



International GeoScience Education Organisation

April 2019 Newsletter

<http://www.igeosced.org/>



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2019 European Geoscience Union General Assembly and GIFT Workshop

This year's GIFT (Geoscience Information For Teachers) at the European Geoscience Union (EGU) General Meeting in Vienna focused on "Plate Tectonics and Earth's Structure Yesterday, Today, and Tomorrow." Approximately 80 teachers from 30 countries gathered for 2-1/2 days of talks from leading researchers in the field and sharing geoscience education programs in their home countries.

Each year, GIFT participants meet on Sunday afternoon at the elephant statue in front of the National Museum of Natural History for a special guided tour of the collections. Herbert Summesberger and colleagues provide insights about the exhibits before leading the group out onto the roof for spectacular views of Vienna.

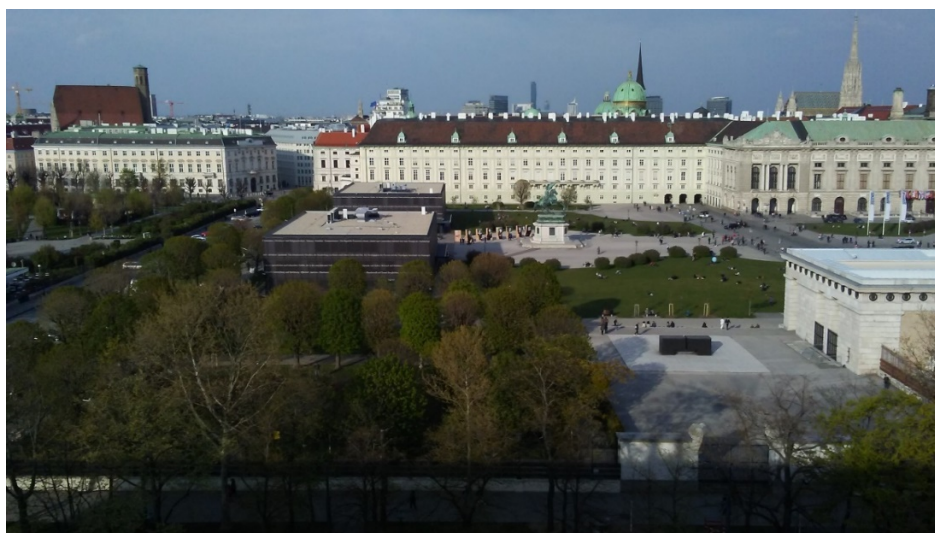


Fig. 1. Vienna from the roof of the National Museum of Natural History during GIFT visit

The opening speaker was Xavier Le Pichon (Collège de France, Paris), co-author on some of the earliest and most influential papers laying out the theory of Plate Tectonics. He reflected on “Fifty Years of Plate Tectonics: Afterthoughts of a Witness.” Participants were enthralled to hear details of the interactions that led to development of one of the most important theories in the geosciences, glimpses of the people behind it, and what Dr. Le Pichon has been doing in the half-century since that paper was published. His presentation and others from this workshop are available at <https://www.egu.eu/education/gift/workshops/27/egu-general-assembly-2019-gift-workshop/>. Videos of the presentations will appear there shortly.

