



IAVCEI News 2019 No: 4

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

FROM THE PRESIDENT

Dear Colleagues,



Patrick Allard
President of the
IAVCEI
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As 2019 is getting to close it is the right time to take stock of what IAVCEI has achieved over this year and what has to be accomplished in 2020 and the following years.

2019 has been an historic landmark for our Association and for Geosciences in general. By mid-July both IAVCEI and IUGG celebrated their first Centennial anniversary during the 27th IUGG General Assembly at Montreal. This was the occasion to demonstrate the remarkable scientific progresses and international outreach achieved by Volcanology over the past hundred years and, especially, since the 1950s.

One of the renowned actors of this was Prof. Sergey A. Fedotov, full member of the Russian Academy of Science and former president of the IAVCEI (1979-1983), who sadly disappeared on 20 August 2019 (see his obituary thereafter). During our General Assembly in Montreal the Wager Medal was delivered to Madelaine Humphreys and the Walker Price to both Fabian Wadsworth and Damien Gaudin.

2019 was also a year of election of our new Executive Committee (EC) for 2019-2023. In order to improve the IAVCEI functioning, the newly elected EC has already undertaken initiatives to professionalize our Communication and website, as well as our financial management and our search of additional funding from

private sponsorships. You will be kept informed of the progresses achieved in that direction.

As exposed in the previous Newsletter, another key objective of the new EC will be to revitalize the ties between IAVCEI and global volcano Observatories through a restructuring and renewal of WOVO (the World Organization of Volcano Observatories). Discussions on that project were already engaged with volcano observatories during the fourth VOBP (Volcano Observatory Best Practices) Workshop held in Mexico City (CENAPRED headquarters) on 18-23 November 2019. Discussions will proceed in early 2020 and a working plan will be rapidly proposed by the EC in order to realize this objective.

In 2020, we'll have several important meeting appointments. One key IAVCEI event will be the COV11 Conference in Heraklion (Crete) on May 23-27, focused on "Volcanoes and Society: environment, health and hazards". In addition to pre- and post-meeting excursions and Workshops, a great variety of scientific Sessions are proposed (www.citiesonvolcaoes11.com). We expect you will be numerous to attend this important meeting in a quite exceptional region of Greece. The abstract submission deadline is January 25. The COV11 conference will also host the ceremony where the IAVCEI Award for Volcano Surveillance and Crisis Management will be delivered for its second time. The deadline to submit the nomination dossiers will be soon postponed to February 1st.

In addition to various IAVCEI Commissions' meetings, other important appointments in 2020 include the Soufriere Hills volcano 25 years Conference in Montserrat (July 20-24) and the Goldschmidt-2020 Conference in Hawaii (Honolulu, June 21-26). As concerns the latter, I am pleased to inform you that IAVCEI recently signed a MoU with the Geochemical Society (4,000 members from over 70 countries), with the aims to strengthen our presence and input in the field of Geochemistry and Chemistry of

the Earth's Interior, as well as to promote membership among geochemical-related societies worldwide. As a partner of the Geochemical Society, IAVCEI will co-sponsor scientific sessions in volcanology at future Goldschmidt conferences (the first one being thus planned in Hawaii in June), and IAVCEI members will benefit of GS-offered registration rate when attending a Goldschmidt Conference.

Last, I remind you that on July 2020 will open the call for abstract submission to our 2021 IAVCEI scientific Assembly in New Zealand (Rotorua, February 15-19; <http://www.iavcei2021.org>).

Thanks to the previous EC's management, our Association now benefits of a sound consolidation of its financial resources. This will allow us to continue providing support to travel grants, meetings and networking, with a priority given to colleagues and students from low-to-medium income countries. Because memberships represent a major income to the IAVCEI budget, I encourage you to rapidly renew your membership in order to maintain our present financial health. Today IAVCEI counts around 1,000 affiliated members and we'll definitely work with you to make this membership growing over the next years.

Finally, at year's end we cannot avoid a look back on a few dramatic volcanic events that happened in 2019. These include the powerful eruptions of Ulawun and Manam volcanoes in June 2019, which heavily impacted the local communities of Papua New Guinea. More recently, the tragic death of 19 people and severe injuries of 25 others on December 9 at White Island volcano, New Zealand, further reminded us how dangerous can volcanoes in hydrothermal unrest be for volcanologists but also (and even more) for tourists, given the extreme difficulty of forecasting discrete phreatic or phreatomagmatic explosions. Another tragedy was avoided by pure chance on July 3 at Stromboli volcano, Italy: the two paroxysmal gas-lava explosions that suddenly occurred at 4:46 pm would have left little chance of survival to the hundredth of tourists and their guides who, just at that local time, were preparing to climb up to the summit crater rim! Although volcanologists are by no means responsible of public safety decisions, I am certain that such events will stimulate further discussions in our community about how still improve our forecasting capabilities but also our communication on volcanic hazards and volcanic alert levels in terms of recommended safety zoning, in particular as regards tourism.

I wish you all and IAVCEI very happy and successful achievements in 2020.



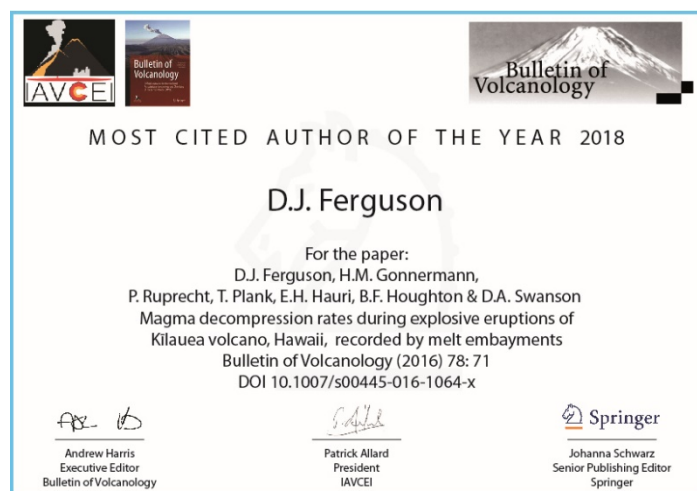
Patrick Allard
President of IAVCEI
Université de Paris, IPGP, France
25 December 2019

BULLETIN OF VOLCANOLOGY NEWS

Most Cited Bulletin of Volcanology Paper Award

We are pleased to announce that the paper titled as "**Magma decompression rates during explosive eruptions of Kilauea volcano, Hawaii, recorded by melt embayments**" by **David J. Ferguson** (co-authored with *H.M. Gonnermann, P. Ruprecht, T. Plank, E.H. Hauri, B.F. Houghton and D.A. Swanson*) was the **most-cited Bulletin of Volcanology paper of 2018**.

