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OF THE EARTH'S INTERIOR



*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.*



# Remembering Jim Kauahikaua



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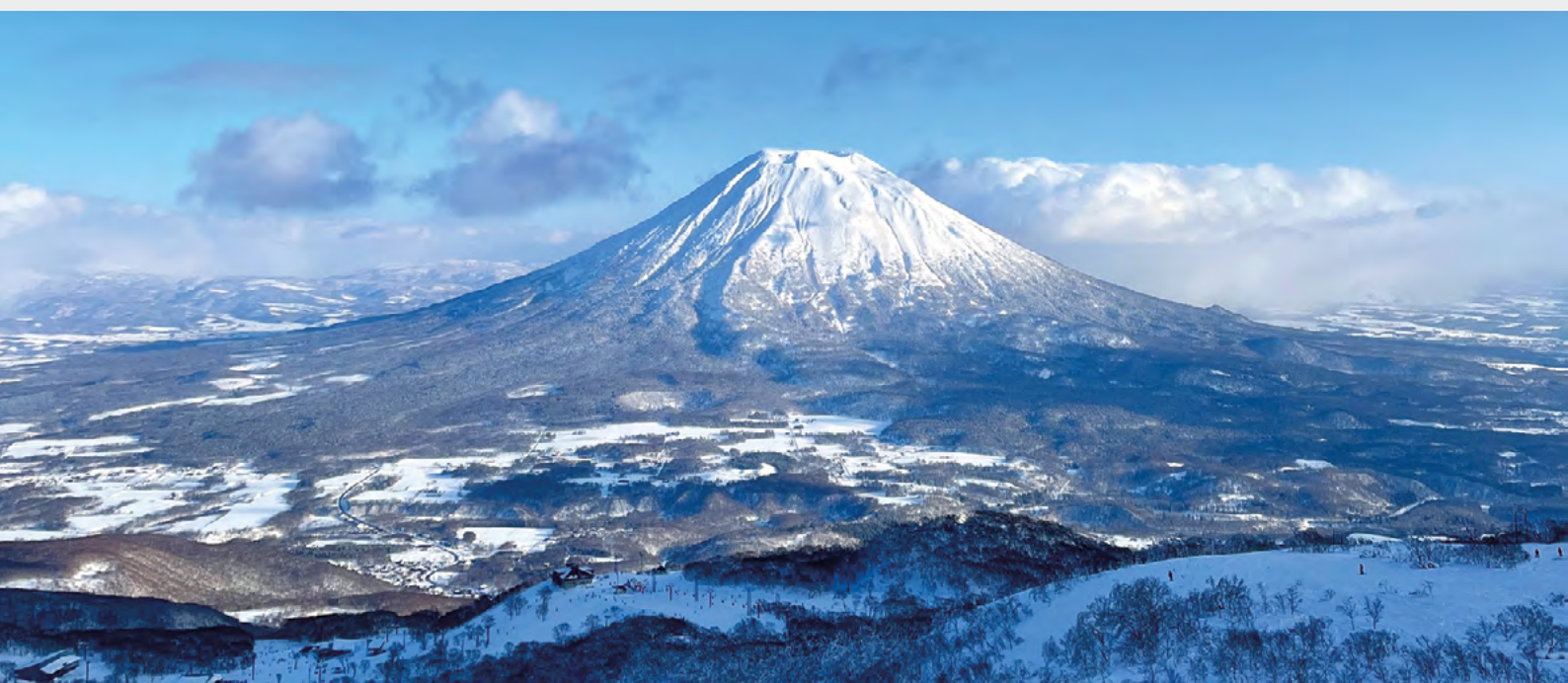
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## REMEMBERING JIM KAUAHIKAUA

# Aloha 'Oe – A Tribute to Jim Kauahikaua

In the early morning hours of Sunday, October 8, 2023, the volcanological community lost a dear friend and colleague with the passing of Dr. James P. “Jim” Kauahikaua. Jim was a respected geophysicist and volcanologist, and the first indigenous Hawaiian to serve as Scientist-in-Charge of the USGS Hawaiian Volcano Observatory (HVO).



Jim grew up on O'ahu but left to pursue his undergraduate studies at Pomona College in California. He began his USGS career in 1976 as an intern with the Branch of Electromagnetism and Geomagnetism in Denver, CO. While working with that group, he returned to O'ahu, where he completed a PhD in geophysics at the University of Hawai'i at Mānoa in 1983. In 1988, he joined the staff at HVO as a research geophysicist and found his true home living among and studying the volcanoes on the Island of Hawai'i. He was dedicated to pursuing research that would directly benefit the people of Hawai'i.

His first projects applied electrical resistivity in large surveys across the Island of Hawai'i to map groundwater resources in west Hawai'i and the Humu'ula Saddle. He also mapped water-saturated rock around the summit of Kīlauea volcano, which became important in his later work.



*Dr. Jim Kauahikaua explains the Geologic Map of the Island of Hawai'i at a Hawaiian Volcano Observatory outreach event in 2011. USGS photo.*

Jim also worked with colleagues in the National Park Service and other organizations to develop ways to communicate that resonated more deeply with the local community, who saw him as a trusted voice during eruption crises. He was also involved in Na Pua No'eau and other groups that engage Native Hawaiian students. In 2013, he arranged a workshop that brought volcano scientists and Native Hawaiian cultural practitioners together. He wrote of that event, “we hope that a broader interest in Hawaiian views about locations in Hawai'i where physical scientific work is done will...benefit the native peoples of Hawai'i.”

Jim's tenure as HVO Scientist-in-Charge, from 2004–2015, was one of the longest in the volcano observatory's history. During those years, he navigated HVO staff through several periods of volcanic unrest and crisis. He also led an effort to modernize HVO's monitoring network, overseeing the development of a resilient telemetry structure that allowed the network to remain operational even after the HVO building was severely damaged in Kīlauea's 2018 lower East Rift Zone eruption. Because of his



substantial career contributions in both science and leadership, Jim was recognized in 2015 with a Citation for Meritorious Service, the second highest U.S. Department of the Interior award that can be granted to a career employee.



*Dr. Jim Kauahikaua conducts an interview at the summit of Kīlauea in 2011, when he was the Hawaiian Volcano Observatory Scientist-in-Charge. USGS photo.*

After stepping down as SIC, Jim served as the principle HVO contact to emergency management officials during Kīlauea's devastating 2018 eruption. His combined knowledge of community, historical eruptive activity, and lava flow hazards were crucial to keeping responders informed as the eruption progressed.