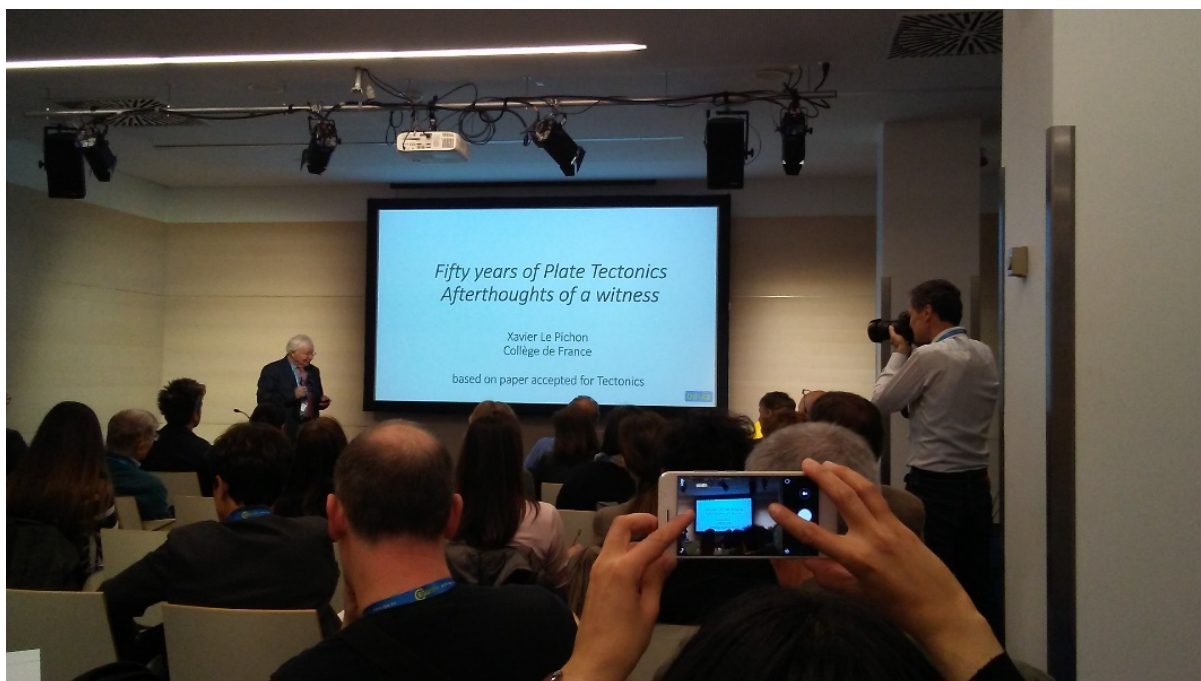


Fig. 2. Dr. Xavier Le Pichon EGU GIFT 2019

Carlo Laj (Ecole Normale Supérieure, Paris, and member of the EGU Committee on Education) followed with a presentation about “Magnetic Anomalies over Oceanic Ridges.” This was a tribute to Frederic Vine, another pioneering geologist whose research formed the basis for the plate tectonic theory, but was unable to accept the invitation to attend in person. The review of the development of plate tectonics concluded with “Plate Tectonics: A Geological Perspective” by Onno Oncken GFZ, Potsdam, Germany).

In the second part of this GIFT workshop, participants learned about modern perspectives on plate tectonics through talks about “Imagining the Deep Earth” (Barbara Romanowicz, Collège de France, Paris, and University of California, Berkeley, USA); “Overview on Seafloor Spreading” (Mathilde Cannat, CNRS-Institut de Physique du Globe de Paris, France); “Plate Tectonics: The Origin of Earthquakes in and around stable plates”; (Christophe Vigny, Ecole Normale Supérieure/CNRS, Paris);

“Scientix and Europeana: Online Resources to Teach Earth Sciences” (Teresita Gravina, EGU Committee on Education) ; “Plate Tectonics and Earthquakes” (Jean-Philippe Avouac, Cal Technology, Pasadena, California); and “Plate Tectonics: Linking Surface Geology to Earth’s Deep Interior” (Clinton P. Conrad, University of Oslo, Norway).



Fig. 3. 2019 GIFT participants and presenter

The final day focused on applications of plate tectonics and imaging future movements. Gilles Ramstein (CEA-LSCE, GIF-SUR-YVETTE, FRANCE) discussed “Plate Tectonics and Climate”; Akis Panagis (Structural Department of Rion Antirion Bridge, Patras, Greece) described cooperation between scientists and engineers design what they hope will be an earthquake resistant structure in “Bridging the Rift: Earthquake Design of the Rion Antirion Bridge”. Francesco Sarti (ESA, Frascati, Italy) shared insights in the “Use of Satellite Data for Plate Tectonics Applications”. Finally, Nicolas Coltice (Ecole Normale Supérieure, Paris, France) provided predictions about “Some Shapes of Plate Tectonics to Come”.

Interspersed among the talks were hands-on activities to help participants develop lessons to teach key concepts. These were led by Jean-Luc Berenguer, Chris King, and Stephen Macko, members of the EGU Committee on Education. Berenguer and King are IGEO Officers. Included among the teacher participants were the four newly-appointed EGU Geoscience Education Field Officers from France, Italy, Portugal and Spain. They were joined by two new IGEO/IUGS Field Officers from India and Morocco (See article on p. 8). IGEO took advantage of the opportunity to gather these outreach leaders for training in the days before the EGU officially began.



