with the prize of a four-year membership of IAVCEI and a book voucher for Springer Books. Two awards will be granted: the first for the paper most-cited in the preceding year (in this year's case: 2017), and the second for the most-cited paper as lead-authored by an early-career researcher (as listed by IAVCEI's ECR-Net). For the 2017 awards, eligible papers were those published in the Bulletin between 2016 and 2015. This year's awards went to Michael Heap and Antonio Capponi for their papers:

M. J. Heap, J. I. Farquharson, P. Baud, Y. Lavallée, T. Reuschlé (2015) Fracture and compaction of andesite in a volcanic edifice. Bulletin of Volcanology 77: 55 DOI 10.1007/s00445-015-0938-7

A. Capponi, J. Taddeucci, P. Scarlato, D.M. Palladino (2016) Recycled ejecta modulating Strombolian explosions. Bulletin of Volcanology (2016) 78: 13 DOI 10.1007/s00445-016-1001-z

Three other new publication initiatives have been set up. The first is an "information support" effort mostly aimed at improving scientifically-informed journalism during volcanic crises. This involves identifying a developing volcanic crisis that is likely to become newsworthy and in need of science support / outreach, and then granting open-access to any relevant papers held in the Bulletin of Volcanology archive. This is supported by a timely press release, which is designed to pre-empt the need for information and is being developed in collaboration with the Smithsonian Institution's Global Volcanism Program. Second, we have launched a new "perspectives" section in the journal. Perspectives are reports that, based on state-of-the-art and programmatic needs in specific theme areas, provide roadmaps for future developments. They would ideally be white-paper-style visions for future directions, as based on discussions carried out in working groups, workshops, special-interest meetings, conference special sessions, IAVCEI sub-committee's and other special interest group meetings and discussions. Third, we are revamping the special issue idea, which will appear as a thematic collection for papers addressing a specific volcano-related crisis or theme. Currently work is underway to put together just such a collection for the 2016–2017 eruption of Bogoslof volcano in the Aleutian Islands, Alaska. Proposals for other special issues (or perspectives pieces) are welcome, and can be made by contact with the Bulletin of Volcanology editorial office through Fran Van Wyk de Vries <fran.vanwyk@uca.fr>. We remind you that there is also the forum section, which provides the IAVCEI membership a doi-supported platform for discussion of controversial issues.

Finally, we have launched a reviewer reward scheme. Our primary cause of handling delay is the failure to secure a full complement of reviewers. To incentivize complete and timely reviews, for each complete a review, Springer will

donate an agreed sum to a fund which will be released at the end of each calendar year. This money will be used to support travel bursaries for under-funded groups for participation in IAVCEI events (meetings, workshops, summer schools, etc.). We are hoping to announce the first bursaries in January 2019. We are reliant on reviewers generously contributing their time and expertise to provide timely peer-reviews, and this is a means of acknowledging their vital contribution to the volcanological community.

Andy Harris
Clermont-Ferrand

ADVANCES IN VOLCANOLOGY
Springer Book Series

New Book Proposals NEEDED

If you are thinking of preparing a book that can be used as a reference item, a summary of recent research achievement or be used as a handy desktop book for research and teaching please consider the ***Advances in Volcanology*** book series.

Editorial Manager for *Advances in Volcanology* is now fully operational hence book chapters can be uploaded through the fully electronic platform of Editorial Manager.

http://www.editorialmanager.com/avol

The review process and manuscript style is identical to those of Bulletin of Volcanology.

New book proposals are always welcome. Please send your proposal to discuss your ideas to Karoly Nemeth (k.nemeth@massey.ac.nz) and we can provide some advice to succeed your book.

Karoly Nemeth Series Editor – Advances in Volcanology

REPORT ON THE SECOND MEETING OF LATIN AMERICAN VOLCANO OBSERVATORIES 23-24 APRIL 2018, AREQUIPA, PERÚ

During the month of April 2018, a number of important events for the volcanology of Latin America took place in Arequipa, Perú. For the second time, the Latin American Association of Volcanology (ALVO), together with the Instituto Geológico, Minero y Metalúrgico (INGEMMET) and the Observatorio Vulcanólogico INGEMMET (OVI) from Perú, organized a meeting of Latin American Volcano Observatories (Segundo Encuentro de Observatorios Vulcanológicos de Latinoamérica). This event, which took place on April 23-24, at the Universidad Tecnológica del Perú (UTP) was sponsored by the USGS-Volcano Disaster Assistantship Program (VDAP), IAVCEI and the World Organization of Volcano Observatories (WOVO). The main objectives of the meeting were (i) to exchange experiences of the observatories in the management of recent volcanic eruptions and the emission of alerts; (ii) to learn about the advances and innovations achieved in recent years by the observatories; (iii) to discuss the challenges that the observatories face, as well as limitations and difficulties, and discuss how to work toward solving them together; and (iv) to promote organizational cooperation among the observatories in topics like training, instrumentation, processing, and data interpretation. About fifty participants, representing 13 institutions from 10 Latin American countries (Perú, Chile, México, Colombia, Costa Rica, Guatemala, Argentina, El Salvador, Ecuador, and Puerto Rico), met during two days to participate in a series of activities. The list of participants included the directors and coordinators of observatories and institutions that conduct volcano monitoring, as well as volcanologists and students working in the different observatories. Three representatives from the USGS-VDAP (Drs. Jacob Lowenstern, Heather Wright, and Christopher Harpel) also took part in the meeting, as moderators of sessions and sharing their experiences in volcano monitoring, hazard management, and communication. The president (Dr. Donald Dingwell) and secretary general (Dr. Roberto Sulpizio) of IAVCEI participated as observers of the event.

Figure 1:
Participants of the Second Meeting of Latin American Volcano Observatories (Photo courtesy of INGEMMET).