When water appeared within Kīlauea's deep summit crater in 2019, it confirmed Jim's early career work that Kīlauea's summit was underlain by water-saturated rock at shallow levels. Jim then poured through Hawaiian literature, finding references to water drowning the volcanic fires at Kīlauea's summit, which suggest water had previously been present there. Most recently, Jim had been focusing on using historical records to create a detailed reconstruction of eruptive activity at Kīlauea's summit extending into the early 1800s to better understand the range of behaviors that could occur during periods of prolonged summit eruptions.

Jim brought volcano monitoring at HVO into the modern era and established a deeper cultural understanding of how HVO is connected to the island and its people. Jim's passion and dedication to Hawai'i's volcanoes will continue to inspire those who knew him.

**Ken Hon, Katie Mulliken and Tim Orr**



*Dr. Jim Kauahikaua, accompanied by his wife, Jeri Gertz (left), traveled to Washington, D.C., where he received the DOI Meritorious Service Award on May 5, 2015, in recognition of his scientific contributions in the field of volcano hazards and leadership of the Hawaiian Volcano Observatory for the U.S. Geological Survey. USGS photo.*



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

# 1.1 IAVCEI Commissions and Network Updates

**Commission on Volcano Geoheritage and Protected Volcanic Landscapes & UNESCO International Geosciences Programme project Geoheritage for Resilience ([www.geopoderes.com](http://www.geopoderes.com))**

We would like to report on the last four years of activity of this UNESCO Geosciences project, as it is an important contribution of volcano geoheritage and illustrates the value of geoheritage for the volcanological community, and the IAVCEI commission on Volcanic Geoheritage. This is just one action associated with the *Commission on Volcano Geoheritage and Protected Volcanic Landscapes* (Co-leaders: Tom Casadevall, Karoly Nemeth, Mohammed Rashad Moufti, Joan Marti). We note that the commission has a session in the up-and-coming Cities on Volcanoes 12, which we encourage you to attend. We also note that the commission has been strongly active in the IUGS global Geosite Initiative, where many of the first 100 Global Geosites were volcanic. The commission members are also very active in UNESCO Global Geopark evaluations that are made by the IUGS.

## Geoheritage for Resilience

The Geoheritage for Resilience project began in 2019 and gathers together a global network of participants through locally-based projects, with a strong focus in Latin America, but also in Africa, Asia, Europe and North America.

The idea is to foster geoheritage in volcanic areas, and to use it as a medium to generate increased awareness of volcanic risk and develop resilience of the concerned communities. From the outset, we planned a social media and webinar based approach, with small in-person actions where possible. This is to reduce global environmental impacts, as well as to increase the possibility of global and equitable sharing of best practice. The COVID epidemic came as the project started, and the strategy was well suited to be resilient to that crisis.

The best way to describe the project is through descriptions of some of the actions, and as we are getting close to Cities on Volcanoes in Guatemala, we focus here on three Latin American examples (others from e.g. Ethiopia, Philippines and New Zealand have also contributed excellent initiatives).

## Geopedregal (Universidad Nacional Autónoma de México)

In the UNAM (Universidad Autónoma de México) campus in Mexico City, a small area of lava flow has been restored from being a rubbish dump of wasteland into what locals named the Geopedregal. This is a transdisciplinary project involving biologists, geologists and geographers and has created a protected area of high natural heritage value, that enhances the sense of place, sense of belonging and well-being on the UNAM campus. This has been the flagship project for Geoheritage for Resilience.

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*Geobiological interactions shown to a linguist.*



*Community actions to clear lava surfaces of invasive exotic vegetation and rubbish.*

## Ruta del Sillar (Arequipa, Peru)

This is a tourist circuit set up in 2017 by quarry artisans and tourist operators in the City of Arequipa, Peru. Sillar is the vapour-phase ignimbrite used as construction stone of the UNESCO World Heritage city. INGEMMET (Instituto Geológico, Minero y Metalúrgico) volcanologists have worked closely with local actors to enhance the tourist offer with natural hazard messages, and have been able to help local workers to stabilise their rights to extract, while protecting their economic resilience, all aspects that aid natural resilience. Outputs include an animated film (here), comic books and an engraving of the Sillar history in the very Sillar rock.

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Community discussions to decide the narrative for the origin of Sillar. The participants are drawing their vision



Final product with the origin of the Sillar rock engraved in the quarry.

**Isla de Ometepe (Nicaragua)**

In 2020 the project started as a UNESCO Global Geopark project on the Isla de Ometepe, the intention being to use geoheritage to enhance the awareness of natural hazards. The project has so far produced geosite maps of the Island and engaged in intensive community consultation, leading to a consolidation of the geoheritage identity of the site and its inscription on the IUGS Global Geosite first 100 list (here).

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Community actions to co-construct a sense of place of the island



First example of geosite map for the Island (Carla Arias)

These three examples provide a snapshot of the activities, which also include webinars organised by our Filipino colleagues at the UP Resilience Institute. We will be hosting an open discussion session at Cities on Volcanoes (<https://congress.iavceivolcano.org/tema1/>): 104 Ciencia justa, comunidades equitables e inclusivas: sesión conmemorativa a Martha Navarro Collado). This is being preceded and followed by webinar discussions that we'll inform you about on volcano-list. We also invite you to come to session 105 Geodiversity in volcanic areas – New approaches to define, measure and promote volcano diversity and their implication for geohazard resilience and geocultural aspects. The “204 Festival de artes volcánicas – un diálogo de saberes inspirado por volcanes” session which was co-created by Naomi Irapta – is also associated and shows transdisciplinarity that was directly fed from the project in UNAM.

The 2024 Czech Republic Volcandpark 2024 Conference will be the major general volcano geoheritage event of the the geoheritage commission (Geological conference Volcandpark 2024).

*The IAVCEI Commission on Volcanic Geoheritage plans to hand over leadership to new generations. The plan is to manage this around the Volcandpark meeting (<https://www.iavceivolcano.org/event/volcandpark-2024/>).*

*We hereby open a call for people who wish to take over this role. Essentially anyone who wishes to take over this role should send a very simple notification email with basic weblink to the person website, references etc., and 3-4 sentences of their plan, to any of the current leaders (see: <https://www.iavceivolcano.org/commissions-networks/> for leaders).*

## 1.2 The Voice of IAVCEI Early Career Researchers

### ECR profile: Nelida Manrique (INGEMMET, Peru)

Hello, I'm Nélica Victoria Manrique Llerena, I come from the land of alpacas, ceviche, and breath-taking landscapes, and I am a dedicated geologist specializing in volcanology. Having completed my master's studies at the University of Clermont Auvergne, France, in 2016, under the collaborative program between IRD (France) and INGEMMET (Peru), I embarked on my professional journey. In this first chapter of my career, I delved into the pre-eruptive conditions—temperature, pressure, water content, and the depth of the magma chamber—of the last eruption of Tutupaca, a Peruvian volcano that had an eruptive process from 1787 to 1802.