Fig. 4. GIFT teachers learning during a hands-on session. (Cr. Jean-Luc Berenguer)

On Tuesday afternoon, each participant presented a poster about selected aspects of geoscience education in their home schools and countries. For many, this was the first time they had ever taken part in an international science conference or had an opportunity to describe what they have been doing with their students to a wider audience. The interactions with colleagues made through GIFT workshops sometimes continue long after the meeting ends. (Image on the first page shows Helder Pereira of Portugal with Cheryl Manning of the USA during the poster session.)

You can find pdf brochures and slideshows of many presentations given at the past 13 years of GIFT workshops at <http://www.egu.eu/education/gift/workshops>. Since 2009, the EGU Committee on Educations has also posted web-TV presentations. These can be freely downloaded and used in your classrooms. Additional information about EGU educational activities is available at <http://www.egu.eu/education>.

Outside the GIFT workshop rooms, the rest of the 2019 EGU General Assembly ran with its usual combination of precise and overwhelming experiences. This year's meeting included 5,531 oral, 9,432 poster, and 1,287 PICO presentations attended by 16,273 scientists from 113 countries. "PICO" stands for

“Presenting Interactive Content” and is a blend of an oral talk and poster. A PICO session opens with 2-minute introductions by each presenter. Then attendees spread out to nearby screens to chat with the presenters. The touch screens allow rapid shifting to selected slides of interest in the discussion.

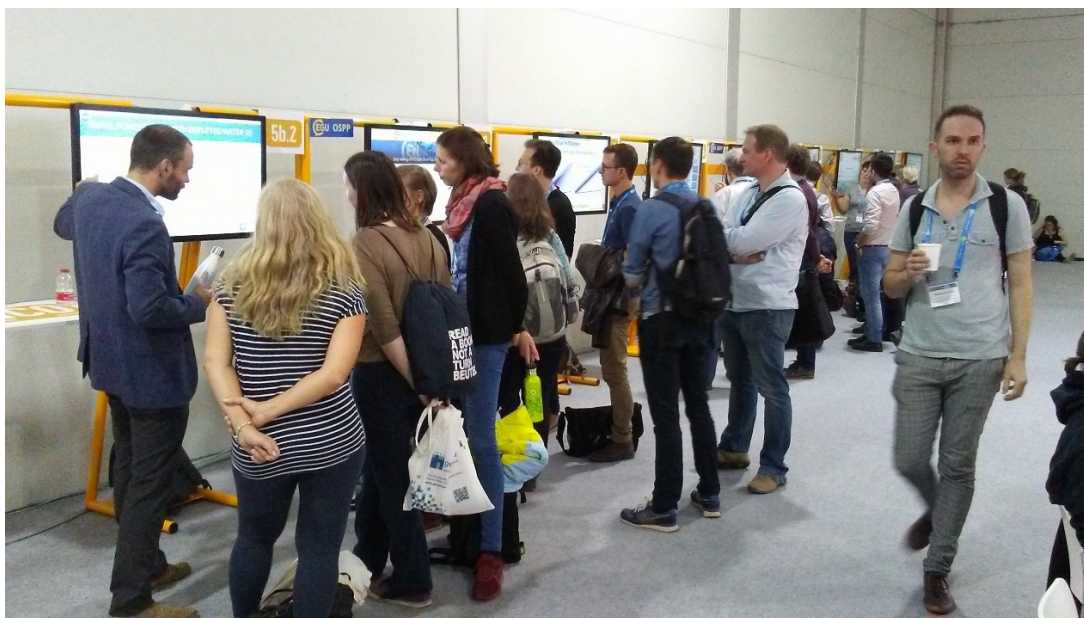


Fig. 5. PICO (“Presenting Interactive Content” session

Selected 2019 EGU sessions that may be of [special interest to readers](#) include “Union Sessions” on topics such as “Past and future tipping points and large climate transitions in Earth history” and “Promoting and supporting equality of opportunities in geosciences.” This year’s “Great Debates” examined questions such as “Science in Policymaking: Who is Responsible?” and “Rewards and Recognition in Science: What Value Should We Place on Contributions that Cannot Be Easily Measured?”

The Science & Society sessions considered several pressing issues. One was “Plastics in the Hydrosphere: An urgent problem requiring global action.” In addition to conference presentations, this issue was the focus of a recent EGU blog about [microplastics found on the surface of glaciers in the Alps](#). Another session brought a former Italian Prime Minister and a current European Commissioner to discuss [interactions between scientists, politics, and ‘European \(dis\)integration.’](#) The EGU recently produced a statement calling for more cooperation among scientists from different nations with fewer barriers to collaboration and cooperation.