The award is based on citations in all journals during 2017 and 2016. The award comes with the prize of a book voucher for Springer Books to the value of 150 euros, plus a four-year membership of the Bulletin of Volcanology's parent organization, IAVCEI.



There will be an **Awards Ceremony at IAVCEI Cities on Volcanoes in Crete during 23-27 May 2020** at which the certificate will be presented.

All the best ... and congratulations.

Andy Harris
Editor-in-Chief of Bulletin of Volcanology (Springer)

OBITUARIES

SERGEY A. FEDOTOV (1931 – 2019)



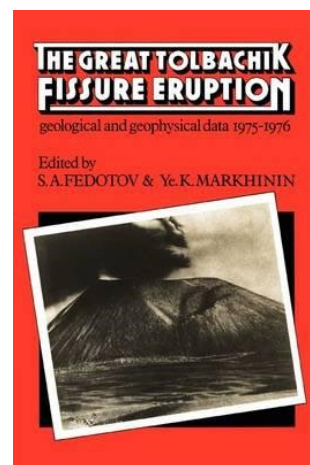
On 20 August 2019 the international volcanological community sadly lost Sergey Alexandrovich Fedotov, President of the IAVCEI in 1979-1983.

Professor of Geophysics and member of the Russian Academy of Sciences, Sergey Fedotov was a renowned Russian seismologist and volcanologist. He was born on 19 March 1931 in Leningrad, USSR. After graduating from the Department of Geology at the Lomonosov Moscow State University in 1953, he integrated the Schmidt Institute of Physics of the Earth (IPE) of the Russian Academy of Sciences then became Doctor of Physical and Mathematical science. The entire life of Sergey Fedotov was dedicated to studying the volcanic activity and seismicity of the Kuril-Kamchatka subduction zone. After having led of the Pacific seismic team of IPE in 1959-1970 then the laboratory of Pacific belt seismicity in 1969-1993, he became the director of the Institute of Volcanology and Seismology of the Far East branch of the Russian Academy of Sciences (1971-2004). His outstanding researches on the mechanisms of volcanic activity and on seismic hazards in the Kamchatka region made Sergey Fedotov renowned in both national and global scientific communities. He created a proprietary technique for long-term seismic hazard prediction and introduced the concept of seismic cycle in seismology. It is a thank to his profound expertise and citizen activism that a nuclear power plant was not built in the Petropavlovsk-Kamchatsky region. Fedotov's contributions to public safety on the federal level were granted multiple national awards.

In 1992 Sergey Fedotov was elected a full member of the Russian Academy of Sciences (RAS). He was a member of the presidium of the Russian Academy of Sciences, head of the scientific council of Volcanology and Seismology, and acted as head of the Earthquake prediction council and the Kamchatka branch of the RAS Geophysical Survey. Sergey Fedotov was the author of about 400 scientific papers, patents, and monographs. In 1978 he had founded the Volcanology and Seismology journal, of which he remained the editor-in-chief for many years.

Sergey A. Fedotov will be deeply reminded for his professional enthusiasm and human delicacy.

One of the great works Prof Fedotov contributed to the global volcanological knowledge: *Fedotov, S. A., and Y. K. Markhinin (1983), 1975–1976, 341 pp., Cambridge Univ. Press, Cambridge, U. K.*



Some selected *references to Prof Fedotov* great variety of works:

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Adapted from *Alexey Zavyalov*
RAS, Moscow

25 ANNIVERSARY OF THE CENTRAL ANDES VOLCANOLOGICAL FIELD COURSE REPORT

XXV EDICIÓN CURSO
INTERNACIONAL DE VOLCANOLOGIA
EN LOS ANDES CENTRALES
UNSa, Argentina - UCN, Chile



Between October 27th and November 3rd, 2019, the 25th edition of the International Central Andes Volcanological Field Course took place. It grants 80 credit /hours for PhD students in Geological Sciences. The organization was in charge of the GEONORTE-IBIGEO Institute (National University of Salta - CONICET) Faculty of Natural Sciences and the Universidad Católica del Norte (Antofagasta - Chile), Faculty of Engineering and Geological Sciences. The course was sponsored by the International Association of Volcanology and Chemistry on the Earth's Interior (IAVCEI) and the Latin American Association of Volcanology (ALVO). It was originally scheduled as a course associated to the 1st Congress of the Latin American Association of Volcanology (ALVO), to be held in Antofagasta - Chile from November 3 to 7, 2019. Due to the political situation in Chile the congress did not take place, but it was decided that the course would normally be held. 20 students and 9 teachers participated: Dr. José G. Viramonte (Responsible for the Course) Dr. Felipe Aguilera (Responsible for the Course) and Drs Marcelo Arnosio, (Responsible for the Course) Raúl Becchio, Walter Báez, Emilce Bustos and Gabriel Ureta. Drs Roberto Sulpizio (University of Bari- Italy), Guillermo Alvarado (Central American University Costa Rica) and Karoly Nemeth (Massey University), New Zealand) were invited professors.



Tuzgle Volcano



Complejo Ramadas - Corte Blanco pyroclastic deposits

The course began in Salta on October 27th. We had a whole day of theoretical classes and conferences, ending with a welcome dinner and delivery of anniversary commemorative plaque to the oldest organizers.



Complejo Ramadas - Perlite Quarry

From October 28th to November 3rd, intense field practises were carried out in San Antonio de los Cobres area (Argentina) and Socaire-Talabre-Peine-Tilocalar area (Chile).