Fast forward to 2017, and I found myself in the heart of Peruvian volcanoes, working at the Dirección de Geología Ambiental y Riesgo Geológico of INGEMMET. Here, my work encompasses various projects related to the study and assessment of geological hazards associated with active volcanoes in southern Peru, including Tutupaca, Yucamane, Sara Sara, Coropuna, Chachani, Sabancaya, Ubinas, and Misti. Additionally, I actively engage in disseminating geological information through lectures and workshops targeted at local authorities and communities residing near active volcanic areas. I've had a front-row seat in the Sabancaya crisis (erupting since 2016) and Ubinas (2006 to 2009, 2013 to 2017, 2019 and 2023). My role? Volcanic hazard assessments, studying emitted products, participating in collaborative efforts with authorities, and delivering educational talks.

Since 2019, I've joined the team of researchers in the IGCP 692 project, "Geopatrimonio for Resilience against Geological Hazards", which involves collaboration with researchers from various countries. In Peru, our efforts have primarily centered around the city of Arequipa, resulting in the creation of educational materials such as the video "Nina and the Origin of Sillar" and the comic "Volcanic Hazards in the City of Arequipa."

In tandem with these projects, I have been part of an initiative, between the researchers and the quarrymen (people who extract the ignimbrite) to preserve the geological heritage of Añashuayco Quarry. We prepared the candidacy of the Añashuayco quarry to

be considered one of the first 100 geosites of the International Union of Geological Sciences and in October 2022 it was nominated with the name "The Vapor Phase Ignimbrites of Sillar in The Añashuayco Quarries of Arequipa, Peru", representing a great achievement for the city of Arequipa, since it is a strategic place for the development of geotourism, geoeducation and disaster risk management.

Simultaneously, I have been working with the project "Archiving 50,000 years of eruptive history to raise volcanic risk awareness in Arequipa, Peru," involving the preservation of tephra fall deposits of the Misti volcano using the epoxy resin impregnation method. The outcome comprises five substantial plates, standing at approximately eight meters, delineating 21 layers associated with explosive eruptions from Misti volcano.

I am also part of the Young Latin American Volcanologists crew (JVLA-Jovenes Volcanólogos de Latin America), where we are not just about science; we are about building a community, generating communication spaces for students and young researchers who are interested in volcanology through social networks and in-person meetings. We've hosted three gatherings so far, and our next adventure awaits in Guatemala during the Cities on Volcano conference.

The study of volcanoes has allowed me to visit wonderful places in Peru and the world, to establish invaluable friendships with those who today work hand in hand to contribute to scientific knowledge, and above all, to share our knowledge with the population, so they you can use it to make informed decisions.



All the work I have been able to do has also been thanks to the unconditional support of my family, who accompany me in every decision I make. Three years ago I became a mom—a whirlwind of joy and chaos that turned my world upside down but that I wouldn't trade for anything. In my free time you'll find me strolling by the Chili River or in parks with lots of trees. I'm a foodie who loves all cuisines but has a special place in her heart for Arequipa's delights. I enjoy dancing to all kinds of music, and I'm always up for a good chat and making new friends.

So here's to the fiery passion for volcanoes and the incredible journey of unraveling Earth's explosive secrets!



## 1.3 Insider Perspective: What's my job?

### Beate Heinze: Executive Publisher, Earth & Environmental Sciences Journals, Springer Nature

After I had the pleasure to attend the IAVCEI general assembly during the IUGG meeting in Berlin, I am honoured to introduce myself to you as the publisher responsible for *Bulletin of Volcanology* at Springer Nature.

I hold a degree in biology from the University of Heidelberg and have also studied at the University of Cambridge, UK, as well as the Universidade Federal De São Paulo. After completing my studies, I joined Springer Nature for an internship to explore scientific publishing. What started as a glimpse into the world of scholarly communication soon became a professional journey which I still enjoy today: Engaging with brilliant minds across diverse disciplines and contributing to academic discourse are immensely fulfilling and intellectually stimulating. Now, thirteen years later, I am an Executive Publisher in Springer Nature's Earth and Environmental Sciences department, leading a small team of publishers and publishing assistants.

As a journal publisher, I am the link between external stakeholders like academic societies, editors, reviewers, and authors and internal teams including production, research integrity, finances, and marketing. Simply put, I am responsible to ensure that the journals in my care regularly publish rigorous and impactful research, a goal that can only be successfully achieved by closely collaborating with the journal editors and the research community.

In a typical day, I will need to balance diverse tasks, for example addressing external queries, giving guidance on ongoing projects and assigning tasks to team members, drafting contracts or planning and conducting meetings with editors and societies. Amidst these tasks, I carve out time for strategic projects, exploring journals' potential for development. After all, the journals in our care are not simply articles, deadlines and numbers, but cherished projects connected to a research community, and, ultimately, to inspiring and brilliant people.

For *Bulletin of Volcanology*, I am scheduling regular communication virtually, in person and in writing with the editors and society representatives, to keep them informed about the journal's performance and publishing initiatives. Our exchanges focus on how we can better streamline processes in our peer review system and on shaping the journal's future development.

Recently, we have moved the journal's topical collections to the new collection tool, which allows for better visibility and is easier to maintain and adapt. We are also working on a new homepage layout and on aligning the editorial board listing with requirements by external abstracting and indexing services. I include the journal's articles in our marketing activities, e.g. with regards to the UN SDGs, where an article of *Bulletin of Volcanology* was recently featured in the collection on extreme weather.

