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

IAVCEI

This Newsletter is intended to keep IAVCEI Members and individual scientists informed about the activities of the Association and its bodies, and the actions of the IAVCEI Executive Committee. Past issues are posted on the IAVCEI website. Your comments are welcome. The IAVCEI Newsletter may be forwarded to non-members who may benefit from the information.

Fuego during COV-12 (photo by Bastian Steinke ©)

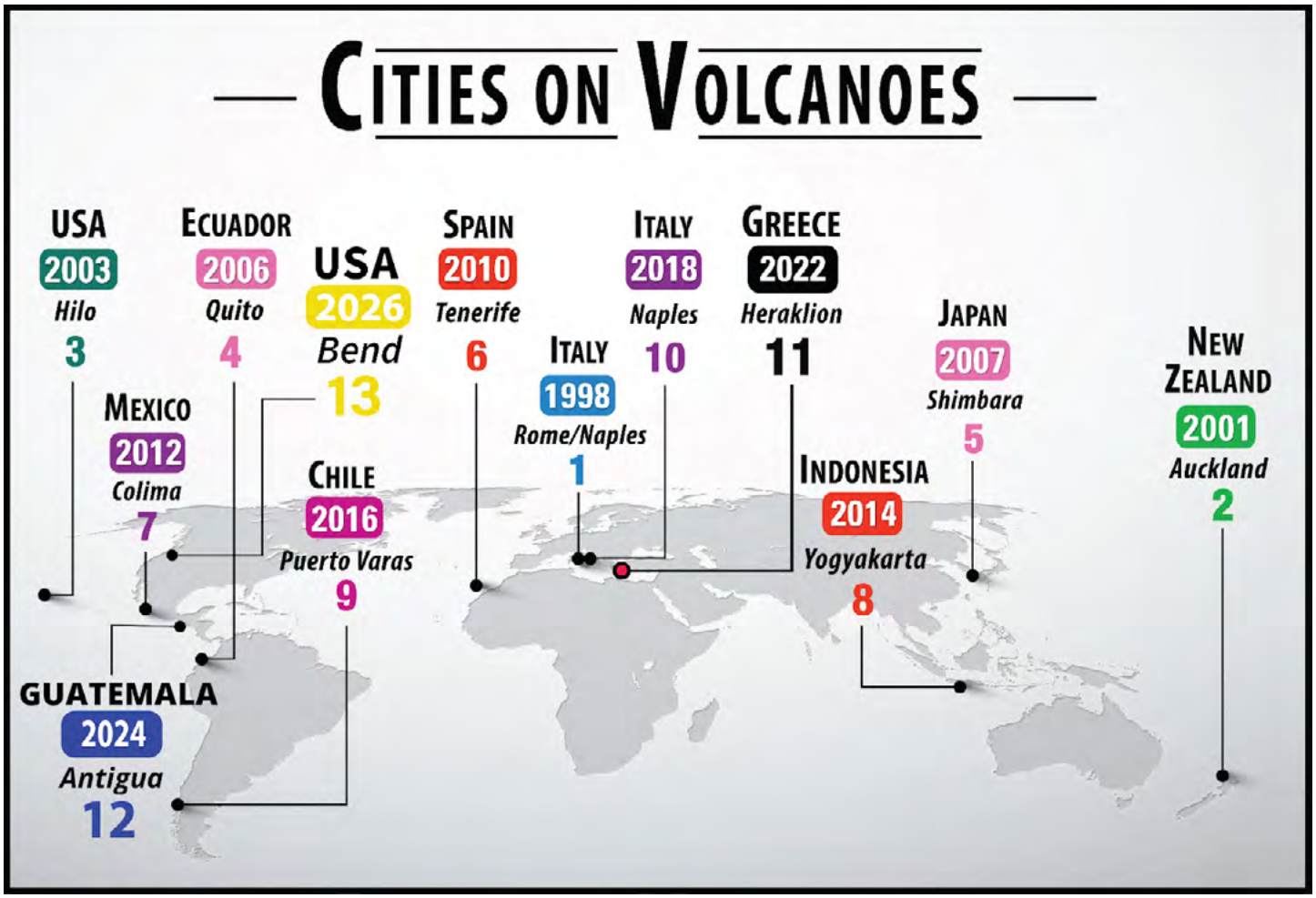
CONTENTS

Click on section for hyperlink

CELEBRATING GUATEMALA AND CITIES ON VOLCANOES 12

Cities on Volcanoes 12 (COV-12)

Antigua (Guatemala): February 11–16, 2024



Hosts of Cities on Volcanoes conferences. COV13 will be held in 2026 in Bend, Oregon, USA.

Review of COV-12 by the IAVCEI Cities & Volcanoes commission

Cities on Volcanoes (COV) conferences are special gatherings, each with a decidedly local flavor, that create and nurture connections between volcanologists, government authorities, emergency managers, social scientists, and local communities. The aim is to bring together those with an interest and stake in volcanic crisis preparedness and management in cities and populated areas.

The first COV was held in Italy in 1998 and, since then, a COV conference has been held every two-to-three years. The 12th Cities on Volcanoes conference (COV-12) was held in Antigua, Guatemala, in February 2024. This was the fourth COV conference to be held in Latin America, following COV-4 in Quito, Ecuador (2006), COV-7 in Colima, Mexico (2012), and COV-9 in Puerto Varas, Chile (2016).

The International Association for Volcanology and Chemistry of Earth's Interior (IAVCEI) Cities and Volcanoes (CAV) commission maintains oversight of the conference series, organizing the call for proposals, evaluating proposals and selecting the host, and providing non-financial support as needed before, during, and after each conference.

The call for proposals to host COV-12 went out in October 2019, with the expectation that the conference would be held in 2022. We made the decision to award COV-12 to Antigua, Guatemala, in the first two weeks of January 2020. Little did we know that a virus that had recently been identified would shut the world down in a little more than two months, resulting in the postponement (twice) of COV-11, and with it, the indefinite postponement of COV-12. This is to say, COV-12 was a long time in the making (and waiting!), with many delays caused by COVID-19!

Why did the CAV commission award COV-12 to Antigua, Guatemala? In short, it was because we were blown away by the innovative, enthusiastic, and compelling proposal we received, which more than lived up to its vision. COV-12 was groundbreaking in many ways, including (but not limited to) a push to make the event fully bilingual – participants could present in either Spanish or English, and session formats that went beyond the traditional conference presentations – expanding the format of traditional oral sessions to include lightning talks, panel discussions, group discussions, a push to make attendance as diverse, affordable and equitable as possible, and the proactive inclusion of numerous communities who have traditionally been underrepresented at "typical" conferences.

As members of the CAV commission, it was humbling to see the hard work, persistence, motivation, and vision of the COV-12 Local Organizing Committee (LOC) and Program Organizing Committee (POC). Their efforts, together with the wonderful work of the field trip leaders and volunteers, resulted in an amazing conference which **was** the essence of what COV conferences are meant to be. As a commission, we are exceedingly grateful, thrilled, and inspired by COV-12.

Going forward, we hope that the momentum and energy of COV-12 will continue to grow, and continue to foster local and regional connections. We further hope that COV-12 will not be the only COV conference that attendees participate in, and that many attendees from a variety of backgrounds and communities will have the opportunity to go to future COVs and be exposed to how other communities live with volcanoes.

As announced at the COV-12 closing ceremony, COV-13 will be held in Bend, Oregon during July 12–17, 2026. In May 2025 (a little less than a year from now), the CAV commission will launch the process for selecting the host of COV-14, which is anticipated to be in 2028. Timelines still need to be finalized, but full proposals will likely be due in early 2026.

The CAV commission is available to talk through the proposal and organizational process for COV-14 (or COVs beyond that) with any-and-all interested potential hosts.

Natalia Deligne
on behalf of IAVCEI Cities and Volcanoes commission (CAV)
https://citiesonvolcanoes.wordpress.com/

Cities on Volcanoes 12 – La Antigua Guatemala Intersection of Volcanoes, Science, Art and Society

The 12th edition of the Cities on Volcanoes conference (CoV 12) took place in the city of La Antigua Guatemala, from February 11 to 17 this year. La Antigua Guatemala was the ideal place for this conference, considering its long history of disasters associated with volcanoes and other geological phenomena, but also because of its status as one of the main tourist attraction areas of Guatemala and view of, and access to, active volcanoes nearby. CoV 12 attracted a broad variety of people passionate about volcanoes and their connection with society, including researchers interested in studying volcanoes from inter- and trans-disciplinary perspectives, involving physical and social sciences, the arts and humanities, and from the perspective of risk communication and management, including topics related to civil protection and the evaluation and monitoring of volcanic hazards. More than 600 delegates from 34 countries participated, including more than 180 from Guatemala.

First day of conference, registration process at ruins of San Jose El Viejo church, constructed in 1762, Antigua Guatemala. / Primer día de la conferencia, proceso de registro en las ruinas de la iglesia de San José El Viejo, construida en 1762, Antigua Guatemala. Izquierda: Grupo de voluntarios y Dra.

The program included 59 sessions in various formats, across four thematic areas:

1. Volcanoes and sustainable development,
2. Volcanoes, the humanities and creative arts,
3. Volcanoes and their social, cultural, and political context, and
4. From volcano monitoring and hazard assessment to risk management.

