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1. Note from the IUGS president Prof. John Ludden

November 2022 marks the end of our IUGS 60 celebrations. We certainly made an impact and the IUGS60 technical team will report on that in this newsletter. I attended the Earth Futures Festival in UNESCO, Paris (https://www.earthfuturesfestival.com/) which IUGS co-sponsored with UNESCO and others and the final awards were made in Sydney Australia, following this event and one in New York, USA.

In addition, I attended the very successful IUGS First 100 Geological Heritage Sites in Zumaia, Basque country (https://iugs-geoheritage.org/). The event was held in the Zumaia Geopark and was attended by more than 150 people from 43 countries. This was extremely well organised with very strong support from the town, local region and the Basque Country. The event also included new Stone Heritage designations and a discussion on Geocollections.

The Deep time Digital Earth DDE also carried out a global launch in UNESCO with the support of the UNESCO open data group and ISC Codata https://www.ddeworld.org/ It was a pleasure to meet many Chinese colleagues who managed to make it to Paris for the event.

IUGS60 https://iugs60.org/ with many of the IUGS commissions and working groups organised Earth Sciences week which coincided with the UNESCO International Geodiversity Day https://www.unesco.org/en/days/geodiversity

I would like the IUGS to focus on the Geoscience Solutions for Net Zero event that we held with strong support from ISC: Geosolutions for Net Zero- https://www.youtube.com/watch?v=AIfHJ0eZlvg. IUGS will be following up on this in 2023 with a plan to combine our efforts with those of other geounions, and together helping represent the geosciences at COP28 in Dubai. This COP will focus on technology.
IUGS is continuing to meet with new member countries who are interested in joining our geoscience family. Finally, I would like to thank all those involved in our events over the past year many of which are featured in this and past newsletters.

2. The First 100 IUGS Geological Heritage Sites

![Figure 1. The First 100 IUGS Geological Heritage sites concluding event.](image)

Zumaia (Basque Coast UNESCO Global Geopark), home of one of the most impressive stratigraphic outcrops on Earth, hosted The First 100 IUGS Geological Heritage Sites declaration ceremony. More than 200 specialists from almost 40 nations and ten international organisations, representing different disciplines of Earth Sciences, participated in the event.

To Know more open, the link below

3. IUGS Medals

Two IUGS medals were given at the 60th IUGS event in Zumaia on 26th October, 2022. Early career geoscientist medal was conferred upon Mónica Sánchez Roman
Emile Argand IUGS medal was conferred upon Thure Edward Cerling

To Enjoy pictures of the award ceremony, click the link below
https://www.flickr.com/photos/geoparkea/sets/72177720303227950/
4. Zumaia Declaration
IUGS-Zumaia declaration was read out on the last day of the IUGS-100 Geosites event in Zumaia. The IUGS Zumaia declaration is one of the important results of this project. This widely supported declaration shows the best spirit of collaboration among all geoscience community. This is our way to say here we are! We love our science! The knowledge about the Earth System is fundamental for our society. Download the declaration here. Help us spreading this document. Feel free to share it as you consider. The IUGS Zumaia Declaration - IUGS (iugs-geoheritage.org)

A Spanish version of IUGS Zumaia declaration is now available here, and a French version of this important text, courtesy of Nicolas Charles (French Geological Survey), will be available this weekend (next week at the latest). If you send us an adequate translation of the IUGS Zumaia declaration into your own language, we will be happy to upload it along with these already available versions. https://geoparkea.eus/eu/geoparkeari-buruz/proiektuak/iugs-globalgeosites/zumaia-declaration

5. Deep Digital Earth (DDE) Forum
The Deep-time Digital Earth program of the IUGS held a scientific update meeting in Paris on 7th November, associated with the UNESCO Open Science Forum. The meeting was held at the Maison de la Géologie in Paris, with around 50 attendees from around the world, and around 15 in-person presenters and 5 virtual presenters (DDE Meeting 7th Nov (iugs60.org)). This was the first large-scale DDE meeting since the 2019 Fragrant Hills Beijing meeting that kicked off the DDE program. The meeting was a great success with strong themes on data availability, internationalisation of DDE and education and outreach.
Perhaps the highlight was the virtual fieldwork DDE platform (DDE-Outcrop3D - the virtual geological 3D outcrops for the deep-time digital earth) which will no doubt be inspiring and exciting for scientists and students wanting to learn about and virtually visit some of the key geological outcrops of the world.