The opening ceremony took place in the morning of April 23rd, and representatives from INGEMMET, ALVO, and the USGS-VDAP welcomed the participants. The president of ALVO, Dr. Lizzette A. Rodríguez, gave an introduction to the program of the meeting. Following this ceremony, all the participants introduced themselves, before starting the first session of the meeting.

The first session of the meeting, titled Attention to Recent Volcano Emergencies, included a series of talks by

volcanologists from Perú, Guatemala, and Nicaragua, who described some of the recent eruptions or volcanic crises in the region: Sabancaya (ongoing), Fuego (ongoing), Santiaguito (ongoing), and Momotombo (2015). The session also included a presentation by Dr. Soledad Osores, representative from the Volcanic Ash Advisory Center (VAAC)-Buenos Aires, in which she showed the role and work carried out by VAAC on the current eruption of Sabancaya volcano, Perú. The discussion that followed the presentations allowed other participants to share their own experiences.

Figure 2:
Opening ceremony. From left to right: Dr. Jacob Lowenstern (Director-VDAP), Ing. Alonso Portocarrero (Academic Director of UTP), Lic. María Carmen Tuiro Salvador (Vice President of the Board of Directors, INGEMMET), Dr. Bo Galle (Manager-NOVAC program, Chalmers University), and Dr. Lizzette A. Rodríguez (President of ALVO). Photo courtesy of INGEMMET.

The second session, titled Protocols of Attention to Emergencies, was the most extended and relevant of the meeting, and started with presentations about different examples in which emergency protocols were developed and applied. Topics included experiences in the management of eruptive processes in Galeras volcano (Colombia); the management of volcanic emergencies in the border between Argentina and Chile; the management of San Salvador volcano (El Salvador); and conflicts among volcanic activity legislation and the development of tourism around volcanic areas in Costa Rica. Before the meeting, the participants were asked to share their emergency protocols or contingency plans (if they had any) with the organizing committee. They were analyzed and a list of similarities and differences among them was prepared and used to lead a group activity. The participants were divided in 6 groups, each with a facilitator and editor, to discuss the basic guidelines that every volcanic emergency protocol should contain. The main objective of this discussion was to collect and share this information that is considered essential for all the countries in the region, both those that are developing their own protocols or contingency plans and those that already have their protocols but could revise them, based on the guidelines discussed.

Figure 3:
Opening ceremony. Participants of the Second Meeting of Latin American Volcano Observatories and the 6th NOVAC Workshop. Photo courtesy of INGEMMET.

The second day of the event was focused on the topics of education and communication, as well as the on a general discussion and conclusions. The third session had the objective of analyzing communication and education strategies that are currently being adopted by different observatories. It started with oral presentations on the following topics: experiences of the Colombian Geological Survey related to social appropriation of geoscientific knowledge; the experience of the watchmen (vigías) of Tungurahua, Ecuador; education and diffusion to transform a volcanic disaster into an opportunity for development at Huaynaputina, Perú; and communication of hazards in México. The second part of the session was a group activity and discussion, in which the groups shared their experiences and identified the main challenges and difficulties in communication of risk, both during crisis and during periods of quiescence.

The last session of the meeting was devoted to a general discussion among all the participants and to draft the conclusions of the meeting. It started with three short presentations, one related to IAVCEI mission and presented by secretary general Roberto Sulpizio, one with a summary of the Primer Encuentro de Observatorios Volcanológicos de Latinoamérica, and finally one related to a new project of internships for young volcanologists, developed by the Jóvenes Volcanólogos Latinoamericanos (JVLA) and ALVO. The general discussion allowed us to identify a number of important points that should be worked on and continue developing: the need to develop collaboration agreements among the institutions/observatories and between institutions and universities; the need for more personnel training in different respects; the need for similar events that join the volcanologists of the region in order to

share their common experiences, and others. As part of the conclusions, ALVO committed itself to share all the presentations and all the emergency protocols/contingency plans among the participants. The discussions from the different groups activities will also be organized and shared among the participants.

Figure 4:
Participants during one of the oral presentations. Photo by Dr. Mariano Agusto (ALVO).

In order to assess the meeting and get additional inputs on the main points discussed, all the participants were invited to fill out an online questionnaire at the end of the meeting. The results of the questionnaire will be analyzed and shared with the participants and also presented at the upcoming Cities on Volcanoes 10 conference. This Second Meeting of Latin American Volcano Observatories was a success and the objectives were met. The closing ceremony included three short messages. Dr. Lizzette A. Rodríguez (President of ALVO) thanked the participation of the observatories, especially considering that there were limited resources for the event. She also thanked the organizing committee (especially Pablo Forte and Marco Rivera), as well as Nélida Manrique (INGEMMET) and Luisa Macedo (IGP). Dr. Marco Rivera (Coordinator of the INGEMMET Volcano Observatory-OVI) thanked the participants and organizers for a very successful event. Eng. Oscar Bernuy Verand (President of the Board of Directors of INGEMMET) officially closed the event, thanked all the participants, and summarized the main points of the meeting.

Figure 5:
Participants of one of the groups during the activities of the third session of the meeting. Photo by Sebastián García (Argentina's SEGEMAR)..

Lizzette Rodrigez
ALVO

REPORT ON PRESENTATION OF THE 1ST VOLCANO OBSERVATORY AWARD BY IAVCEI

On September 7, 2018, during the closing ceremony of the COV10 in Naples was presented the 1st IAVCEI's Volcano Observatory Award. The award was established for recognising individuals or organisations that distinguished in the managing of eruptive crises. In its debut the award was presented to Indonesia's Center for Volcanology and Geologic Hazards Mitigation (CVGHM), for the managing of several volcanic crises and in particular that of the Agung volcano in Bali. The CVGHM was nominated by two different groups of people, and Jakob Lowenstern (USGS) read the citation speech (attached to this report). The award was received by Ir. Rudy Suhendar, M.Sc, Head of the Geological Agency of Indonesia.