There were 273 oral presentations, 60 lightning talks, 7 panels, 327 posters, 9 round tables, and a variety of group activities, musical presentations, and art exhibitions, as well as four plenary

panel sessions with simultaneous translations into English and Spanish. The conference included two simultaneous field trip options on Wednesday, February 14, to Fuego or Pacaya volcanoes, including a visit to the ruins of the village of San Miguel Los Lotes, that was destroyed during the eruption of Fuego volcano on June 3, 2018, and where hundreds of people died in the most destructive eruption in Guatemala in almost a century. During the conference week, cultural nights were planned with the objective of showing the talent of regional artists and visiting some of the historic monuments around, including activities in the La Ermita de la Santa Cruz, Casa Convento Concepción, and the Convento de Santa Clara. We also organized photo exhibitions, documentary film showings, history, culture and folkloric music. Associated with CoV 12, but organized by independent groups of researchers, were nine field trips and 17 pre- and post- conference workshops took place, as well as two network meetings of Latin American volcano observatories and young volcanologists.

A central goal of the conference was to facilitate an inclusive conference with a diversity of participants and audiences because we held the belief that these participant experiences and dialogues would enrich the conference outcomes. To facilitate participation of those traditionally underrepresented, costs registration were minimized, particularly for participants with low economic resources. Special effort was also directed at encouraging participants from outside academia, for example, community leader groups that liaise with civil protection groups from several villages around three volcanoes in Guatemala, representatives from women's organizations, community researchers and representatives from communities impacted by recent volcanic eruptions (from Guatemala and the Caribbean). There was a volunteer program, which recruited 26 university students from Guatemala, who helped with logistical tasks during the four days of conference, and with this they could participate in two days of the conference, with hotel expenses and transportation covered. The conference had the support of various Guatemalan and international funders, which financed the participation of many of the national and international participants. Among them are the Volcano Disaster Assistance Program (VDAP) of the United States Geological Survey (USGS), the Scottish Funding Council, the UK-funded GCRF Ixchel project, a consortium of British and Guatemalan, and US universities, the Secretaría Nacional de Ciencia y Tecnología (SENACYT), and the Asociación Guatemalteca de Física. With funds from these agencies as well as funds raised from conference registration it was possible to provide economic assistance to partially cover travel and accommodation costs for at least 144 participants.

The conference was the culmination of 4 years of planning and joint work between the Local Organizing Committee, the Program Organizing Committee, and all the organizers of field trips, workshops, and other activities associated with the conference. As organizers we are grateful to all those who contributed with their time, work, effort, and resources to make this conference possible and all these activities as successful as they were!

Conference organizing committee and volunteers, after 4 years of effort we proudly celebrated the last night of COV12. / Comités organizadores de la Conferencia y voluntarios, después de 4 años de esfuerzo celebramos con orgullo la última noche del COV12.

CoV 12 Local Organizing Committee and Program Organizing Committee: Amilcar Roca (INSIVUMEH lead), Eliza S. Calder, William Chigna, Carla Chun Quinillo, Beatriz Cosenza Muralles, Rudiger Escobar-Wolf, Pablo Forte, Joel Ixcamparij, Jeffrey Johnson, Armando Pineda, Lizzette Rodríguez, Heather Wright.

Tolimán, Guatemala

SECTION 1. IAVCEI – WHO WE ARE AND WHAT WE DO

1.1 IAVCEI Commissions and Network Updates

WOVO Revival!
https://wovo.iavceivolcano.org/

After years of discussion, we are pleased to announce that the World Organisation of Volcano Observatories (WOVO) has been designated as a IAVCEI Network. The recently formed secretarial team includes three IAVCEI Councilors:

- Nobuo Geshi (Kyushu University, Department of Earth and Planetary Science),
- Alvaro Amigo (Servicio Nacional de Geología y Minería, Chile), and
- Alessandro Bonforte (Istituto Nazionale di Geofisica e Vulcanologia Sezione di Catania – Osservatorio Etneo), plus a chair
- Nico Fournier (GNS Science).

WOVO aims to connect, support and advocate for volcano monitoring institutions worldwide through three core programs: Volcano Observatory Best Practices (VDOP) workshops, WOVOdat, and Cross-disciplinary initiatives such as the Volcanic Ash and Aviation Hazards (VAAH) and early warnings.

An initial Executive Leadership Team (ELT) was nominated by the IAVCEI Executive Committee to spearhead that rejuvenation effort over the next 4 years. The WOVO ELT currently consists of the leads of the three core programs, VDOP, WOVOdat (https://www.wovodat.org/) and VAAH, with the following primary points of contact:

1. VODP: Laura Sandri (INGV) and Jake Lowenstern (USGS/VDAP)
2. WOVOdat: Benoit Taisne and Christina Widiwijayanti (EOS/ASE/NTU)
3. VAAH: Sara Barsotti (IMO)

Key priorities for the coming years will be developed by the WOVO ELT in consultation with the observatory community with full regional representation. In the meanwhile, we are currently updating the membership list and will soon onboard a few more volcano observatory colleagues from various parts of the world to ensure a comprehensive geographical representation in the ELT.

The intent is to update and revamp parts of the WOVO website and focus initially on key initiatives adding value to the observatory community in the short- and mid-term. Meetings will be organized around future conferences such as the 2025 IAVCEI Scientific Assembly in Geneva, with further VOBP workshops also being planned. The last VOBP5 workshop was successfully held in Púcon (Chile) in November 2023 (see: "*VOBP5 Meeting in Pucon, Chile: November 12–18, 2023*", IAVCEI Newsletter No. 4, December 2023[1]). VOBP5 was a fantastic opportunity to exchange international practices, with a focus on communication.

We are aiming at streamlining WOVO membership and communications over the next few months. So, stay tuned for more updates. In the meanwhile, do not hesitate to get in touch and to drop us an email at

wovo@iavceivolcano.org

The WOVO ELT wants to thank all the previous leaders and committees for their unwavering support to the organization, and everybody who has been involved in this rejuvenation effort over the years.

Ngā mihi nui

On behalf of the WOVO ELT

Nico Fournier (He/Him)
Chair – World Organization of Volcano Observatories (WOVO)

[1] https://www.iavceivolcano.org/content/uploads/2024/01/iavcei_newsno4_december2023.pdf

Acatenango, Guatemala

1.2 The Voice of IAVCEI Early Career Researchers

ECR profile: Carla Maria Fernanda Chun Quinillo (Guatemalan Volcano Monitoring Observatory – OGVV)

Hello, my name is Carla Chun. I am Guatemalan and a geologist. I work on monitoring the volcanoes in my country, creating volcanic hazard maps, and disseminating these tools, which are of great importance for local decision-making in communities near the volcanoes.

I am from a region located in northern Guatemala. The city of Cobán is a Q'eqchi' region, and the name *Cobán* means 'there in the clouds' or 'among the clouds'. It is characterized by its mountainous terrain, shaped by a karst system, with various rivers. There is also a variety of orchids, and most importantly, it is a city with high coffee and cardamom production.

I studied geological engineering at Centro Universitario del Norte at the "*Universidad de San Carlos de Guatemala*". This program is unique in Guatemala and is located in Cobán. Before starting the thesis, students must complete an internship at a public or private institution. This supervised professional exercise provides practical experience before graduation. I completed my internship at the National Institute of Seismology, Volcanology, Meteorology, and Hydrology (INSIVUMEH), which required me to move to the city.

During this experience, I discovered my true passion: volcanoes. I made many friends and had the opportunity to share significant experiences with Gustavo Chigna, one of my mentors in the volcanic field. I also began my bachelor's thesis on Pacaya Volcano, focusing on updating lava flow threat maps.

In 2015, I began working at INSIVUMEH, monitoring Fuego, Pacaya, and Santiaguito volcanoes. At that time, the volcanology unit consisted of four people, focused on volcanic surveillance, responding to eruptive crises, and updating volcanic hazard maps. Fuego Volcano has been my greatest teacher. During this period, I studied its deposits, physical characteristics, and conducted various field campaigns after eruptions involving pyroclastic density currents and significant lahar events.

The crisis on June 3, 2018 was an event that changed my life. During this crisis, I was participating in an international training course on volcanic hazard monitoring in Hawaii. I collaborated with other scientists in creating volcanic hazard maps. It was incredible to see people from different parts of the world come together to support each other. Unfortunately, it took such an event to improve conditions for volcano monitoring in Guatemala.

I pursued two master's degrees: one in Comprehensive Disaster Risk Management at UNAN-Managua, and another in Geomatics at the University of San Carlos of Guatemala. During this stage, I gained insights from various perspectives on risk management and the implementation of new tools to enhance surveillance at volcanoes like Pacaya and Santiaguito.

Dulce and Carla explaining the scenarios for lava flows in the Pacaya volcano / Dulce y Carla explicando los escenarios por flujos de lava en el volcán de Pacaya

Since 2020, I have been working at the OGVV of Marino Gálvez University, where we focus on disseminating volcanic knowledge. One of our objectives is to strengthen efforts in volcano surveillance and research for the country's development.

Recently, I was part of the organizing committee for Cities on Volcanoes 12. This experience was very rewarding, as it allowed me to connect with great friends and scientists. Opportunities in my country can sometimes be limited, but this experience opened up various perspectives for geology students.