The EGU provides significant venues for sharing important scientific advances and concerns. Examples from the 2019 conference include concerns about [disappearing glaciers in the Alps](#); impacts from changing climates; managing variations in hydrological and mineral resources; and dealing with natural hazards. You can search for abstracts, slideshows, videos, and other resources of personal interest at <https://www.egu2019.eu/>.

EGU’s General Assembly also provides a venue for commercial business and international organizations to share what they provide with thousands of attendees in the Exhibit Hall. GIFT attendees toured the exhibits, with special presentations about educational opportunities available from [ECORD](#)

([European Consortium for Ocean Research Drilling](#)). Berenguer (France) and Helder Pereira (Portugal) shared personal experiences with fellow GIFT participants.



Fig. 6. EGU 2019 Exhibit Hall

Next year's EGU meeting will return to Vienna in early May. We will post information about how teachers can apply to attend the 2020 GIFT Workshops in a future Newsletter.

Join us at the 2019 IUGG in Montréal for the first-ever IUGG Womxn's Networking Event!

Friday July 12, 7-9pm @ Les 3 Brasseurs, 103 St-Paul Est, Montréal.

RSVP here: <https://forms.gle/EJB38Ws2F92LorWZ8>

The goal of this event is to foster relationships and solidarity among womxn members of IUGG (womxn is a term that includes cis and trans women).

Many of the womxn who attend the IUGG conference are the only womxn in their research group -- so conferences/workshops are critical times for them to connect with other womxn in their field. This networking event aims to strengthen the community of womxn scientists in IUGG and provide a welcoming place for womxn to network with each other at the conference. Appetizers and ample time for meeting each other will be provided. The event will also include an acknowledgement of our sponsors and a discussion of next steps to support and build community among womxn geophysicists.

The Earth Science Women's Network is co-sponsoring this event. Other co-sponsors for this event include ExxonMobil, the Cooperative Institute for Research in Environmental Sciences (CIRES), GFZ Potsdam, Green Geophysics, and Lamont-Doherty Earth Observatory.

Initial Training of IGEO/IUGS Field Officers Submitted by Chris King

Two International Union of Geological Sciences/International Geoscience Education Organisation (IUGS/IGEO) Field Officers have been appointed and trained alongside four new European Geosciences Union (EGU) Field Officers. Yamina Bourgeoini in Morocco and Baskar in India, together with the EGU Field Officers based in France, Italy, Portugal and Spain, will now be offering workshops in their own countries to train school teachers and geopark volunteers in interactive geoscience teaching strategies. All the Field Officers are unpaid, but the training and kit expenses for the IUGS/IGEO Field Officers has been covered by IUGS.



Ramanathan Baskar



Yamina Bourgeoini



The training took place in the build-up to the EGU General Assembly in Vienna in April this year. The six field officers were trained to offer teaching workshops originally devised by the Earth Science Education Unit (ESEU). These have been used to train nearly 40,000 teachers of science, geography and primary children in the UK. The workshops received highly positive evaluation feedback, whilst research has shown that they have a real impact on teaching in schools.

The selected workshops focus on:

- Exploring rocks, soils, water, fossils and the active Earth for primary (elementary) teachers
- Rock identification and using the school environment for primary (elementary) and secondary (high school) teachers

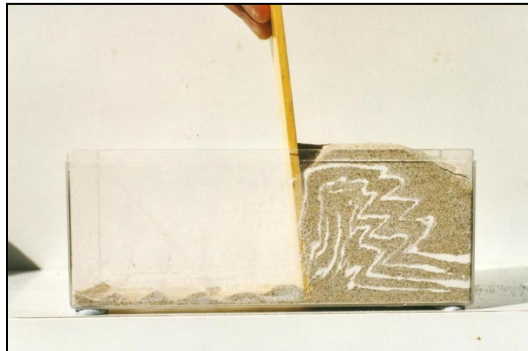
- The rock cycle, plate tectonics and the structure of the Earth, and teaching Earth processes for secondary (high school) teachers of science and geography
- The training of informal geoscience educators in geoparks

One example is the “Dynamic Rock Cycle” workshop, which includes the following phases:

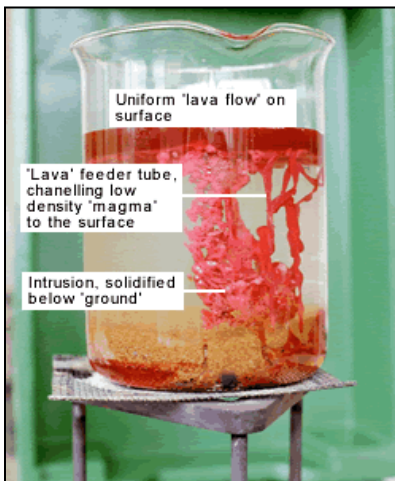
- A ‘starter’ activity of inviting participants to place rock and sediment samples and photographs in the correct positions on a rock cycle diagram
- A review of the ‘starter’ to reinforce the correct positioning the rock cycle products
- Introduction to the different surface and deep Earth processes that produce all these products
- Exploration of a range of hands-on practical teaching activities to teach about: weathering, erosion, transportation and deposition, compaction and cementation, metamorphism, crystallisation, extrusion and deformation
- Plenary activities to draw all the practical activities together whilst consolidating learning

The workshop uses two hours of interactive teaching, presentation, discussion and conclusion. It has been shown by research that, when teachers return to their schools, they change their schemes of work and so their teaching in the light of this workshop. Not many educational initiatives can demonstrate impact on teaching in this way.

For information on the availability of the new Field Officers, contact: chris@earthlearningidea.com



The deformation of sand and flour layers in a small plastic box



The results of a ‘wax volcano’ ‘eruption’, showing ‘intrusions’ and ‘lava flows’



International Geoscience
Education Organisation
Latinoamérica



Submitted by Sandra Villacorta

The Latin America chapter of the IGEO (LAIGEO) was organized at the VIII International Conference in Campinas, Brazil, last July. The objective of LAIGEO is to strengthen the regional objectives of the IGEO, particularly the improvement of Geoscience education in schools in Latin America and the wider dissemination in general society.

Members of the current LAIGEO committee are: Ana María Clerici (Paraguay, General Coordination); Sandra Villacorta (Peru, General Secretary); María Jesús Bravo (Chile, Coordination of Planning); Diego Arias (Argentina, Coordination of Press and Dissemination); Rita Rodríguez (Panama, Coordination of Communication and image-social networks).

Since last summer's meeting, the officers have begun to organize activities and established the website <https://laigeo.cloudaccess.host/> (Webmaster: dariasregalia@ccpems.exactas.uba.ar). National delegations have shared information about advances their countries, including enrollment of other professionals for active participation in IGEO and organizing national Geoscience olympiads for students. Members also participated in the [10th Latin American Conference on Science Education \(X CIEDUC\)](#) in Montevideo, Uruguay.

Additional recent and upcoming activities sponsored by LAIGEO include:

* 3rd roundtable about Geoethics in Peru

The changing Geoscience curriculum in Peruvian Schools --Prof. Carlos Toledo, Peruvian member of LAIGEO)

*Conference for Day of Geotourism

Coordinated by the University of Asunción with the municipalities and the Secretary of Tourism from Paraguay.



* Short course "History of Geological Landscapes"

Training course by Hector Lacreu, Argentinian member of LAIGEO (Post-graduate Department of San Luis University, Argentina)

CURSO DE POSGRADO "HISTORIA DE LOS PAISAJES GEOLÓGICOS"

**Unidad de Posgrado
de la Universidad de San Luis (Argentina)**

23 horas presenciales y siete (7) no presenciales

Coordinador General:
Dr. Héctor L. Lacreu (lacreu@gmail.com)

Abril, 2019 (05, 12, 26, 27 field trip)

Modalidad: Presencial



Auspicia:



* "1st Meeting of Women in Science and Technology".

Directed especially to girls and young people with a scientific vocation.

Held at Andrés Bello University, Concepción, Chile)

* "1st Workshop - Geotour about Geosciences in Paraguay"

Directed especially to university students, teachers, and lecturers.

Held at Asunción University, San Lorenzo, Paraguay. 19-23 August

Information and Registration at LAIGEO Facebook page



* MinerLima2019

The 5th International Mineral Exhibition of Lima (MinerLima2019) will be hosted by the Geological, Mining, Metallurgical and Geographical Engineering faculty from National University of San Marcos (UNMSM, San Miguel District, Lima, Peru) during 9 – 13 September. It spotlights the mineralogical heritage of Peru through a rock and mineral exhibition, short courses, conferences, workshops for children and the public, geological excursions and more events.