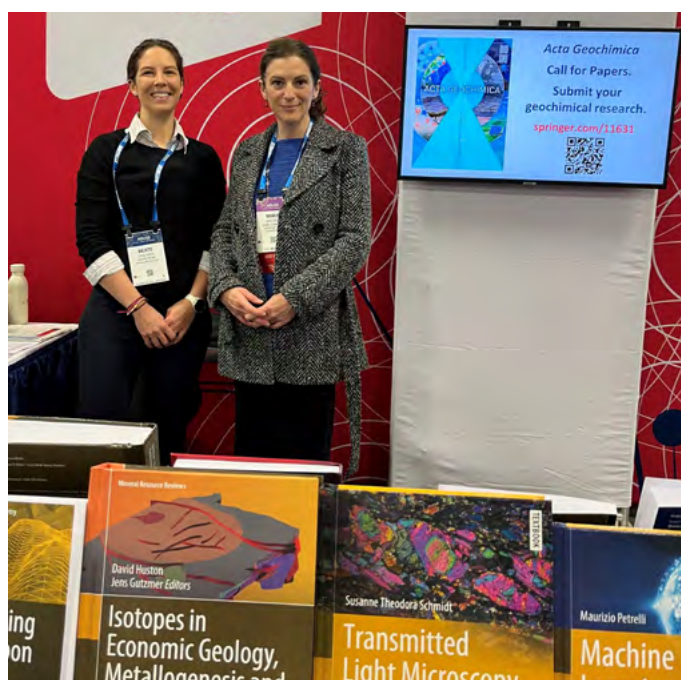
With the IAVCEI Bureau, we are exploring options to strongly continue our collaboration while taking developments in the landscape of scientific publishing into consideration, for example

the move away from print or issue-focused publication to online articles and article collections, as well as the increase in Open Access publications in the journal. Springer Nature is a strong advocate for diversity, equity and inclusion and we hope to embark all our partners on this important journey for more sustainability.

The publishing industry has certainly witnessed remarkable transformations in recent years. Digitalization has revolutionized access to scholarly content, enabling broader dissemination and accessibility worldwide. Open access initiatives have gained momentum, advocating for unrestricted access to scientific knowledge, enhancing visibility and impact. The emergence of artificial intelligence tools is reshaping scholarly publishing, presenting new opportunities and challenges alike – for example, to combat paper mill factories churning out fake scientific articles, we use similar AI tools to screen incoming manuscripts and remove these fraudulent papers at the first stage of submission.

This last example highlights the important role of scientific publishers in today's scholarly communication: To safeguard the scientific record and ensure that robust and fair (peer-) review processes are in place. This also includes transparency in the research processes, for example by requiring preregistration of studies or encouraging sharing raw data and by fostering diversity and inclusion by supporting global participation in research publishing and addressing biases within the publishing process.

I wholeheartedly believe that science is our best take at finding solutions for the challenges the world faces. As a publisher, I hope to contribute to disseminating impactful research which will benefit society at large and I am grateful to be able to collaborate with IAVCEI and the editorial board of *Bulletin of Volcanology* in this endeavour.



Beate at the Springer booth with Marie (*Bulletin of Volcanology* Executive Editor) during AGU23 (11–15 December 2023, San Francisco, CA, USA)



## 1.4 Observatory News



Servicing a seismic station at El Reventador volcano on Dec. 7<sup>th</sup>, 2022. Picture credit: Marco Almeida (IGEPN)

### **Celebrating the 40<sup>th</sup> anniversary of the Instituto Geofísico, Quito Ecuador**

This year, on October 6<sup>th</sup>, the Instituto Geofísico celebrated its 40th anniversary with the attendance of national authorities and invited international scientific guests. It was a good time for reviewing the challenges and achievements and recognize the contribution of the founder and first director, Dr. Minard Hall and past-director Dr. Hugo Yepes, and former IG researcher Msc. Patricio Ramon.

The high density of volcanoes in the continental volcanic arc, the far-reaching damages caused by historical eruptions (Cotopaxi 1533, 1742–1744, 1766–1768, 1853–1854 and 1877–1880, Tungurahua 1641, 1773, 1886, 1916–1918, Guagua Pichincha 1660, among others), as well as the intense seismic activity (40 earthquakes with intensities equal or larger than VIII since 1541), motivated the creation of a national institution devoted to seismic and volcanic monitoring. In 1983, the National Polytechnic School approved the foundation of the Geophysical Institute. Thus, the Geophysical Institute was born under the direction of Minard Hall and with the support of Hugo Yepes and former members of the Astronomical Observatory such as José Egred, Vinicio Cáceres, Wilman Costa and Marcela de Robalino. Shortly thereafter, two events shocked the world: the earthquake that plunged Mexico City into ruins in 1985 and the tragedy of Armero, Colombia later that year. This event resonated in Ecuador, being in neighboring Colombia and due to high attention and involvement of Hall and Yepes in the early monitoring and hazard map preparation of Nevado del Ruiz volcano. With this background, they defined a goal for Ecuador: to advance in the knowledge of natural phenomena and to have seismic and volcanic monitoring networks designed and run by

the recently born institute. Thus, in 1987 the first project was obtained with the United Nations Office for Risk Reduction to implement the first seismic network in the country. Other projects followed with funding from the Organization of American States (OAS), National Electricity Institute (INECEL); these fostered the development of small seismic networks for monitoring the most threatening volcanoes in Ecuador (Cotopaxi, Guagua Pichincha, Tungurahua, Cuicocha, Antisana, Chimborazo). The almost simultaneous onset of marked unrest and later eruptions of Guagua Pichincha (September 1999) and Tungurahua (October 1999) shocked the Ecuadorean community due to the proximity to the capital city (Quito) in the first case and the thousands of people living in the volcano flanks in the second case. A few years later, in November 2002, El Reventador volcano re-awoke with a VEI 4 eruption that affected the main oil pipeline and distal ash fall left Quito in almost total obscurity. Guagua Pichincha eruptions ended in the first quarter of 2000, however Tungurahua activity persisted for 17 years. Since 2006, important advances were made such as the implementation of broadband stations and infrasound sensors for volcano monitoring with the support of JICA on the active Tungurahua and the still calm Cotopaxi volcano. In 2009, with the gained experience in the JICA Project, the Instituto Geofísico was awarded with a project supported by the Ecuadorean Secretary for Science and Technology (SENESCYT) and new seismic, geodetic and volcanic networks were built and installed throughout the country, including Galapagos islands. With this new instrumentation, eruptive activity of Sangay, Cotopaxi, and the volcanoes Cerro Azul, Sierra Negra, Wolf and Fernandina in Galapagos were monitored and rapid assessments of eruptive activity were issued, via web and social media to the public and authorities.





Gas sampling with MultiGAS sensor at Minas de Azufre sulfatara inside Sierra Negra volcano, Galapagos islands, 2022.  
Picture credit: Daniel Sierra

The Instituto Geofísico is also in charge of monitoring daily seismicity of Ecuador and attended the crises caused by the earthquakes around El Reventador in 1987, Macas 1995, Pujilí 1996, Bahía de Caráquez 1998, Napo 2010, Pedernales 2016 and Esmeraldas 2022, and Puná 2023. All with intensities larger than or equal to 6.