Fig. 1
IAVCEI President (Donald B. Dingwell) announce the winner of the 1st VOA.

Fig. 2 – Jackob Lowenstern read the citation speech

Fig. 3 – The award is presented to Ir. Rudy Suhendar, head of the Geological Agency of Indonesia. From left to right: Jackob Lowenstern, Ir. Rudy Suhendar, Don Dingwell (IAVCEI President), Roberto Sulpizio (IAVCEI SG).

Fig. 4 – Group photo of Indonesian delegation with citatory and IAVCEI officers.

Citation speech for the
1st Volcano Observatory Award,
Naples (Italy), September 7, 2018

By Jakob Lowenstern

Nominators:

Jakob Lowenstern, Janine Krippner, Adele Bear-Crozier, Rio Helmi, Patrick Allard, John Pallister and Philippe Jousset.

Recipient:

Pusat Vulkanologi an Mitigasi Bencana Geologi (Indonesia)

Today I have the pleasure to present the first Volcanic Surveillance and Crisis Management Award to Indonesia's Center for Volcanology and Geologic Hazards Mitigation. The successor to what used to be called the Volcanological Survey of Indonesia, this group sits within the Geologic Agency of the Ministry of Energy and Mines.

First, let's talk about their mission. CVGHM is responsible for monitoring over 120 active volcanoes, ~75 of which have experienced historic activity and 36 of which have erupted since 2000! Of course, Indonesia is a sprawling archipelago with over 17,000 islands spread out over 5000 kilometers.

To manage their volcanic threat, CVGHM has set up a system of 77 "pos" stations, small observatories with local observers trained in equipment maintenance, field methods, and volcanic earthquake surveillance. The observers are Indonesia's front line for volcano vigilance. Because the observers already live within the local communities, they are respected and trusted; something of great importance in a nation with volcanoes spread out over numerous provinces

with different religions, languages, and cultures.

The pos stations are backed up by staff at headquarters in Bandung responsible for volcano response throughout the country, and featuring several dozen geophysicists, geologists, and geochemists. In addition, CVGHM has a separate institute in the city of Yogyakarta focused dominantly on Merapi volcano as well as technology development and volcano research.

Just in the past eight years, volcanic unrest, toxic gas emissions and eruptions have occurred over 70 times, at 24 volcanoes, including, among others, Kelut, Ijen, Dieng, Anak Krakatau, Raung, Karangetang, and Semeru. Most notably CVGHM has responded to protracted, and dangerous volcanic crises at Merapi, and Sinabung, where timely evacuations have saved well over ten thousand lives.

Last Fall, our group at the USGS/USAID Volcano Disaster Assistance Program got to watch first hand as CVGHM responded to intense unrest and eventual eruptions, at Mt. Agung on the island of Bali. Its eruption in 1963 was one of the largest of the 20th Century, and killed over 1000 people on the densely populated island. CVGHM sent teams of scientists from Bandung and observers from pos stations on other islands to allow for 24/7 staffing of Agung's Rendang Pos for much of September, October, November, and December. They facilitated rapid upgrades to seismic, GPS, and telemetry systems, pioneered new drone-based multiGAS geochemical monitoring, modeled potential pyroclastic density currents to inform evacuation plans, and worked exhaustively at socialization… meeting with emergency responders, local government officials, and evacuees to inform them of the hazards and current activity of the volcano.

They put out frequent updates on their recently released Magma Indonesia application: this software is optimized for cell phones, which are far more widely distributed than computers within Indonesia. With over 100,000 evacuees for most of October, and societal pressures related to tourism, mining, and farming, it is difficult to understate the intense pressure brought to bear on the CVGHM leadership during this challenging time. Yet they kept their focus and were able to provide an outstanding example of how to balance scientific uncertainty, governmental responsibility and compassion, during a tense episode of volcanic unrest and eruption.

Remarkably, during this time, the other volcanoes didn't turn off: there were 130 VONA reports for five other Indonesian volcanoes between September and March.

Working with limited resources against daunting volcanic risk throughout Indonesia, CVGHM has made great advances, and should be justifiably proud of its accomplishments. On behalf of all the nominators, I am delighted to say that the 2018 IAVCEI Volcano Surveillance and Crisis Management Award is being presented to Indonesia's Center for Volcanology and Geologic Hazards Mitigation.

Jake Lowenstern
U.S. Geological Survey

1ST IAVCEI/GVM WORKSHOP: FROM VOLCANIC HAZARD TO RISK ASSESSMENT GENEVA, 27-29 JUNE 2018

The complexity of volcanic risk assessment typically resides in the interaction of multiple hazard, vulnerability and exposure aspects dynamically acting over various spatial and temporal scales. Risk models provide an evidence-based approach to development and implementation of proactive policies of risk reduction before an event, yet no comprehensive and multidisciplinary methods for vulnerability and risk analysis currently exist.

Figure 1:
Scira Menoni presentation

In this context, the first IAVCEI-GVM workshop "From Volcanic Hazard to Risk Assessment" took place in Geneva on 27-29 June 2018. The main goal of the workshop being to evaluate the state of the art of risk assessment in volcanology and to identify research priorities that would enable research scientists to more effectively engage with DRR and to work across disciplines (http://www.unige.ch/hazards/iavcei-gvm-workshop-2018/). The workshop was supported by the Swiss National Science Foundation, the University of Geneva, the Société Académique de Genève, the British Geological Survey and IAVCEI (through the sponsorship of the IAVCEI Commission of Hazard and Risk). About 40 participants from 15 countries working in various aspects of hazard, vulnerability, exposure and risk assessment attended. Specific workshop objectives included to identify: i) the benefits of risk assessment for decision makers, current gaps and potential areas for improvement; ii) key vulnerability aspects that need to be assessed for a comprehensive and efficient risk assessment in a multi-hazard context; and iii)

the optimum hazard and vulnerability products necessary for risk assessment at different scales.