Lascar, 1993 Pyroclastic flow deposits

Different examples of volcanic structures and their respective deposits were visited, making emphasis, through the analysis of the latter, on the recognition and reconstruction of the eruptive

events that gave rise to them. Some of the sites visited were the Ramadas volcanic complex, Tuzgle volcano, Ignimbritas derived from the Caldera de La Pacana and Aguas Calientes, Lascar volcano and its 1993 pyroclastic flows, El Overo explosion craters, South and North Tilocalar complexes and magnetite-apatite lavas from the El Laco volcano. (see photos).

FOURTH EDITION (2019) OF THE VOLCANOLOGY FIELD COURSE IN COLOMBIA (SOUTH AMERICA). RESEARCH GROUP OF STRATIGRAPHY AND VOLCANOLOGY -GIEV CUMANDAY, UNIVERSIDAD DE CALDAS



Tilocalar South explosion crater (G. Ureta)

Methodologically, after the presentation of the geological-volcanological framework of the area made by the professors, the students were invited to design profiles with recognition and description of the existing deposits, their interpretation and significance. A final general discussion gave birth to a joint consensus model. Two minibuses and three vans were used for transfers of all the group during fieldwork. In November 2nd evening a special farewell dinner was held with a final toast to the 25th performance of the Volcanology course.



Lascar, 1993 pyroclastic flow deposits from a drone image (G. Ureta)

On that occasion, and many days after it ended, teachers and students spoke, giving their impressions, praise and thanks, which showed that the course was a great success

Jose Viramonte

National University of Salta, Argentina



First stop of the course: The instructors explaining the geology of the area

The participants came from six different countries (Colombia, Brasil, Ecuador, Costa Rica, Nicaragua and México), and 17 different institutions, namely: 1. Universidad Pedagógica y Tecnológica de Colombia; 2. Universidad Nacional de Colombia sede Bogotá; 3. Universidad Nacional de Colombia sede Medellín; 4. Universidad Nacional de Colombia sede Manizales; 5. Universidad EAFIT; 6. Universidad Industrial de Santander; 7. Universidad de Los Andes; 8. Universidad de Antioquia; 9. Corporación Geoambiental Terrae; 10. Instituto Geográfico Agustín Codazzi; 11. Universidad Nacional Autónoma de México (México); 12. Universidad Nacional Autónoma de Nicaragua (Nicaragua); 13. Universidad de Costa Rica (Costa Rica); 14. Observatorio Vulcanológico y Sismológico de Costa Rica (Costa Rica); 15. Universidad Central del Ecuador (Ecuador); 16. Universidad Yachay Tech (Ecuador); 17. Universidad Federal de Paraná (Brasil).

The invited speakers were: 1. John Jairo Sánchez (Universidad Nacional de Colombia sede Medellín); 2. Susana Osorio (Universidad Nacional Autónoma de México, México); 3. Denis Avellán (Universidad Nacional Autónoma de México, México); 4. José Luis Macías (Universidad Nacional Autónoma de México, México); and 5. Marcelo Arnosio (Universidad de Salta, Argentina).



Volcaniclastic deposits from the Nevado del Ruiz volcano

The course spanned two sessions: A two-day session of in-room talks between 24th and 25th of August, and a six-day field trip between 26th and 31st of August. 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). 6) Calderas; 7). Topographic base of a volcano: Information analysis. 8) Lava flows; 9). Volcanism in Colombia; 10) Study case: Miocene volcanism: Combia Formation. 11) Samaná monogenetic volcanic field; 12) Villamaría-Termale monogenetic volcanic field; 13) Methods for studying volcaniclastic deposits; 14) Pyroclastic fall deposits; 15) Pyroclastic density currents; 16) Study case: Aguajito Caldera, Baja California Sur, México; 17) Debris avalanches; 18) Lahars; 19) Columnar disjunction; 20) Petrography of primary volcaniclastic deposits; 21) Geological maps of volcanoes; 22) Study case: Geology of the Pliocene-Pleistocene Aocolulco Caldera, Trans-mexican volcanic belt. 23) Study case: Tides triggering earthquakes in the northwest part of South America.



Monument in the 1985-destroyed Armero town.

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.



Participants of the course during the sunset

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 fourth edition participants were: Andrea Pérez Hernández, Stheysing Virginia Reyes Muñoz, Carla Gisela Tranquilino Espinoza, Omar Arturo Hernández Rivas, Lorena Madrid Hincapié, Carolina Isabel Jumbo Olaya, John Mario Benavides Pinchao, Luisa Daniela Acosta Agudelo, Angi Viviana Aparicio Guevara, Sebastián Forero Cifuentes, Adriana Natalia Morales Loor, Esteban Jarquín Sánchez, Luis Felipe Gómez Colonia, Elizabeth Rangel Granados, Mario Fernando Humanante Guachilema, Daniel Julián Usma Franco, Edwin Santiago Villamil Guevara, Irma Fabiola Mendiola López, Diana Patricia Lozano Zafra, Carlos Genaro Sánchez Viquez, Tatiana Arenas Suarez, Otavio Augusto Boni Licht, Angie Stephanía Ramírez Huerta, Sofía Margarita Delgado Balaguera, María Alejandra Arias Jaimes, Gómez, Laura Vargas, Andrea Fandiño, Laura Sánchez Torres, Luis Alvaro Botero and Daniel Piedrahita.



Cerro Machín intracrateric dome



Participants of the course in the foot of the Tolima volcano



Speakers and organizing committee of the course. From left to right: Susana Osorio, Hugo Murcia, Denis Avellán, John Jairo Sánchez, José Luis Macías, Laura Sánchez, Marcelo Arnosio and Alvaro Botero

We hope to see you in Manizales next year!!!