Over the years, I have learned a great deal about volcanoes. However, I believe my most significant experience has been in the field and within communities. There, I've had the opportunity to understand the volcanic context from a different social and cultural perspective.

1.3 Insider Perspective: What's my job?

Gustavo Adolfo Chigna Marroquín (INSIVUMEH – Guatemala)

My name is Gustavo Adolfo Chigna Marroquín, I studied at the University of San Carlos in Guatemala, and I have specialized in volcanology through collaboration with, and work in, countries such as Japan, Switzerland, South Korea, Mexico and in several countries in Central America.

I began my work in the field of volcanology in 1987, when the Volcanology section at INSIVUMEH (Instituto Nacional de Sismología, Vulcanologia, Meteorologia e Hidrología; https://insivumeh.gob.gt/) was created. Together with Ottoniel Matías (RIP), and other colleagues, we started this project when volcanology in Guatemala was not well known. Currently, I am the only person who continues working.

Volcanology in Guatemala was created due to a growing international interest in avoiding a catastrophe similar to that of Nevado del Ruíz (1985), which revolutionized the work direction in countries of Central America where, at that time, there were no institutions that monitored volcanoes.

Fortunately for the Central American countries back then, CEPREDENAC (the Disaster Prevention Centre of Central America) was created in order to train seismologists and volcanologists in Central America. With the support of William (Bill) Rose and Reynaldo Mercado, postgraduate courses were taught in Nicaragua, Costa Rica and Guatemala. Out of this two people were trained … where, fortunately, I was one of them. During this time we attended a course for two years that contained topics spanning geology, volcanic seismology, deformation and gas sampling. This course was endorsed by the universities of each participating country (i.e., University of San Carlos of Guatemala, National University of Nicaragua and National University of Costa Rica).

Fortunately for us, we learned from the best volcanology professors, among them Bill who invested an immense research direction towards the volcanoes of Guatemala, who initiated many investigations into the volcanology of Guatemala, and as a result of which, I had the honour of participating in the development of progress into the understanding of volcanic hazards in my country. This included the preparation of a hazard map for Fuego and Santiaguito volcanoes, and research into the behaviour of lahars at Santiaguito. During the 1980s and 1990s, we worked with a great (and varied) team from the Michigan Technological University (MTU, Houghton, MI). Bill and MTU supported, and continue to support, us in our research into the volcanology and volcanoes of Guatemala. In addition, since my initial volcanology training at INSIVUMEH and through today, the USGS Volcano Disaster Assistance Program (VDAP, https://volcanoes.usgs.gov/vdap/) has always supported us; providing the necessary equipment to carry out monitoring, and implementing techniques such as seismic, deformation and gas monitoring, and supporting the INSIVUMEH's staff through constant training.

My work in volcanology began in the area of volcanic seismology, first learning to identify the different seismic signals of each volcano, and then building databases where classifications and catalogues were made. However, due to the lack of personnel in the unit I got involved in all volcanic monitoring topics, including field monitoring, geological surveys, gas sampling (with COSPEC), and deformation. Initially these monitoring techniques were only applied to Pacaya and Santiaguito, but from the 1999, after the Fuego's reactivation, Fuego volcano also became monitored.

My current work focuses on different aspects of volcanology in Guatemala. A main focus is to increase awareness of volcanic threats, together with the National Coordinator for Disaster Reduction (CONRED, Civil Protection), and participating in technical discussions where decision makers participate with governors and mayors of volcanic areas. In addition, I share my knowledge by giving talks about the volcanic hazard to schools and institutions around active volcanoes. For many years I have been delegated as a liaison with universities and international institutions that carry out research on volcanoes;, providing support and sharing experiences. As a result I have been involved in around 30 publications as co-author.

To date, I have completed 38 years of dedicated service to the volcanoes of Guatemala, living through good and bad experiences, out of which I have many satisfactions, but also sadness. Many times I have had to work alone, and sometimes with someone else. We (I) have had to do the monitoring with the bare minimum of resources, for during much of my time we have had only one short period seismic station on each of the three active volcanoes (Santiaguito, Fuego and Pacay).

Among my good experiences, I remember the May 27, 2010 eruption of Pacaya, when seven days before the eruption, the National Park was closed to tourists. The subsequent eruption was classified as sub-Plinian, and was an event that caused much material damage, but resulted in zero deaths, except for one journalist who did not respect the protocols. After the

eruptions of the Santiaguito volcano in 2014, in 2016 three early-career geologists were hired to work in volcanology and the team grew to four; and with them we shared the burden of the tragic eruptive events of Fuego between 2015 and 2018.

The history of volcanology in Guatemala changed with the eruption of the Fuego volcano on June 3, 2018. After the catastrophe, the need for changes was realised within INSIVUMEH. Currently, a new budget has been allocated to INSIVUMEH, and VDAP has donated modern equipment for monitoring. My current functions thus consist of monitoring, and continuing to work on the threat posed by volcanic activity in Guatemala while transmitting my knowledge to young people.

Among the recent achievements within INSIVUMEH, we can count on the preparation of hazard maps due to lahars and PDCs at Santiaguito, as completed with the help of the Institute of Geosciences of the Universidad Nacional Autónoma de México (UNAM). We also have a monitoring network with stations capable og multiparametric seismic studies at Fuego, Pacaya and Santiaguito, plus one at Tacaná and one at Atitlán. Techniques such as infrasound monitoring have been implemented, and web cameras and weather stations have been installed. Techniques such as the development of photogrammetry with drones, surveillance with satellite images, and an Early Warning System for lahars at Santiaguito are also currently being implemented.

Volcanology in Guatemala is one of the many stories of Latin America, where unfortunately changes occur after the tragedy, but where from my personal experience I have lived good and bad experiences. For me it is important to mention that I was never alone. I have always counted on the support of good foreign friends who, through the Universities and Institutions they represent, have supported us. I take this opportunity to thank Mathew Watson, Andy Lockhart, Jeff Marzo, John Pallister, Randy White, Lizzette Rodríguez, Greg White, Andy Harris, Eliza Calder, Lisseth Caballero, Lucia Capra, Dolors Ferres … and many more friends who have always supported me in times of crisis. *Thank you very much to all of them!*

Finally, I also thank my fellow Volcanologists from Guatemala, Dulce González, Carla Chun, Francisco Juárez, Amílcar Roca, Roberto Mérida, Wendel Gutiérrez and María Paula Valdés, who make up the team of young Volcanologists.

Acatenango, Guatemala

1.4 Observatory News

3rd Latin American Volcano Observatories Meeting, February 17–18, 2024 (La Antigua, Guatemala)

All participants on the inaugural day of the meeting / Todos los participantes en la jornada inaugural de la reunion

The 3rd Latin American Volcano Observatories meeting was held on Feb 17–18, 2024, in La Antigua, Guatemala, framed within (and part of the activities of) the Cities on Volcanoes (COV-12) event. The meeting was organized by an unprecedented alliance between the Latin American Volcanological Association (ALVO), the National Institute of Seismology, Volcanology, Meteorology, and Hydrology of Guatemala (INSIVUMEH), the United States Geological Survey through its branch Volcano Disaster Assistance Program (USGS-VDAP), and the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI). All of these associations and institutions participated through attendance of their highest representatives. The Spanish Cooperation Formation Centre, Guatemala branch, was the venue.

The meeting involved 46 participants from 24 institutions representing 14 countries. State-of-the-art topics including recent eruptive crises, emergency management protocols, risk rankings, resource allocation, new monitoring techniques, scientific-technical outreach, and educational and divulgation activities were addressed. The meeting itself was an occasion where different Latin American volcano observatories were able to share and exchange information. Unlike previous editions of the meeting, this time more space was given to discussions, in order to strengthen the links between the observatories after a gap of six years, bearing in mind that the previous editions were in 2015 and 2018. *Fundamentally, a conceptual route map was developed so that activities such as this, and the topics discussed, can be projected into the future.*

In general terms, the event fulfilled everyone's expectations. The new format, encouraging discussions rather than individual talks, was deemed interesting, novel and productive. The facilities and services at the venue ranked high, particularly the food and other amenities.

Opening ceremony. From left to right: IAVCEI President, Local Government Delegate, Spanish Cooperation Centre Manager, INSIVUMEH Manager, ALVO President, ALVO Vice-President / Ceremonia inaugural. De izquierda a derecha: Presidenta de IAVCEI, Delegado del Gobierno Local, Encargado del Centro de Cooperación Española, Jefe del área volcánica del INSIVUMEH, Presidente de ALVO, Vicepresidente de ALVO

As organizers of this meeting, ALVO deeply acknowledge the interest and participation of, and are grateful for the funding support provided by, IAVCEI, USGS-VDAP, the Ixchel Project, and the Scottish Funding Council. We hope to meet again in 2027 or 2028, at a venue to be determined.

Daniel Bertin
ALVO Vice-president – On behalf of the Organizing Committee

SECTION 2. IAVCEI CONFERENCES, MEETINGS AND WORKSHOPS

2.1 Cities on Volcanoes 12 workshop report

Finding resonance: Building an IAVCEI Commission on Indigenous People and Volcanology (Sunday, February 11, 2024)

Participants at the inaugural workshop: 'Finding resonance: building an IAVCEI commission on Indigenous people and volcanology'

The 2022 Global Assessment Report (GAR) on Disaster Risk Reduction (DRR) for the first time recognised the important role indigenous people played in drawing upon traditional/indigenous knowledge to drive decision-making that resulted in resilient solutions. One exemplar identified in the GAR recognised the contribution indigenous people made towards understanding volcanic processes and volcanic hazards.