Figure 2:
Sue Loughlin presentation

Workshop conclusions include that risk assessment is a key step towards empowering various users to effectively manage and reduce risk, in particular when an assessment is co-designed and co-produced with stakeholders. When stakeholders are involved in risk assessment and risk reduction it can enhance their awareness encouraging them to get prepared and, therefore, increase their resilience. Crucial aspects of risk assessments include the identification of primary objectives and applications depending on stakeholder uses and time scale (before, during or after an event). Ideally, when calculating volcanic risk, multiple hazards and various types of vulnerability (e.g. physical, social, systemic) should be accounted for and risk assessments should regularly be updated in order to adjust to new technologies and new information when this is made available.

Figure 3:
Gioulio Zuccaro presentation

It was highlighted that there is a need to strengthen collaborative research and partnership across disciplines and engage more with the stakeholder community. A common language, coordinated resources and a risk platform are also needed to facilitate collaboration across the volcanic risk community and optimize the research effort across disciplines. Guidelines/good practices need to be defined for risk assessment, and associated data collection, data usage and data sharing. There is also a need to develop a framework to record and catalogue post-eruption damage and impact data that is widely accepted, recognized and used by the volcanic risk community.

Figure 4:
Adriana Calderisi presentation

A comprehensive consensual document is under compilation and will be made available through our website. A discussion is also undergoing to identify the structure and theme of the 2nd IAVCEI-GVM Workshop. We believe that a series of workshops can contribute to strengthening the volcanic risk community and favour multidisciplinary, interdisciplinary and transdisciplinary collaboration in order to build more efficient and sustainable DRR strategies worldwide.

Figure 5:
Group photo of participants

The organizing committee
Costanza Bonadonna, Sebastien Biass, Eliza Calder, Corine Frischknecht, Chris Gregg, Susanna Jenkins, Sue Loughlin, Scira Menoni, Shinji Takarada, Tom Wilson

THIRD EDITION (2018) OF THE VOLCANOLOGY FIELD COURSE IN COLOMBIA (SOUTH AMERICA). RESEARCH GROUP OF STRATIGRAPHY AND VOLCANOLOGY -GIEV CUMANDAY, UNIVERSIDAD DE CALDAS.

The Third Edition of the Volcanology Field Course in Colombia (South America) was performed in July, 2018. The course was hosted by the Research Group of Stratigraphy and Volcanology (GIEV) from the Universidad de Caldas (Colombia). Dr. Hugo Murcia leads the course, with the help of Raúl Trejos and Karla Picón from the Universidad de Caldas and Universidad Industrial de Santander, respectively. The course hosted 35 people as follows: 26 participants, six invited speakers, and three people from the Organizing Committee

Figure 1:
First stop of the course. In the picture, Alvaro Botero shows a schematic map of the distribution and faults associated with the monogenetic volcanoes in the area.

The participants came from several Colombian institutions and other countries such as Brasil, Chile, Costa Rica and México. Their associated universities included: 1. Universidad de Caldas (Colombia); 2. Universidad Nacional de Colombia sede Bogotá; 3. Universidad Nacional de Colombia sede Medellín; 4. Universidad Industrial de Santander (Colombia); 5. Universidad Pedagógica y Tecnológica de Colombia; 6. Universidad de Antioquia; 7. Universidad de Los Andes; 8. Universidad Federal de Río de Janeiro. 9. Universidad Estatal Paulista; 10. Universidad Austral de Chile (Chile); 11. Ministerio de Ambiente y Energía de Costa Rica; 12. Universidad Nacional Autónoma de México. 13. Universidad de Guanajuato.

Figure 2:
Volcaniclastic deposits from the Nevado del Ruiz volcano.

The invited speakers were: 1. Dr. Marcelo Arnosio (Universidad de Salta, Argentina); 2. Dr. Denis Avellán (Universidad Nacional Autónoma de México, México); 3. Dr. Guillermo Alvarado (Universidad de Costa Rica, Costa Rica); 4. Dr. Károly Németh (Massey University); 5. Dr. John Jairo Sánchez (Universidad Nacional de Colombia sede Medellin). 6. BSc. Carlos Borrero (Universidad de Caldas, Colombia).

Figure 3:
Participants of the course. Photo taken on the first day of the course. In the back, the Nevado del Ruiz volcano.

The course spanned two sessions: A two-day session of in-room talks between 21st and 23th of July, and a six-day field trip between 24th and 28th of July. The first session was performed at the facilities of Research Institute on Stratigraphy at the Universidad de Caldas (Manizales) and the second session took place at the San Diego – Cerro Machín Volcanic Province (~180 km). During the in-room talks, the following themes were addressed: 1) Rheological properties of magmas; 2) Magma chambers; 3) Fragmentation mechanisms; 4) Eruptive styles; 5) Type of volcanoes (polygenetic and monogenetic). Geomorphology; 6) Polygenetic volcanism in Colombia; 7) Monogenetic volcanism in Colombia; 8) Monogenetic volcanoes:

Potentially complex small volcanoes; 9) Lava flow and lava domes; 10) Eruption of the Fuego volcano, Guatemala; 11) Methods for studying volcaniclastic deposits; 12) Pyroclastic fall deposits; 13) Pyroclastic density currents; 14) Peperites; 15) Debris avalanches; 16) Lahars; 17) Plinian eruption from Apoyeque volcano, Nicaragua; 18) Columnar disjunction in volcanic rocks; 19) Petrography of primary volcaniclastic deposits; 20) Volcano tectonic relationships in the Tongariro volcanic complex, New Zealand.