![Figure 3. Screenshot of the DDE virtual fieldwork platform](image)

![Figure 4. Panel members at the DDE scientific update meeting in Paris on 7th November](image)
6. News from International Commission on Stratigraphy
ICS special presentation
The rapid developments in data compilation and application may be leaving many of us behind as we concentrate, quite rightly, on our primary work of identifying and defining the GSSPs and associated chronostratigraphical divisions of the Geological Timescale. With this in mind the ICS has organised a special presentation for Commission members and others by our webmaster and computer scientist Nickolas Car. Nick has kindly offered to present the latest developments in the information science field and how these developments are being applied by him and colleagues using the Commission’s data. These exciting developments are taking our information in new directions, of which many of us might not be aware, so Nick’s talk will offer us the opportunity to become familiar with these applications, experiments and syntheses.

**Title:** The Internetian Age: a new Stage in the ICS’ information timeline.
The talk will be streamed live at 16:00 GMT 7 December 2022 on Zoom. It will last approximately 60 minutes, including time for questions. All are welcome to join the presentation. The talk will also be recorded for those who cannot attend the live stream.

**Invitation to a scheduled Zoom meeting.**

**Topic:** The Internetian Age
**Time:** Dec 7, 2022 04:00 PM Universal Time UTC
**Join Zoom Meeting**
https://us06web.zoom.us/j/82317925846?pwd=S1pXMW9yRkhGK0Z3VTmdUMzTmxndz09
Meeting ID: 823 1792 5846
Passcode: 011572
One tap mobile
+17207072699,,82317925846#,,,,*011572# US (Denver)
+12532158782,,82317925846#,,,,*011572# US (Tacoma)

7. IUGS@60 News
The IUGS Earth Sciences festival took place from the 4th-28th of October. Approximately a thousand people registered for the five core IUGS@60 online events. These live events included: the IUGS, mini Geodiversity Day Event called The Geodiversity of Time, Tales and Geothermal Reservoirs”:
[https://youtu.be/Jp_nbfgHjTs](https://youtu.be/Jp_nbfgHjTs), INHIGEO’s “The roots of a geological union for the future of the Earth”:
[https://youtu.be/DT5UEVwJ1o](https://youtu.be/DT5UEVwJ1o), CGGB’s “A Planetary Heath Check” (Part A:[https://youtu.be/1B1Qv1Qzg](https://youtu.be/1B1Qv1Qzg) and Part B: [https://youtu.be/pdDm80HBTZw](https://youtu.be/pdDm80HBTZw)). The ICS’s “Extinctions and the Stratigraphical Record” ([https://youtu.be/Tpl_duu_Fhs](https://youtu.be/Tpl_duu_Fhs)), IUGS’s flagship theme “Geosolutions for Net Zero”: [youtu.be/AlFHJ0eZlv](https://youtu.be/AlFHJ0eZlv), and Tecktask’s “Tectonics of the Dynamic Earth”: [https://www.youtube.com/watch?v=Ph-xc69ErwE](https://www.youtube.com/watch?v=Ph-xc69ErwE). We would like to thank all of the IUGS teams and guests who made these such wonderful events.
This year was launch of the first International Geodiversity Day and the IUGS had a noticeable presence in this space: https://iugs60.org/geodiversity/. Our offerings included interviews with the founders and IUGS’ president John Ludden, and focused mainly on the amazing work of the IUGS’s Geoheritages Stones Sub commission. Check out this special Geodiversity message from Associate Professor Gurmeet Kaur and Professor Benjamin van Wyk de Vries: https://youtu.be/HYL92khC89o, and members of the group talking about heritage stones such as the Connemara Marble, Deccan Basalts, Sardinian Pink Granite and many more: https://youtu.be/QHIAN-GSXR0.

