# NEWS No. 3

October 2026

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

*This Newsletter is intended to keep IAVCEI Members as well as all scientists interested in IAVCEI matters up to date. We use this newsletter as our prime communication channel to all members. It contains decisions and reports of past events but also links to open polls and surveys as well as upcoming events. Past newsletters are posted on the IAVCEI website. The IAVCEI Newsletter may be forwarded to non-members who may benefit from the information.*



# MEETING OF MEMBERS 2026

**19 November 2026**
**Online at 9.00 pm CET**

**More info in Section 3.1**

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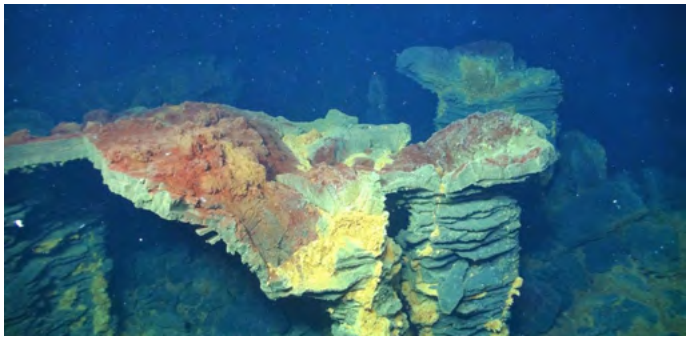
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*Cover photo: The 2026 IAVCEI meeting of members will take place on 19 November 2026 via Zoom. To participate (limited to members with their 2026 membership fee paid), please register following the indications given in section 3.1. Looking forward to seeing many of you there.*

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

# 1.1 IAVCEI Commission Updates

## 1.1.1 IAVCEI Commission on Submarine Volcanism (CoSV)



The IAVCEI Commission on Submarine Volcanism (CoSV) is currently holding elections for the new leadership team. The members are invited to participate in the online poll. Deadline is Wednesday, 14 October, at 11.59 pm Central European Time. The results will be announced in Santorini.

The commission is organising the 2nd Submarine Volcanism Workshop that will take place between from 19 through 22 October 2026 on Santorini Island, Greece.

**Sam Mitchell and Tushar Mittal**

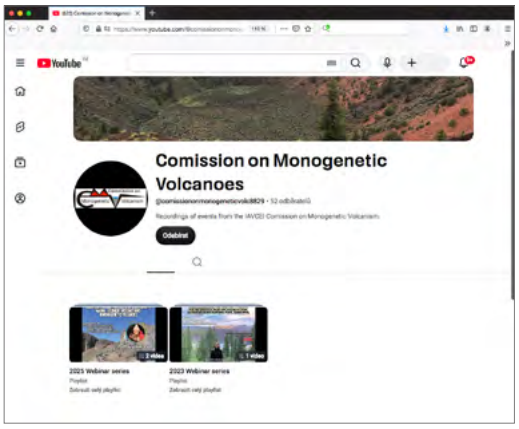
## 1.1.2 IAVCEI Commission on Monogenetic Volcanism (CMV)

**Webinars**

In 2026, the CMV organized six webinars spread throughout the year, every two to three months. The series brought together researchers at different career stages, from PhD students and early-career researchers to postdoctoral researchers and established scientists, to share their work on monogenetic and volcanic systems. This year's presentations covered a broad range of topics, including the spatio-temporal evolution of volcanism, eruptive histories and dynamics of monogenetic complexes, eruption triggering timescales, monogenetic dome classification, volcanic plumbing systems, and scoria-cone degradation and morphochronology.

Since 2025, we have also made an effort to include at least one Spanish-language seminar each year. This initiative aims to make the webinar series more accessible to undergraduate students and other members of our community who may not yet be fully comfortable participating in scientific discussions in English. It also provides an opportunity to highlight research conducted in Spanish-speaking countries and recognize their contributions to volcanology and the broader Earth sciences.

The webinars are recorded and made available on the CMV-IAVCEI YouTube channel, allowing members of the community to watch the talks at their convenience. We have one final seminar scheduled for later this year and look forward to continuing the series in 2027. If you are interested in presenting your research as part of the CMV-IAVCEI webinar series, we encourage you to get in touch with us!




**Special issue in Bulletin of Volcanology**

Commission members have also organized a special issue in the Bulletin of Volcanology: 'Recent advances in the understanding of monogenetic volcanism'. Please check out the eight publications that have come out so far (in alphabetic order):

- Complex eruption processes and deposits of basaltic fissures: insights from the ~37 ka Budj Bim volcanic complex, Southeastern Australia
- Decoding paleostress conditions from the morphology of Quaternary volcanic craters along the western branch of the East African Rift System: implications for volcanic hazard assessment
- Explosive magma fragmentation from the Sunset Crater eruption, Arizona, based on standardized characterization of tephra fallout
- Magma fragmentation and tephra deposition from a small-volume phreatomagmatic eruption: Blue Lake crater, Oregon, USA
- Monogenetic volcanism in the Colombian Andes: state of the art and perspectives
- Neogene to Quaternary spatio-temporal evolution of volcanism in the Lazufre Volcanic Area, Southern Central Volcanic Zone: insights from tectonic and magmatic processes
- Phreatomagmatic fragmentation signature in tephra deposits from Ukinrek Maars, Alaska
- Tephra remobilization in scoria cones

**Coming Up: Field Workshop and International Conference**

The commission is also working on plans for an upcoming field workshop (Eifel, Germany) in the week following the EGU General Assembly and the next International Monogenetic Conference (Pantelleria, Italy); stay tuned for announcements coming soon!

**Nanci Reyes-Guzman, Emily Johnson, Marie-Noelle Guilbaud, Karen Bemis**

# 1.2 IAVCEI Network Updates

## 1.2.1 Presentation of Annika Dechert, the new DEIA Advisor



*Our new DEIA Advisor, Annika Dechert*

I was raised on a rural farm near the small town of Shoshoni, Wyoming, USA, so my path to science was less conventional, including driving John Deere tractors and hauling irrigation pipe in high school. These experiences taught me problem-solving, work ethic, and perseverance, all skills that have shaped my academic career.

I earned my B.A. in Geology from Occidental College in Los Angeles, California, where field-based courses taught me the value of getting my hands on rocks and seeing geological questions where they occur. A transfer semester at the University of Hawai'i at Hilo introduced me to volcanology and broadened my perspective on the many ways people understand volcanoes, including the importance of oral histories and traditions.

I completed my Ph.D. at the University of Oregon with Dr. Joseph Dufek, studying the Three Sisters volcanic complex through geochemistry, field geology, geophysics, numerical modelling, and eruptive history. I am now a postdoctoral researcher at the University of California, Berkeley, working with Dr. Penny Wieser on silicic Cascade magma storage systems, including Glacier Peak in Washington and South Sister in Oregon.

Alongside my research, I have been drawn to helping create welcoming, safe, accessible, and well-resourced learning and working environments. As a Department of Earth Sciences DEI Graduate Employee at the University of Oregon, I helped advance ideas developed by students, faculty, and departmental working groups. This included creating student-centred field-course materials that clearly communicate expectations, logistics, safety information, and cultural considerations. The materials have been used in undergraduate and international volcanology field courses, and students have shared that the materials made participation feel more approachable. I also supported clearer communication around laboratory expectations, safety procedures, and professional interactions. This work reinforced that a welcoming scientific community depends on practical, explicit support for students returning after time away, those new to outdoor fieldwork, and teaching assistants navigating communication challenges.

I am honoured to join IAVCEI as DEIA Advisor and to support and continue the thoughtful work Lis (Elisabeth Gallant) and others in the community have already begun. I look forward to helping foster an IAVCEI where everyone who wants to participate in volcanology feels welcomed, safe, supported, and able to access the resources they need.