Hugo Murcia

Universidas de Caldas, Manizales, Colombia
 hugo.murcia@ucaldas.edu.co

REPORT ON IAVCEI-CVL10, TAUPO, NEW ZEALAND (17-25 MARCH 2019)

Volcanic lakes are “windows” into magmatic-hydrothermal systems that become study objects for multi-disciplinary research approaches, and the lymph of our small but active Commission. After CVL9-Cameroon in March 2016, the IAVCEI Commission of Volcanic Lakes (CVL) reunited for CVL10 in Taupo, New Zealand, from 17 to 25 March 2019. The meeting aimed at bringing together volcano scientists from a wide range of sub-disciplines, including physical volcanology, hydrology, limnology, biochemistry, geochemistry and geophysics, all with a view toward establishing broad communication amongst the disciplines and development of holistic models of volcanic lake environments.

The goals of the workshop are to provide ample opportunity for exchange of ideas around data collection and monitoring methodologies in volcanic lake environments, hazard recognition and mitigation, and copious discussion of conceptual models for so-called “wet volcanic systems”.



Cindy Werner, Yuri Taran and Jennifer Lewicki (picture above) and Akihiko Terada and Bruce Christenson (picture below) during the ice-breaking cocktail at Great Lake Centre, March 17 (Pics by Yuri Taran)



Thirty-two participants from 12 countries attended the workshop, which was organised by Bruce Christenson, Agnes Mazot, Karen Britten and Brad Scott of Geological and Nuclear Science, New Zealand.

During the first three days (18-20 March 2019), seven different symposia were organised at the Great Lake Venue in Taupo, tackling the various topics of what volcanic lake research stands for:

- (1) Tracking lake water chemistry-The future of direct sampling of volcanic lakes (convened by María Martínez-Cruz Céline Mandon and Takeshi Ohba, 11 talks),
 - (2) Gas emissions from acidic crater lakes (convened by Cindy Werner and Orlando Vaselli, 3 talks + 2 posters),
 - (3) Hydrothermal systems surrounding volcanic lakes-surveys and models (convened by Joop Varekamp and Jennifer Lewicki, 6 talks),
 - (4) Phreatic eruptions from Wet Volcanoes (convened by Bruce Christenson and Akihiko Terada, 5 talks),
 - (5) The impact of volcanic lakes on society-from mythology to risk mitigation (convened by Hollei Gabrielsen and Dmitri Rouwet, 3 talks),
 - (6) Limnology of Lake Nyos and its nephews-searching for strata (convened by Minoru Kusakabe and Bill Evans, 5 talks + 2 posters), and
 - (7) Carbon dioxide degassing at volcanic lakes-theory and practice (convened by Artur Ionescu and Agnes Mazot, 4 talks).
- In the afternoon of day 2, the Phreatic Eruption symposium was followed by a round table session entitled “The role of crater lakes in forecasting phreatic eruptions”, panelled by Nico Fournier, Art Jolly, Bruce Christenson, Akihito Terada, Jennifer Lewicki, Takeshi Ohba, and Dmitri Rouwet. Notes were taken by Craig Miller. A major observation, also in the aftermath of the Ontake-2014 and Ruapehu-2007 phreatic eruptions, was: Is there such a thing as “blue sky eruption?” Or, are we not just detecting it? Answering this question remains a challenge for future research.

The scientific sessions were closed by the CVL Business Meeting (20 March 2019), that reported on the CVL activities of the past 9 years, from CVL7-Costa Rica-2010, over CVL8-Japan-2013, to CVL9-Cameroon-2016, until CVL10-New Zealand-2019. A positive balance of the commission’s activities was acknowledged by the commission members and participants. After nine years Dmitri Rouwet (INGV-Bologna, Italy) stepped back as the CVL Leader; Corentin Caudron (Université de Savoie, France, not present) and Jennifer Lewicki (USGS-Menlo Park, USA) were unanimously elected as the new CVL-co-Leaders. Bertram Boehrer (GFZ, Germany), Alain Bernard (ULB, Belgium) and Takeshi Ohba (Tokai University, Japan, ex-CVL Secretary, 2010-2013) decided to leave the CVL-Steering Committee. Céline Mandon (Yachay Tech University, Ecuador), Akihiko Terada (KSVO-TIT, Japan) and Maarten de Moor (OVSICORI, Costa Rica, not present) were added to the team of SC members, that is now composed of Bruce Christenson (CVL Secretary), Dmitri Rouwet (CVL webmaster), Greg Tanyileke (IRGM, Cameroon, ex-CVL Secretary 2013-2016), Agnes Mazot, Franco Tassi, Jacopo Cabassi (University of Florence, Italy), Raúl Mora-Amador (UCR, Costa Rica), Céline Mandon, Akihiko Terada, Maarten de Moor, and the two new co-Leaders Caudron and Lewicki. This refreshed SC represents all continents, all ages and levels of experiences, besides all research fields of volcanic lake studies. Shortly after CVL10, the SC decided to organise the CVL11 Workshop in early 2022 at Lake Taal in the Philippines. CVL is delighted to bring the research group together at this enigmatic and potentially dangerous lake hosting volcano. The organisation of CVL11-2022-Philippines is in hands of Corentin Caudron, Alain Bernard and Phivoles. The workshop will soon be promoted through IAVCEI newsletter, CVL mailing lists and on

the CVL website <https://iavcei-cvl.org/> and social media (<https://www.facebook.com/Commission-on-Volcanic-Lakes-204310646248839/>).

See you all at the shore of Lake Taal in early 2022!



Champagne Pool, Wai-o-Tapu Geothermal Park (Pic by Joop Varekamp).



Group picture at the Tama Lakes (Lower pic by Karen Britten).