Recognising the complementarity of indigenous knowledge and volcanological (hazards) research is already occurring at a "grassroots" level within individual indigenous peoples' nations/tribes who are undertaking DRR-based research activities aligned to UNDRR, World-Bank, and National responses agencies initiatives, primarily in the circum-Pacific region.

Presently, more and more research is being undertaken around our volcanic areas that involve local communities and indigenous peoples. Alongside this there has also been an up-swell in the recognition of indigenous peoples' rights and their intimate longstanding relationship with their volcanoes. This aligns to existing initiatives from the United Nations Disaster Risk Reduction e.g. SDG's, as well as aligning to other international agreements such as United Nations Declaration on the Rights of Indigenous Peoples (2007).

There are also hazard researchers and volcanologists around the globe that identify and connect strongly with their indigeneity and culture who act as important conduits, bridging the two worlds, trying to transfer science knowledge to build better solutions for communities whose research and activities need a forum to be shared.

Respecting these developments and the growth in studies that work with communities and indigenous peoples it was timely to hold a workshop to discuss how the volcanological community and IAVCEI can recognise and grow the current impact volcanologists are having. The workshop, "*Finding resonance: Building an IAVCEI Commission on Indigenous People and Volcanology*" was held at Cities on Volcanoes 12 in Antigua, Guatemala. The workshop attracted 25 participants from around the globe, a mix of indigenous researchers, volcanologists and community leaders to discuss forming an IAVCEI commission to support more discussion and recognition of indigenous people within volcanology and volcanic hazard research and management.

From the workshop at Cities on Volcanoes 12, Antiqua, Guatemala (11 February 2024) several key themes have been explored as objectives of a potential commission and ways researchers could contribute to the wider volcanological community.

- Provide innovation through diversity of knowledge in the volcanological sciences and volcanic hazards areas.
- Provide a commission that is led by indigenous people, for indigenous scientists/researchers that can share and explore indigenous knowledge and the impact of science on indigenous peoples.
- Start to recognise indigenous peoples that occupy and connect to our volcanic areas with a goal to ensure that our science/research and ethical practices align to global initiatives and development goals.
- Providing support and mentoring for new indigenous volcanologists as well as providing support for indigenous peoples to receive information and support from other indigenous scientists and leaders from volcanic areas.
- Start to provide a series of organised formal exchanges, workshops, publications, databases that could further extend the volcanological sciences and hazard study areas.

- Celebrate uniqueness, Indigenous pedagogies, and the multiple realities of Indigenous Peoples.

This workshop was very successful, tackling issues of intellectual rights, ethical considerations, diversity and inclusiveness. This ignited thoughtful discussions unifying participants around the vision of establishing an Indigenous Volcanology Commission to promote the impact of the broader volcanological discipline.

From this inaugural meeting, this potential initiative would also result in the first commission of this type across the spectrum of associations and commissions that exist under the IUGG framework. It would also be the first time a formal scientific body has formally recognised indigenous peoples and the role indigenous rights and knowledge has in future understandings of the Earth.

Jon Procter, Cheryl Cameron, & Cassie Kenney

2.2 Report on the 6th workshop of the IAVCEI Volcano Geology Commission, Greece

Santorini Caldera seen from Fira with Nea and Palaea Kameni to the left and Thirasia in the background

From October 23–28, 2023, 26 participants from 12 countries attended the field-focused *6th International Volcano Geology Workshop* on Santorini and Milos (Greece), co-led by Georges Vougioukalakis, Gianluca Groppelli and Roberto Sulpizio. The workshop was hosted by HSGME, ISMOSAV and AUTh, and co-organised with the IAVCEI Commission on Volcano Geology (CVG) and local organiser NST Travel. Estia Pyrgos Cultural association offered the workshop meeting hall. Local businesses and entrepreneurs contributed by offering meals for the participants. The workshop built on previous workshops in Madeira/Portugal (2014), Prague/Czech Republic (2015), Sicily-Aeolian Islands/Italy (2016), Eastern Carpathians/Romania (2017) and Palmerston North/New Zealand (2019), following a slightly longer break due to the COVID-19 pandemic.

A relaxed group dinner at a local taverna on Milos serving delicious food and drinks

The event kicked off with a traditional Greek welcome dinner on the 23rd of October where the participants got to know each other before enjoying the subsequent days of presentations and field site visits together. The first morning was focused on introductory presentations by the organisers and local volcanologists. CVG co-leader Gianluca Groppelli's welcome speech focused on past, present and future activities and successes of the Volcano Geology Commission. He also encouraged the attending members to get involved in the upcoming election as new leaders are sought with the long-standing leadership (Gianluca and Joan Martì Molist) stepping down. Subsequent presentations by Spyros Pavlides and Costas Papazachos introduced us to fault geometry and the deep structure and tectonics of the South Aegean Volcanic Arc. Lastly, workshop co-leader Georges Vougioukalakis provided an overview of the South Aegean volcanic fields with a focus on the geology of the upcoming field stops.

Equipped with a packed lunch, the group headed out to explore the deposits of the Late Bronze Age "Minoan" and older

explosive eruptions at the Metaxa mine. Here, a record of the major Minoan eruption phases is exposed, comprising Plinian fallout, dilute as well as dense pyroclastic density current units produced by phreatomagmatic activity and widespread non-welded ignimbrite deposits, the latter being coeval with major caldera collapse. Observations of the underlying older units led to fruitful discussions between participants around emplacement mechanisms and distinction between primary pyroclastic flow and secondary lahar origins as well as identification of key markers and major unconformities in the light of mapping large volcanic edifices. Following a refreshing beer stop, workshop participants re-gathered at Estia Pyrgos to present and discuss their own research and mapping tools with 13 posters and one talk given.

The deposits of the Late Bronze-Age "Minoan" eruption at Metaxa mine

Most of Day 2 was spent on a wooden boat sailing along the caldera cliff outcrops to explore the long-term history of Santorini Volcano, including its major explosive cycles and caldera-forming events. Leaving from Athinios port where basement lithologies are exposed, the group observed the depositional record of the past 390,000 years of volcanic activity characterised by several major intermediate and silicic Plinian eruptions and inter-Plinian lavas and deposits from smaller explosive eruptions, including scoria cones and tuff rings. At Fira Harbour the impressive unconformity related to caldera collapse associated with the Lower Pumice 2 eruption could be seen before passing the young lava flows and domes of Palea and Nea Kameni islands on the way to Thirasia Island.

The dyke swarm exposed in caldera cliffs of northern Thira

Medial deposits of the Kulumbos tuff ring in northern Thira

The cliffs of Thirasia, the western part of the Santorini complex, are dominated by the Skaros lavas, and the Thirasia dome complex, which provided a nice panorama for our lunchtime swim and meal on the island before we carried on past the beautiful village of Oia and its red scoria cliffs. Records of the 21 ka Cape Riva eruption that created the current caldera morphology were also observed throughout the boat trip. However, my highlight of the day was the northern caldera dyke swarm with dozens of dykes cutting through andesite lavas, tuff and scoria and feeding various levels of lava flows throughout the sequence. After returning to the port, the day concluded with exposures of the Minoan Ignimbrite, the impressive Kulumbos tuff ring and scoria cones in northern Thira.

The best way to do field work on volcanic islands (off shore of Milos)

Building walls and stairs at the Akrotiri site displaying damage from the earthquakes that preceded the eruption

On day 3 the group visited the archaeological excavation site in Akrotiri to explore the well-preserved settlement associated with the Minoan civilisation that had been buried by the 1613 BC Plinian eruption. The paved streets, three-story buildings and advanced drainage systems together with high-quality pottery, frescoes and furniture emphasised Akrotiri's prosperity anchored in its strategic trade position in the Mediterranean. Building damage and rubble distribution across the preserved roads also provided clues to seismic and other precursory activity leading up to the eruption.

Our time in Santorini concluded with observations of the Akrotiri Peninsula, which comprises tuffs and lavas of the early >550 ka rhyodacitic centres that formed on the submarine flank of the pre-volcanic island with later stages being subaerial. Subsequent uplift exposed the complex along the south coast of the peninsula, where it is overlain by pyroclastic deposits of the first explosive cycle and the Minoan pyroclastics. The ferry then took us to Milos, where we had time for a swim before regrouping for a very enjoyable dinner on the waterfront.

Day 4 was a highlight of the workshop with a full day spent exploring the coastal cliffs of the Milos archipelago like pirates on a two-masted traditional sailing yacht, including several swim stops to enjoy the beautiful clear Aegean waters and a rich lunch on board prepared by the amazing crew. Due to strong winds, the southern coast was off limits, so the cruise followed the harbour and northern coastline of Milos to Kimolos and Polyegos islands instead.