The 2022 IUGS Earth Sciences festival finished in the IUGS First 100 sites in Zumaia with this also marking the finale of the IUGS@60 year of celebrations. We hope the IUGS has had a great 60th birthday year and hope this momentum for geoscience engagement can be sustained long into the future.

8. News from the IUGS Initiative on Forensic Geology (IFG)

5th IberoAmerican Congress on Forensic Geology, Bogota, Colombia

On 26-28 October 2022 the, '5th IberoAmerican Congress on Forensic Geology' took place in Bogota, Colombia. Delegates attended from; Argentina, Brazil, Chile, Colombia, Spain, Guatemala, Italy, England, Mexico and Portugal and include forensic geologists, archaeologist, anthropologists and medical and legal experts. IUGS-IFG co-hosted the event represented by; Dr Laurance Donnelly, Dr Carlos Molina, Dr Rosa Maria Di Maggio, Mr Marcelo Tortelero and Mr Matheus Pereira. The
event focused on the search for missing persons and homicide graves, in conjunction with victims' relatives.

https://sites.google.com/uan.edu.co/seminarioiberoamericanogf/english?authuser=0

**Geological Society of London Publications on Forensic Geology presented in Bogota, Colombia**

On 27 October 2022, Dr Laurance Donnelly formally presented Mr Carlos Molina two publications from the Geological Society of London; 'A Guide to Forensic Geology' and 'Special Publication on Forensic Geology and Soil Science'

**The Geo forensic Search Strategy Bogota, Colombia**

On 28 October 2022, at a remote and secure location to the south of Bogota, IUGS-IFG provided training on the Geo forensic Search Strategy. This included the design of a conceptual geological model, the evaluation of diggability and the choice of search assets. Demonstrated was the use of a search drone, probing (augering), geophysics (ground penetrating radar and electrical conductivity) followed by the forensic recovery of items at simulated graves containing clothes and animal remains.

**Illegal Mining and the Clean Gold Program, Colombian National Police and INTERPOL**

In 27 October 2022, IUGS-IFG was invited to the headquarters and forensic laboratories of the Colombian National Police and INTERPOL in Bogota. Dr Laurance Donnelly was invited to give a presentation on the Geo forensic Search Strategy, followed by an inspection of the forensic laboratories and facilities. Presentations were also given on the illegal mining of gold, coal and emeralds in Colombia. This follows the from Clean Gold Program held with the Brazilian Federal Police and INTERPOL at the National Institution of Criminalistics, in Brasilia and the IUGS-IFG Special Project on crimes in the mining, minerals and metals industries.

**UNODC's 6th International Conference on Governance, Crime and Justice Statistics**

On 10 November 2022, IUGS-IFG was invited by to take part in the, 'UNODC's 6th International Conference on Governance, Crime and Justice Statistics'. A presentation was given by Mr Ricardo Morales on data driven solutions to mitigate illegal mining in Latin America and the Clean Gold Program, using two of the largest environmental crime operations in Brazilian Federal Police's history as operational case examples. The event was virtually attended Dr Laurance Donnelly and Ms Jodi Webb.

https://www.youtube.com/watch?v=8CD0HikHFQQ

**CNN News Article on Illegal Mining and the Clean Gold Program**

A news item by CNN on illegal mining in South America and the Clean Gold Program can be found on the link below:


**6th IberoAmerican Congress on Forensic Geology, Chile**
The, '6th IberoAmerican Congress on Forensic Geology' will be held in Chile in 2024. Further details will follow when available.

**PhD Research to Commence, University of Sannio, Benevento, Italy**

Mr Marcelo Tortelero, has been accepted for a three years long PhD research project, at the University of Sannio, Benevento, Italy, commencing in 2023 with a focus on illegal mining.

**Forensic Geology and 'Geoscientist', The Magazine of the Geological Society of London**

'Geoscientist' published a news article on illegal mining and the Clean Gold Program. 