Sampling of lake water and dissolved gases along the vertical profile of Lake Rotomahana, Waimangu Volcanic Valley (Pic by Karen Britten)



Sampling of lake water and dissolved gases along the vertical profile of Lake Rotomahana, Waimangu Volcanic Valley (Pic by Yuri Taran)



CVL-Haka, Rotorua (Pic by Yuri Taran)

In the evening of March 20, the next Winner of the 2019-Kusakabe Award was announced during the Conference Dinner-Barbeque at the at Debrett's Thermal Spa. The three nominated "heavyweights" of our research during the past three decades, elected by the 2016-2019 CVL Steering Committee and an external evaluation commission, were: Bruce Christenson, Alain Bernard and Joop Varekamp (Wesleyan University, CT-USA). Joop Varekamp resulted the Winner of the 2019- Kusakabe Award. Congratulations Joop! Well deserved... thank you for your decades-long commitment, innovating and eclectic research and guidance. After the scientific sessions and official Business Meeting CVL10 continued with field trips at the Tama Lakes (between Mt. Ruapehu and Mt. Ngauruhoe), Huka Falls, Wairakei Geothermal field, Wai-o-Tapu Geothermal Park, and joint sampling and measurement campaigns at Waimangu Volcanic Valley with a special focus on Lake Rotomahana (out of Rotorua). A climb to the Ruapehu Crater Lake with the entire group could, unfortunately, not take place due to adverse weather conditions. Needless to say that the magmatic-hydrothermal features in these field trips were breathtaking as well as very didactical. The group split on 25 March; some members decided to visit White Island/Whakaari independently.



Group picture during the Maori dinner in Rotorua (Pic by Yuri Taran)

The 2,000 € support by IAVCEI was awarded (5 x 400 €) to the young researchers/students, coming from overseas: Gino González (Costa Rica), Kaori Seki (Japan), Céline Mandon (Ecuador), Kyriaki Daskalopoulou (Greece), and Artur Ionescu (Romania).

Dmitri Rouwet
INGV-Bologna

THE 2019 ANNUAL WORKSHOP OF THE INTER-ASSOCIATION IAVCEI-IASPEI

Commission on “*Volcano Seismology and Acoustics*”

The workshop was held from September 27th to October 3rd, 2019 in Garachico, on Tenerife, Canary Island, Spain. It was jointly the 28th annual workshop of the Working Group of the European Seismological Commission on “Seismic phenomena associated with volcanic activity”. The meeting came back to the island of Tenerife after 18 years and to the Canary Islands after 7 years.



Participants near the summit of Teide looking over the Pico Viejo.

The local organizers and co-conveners were Maria José Blanco Sanchez and Stavros Meletlidis from the Instituto Geográfico Nacional (IGN) of Tenerife who organised the meeting in the wonderful environment of the old Convento de San Francisco in the centre of the historical town of Garachico, whose important natural harbour was destroyed by an eruption in May 1706. The Municipality of Garachico co-sponsored the meeting.



Stavros Meletlidis explaining the volcanic plumbing system at the Roques de Garcia.

Since 2004, the Instituto Geográfico Nacional (IGN) is in charge of volcano monitoring and alert level information in Spain, due to its background knowledge in geophysics and geodesy. IGN is maintaining a dense multi-parametric volcano monitoring system, comprising seismology (automatic detection and location and manual revision), ground deformation monitoring (GNSS, tiltmeters, InSAR), geochemistry (soil temperature, diffuse CO₂ and Rn monitoring, underground water and gas sampling), geology, gravimetry, geomagnetism, IR surveillance and others, analyzing data in near real time to provide crucial information to decision makers, in the framework of the Canarian Civil Defense Plan for Volcanic Emergencies.



Tour through different telescopes of the Teide Astronomical Observatory.

The theme of the annual workshop was “Automatic detection, identification and classification of volcanic signals” and the subject attracted a large number of participants, which had to be capped for logistical reasons, and to keep the informal atmosphere that characterises all our meetings. 53 participants attended the meeting, coming from 15 different countries, plus 8 guests with an extraordinary age span. In oral and poster sessions 50 scientific studies were presented in total. Each presentation was followed by an interesting debate that, contrary to big meetings, was informal and not limited in time. Fruitful discussions were continued over lunch and dinner in several excellent restaurants throughout Garachico.



Participants in front of the town hall of Garachico.

Within the framework of the congress, two memorable, full-day excursions were organized. The first one focused on one of the most impressive and studied stratovolcanoes of the planet, Teide volcano. The trip included Teide's surrounding calderas and other geological structures. After a short trip with the cable car, the participants reached a height of 3.555m a.s.l. from where they enjoyed some walks with panoramic views of the area accompanied by geological explanations by Dr Stavros Meletlidis. "Reaching even higher" was realized through a fantastic visit to the Teide Astronomical Observatory (Instituto de Astrofísica de Canarias - IAC), organized and guided by Dr Eff-Darwich and one of his colleagues. The second field trip offered the opportunity to visit a dry water extraction tunnel that serves as a monitoring site for several sensors (seismic, GNSS, tilt, gases), as part of the volcano monitoring network operated by IGN. The excursion concluded with a short walk through the pleasant pinewoods to the Chinyero volcano, the location of the last eruption on Tenerife in 1909, and a final stretch that made all participants appreciate a cold drink, overlooking the Garachico lava flows.

In line with the theme of the workshop, one afternoon was dedicated to a brain-storming session on how to apply machine learning techniques not only in research but also at the operational level in different volcano observatories. The urgent need for sharing well-labelled data to train machine learning models was one of the key points of the discussion, as models can learn well only from a sufficient number of good examples. This discussion marked the start of a new initiative of the IAVCEI/IASPEI Commission which, in coordination by Corentin Caudron (France), Benoit Taisne (Singapore) and Jurgen Neuberg (UK), will investigate new ways to process monitoring signals in an automated way, employing concepts of machine learning.

Maria Jose Sanchez
Stavros Meletlidis
Robert Carniel
Jurgen (Locko) Neuberg

8TH INTERNATIONAL MAAR CONFERENCE

24 – 30 August 2020

Petropavlovsk-Kamchatsky, Russian Federation

Dear colleagues,

The deadline of abstract submission to the **8th International Maar Conference** is approaching. Please do not forget to submit your abstract at the conference website <http://www.kscnet.ru/ivs/conferences/maar19-20/indexEn.html> before January 15th, 2020.

The Organizing Committee of the Conference strongly recommends to book plane tickets urgently because cheap seats will be redeemed quickly - August is a high season in Kamchatka.

Please keep in mind that the flights starting from Moscow come to Kamchatka the next day due to the time difference. Due to the increased occupancy rate during the high touristic season in Kamchatka the Organizing Committee booked a limited amount

of rooms in several hotels (double- or triple accommodations). To book one of these hotels, please contact **Oxana Evdokimova** (evdokimova@kscnet.ru). Amount of rooms is limited.