## 1.2.2 The Voice of IAVCEI Early Career Researchers: Verena Meier, Charles University Prage, Czech Republic



*Verena Meier from Charles University Prague during field work at the Stara Jimka Paleolake in the Bohemian Forest.*

My name is Verena, and I am from a very small village in the south-east of Austria, almost at the border with Slovenia. It is not quite the mountainous part of Austria, but rather an area of smooth hills. Still, this did not prevent me from developing a passion for collecting all kinds of rocks and minerals from a very young age. However, it was only during my last year of high school that I truly discovered the professional discipline of geosciences – and realized that you can actually study rocks! So I decided to move to Leoben, another relatively small town in Austria, but this time significantly closer to the Eastern Alps.

I started my BSc in Applied Geosciences there, where I developed a special interest in sediments and their diversity. Consequently, I continued with my master's studies at the same university, specializing in Petroleum Geology. It was during this time that I felt a strong calling to combine this field with volcanology. Therefore, I spent half a year in Freiberg, Germany, studying high-silica volcanic glasses and their potential as storage reservoirs for oil and gas. After finishing my master's degree, I decided to try working in several oil and gas companies. However, I quickly realized that I wanted to return to science. My big goal became clear: to find a PhD position where I could combine both of my deep interests – sediments and volcanology.

This is how I ended up in Prague, where I am currently completing my PhD in tephrochronology at Charles University, Faculty of Science, within the Institute of Hydrogeology, Engineering Geology and Geophysics. My research focuses on expanding the tephrochronological framework in Central and Eastern Europe, with a particular emphasis on lake sediment records from the Late Glacial period. Interestingly, by working on cryptotephra (volcanic ash particles that are invisible to the naked eye), I have come back to studying volcanic glass shards – just significantly smaller ones this time.

Now I am already in the fourth and final year of my PhD, and with every year I realize more and more how versatile this field is and how much we can learn from these tiny particles – whether it is about eruption dynamics, implications for ecosystems, or effects on human populations.

Throughout my PhD, I have also had the opportunity to be actively involved in two research projects, which allowed me to dive even deeper into the field together with colleagues from a wide range of backgrounds. I also gained valuable experience through internships in Innsbruck (Austria) and Stockholm (Sweden), both of which gave me the chance to discover new volcanic ash particles at previously unexplored sites. It was only during this past year that I was finally able to identify an Icelandic ash layer in Czech lake sediments for the first time, closing an important gap – both in my own research goals and in the tephrochronological framework of this region.

However, my goal is not only to share my enthusiasm for volcanic ash and the enormous potential that lies within this field, but also to encourage others to follow their own dreams and interests. Throughout my journey, I have met many passionate researchers at all stages of their careers. No matter how diverse their fields were, there was always one thing in common – a shared passion for our scientific field and the desire to contribute to something larger. These days, I often observe that especially ECRs struggle with finding stable positions or feel insecure about their future. Therefore, my wish for all of us is that we always keep the purpose of our work in mind – why we started and what connects us – and that we do not let ourselves be discouraged by political or economic challenges. I truly believe that there is space for all of us to grow and thrive in a respectful, supportive, and inspiring environment.

If you would like to learn more about our research, studying in Czechia, or simply connect with me, I would be happy if you reach out to me at meierv@natur.cuni.cz.

## 1.2.3 IAVCEI ECR-Net Activities and Advertisements

**Online Panel Discussion:**
**Ethics in Volcanic Disaster Risk Management**

The IAVCEI ECR-Net, in collaboration with the EGU Working Group on Geoethics, is hosting a joint online panel discussion on "Ethics in Volcanic Disaster Risk Management" in October 2026. This discussion will bring together experts to explore the ethical challenges and responsibilities involved in volcanic disaster risk management. Key topics will include ethical considerations in scientific decision-making, the role of uncertainty, risk communication, and meaningful engagement with affected communities. The session will provide an opportunity for exchange across disciplines and perspectives, fostering discussion on how ethical considerations can be better integrated into volcanic risk management. Following the presentations, attendees will have the opportunity to engage with the speakers through a moderated question-and-answer session.

**The panel will feature**

- Dr. Marco Bagnardi (USA),
- Prof. Jenni Barclay (UK),
- Dr. Itahiza Domínguez Cerdeña (Spain),
- Prof. Ilan Kelman (UK),
- Dr. Gerasimos Papadopoulos (Greece),
- Dr. Elizabeth Rovere (Argentina), and
- Prof. Gordon Woo (UK),

who will come together to discuss the ethical dimensions of volcanic disaster risk management. The session will be moderated by Kyriaki Drymoni (Germany) and will provide an opportunity for an international audience to engage with the panel through discussion and exchange. The event will be held online on 23 October from 17:00–19:30 CEST.

If you are interested in attending, please provide your details at this link to receive the meeting link and further information.

**IAVCEI ECR-Net Parenthood in Academia Panel**

The IAVCEI ECR-Net is pleased to announce a new panel discussion on parenthood in academia, taking place in November 2026. Bringing together four panellists with different experiences of parenthood, this session will explore the personal and career considerations surrounding parenthood during the early stages of an academic career, including the challenges faced by first-time and expecting parents, the ways experiences can differ between countries and family circumstances, and the impact of parenthood on academic career trajectories.

The discussion will also consider the support systems, policies and benefits available to academics in different countries, the gendered career gap associated with parenthood, and practical advice for ECRs who are considering or preparing for parenthood. The event is aimed at early-career researchers across the IAVCEI community and will provide an opportunity to hear candid reflections and experiences from panellists, followed by a moderated discussion and audience questions.

If you are interested in attending, please provide your details at this link to receive more information.

**Seeking single parents in academia for a panel on parenthood**

Are you a single parent who has continued to build a career in academia and would be willing to share your experiences to support and inspire others navigating similar challenges? We are particularly interested in hearing from academics who are from, or have worked in, regions with diverse cultural, institutional and parental-support contexts, including South America, Africa and the Pacific, to help bring a broader range of experiences and perspectives to the discussion.

If you would be interested in joining our upcoming IAVCEI ECR-Net Parenthood in Academia Panel as a panellist, we would love to hear from you! Feel free to reach out via email on ecrnetiavcei@gmail.com or message us directly on Instagram.

**Jacqueline Grech Licari and Geoffrey Lerner**
*on behalf of the IAVCEI ECR-Net*

## 1.2.4 Indigenous Volcanology Network: Upcoming webinar

The Indigenous Volcanology Network is hosting its next online webinar on 28 October at 0800 UTC. We welcome two speakers who will share their work in the indigenous space:

- Sara Osman: "Constraining eruption source parameters for the Sii Aks ~1700 eruption, British Columbia, with field data and tephra fall modelling alongside Indigenous knowledge."
- Kristie-Lee Thomas: "Navigating towards Māori-led volcanic resilience in Taranaki, Aotearoa New Zealand."

Following the presentations, attendees will have the opportunity to ask questions and participate in an open discussion. Please register here. Upon registering, you will receive an MS Teams calendar invitation containing the webinar link.

**Rebecca Fitzgerald**



Bromo Mountain

# 1.3 Early Warning for All in Volcanology: Case Study Series, Part IV (Phlegrean Fields, Italy)

## Introduction: The Role of the Italian Civil Protection Department and INGV

The Department of Civil Protection (DPC), under the Presidency of the Council of Ministers, coordinates the Italian National Civil Protection Service and is responsible for national emergency planning, risk coordination, preparedness activities, and response management during natural hazards and emergencies. For volcanic risk, DPC defines national emergency strategies, supports regional and local authorities, coordinates preparedness exercises, and ensures the integration of scientific information into operational decision-making.

A fundamental pillar of the Italian volcanic monitoring framework is the synergy between the DPC and the Istituto Nazionale di Geofisica e Vulcanologia (INGV). Specifically, the Osservatorio Vesuviano (INGV-OV), established in 1841 as the first volcano observatory globally, oversees the surveillance of active volcanic systems in southern Italy, including Campi Flegrei, Vesuvius, and Ischia. INGV conducts continuous monitoring of activity of volcanoes through sophisticated observational networks equipped with cutting-edge instrumentation. These systems are managed 24/7 by two operational centres, including the one located at the Naples (INGV-OV). As an operational branch of the National Civil Protection Service (under D.L. 381/1999 and D. Lgs.1/2018), INGV provides regular status updates to the DPC. This collaborative effort is primarily aimed at mitigating the natural risks inherent to the complex dynamics of volcanic systems.