The c.3 My volcanic activity of the islands emplaced a predominantly rhyolitic to dacitic volcanic succession with minor andesite and basaltic andesite that shows a progression from submarine to subaerial depositional settings. The coastline

The Green Lahar deposit, a topic of great debate at the workshop

provided us with impressive cross-sections through the full range of volcanic facies associations produced by shallow intrusive events, effusive and explosive eruptions and post-eruptive resedimentation. A cheerful dinner at the waterfront concluded the last full day of the workshop.

Sarakiniko Beach on Milos is characterised by a sequence of pumiceous submarine deposits

The following day, we explored the southeastern sector of Milos starting with the deposits of the largest rhyolitic subaerial lava-pumice cone that are now being mined as perlite. Rhyolitic volcanism on the island has been exploited since the Neolithic in the form of obsidian and more recently as bentonite clay, the product of intense hydrothermal alteration that gave the landscape of Milos its distinct variety of colour. However, the biggest challenge in terms of mapping Milos remains the deposit referred to as "green lahar" that we inspected at the beaches of Firiplaka and Paleochori. Consisting mostly of fragmented metamorphic basement rock with little internal structure, this thick unit has been re-interpreted as the product of an extremely powerful phreatic eruption generating great scientific debates amongst the workshop participants about its potential emplacement mechanism based on the observed sedimentary features.

Another interesting stop took us to the area with the youngest volcanic activity where small hydrothermal explosions took place in historical times as evidenced by in situ fragments of Roman pots embedded in the volcanic strata. The workshop ended with most participants catching the ferry to Piraeus in the afternoon while some lucky individuals got to spend more time on the beautiful Cycladic Islands.
Thanks to the workshop organisers and participants for an interesting and fun trip. We look forward to seeing you all at the next VGC workshop in Colombia to continue our discussions about advancing tools and stratigraphic standards for volcanic mapping.

Anke Zernack

SECTION 3. IAVCEI – DOWN TO BUSINESS

3.1 IAVCEI endorsed events

One of the missions of IAVCEI is to support the dissemination of volcanological and geochemical knowledge. As part of this mission, IAVCEI promotes and financially supports scientific meetings, workshops and schools organized by its commissions and networks (see https://www.iavceivolcano.org/about/financial-requests-to-iavcei/). Such events can be given the label "*IAVCEI supported*".

However, we are now launching an "*IAVCEI endorsed*" model. **IAVCEI endorsed events** will not receive financial support, but will be allowed to carry the IAVCEI logo, and use newsletter and social media outlets to advertise the event, thereby reaching our full membership.

Proposals must give:

1. Title of event and event type (workshop, summer school, field trips, etc.)
2. Dates and location of meeting, and number of attendees;
3. Organizer names, affiliations and emails;
4. Funding source;
5. A brief summary of the program and topic(s) to be covered.

Proposals for endorsement should be sent to the IAVCEI Secretary General (secretary@iavceivolcano.org) and will be considered by the Executive Committee.

International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)

An Association of the International Union of Geodesy and Geophysics

REQUEST FOR FINANCIAL SUPPORT FROM IAVCEI

for meetings of its commissions and networks (workshops and field courses)

- Organising committee/institution
- Commission/network leader(s)
  Name:
  Affiliation:
  Email:
- Financially responsible person
  Name:
  Affiliation:
  Email:
- Type of event
- Planned dates
- Scientific or teaching goals
- Expected number of participants
- Amount of financial support requested
- Provisional use of the financial support

We, the signatories, as applicants for IAVCEI support, will follow the rules indicated at https://www.iavceivolcano.org/about/financial-requests-to-iavcei/. We will use the allocated funds responsibly, collect receipts from the respective IAVCEI members and forward them to the IAVCEI Secretary General. A short report about the event with 2-3 pictures shall be prepared for the IAVCEI newsletter.

Date

Signature

(commission/network leader) (financially responsible person)

Please sign and return to Ulrich Kueppers, IAVCEI Secretary General:
secretary@iavceivolcano.org

Pacaya, Guatemala

3.2 Upcoming Events and Meetings

IAVCEI events 2024

Cities on Volcanoes 12
February 11–16, 2024
Antigua, Guatemala
[commission Cities and Volcanoes]
https://citiesonvolcanoes.wordpress.com/
https://congress.iavceivolcano.org

Volcandpark 2024
May 20–24, 2024
Jičín, Czech Republic
[supported by commission on Volcanic Geoheritage and Protected Landscapes]
www.volcandpark2024.geocon.eu

1st international workshop on volcanic and igneous plumbing systems
June 18–20, 2024
Liverpool, UK
[commission Volcanic and Igneous Plumbing System]
https://vipscommission.org/
https://vipscommission.org/event/1st-international-conference/

Upcoming events 2024

2nd edition of the Carpathian Fluid Geochemistry Summer School
July 15–21, 2024
Eastern Carpathians, Romania
[commissions Chemistry of Volcanic Gases; Volcanic Lakes]
https://ccvg.iavceivolcano.org/; https://iavcei-cvl.org/
https://forms.gle/PzSQxAQyDMnf5biYA

10th International Conference on Tephra Studies
September 8–15, 2024
Catania, Italy
[commissions Tephrochronology; Tephra Hazard Modelling]
https://cot.iavceivolcano.org/; https://thm.iavceivolcano.org/
See Below

IASPEI/IAVCEI Commission on Volcano Seismology and Acoustic annual meeting
September 16–21
El Paso, Canary Islands
[IASPEI/IAVCEI Commission]
https://www.ign.es/web/ign/portal/vlc-congreso-la-palma-2024
See Below

6th Conference Alfred Rittmann
September 18–20, 2024
Catania, Italy
[IAVCEI-sponsored]
https://www.conferenzarittmann.it

9th school on Convective and Volcanic Clouds (CVC) detecting, monitoring and odelling
October 5–13, 2024
Nicolosi, Italy
[IAVCEI-sponsored]
http://www.cvctrainingschool.org/school/

EMSEV 2024: Workshop on electromagnetic studies of earthquakes and volcanoes
October 6–9, 2024
Chania, Crete, Greece
[IUGG Inter-Association IAGA-IASPEI-IAVCEI]
https://www.emsev2024.org

1st International Monogenetic Conference
November 4–8, 2024
San Pedro de Atacama, Chile
[commission Monogenetic Volcanism]
https://cmv.iavceivolcano.org/
https://cmv.iavceivolcano.org/international-monogenetic-conference-2024/

IAVCEI events 2025

IAVCEI Scientific Assembly
June 29 – July 4, 2025
Geneva, Switzerland

Workshop of the 'Tephra Hazard Modelling' commission
In planning
Catania, Sicily, Italy
[commission Tephra Hazard Modelling]:
Before or after the 2025 IAVCEI Scientific Assembly

7th workshop Northern Andes
January 2025 or 2026
In planning
[commission Volcano Geology]:
https://volcanogeology.iavceivolcano.org/7th-workshop-northern-andes/

IAVCEI events 2026

12th Workshop on Volcanic Lakes
March 9–17
Luzon, Philippines
[commission on Volcanic Lakes]:
https://iavcei-cvl.org/

10th International Conference on Tephra Studies

September 8–15, 2024
Monastero dei Benedettini di San Nicolò l'Arena (Catania, Sicily, Italy)
[commission Tephrochronology & Tephra Hazard Modelling; partner INTIMATE]

The *10th International Conference on Tephra Studies* will be held at the Monastero dei Benedettini di San Nicolò l'Arena in Catania, September 8–15 (see: "*10th International Conference on Tephra Studies*", IAVCEI Newsletter No. 1, March 2024[1]). The first circular is now available here:

https://cot.iavceivolcano.org/first-circular-cot-intimate-thm-2024-international-conference-2/

Abstract submission has been extended to July 15
Abstracts can be submitted here:
https://on-line-form.eu/cot-intimate-thm-2024/index.php?coo=1

July 1, 2024	Abstract acceptance and ECR funding outcome announced
July 15, 2024	Registration closes

Note financial support for ECR attendance is available with a deadline of July 17
For more information and application:
https://docs.google.com/forms/d/1T26DyrOTxCyOgjyPJLIKhPSMjGcKvrb5sW4beLvFX3c/viewform?pli=1&pli=1&edit_requested=true

The registration site (https://www.iavceivolcano.org/cot-intimate-thm-2024/) is now also open.

[1]https://www.iavceivolcano.org/content/uploads/2024/04/iavcei_newsno1_march2024_final.pdf

Joint IAVCEI-IASPEI Commission on
Volcano Seismology & Acoustics

IASPEI/IAVCEI Commission on Volcano Seismology and Acoustic annual meeting

September 16–21, 2024
El Paso (Canary Islands)

The next annual meeting of the IASPEI/IAVCEI Commission on Volcano Seismology and Acoustics will be held on 16-21 September at El Paso, on the Canary Island of La Palma close to the location of the latest volcanic eruption on the island in 2021.

The workshop is dedicated to all aspects of volcano seismology and acoustics, the seismic hazard in volcanic settings, new technologies, concepts and models, and interdisciplinary studies from a wide range of volcanoes worldwide.