**Forensic Geology Web Site Mergers**

The IUGS-IFG web site and the IUGS-IFG Student Chapters web sites will merge in 2023 and one web site will be produced on forensic geology. Further details will be provided when available.

https://geoforense.com/student-chapters/
https://www.qub.ac.uk/sites/iugs/
https://geoforense.com/2022/04/isotopos-como-ferramentas-para-resolucao-de-crimes/

**Professional opportunists and guidance in forensic geology**

Professional opportunities for students to enter the forensic geoscientist career can be found in the link below:
https://geoforense.com/estagios/

**Training at University of Naples Federico II, Italy**

From 13-15 October 2022, the Officer for Europe of the IUGS-IFG, participated as a teacher and trainer in the Masters in Forensic Veterinary Science, at the University of Naples Federico II. During the three days of field and laboratory training, various specialties were disclosed to support the search and recovery of buried animal cadavers such as analysis of the territory through remote sensing, field reconnaissance surveys, entomology, botany, pedology and geology, search and recovery of buried animal remains and autopsy analysis of the recovered bodies. The participants recognized and appreciated the great importance of forensic geology as a valid support also for crimes against animals and wildlife.

**Forensic Geology in Japan**

On 4-6 September 2022, IUGS-IFG was represented at the 129th Annual Meeting of the Geological Society of Japan (JGS) held at Waseda University in Tokyo, Japan. The Forensic Geology Committee of the JGS had a luncheon seminar on the 2nd day, where future research projects and meeting in forensic geology were discussed and planned.
Soil forensics in Arabic language

Information on a forensic soil science book, written by an Iraqi soil scientist can be found on the link below:
https://books.google.ae/books?id=CS0TEAAQBAJ&pg=PA34&source=gbs_selected_pages&cad=2#v=onepage&q&f=false

Responding to Illegal mining and trafficking in metals and minerals

On 19 October 2022, IUGS-IFG participated in an online meeting on the Illegal mining and trafficking in metals and minerals, with a focus on Africa and South America. The IUGS-IFG 'Special Project' was mentioned during a presentation given by the IUGS-IFG Officer for Minerals, Mining and Metals Crime.

Illicit Financial Flows in Artisanal and Small-Scale Gold Mining

A report is available that focusses on small-scale and artisanal mining in conflict areas, with recommendations for policy-makers in Burkina Faso, Mali, and Niger. This includes regional and national governance, illicit financial flows and the links between artisanal gold mining conflicts and crime.

UNODC Framework on illegal Mining and Precious Metals

Information from the United Nations Office on Drugs and Crime (UNODC) on illegal mining and the illicit trafficking in precious metals can be found on the links below.

UNODC Illegal Mining and Trafficking in Metals and Minerals

A guide to good legislative practices has been made available, associated with crimes that impact on the environment, people and communities. This includes surface and underground mining that can often take place in

Figure 6. Source (see web site links provided opposite)
environmentally and protected sites of natural or historical value.


9. News from INHIGEO Anniversaries

“Earthquake” 200 years ago by Martina Kölbl-Ebert (Germany)

Title: Maria Graham Observed Orogeny in 1822

In November 1822, Maria Graham witnessed a devastating earthquake on the Chilean coast. Her description of the earthquake and of vertical movements of the land as a consequence of the earthquake were considered so important, that they found their way into the Transactions of the Geological Society of London as the first publication by a woman in that journal. It provoked a heated debate about "elevation" of mountain chains.

Figure 7. Maria Callcott, painted by her second husband, Augustus Callcott (Image: Public Domain – USA).

Bailey Willis in Patagonia 110 years ago by Author: Alberto Riccardi (Argentina)

Title: The Role of Bailey Willis (1857-1949) in the Development of Northern Patagonia

Bailey Willis was born in 1857 in New York City and died in Palo Alto, California in 1949. He earned degrees as a Mining Engineer and Civil Engineer from Columbia University. He worked as a geologist in the "Northern Pacific Railroad" and the US Geological Survey and taught geology at Johns Hopkins, Chicago and Stanford Universities. He specialized in structural geology and seismology.
Important surveys were carried out in relation to applied geology in northern Patagonia, central to the project works developed by Bailey Willis in the area during 1911–1913.