**At Campi Flegrei, INGV operates one of the world's most advanced volcanic monitoring systems, integrating:**

- seismic monitoring,
- geodetic measurements (GNSS, tiltmeters, dilatometers, tide-gouges),
- satellite geodesy,
- geochemical monitoring of hydrothermal emissions and groundwater,
- gravimetric measurements,
- thermal monitoring,
- periodic field surveys.

These multidisciplinary observations are continuously analysed to analyse seismicity, detect changes in the hydrothermal-magmatic system, assess unrest evolution, and support forecasting activities. INGV provides routine bulletins, weekly and monthly reports, rapid communications during seismic swarms and other significant phenomena, and scientific assessments to DPC and local authorities. This operational scientific support constitutes the backbone of the volcanic early warning chain at Campi Flegrei.

The collaboration between DPC and INGV represents a long-established science–policy interface in which monitoring data, hazard scenarios, emergency planning, and public communication are continuously integrated. During the recent bradyseismic crisis, this coordination became particularly important as accelerating ground uplift, frequent felt earthquakes, and increased public concern required constant interaction between scientists, civil protection authorities, municipalities, emergency responders, and communities.



*Figure 1 – View of Solfatara crater, site of intense hydrothermal activity.*

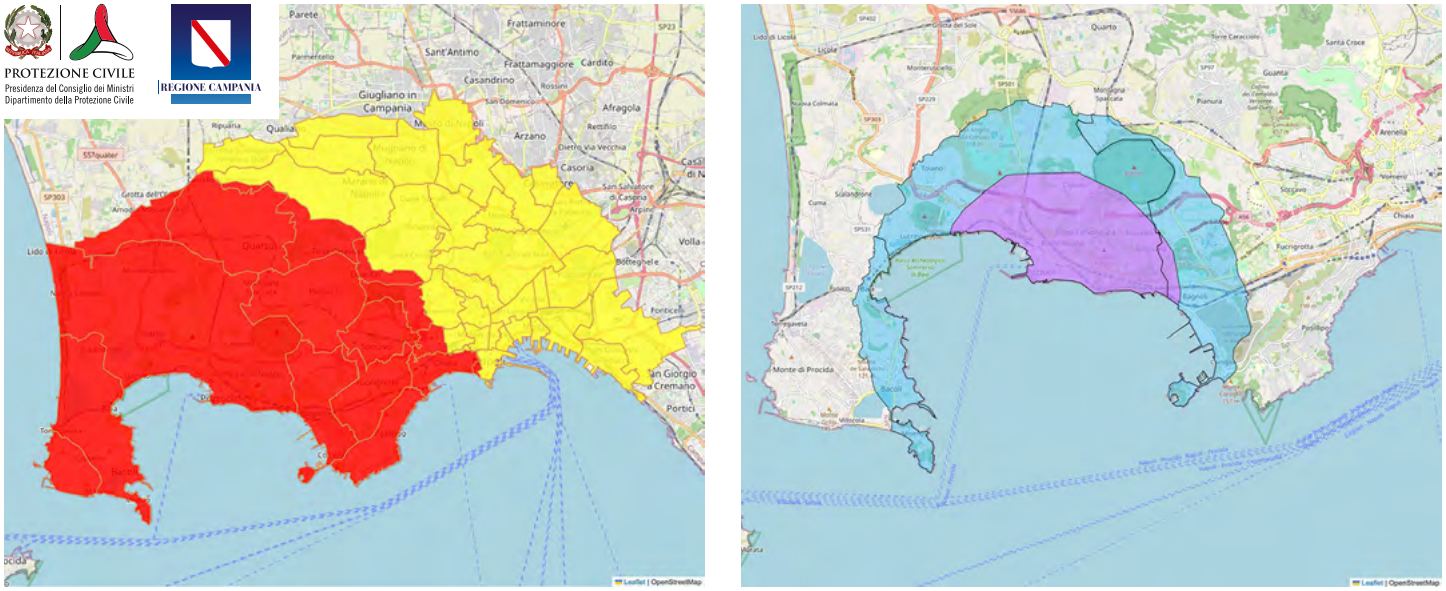



*Figure 2 – On the left the red zone and the yellow zone of the National Emergency plan for volcanic risk. On the right the intervention areas for the bradyseism risk management.*

The Campi Flegrei case therefore illustrates how scientific monitoring and civil protection governance must function together within a multi-hazard early warning framework, where monitoring alone is insufficient without effective communication, preparedness, and institutional coordination.

## Volcanological and Risk Context

Campi Flegrei is a large active caldera located in Campania Region west of the city of Naples in southern Italy. The area hosts intense urbanization, critical infrastructure, cultural heritage sites, and a resident population of several hundred thousand people exposed to volcanic, seismic, and hydrothermal hazards (Figure 1).

The caldera is characterized by bradyseism, a phenomenon involving slow ground uplift and subsidence associated with the dynamics of the hydrothermal-magmatic systems. Bradyseismic crises are commonly accompanied by shallow earthquakes and ground deformation, which may damage buildings and infrastructure and generate significant societal impacts. Main historical crises occurred between 1969–1972 and 1982–1984, when approximately 40.000 residents were evacuated from the municipality of Pozzuoli due to intense uplift and seismic activity.

Since 2005, Campi Flegrei has entered a new unrest phase characterized by progressive uplift, increasing seismicity, and enhanced degassing. Recent studies indicate that uplift at Pozzuoli has exceeded 1.6 m since 2006 and that magma and magmatic gases likely contribute to the ongoing unrest.

The crisis intensified between 2023 and 2025, with frequent seismic swarms and earthquakes exceeding magnitude 4 affecting Pozzuoli and nearby municipalities. Although no eruption occurred, the unrest generated multi-hazard impacts including structural damage, temporary evacuations, disruption of daily life, and heightened public anxiety. The Campi Flegrei crisis therefore represents a complex example of volcanic risk where non-eruptive impacts can become a major emergency management issue.

## Cross-Pillar EW4All in Practice

As highlighted in other IAVCEI EW4All case studies, effective volcanic early warning depends on the interaction of all four pillars rather than on monitoring alone.

**Pillar 1: Disaster Risk Knowledge and Management**
Long-term volcanic hazard assessment and emergency planning form the foundation of risk management at Campi Flegrei. The **National Emergency Plan for volcanic risk** defines hazard scenarios and identifies a **red zone**, where preventive evacuation of the population is the principal protective measure against pyroclastic density currents, and a **yellow zone**, potentially exposed to significant accumulations of volcanic ash. This planning provides the framework for preparedness for a possible future eruption (Figure 2).

Following the intensification of the unrest in 2023, the Italian Government therefore introduced specific measures for the prevention and management of seismic risk associated with bradyseism. These measures provided an important bridge between scientific knowledge of the evolving phenomenon and knowledge of the exposed and vulnerable elements of the territory.

A key outcome was the **Emergency Plan for the Campi Flegrei bradyseismic area**, developed by the DPC in coordination with the Campania Region, the Prefecture of Naples and the relevant territorial authorities, and based on municipal and national civil protection plans and hazard knowledge provided by the scientific community.