Please find detailed information on:
https://www.ign.es/web/ign/portal/vlc-congreso-la-palma-2024

Register by email: meeting_lapalma@transportes.gob.es

Hoping to see many of you in September,

Stavros Meletlidis
Instituto Geografico Nacional (smeletlidis@transportes.gob.es)

Itahiza Domínguez Cerdeña
Instituto Geografico Nacional (ifdominguez@transportes.gob.es)

Jurgen (Locko) Neuberg
Institute of Geophysics & Tectonics, School of Earth & Environment, The University of Leeds (j.neuberg@leeds.ac.uk)
Co-chair, IAVCEI/IASPEI Commission on Volcano Seismology and Acoustics

Tajumulco, Guatemala

IAVCEI Scientific Assembly

June 29 – July 4, 2025
UNIMAL building, University of Geneva (Geneva, Switzerland)

The next IAVCEI scientific assembly will take place from June 29 to July 4, 2025 in Geneva. The theme of the conference will be: "The energies of magmas: from volcanic eruptions and mineral resources to geothermal production and sustainability" see: "*IAVCEI Scientific Assembly*", IAVCEI Newsletter No. 1, March 2024[1]).

The congress web site is now open here:
https://sa2025.iavceivolcano.org/

For the following items, please see the corresponding web-link:
- Registration details and fees: https://sa2025.iavceivolcano.org/registration/
- Travel grants: https://sa2025.iavceivolcano.org/travel-grants/
- Geneva on a budget: https://sa2025.iavceivolcano.org/geneva-on-a-budget/

Early Bird Registration is available until March 31, 2025, and are 550 CHF for IAVCEI members, and 300 CHF for Early Career Researchers. Thereafter registration fees will be 700 and 400 CHF, respectively. *Travel grants and/or free registration will be available for IAVCEI members lacking support, both for ECRs and senior scientists from low-to-middle income countries.* Requests will be assessed on a case-by-case basis.

APPLY FOR YOUR VISA NOW!!!
IAVCEI can provide an invitation letter (contact secretary@iavceivolcano.org)

The registration fees will include:
- Access to all sessions
- Icebreaker on June 29
- Coffee breaks on June 30, July 1, July 3 and July 4
- Lunch boxes on June 30, July 1, July 3 and July 4
- Optional visit to CERN on July 2 (numbers limited)

All official accommodation in Geneva come with a free public transportation ticket for the duration of your stay. The LOC is also working on a deal with the Geneva municipality to find a solution for all attendees irrespective of their type of accommodation.

Session, workshop and field trip proposals are now closed. The timeline is now as follows:

September 2024	Sessions Announcement
September 15, 2024	Opening of abstract submission Opening of registrations Opening of field trips registrations Opening of grants submission (compulsory: an abstract, 1 page CV, half page motivation letter)
November 15, 2024	Closing of grants submission
December 20, 2024	Grants announcement Closing of abstract submission Closing of field trips registration
February 28, 2025	Notification of abstract acceptance
March 31, 2025	End of the early bird registration
June 29 – July 4, 2025	**IAVCEI Scientific Assembly in Geneva**

[1]https://www.iavceivolcano.org/content/uploads/2024/04/iavcei_newsno1_march2024_final.pdf

There will be six volcanic field trips organised in the week prior to the Scientific Assembly, and three plutonic trips afterwards, including:

- Italy [3]: Etna to Aeolian islands, Vesuvius and Campi Flegrei, and Vulcano;
- France [2]: Chaine des Puys, and Mont Dore;
- Germany [1]: The Eifel volcanic field

More information for the field trips will soon be available at https://sa2025.iavceivolcano.org/

Volcano Fair

A special session will call for didactic activities and science demonstrations, which will be presented interactively to the public of all ages. Given Geneva's multilingual context, activities will be proposed in multiple languages, including English, French, German, Italian and Spanish. It is planned to offer these activities in the afternoons, throughout the duration of the conference, in a dedicated space.

3.3 Bulletin of Volcanology: Executive Editor's Column

The Bulletin of Volcanology is the official journal of IAVCEI and we would encourage all of the IAVCEI community to consider submitting their work to the journal (https://link.springer.com/journal/445). *We are pleased that the 2-year Impact Factor for the journal has now risen to **3.6** and our rise in the Geosciences journal rankings means we are now a Q1 journal.*

We have a number of special issues now open (https://link.springer.com/journal/445/collections), including on the Mauna Loa 2022 eruption, the Icelandic eruptions, lessons from historical eruptions and on remote sensing:

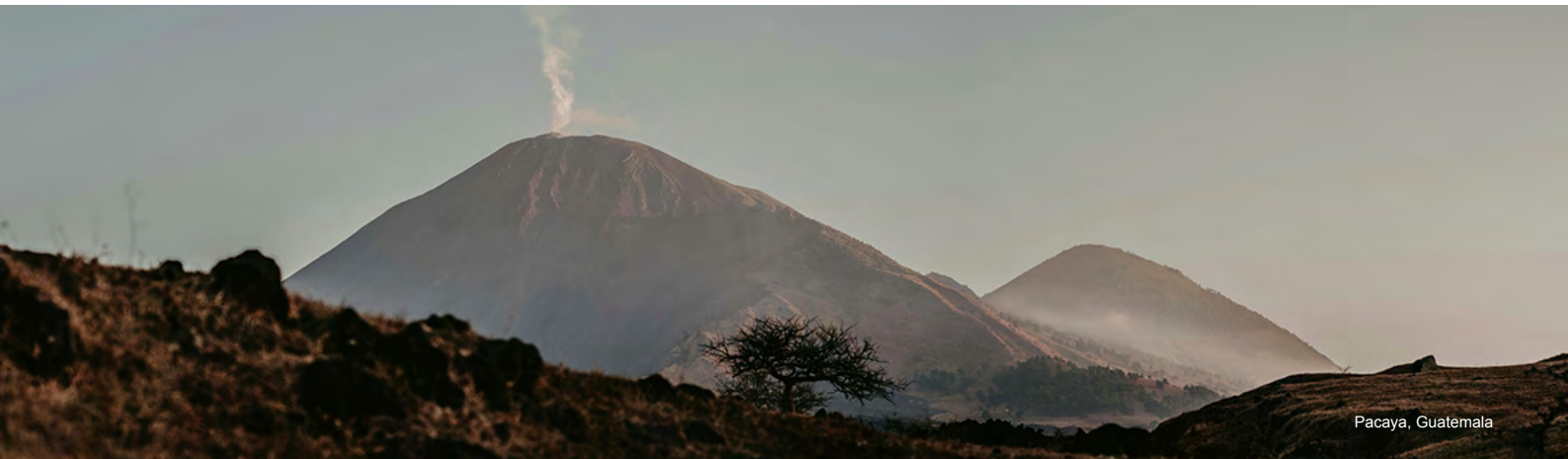
- **Mauna Loa 2022 – Unrest, Eruption, and Outreach at the World's Largest Volcano**
  https://link.springer.com/collections/jhifdfcbbe
- **Low intensity basalt eruptions: the 2021 Geldingadalir and 2022 Meradalir eruptions of the Fagradalsfjall Fires, SW Iceland**
  https://link.springer.com/collections/eijahfefeb
- **Learning the lessons of historical volcanic unrest and eruptions: a case study approach**
  https://link.springer.com/collections/cifjijhihj
- **A new era for volcanology: the increasing role of remote sensing data to detect, monitor and quantify volcanic activity**
  https://link.springer.com/collections/bejhbegfbd

We would also very much welcome suggestions from the IAVCEI community on topical review papers.

We would like to remind authors of the option for **open access publication** in the Bulletin of Volcanology. Transformative agreements with Springer to cover the article processing charge (APC) exist now for many countries and institutions globally; corresponding authors (articles may have more than one corresponding author) may qualify for open access on that basis, so do check among your authors. If you are in any doubt about whether agreements exist for your co-authors check the website:
https://www.springernature.com/gp/open-research/oa-agreements

Open access fees may also be sponsored by a third party; details can be provided after acceptance of the paper.

If you would like to propose new special collection themes, apply to be an Associate Editor, or suggest innovations in the way we do things, I would love to hear from you. As Editor-in-Chief, I will be present at all the major IAVCEI meetings so can meet with you in person or email me on marie.edmonds@esc.cam.ac.uk



Pacaya, Guatemala

SECTION 4. CELEBRACIÓN DE GUATEMALA Y COV-12

Cities on Volcanoes 12

La Antigua Guatemala: Intersección de volcanes, ciencia, arte y sociedad

La décimo segunda edición de Cities on Volcanoes (CoV 12) fue celebrada en la ciudad de La Antigua Guatemala del 11 al 17 de febrero de este año. La Antigua Guatemala fue el sitio ideal para esta conferencia, considerando su largo historial de desastres asociados con volcanes y otros fenómenos geológicos, pero también debido a su estatus como una de las mayores áreas de atracción turística en Guatemala y el acceso a volcanes activos en sus cercanías. CoV 12 atrajo a una amplia variedad de personas apasionadas por los volcanes y su interacción con la sociedad, incluyendo investigadores interesados en estudiar volcanes desde una perspectiva multidisciplinaria, involucrando ramas de ciencias físicas y sociales, artísticas, de comunicaciones y, desde luego, la perspectiva de gestión del riesgo incluyendo temas de protección civil y evaluación y monitoreo de amenazas volcánicas. Más de 600 personas de 34 países asistieron, incluyendo a más de 180 guatemaltecos.

Primera noche cultural, destacada por la participación de Na'ik Madera, grupo musical guatemalteco, formado por mujeres que a través de su música, buscan transmitir los sentimientos, pensamientos y acciones de las mujeres. / First cultural night, hlighted by the participation of Na'ik Madera, a Guatemalan musical group, formed by women who through their music, seek to transmit the feelings, thoughts and actions of women.