**Figure 8.** Bailey Willis with his dog “Feo” (c. 1912) (Museo de la Patagonia Dr. Francisco P. Moreno Archives, San Carlos de Bariloche)

To now more open the link below:
[http://www.inhigeo.com/anniversaries.html](http://www.inhigeo.com/anniversaries.html)
[https://www.iugs.org/](https://www.iugs.org/)

**10. News from the Commission on Global Geochemical Baselines**

The IUGS Commission on Global Geochemical Baselines organised the Joint Annual Meeting together with the Geochemistry Expert Group of EuroGeoSurveys and the Geochemistry Group of ASGMI (Ibero-American Association of Geological and Mining Surveys).

The three-day physical meeting (13-15 October 2022) was hosted by the Hellenic Survey of Geology and Mineral Exploration and a total of 33 participants from Europe, China and Iran attended in person. The venue was the historical reception hall of the Meropion Philanthropic Foundation, near the Acropolis and Odeon of Herodes Atticus (Athens, Hellenic Republic).

The first day was focused on the activities carried out by the participating groups and future joint collaborations (publications, session proposals to congresses and meetings in 2023). Various anniversaries of the 60th Anniversary of IUGS, the 25th Anniversary of the Commission under the auspices of IUGS, and the 25th Anniversary of the FOREGS Geochemical Atlas of Europe ([http://weppi.gtk.fi/publ/foregsatlas/-](http://weppi.gtk.fi/publ/foregsatlas/-)) were celebrated with praising presentations.

The second day was devoted to presentations of geochemical studies carried out by the geological surveys (Sweden, Finland, Norway, Ireland, United Kingdom, France, Italy, Spain, Portugal, Poland, Denmark,
Hellenic Republic, and The Netherlands) and associated partners from the universities in Italy and the Hellenic Republic.

Figure 9. On the third day an excursion to the Lavreotiki peninsula was organised, with a visit to the ancient lead, zinc and silver mines, 6th to 4th century BC ore beneficiation plants and the 19th to 20th century smelter.

11. News from International Lithosphere Program (ILP) by Qin Wang, Executive Secretary, ILP

ILP promotes its Evgueni Burov Medal for mid-career scientists. In appreciation of Evgueni Burov - an enthusiastic researcher, scientist, teacher and contributor to ILP. This medal is awarded annually to honour praiseworthy mid-career achievements in lithosphere research. The medal shall promote high-class science in combination with community services.

The committee, deciding on the submitted proposals, will be headed by the ILP President, Hans Thybo (Istanbul Technical University, Turkey), and will consist of six to seven panel members including a former medalist, all to be selected after proposal submission.

Deadline: Nominations must include a Nomination Letter, CV with publication metrics, a list of references as well as 3-5 supporting letters (maximum one page each) in one single pdf file. They must be received by the ILP Secretariat (ilp@nju.edu.cn) by electronic mail before 15th January 2023, midnight. Please read the Terms of references carefully.

Celebration: The Evgueni Burov Medallist will be honored with a dedicated event during the EGU General Assembly 2023 in Vienna.

To know more, open the link below:
12. News from IGCP-746
IGCP-746 activities. Seminar: Looking for raw materials: from meteorites to other planets, other than Earth.

In 1984, IUGS approved the new Commission on Comparative Planetology. It was clear at the time that the Earth should go global and other planets should be researched. The Commission ended the activities in 2000, but now more than ever it is clear that other planets can be our allies in the search of natural resources. For this reason, the IGCP-746 has started to expand its main objective of studying natural resources on Earth and is looking for strategies to obtain critical raw materials in other planets and also the Moon, revisiting the ethical matters related to that.

This November, Dr. Martínez Frías gave a seminar to students and staff at the University of Salamanca in the context of the IGCP-746. Dr Martínez Frías, being an expert in this subject, explained to a forum of more than twenty people, including ERASMUS students and International students, how to think of exploring other planets for economic reason is not science fiction.