The resulting intervention area, covering parts of Pozzuoli, Bacoli and Naples municipalities, includes approximately 85.000 inhabitants and 15.500 residential buildings. Within it,

| ALERT LEVEL | VOLCANO STATUS | EXPECTED CHANGES IN MAIN MONITORING PARAMETERS | PROBABILITY OF EVOLUTION TOWARDS AN ERUPTION | EXPECTED DURATION AT THIS LEVEL (DEGREE OF UNCERTAINTY) | POSSIBLE HAZARDS |
|---|---|---|---|---|---|
| GREEN | QUIESCENT | **Monitoring parameters within baseline values:**<br>• Absence of medium-to-long term ground uplift or subsidence<br>• Seismicity mostly absent<br>• Fumarolic gases mainly hydrothermal in origin; hydrothermal system pressure and temperature stable over time | VERY LOW | NOT DEFINED | - $CO_2$ concentrations occasionally at potentially hazardous levels to human health near emission sites, in downwind sectors, morphologically depressed zones, or enclosed spaces |
| YELLOW | LOW UNREST | **One or more monitoring parameters above baseline values, slowly progressing and/or prolonged over time:**<br>• Uplift of the caldera center at slow speed with radial geometry<br>• Sporadic, low-energy volcano-tectonic seismicity<br>• Slight increase in magmatic component in fumarolic gases; increase of $CO_2$ and degassing areas. Minor changes in the hydrothermal system equilibrium pressure and temperature | LOW | NOT DEFINED | - $CO_2$ concentrations occasionally at potentially hazardous levels to human health near emission sites (also diffusive), in downwind sectors, morphologically depressed zones, or enclosed spaces<br>- Occasionally felt seismic shaking |
| | MEDIUM UNREST | **Monitoring parameters above baseline values, showing progression over time:**<br>• Uplift of the caldera center at moderate speed with general radial geometry<br>• Frequent volcano-tectonic seismicity with maximum magnitude (Md) sporadically between 4 and 4.5<br>• Moderate increase of the magmatic component in fumarolic gases; increase in $CO_2$ flux and extension of degassing areas. Further variations in the hydrothermal system equilibrium pressure and temperature | LOW-TO-MEDIUM | NOT DEFINED | - Potentially hazardous concentrations of $CO_2$ and $H_2S$ to human health near emission areas (including diffusive), in downwind sectors, morphologically depressed zones or enclosed spaces<br>- Light to occasionally strong seismic shaking near epicentral areas<br>- Localized phreatic explosions in areas with intense hydrothermal activity<br>- Seismic induced landslides near epicentral areas |
| ORANGE | HIGH UNREST | **Monitoring parameters significantly above baseline values, with an ongoing progression:**<br>• Uplift of the caldera center at moderate-to-high speed with general radial geometry<br>• Very frequent volcano-tectonic seismicity with repeated events of magnitude (Md) between 4 and 4.5<br>• Significant increase of the magmatic component in fumarolic gases and of the hydrothermal system equilibrium pressure and temperature values; further expansion of degassing areas | MEDIUM | WEEKS/MONTHS/YEARS (VERY HIGH) | - High concentrations of $CO_2$ and $H_2S$, potentially hazardous to human health, near emission areas (including diffusive), in downwind sectors, morphologically depressed zones or enclosed spaces<br>- Strong seismic shaking near epicentral areas<br>- Localized phreatic explosions in areas with intense hydrothermal activity<br>- Seismic induced landslides near epicentral areas |
| | VERY HIGH UNREST | **Monitoring parameters well above baseline values, with further progression:**<br>• High-speed ground uplift with radial geometry, eventually not centered in the caldera. Surface fractures may open.<br>• Very frequent volcano-tectonic seismicity with general increase in maximum magnitude (eventually up to Md = 5). Possible appearance of long-period (LP) seismicity<br>• Further geochemical variations with expansion of degassing areas and new emission points.<br>• Sudden changes in groundwater level, temperature, and salinity. Possible appearance of $SO_2$ in fumarolic fluids | MEDIUM-TO-HIGH | WEEKS/MONTHS/YEARS (VERY HIGH) | - High concentrations of $CO_2$ and $H_2S$, potentially hazardous to human health, near emission areas (including diffusive), in downwind sectors, morphologically depressed zones or enclosed space<br>- Intensification of hydrothermal activity and expansion of high-emission areas with increased likelihood of phreatic explosions<br>- Strong and frequent seismic shaking near epicentral areas<br>- Seismic induced landslides near epicentral areas<br>- Surface fracturing in areas experiencing the greatest uplift |
| RED | PRE-ERUPTIVE | **Monitoring parameters at very high levels and rapidly evolving:**<br>• Very high-speed uplift with non-radial geometry. Deformation maxima may localize in association with surface fracturing and/or faulting, sometimes associated with water or fumarolic fluid emission<br>• Extremely frequent volcano-tectonic seismicity eventually migrating towards the surface. Possible increase of the maximum Md also over 5 and occurrence of LP seismicity.<br>• Strong increase in gas flux, significant rise of the temperatures, rapid changes (days/hours) in gas chemistry, appearance and/or increase of $SO_2$, and possible presence of other acidic gases (HF, HCl)<br>Possible identification of the area with the highest probability of eruptive vent opening. | VERY HIGH | HOURS/DAYS (LOW) | - $CO_2$-$SO_2$ gas emissions from areas of maximum uplift and surface fracturing<br>- Further intensification of hydrothermal activity with expansion of the emission zones and higher probability of hydrothermal and/or phreatic explosions<br>- Very frequent and intense seismic shaking<br>- Seismic induced landslides near epicentral areas<br>- Rapid and localized uplift with surface faulting/fracturing<br>- Opening of new degassing areas associated with possible phreatic explosions |

*Figure 3 – New alert level scheme for Campi Flegrei.*

a more restricted intervention area – where the most significant widespread effects could occur should bradyseism continue or intensify – includes approximately 34.000 inhabitants and 6.900 residential buildings.

Because the evolution of bradyseism cannot be predicted deterministically, the Emergency Plan does not rely on predefined alert-level transitions. Instead, it identifies **three operational scenarios based on the observed impacts of seismicity and deformation on buildings, infrastructure and essential services**, ranging from limited and localized damage to a situation involving significant structural damage and disruption of essential services. This impact-based approach provides a particularly relevant example of the connection between Pillar 1 and Pillar 4: risk knowledge is explicitly designed to support operational decisions.

Following major advances in volcano science and monitoring capability, the Commission for Forecasting and Preventing Major Risks—Volcanic Risk Sector recommended in May 2024 a prompt revision of the alert-level scheme within the National Emergency Plan for volcanic risk to align operational guidance with the current state of scientific knowledge.

The revised alert-level scheme (Figure 3) adopts a structure consistent with other Italian volcanic systems and is organized around five core fields: volcano state, expected variations in key monitoring parameters, probability of evolution toward eruption, expected persistence time at each level, and possible hazardous phenomena. The scheme distinguishes between quiescent conditions (green), weak and moderate disequilibrium (yellow), strong and very strong disequilibrium (orange), and pre-eruptive conditions (red).

In parallel, the DPC, in agreement with the Campania Region, developed a preliminary set of operational phases linked to the updated alert levels.

The Alarm phase entails full evacuation of the Campi Flegrei red zone, transfer and reception of the population in paired Regions and Autonomous Provinces.

**Pillar 2: Detection, Observation, Monitoring, Analysis and Forecasting**

INGV operates one of the world's most advanced volcanic monitoring systems at Campi Flegrei. Continuous multidisciplinary monitoring allowed scientists to track significant variations in the dynamics of the volcano throughout the unrest phase.

Scientific bulletins, weekly reports, and regular coordination meetings between INGV and DPC ensured that monitoring information was continuously translated into operational assessments supporting civil protection decision-making.

**Pillar 3: Warning Dissemination and Communication**

The prolonged Campi Flegrei unrest demonstrated the importance of transparent, sustained, and people-centred communication. DPC, INGV, the Campania Region, and local authorities coordinated communication through institutional websites, media briefings, social media, public meetings, educational campaigns, and dedicated information portals.

Effort was devoted to explaining the meaning of bradyseism, the role of monitoring systems, and the uncertainty associated with volcanic forecasting. Maintaining public trust became essential as repeated earthquakes and media attention amplified concern among local communities.

The communication strategy increasingly emphasized preparedness rather than imminent eruption scenarios. Authorities sought to avoid both alarmism and complacency while ensuring that communities understood emergency procedures and the evolving risk conditions.

The national communication campaign *Io Non Rischio* ("I Don't Take Risks") also contributed to improving public awareness regarding volcanic and bradyseismic risk at Campi Flegrei.

**Pillar 4: Preparedness and Response Capabilities**

Preparedness and operational response were progressively strengthened during the unrest phase. DPC coordinated updates to emergency plans, evacuation procedures, inter-agency coordination mechanisms, and operational exercises.