Alternatively, you can book apartments via Booking.com or Airbnb services. Check web-site of the conference for the updates.

Conference website:

<http://www.kscnet.ru/ivs/conferences/maar19-20/indexEn.html>

Anna Volynets

Institute of Volcanology and Seismology Petropavlovsk-Kamchatsky, Russian Federation
E-mail: a.volynets@gmail.com

THE 1ST ALVO CONGRESS AND VOLCANOLOGY IN THE CURRENT LATIN AMERICAN CONTEXT

The First Congress of the Latin American Association of Volcanology (1st ALVO Congress), was scheduled for the week of November 3 to 7, 2019, in the city of Antofagasta, Chile. However, the serious events that took place throughout the country since October, as a result of a pronounced political-social crisis, motivated the postponement of the event for the protection of the participants. The new dates for the 1st ALVO Congress are from March 22 to 26, 2020 in Antofagasta, Chile. Since similar political situations have occurred in other Latin American countries during volcanic crises, it was decided to hold a virtual event to motivate reflections and comments about how a social-political crisis can impact the volcanic risk management. We present here a brief report of the event.

On November 26, 2019, the virtual event "The 1st ALVO Congress and volcanology in the current Latin American context" was held (16:30 UTC). A virtual room made available by the Universidad Nacional Autónoma de México (UNAM) was used, and the moderators were: Dr. Lizeth Caballero (ALVO representative - North America Region) and Dr. Mariana Patricia Jácome Paz (ALVO Vice President). There were more than 110 people connected from all Latin American countries, as well as a few from other parts of the world.

The event began with welcoming words from the President of ALVO, Dr. Mariano Augusto, from the University of Buenos Aires, Argentina. This was followed by a statement from the local organizers of the 1st ALVO Congress, the Universidad Católica del Norte de Chile, made by Dr. Felipe Aguilera. In this statement it was emphasized that the objective of the ALVO Congress is to contribute to an improvement of the regional cooperation network, as well as to strengthen Latin American and global volcanology. 383 abstracts received with 425 authors, 85% of Latin American origin, were reported.

Next came a short presentation titled "USAID OFDA and

international cooperation for EWS in Latin America,” by Ms. Mariela Chavarriga, from USAID OFDA, who gave a general framework of cooperation through the United States Agency for International Development (USAID) and its role in the Latin American region.

The discussion titled “The volcanic risk and socio-political conflicts in Latin America” was the main section of the event, where the following short presentations were given:

- “How does the perception of risk change with socio-political problems in Latin American territories?” Dr. Deysi Jerez. Research Institute in Risk Management and Climate Change, UNICACH, Mexico.
- “How is risk management and the operation of the observatory affected with the current situation in Chilean territory?” Dr. Álvaro Amigo. Head of the National Network of Volcanic Surveillance of SERNAGEOMIN, Chile.
- “Impact on risk perception by complicated socio-political contexts: Cotopaxi 2015 case”, Dr. Hugo Yepes. Geophysical Institute, National Polytechnic School, Quito, Ecuador.
- “Individual's psychosocial mechanisms in the face of psychopolitical conflicts in the territory”, Mtro. William Oswaldo Gaviria Gutiérrez, Psychosocial Observatory for Disaster Risk Management, University of Manizales, Colombia.
- “Community Social Psychology to understand social conflicts in volcanic risk scenarios”, Dr. Elizabeth Ojeda Rosero. Full-time research professor in the Department of Psychology at the University of Nariño, Colombia.

After each one of the presentations, there were questions and answers with reflections which considered both, the scientific and social dimensions of the issues discussed. A first and main conclusion was the need to establish transdisciplinary frameworks in volcanology to strengthen the link between natural sciences and social sciences, thus favoring mitigation of volcanic risk in the region. Likewise, interest was shown in continuing the dialogue and generating opportunities for reflection as part of the ALVO agenda.

At the end of the event (19:30 UTC), Dr. Augusto thanked everyone and reemphasized the importance of the meeting. We are preparing more detailed material as a result of this event. For further information on this meeting and everything related to the 1st ALVO Congress, keep an eye on our networks.

<https://www.facebook.com/OficialALVO/>
<https://www.facebook.com/1ercongresoalvo/>
<https://www.1ercongresoalvo.com/>

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Mariano Augusto,
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YOUNG LATIN AMERICAN VOLCANOLOGISTS INTERNSHIP PROGRAM 2019: AND ADVENTURE IN COSTA RICA AND MÉXICO

The Young Latin American Volcanologists (*Jóvenes Volcanólogos Latinoamericanos – JVLA*) network, 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 the lack of training opportunities for the new generations of volcanologists. The 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.



Geoffrey Avar and Camila at Poás volcano

With the financial support of IAVCEI, and after a successful pilot test carried out in OVDAS, Chile, in 2018, a new edition of the program took place this year between August and October 2019. In this opportunity, we offered two internships. The beneficiaries were Camila Marianne Zúñiga Cárcamo (@mila_mzc on Instagram, camila.zuniga.1@ug.uchile.cl), a geologist from the University of Chile and member of young volcanologist of University of Chile (@JovUch on Instagram) and Alfredo Esquivel (@fitoesquivel_ on Instagram) from the Risk Mitigation research group (@ckelarvolcanesucn on Instagram and @CkelarVolcUCN on twitter) of the Catholic University of the North, Antofagasta, also from Chile. While Camila went to OVSICORI, in Costa Rica, Alfredo spent eight weeks in México, working and learning at the National Center of Disaster's prevention (Centro Nacional de Prevención de Desastres - CENAPRED, in Mexico City), the Geophysics Institute (campus Morelia city) and C-GEO (Juriquilla city) at UNAM in México. The Costa Rica internship lasted six weeks, during which time various topics related to volcanic monitoring were addressed: Week 1) volcanological seismology; week 2) petrology; week 3 and 4) fluid geochemistry, both at the field level and in analytical chemistry laboratory and, finally, week 5 and 6) geodesy and communications. Camila also had the opportunity to go to the field and learn from the colleagues of OVSICORI in Poás and Turrialba volcanoes. Below, Camila shares some impressions about her experience.