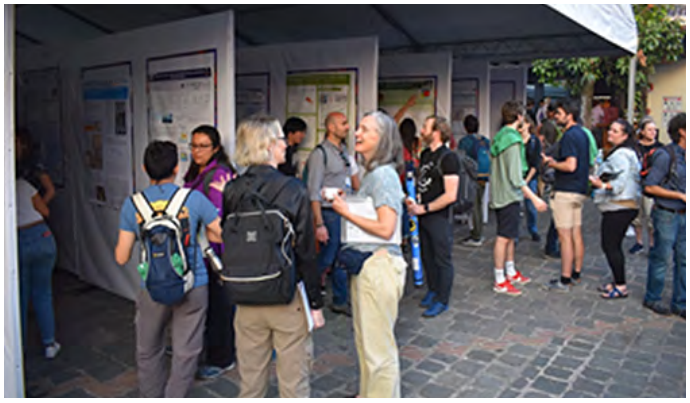
El programa incluyó 59 sesiones en varios formatos, enfocándose en cuatro áreas temáticas:

1. Volcanes y desarrollo sostenible
2. Volcanes, las humanidades y las artes creativas
3. Volcanes y su contexto social, cultural y político
4. Del monitoreo volcánico y la evaluación de la amenaza a la gestión del riesgo.

Se hicieron 273 presentaciones orales, 60 charlas relámpago, 7 paneles, 327 posters, 9 mesas redondas y una variedad de otras actividades grupales, presentaciones musicales y exhibiciones artísticas, así como cuatro sesiones plenarias en formato de panel con traducción simultánea al inglés y al español. La conferencia incluyó dos giras de campo simultáneas el miércoles 14 de febrero, a los volcanes de Fuego y Pacaya, incluyendo un recorrido por las ruinas de la antigua población de San Miguel Los Lotes, que fue destruida durante la erupción del Volcán de Fuego del 3 de junio del 2018, donde murieron cientos de personas en la erupción más destructiva en Guatemala en casi un siglo. Durante la semana se planificaron noches culturales con el objetivo de dar a conocer el talento de artistas locales y visitar algunos monumentos históricos que se encuentran en La Antigua Guatemala, incluyendo actividades en La Ermita de la Santa Cruz, Casa Convento Concepción y Convento de Santa Clara, además observamos fotografías, documentales, historia, cultura y música folclórica. Asociados con CoV 12 pero organizadas por grupos *ad hoc* se realizaron 9 excursiones y 17 talleres pre y post conferencia, al igual que los encuentros de observatorios vulcanológicos latinoamericanos y de jóvenes vulcanólogos.

Lograr la inclusión y diversidad de participantes y audiencias fue una meta central de la conferencia. Para facilitar la participación de personas usualmente poco representadas se redujeron los costos de inscripción en lo posible, particularmente para participantes de pocos recursos económicos. Se contó con un programa de voluntarios, que reclutó 26 estudiantes universitarios guatemaltecos, quienes ayudaron en tareas logísticas de la conferencia por cuatro días y a cambio pudieron participar en dos días de la misma, con gastos de hotel y transporte cubiertos. La conferencia contó con el apoyo de varias agencias gubernamentales y no gubernamentales guatemaltecas e internacionales, quienes financiaron la participación de muchos asistentes nacionales e internacionales. Entre estos cooperantes están el Volcano Disaster Assistance Program (VDAP) del Servicio Geológico de los Estados Unidos (USGS), el Scottish Funding Council del gobierno escocés, el proyecto Ixchel de un consorcio de universidades británicas y guatemaltecas, la Secretaría Nacional de Ciencia y Tecnología (SENACYT), y la Asociación Guatemalteca de Física, entre otros. Con fondos provenientes de estas agencias y con los ingresos de la conferencia fue posible dar asistencia económica para cubrir parcialmente los costos de viaje y hospedaje para al menos 144 participantes.

Exposición de textiles y tejidos que representan la intersección entre cultura y volcanes / Exhibition of textiles and weaving representing the intersection of culture and volcanoes



← La zona de carteles fue otro epicentro de reunión y conversación. / The poster area was another epicenter of gathering and conversation.

La conferencia fue la culminación de 4 años de planificación y trabajo conjunto entre el Comité Organizador Local, el Comité Organizador del Programa, y los organizadores de excursiones, talleres y otras actividades asociadas a la conferencia. Como organizadores agradecemos a todos aquellos que contribuyeron con su trabajo, esfuerzo y recursos para hacer posible esta conferencia!

4.1 Jóvenes Investigadores: Carla Maria Fernanda Chun Quinillo

(Observatorio Guatemalteco de vigilancia volcánica – OGVV)

Hola, me llamo Carla Chun, soy guatemalteca y geóloga. Trabajo en el monitoreo de los volcanes de mi país, en la elaboración de mapas de peligros volcánicos y en la divulgación de estas herramientas que son de gran importancia para la toma de decisiones a nivel local en las comunidades cercanas a los volcanes.

Carla en el volcán Acatenango, al fondo, el Volcán de Fuego con una explosion / Carla at Acatenango volcano with, in the background, Fuego volcano with an explosion

Soy de una región localizada al norte de Guatemala, el municipio de Cobán es una región Q'eqchi' y el nombre Cobán significa "allá en lo nublado" o "entre nubes", se encuentra caracterizado por ser un lugar montañoso, condicionado por un sistema kárstico, con diversos ríos, existe una variedad de orquídeas y sobre todo lo más importante es un municipio con alta producción de café y cardamomo.

Estudié ingeniería en geología en el Centro Universitario del Norte de la Universidad de San Carlos de Guatemala, esta carrera es única en Guatemala, y se encuentra en Cobán. Debido a que la universidad es estatal antes de iniciar la tesis se debe realizar una práctica en una institución pública o privada, esta es conocida como el ejercicio profesional supervisado con el fin de tener una experiencia profesional previo a graduarse, realicé esta práctica en el Instituto Nacional de Sismología, Vulcanología, Meteorología e Hidrología, INSIVUMEH, por lo que tuve que mudarme a la ciudad.

Durante esta experiencia conocí mi verdadera pasión "los volcanes", también hice muchos amigos y tuve la oportunidad de compartir grandes experiencias con Gustavo Chigna, quien es uno de mis mentores en este mundo volcánico. También inicié mi tesis de licenciatura en el Volcán de Pacaya, en la actualización de mapas de amenaza por flujos de lava.

En el año 2015 comencé a trabajar en INSIVUMEH en el monitoreo de los volcanes Fuego, Pacaya y Santiaguito, durante ese entonces la unidad de vulcanología estaba compuesta por 4 personas, enfocadas en la vigilancia volcánica, atención a crisis eruptivas y actualización de mapas de amenaza volcánica.

El volcán de Fuego es mi mayor maestro en esta ciencia, durante este tiempo pude estudiar sus depósitos, características físicas y sobre todo realizamos diversas campañas de campo después de erupciones con corrientes de densidad piroclástica y en eventos importantes por lahares.

La crisis del 3 de junio fue uno de los eventos que cambió mi vida, durante esta crisis yo me encontraba participando en el Curso internacional de entrenamiento en monitorear los peligros volcánicos en Hawaii, por lo que colaboré en la elaboración de mapas de amenaza volcánica con otros científicos, esto fue increíble, muchas personas reunidas en diversas partes del mundo apoyándonos. Tristemente tuvo que suceder esto para que mejoraran las condiciones para el monitoreo de los volcanes en Guatemala.

Estudié dos maestrías; una en Gestión Integral de Riesgo de Desastres en la UNAN-Managua, y otra en Geomática en la

Universidad de San Carlos de Guatemala. Durante esta etapa tuve la oportunidad de comprender desde diversas perspectivas el manejo de la gestión de riesgo y la implementación de nuevas herramientas para fortalecer la vigilancia en volcanes como Pacaya y Santiaguito.

Desde el año 2020 trabajo en el -OGVV- de la Universidad Marino Gálvez, en donde nos enfocamos en la divulgación de los conocimientos volcánicos, uno de los objetivos es fortalecer los esfuerzos en la vigilancia y la investigación volcánica para el desarrollo del país.

Recientemente estuve en el comité organizador de Cities on Volcanoes 12, esta experiencia fue muy satisfactoria, durante este encuentro pude reunirme con grandes amigos y científicos, las oportunidades en mi país muchas veces pueden ser limitadas. Sin embargo; esta experiencia abrió diversas perspectivas para los estudiantes de geología.

Estos años he aprendido mucho de volcanes, pero creo que mi mayor experiencia ha sido el trabajo de campo y en comunidades, en donde he tenido la oportunidad de comprender el contexto volcánico desde otra perspectiva social y cultural.