Figure 10. Dr Martínez Frías giving a seminar on Planets and Raw Materials at the University of Salamanca. Picture by Rosalda Punturo. Figure 11. Participants of the seminars. Picture by Lola Pereira

For more information on the IGCP-746 you can visit: https://diarium.usal.es/mdp/unesco-igcp-746/

We will be happy to include more participants in the team to share our interests in Raw Materials and Society. If you have an interest, contact the leader of the IGCP-746 Lola Pereira at mdp@usal.es

IGCP-746 at the meeting of the Italian Geological Society in Turin

The Italian Geological Society (SGI) and the Italian Society of Mineralogy and Petrology (SIMP) organized a joint meeting entitled Geosciences for a sustainable future. The meeting took place in Turin from the 19th to 21th of September 2022. Several participants of the UNESCO IGCP-746 attended this meeting and presented communication of Raw Materials, Geology and Society, Geoparks to disseminate Science and Heritage Stones, which are main subjects of the IGCP.
The abstracts of our communications can be found at the abstracts book of the congress: 
UNESCO funded the participation of several researchers, two of them coming from Cape Verde (Africa), one from Romania and two from Spain. Four of the funded researchers are female and one of them is a young researcher. Some other participants were covered by their own funding and some by the ERASMUS+ SUGERE.
The funded participants covered the gender and geography diversity that are mandatory in our IGCP. During the congress, several IGCP gatherings took place at different levels and the activities for next year were also planned.

Figure 12. Presentations at the meeting. Picture taken by Jose A. Sánchez Fabián. Figure 13. IGCP-746 participants visiting Turin. Picture taken by Valentina Cetean.

For more information on the IGCP-746 you can visit: https://diarium.usal.es/unesco-igcp-746/
We will be happy to include more participants in the team to share our interests in Raw Materials and Society. If you have an interest, contact the leader of the IGCP-746 Lola Pereira at mdp@usal.es

13. USAL4Excellence, Second edition of the programme under Marie Skłodowska-Curie CoFund actions
The “University of Salamanca Programme to Foster Research Excellence” (USAL4EXCELLENCE) is an initiative of the University of Salamanca (USAL) funded by the Horizon 2020 Programme under MSCACOFUND actions. The overall objective of fellowships will be to recognize the brightest ideas and bring brilliant minds together.
USAL4EXCELLENCE will provide fellows with training and networking opportunities that will enhance their career development and leadership potential. Professor Lola Pereira, member of the IUGS community, will be supervisor of selected candidates under the research lines of Raw Materials, Science and Society, Natural Stones and Architectural Heritage or any other research lines under her expertise: https://diarium.usal.es/mdp/.
The IUGS community is encouraged to apply for this prestigious grant. Full information on the programme and conditions can be found at:
(Web) https://usal4excellence.usal.es/
(Youtube) https://youtu.be/9aj0lD2ST6U
(Twitter) https://twitter.com/usal/status/1580820268955553792?s=20&t=qY0ltrcZPT9onzHy7d
BAQ

For the IUGS website: A one-page concise text (up to about 500 words), if possible providing a web-link (e.g. to an IUGS activity website).
Each contribution to the IUGS e-Bulletin, website and/or social media should be marked as to which target medium or media it should be published in. Each contribution should be sent, at the same time, to the following addresses:
gurmeet28374@gmail.com  (e-Bulletin Editor-in-Chief)
giuseppe.dicapua@ingv.it  (Webmaster)
gurmeet28374@gmail.com  (Social Media Manager)

Time Frame for submissions to the e-Bulletin:
1. IUGS sends a reminder to leaders of activities in the last week of each month;
2. Contributions should be provided by the 16th day of every month.
3. IUGS will evaluate all submitted items in terms of urgency and will allocate these to the next monthly issue or a later issue and will also check that these comply with IUGS policy for publications and ethics;
4. The IUGS Publications Committee Team will aim to compile monthly e-Bulletin by the 25th day of the month and send it to the IUGS Secretariat;
5. The IUGS Secretariat will dispatch the e-Bulletin to the IUGS Community on, or before, the last day of each month;

This time frame may vary due to public holidays that affect the e-Bulletin Team and IUGS Secretariat such as Christmas and Chinese New Year.

NOTES
• Please check the IUGS Calendar of Events for upcoming scientific meetings. If you require information on international conferences, meetings, etc. to be considered for inclusion in this Calendar please mail to: giuseppe.dicapua@ingv.it

• To be added to or removed from the IUGS e-Bulletin distribution list, please mail to: iugs.beijing@gmail.com or secretariat@iugs.org.

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• Check the IUGS website: http://www.iugs.org/

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