National exercises were organized to test emergency planning for both bradyseismic and volcanic risk scenarios (1 in 2019, 4 in 2024 and 2 in 2025). The exercises included tabletop and full-scale phases involving civil protection authorities, municipalities, emergency services, scientific institutions, and cultural heritage stakeholders.

**Operational measures during periods of intense seismicity included:**

- rapid damage assessments,
- temporary school closures,
- assistance to affected residents,
- strengthening of local emergency coordination centres,
- and verification of evacuation routes and critical infrastructure.

These actions demonstrated that preparedness for volcanic unrest in Campi Flegrei must address both eruptive and non-eruptive emergency scenarios.

**Challenges, Successes and Lessons Learned**

The principal challenge at Campi Flegrei is managing a long-lasting and evolving crisis under substantial scientific uncertainty. Monitoring can identify changes in the volcanic system but cannot deterministically forecast whether or when unrest will culminate in eruption. At the same time, recurring earthquakes can generate immediate impacts requiring civil protection action. Sustaining monitoring, preparedness, communication and public trust over years rather than days or weeks places considerable demands on both scientific and civil protection institutions.

A major strength of the response has been the continuous interaction between DPC, INGV and local civil protection authorities, allowing monitoring information to feed into risk assessment and operational decision-making while preparedness and communication are adjusted as conditions evolve.

The Campi Flegrei experience highlights a broader lesson for EW4All: effective early warning during volcanic unrest does not depend on predicting an eruption. It depends on maintaining a functioning chain between observations, risk and impact assessment, communication, preparedness and action. When forecasting the evolution of unrest is intrinsically uncertain, observed and expected impacts provide an additional basis for proportionate operational decisions.

Campi Flegrei therefore shows how the four EW4All pillars can function as an adaptive system throughout a prolonged crisis – turning monitoring into knowledge, knowledge into decisions, and decisions into preparedness and action, even in the absence of an eruption.

**Mauro A. Di Vito,** *Istituto Nazionale di Geofisica e Vulcanologia [National Institute of Geophysics and Volcanology] (INGV)*
**Luigi D'Angelo,** *Dipartimento della Protezione Civile [Italian Civil Protection] (DPC)*
**Antonella Scalzo,** *DPC*
**Domenico Mangione,** *DPC*
**Antonio Ricciardi,** *DPC*
**Lucia Pappalardo,** *INGV*



Solfatara

SECTION 2. IAVCEI CONFERENCES, MEETINGS AND WORKSHOPS

# 2.1 The host for COV14 in 2028

## Living on the Edge: Connecting Volcanic Communities Worldwide at CoV14

We are excited and honoured that Iceland has been chosen to host the 14th Cities on Volcanoes conference in May 2028. CoV14 will be held under the title "Living on the Edge: The Disaster Management Cycle in Volcanic Regions."

Iceland may not have the world's largest volcanic cities, but recent volcanic events on the Reykjanes Peninsula in SW-Iceland have had devastating effects on the town of Grindavík and created a real-world laboratory for understanding volcanic risk, preparedness, response and recovery. Although Iceland's population has grown rapidly in recent years, the country is still home to only around 400.000 people. The country has more than 30 active volcanic systems on land, making it a unique place to explore how small communities, authorities and businesses live with volcanic hazards.

The idea to bid for CoV14 grew directly from the volcanic reawakening of the Reykjanes Peninsula after almost 800 years of volcanic quiescence (Figure 2.2). Home to the largest population outside the Reykjavík capital area, the peninsula has experienced 12 effusive eruptions within just five years, with devastating destruction of local infrastructure alongside repeated earthquakes, ground deformation and magma intrusions. These events have brought the realities of living with volcanic hazards directly into the lives of local communities, authorities and businesses.

The Cities on Volcanoes conference series is known for bringing together the international volcanic-risk community, and CoV14 in Iceland will be no exception. The conference themes will be designed around the disaster management cycle, with interdisciplinary sessions relevant not only to scientists, but also to emergency managers, decisionmakers, civil protection authorities, engineers, communicators, businesses and, most importantly, the communities living with volcanic hazards.

Together, we will explore how we can better understand volcanic risk, prepare for uncertainty, respond effectively to crises and build resilience for the future. CoV14 will appeal to a broad international audience, focusing not only on how communities actively live with volcanoes, prepare for tomorrow and shape



*Aerial photograph of a fissure eruption on the Reykjanes peninsula. Photo credit: Björn Oddsson (Institute of Earth Sciences, University of Iceland (IES/UI))*

a safer future, but also on how the forces of nature can create opportunities, innovation and inspiration for local populations. Volcanoes do not stop at borders – and neither should the knowledge and experience we share about living with them.

The conference venue will be in Reykjavík, the capital of Iceland, in close proximity to the Reykjanes Peninsula, where the volcanic reawakening has challenged local communities and authorities in unprecedented ways. The town of Grindavík, a small local community, has experienced devastating damage to homes and critical infrastructure caused by subsurface magma movements, as well as prolonged evacuation. At the same time, large-scale engineering projects have been rapidly developed and implemented to reduce the risk of lava flows reaching critical infrastructure and the town. This unique setting will provide participants with an opportunity to learn directly from Iceland's recent and extraordinary experiences of volcanic unrest, risk reduction and community impact. A mid-conference fieldtrip with on-site visits to the affected areas, guided by local experts, will form an important part of the CoV14 experience.

But CoV14 is about much more than Iceland.

It will be a global meeting place for all those studying and working on disaster management in volcanic regions and volcanic communities from around the world, facilitating the exchange of experiences, challenge established thinking, build international partnerships and develop practical solutions to the shared challenges of living with active volcanoes.

We would like to use this opportunity to reach out and invite you to help us shape CoV14.

**What would make CoV14 valuable and relevant to you?**

- What are some of the most important scientific questions facing cities on volcanoes?
- What lessons have emerged from recent volcanic crises around the world?
- What topics have previously been under-represented at CoV conferences?
- What interdisciplinary sessions or formats would be most valuable to you?
- Are there emerging topics that CoV14 should address?

Please share your thoughts and ideas with us, by sending an email to cov14@hi.is

Finally, we would like to extend our sincere gratitude to the CAV Commission of IAVCEI for choosing Iceland, and to all the competitors for their excellent bids. We welcome you to Iceland in May 2028. Bring your experience. Share your challenges. Discover new perspectives. And together, let us shape the future of volcanic risk management.

On behalf of the local organizing and program committees for CoV14,

**Rikke Pedersen and Freysteinn Sigmundsson**
*chairs of CoV14*



Taranaki

# 2.2 IAVCEI at the AI for Good Global Summit 2026




IAVCEI was pleased to support the 2026 AI for Good Global Summit in Geneva by sponsoring a session on AI and disaster resilience, together with an associated coffee break that created further opportunities for exchange among participants.

The Summit, organized by the International Telecommunication Union, brought together more than 12.000 participants from 177 countries, including representatives of over 50 United Nations partners, governments, industry, academia, research organizations, and civil society. With more than 1.200 speakers, 280 sessions, and 250 exhibitors, the event demonstrated the rapidly growing influence of artificial intelligence across all areas of human activity.

As President of IAVCEI, Costanza Bonadonna delivered a keynote entitled *From Observations to Operational Resilience: Lessons from Volcanology in the Age of AI*. Volcanoes provide a valuable testbed for understanding both the potential and limitations of AI. Although AI can extract information from increasingly large and complex datasets, it cannot compensate for observations that do not exist, nor can purely data-driven approaches replace physical understanding.

A central message of the session was therefore that AI should complement, rather than replace, scientific expertise. Its greatest value lies in connecting observations, physical models, multidisciplinary knowledge, local and Indigenous experience, and operational practice to support better decisions.

For the volcanological community, realizing this potential will require continued investment in volcano observatories, global monitoring systems, data sharing, capacity building, and international collaboration. AI can help transform observations into useful information and support decision-making, but responsibility for protecting communities ultimately remains with people.

IAVCEI's participation in the Summit provided an important opportunity to bring volcanological perspectives into the global AI conversation and to emphasize that trusted operational resilience depends not only on technological innovation, but also on strong science, sustained infrastructure, collaboration, and human responsibility.