Figure 4:
Nevado del Ruiz volcano.

During the field trip, we visited volcanic and volcaniclastic deposits associated with the following volcanoes: Cerro Bravo, Nevado del Ruiz (including the 1985 lahar deposits), Nevado del Tolima, Guacharacos, El Tabor and Cerro Machín. Thus, the course met the requirements for a general understanding of both polygenetic and monogenetic volcanism. The course is focused on the recognition of volcanic and volcaniclastic deposits within the tropic world zone of the Earth.

Figure 5:
Lahar deposit produced by the Cerro Machín volcano, close to Coello town

Below are comments made by course participants:

"*It was a great privilege to participate in this course of volcanology. To learn more about volcanoes and their associated deposits, to visit wonder places, to learn from great professors and to share with mates from different parts of the world make the course an incomparable experience!*"
Laura Sánchez

""*This course represents a great opportunity for those who look for theoretical session and extensive field work, giving useful information on genesis and process associated with magmatic systems both in surface an in depth. The National Course of Field Volcanology demonstrates to be for young and enthusiastic geoscientists from all over the world*"".
Daniel Piedrahita

""*From the first edition of the course, I wanted to participate. When I finally managed to do it, I already had a clearer knowledge of the subject, the volcanology... and, in the same way, more questions were born. The theoretical base was very important; due to I already knew the quality of the invited speakers. Without a doubt, I would take it again; I have more questions now*"
Luis Alvaro Botero

The course will putatively be offered every year with the intention of hosting 30 participants: 10 undergraduate students, 10 postgraduate students, 10 professionals plus 4-5 invited speakers. The third edition participants were: Angélica Julieth González Preciado, David Alejandro Herrera, Yuly Paola Rave Bonilla, Sara Vanessa Ramirez Herrera, Christofer Jimenez Rivera, Natalia Villalba Katherin Herrera Hernández, Daniela Linares, Eduardo Henao, Jéssica Castro, Alejandra González, Yessenia Cerón, Ana Maria Toro, Suri Hernández, Tomás Roquemen Tangarife, Nicolás Fuentes, Daniel Piedrahita, Laura Sánchez, Alvaro Botero, Carlos Errázuriz Henao, Julio Cesar da Silva, Gloria Alexandra Moncayo Gámez, Kevin Gemali Pedroza Aldana, Evelyn Rodríguez Coto, Martha Gabriela Gómez Vasconcelos and Jorge Ivan Arango.

Figure 6:
Participants of the Course. Photo taken on the fifth day of the course. In the back, the intracrateric lava dome of Cerro Machín volcano.

Figure 7:
Geiserite related to the hydrothermal activity of the Cerro Machín Volcano.

Figure 8:
Thermal contraction in the Tarapacá lava flows.

Figure 9:
Speakers and organizing committee of the course. From left to right: Denis Avellán, Karla Picón, Károly Németh, Carlos Borrero, Hugo Murcia, Marcelo Arnosio, Guillermo Alvarado, John Jairo Sánchez and Raúl Trejos..

We hope to see you in Manizales next year!!!
Hugo Murcia
hugo.murcia@ucaldas.edu.co

INTERNSHIP PROGRAM IN LATIN AMERICAN VOLCANO OBSERVATORIES

The Young Latin American Volcanologists (Jóvenes Volcanólogos Latinoamericanos – JVLA) group, together with the Latin American Association of Volcanology (Asociación Latinoamericana de Volcanología – ALVO), developed an internship program in volcano observatories for highly motivated Latin American volcanology students. This program emerges as a response to one of the needs identified during several meetings carried out with both groups during the last years: the lack of training opportunities for the new generations of volcanologists.

This program not only aims to offer scientific training and experience working in a volcano observatory to young volcanologists, but also to promote the interaction and cooperation between universities and observatories. With the financial support of IAVCEI, a pilot test of the program was carried out between July and September 2018 at the Observatorio Volcanológico de los Andes del Sur (OVDAS), in Chile. Patricia Janeth Rangel Calvopiña, from the Yachay Tech University, Ecuador, was the beneficiary of this first internship. Here she shares with us her experience through a brief interview:

How did you hear about the internship program?

I read the calling in the Facebook page of Jóvenes

Volcanólogos Latinoamericanos (JVLA). I remember that my professor of Mineralogy and Crystallography, PhD. Patricia Larrea, shared the information in her profile page. She also encouraged me to apply to the program.

Figure 1:
Explanation of a geological map by Felipe Flores from SERNAGEOMIN.

What was the training program about?

The internship program in Latin American volcano observatories was designed to train young students in volcanic hazard, field work, and volcano monitoring techniques. The program allowed me to go to Chile for 8 weeks, from 17 July to 9 September, and learn from highly motivated and experienced people in Santiago and Temuco. The first month of the program was oriented to developing maps with volcanic hazard information. I did some identification of lava emission centers at the south of Chile based in previous field work, isopach modeling and an estimation of volumes of ash emission. During week 3, I was part of the 6th Fair of Scientific Dissemination in San Fabian de Alico, where people from the local community were trained about volcanic activity. That was inspiring because I spoke about some volcanic processes and everyone was surprised and at the same time curious about learning more. There, I met new colleagues from other universities and they told me about how they are developing science outreach programs.

In the second month, I worked at OVDAS, where the monitoring information from 45 volcanoes along Chile is received and processed. During these 4 weeks, they taught me all about the observatory.

Figure 2:
Patricia Rengel in the Fair of Scientific Dissemination in San Fabian de Alico.

What can you say about the cultural experience of being abroad?