Camila, how do you think this training program helps you for the future?

The time I spent at the observatory allowed me to work in different areas of volcanology, some of which I had only known in theory. At the same time, the observatory had an important role in providing me with valuable opportunities in both laboratory and fieldwork so that I could complement my abilities as a volcanologist.

In addition to all the tools I was taught, one of the greatest advantages was that I was allowed to actively contribute in different projects. They gave me freedom to experiment and propose solutions to different problems that arose, for example, during my work with Maria Martinez, Ph.D. in the geochemistry lab. They had to analyze anions and cations simultaneously in samples from the hiper-acid lakes of Poás and Rincón de la Vieja volcanoes, but they had not been able to establish the necessary methodology to do it. Trusting in my software expertise, they allowed me to take on this challenge independently, which concluded in the first successful analysis of cations and anions of the lab. It was that trust, curiosity and mutual growth that made me learn more than what I expected and allowed me to grow more as a young scientist and professional.

Do you think, this experience would help to build a relationship between your university and OVSICORI? How?

Definitively. During my stay in the observatory, I had the chance to talk to all the researchers and members of the OVSICORI-UNA, not only about the different topics I would work on during the week but also about ideas they had about the available information on the volcanoes at Costa Rica. In the observatory, the Volcano Surveillance group is small and the amount of data they gather on their volcanoes is so much, added to their duties, that there is not enough time to do much research. Talking to them, they showed me different data compilations and the interest in forming a collaboration to work on them jointly.

A few months after my departure, I am still in contact with the members of OVSICORI-UNA and the opportunity that, for example, other Chilean students collaborate with the observatory are still on.



Camila working at Laboratory of geochemistry of fluids, OVSICORI-UNA

Do you want to add any comment about your experience?

Firstly I would like to thank ALVO, JVLA, and IAVCEI for trusting me with the second edition of the internship program in volcano observatories, Luis Lara (my Master advisor) for his continued support since I told him about this opportunity, Pablo and Mariana for taking care of me in every aspect regarding traveling abroad, and last but not least, to every member of the OVSICORI-UNA, who became my second family. I would also like to invite other young scientists to take these opportunities, not only for the immense knowledge they could acquire during the internship but also for the bonds you create with others students and scientists, which is hard to obtain during early stages in the career. This bond makes you appreciate what it means to work monitoring active volcanoes, at the same time that let you learn from the experience of experts in the field and create a network for future collaborations. It is definitively an experience I would love to repeat.

The training for Alfredo had total duration of 8 weeks distributed in the following way: week 1) volcano seismology. Case of study: Popocatepetl volcano; week 2) volcano monitoring instrumentation and laboratories; week 3) installation and maintenance of instrumentation in field work and week 4) risk management, Civil Protection law in Mexico at CENAPRED. Week 5) lahars monitoring and instrumentation. Case study: Fuego de Colima volcano. and week 6) flow modelling. Introduction to multihazard assessment. Geosciences Center at C-GEO, UNAM. Finally, week 7) petrology; and week 8) ash analysis at Geophysics Institute, UNAM, Campus Morelia.



Alfredo visiting Paso de Cortés, the last location allowed to visit near Popocatepetl volcano

Alfredo, how did you hear about the internship program? How do you think this training program helps you for the future?

I read about the internship program through social networks, on the official platforms of JVLA and ALVO. I feel fortunate to be selected for the internship because I think that this training program will help me greatly in my future academic and personal development. For my PhD I work on volcanic hazards and risk, so the study of volcanoes like Popocatepetl and how its activity impacts on the society is something I dreamed of learning in Mexico sometime in my life. In addition, Mexico is a country that

is at the vanguard in terms of hazard maps, and the new maps of Popocatepetl volcano will definitely inspire my work.



Alfredo giving a talk to children of basic education school General David Alfaro Siqueiros in San Baltazar Atlimeyaya town. The talk was about the myths and legends in volcanoes of Chile.

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

Yes, of course. Since I was a child, I have been interested in volcanoes and I have had as a main objective to do scientific research focused on supporting communities and their development. In this sense, the activities scheduled for each week of the training were a perfect instance for a young volcanologist to specialize in these topics, learning in institutions with excellent level like CENAPRED and UNAM. When you are a young researcher, it is often difficult to get involved in government institutions that make decisions in relation to volcanoes that impact communities, but this training program allows you to understand how it works and learn from experts. In addition, it is a good opportunity to create an extensive network of international contacts, not only making a professional relationship, but also new friendships.

Do you want to add some comment about your whole experience?

I am greatly grateful to IAVCEI, JVLA and ALVO for trusting me in this experience that changed my life. I want to thank to the people in charge of the organization and logistics of my internship, who were worried to make sure everything was all right. To Felipe (my PhD advisor) for the constant support and guidance in every decision and proposal I make. To each member of CENAPRED, Geophysics Institute (Morelia city campus) and C-GEO (Juruquilla City) at UNAM, for receiving me in an excellent way. This was an incredible experience and I would highly recommend it. I urge the young volcanologists of Latin America to apply for this internship opportunity. It is a great option that did not exist before. If you love volcanoes like me and want to understand them better, do not miss this internship program!

Camila and Alfredo uploaded to ALVO and JVLA social media a lot of interesting information, photos and videos about their experience, the laboratories, the monitoring systems, the sampling and the volcanoes they visited. We invite you to look for in

@volcajovenes on Facebook and Instagram. For further information about the program and the projects we have you can write us to alvo.comunicaciones@gmail.com and volcajovenes@gmail.com

Acknowledgment

We thank to Luis Lara, local tutor of Camila and Geoffrey Avar, tutor at the OVSICORI-UNA. To Felipe Aguilera, local tutor of Alfredo and to Ramón Espinasa, Lucía Capra, Fabiola Mendiola López, Mario Boijseauneau López, Giovanni Sosa, for their help and mentoring work in Mexico. To Lizeth Caballero and Amiel Nieto for their participation in the organization of the internship. To the group of volunteer members of ALVO and JVLA who contributed with work and time to the candidates selection process.