# 2.3 Report of the AIV "Bruno Capaccioni" School of Volcanology (IAVCEI Associated Body)

**Field-based training in the Aeolian Islands: the 17th "Bruno Capaccioni" School of Volcanology**



*Group picture of the participants of the 2026 "Bruno Capaccioni" School of Volcanology.*

In September 2026, the island of Lipari hosted the 17th edition of the "Bruno Capaccioni" School of Volcanology. Organized by the Italian Association of Volcanology (AIV), in collaboration with INGV and IAVCEI, the School was held under the patronage of the "Luigi Bernabò Brea" Archaeological Park of the Aeolian Islands. It once again brought together students and recent graduates for an intensive programme on volcanic systems and eruptive processes. Lectures and scientific discussions were combined with extensive fieldwork, allowing participants to examine volcanic processes and products directly.

The 2026 edition was coordinated by Federico Lucchi and Claudio Tranne (University of Bologna), Eugenio Nicotra (University of Calabria), and Gianfilippo De Astis (INGV Roma 1). Stefano Branca and Simona Scollo (INGV-OE Catania), Guido Giordano (Roma Tre University) and the AIV President Marco Viccaro (University of Catania) also contributed to the programme.

The 25 selected participants came from 13 universities in Italy and abroad. The group included 12 Master's students, 6 Bachelor's students, 5 Bachelor's graduates, 1 Master's graduate, and 1 PhD student. The institutions represented were the Universities of Bari, Bologna, Cagliari, Catania, Calabria, Milan, Milano-Bicocca, Pisa, Roma Tre, Turin, and Sapienza University of Rome, together with Universidad Técnica de Manabí in Ecuador and the University of Toronto in Canada (Figure 2.3.1). This range of academic backgrounds, research interests, and levels of experience fostered a lively exchange of ideas and perspectives.

Fieldwork played an even more prominent role than in previous editions. Four full days were spent in the field, making direct observation a core component of the training rather than simply an extension of classroom teaching. Participants examined volcanic landforms, pyroclastic and lava deposits, and a variety of eruptive mechanisms. At each site, they discussed the processes governing the transport and deposition of volcanic material, from pyroclastic fallout and density currents to lahars. Particular attention was given to the main forms of volcano-tectonic collapse, including caldera and sector collapse, and to the links between magmatic dynamics and the architecture of volcanic edifices.

The extended field programme enabled participants to relate concepts introduced in the classroom to volcanic successions, landforms, and processes observed first-hand. There was ample time to examine outcrops closely, describe deposits, identify stratigraphic relationships, and discuss competing interpretations on site. In this way, fieldwork placed geological reasoning at the heart of the learning experience and encouraged participants to test their observations against conceptual and process-based models.

Excursions to the southern and northern sectors of Lipari allowed participants to reconstruct much of the island's volcanic history. In the south, they examined pyroclastic successions and rhyolitic domes emplaced mainly between about 42 and 20 ka, focusing particularly on the Monte Guardia succession, dated to approximately 27–26 ka. This succession records alternating phases of explosive activity, pyroclastic deposition, and viscous lava-dome growth, offering a valuable record of the complex interplay between explosive and effusive processes.

In northern Lipari, the focus shifted to some of the island's youngest volcanic products: the rhyolitic pumice and ash deposits of Monte Pilato, associated with an eighth-century eruption, and the Rocche Rosse obsidian lava flow, emplaced around 1230 CE. The latter preserves a remarkable range of structures – including flow foliations, folds, fractures, and breccias – that record the emplacement, deformation, and cooling of highly viscous lava.

On Vulcano, fieldwork focused on the La Fossa cone, which began to develop around 5,500 years ago within the La Fossa Caldera, and on Vulcanello, which emerged in historical times beginning in the second century BCE and remained intermittently active until the sixteenth century. Deposits from the most recent eruption, in 1888–1890 – including ash, blocks, and characteristic breadcrust bombs – provided an opportunity to examine Vulcanian activity and discuss the mechanisms responsible for its distinctive products.

A boat excursion to Panarea and Stromboli offered a unique perspective on the volcanic architecture of the Aeolian Islands. Participants examined the internal structure of the Basiluzzo dome and evidence of eruptive fissures on Stromboli, with particular attention to the Roman-age San Bartolo lava flow. Observations from both the panoramic viewpoint at 190 m elevation and the boat also allowed the group to witness Strombolian activity at the summit craters and consider its relationship with the collapse structure of the Sciara del Fuoco.

The programme also gave considerable attention to volcano monitoring and volcanic hazard and risk assessment. Discussions explored the integrated use of seismic networks, ground-deformation measurements, visual and thermal observations, and geochemical monitoring of volcanic-gas fluxes, composition, and temperature. A short visit to the INGV Info Point on Stromboli offered further insight into ongoing monitoring and the challenges of communicating scientific information to local communities and visitors.

Integrating these monitoring approaches is essential for developing hazard scenarios involving explosions, pyroclastic fallout, lava flows, gas emissions, landslides, and tsunamis. Vulcano and Stromboli served as examples of multi-hazard volcanic systems where exposure varies greatly over the year. The seasonal influx of visitors and high summer population substantially increase the number of people potentially exposed to volcanic hazards. Continuous monitoring, effective communication, emergency preparedness, and careful management of access to the most exposed areas are therefore central to reducing volcanic risk.

Alongside the scientific programme, a regional cooking challenge gave participants an informal setting in which to meet and share experiences. By bringing recipes and culinary traditions from their home regions and countries to Lipari, they created an enjoyable cultural exchange that complemented the scientific activities and strengthened the sense of community developed over the course of the week.

The 2026 edition once again demonstrated the value of the "Bruno Capaccioni" School as a distinctive opportunity for field-based training, scientific exchange, and professional development. In addition to deepening participants' understanding of volcanic systems and eruptive processes, the School encouraged the exchange of knowledge and perspectives and helped build connections among a new generation of geologists and volcanologists.



Kilauea

# 2.4 Participant report on Latin American Volcanological Observatories Internship Program (ALVO, IAVCEI Associated Body)

**Juan Álvarez Silva, Universidad Nacional Autónoma de México.**



*Several impressions from my Volcano Observatory Internship.*

It was an intense three weeks packed with new experiences, incredible people, field trips, and geophysical campaigns at the Seismic Research Centre of the University of the West Indies (SRC-UWI) located in Trinidad and Tobago. From day one, I had the opportunity to witness firsthand the surface manifestations and impacts of the mud diapirism spread across southern Trinidad. Although far from being related to magma, mud volcanoes hold a comparable allure, rich in similar textures, structures, and processes operating at a smaller scale that directly affect the lives of surrounding communities.

On several occasions, my colleagues at the SRC-UWI asked me what stood out to me the most about Trinidad and Tobago. I always agreed that it was its vibrant colours, natural wealth, cuisine, musical history, and the ethnic diversity of its people. At times, during long days of fieldwork, I felt as if I were in familiar Colombian territory: a landscape full of trees, birds, music, and warm, smiling people sweltering under the ambient heat and humidity. Even so, it is clear that the few kilometres of the Bocas del Dragón in the Gulf of Paria and the Columbus Channel are enough to separate Trinidad and Tobago from the South American mainland and create an incredible cultural contrast.

These differences led me to constantly reflect on how much the Caribbean and the rest of the continent can learn from each other to strengthen disaster risk management. Living this experience confronted me with new realities and made me reflect on how our communities' risk scenarios can change rapidly from one region to another. But that is Latin America and the Caribbean: regions brimming with diversity and local contrasts that make this part of the world a wonderful and, of course, complex place.

I carry a deep sense of gratitude for every single person at the SRC-UWI. In every interaction, no matter how brief, I felt their warmth and genuine effort to make me feel welcome. In my backpack, I bring home a thousand new lessons from the geophysical measurement campaigns we conducted, as well as the volcanic hazard atlas of the Lesser Antilles. I must confess that before this experience, the Antilles felt like a distant place to me, but now I have endless reasons to want to return; furthermore, I learned that far more unites us despite the geographical barriers that separate us. I extend my sincere gratitude to IAVCEI and ALVO for making this Internship Program possible. It was, without a doubt, a high-impact experience for me and a direct opportunity to forge new bonds of cooperation with our colleagues in the Caribbean.