Since the first moment I took a taxi to go to my host, I began to feel Chile. At the first part, I was intrigued because people tend to add "po" after some words, like Yes/No/ or of course. That was just an introduction. Chilean people have lots of funny words. My colleagues and new friends were super friendly and explained to me all those expressions. After a couple of weeks, I was understanding and speaking pretty well the Chilean Spanish, while we shared delicious food as empanadas and chorillana.

I was interested in learning about the history of Chile from pre-Columbian to contemporary times. I was surprised by the indigenous communities that inhabited Tierra del Fuego -the southern corner of the territory- and their particular clothing. I was shocked about some events in history but I also discovered why Chileans are strong and relate to their loved ones and their rights. In the other hand, I saw that we (Chileans and Ecuadorians) are not too different and share some common historical, political and economic aspects, for example.

Would you recommend other young volcanologists to apply to a program like this one? Why?

Absolutely. It is a unique opportunity for young people. This internship is completely amazing and should continue. It is an excellent way to develop the volcanology in Latin America and also to motivate young people to get involved in this discipline. During the internship, I discovered how volcanoes "speak" and give us information about them and it is an exciting learning experience.

Moreover, they will learn from world-class experts in volcano monitoring. I feel completely grateful for the opportunity to meet specialists. Everyone was happy to

explain their work and share this experience. That is invaluable. Therefore, I will highly recommend people who are interested and excited about volcanoes to apply to the program and enjoy the experience.

How do you think this training program helps you for the future?

This program helped me to revalue the big world of volcanoes. Before the program, I had some experience with volcanoes but now I am more aware of the amount of detailed work that is needed in volcano monitoring.
This experience will influence all my personal and academic development. The first and direct influence I am seeing is in my thesis project. Next year, I am going to start to study a volcano near my city. After that I hope to find other academic institution to study a master related to volcanoes and continue understanding the volcanoes close to me and others in the world. Moreover, I made really good friends during my time in Chile; I am sure we are going to be in contact, and I hope to see them again soon anywhere in the world, when I will present my projects and results.

Do you think this experience would help the relationship between your university and the volcano observatories in your country? How?

It is already helping. I had a first approach to the volcano observatory in Ecuador. Probably soon I will talk more with them and share all my experience in Chile. I saw how some universities in Chile have a very close relationship to the monitoring service and I think that my classmates at Yachay Tech will be happy to develop some sort of projects to improve our knowledge and awareness about the volcanoes, generating a positive feedback for the academia and the communities.

Figure 3:
Patricia Rengel with the OVDAS colleagues.

If you are interested to know more about this program, you can write directly to alvo.comunicaciones@gmail.com.

To learn more about the different initiatives of ALVO and JVLA you can follow us at:

https://www.facebook.com/OficialALVO/ and

https://www.facebook.com/volcajovenes/.

ALVO and JVLA

CONFERENCE REPORT: 7TH INTERNATIONAL WORKSHOP ON COLLAPSE CALDERAS

The 7th International Workshop on Collapse Calderas (IWCC) was held between 21 and 27 September 2018 in Tuk Tuk located at Samosir Island, Toba Caldera, North Sumatra, Indonesia, hosted by the IAVCEI Commission of Collapse Calderas and the Geological Agency of the Ministry of Energy and Mineral Resources of the Republic of Indonesia (Badan Geologi).

Figure 1:
Arrival to Tabo Cottages, Tuk Tuk after a long bus ride and an hour boat trip from Parapat. Uluan block on the left, east shore of Samosir Island on the right.

Enthusiasts of caldera volcanism established the IAVCEI Commission on Collapse Calderas in March 2008 to trigger interaction and communication between the researchers from wide spectrum of disciplines, such as caldera geology, geophysics, mathematical and analogue modelling, magma chamber processes, volcanic hazard and risk management,

economic benefits and environmental research to help understand the formation and evolution of collapse calderas and consequences of their volcanism. Since, Caldera Workshops were held in Querétaro, Mexico; Reunion Island, France; Bolsena, Italy; Taupo, New Zealand; Southwest Hokkaido, Japan and recently in Toba Caldera.

The current outline of Toba Caldera was formed by one of the youngest and least known supereruption of Earth that measures 100 km NW-SE by 30 km NE-SW. The volcanic depression is located about 200 km east from the Sunda Trench, where the Indo-Australian plate is being obliquely subducted underneath the Eurasian plate. The elongated collapse of the Toba Caldera is exposed the Permo-Carboniferous basement rocks of the highland of Batak Tumor. The oldest known volcanic rocks of Toba volcanism date back to 1.3-1.4 My. Toba volcano produced two smaller and two larger caldera forming eruptions in the past 1.2 My, from which the eruptions of the Old Toba Tuff - OTT (~800 ka, 2300 km3 DRE) and the Young Toba Tuff - YTT (~74 ka, 2800 km3 DRE) were VEI 8. Post Young Toba Tuff activity was characterised by emplacement of numerous basaltic andesitic to rhyolitic extrusive bodies (lava domes and dome complexes) and the resurgence of the caldera floor. As a result, the central part of caldera experienced at least 1000 m uplift creating the 40 km long Samosir Island having more than 700 m relief to the current lake level (906 m a.s.l.) that stabilized by hydroelectric dams at the lake outlet.

Figure 2:
Panoramic view from the western caldera wall (Menara Pandang Tele). Pusuk Bukit volcano on the left, the gentle slopes of the western shore of Samosir Island in the background. Note the blocks of large-scale landslides near the shore of Samosir Island on the right.

The surroundings of Toba Caldera are characterised by rich volcanic soils and moderate climate allows production of non-tropical crops too. The region is highly populated with over 95000 inhabitants only in Samosir Island. Medan, the fourth largest city of Indonesia with 4.1 million inhabitants in its metropolitan area, is only located 80 km west from Toba Caldera.