The motto of MinerLima2019 is: "Knowing our wealth through minerals", and aims to highlight the importance of Geosciences (especially Mineralogy). MinerLima2019 is organized by the Peruvian Section of the IAPG (International Association for Promoting Geoethics), in association with UNMSM, LAIGEO and other national and international institutions.

Convenership: Ciro Bedia, Carlos Toledo, Emilio Lacho and Daniel Peña (IAPG-Peru).

Information and Registration at <https://web.facebook.com/feriainternacionalmineraleslima/>

E-mail: iapg.peru@gmail.com; iapg.minerlima@gmail.com

The LAIGEO has also opened a variety of social media accounts to connect with members and potential members. You can find out more through:

Web: <https://laigeo.cloudaccess.host/>

Contact: igeo.latin@gmail.com

Facebook page: <https://www.facebook.com/igeolatinoamerica/> (@igeolatinoamerica)

LinkedIn Group: <https://www.linkedin.com/groups/10396771/>

Twitter account: @LAIGEO1

Instagram account: southamericanchapter

(https://instagram.com/southamericanchapter?utm_source=ig_profile_share&igshid=156xbv2030ndb)

GEOLOGICAL SURVEY OF INDIA PROPOSES INTRODUCTION TO SCHOOL GEOLOGY COURSE TO 'CATCH THEM YOUNG AND ATTRACT TALENT'

Ramanathan Baskar, Guru Jambheshwar University, Hisar, Haryana, India

The Geological Survey of India (GSI) is a Government of India organization and the second-oldest Earth Science organization in the world. Established in 1851, the GSI has contributed toward nation building through its activities in Earth Science research. For the first time the GSI is taking initiatives regarding educational reforms in schools to attract the best talent in the profession.

“Geology” *per se* has not received proper recognition in the school system in India. The GSI is seeking to change this by preparing a Base Document advocating the inclusion of Geology in the secondary and higher secondary (Class VIII – XII, roughly ages 13 – 18) syllabus in all educational boards across the country. At present, some Earth Science topics are included within Geology, but the subject does not receive nationwide recognition. For example, Geology is taught on a par with physics, chemistry, and biology in States as Assam, Maharashtra, Jharkhand, and Andhra Pradesh. It is allowed as an optional subject in Rajasthan. But its introduction is still awaited at the secondary and higher secondary level in CBSE, ICSE, and State Board schools

Under the leadership of Dr. Dinesh Gupta, Director General of the GSI, the Base Document proposes that “Geography” at the secondary level (VIII – X) be renamed “Geography and Geology.” Instead of a single book on Geography, there would be a two-part program with Geography followed by Geology. As such, it would be similar to how History and Civics are currently taught. Another recommendation is that at the higher secondary levels (XI – XII), Geology will be a major option/combination subjects along with Physics, Chemistry, Biology, and Mathematics. If these initiatives are successful, a major programme of teacher training and support will be necessary.

Geology is offered as a distinct subject in some Indian universities. Introducing Geology at the school level will bring it to par with other sciences and enhance the possibility of attracting more majors.

With the Indian population explosion, acute shortage of natural resources, climate change, and the Sustainable Development Goals to be met, it is essential to sensitize and educate school students about the Earth and the need for sustainable development. India is richly blessed with diverse geological settings and bountiful geological resources, so it could be a natural laboratory for any geologist. It is hoped that the policy makers will take appropriate action and that this story will inspire other geological organization around the world to take similar initiatives in their countries.

Images from recent teacher training workshops in India



Chris King guiding the participants through an inquiry-based learning activity.



Nir Orion responding to participants' enquiries in the field.



Some of the Goa Workshop participants narrating the Rock Cycle story.



At the Valedictory function after the Bengaluru Workshop.
(L-R: Dr S G S Swamy, Dr Mohan Kumar, Prof Chris King, Prof Nir Orion, Prof R Shankar and Dr M Prithviraj).

GEOLODIAS (GEOLODAYS) from the SPANISH GEOLOGICAL SOCIETY

XAVIER JUAN

Vice-President of AEPECT (Spanish Earth Science Teachers Association)

Each year in May, the Spanish Geological Society supported by AEPECT organizes a massive event every called "Geolodías" (Geolodays in English). Organizers offer about 50 geological activities, spread across the country. These are designed to enhance public understanding of Earth sciences. They are open and free. Activities are led by hundreds of volunteers and attract thousands of participants.