# 2.5 VIPS Field Trip to the Eastern Bushveld Complex in South Africa (IAVCEI commission)

**Rose Gallo: Postdoctoral Scholar at Tufts University, USA**

On August 21–26, 2026, the VIPS (Volcanic and Igneous Plumbing Systems) Field Trip to the Eastern Bushveld Complex in South Africa gathered researchers and industry professionals to explore exposures of some of the impressive and enigmatic features of the world's largest layered mafic intrusion. The field trip hosted twenty-three participants from ten countries and was facilitated by BUGEMENT, a collaboration of University of the Witwatersrand with companies involved in mining the Bushveld Complex. This was the first full field trip organized by the VIPS organization, of what we hope will be many to come.

Field trip participants had the chance to observe outcrops showcasing the economic importance, natural beauty, and complexity of the Bushveld Complex. Highlights of the itinerary included magnetite pipes and layers in the Main and Upper Zones, the Tennis Ball Marker, a segment of the Merensky Reef, and several views of the chromitite layers displaying different aspects of their contact relationships. Observing these features as a group engendered illuminating discussions about the emplacement mechanisms of these specific horizons and the complex as a whole, as each outcrop revealed new constraints and new possibilities for magmatic processes. Each evening, attendees also presented on their own research or a subject of interest to the group, with subjects ranging from experimental investigations of magma behaviour to comparison of economic, structural, and chemical features of other igneous complexes to the Bushveld Complex.

**Marine Boulanger: Assistant Professor at Université de Montpellier, France**

I entered the world of layered intrusions after working on volcanic systems throughout my graduate and undergraduate studies with a project focusing on the Dufek Intrusion, a layered intrusion thought to be similar in its general stratigraphy and second in size to the Bushveld Complex. Given that the Dufek Intrusion is located in the remote Pensacola Mountains of Antarctica and is not easily accessible for field observations, I wanted to visit the Bushveld Complex to improve my understanding of how the archived samples I am working on might fit into structures at the outcrop scale. It was very exciting to see some of the famous outcrops of the Bushveld Complex and stand beside the features I have seen in textbooks. Hearing discussions between experts in the fields of layered intrusions and magma mechanics at every outcrop was fascinating and shed light on how much remains unknown even about portions of the complex that have been the subject of extensive study. In addition to learning a great deal about the Bushveld Complex, this trip gave me the opportunity to meet people working on other intrusions who offered further context for my research. The Field Trip to the Eastern Bushveld Complex definitely increased my interest in the field of layered intrusions. I am grateful for the IAVCEI-IUGG Travel Bursary for Early Career Researchers, for allowing me to travel to South Africa for this amazing experience.

The Bushveld Igneous Complex was a must-see for me, both as a researcher working on igneous systems and as a former mineral



*Group picture of the participants of the VIPS field trip to the Bushfeld complex.*

resources student. The BIC was the subject of one of my very first related student assignments at Ecole Nationale Supérieure de Géologie in France. Participating in this field trip felt like I had come full circle, as I will be teaching magmatic ore deposits this semester. My teaching will benefit incredibly from all the knowledge acquired during the trip from experts on the Bushveld who worked there for many years. It allowed me to collect a few samples and so many pictures of textbook example outcrops of the incredible locations we visited. My personal favorites were the diverse melt reaction fronts observed at different locations. Such a gathering of experts working on layered intrusions and magmatic ore deposits, and more generally on magmatic systems with a great variety of expertise (numerical modeling, structural geology, rock magnetism, geochemistry, magmatic petrology, or experimental petrology) led to thrilling discussions throughout the entire field trip. Of particular interest was the physical state of the magmatic system, and how movements of such a high-volume, liquid-rich environment could explain some of the most puzzling features described in the field. One particular thing I now believe is impossible to fully grasp from pictures, books, and articles is the scale at which these magmatic processes occurred, and how it challenges our understanding of these systems. I join Rose in acknowledging the IAVCEI-IUGG Travel Bursary, and I want to emphasize how important such an initiative is for early career scientists, especially considering the challenges ECS face in pursuing academic and scientific careers.

Overall, this field trip was a one-of-a-kind opportunity to explore a place as legendary as the Bushveld, which shaped modern igneous petrology alongside other layered intrusions like the Skaergaard. The week was an example of a fruitful field trip in gathering a community, confronting everyone's vision on magmatic systems, nurturing future collaborations, and promoting engagement in the study of the Bushveld and beyond for many years to come. We warmly thank Rais Latypov and Sofia Chistyakova, who also guided us in the field, and Catherine Annen and Kofi-Anan Mkumla for their time and investment in organizing this field trip. We thank IAVCEI-IUGG and especially Ulrich Kueppers for their support for Early Career Scientists, in addition to the VIPS Commission, the Wits University, and the Institute of Geophysics of the Czech Academy of Sciences for their support of the field trip.

# 2.6 Report of the 12th International Workshop of the IAVCEI Commission on Volcanic Lakes (CVL)

The 12th International Workshop of the Commission on Volcanic Lakes (CVL) was held from March 9 to 18, 2026, in the Philippines. The event was organized by the Department of Science and Technology – Philippine Institute of Volcanology and Seismology (DOST-PHIVOLCS) in partnership with CVL-IAVCEI. The workshop brought together international and local researchers, volcanologists, government officials and early-career scientists. Following a rigorous selection process, scholarships (3 supported by IUGG and 3 by IAVCEI) were given to 6 young researchers (600 € each): Daniela Matias (female, Portugal), Mohammad Hasib (male, Indonesia), and Rebecca Biagi (female, Italy) were those who received support by IUGG.




*The main organisers of the 12th CVL workshop in the Philippines.*

The workshop provided an international forum for the exchange of research on volcanic lake geochemistry, hydrothermal and geophysical monitoring, diffuse and dissolved gas emissions, microbial ecology, climate-related changes in lake stability, geomorphology, carbon cycling, astrobiology and hazard mitigation. The scientific program comprised 21 oral presentations organized into thematic sessions, with open discussions after the presentations. The scientific presentations covered a broad range of volcanic lake systems and methods.

The Pinatubo fieldwork included diffuse $CO_2$ flux measurements using accumulation chambers at multiple stations on the lake surface, dissolved-gas profiling and water sampling at several depths, vertical temperature profiling with lightweight probes, photographic and morphological documentation, and the deployment of multi-parameter sensors. These activities generated new baseline information on the lake's present geochemical state and allowed direct comparison with previous monitoring campaigns. The fieldwork also provided hands-on training in $CO_2$ flux measurement, thermal profiling

and integrated multi-parameter monitoring and direct sampling of steaming grounds.

The final phase of the workshop was conducted at the Seven Lakes of San Pablo, specifically at Pandin and Mohicap lakes. Before arriving at the San Pablo Lakes, a thorough and in-depth visit was also made at DOST-PHIVOLCS Taal Volcano Observatory, monitoring seismic activity, gas emission, and volcanic unrest of Taal main crater and volcano island, which remain a permanent danger zone. Pandin and Mohicap maar lakes provided a contrasting environment to the active crater-lake setting of Pinatubo and allowed participants to compare volcanic lakes with different morphologies, hydrological conditions and levels of volcanic influence. Field activities included comparative water sampling and vertical profiling, $CO_2$ and $CH_4$ flux measurements using a high-precision accumulation-chamber system, thermal measurements in lake sediments, geomorphological and bathymetric observations, and the collection of selected sediment cores. The work strengthened collaboration between DOST-PHIVOLCS researchers and international participants in greenhouse-gas monitoring, lake characterization and carbon-cycle research.

The scientific sessions and field activities highlighted several common priorities: sustained multi-parameter monitoring of active crater lakes; standardization and inter-calibration of $CO_2$ and $CH_4$ flux methods; expansion of greenhouse-gas studies to additional tropical volcanic lakes; closer integration of geophysics, geochemistry, hydrology and microbiology; and assessment of how climate-driven stratification may alter the capacity of volcanic lakes to store and release dissolved gases. The workshop also reinforced the importance of volcanic lakes in regional and global carbon budgets, where they may operate as gas emitters, methane reservoirs and sites of carbon sequestration.