Text by

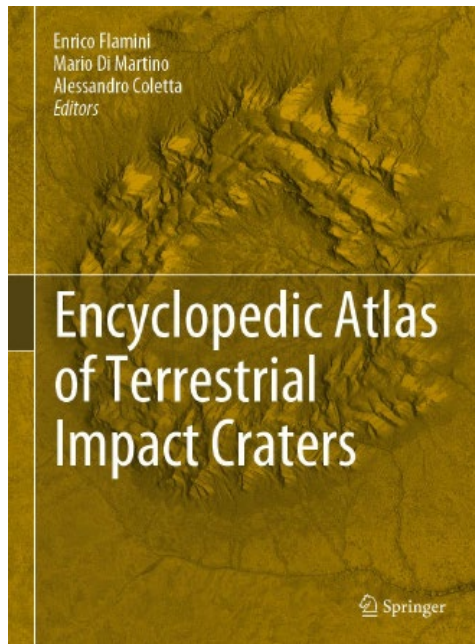
Mariana Patricia Jácome Paz and
Pablo Forte

on behalf of ALVO and JVLA networks.



Lascar, Chile in 2nd November 2019 (K. Nemeth)

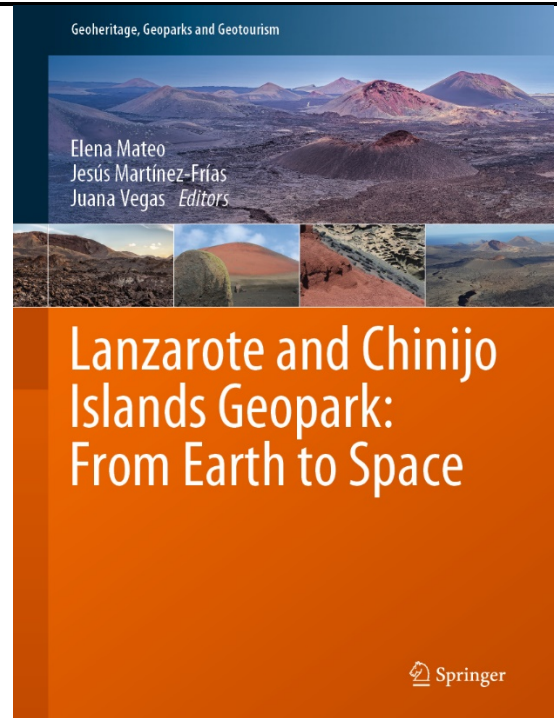
NEW BOOKS



Encyclopedic Atlas of Terrestrial Impact Craters
Editors: Enrico Flamini; Mario Di Martino; Alessandro Coletta 2019
Springer International Publishing
Springer Nature Switzerland AG
eBook ISBN 978-3-030-05451-9
DOI 10.1007/978-3-030-05451-9
Hardcover ISBN 978-3-030-05449-6
Number of Pages XVII, 691

This comprehensive atlas explains the genesis and evolution of impact known craters on Earth, presenting a wealth of radar images from the Italian COSMO-SkyMed satellites that were acquired at the same frequency, spatial resolution, operating mode, and illumination, allowing excellent comparison of different impact structures. It also discusses in detail the processes that have hidden or erased terrestrial impact craters, and clearly explains the basic principles of remote sensing and the COSMO-SkyMed system and radar instruments. Also, the optical satellite remote sensing technique used to produce the optical images is described. The main section documents each of the exposed craters officially recognized as caused by meteoritic impact, presenting a table with the COSMO-SkyMed radar image and, where available, a Sentinel optical image and a photograph taken in situ. A short accompanying text reports the location, context, geographical coordinates, and other ancillary information to support future researches.

You can access the book via
<https://www.springer.com/gp/book/9783030054496#aboutBook>



Book Title: Lanzarote and Chinijo Islands Geopark: From Earth to Space
Editors: Elena Mateo; Jesús Martínez-Frías; Juana Vegas
Series Title: Geoheritage, Geoparks and Geotourism
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Hardcover ISBN 978-3-030-13129-6
Number of Pages XIV, 186

This volume comprises a selection of papers describing the main features of the Lanzarote and Chinijo Islands Geopark (Canary Archipelago, Spain). Of all the Global Geoparks worldwide, it is the only one that has officially evaluated and characterized specific areas as analogues for the geological and astrobiological exploration of Mars. The identification and characterization of terrestrial sites that can be used as planetary analogues are currently considered vital study areas of planetary geology and astrobiology. Written by experts in the various fields, this multidisciplinary book is a unique resource for graduate students and professionals alike.

You can access the book via
<https://www.springer.com/gp/book/9783030131296>

FUTURE EVENTS
for IAVCEI member's interest

International Geological Congress 2020

New Delhi, India
2 – 8 March 2020

Web: <https://www.36igc.org/>

Chapman Conference
on Distributed Volcanism and Distributed Volcanic Hazards

Flagstaff, Arizona
16-20 March 2020

Web: <https://www.agu.org/en/Chapmans-Distributed-Volcanism>

Cities on Volcanoes 11

Heraklion, Crete
23-27 May 2020

Web: <https://pcoconvin.eventsair.com/volcanoes11/>

Goldschmidt Conference

Hawaii
21-26 June 2020

Web: <https://goldschmidt.info/2020/>

8th International Maar Conference

Petropavlovsk-Kamchatsky, Russian Federation
24-30 August 2020



Next Issue of the **IAVCEI News** will be published on 15th **April 2020**. Articles, notes, news or any items relevant to the IAVCEI community must be submitted by 5th **April 2020** to be published in the next Issue.

Editor-in-Chief

Károly Németh

Massey University, Palmerston North

Any correspondence, news items could be sent to:

k.nemeth@massey.ac.nz

vHub Coordinator: Greg Valentine (SUNY, Buffalo)

Any correspondence, news items could be sent to

gav4@buffalo.edu

IAVCEI Web-stie Coordinator (University of Bari)

Eugenio Nicotra – email: eugenio.nicotra@unict.it