Figure 3:
Welcome reception in Tabo Cottages, Tuk Tuk.

The venue of the 7th IWCC was the Tabo Cottages in Tuk Tuk, east shore of Samosir Island. The workshop itself offered 2 days of lectures with keynote talks and 5-minute summaries for each poster presentations, 3 field days with discussions having a special focus on the YTT eruption and following caldera evolution including resurgence and fluvial and lacustrine sedimentation of the caldera basin, and an optional day trip to the active Sinabung volcano. The first full day in Toba followed by a welcome cultural reception and dinner. Field trips and the limited time between scientific programs gave the opportunity to visit some of the sights of Toba Geopark and to interact more with the unique Batak culture. The venue provided buffet dinners including dishes from Batak and Indonesian cuisine. The digestion of dinners and preparation for evening plenary was fostered by Bintang beers and locally produced and roasted coffees including Kopi Luwak. Evening plenary talks covered the subjects of the active volcanism and hazard mitigation in Indonesia, Caldera volcanism in Central Sumatra as well as the volcanic history and hominid evolution in Flores. The 3 field days included visits of western caldera margin and west side of Samosir Island (focusing on the crystal rich inundated/welded ignimbrites of Old and Young Toba Tuffs, hydrothermal areas of Pusuk Buhit volcano and Simbolon that only indicate some weak signs of activity within the caldera, and lacustrine sedimentation) eastern margin of Samosir Island (focusing on caldera resurgence, post-caldera extrusive emplacement of crystal-rich lavas and the sedimentation processes along the Samosir Fault) and a boat trip from Tuk Tuk to the southern caldera basin along South-eastern Samosir and Uluan block that represents the margin of YTT caldera and the caldera floor formed after the eruption of the OTT.

Figure 4:
Traditional Batak houses in Ambarita, Samosir Island.

On the way to Sinabung volcano we visited some further exposures of Toba-related deposits, such as the welded ignimbrite of the first caldera-forming event of Toba (Haranggaol Dacite Tuff, ~1.2 Ma), non-welded YTT and basal lava flows of the post-YTT Sipisupisu lava dome complex. During the rest of the day we visited the Sinabung Volcano Observatory in Ndokum Siroga village, 8.5 km of the summit of Sinabung volcano. Badan Geologi scientists gave a comprehensive overview of the Sinabung activity since 2010 and introduced the applied equipment for volcano monitoring. The following day the abandoned village of Gurukinayan was visited, where most of buildings were damaged by the heat of the approaching block-and-ash flows. The next stop was the location of the former Sukameriah village, which ruins are totally covered by the pyroclastic fan that started to expand in 2013.

Figure 5:
Dr. Craig Chesner presented about the history of research and volcanic evolution of Toba Caldera.

Due to the limitations and difficulties of transportation in Toba area, the workshop could accept limited number of applicants with granting priority for IAVCEI ECR members. Thus, about 30 international (from China, Costa Rica, Italy, Japan, Mexico, New Zealand, Russia, Singapore, United Kingdom and USA) and 30 Indonesian scientists could take apart in this workshop. The success of the 7th IWCC was largely due to Prof Shanaka de Silva and the dedicated scientists of Badan Geologi, such as Dr Indyo Pratomo and Dr Oktory Prambada.

Figure 6:
Group photo with welded YTT behind (Photo: Wong Ryant).

Figure 7:
Boat trip to the southern basin of Toba Caldera along the east shore of Samosir Island.

During the 7th IWCC the IAVCEI Commission on Collapse Calderas changed its leadership. For the next two years the commission is led by Darren M. Gravley (Canterbury University, New Zealand) and Guido Giordano (University of Rome Tre, Italy). The location of the next IWCC is under consideration from the three nominations: Santorini (Greece), Valles Caldera (New Mexico, USA), and the Permian Ora Caldera (North Italy).

Figure 8:
Pyroclastic fan of Sinabung volcano.

Szabolcs Kósik
Massey University, New Zealand

INVITATION – IAVCEI 5TH INTERNATIONAL VOLCANIC GEOLOGY WORKSHOP

Palmerston North, New Zealand, February 25 – March 4, 2019

The IAVCEI 5th Volcanic Geology Workshop consists of an on-campus workshop (one day) with presentations and discussions and field trip (six days) to the Taupo Volcanic Zone active and young volcanic terrains.

Building on the learnings of previous workshops, the Fifth Volcanic Geology Workshop will provide field-based experience for the participants to see the volcanic facies architecture of active but long-lived intermediate composite to silicic caldera volcanoes in an atypical arc setting along the Taupo Volcanic Zone in New Zealand.

Participants will visit iconic locations from where basic concepts in volcanology emerged such as ignimbrite depositions, volcaniclastic sedimentary respond to major volcanic eruptions, ring plain concepts of stratovolcanoes, volcano collapses and their landscape modifying effects, small volume monogenetic volcanism associated with central volcanoes and application of tephrastratigraphy and chronology in development of mapping units.

Workshop format
The single day workshop will be arranged into 3 major themes:

1) Volcanic Geology of Ancient [pre-Pliocene] Terrains

2) Volcanic Geology of Modern (post-Pliocene] and active settings and

3) Volcanic Geology and Geological Mapping

Each of these themes will be introduced by an invited 30 minutes long plenary talks [invitation to deliver these talks will be communicated directly with the potential presenters]

Each of the themes can allow 12 presentations that will be selected by the Scientific Advisory Board. The selected presenters will have a 5 minutes, 2 slide Power Point option to introduce their work to the audience.

Participants
According to the IAVCEI rules, only registered IAVCEI members with currently paid member fees are accepted to the Workshop.
For logistical reasons, the number of participants to this workshop is limited to 50. Therefore, please notice your intention to participate as early as possible.