Simultaneously, the Instituto grew from 6 people to 85 at the present. During this time, Instituto's personal worked jointly with colleagues from the French Cooperation (ORSTOM and IRD), the VDAP-USGS, and universities in the United States, France, Germany, United Kingdom, etc. This cooperation provided opportunities so that many of the personal could get graduate studies and high-level training. Now, 13 staff members have their doctorates and as many with master's degrees. The IG's human capital stands out in the number of yearly publications in high impact journals and in the daily work, installing and maintaining the monitoring stations, processing the data, interpreting and disseminating the results. As being part of the Escuela Politécnica Nacional (EPN), the largest and oldest technical university in Ecuador, the Instituto implemented two master programs in Hazard Evaluation and Risk Mitigation in 2009 with an alliance with the French cooperation (Prefalc program) and in 2012 with a joint program with the Geology Department of the EPN. Apart from these accomplishments, for fulfilling their responsibilities two young researchers perished in 1993 and another in 2002, all in the Guagua Pichincha caldera.

Nowadays, the Instituto Geofísico is a strong institution with more than 500 monitoring points in Ecuador that offer independent information and has gained the support of the Ecuadorian community. For these reasons the Geophysical Institute has received multiple recognitions, most notably: the United Nations Sasakawa Award in 1992, the JICA President's Award in 2018, the IAVCEI award for Volcanic Surveillance and Crisis Management in 2020.



Gas sampling with MultiGAS sensor at Minas de Azufre sulfatara inside Sierra Negra volcano, Galapagos islands, 2022.  
Picture credit: Daniel Sierra

More information about IG's experiences in monitoring Ecuadorean volcanoes can be found in «*Hazard assessment and monitoring of Ecuadorian volcanoes: challenges and progresses during four decades since IGEPN foundation*» by Silvana Hidalgo et al. (2024), as just published in Bulletin of Volcanology (<https://doi.org/10.1007/s00445-023-01685-6>).

**Mario Ruiz, PhD**

Director, Instituto Geofísico  
15 December, 2023



## SECTION 2. IAVCEI CONFERENCES, MEETINGS AND WORKSHOPS

**2.1 Report on IAVCEI-CVL11, São Miguel, Azores, Portugal (August 28 – September 5)**

*One of the three sessions during the first two days of the workshop*

Volcanic lakes are “windows” into magmatic-hydrothermal systems, the objects of study using multi-disciplinary research approaches, and the focus of our small but active commission. After CVL10 in Taupo, New Zealand in March 2019, the *IAVCEI Commission on Volcanic Lakes (CVL)* reunited for CVL11 in São Miguel, Azores, Portugal, from 28 August to 5 September 2023.

The meeting aimed to bring together volcano scientists from a wide range of sub-disciplines, including physical volcanology, hydrology, limnology, biochemistry, geochemistry, remote sensing, 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”.

Sixty-seven participants from 16 countries attended the workshop, which was organized by the local organizing committee, Fátima Viveiros, César Andrade, José Virgílio Cruz, Rui Coutinho of the Research Institute of Volcanology and Risk Assessment (IVAR), University of the Azores, with the support of numerous other staff and students from the institution. The Centre for Information and Seismovolcanic Surveillance of the Azores (CIVISA) also collaborated in the event with the management activities. IAVCEI

contributed 3000 euros to support CVL11. Together with additional support from the European Association of Geochemistry, IVAR and Thearen, scholarships were given to 5 young researchers (800 euros each): Raymond Patrick Maximo (Philippines), Zachary Smith (USA), Julien Robic (Belgium), Mariana Andrade (Portugal), and Lisa Ricci (Italy).

During the first two days of the workshop (29–30 August), three scientific sessions were organized at the University of the Azores, representing a broad range of volcanic lake research topics:

- (1) Session on the Azores with talks on the geological settings of Azores archipelago and work done on the volcanic lakes present at the Azores (convened by Fátima Viveiros and César Andrade, 7 talks + 8 posters),
- (2) Acid phreatic session with related geochemical, geophysical, and microbiological studies and modelling of acidic lake systems (convened by Dmitri Rouwet & Tobias Fischer, 9 talks + 5 posters),
- (3) CO<sub>2</sub> dominated session with the studies of CO<sub>2</sub> emission from volcanic lakes, CO<sub>2</sub> processes in hydrothermal systems, CO<sub>2</sub> sources for volcanic monitoring and presentation of new techniques of gas emission measurements on volcanic lakes (convened by Jacopo Cabassi, Agnes Mazot, Johan Varekamp, Rui Coutinho, Jennifer Lewicki & Franco Tassi in the second day, 12 talks and 4 posters).





*CVL Business meeting on the Furnas lake shore with on the left standing Jennifer Lewicki and Dmitri Rouwet*

The CVL Business Meeting was convened by Jennifer Lewicki and Dmitri Rouwet on the shores of Furnas Lake on 4 September. Scientific highlights and accomplishments of CVL over the past 4 years were presented at the meeting. A new election for CVL leadership roles also took place.

Felipe Aguilera (Universidad Católica del Norte, Chile) was elected as the new Secretary and Dmitri Rouwet (INGV, Bologna, Italy) remains the CVL Webmaster. Agnes Mazot (GNS, New Zealand) and Jacopo Cabassi (CNR-IGG Florence, Italy) were elected new co-Leaders of CVL for the period 2023–2026.

Steering Committee (SC): The members of this refreshed SC represent a broad range of stage of scientific career and, research specialty, considering gender equality and geographic origin: Giovannella Pecoraino (INGV-Palermo, Italy), Cynthia Werner (University of Auckland, New Zealand), Jennifer Lewicki (USGS-Menlo Park, USA) César Andrade (University of the Azores, Portugal), Bruce Christenson (GNS, New Zealand), Corentin Caudron (Université Libre de Bruxelles, Brussels, Belgium), Zachary Smith (University of California Berkeley, USA), Franco Tassi (University of Florence, Italy) and Stefano Fazi (CNR-IRSA (Water Research Institute), Italy).

A new IAVCEI working group on phreatic (“gas-driven”) eruptions to be spearheaded by CVL was also introduced during the CVL business meeting. The purpose of this working group will be to advance collaborative research, understanding, and monitoring of these highly hazardous phenomena. Bruce Christenson has taken a leadership role in the startup and planning of the working group and in his absence from CVL11, Dmitri Rouwet presented a proposal for the working group, which received positive feedback from workshop attendees.