More information is available at <https://geolodia.es/> (Note: Only In Spanish)

geología 19
Valencia

Domingo 12 de mayo 2019

**La montaña que no era tal:
El cañón del Júcar y la Muela de
Cortes de Pallás**

EXCURSIÓN GRATUITA

PUNTO DE ENCUENTRO Y HORA:
PLAZA DE LA IGLESIA, CORTES DE PALLÁS.
9:00 – 11:30

Inscripción obligatoria. Información detallada del lugar
de encuentro y folleto de la excursión en:
<https://geolodia.es/>
www.aventurasgeologicas.com

COORDINAN:

ORGANIZAN:

Con el patrocinio de

**Ayuntamiento de
Cortes de Pallás**



IGEO Guidelines for the Financial Support of Activities

1. What will be supported?

The aims of the International Geoscience Education Organisation (IGEO) are to promote geoscience education internationally at all levels, to work for enhancement of the quality of geoscience education internationally and to encourage developments raising public awareness of geoscience, particularly amongst younger people.

To meet these aims, the IGEO monitors international provision of geoscience education and fosters communications between geoscience educators worldwide. It liaises with international and national bodies concerned with geoscience education, with international professional geoscience bodies, such as the International Union of Geological Sciences (of which it is an affiliate) and with international bodies concerned with science education.

Activities in line with our aims, namely:

The priority list, therefore, is:

Top

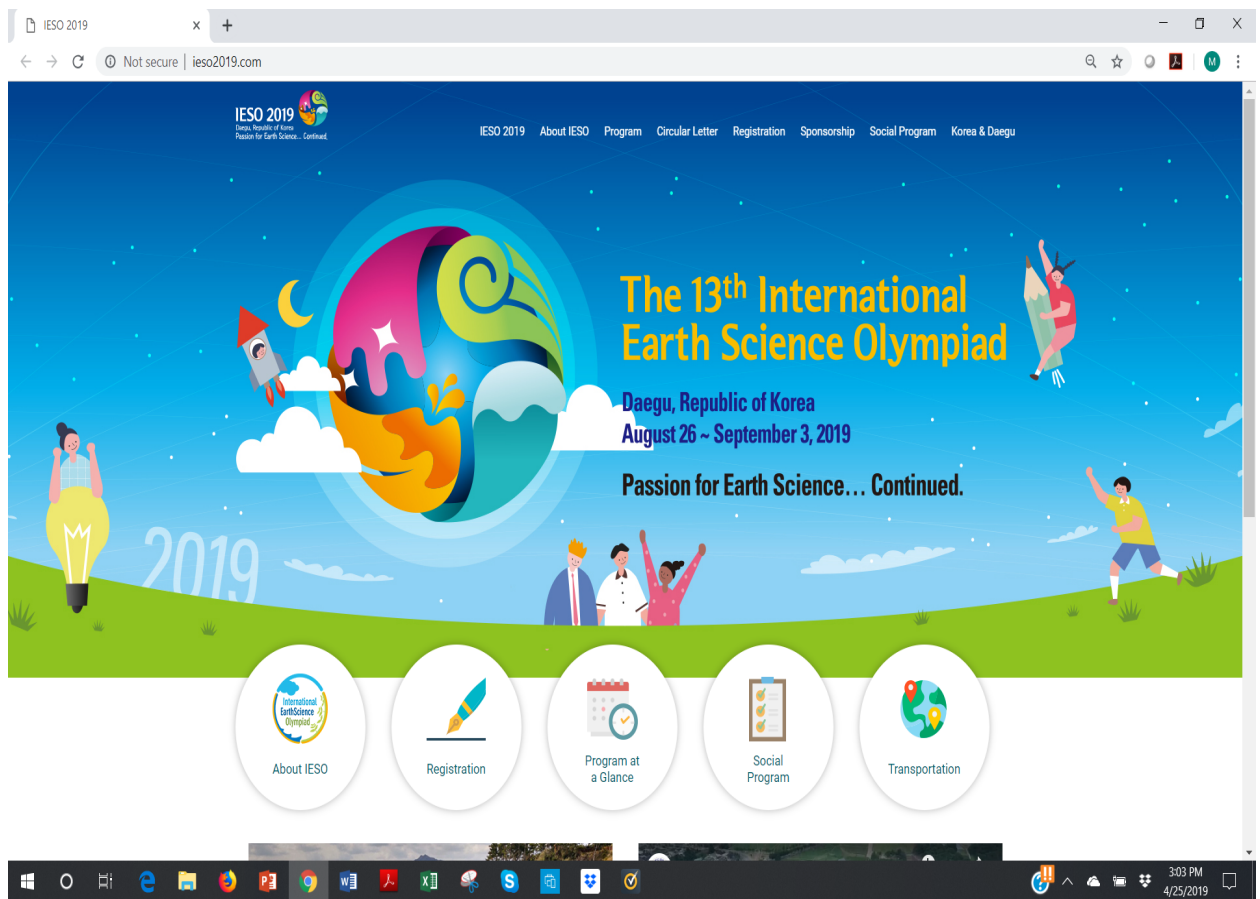
- a) foster communications between geoscience educators worldwide, particularly those from developing countries – for example, through supporting attendance of geoscience educators and teachers from developing countries at international conferences, particularly GeoSciEd conferences
- b) liaison with international and national bodies concerned with geoscience education, with international professional geoscience bodies, such as the International Union of Geological Sciences (of which IGEO is an affiliate) and with international bodies concerned with science education – for example, by supporting travel of Council members to key conferences and meetings, where necessary
- c) promote geoscience education internationally at all levels, to work for enhancement of the quality of geoscience education internationally – for example, through ‘pump- prime’ support for new initiatives
- d) encourage developments raising public awareness of geoscience, particularly amongst younger people – for example, by supporting geoscience outreach activities which are likely to have wide impact