*Group picture of the participants of the 12th CVL workshop in the Philippines during the field activities.*

The CVL would like to thank IUGG for its generous support, which made it possible to help young people participate in the event. The CVL community extends its sincere thanks to Dr. Raymond Patrick Maximo and the DOST-PHIVOLCS local organizing team for preparing and implementing the workshop. The Commission acknowledges the great support of IAVCEI, the Department of Science and Technology, the United States Geological Survey, the Geological Society of the Philippines, the participating institutions and the individual participants. Particular thanks are due to the local field-support and porterage teams and to the Municipal Disaster Risk Reduction and Management Officers of Santa Juliana, Tarlac, who assisted with safety and logistics during the Pinatubo field activities, and to the City DRRM Officers of San Pablo City, Laguna, for the assistance during the San Pablo fieldwork.

**Jacopo Cabassi**




*Group picture of the participants of the 12th CVL workshop in the Philippines during the field activities.*

SECTION 3. IAVCEI – DOWN TO BUSINESS

# 3.1 The 2026 IAVCEI Meeting-of-Members

As per the IAVCEI Statutes and By-Laws, we are organising our annual Meeting of Members for 2026 where we will be providing all IAVCEI members with reports and info regarding IAVCEI activities since the last Meeting of Members that was held in person during the 2025 Scientific Assembly in Geneva, Switzerland. As the COV13 had to be postponed, we are organising this event as online event (which will be recorded).

The 2025 Meeting of Members will take place on 19 November 2026 at 9.00 pm (Central European Time). Registration will be required and is possible for all IAVCEI members that have their 2026 membership fee duly paid at this link. The programme for the 2026 Meeting of Members will be sent by email at the end of October 2026.

Outlook: The 2027 IAVCEI Meeting of Members will take place as in-person event on 20 July 2027 (10.00–12.00 am Korean Time) during the 2027 General Assembly in Incheon, South Korea.

# 3.2 Scientific program for the General Assembly in South Korea 2027

The program for the General Assembly 2027 is online. IAVCEI is organising 15 Association Symposia and contributes to 20 Inter-association Symposia.

**The important dates are:**

| | |
|---|---|
| **30 October 2026** | Early Registration Open including Abstract and Travel Grant Submission Open |
| **16 February 2027** | Abstract and Travel Grant Submission Close |
| **17 March 2027** | Notification of Abstract and Travel Grant Acceptance |
| **28 April 2027** | Early Registration Close |
| **29 April 2027** | General Registration Open |
| **May 2027** | IUGG 2027 Official Program Open |
| **8 July 2027** | General Registration Close |
| **16–22 July 2027** | IUGG 2027 Incheon |





# 3.3 Events and meetings 2026–2029

All future IAVCEI events can be found here.

## IAVCEI events 2026

*indicates IUGG financial support was granted for this event

**The record of normal and unusual volcanic-arc activity at the foot of the Andes**
***5–9 October, San Carlos de Bariloche, Patagonia, Argentina**
[Commission on Volcanogenic Sediments]

**International School on Drone and VR for Volcano-Tectonic Studies**
**6–10 October, Nicolosi, Italy**
[IAVCEI-sponsored]

**2nd Curso internacional de volcanología**
**12–24 October, Olot (La Garrotxa) – La Palma, Spain**
[Fundació d'Estudis Superiors d'Olot (FES), IAVCEI-supported]

**2nd Submarine Volcanism Workshop**
***19–23 October, Fira, Santorini Island, Greece**
[Commission on Submarine Volcanism]

**TEPHRA International School of Volcanology 2026**
**22–27 October, Naples, Italy**
[Italian Association of Volcanology, IAVCEI-sponsored]

**Enduring the Unrest, Facing the Eruption**
***27–29 October, Naples, Italy**
[Commission Cities and Volcanoes]

**2nd International Conference**
***2–5 November, Nevados de Chillan, Chile**
[Volcanic and Igneous Plumbing Systems commission]

**7th World Landslide Forum**
**23–27 November, Faridabad, India**
[IUGG International Consortium on Landslides]

## IAVCEI events 2027

**8th Volcano Geology workshop**
**7–13 March, Southern Kyushu (Kirishima and Sakurajima), Japan**
[Volcano Geology commission]

**29th General Assembly**
**16–22 July, Incheon, South Korea**
[IUGG]

**Volcano Observatory Best Practices 6 (VOBP6)**
**20–24 September, Nicolosi, Italy**
[WOVO Network]

## IAVCEI events 2028

**Cities on Volcanoes 14**
**14–19 May, Reykjavik, Iceland**
[Cities and Volcanoes commission]

## IAVCEI events 2029

**Scientific Assembly**
**1–6 July, San José, Costa Rica**
[IAVCEI]



Kalapana

SECTION 4. NEWS FROM MEMBERS

# 4.1 Obituary for Grant Heiken



Grant H. Heiken, prolific volcanologist and lunar geologist, died on Sunday, October 11th on Whidbey Island, WA, after a long battle with mesothelioma. He was exactly 84 years old, dying on his 84th birthday. Grant grew up in the central valley of California in the late 1950s, often likening his high school experience to the culture depicted in George Lucas' "American Graffiti" (Grant and George Lucas both grew up in the same Central Valley environment during the same period, a fact that always gave him a chuckle…). He received his B.S. from the University of California at Berkeley in 1964, his M.A. from the University of Texas, Austin in 1966 and his Ph.D. from the University of California, Santa Barbara in 1969, working under R.V. Fisher, mapping of the geology of the Fort Rock-Christmas Lake tuff rings in Oregon.

Grant joined NASA in the spring of 1969 as part of the team preparing for the Apollo 11 mission, and he was a critical science player throughout the Apollo era. In his 6 years with NASA, he worked on every post-mission Preliminary Examination Team, specializing in the study of the lunar regolith and its constituents. Among his many accomplishments, Grant was one of the first geologists to recognize (and name) agglutinates in the finest fraction of the regolith, helping develop an understanding of their process of formation and how they could be used to assess the maturity of a given sample of lunar regolith. In the early 1970s, he was the first volcanologist to place samples of volcanic ash in the SEM, discovering the power of SEM examination of pyroclasts to characterize eruption dynamics of some of the largest geological events that occur in nature.

In 1974, Grant left NASA to join Tom McGetchin in building a new geology group at Los Alamos National Laboratory, and he remained there until his retirement. His years at Los Alamos were extremely productive, studying the geology of large-scale volcanic events in the Jemez Mountains and throughout the world (ranging from New Mexico to northern California to Santorini to Vesuvius to Iceland), helping to characterize many volcanic processes, as well as advancing the use of volcanos as rich sources of thermal energy, and conducting fundamental research on volcanic hazards. Toward the end of his career, he turned his attention to research on the relationship between urban centres and geologic hazards. There were very few areas of volcanology and lunar geology that didn't benefit from Grant's efforts.

In addition to his scientific achievements, Grant was a "card carrying" epicure and who, along with Jody, his wife of 60+ years, was a gourmet chef who enjoyed preparing good food and sharing it with friends. He was widely read in history, culture, literature and languages, and he was a lover of music, particularly opera. He was a prolific writer who had not only authored or co-authored well over 100 scientific publications, but also 11 books on the Moon, geology and volcanology. Probably his most recognized work is the Lunar Sourcebook (Grant, Vaniman and French) in the late 1980s and which, more than 3 decades after its publication, remains the gold standard for information about the Moon.

In short, Grant was a gifted geologist whose hard work and prolific pen changed how we view many aspects of the Moon, volcanoes and how geology affects human life. If you have ever studied the lunar regolith, ever used an SEM to study a pyroclast, ever considered the sequence of events in the life of a large volcanic centre or ever worried about the effects of geologic events on large urban centres, you have benefited from his keen insights and vision. I suspect we will not see his like again soon, and he will be greatly missed.

**Dean Eppler**



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Sakurajima