The field portion of CVL11 included field trips to Fogo volcano, Furnas and Sete Cidades volcanoes. At Fogo volcano the field trip also included a visit to the Ribeira Grande geothermal power plant. Joint sampling and measurement campaigns were carried out at Sete Cidades volcano (Lagoa Azul and Lago Verde), Lagoa das Furnas, and the Furnas fumaroles, at the lake shore and in Furnas village. These campaigns featured geochemical and geophysical lake-profile measurements and sampling, microbiological surveys, lake-surface CO<sub>2</sub> flux measurements, including a demonstration of a new autonomous instrument from Thearen, and fumarole gas sampling through the Giggerbach methodology as well as MultiGAS measurements.

Data collected during field campaigns will be synthesized and shared with the broader community in a future workshop report and/or data release.



*Furnas lake fieldwork: Heat flow measurements with Zachary Smith and Teresa Scolamacchia in the front of the boat, Salvatore Inguaggiato, Rui Mestre and Fátima Rodríguez in the back.*





Furnas Lake fieldwork: Demonstration of a new autonomous instrument from Thearen (Giorgio Virgili)



Furnas Lake fieldwork: CO<sub>2</sub> flux measurements with Cynthia Werner and Jennifer Lewicki



Furnas Lake fieldwork: CO<sub>2</sub> flux measurements with Agnes Mazot



Fieldwork at Lake Sete Cidades: Franco Tassi, Giovannella Pecoraino and Sergio Calabrese reaching the deepest point of the lake for water and gas sampling along the vertical profile.



Fieldwork at Lake Furnas: Pedro Raposeiro and Stefano Amalfitano with a sediment core.





*Fieldwork at Furnas village: gas sampling of a fumarole (among others, Artur Ionescu, Felipe Aguilera, Catarina Silva, Antonio Cordeiro and Francisco Montalvo).*

CVL11 culminated in a farewell dinner at the restaurant Solar da Graça (Ponta Delgada) on the evening of 4 September, during which the recipient of the Minoru Kusakabe Award was announced. This year, from a panel of 8 independent referees, the 2016–2019 SC received three outstanding nominees for the award, Dmitri Rouwet, Takeshi Ohba, and Bruce Christenson. From these nominees, the SC democratically elected Bruce Christenson (GNS, New Zealand, ex-CVL Secretary), an outstanding scientist

who has creatively applied geochemical and geophysical field observations, laboratory experiments, and modeling to the study of volcanic lakes, phreatic eruptions, and their hazards at locations around the world.

Congratulations, Bruce – well deserved!



*Farewell party at the restaurant Solar da Graça. Jennifer Lewicki presenting the Kusakabe Award.*

**Agnes Mazot and Jacopo Cabassi**



*Group Picture from the Furnas Lake shore.*



## 2.2 GEOMAR Oceanic Volcanism Workshop, September 12–15, 2023



In September 2023, GEOMAR Helmholtz Center for Ocean Research, Kiel, hosted the 2023 Oceanic Volcanism: Stronger Together workshop alongside the IAVCEI Commission on Submarine Volcanism. This was the first international in-person workshop or conference dedicated to marine and submarine volcanism since the 2017 AGU Chapman Conference on Submarine Volcanism in Hobart, Tasmania. Fields of research were open to all those involved in deep-to-emergent submarine volcanism, coastal volcanic hazards, ocean islands, hydrothermal vent systems, and seafloor petrology and geochemistry.

The fantastic coordination and organizing hosting committee from GEOMAR were able to host a 3-day workshop including keynote speakers, research presentations, poster sessions, in-house dinner and icebreaker reception, discussion forums, lab tours, and media and technological demonstrations. We are very grateful to IAVCEI for helping to support workshop attendance for 6 international IAVCEI members (including three students) from Singapore, Canada, Morocco, Hong Kong, Australia, and Chile, and to further financial support from the German Research Foundation, the Joachim-Herz Foundation, the Schmidt Ocean Institute as well as the Society to Support GEOMAR.

The workshop was attended by 85 people in-person from 19 countries with another 35 registrants who participated online throughout the keynotes, presentations, hybrid discussion forums, and opening and closing ceremonies. We also presented awards

for the best student presentation and poster, awarded to Ben Roche from *Université libre de Bruxelles* and Valentine Puzenat from *Institut de Physique du Globe de Paris* respectively.



The workshop began with laboratory tours of the GEOMAR facilities including the Ar-Ar facility, LA-ICPMS, EPMA, and the GEOMAR marine core repository and processing facility containing thousands of cores from numerous missions over the past decades. The first evening concluded with an icebreaker reception surrounded by marine robotic technology in use from past, and upcoming, GEOMAR expeditions. Keynote presentations were delivered by Dr. Isobel Yeo (NOC



Southampton), Dr. Martin Jutzeler (*University of Tasmania*), and Dr. Ricardo Ramalho (*Cardiff University*). Presentation sessions followed the themes of “Recent events & campaigns”, “Technology, infrastructure methods”, “Volcanoes: Hazards & benefits”, “Submarine volcanism” and “Volcanism on ocean islands”. A special demonstration was given by Dr. Tom Kwasnitschka and Dr. Felix Gross of GEOMAR and Kiel University Center for Ocean and Society on “Explore seafloor visualizations at the ARENA2 lab and (virtually) visit *R/V METEOR*”. Our poster session was open throughout the conference, including during the in-house dinner to maximize interaction and discussion between presenters and attendees.



Two forums were held openly for all in-person and online participants with leading themes of “On today’s relevance of oceanic volcanology” and “Chances for collaboration: Now and in the future”. Both forums brought up important discussions of: Where do we stand in terms of other research topics such as global warming or micro plastics? What does this mean in terms of funding and available infrastructure. Should we lobby more?

Let’s work together more. From individual collaborations to large international programmes, let us discuss concrete actions to join forces. We also welcomed external participation in these discussions with the Science Program Manager from the Schmidt Ocean Institute, to provide insight into planning expeditions and proposals.

One of our leading GEOMAR organizers, Dr. Julie Belo, reflects that: “We had a successful workshop with a very diverse group of international researchers. According our motto “Stronger together” several new collaborations started or have been re-established.”