4.2 Noticias de los Observatorios

III Encuentro de Observatorios Vulcanológicos de Latinoamérica, 17 y 18 de febrero, 2024 (La Antigua, Guatemala)

Representantes de IAVCEI, USGS-VDAP y ALVO participan de una mesa de trabajo durante el primer día del evento. / Group activity during the first day including representatives of IAVCEI, USGS-VDAP, and ALVO

Los días sábado 17 y domingo 18 de febrero del presente año, tuvo lugar en la ciudad de La Antigua, Guatemala, el III Encuentro de Observatorios Vulcanológicos de Latinoamérica. Este evento se enmarcó dentro de la conferencia Cities on Volcanoes 12. Su organización y puesta a punto fue producto de una colaboración inédita entre la Asociación Latinoamericana de Volcanología (ALVO), el Instituto Nacional de Sismología, Vulcanología, Meteorología e Hidrología (INSIVUMEH; Guatemala), el Servicio Geológico de Estados Unidos a través de su rama Volcano Disaster Assistance Program (USGS-VDAP) y la Asociación Internacional de Volcanología y Química del Interior de la Tierra (IAVCEI), quienes enviaron a sus más altas autoridades. El Centro de Formación de la Cooperación Española fue la sede en esta ocasión.

La actividad congregó a 46 participantes representando a 24 instituciones de 14 países. En él se discutieron temáticas de índole global, tales como experiencias en crisis eruptivas recientes, protocolos de atención de emergencias, rankings de peligrosidad, priorización de recursos y técnicas de monitoreo, divulgación científico-técnica, y actividades de comunicación y difusión a las comunidades. Asimismo, sirvió como instancia oficial para el reencuentro e intercambio de información y experiencias entre los distintos observatorios vulcanológicos. La dinámica de la actividad posibilitó darle mayor espacio al debate y contraste de ideas, así como al fortalecimiento de lazos operativos entre instituciones. Se definió asimismo una hoja de ruta para proyectos de mayor envergadura, con la finalidad de lograr una mayor y mejor comunicación entre observatorios ante los desafíos surgidos durante los últimos años.

En general, hubo de los participantes una excelente valoración del evento. Destacaron el adecuado e innovador formato que este tuvo, además de las cómodas instalaciones de la sede. El servicio de comida también tuvo una nota alta. Es de precisar que los encuentros previos (versiones I y II), se realizaron los años 2015 y 2018 en la ciudad de Arequipa,

Perú, por lo que reunirse nuevamente después de tantos años fue una instancia única que ojalá se pueda repetir más regularmente.

Como organizadores de este III Encuentro agradecemos enormemente el interés que esta actividad suscitó entre los distintos observatorios vulcanológicos de la región. Agradecemos también el apoyo financiero provisto por IAVCEI, USGS-VDAP, el proyecto Ixchel y el Scottish Founding Council. El exitoso desarrollo de la actividad dejó en un buen pie la realización de un nuevo Encuentro de Observatorios para el año 2027 o 2028, en sede por definir.

Daniel Bertin
Vicepresidente ALVO – En nombre del Comité Organizador del III Encuentro

4.3 Perfil profesional

Gustavo Adolfo Chigna Marroquín (INSIVUMEH – Guatemala)

Mi nombre es Gustavo Adolfo Chigna Marroquín, estudié en la Universidad de San Carlos de Guatemala, y me especialicé en vulcanología en países como Japón, Suiza, Corea del Sur, México y en varios países de Centro América.

Inicié mi trabajo en el campo de la vulcanología en el año 1987, cuando se creó la sección de Vulcanología en INSIVUMEH, junto a Ottoniel Matías (QEPD) y otros compañeros iniciamos este proyecto cuando la vulcanología en Guatemala no era muy conocida, actualmente soy la única persona que continúa trabajando.

La vulcanología en Guatemala se creó ante un creciente interés internacional de evitar una catástrofe similar a la del Nevado del Ruíz (1985), la cual revoluciono a los países de Centro América donde en este momento no existían instituciones que monitorearan volcanes.

Para fortuna de los países de Centro América en esa época se creó CEPREDENAC, (Centro de Prevención Para los Desastres en Centro América) con el fin de formar sismólogos y vulcanólogos en Centro América; con el apoyo de los doctores William Rose y Reynaldo Mercado se impartieron cursos de postgrado en Nicaragua, Costa Rica y Guatemala, con este propósito se formaron 2 personas donde afortunadamente fui electo, durante este tiempo asistimos durante dos años a un curso que contenía temas de geología, sismología volcánica, deformación y muestreo de gases; este curso fue avalado por las universidades de cada país participante (Universidad de San Carlos de Guatemala, Universidad Nacional de Nicaragua y Universidad Nacional de Costa Rica).

Afortunadamente para nosotros aprendimos de los mejores profesores vulcanólogos, entre ellos el doctor William Rose mostraron interés en los volcanes de Guatemala e iniciaron varias investigaciones en las que tuve el honor de participar, entre ellas la elaboración del mapa de amenazas del volcán de Fuego y del volcán Santiaguito y la investigación sobre el comportamiento de los lahares de este último, contamos además con un gran equipo de la Universidad de Michigan Tech quienes apoyaron y continúan apoyándonos en la investigación de los volcanes de Guatemala. Desde la formación de vulcanología en INSIVUMEH y hasta el día de hoy el VDAP nos ha apoyado, proporcionado los equipos necesarios para realizar el monitoreo, implementando técnicas como sísmica, deformación, gases y apoyando con entrenamientos constantes al personal de la institución.

Mi trabajo en vulcanología inició en el área de sismología volcánica, primero aprendiendo a identificar las diferentes señales sísmicas de cada volcán, y luego construyendo bases de datos donde se realizaban clasificaciones y catálogos de estas, sin embargo debido a la falta de personal en la unidad me involucre en cada uno de los temas del monitoreo volcánico, como monitoreo de campo, levantamiento geológico, muestreo de gases con COSPEC y deformación, durante los primeros años únicamente se aplicaron las técnicas de monitoreo en los volcanes de Pacaya y Santiaguito y a partir del año 1999 tras la reactivación del volcán de Fuego también a este volcán se le dio seguimiento.

Mi trabajo actual se enfoca en diferentes aspectos de la vulcanología, principalmente dando a conocer sobre las amenazas volcánicas junto con la Coordinadora Nacional para la Reducción de Desastre (CONRED, protección Civil) participando en mesas técnicas donde participan tomadores de decisiones con gobernadores y alcaldes de las zonas volcánicas, además, comparto mis conocimientos impartiendo charlas sobre las amenazas a escuelas e instituciones alrededor de los volcanes activos. Durante muchos años se me ha delegado como enlace con universidades e instituciones internacionales que hacen investigaciones en los volcanes dándoles soporte y compartiendo experiencias, produciendo 30 publicaciones como coautor.

A la fecha he cumplido 38 años de dedicación a los volcanes de Guatemala, viviendo experiencias buenas y malas, muchas satisfacciones, pero también tristezas. Muchas veces trabajando solo y a veces con alguien más, haciendo el monitoreo con lo mínimo ya que en mucho de este tiempo únicamente contamos con una estación sísmica de periodo corto en cada uno de los 3 volcanes activos.

Entre mis buenas experiencias recuerdo la erupción del volcán de Pacaya el 27 de mayo 2010, donde 7 días antes, se cerró el Parque Nacional a los turistas, esta erupción clasificada como subpliniana causo muchos daños materiales pero cero muertos a excepción de un periodista que no respeto los protocolos. Tras las erupciones del volcán Santiaguito en el año 2014, en 2016 se contratan 3 jóvenes geólogos más para trabajar en vulcanología y el equipo crece a 4 personas, con ellos compartimos la etapa eruptiva del volcán de Fuego del año 2015 al 2018.

La historia de la vulcanología cambia con la erupción del volcán de Fuego el 03 de junio 2018, lamentablemente después de la catástrofe se observó la necesidad de cambios dentro de la institución. En la actualidad se asignó nuevo presupuesto a INSIVUMEH y VDAP donó equipo moderno para el monitoreo, mis funciones actuales consisten en realizar monitoreo y continuar trabajando en la amenaza, transmitiendo conocimientos a los jóvenes.

Dentro de los logros recientes dentro de INSIVUMEH se puede contar con la elaboración de mapas de amenaza por lahares y por PDC´s en el volcán Santiaguito con la ayuda del Instituto de Geociencias de la UNAM, también se cuenta con una red de monitoreo con estaciones sísmicas multiparamétricas en cada uno de los volcanes activos (Fuego, Pacaya y Santiaguito) y una en los volcanes de Tacaná y Atitlán. Se han implemento técnicas como el monitoreo con infrasonido, cámaras web, estaciones meteorológicas, , además se aplican técnicas como la elaboración de fotogrametría con drones vigilancia con imágenes satelitales y actualmente se está implementando un Sistema de Alerta Temprana por lahares en el volcán Santiaguito.

La vulcanología en Guatemala, es una de las historias más de Latino América, donde lamentablemente los cambios se dan después de la tragedia pero donde desde mi experiencia personal he vivido buenas y malas experiencias, para mi es importante mencionar que nunca estuve solo, siempre he contado con el respaldo de buenos amigos extranjeros que a través de las Universidades e Instituciones a las que representan han estado apoyándonos, aprovecho para dar las gracias a Mathew Watson, Andy Lockhart, Jeff Marzo, John Pallister, Randy White, Lizzette Rodríguez, Greg White, Andy Harris, Eliza Calder, Lisseth Caballero, Lucia Capra, Dolors Ferres y muchos amigos más que siempre me respaldaron en momentos de crisis, a todos ellos muchas gracias.

Fuego, Guatemala