Registration deadline is October 31, 2018.

Abstract submission deadline is December 1, 2019

For all details related to Registration (fees and modalities), daily workshop program, Abstract submission, venue and logistic information) please visit the official Workshop Website at

www.massey.ac.nz/iavcei2019

and/or contact one of the Organizers for any other workshop-related inquiries or questions:

•A/Prof Karoly Nemeth [Massey University] k.nemeth@massey.ac.nz
•Prof Shane Cronin [The University of Auckland] s.cronin@auckland.ac.nz
•A/Prof Jon Procter [Massey University] J.N.Procter@massey.ac.nz

NEW BOOKS

In the future IAVCEI News will publish links and basic information on recently published books the volcanic community may interested. Please sent a link and info of any relevant books you aware of even if it was published other than English language. Also, if you wish to submit a book review article to the Bulletin of Volcanology, please do so, as such articles are very important feed backs to Authors and Publishers.

Special Issue in Volcanology in Spanish

Nos complace informarles que ya se encuentra disponible la tercera edición del 2018 del Boletín de Geología.

Editorial

Artículos

1. Morfometría de las estructuras asociadas a la Cadena Volcánica de Los Coconucos (CVLC), Colombia
2. Estratigrafía del cráter y morfología del volcán Cerro Machín, Colombia
3. Morfometría, estratigrafía, petrografía y geoquímica del cono de escoria El Morro, municipio La Argentina (Huila, Colombia)
4. Petrogénesis y condiciones de cristalización del domo intracratérico del volcán Cerro Bravo, Colombia
5. Campo Volcánico Monogenético Villamaría-Termales, Cordillera Central, Andes colombianos (Parte I): Características morfológicas y relaciones temporales
6. Campo Volcánico Monogenético Villamaría-Termales, Cordillera Central, Andes colombianos (Parte II): Características composicionales

Consideraciones sociológicas en torno a los volcanes de Colombia

1. Los volcanes de Colombia y su representación en diversos contextos
2. Experiencias de socialización acerca de amenazas volcánicas en instituciones educativas del municipio de Cumbal (Nariño, Colombia)
3. Representaciones sociales en una comunidad educativa de la Zona de Amenaza Alta del volcán Galeras (Colombia)

CALL FOR SUBMISSIONS
Sustainability Special issue

Dear Colleagues,

Special Issue on Urban Disaster Risk Reduction in Sustainability an Open Access Journal by MDPI (Impact Factor 2.075).

This Special Issue invites contributions on multidisciplinary aspects of natural disasters that strike urban areas. Volcanic eruptions, earthquakes, flooding and climate- forcing extreme events are among the most common natural disasters that can strike urban areas. We are particularly looking for contributions that compare disasters occurring in urban regions to those that are associated with rural areas. In addition to descriptive contributions, this Special Issue invites works on how natural disasters impact economic, logistical or supply chain operations in urban regions. We would also like to include case studies on recent natural disasters that have hit urban regions and the responses of the local authorities (governments and NGOs). This Special Issue is also open to contributions that deal with disaster prevention or long- term geoeducational aspects to

communicate and mitigate natural disaster risks for urban populations. Manuscripts of particularly-interesting perspectives, such as geoheritage, geoconservation and geoeducation relating to sustainable urban development would also be relevant to this Special Issue.

Guest Editor: A/Prof. Karoly Nemeth, School of Agriculture and Environment, Massey University, Palmerston North, New Zealand
K.Nemeth@massey.ac.nz

Deadline for manuscript submissions: 1 March 2019

Special Issue Submission Site:

http://www.mdpi.com/journal/sustainability/special_issues/Disaster_Risk_Reduction

Karoly Nemeth
Massey University

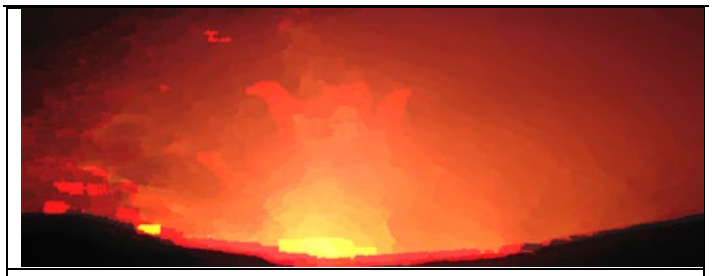
FUTURE EVENTS
for IAVCEI member's interest

IAVCEI 5th Volcanic Geology Workshop - 2019
Date: 25 Feb - 4 March, 2019
Venue: Palmerston North, New Zealand
Web: www.massey.ac.nz/iavcei2019
Contact:
•A/Prof Karoly Nemeth [Massey University] k.nemeth@massey.ac.nz
•Prof Shane Cronin [The University of Auckland] s.cronin@auckland.ac.nz
•A/Prof Jon Procter [Massey University] J.N.Procter@massey.ac.nz
This conference is supported by the **IAVCEI Commission on Volcanic Geology and Monogenetic Volcanism**

27th IUGG General Assembly | IUGG2019
Montreal, Canada from 8-18 July 2019
Web: http://iugg2019montreal.com/

Goldschmidt 2019
Barcelona, Catalonia, Spain from 18-23 August 2019
Web: https://goldschmidt.info/2019/

34th IAS Meeting of Sedimentology
Rome, Italy from 10-13 September 2019
Web: http://iasroma2019.org/



Next Issue of the **IAVCEI News** will be published on 22nd **December 2018**. Articles, notes, news or any items relevant to the IAVCEI community must be submitted by **15th December 2018** to be published in the next Issue.
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If you have any idea or plan to have IAVCEI involved in the IUGG Outreach Program, please contact Karoly Nemeth via k.nemeth@massey.ac.nz