Overall, the workshop was a wonderful opportunity to re-engage the marine volcanism community across the globe, and to take stock of our field of research and exploration post-pandemic. We are already looking ahead to another workshop of this kind, possibly in 2025 or 2026, but until then are looking to tackle other questions of accessibility and equitable opportunity within our field. How do we create balanced marine geoscience capacity across the world with institutions that have the personnel and expertise, but lack the exploration technology and vessels, and with institutions with large data and sample repositories with countless questions and projects to be undertaken. More and more of our seafloor is mapped, sampled, and imaged every day, and our technological and computational capabilities are only increasing. We will continue to pursue our decadal vision for this field of research, to drive improved geohazard and risk monitoring in the marine environment and understanding of oceanic volcanism worldwide.

**Dr. Samuel Mitchell (Chair, Committee for Commission on Submarine Volcanism)**  
**Dr. Julie Belo (Organizing lead, GEOMAR, Kiel)**





## 2.3. VOBP5 Meeting in Pucon, Chile: November 12–18, 2023

In mid-November 2023, about 70 people from 23 countries attended the 5th Volcan Observatory Best Practices meeting in Pucón, Chile. Observatory staff, social science researchers, and other volcanologists joined together to discuss Volcano Observatory Communications. Key topics included: 1) Roles and responsibilities of observatories and civil protection authorities in communicating volcano hazards; 2) Building relationships with stakeholders; 3) Social media; 4) Communicating during unrest and crises; 5) Worst-case scenarios, and 6) Volcano data. The group also visited lava tubes on the slopes of Villarrica and took a full-day trip to the UNESCO Geopark Kutralkura that includes Llama Volcano. A special event on Thursday evening included facilitated discussions with Chilean civil protection authorities from SENAPRED and local community residents. After an intense week, the participants discussed ways to share communications practices, including templates, protocols, and a future web-based community resource. Individuals volunteered to contribute to a summary manuscript like those for other VOBP meetings. The final day started with a tour of the OVDAS volcano observatory in Temuco before heading to the airport to return home.

The meeting was organized principally by SERNAGEOMIN and their partners at the Universidad de la Frontera. Funding came from those sources as well as IAVCEI, INGV and the USGS, through its USAID-funded Volcano Disaster Assistance Program. Over half of the participants received partial to full travel support to attend the meeting.

### Participating Countries:

Argentina, Chile, Colombia, Costa Rica, DR Congo, Ecuador, El Salvador, Ethiopia, Guatemala, Italy, Indonesia, Japan, Mexico, New Zealand, Nicaragua, Peru, Philippines, Singapore, Tonga, Trinidad, United Kingdom, Vanuatu, USA

### Organizing Committee:

Alvaro Amigo (SERNAGEOMIN), Maria Contreras (SERNAGEOMIN), Laura Sandri (INGV), Jake Lowenstern (USGS), Wendy Stovall (USGS), Beth Bartel (USGS), Pablo Forte (Argentina), Marta Calvache (Colombia), Nico Fournier (GNS, NZ)





## SECTION 3. IAVCEI – DOWN TO BUSINESS

## 3.1 Newsletter: New content and format



As you may have noticed, we are working on evolving the content and format of the newsletter. Our aim is to make the newsletter more about our members and activities. As such we plan to begin each issue with a special focus piece, which sadly for our December 2023 issue is a piece remembering a much loved IAVCEI member, Jim Kauahikaua, who we lost in October.

The first section is aimed to be about us: *who we are and what we do*. We plan to include regular pieces on:

- Actions, objectives and perspectives of our various commissions and networks;
- Profiles of our ECR members;
- Perspectives from non-members who play a major, but sometimes not apparent, role in helping us to do what we do.
- News from volcano observatories and observatory networks.

The second section focuses on IAVCEI events and gatherings, and will have space for any important news items members may wish to release. Finally, the last section aims to make our association as open and transparent as possible by detailing the work of the Executive Committee, and/or highlighting any issues/announcements important to you and for the growth and evolution of IAVCEI.

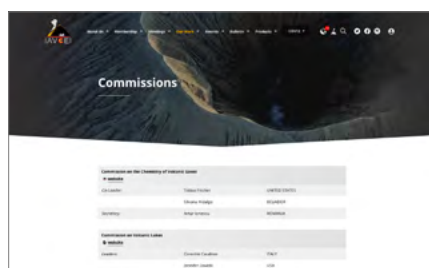
We have already tried to make the newsletter more accessible by hyperlinking the contents, and soon we will also update the delivery format. Remember, all newsletters are archived back to the beginning of time on: <https://www.iavceivolcano.org/newsletter/>.

If you have any suggestions for how we can improve the newsletter, or have a piece to contribute, please do not hesitate to contact the newsletter editor ([Andrew.Harris@uca.fr](mailto:Andrew.Harris@uca.fr)).

## 3.2 IAVCEI Commissions and Networks: Status Report

IAVCEI has 18 commissions and 3 Networks, plus 7 joint-association commissions:

- Commissions:  
<https://www.iavceivolcano.org/commissions-networks/>



- Networks:  
<https://www.iavceivolcano.org/iavcei-networks/>



After you, the members, our commissions and networks are our lifeblood. They are fundamental in our mission to disseminate research results, to support debate, and to run thematic meetings, workshops, field trips, field schools and webinars.

In October we released a questionnaire to collate the current status and health of each commission and network. We are pleased to report that *all 28 groups are in an excellent state of health*, and are extremely active with around 2500 members on email distribution lists and/or as followers. In 2023 alone, 13 elections were held, and between 2022 and 2023 at-least 20 meetings or workshops were held with a total attendance of nearly 800.

We need to thank all commission leaders, board members and organizing committees for their great work and enthusiasm. Please continue to support our commission initiatives, which are always vibrant and productive events (see, for example, the meeting reports of sections 2.1 and 2.2).



## 3.3 Financial Requests to IAVCEI

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 aimed at increasing knowledge exchange across the international community, while supporting diversity.

To this end, we have reviewed and updated our “financial-requests-to-iavcei” site (<https://www.iavceivolcano.org/about/financial-requests-to-iavcei/>). This now reads as follows:

The commissions and networks of IAVCEI are expected to organise workshops, field trips or similar activities every 2–4 years. These events may take place before/after the regularly scheduled central IAVCEI conferences (General Assembly, Scientific Assembly) or independently of them. The organisers will apply a registration fee sufficient to cover event-related expenses.

IAVCEI expects to be informed about the planned schedule ahead of announcement and requires that these events (which are open to non-IAVCEI members) are advertised as IAVCEI-events. IAVCEI membership is recommended to all participants. Information on membership fees can be found at <https://www.iavceivolcano.org/membership/membership-fees-for-2023/>.