2. **Who can apply for support?**
Any individual, institution or organization
3. **What amount of funding is available per year?**
100% of the raised money of the previous year, plus a maximum \$500 (USD) of our reserves
4. **What amount of funding may be granted to an applicant?**
A maximum of \$500 (USD) per grant or travel sponsorship award to an individual per occasion
5. **How does one apply for the money?**
Application by email or letter to the IGEO Secretary before the 1st of April. The application must include the objectives, dates, detailed costed information about the activity and specify how the funds will be spent. An individual/ organisation/ institution that received financial support from IGEO will not be funded again for the next three years.
6. **What are the responsibilities of the individual who has been granted funding?**
A detailed report (less than 1000 words, preferably containing photos) should be submitted once the applicant has successfully attended a conference, conducted any geoscience outreach activity etc. A report should be submitted within a month after the activity is over, to the IGEO Secretary, for potential publication on the IGEO website and in IGEO reports and newsletters.
7. **Who decides whether to support proposals?**
A majority of IGEO Senior Officers (currently five out of eight)

Check Out These Still-Timely Items in the January 2019 Newsletter

http://www.igeoscienced.org/wp-content/uploads/2019/01/Jan19_Newsletter.pdf

- p. 9 **[Geo-Cultural Trip to Rome and Naples 2019 and 1st International Field Course: "Teaching of Earth Sciences Through Contextualized and Interdisciplinary Perspectives"](#)** 19 May - 2 June 2019
- p. 13 **["10th International Conference of the African Association of Women in Geosciences Earth Sciences and Sustainable Development in Africa"](#)** Luanda, Angola, 27 - 31 July 2020
- p. 23 **[36th International Geological Congress 2nd Circular](#)**



The first International Earth Science Olympiads (IESO) was held in Daegu, Republic of Korea in 2007, and 13th International Earth Science Olympiad returns to the birthplace of the IESO. Early registration is now open.

Profs. Yong-Joo Jwa (chair of the Organizing Committee), Kiyong Lee (Chair of the Scientific Committee), Jae-Bak Kyung (Chair of the Korean Earth Science Education Association) and their colleagues are working diligently to organize and [welcome](#) this year's participants. Preliminary [plans for the program](#), [excursions](#) to locations of special interest, and [additional information](#) are now available.

The IESO is one of the major IEGO activities. IESO directly supports the aims of the IGeo to promote Geoscience education at all international levels, encourage and develop the public awareness of Geoscience, especially among young people, and improve the quality of Geoscience education all over the world.

The IESO is an annual competition for secondary school students (not older than 18 years old). Students skills are tested in all major areas of Earth sciences, including geology, geophysics, meteorology, oceanography, terrestrial astronomy and environmental sciences. The theoretical examination includes problems which measure knowledge and understanding. The practical examination consists of tasks which assess abilities to carry out scientific investigations in earth science inquiries. The examinations are prepared by specialists in Earth sciences and Earth science education. [For more information](#).