Upon request by the commission/network leaders, IAVCEI offers to provide financial support for IAVCEI members to attend such scientific events. Travel grant allocation per travel support proposal will be decided by the commission/network leader(s) and the local organisers. The range of possible financial support depends on the expected number of participants and the financial situation of IAVCEI:

<b>Less than 100 participants</b>	3 000 €
<b>100–500 participants</b>	5 000 €
<b>More than 500 participants</b>	10 000 €

Financial contribution requests need to be sent to the IAVCEI Secretary General ([secretary@iavceivolcano.org](mailto:secretary@iavceivolcano.org)) by email for evaluation. The commission/network leader(s) define a financially responsible person per event for accounting, collection of receipts and reporting.

Application forms are available on the “financial-requests-to-iavcei” site.

## 3.4 Upcoming Events and Meetings

### Cities on Volcanoes 12

*Volcanoes and Society*

**La Antigua Guatemala**

**February 11–17, 2024**

<https://congress.iavceivolcano.org/>



Circular #4 - 22-Nov-2023

### Cities on Volcanoes 12

Volcanoes and Society

La Antigua Guatemala, Feb. 11-17, 2024

**GENERAL REGISTRATION**

- General registration for the conference is now open until full capacity is reached. We anticipate a high demand for participation in the conference, so we recommend registering as soon as possible at: <https://www.iavceivolcano.org/cov12-registration/>.
- Instructions for payment of accepted abstracts and registration of participants who received a subsidized registration fee are included on the form.
- Information on registration fees and abstract payment can be found at <https://congress.iavceivolcano.org/registration>.
- Registration for 1 or 2 days for local participants can be done through the optional activities form (see below).

**FINANCIAL SUPPORT**

- The form to request financial support for travel and/or accommodation can be found at: <https://docs.google.com/forms/d/1FAIpQLSvRZC01YRL4WbDuRFXKaLnSu5FmRcND0pS6e8AbgUPCp/viewform>.

**OPTIONAL ACTIVITIES (WORKSHOPS, FIELD TRIPS) AND ACCOMPANYING GUESTS REGISTRATION**

- Information on workshops can be found at: <https://congress.iavceivolcano.org/workshops/> and information on field trips can be found at: <https://congress.iavceivolcano.org/field-trips/>. Workshops and excursions have limited capacity.
- The registration form for optional activities (workshops, field trips) and accompanying guests can be found at: <https://www.iavceivolcano.org/cov12-optional-activities/>.
- In the case of the field trips, the form allows you to express interest. The organizers of each field trip will contact you at a later date to confirm participation and make the corresponding payment.

Questions/information:  
[cov12antigua@gmail.com](mailto:cov12antigua@gmail.com)  
<http://cov12.org>

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[@COVolcanoes12](https://twitter.com/COVolcanoes12)



### Volcandpark 2024

*Linking ancient volcanic elements to active volcanism – volcanic geoheritage as an avenue to build resilient society to understand volcanic processes*

IAVCEI Commission on Volcanic Geoheritage and Protected Landscapes

**May 20–24, 2024**

**Jičín, Czech Republic**

[https://www.iavceivolcano.org/content/uploads/2023/01/volcandpark\\_2024\\_summary.pdf](https://www.iavceivolcano.org/content/uploads/2023/01/volcandpark_2024_summary.pdf)





## 3.5 Bulletin of Volcanology: Executive Editor's Column

Season's greetings from all of us at BV! The Bulletin of Volcanology is the official journal of IAVCEI and as such we would encourage all of the IAVCEI community to consider submitting their work to the journal. Our current impact factor is 3.5 and the median time to a first decision on a submitted manuscript is 11 days.

The Bulletin of Volcanology is a transformative (hybrid) Springer journal and as such authors are able to publish gold open access articles. The share of open access articles published by the journal is increasing year on year and currently stands at ~60%; we would like to see this increase. We recognise however that some authors may not have access to funds to pay for open access. We are working with the IAVCEI Executive Committee and with Springer to come up with solutions to ensure that publishing OA in the Bulletin of Volcanology is possible for all in the future.



*Call for Papers – Mauna Loa 2022 – Unrest, Eruption, and Outreach at the World's Largest Volcano*  
(<https://www.springer.com/journal/445/updates/25886188>)

We have a number of topical collections open at the present time; please look at the calls for papers (<https://www.springer.com/journal/445/updates/18557382>). Open topical collections currently include:

- Data related to the 2021 unrest at Vulcano (Aeolian Islands, Italy) – A collection of data reports
- Management of Volcanological Data: from production to curation
- Low intensity basalt eruptions: the 2021 Geldingadalir and 2022 Meradalir eruptions of the Fagradalsfjall Fires, SW-Iceland
- Improving interactions and communications between the Volcano Observatories and Institutes, VAACs and aviation

- Learning the lessons of historical volcanic unrest and eruptions: a case study approach
- Uncertainty Quantification in Volcanology: Observations, Numerical Modelling and Hazard/Risk Assessment
- Pyroclastic Current Models: Benchmarking and Validation
- Volcanic Geoheritage

If you are interested in contributing to any of these collections, please contact the guest editors associated with the collection, as available on the “calls for papers” site.

As of December 2023, four collections have been published and are *freely available* to IAVCEI members at: <https://www.iavceivolcano.org/bulletin-of-volcanology-the-journal/special-issues/>. These special collections are:

### *Open-vent volcanoes*

<https://www.iavceivolcano.org/content/uploads/2023/07/17-open-vent-contents.pdf>

### *The historic events at Kīlauea Volcano in 2018: summit collapse, rift zone eruption, and Mw 6.9 earthquake*

<https://www.iavceivolcano.org/content/uploads/2023/07/14-kilauea-contents.pdf>

### *Looking Backwards and Forwards in Volcanology: A Collection of Perspectives on the Trajectory of a Science*

<https://www.iavceivolcano.org/content/uploads/2023/03/34-contents.pdf>

### *The 2016-17 shallow submarine eruption of Bogoslof volcano, Alaska*

<https://www.iavceivolcano.org/content/uploads/2023/04/19-bogoslof-contents.pdf>

If you have an idea for a special collection, please do make contact to discuss it with the Executive Editor ([me201@cam.ac.uk](mailto:me201@cam.ac.uk)). If you are organizing a session at a conference you think could make a good focus for a special collection, please let us know. Special collections can include research articles as well as data reports (shorter format papers suited to publishing datasets or observatory reports for example) and perspectives pieces.

**Marie Edmonds (Executive Editor) and Richard Herd (Managing Editor, Deputy Executive Editor)**

